

NATURESCAPING FOR THE ROUGE RIVER

Restoring the Ecology of Our Home Landscapes



Sustainable landscapes exist with a minimum of outside energy, materials and labor. Sustainable landscapes retain organic materials and naturally replenish soil fertility. Rainwater is held and recycled on-site, reducing runoff and potential pollution. When individual sites are linked together to form corridors, significant benefits for water quality and biodiversity can be realized.

Sustainable landscapes support diverse communities of plants and animals, helping to maintain a sense of place. Sustainable landscapes use native plants which are suitable for the site. Native species are often clustered together to create ecosystems with special environmental benefits. Examples of small habitats for homes include rain gardens, bird or butterfly gardens, prairie meadows, bioswales, bio-hedges, and woodlands. Other areas of the home landscape may use non-native, non-invasive plants to meet design and maintenance goals.

Naturescaping is a three-step process which makes landscapes more sustainable.



Step #1: Remove invasive species

Step #2: Plant native species suited to the site

Step #3: Mulch the soil to protect roots, minimize weeds, hold moisture, and enhance soil health.

This bulletin sets forth definitions and considerations to help homeowners plan and manage their home landscape...with the Rouge River in mind.

What Are Native Plants?

Native plants (also called indigenous plants) are plants that have evolved over thousands of years in a particular region. Generally, plants that were in Michigan prior to European settlement in the early 1800s are considered "native".

Many plant species native to Michigan actually have wide geographic ranges. For maximum compatibility and adaptability, plants grown from local seed sources are recommended. Make sure, however, that the plants you purchase have been propagated and raised by a plant nursery – and have not been illegally collected from the wild.

Non-Native Plants

Non-native plants (also called alien plants, invasive plants, exotic species, or weeds) are plants that have been introduced into an environment in which they did not evolve. About 30% of Michigan's 2600 plant species are exotic species introduced in the last hundred years.

"Naturalized plants" are non-native species that are capable of establishing themselves in the environment without human care or cultivation. "Invasive plants" are aggressive, non-native plants that rapidly colonize an environment and crowd out native plants.

REFERENCES – NATIVE TREES AND SHRUBS

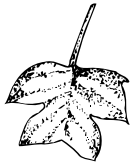
- **Michigan Flora Website**, presented by The University of Michigan Herbarium: www.michiganflora.net. You will find: botanical identification information, photos, habitats, native vs. alien, etc. Native and naturalized plants found outside cultivated gardens are included.
- **Native Plant Brochure Series** published by the Ann Arbor Natural Areas Preservation Office: 734-794-6627, for \$1.00 each. Descriptions with site characteristics for native plants of Southeast Michigan. Separate brochures for Native Trees; Native Shrubs; Native Wildflowers; & Native Vines, Grasses, Sedges and Ferns.
- **Native Trees, Shrubs, and Vines for Urban and Rural America**, by Gary Hightshoe, 1988.
- **Michigan Trees**, by Burton Barnes and Warren H. Wagner, Jr; 2004 (1981 1st ed.)

Forest Communities in Southeastern Michigan

A forest community type is a broadly defined ecosystem with a varied and complex assemblage of plants, animals, and other organisms living together in a common habitat.

Prior to European settlement in Southeast Michigan, there were three dominant forest plant communities:

- Beech – Sugar Maple Forest Community
- Oak – Hickory Forest Community
- Deciduous Swamp Forest Community



A review of pre-settlement vegetation maps and forest community information provides helpful information for the selection of native trees and shrubs. Visits to local nature centers are useful for learning about shrubs, wildflowers, grasses, pollinators, birds, and other wildlife associated with the forest communities and tree species listed below.



For further information:

- **Explore Our Natural World – A Biodiversity Atlas of the Lake Huron to Lake Erie Corridor**, 2002.
- **Atlas of Early Michigan's Forests, Grasslands, and Wetlands**, by D.A. Albert & P.J. Comer, Michigan Natural Features Inventory, 2008; \$29 mail order: see MNFI website.

Beech-Sugar Maple Forest Community*

Beech-sugar maple forests grow in damp, nutrient rich soils in well-drained lands. This forest community, dominated by the American beech and sugar maple species, covered most of southern Michigan and southwestern Ontario at the time of European settlement.

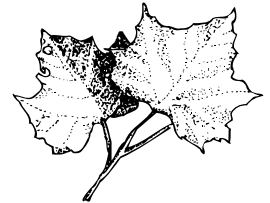
- American beech, *Fagus grandifolia*
- Sugar maple, *Acer saccharum*
- Red oak, *Quercus rubra*
- Basswood, *Tilia americana*
- White ash, *Fraxinus americana*
- Black walnut, *Juglans nigra*
- Tuliptree, *Liriodendron tulipifera*
- Bitternut hickory, *Carya cordiformis*
- Shagbark hickory, *Carya ovata*
- Slippery elm, *Ulmus rubra*
- Rock elm, *Ulmus thomasii*
- Alternate-leaf dogwood, *Cornus alternifolia*
- Blue ash, *Fraxinus quadrangulata*
- Downy serviceberry, *Amelanchier arborea*



Oak-Hickory Forest Community*

Oak-hickory forests occur most commonly on rolling ridges and well-drained sand plans where the drier conditions favor oak and hickory trees over moisture-loving beech and sugar maples. The rolling topography of Oakland County was once home to great expanses of these forests.

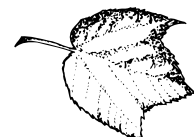
- White oak, *Quercus alba*
- Black oak, *Quercus velutina*
- Red oak, *Quercus rubra*
- Pignut hickory, *Carya glabra*
- Shagbark hickory, *Carya ovata*
- Black cherry, *Prunus serotina*
- Hop-hornbeam, *Ostrya virginiana*
- White ash, *Fraxinus americana*
- Witch-hazel, *Hamamelis virginiana*
- Downy serviceberry, *Amelanchier arborea*
- Flowering dogwood, *Cornus florida*
- Eastern red cedar, *Juniperus virginiana*
- Chinkapin oak, *Quercus muehlenbergii*
- Dwarf chinkapin oak, *Quercus prinoides*
- American chestnut, *Castanea dentata*
- Dwarf hackberry, *Celtis tenuifolia*



Hardwood (Deciduous) Swamp Forest Community*

Hardwood swamps are wetlands that are dominated by deciduous trees (not evergreens). Their soils usually are saturated and sometimes are under water. Before European settlement, hardwood swamps covered areas of flat, poorly-drained terrain. Species varied with local conditions. Many of these wet areas were drained by farmers or developers, so that the pre-settlement vegetation is no longer in evidence. Nevertheless, remnant pockets remain. These species are useful for very wet home landscapes and help to recycle water on-site.

- Red maple, *Acer rubrum*
- Black ash, *Fraxinus nigra*
- Yellow birch, *Betula alleghaniensis*
- American elm, *Ulmus americana*
- Silver maple, *Acer saccharinum*
- Blue-beech, *Carpinus caroliniana*
- Alternate-leaf dogwood, *Cornus alternifolia*



* Note: Partial list of tree species

Where To Find Native Trees And Shrubs

If you know the species you are looking for, and if you are patient and persistent, you will find a source.

Here are some sources to consider:

- **Michigan Native Plant Producers:** www.mnppa.org
- **ReLeaf Michigan:** releafmichigan.blogspot.com/
- **Greening of Detroit:** greeningofdetroit.com
- **Local garden centers**
- **Landscape contractors and certified arborists:**
Check membership with the Michigan Green Industry Association (MGIA) and the Michigan Nursery and Landscape Association (MNLA). For a directory of certified arborists go to the International Society of Arboriculture (ISA) website: www.isa-arbor.com/.

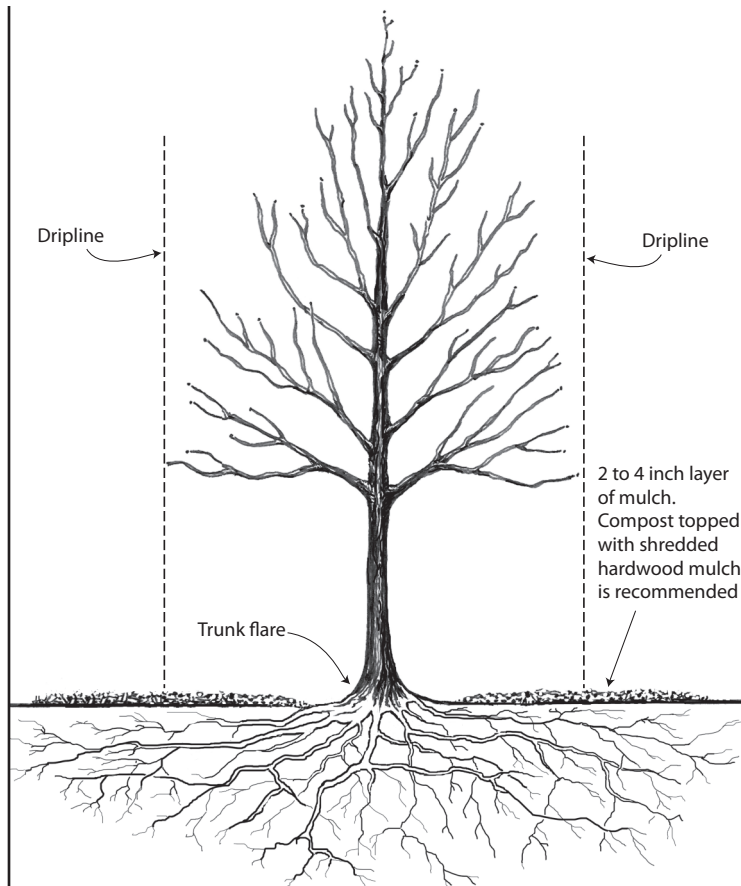
Biodiversity – The Amazing Variety Of Life On Earth

Within the broad goal of biodiversity, there are many landscape choices. Home gardeners and nature centers have the same challenge: the need to define landscape goals that can be achieved with limited time and financial resources.

If you can answer these questions, you are ready to move forward!

- Are you interested in attracting butterflies, bees, wasps, and other pollinators?
- Are you interested in birds and small mammals?
- Do you want to restore your property to a native plant community?
- Are you searching for plants and seeds with originated locally? (e.g., South Michigan or Northern Ohio genotypes?)

As you work on your plan, keep detailed records. By recording "desirable" and "undesirable" plants and locations, you will, over time, be able to see what you have accomplished.



NATURAL MULCHES FOR SOIL RENOVATION AND NATIVE PLANT ESTABLISHMENT

Natural organic mulches support healthy plants by retaining moisture, suppressing weeds, and gradually contributing nutrients and organic matter to the soil system.

Mulching is the last step in a naturescaping process. In its classic application, natural mulches are applied after invasive species have been removed... and native trees and shrubs are being planted. Recommended mulch materials include compost, shredded leaves from the site, and shredded, aged wood mulches.

When mulching around trees and shrubs, place a 2 to 4 inch layer around the base of the tree, extending out to the dripline of the branches, or beyond. Keep mulch 2 to 3 inches away from the trunk of the tree. Over 85% of all tree roots grow in the top 18 inches of the soil. For optimal plant health support, the layer of mulch should allow moisture (but not sunlight) to reach the soil surface.

A thick layer of mulch (more than 4 inches), underlain with cardboard or newspaper layers, is useful where the intent is to smother seedlings of invasive plants. This approach is a useful alternative to plastic sheeting which eventually needs to be removed.

Impacts of Non-Native Invasive Plants

Invasive species are a significant threat to Michigan's native biodiversity. They are aggressive competitors, often dominating an ecosystem and reducing native plant diversity dramatically. They have effective reproductive and dispersal mechanisms. Many store energy in extensive root systems and can sprout back repeatedly after cutting. Fruits and seeds are often widely dispersed and remain viable in the soil for years.



Some invasive shrubs and trees create dense shade, preventing the growth of native wildflowers beneath them. They may leaf out early in spring and retain leaves late in the fall. Some species secrete chemicals that inhibit the growth of neighboring plants or beneficial soil fungi. Invasive plants simplify ecosystem structure, and may alter site hydrology, nutrient cycles or patterns of other natural functions.

Priority Invasive Plants of Concern in Oakland County

Naturalists from the Oakland County Parks and Recreation have identified the following priority invasive species:

Tree of heaven	Common buckthorn
Autumn olive	Glossy buckthorn
Japanese honeysuckle	Oriental bittersweet
Spotted knapweed	Japanese barberry
Garlic mustard	Multiflora rose
Phragmites	Purple loosestrife
Norway maple	Black swallow-wort

Thousands of dollars...and thousands of hours of time are being devoted to the removal of these invasive species.

Control Strategies

- Inventory your property and map infestations.
- Identify areas with high diversity and ecological health. Carefully monitor these areas.
- Focus efforts on the outliers – to contain the spread.
- Work on early detection and quick response.
- Use proper timing of removal efforts to hit plants when they are most vulnerable.
- Remove seeds, berries and pods to control the spread.

REFERENCES & WEBSITES – IDENTIFICATION AND CONTROL OF INVASIVE PLANTS

A Field Identification Guide to Invasive Plants in Michigan's Natural Communities, 2009, by Phyllis Higman and Suzan Campbell, Michigan Natural Features Inventory, 2009. Descriptions and rapid response tips for 47 invasive plants. Purchase through www.msue.msu.edu/mnfi or 517-241-5436. Cost: about \$15 per copy.

Invasive Plants of the Upper Midwest: An Illustrated Guide to Their Identification and Control by Elizabeth J. Czarapata, University of Wisconsin Press, 2005, paperback book.

Websites

Global Invasive Species Initiative, by the Nature Conservancy: www.invasive.org/gist/esadocs.html

Invasive Plant Atlas of New England: <http://nbii-nin.ciesin.columbia.edu/ipane>. Includes catalogue of species with control techniques.

Michigan Natural Features Inventory: <http://mnfi.anr.msu.edu/invasive-species/controlsheets.cfm> Michigan Natural Features Inventory, with photos and control measures.

Midwest Invasive Plant Network: www.mipn.org.

U.S.D.A. – National Invasive Species Information Center: www.invasivespeciesinfo.gov/plants/main.shtml

“Wanted” fact sheets on invasives in Southeast Michigan: www.socwa.org, lawn and garden section: Prepared by Renee Zimmerman, Master Composter and Conservation Steward.

“Weeds Gone Wild: Alien Plant Invaders of Natural Areas”, The National Park Service; www.nps.gov/plants/alien; illustrated fact sheets.

Home gardeners can help protect water quality by restoring the ecology of their home landscapes and recycling storm water on site.

