



Garden Designs
for
Homeowners
3rd Edition

Landscaping for Water Quality

Garden Designs for Homeowners

3rd Edition



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This publication was produced by the Van Buren Conservation District with funding by the United States Environmental Protection Agency through the Michigan Dept. of Environmental Quality Non-point Source Program with technical review from the Michigan Natural Shoreline Partnership.



www.michigan.gov/nps



www.mishorelinepartnership.org

3rd Edition, 2nd printing; April 2014

Materials adapted from *Landscaping for Water Quality*; 2nd Edition; Oct. 2004; edited by Jane Secord; Center for Environmental Studies.

Printed in the United States



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Overview

Michigan is fortunate to have an abundance of high quality lakes and streams that everyone can benefit from for swimming, boating, fishing, drinking water or simply enjoying. When rainwater falls on a natural site, the vegetation and soils absorb and collect it. When rainwater falls on a man-made surface like a parking lot or roof top, it quickly runs off of it into storm drains and drainage ditches.

While proper drainage is needed to protect your home from water damage, the water picks up fertilizer, sediment, pesticides, and other pollutants, rapidly carrying them into waterways as it runs off of your property. Eventually, these waterways connect to lakes, streams, wetlands, rivers, and other bodies of water that can be harmed by these pollutants.



Illustration by Amelia Hansen

Landscaping for Water Quality:

Attractive, low cost landscape techniques that protect the quality of Michigan's lakes and streams

Rainwater run-off collected and filtered by landscape features

Prevents run-off from carrying pollutants into drains and ditches

Photo by Patricia Pennell

Water quality in the lakes and streams in your area can be improved by incorporating simple landscape features designed to collect and treat run-off water.

Rain Gardens

A rain garden is an area created to collect run-off water with a coarse or porous soil mixture of sand or gravel beneath a bed of native plants. Run-off water collects in the rain garden, soaks quickly into the soils, or is absorbed by the plants in the garden.



Illustration by Glenn Wolf

- As run-off water soaks into the ground, pollutants like sediment, fertilizer, and oil/grease are filtered out
- When groundwater reaches a lake or stream it is cleaner
- Information on rain gardens: www.raingardens.org

Buffers

Buffers are areas of property that are not mowed or gardens of densely planted native species placed between your lawn, house, or driveway, and the location where run-off water leaves your property. Like a rain garden, they are designed to filter sediment, fertilizer, and pollutants from the water before it runs into a lake or stream.



Illustration by Amelia Hansen

- Shade from buffers also cools your yard during hot summer days
- Run-off that passes through a buffer is cleaner



Did You Know?

One pound of phosphorus fertilizer can produce 500 pounds of algae!

Improve Water Quality
Prevent Erosion
Reduce Flooding
Save Water
Provide Habitat

Landscape features with native vegetation help prevent erosion from run-off by increasing the infiltration of water into the soils, slowing water flow, and cushioning the force of falling raindrops.

Buffers & Rain Gardens

- Collect and hold run-off water
- Spread out run-off water
- Slow the speed of the water flow



Photo by Jim Brueck

As water flows over your property, these landscape features are designed to decrease the speed of water flow and reduce its ability to erode soil and sediment. They either collect and stop the water flow, or the leaves and stems spread run-off out over a larger area to slow it down and reduce its scouring capacity.



Illustration by Glenn Wolf

Native Vegetation

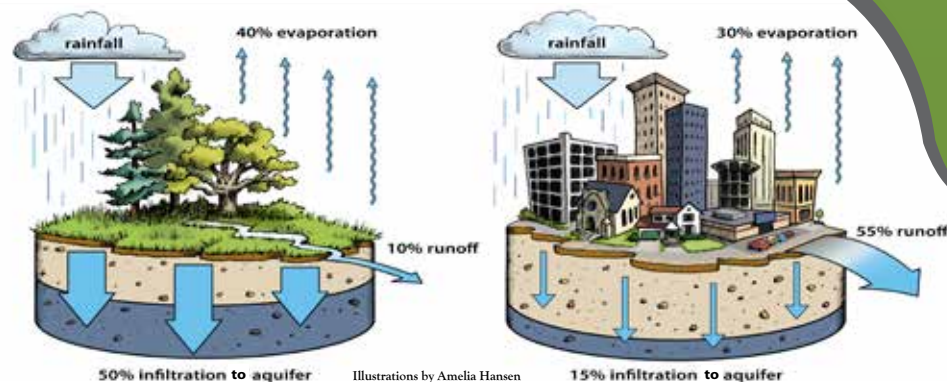
- Leaves and branches cushion falling rain
- Deep roots hold the soil in place
- Root channels allow water to soak into soil

Do You Own Waterfront Property?

If you own property along the shoreline of a lake or river, buffer strips with native vegetation can prevent loss of valuable property. Native vegetation along the shoreline absorbs the energy of waves and wind to prevent shoreline erosion. Lawn at the water's edge is a common cause of property loss, because the roots are too shallow to hold the soil when water splashes on the shore.

As a Great Lakes state, Michigan receives a large amount of precipitation. We have over 36,000 miles of streams, 11,000 lakes, and more Great Lakes coastline than any other state in the US. Michigan's waterbodies make our state a great place to live, but also make our homes frequently near water, and subject to flooding.

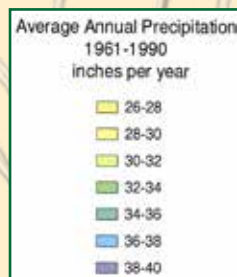
Vegetation



On a half acre property, 13,500 gallons of water – or about 225 bathtubs worth – falls in a 1 inch rainstorm. Most of the rain that falls on driveways, roofs, decks, and lawns runs off of your property into streams, ditches, and storm sewers. A fully vegetated lot discharges only about ¼ of the run-off of the typical residential property.

Rivers and Streams

Landscape features, like buffers and gardens, can lessen run-off from your property, and reduce water levels in rivers and streams during flood events.



Did You Know?

We receive between 2 and 3 feet of precipitation each year in Michigan!

Improve Water Quality
Prevent Erosion
Reduce Flooding
Save Water
Provide Habitat



Like rain gardens and buffers, rain barrels can also reduce run-off from your property. They collect run-off from your roof and store it. This water can be used for watering during dry periods, reducing your water usage.

Rain barrels are connected to the downspout from your roof. They have an overflow hose connected near the top. They also have a soaker hose connected to a valve near the base to release water slowly to irrigate your landscaping or water quality garden.

Rain Barrels

- Store run-off from your roof
- Prevent erosion from gutter downspouts
- Reduce your water bill during dry periods
- Irrigate your gardens with minimal effort

How Big Does My Rain Barrel Need To Be?



The size of your roof determines the size of the rain barrel needed. One inch of rainfall on 100 ft² (10 ft x 10 ft) roof yields 60 gallons of water. In Michigan, you can expect approx. 5-7 rainfalls of 1 inch in a year with average rainfall.

Roof Square Footage x 0.6 = Rain Barrel Size in Gallons

Recent studies by the Michigan DNR and the US EPA have identified development of shoreline property as the most critical threat to wildlife and water quality of lakes in Michigan. Using native plants in buffers and gardens can provide habitat for wildlife.

Songbirds

Planting trees and shrubs can provide food, shelter, and nesting habitat for songbirds.

Butterflies and Hummingbirds

Nectar gardens for butterflies and hummingbirds can be created by planting native species from which these animals feed. The first Sunny Garden Layout provided in the “Designing Your Garden” section on page 15 can also be used to attract butterflies.

Frogs and Dragonflies

Wet gardens that use native plants can provide breeding and nursery habitats for wetland wildlife like frogs and dragonflies. Since dragonflies eat mosquito larvae, they can help control pests.

Fish

Riparian buffers along lakeshores and streams provide spawning and nursery habitats for fish. Sixty-five native species of fish are known to use near shore areas in Michigan.



Want to Know More?

Check out the Minnesota DNR guide-book *Lakescaping for Wildlife and Water Quality* at:

www.dnr.state.mn.us/publications

Improve Water Quality
Prevent Erosion
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Save Water
Provide Habitat

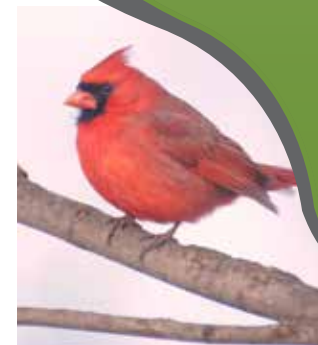


Photo by Amy Peterson



Photo by Amy Peterson



Photo by Amy Peterson



Photo by In Fisherman

Section 2: Designing Your Garden Sample Designs



This section is designed to help you plan a simple and effective water quality garden. These steps can help you to rethink the landscaping on your entire property, or just incorporate a garden into the existing landscape.

Planning Your Garden

- Assess your property to determine the existing conditions and how water flows over it.
- Draw a base map to assist with identifying an appropriate location for a water quality garden.
- Consider alternative designs and materials to encourage rain water infiltration and reduce run-off.
- Design your garden with plants that are appropriate for the conditions on your property.

A few simple concepts are central to all water quality gardens. Actively encourage filtration, storage, or infiltration of water into the ground. Water quality gardens can include prairie areas, wetland areas, and very wet areas depending on the amount of surface water available on your property. They can also incorporate rock gardens, patios, pathways and other landscape features provided the run-off that comes from them is captured.

Ideas to Consider

- If you are starting from scratch with new construction, incorporate water quality gardens in low areas where water ponds or accumulates.
- Minimize hard surfaces, use porous materials, or use water quality gardens to capture water from these surfaces.
- Replace turf grass with trees, shrubs, and ground cover to intercept and disperse rainfall, and create shade.

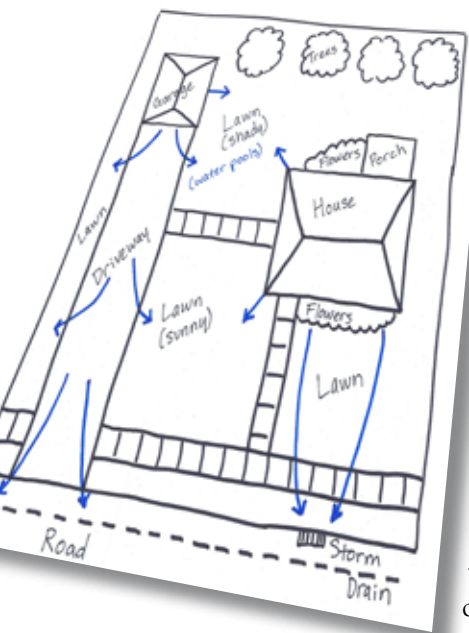
Assess Your Property

Review your property to identify existing structures, landscaping, water flow patterns, and sun and shade areas.

Identify hard surfaces that will encourage run-off, and landscape features that will disperse or direct the flow of rainfall.

Identifying Water Flow Patterns

- Go outside immediately after a big rainstorm and follow the path of water flow.



- Look for leaves, pine needles, twigs, and soil patterns created by the movement of water.
- Follow the water pathways uphill to their source and downhill to the storm sewer, ditch, or low areas on your property.

Develop a Base Map

A useful tool for assessing your property is a base map. Your base map helps you visualize the location of important features on your property. A good base map can help you identify the location, size, and type of changes to make to improve the quality of water coming from your property.

- Include existing hard structures, like buildings, drives, walkways, patios and decks.
- Identify existing trees, shrubs, lawns and gardens that create shady and sunny areas.
- Illustrate the water pathways with arrows, and identify areas where water collects.

Consider Your Property Needs

Consider landscape features that will collect, store, and disperse rainfall that falls on your property. To do this minimize hard surfaces and lawn. Divide areas of lawn and hard surfaces with native plants or gardens. Plant trees, shrubs and ground cover at run-off sources such as buildings, drives, and walkways.

Desired Uses and Needs

When deciding how much space can be dedicated to water quality features, consider your desired uses and needs for the property.

- How much area is needed for play, relaxing, storage or septic fields?
- Is privacy needed from adjacent properties?
- Is attracting wildlife important?
- What restrictions do city, township, or subdivision associations put on landscaping features?



Illustration by MSU Extension

Do You Have Problems With Wash-outs or Erosion?

On gently sloping areas, strategically placed rocks mixed with plants to hold the soils in place can be very effective.

Examples of plants that could work well in these areas: Cord Grass (*Spartina pectinata*), Sedges (*Carex sp.*), or Canada Wild Rye (*Elymus canadensis*).



Illustration by MSU Extension

Encourage Infiltration

A properly designed water quality garden captures run-off water and holds it long enough for it to soak into the ground.

This is known as run-off infiltration. If the site you select for your garden has too much clay in the soil, it is necessary to modify the soils with a gravel base or underdrain to ensure infiltration.

Identifying Soils

Soils usually have varying amounts of sand, loam, or clay in them. Determine what type of soil you have and modify the soil, as appropriate, to ensure infiltration.

Soil Type	Ribbon Length	Type of Garden
Sand	0-1/2 in.	Use the existing Soil
Sandy Loam	1/2-1.0 in.	Use the existing soil
Clay Loam	1.0-1.5 in.	Use the existing soil
Clay	> 1.5 in.	Use Gravel Base or Underdrain

- Collect a handful of soil and moisten it.
- Make a small ball in your hand, and create a ribbon of soil by pushing part of it between your thumb and forefinger.
- Measure the length of the ribbon that stands up above your thumb and forefinger without falling apart to determine what type of soil you have.

Consider Porous Pavement

When constructing pathways consider using porous alternatives like stepping stones, porous pavers, or porous concrete that allow water to infiltrate into the ground.



Gravel Base and Underdrain



Stepping Stones



Porous Pavers



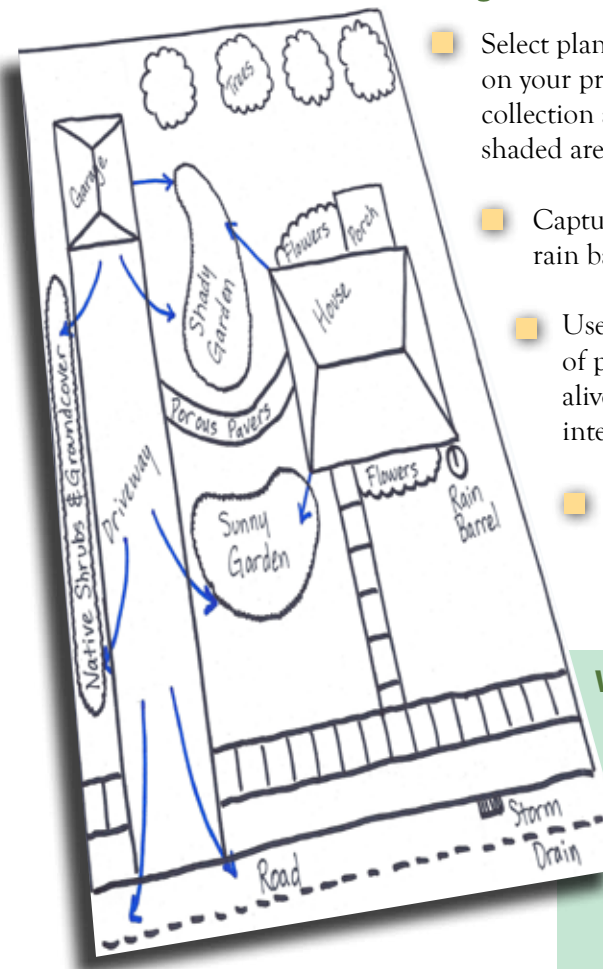
Porous Concrete

Create A Plan

Once you have considered all of your design needs, use your original base map to create a plan. Place water quality gardens strategically in low areas and at the ends of water flow pathways to capture and store run-off. Break up run-off from water flow sources with regular gardens, trees and groundcover. Incorporate your property needs creatively into the design.

Things to Keep in Mind

- Select plants that fit the conditions on your property: wet species in water collection areas, sunny species for non-shaded areas, and so forth.
- Capture rainwater from roofs in rain barrels.
- Use multiple species and a blend of plant heights to keep color alive, maintenance down, and interest year round.
- Neat edges and fences instill a look of care; remember, this is your property - make sure it looks good!



What is Groundcover?

Groundcover is vegetation that has short height and spreads easily with runners and rhizomes, like Wild Ginger or Violets in shade, and Wild Strawberry or Yarrow in sun.

Installing Your Garden

Preparing the Site

It is important to start by removing or killing the existing sod. In flat, upland areas, simply cut the sod away. In sloped, wet areas, or along the shoreline of lakes or streams, it is better to kill the grass with an appropriate herbicide to minimize erosion into the waterbody. Make sure you seek the assistance of a licensed herbicide applicator, if you use this approach.

If planting a buffer along a lake or stream, use the existing contour of the shoreline. If creating an upland water quality garden, create a depressional area at the center about 4"-5" deep, with gradually sloping sides.

Planting

- Choose plants that best fit the sun/shade and water conditions indicated in the plant list.
- If purchasing plant plugs of native species, plan for 1 plant for every square foot of garden.
- Planting can occur from spring to fall, but for best results plant during the spring.
- Water generously when planting and for the first 2-3 years while plants become established.
- If using native species that fit the conditions on-site, watering is not usually needed after 1-2 years, and fertilizer is not needed at all!

Finishing and Maintenance

- To minimize weeds, consider groundcover species to spread out between wildflowers, grasses, trees and shrubs.
- Initially use coarse chopped wood chip mulch to stabilize soils and prevent unwanted plants and weeds.
- Before plant shoots come up in the spring, cut and remove dead foliage to a height of 6 inches.

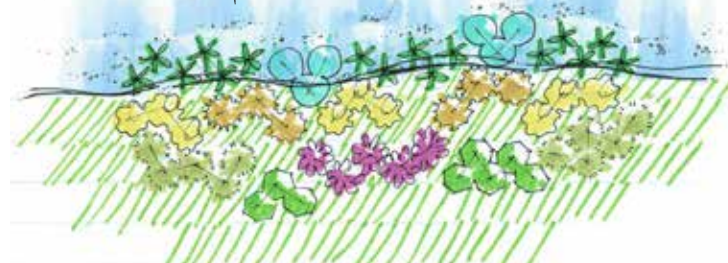
Shoreline Garden Layouts

SUNNY, TALL
GARDEN: MOIST SHORELINES



- ✱ LAKE SEDGE (*Carex lacustris*)
- ✱ GREEN BULRUSH (*Scirpus atrovirens*)
- ✱ MARSH MILKWEED (*Asclepias incarnata*)
- ✱ SWAMP ASTER (*Aster puniceus*)
- ✱ LANCE-LEAVED COREOPSIS (*Coreopsis lanceolata*)
- ✱ BONESET (*Eupatorium perfoliatum*)
- ✱ GREAT BLUE LOBELIA (*Lobelia siphilitica*)

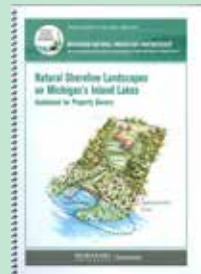
SUNNY, MEDIUM
GARDEN: DRY TO MOIST SHORELINES



- ✱ SOFT RUSH (*Juncus effusus*)
- ✱ BLUE FLAG IRIS (*Iris versicolor*)
- ✱ FOWL MANNA GRASS (*Glyceria striata*)
- ✱ GOLDEN ALEXANDERS (*Zizia aurea*)
- ✱ CANADA ANEMONE (*Anemone canadensis*)
- ✱ MARSH BLAZING STAR (*Liatris spicata*)
- ✱ NODDING ONION (*Allium cernuum*)

Illustrations by Bob Dompierre

Do You Have Waterfront Property?



Check out *Natural Shoreline Landscapes on Michigan's Inland Lakes: A Guidebook for Property Owners*.

To order, go to:

www.mishorelinepartnership.org/

Sunny Garden Layouts



SUNNY SLOPES:
DRY TOP; WET
BOTTOM

-  BUTTERFLY WEED (*Asclepias tuberosa*)
-  MAY NIGHT SALVIA (*Salvia x superba*)
-  PURPLE CONEFLOWER (*Echinacea purpurea*)
-  TALL COREOPSIS (*Coreopsis tripteris*)
-  FIREWEED (*Epilobium angustifolium*)
-  PURPLE JOE PYE WEED (*Eupatorium purpureum*)
-  BONESET (*Eupatorium perfoliatum*)



SUNNY, WET AREAS

-  MISSOURI IRONWEED (*Vernonia missurica*)
-  BLUE FLAG IRIS (*Iris virginica*)
-  CARDINAL FLOWER (*Lobelia cardinalis*)
-  LITTLE BLUESTEM (*Schizachyrium scoparium*)
-  BLAZING STAR (*Liatris spicata*)
-  GREAT BLUE LOBELIA (*Lobelia siphilitica*)
-  GOLDEN ALEXANDERS (*Zizia aurea*)

Illustrations by Bob Dompiere

Shady Garden Layouts

SHRUB GARDEN:
MOIST AREAS



-  LARGE CRANBERRY BUSH (*Vaccinium macrocarpon*)
-  CULVERS ROOT (*Veronicastrum virginicum*)
-  MAPLE LEAF VIBURNUM (*Viburnum acerifolium*)
-  HAPPY RETURNS DAYLILY (*Hemerocallis 'Happy Returns'*)
-  BLANKET FLOWER (*Gaillardia pulchella*)
-  MEADOWSWEET (*Spiraea alba*)

WOODLAND GARDEN: DRY AREAS



-  JACK IN THE PULPIT (*Arisaema triphyllum*)
-  WHITE BANEERRY (*Actaea pachypoda*)
-  WOOD POPPY (*Stylophorum diphyllum*)
-  TALL BELLFLOWER (*Campanula americana*)
-  WILD GINGER (*Asarum canadense*)
-  MAIDEN HAIR FERN (*Adiantum pedatum*)
-  GOLDEN EDGED HOSTA (*Hosta fortunei*)
-  WILD GERANIUM (*Geranium maculatum*)

Illustrations by Bob Dompiere

Section 3: Plant List



Using the Plant List

The following plant list has been developed to help make plant selection a little easier. The majority of the plants included in this list are native to Michigan though there are a few non-native plants included. For most of the non-native species there is also a native plant that would be a good substitute. There are many more Michigan native plants than what has been included on this list. The plants on this list were chosen because, in general, they are fairly easily found on the market and have a broad distribution across the state. Plants that are typically difficult to grow or are on the state threatened or endangered list were left off though they may be available through a reputable native plant grower.

Choosing the Right Plant

Choosing the right plant for the location can make establishing a garden easier. It reduces the amount of maintenance and watering necessary, and can eliminate the need to augment the soil to start your garden. This list is divided into categories that will help you to choose the right plant.

- Watering can be reduced by choosing native species and planting them in accordance with the “water needs” category on the list.
- Choosing the proper plant height ensures that the plants do not over-grow the space that they are intended to occupy.
- A diversity of plants with bloom times that occur throughout the year enables you to enjoy the garden in each season.
- The notes column of the list can be very useful for selecting soil types, choosing plants that attract wildlife, and plants with attractive foliage.
- Foliage can be used to add color and texture to any garden, especially, grasses, sedges, and rushes.
- Don't forget to use your Base Map and Site Plan to assist you in selecting plants with the right characteristics!

Legend

Plant Names

Common names of plants are not standardized, so it is possible when purchasing plants that they will be listed under another name. To be certain that you are purchasing the correct plant, look at the tag for the botanical name. This will ensure that you find the plant that is listed, and may also help you to find good substitutions.

Plant Height

Plant height ranges are given, because plants can vary in height based upon the influence of water, sun exposure, and proximity to other plants. Note, however, that plant heights can often be limited by pruning, especially grasses, sedges, shrubs and trees.

Light Preferences

● = Full Sun ◐ = Partial Sun ● = Shade

Native vs. Non-Native

In most instances, there is a native species that can substitute for a non-native species. Native species tend to have deeper root systems, require less fertilizer and water, and provide better habitat.

The (★) column indicates a species native to Michigan.



Plant List

Wildflowers

Plant Names		Height (ft)	Bloom Time	Flower Color	Water Needs	Sun	★	Notes
Botanical	Common							
<i>Achillea filipendula</i>	Moonshine Yarrow	2-4	June-Sept	Yellow	Med	☉		Resistant to deer; aromatic leaves; use in dried flower arrangements
<i>Achillea millefolium</i>	Yarrow	1-4	June-Sept	White	Med-Dry	☉	★	Can be aggressive; drought tolerant
<i>Actaea pachypoda</i>	White Baneberry	1-2	May	White	Med	☾●	★	Woodland plant with showy white flowers followed by white berries
<i>Actaea rubra</i>	Red Baneberry	1-2	May	White	Med	☾	★	Woodland flower with textured foliage; red berries; native <i>Astilbe</i> substitute
<i>Alchemilla mollis</i>	Lady's Mantle	1-2	May-Aug	Yellow	Med	☉☾		Attractive groundcover; dried flower arrangements; clump-forming
<i>Alisma subcordatum</i>	Water Plantain	2-3	June-Sept	White	Wet	☉	★	Must be kept in moist to flooded areas; waterfowl food; fast growing
<i>Allium cernuum</i>	Nodding Onion	1-2	May-Aug	Pink	Med-Dry	☉☾	★	Best in sandy soils; clump-forming; attractive garden plant
<i>Amorpha canescens</i>	Lead Plant	2-3	May-Aug	Purple	Med-Dry	☉☾	★	Attracts butterflies; spike flowers; drought tolerant; long-lived
<i>Anemone canadensis</i>	Canada Anemone	1-2	May-July	White	Med-Wet	☉☾	★	Spreads aggressively; delicate 1-2" flower, deep green leaves
<i>Anemonella thalictroides</i>	Rue Anemone	½-1	April-June	White	Med	☾●	★	Long-lasting spring blooms; native to southern Michigan; groundcover
<i>Aquilegia canadensis</i>	Columbine	2-3	May-July	Red	Med	☉☾●	★	Deer deterrent; attracts hummingbirds; best in partial shade gardens
<i>Arisaema tryphyllum</i>	Jack-in-the-Pulpit	1-2	April-June	Purple	Med-Wet	☾●	★	Attractive shade plant; bright red fall fruit; easily grown from seed
<i>Asarum canadense</i>	Wild Ginger	½-1	April-May	Red	Med-Wet	☾●	★	Medicinal uses; satiny, deep-green, heartshaped leaves; groundcover
<i>Asclepias incarnata</i>	Marsh Milkweed	1-2	June-Sept	Pink	Med-Wet	☉	★	Deep root; clump-forming; attracts butterflies; attractive garden plant
<i>Asclepias tuberosa</i>	Butterfly Weed	1-3	June-Aug	Orange	Dry	☉☾	★	Gorgeous bed plant; attracts butterflies; medicinal uses; poisonous
<i>Aster laevis</i>	Smooth Aster	2-4	Aug-Oct	Variable	Med-Dry	☉	★	Grows well in sand; blooms late; attracts butterflies
<i>Aster novae-angliae</i>	New England Aster	3-6	Aug-Oct	Purple	Med	☉☾	★	Medicinal uses; attracts butterflies; rabbit deterrent; prefers sand
<i>Aster puniceus</i>	Swamp Aster	3-6	Aug-Oct	Lav/White	Wet	☉☾	★	Spreads opportunistically from rhizomes
<i>Aster umbellatus</i>	Tall Flat Top White Aster	3-7	Aug-Sept.	White	Med-Wet	☉☾	★	Attracts butterflies and birds; wonderful garden plant
<i>Astilbe arendsii</i>	Pink Astilbe	3-5	June-July	Pink	Med-Wet	☾●		Gorgeous floral spike; dark green foliage; great addition to shade bed
<i>Belamcanda chinensis</i>	Blackberry Lily	1-2	Aug-Sept	Orange	Dry	☉		Delicate flowers followed by blackberry seeds; drought tolerant
<i>Caltha palustris</i>	Marsh Marigold (Cowslip)	½-2	March-May	Yellow	Wet	☉☾	★	Attracts butterflies; soft spongy roots; best along stream banks; early bloom
<i>Campanula americana</i>	Tall Bellflower	2-6	July-Oct	Blue	Med	☉☾●	★	Fabulous star shaped flowers; easily grown
<i>Campanula rotundifolia</i>	Harebell	1-1½	July-Sept	Blue	Med-Dry	☉☾	★	Attracts butterflies; fond of sandy soil; gorgeous garden plant



Plant List

Wildflowers

Plant Names		Height (ft)	Bloom Time	Flower Color	Water Needs	Sun	★	Notes
Botanical	Common							
<i>Cassia hebecarpa</i>	Wild Senna	4-6	July-Aug	Yellow	Med-Wet	☀	★	Attracts butterflies; fond of sandy soil; gorgeous garden plant
<i>Chelone glabra</i>	Turtlehead	1-3	July-Oct	Variable	Med-Wet	☀☂	★	Unique flower; prefers compost mulch
<i>Coreopsis lanceolata</i>	Lance-leaved Coreopsis	2	June-July	Yellow	Dry	☀	★	Grows in sandy or loam soils; readily re-seeds; attracts birds and butterflies
<i>Coreopsis tripteris</i>	Tall Coreopsis	3-6	July-Sept	Yellow	Med-Dry	☀	★	Tolerant to heat, humidity and drought; a colorful addition to a bed
<i>Coreopsis verticillata</i>	Moonbeam Coreopsis	1-3	June-Sept	Yellow	Med-Dry	☀		Delicate foliage; low maintenance; drought tolerant; tolerates poor soils
<i>Echinacea purpurea</i>	Purple Coneflower	2-3	June-Aug	Purple	Med-Dry	☀☂		Non-native in Michigan; medicinal uses; popular, easy to grow garden plant
<i>Epilobium angustifolium</i>	Fireweed	2-6	June-Aug	Pink	Med-Wet	☀☂	★	Attracts butterflies; striking flower; aggressive in wet, disturbed areas
<i>Eupatorium maculatum</i>	Joe-Pye Weed	4-6	July-Sept	Pale Pink	Med-Wet	☀	★	Flower clusters up to 6" across; attracts butterflies
<i>Eupatorium perfoliatum</i>	Boneset	4-6	Aug-Oct	White	Med-Wet	☀☂	★	Tolerant of sandy and clay soils; clump-forming; fuzzy cluster blossoms
<i>Eupatorium purpureum</i>	Purple Joe-Pye Weed	5-7	Aug-Sept	Pink	Med	☀	★	Clump-forming; fragrant; attracts butterflies; attractive addition for a garden
<i>Eupatorium rugosum</i>	White Snakeroot	1-5	July-Oct	White	Dry	☀☂●	★	Beautiful cut flower; poisonous if ingested
<i>Fragaria virginiana</i>	Wild Strawberry	½	April-June	White	Med-Dry	☀☂	★	Groundcover; beneficial to wildlife; edible fruit
<i>Gaillardia pulchella</i>	Blanket Flower	1-2½	May-Sept	Red/Yellow	Med-Dry	☀☂		Daisy-like red and yellow blossoms; Dense colonies; easily grown from seed
<i>Geranium himalayense</i>	Johnson's Blue Geranium	1-2	May-June	Blue	Med	☀☂		Easy to grow; also called Cranesbill; clump-forming
<i>Geranium maculatum</i>	Wild Geranium	1-2	April-May	Pink	Med	☀☂●	★	Clump-forming; great addition to shade beds
<i>Helenium autumnale</i>	Sneezeweed	2-5	July-Oct	Yellow	Med-Wet	☀☂	★	Avoid fertilizer; bright yellow daisy-like flowers
<i>Helianthus giganteus</i>	Tall Sunflower	3-12	July-Oct	Yellow	Med-Wet	☀☂	★	Tall, bright addition to a partial shade garden, 4" wide flower
<i>Heliopsis helianthoides</i>	Oxeye or False Sunflower	2-5	June-Sept	Yellow	Med-Dry	☀☂	★	Easily grown; native to Eastern US; grows well in clay
<i>Hemerocallis "Happy Returns"</i>	Happy Returns Daylily	½-2	May-Aug	Yellow	Med	☀☂		Heat tolerant; long flower season; gorgeous addition to any bed
<i>Hepatica americana</i>	Round-Lobed Hepatica	½-1	April-May	Blue/White	Med-Dry	☂●		Delicate 1" star-shaped flower; great ground cover in shade garden
<i>Hosta fortunei</i>	Golden-Edged Hosta	1-2	June-Aug	Purple	Med	☂●		Beautiful foliage; great addition to shade gardens; mass for groundcover
<i>Hosta plantaginea</i>	August Lily Hosta	2	Aug	White	Med	☂●		Shiny foliage; fragrant flowers; great planted close together as groundcover
<i>Hydrophyllum virginianum</i>	Virginia Waterleaf	1-3	May-Aug	White	Med-Wet	☂●	★	Medicinal properties
<i>Iris virginica</i>	Blue Flag Iris	2-3	May-July	Blue	Med-Wet	☀☂	★	Gorgeous perennial; attracts butterflies; does well in shallow water



Plant List

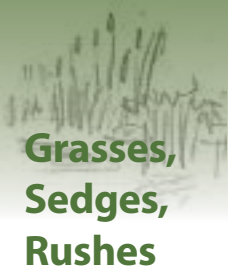
Wildflowers

Plant Names		Height (ft)	Bloom Time	Flower Color	Water Needs	Sun	★	Notes
Botanical	Common							
<i>Liatris aspera</i>	Rough Blazing Star	2-5	Aug-Sept	Purple	Med-Dry	☀	★	Drought tolerant; attracts butterflies; blooms late in season
<i>Liatris spicata</i>	Dense or Marsh Blazing Star	1-3	July-Sept	Purple	Med	☀☾	★	Drought tolerant; used in cut flower arrangements; feathery plume
<i>Lobelia cardinalis</i>	Cardinal Flower	2-6	July-Oct	Red	Med-Wet	☀☾●	★	Bright red flower attracts hummingbirds/butterflies; replant with seedlings
<i>Lobelia siphilitica</i>	Great Blue Lobelia	1-4	July-Sept	Blue	Med-Wet	☀☾	★	Easily grown; attracts hummingbirds; grows well in a variety of soils
<i>Mimulus ringens</i>	Monkeyflower	1-3	June-Sept	Purple	Med-Wet	☀☾	★	Great for wet areas; interesting flower shape
<i>Mitchella repens</i>	Partridgeberry	<1	June-Sept	Pink	Med-Dry	●	★	Produces red fruit; medicinal uses; food source for wildlife; groundcover
<i>Monarda fistulosa</i>	Wild Bergamot; Bee Balm	2-4	June-Sept	Purple	Med-Dry	☀☾	★	Aromatic; attracts butterflies/hummingbirds; medicinal uses; can be aggressive
<i>Monarda punctata</i>	Horsemint	1-3	July-Sept	Yellow	Med-Dry	☀	★	Attracts hummingbirds; likes sandy soil
<i>Nymphaea tuberosa</i>	White Water Lily	1-5	July-Aug	White	Dry	☀☾	★	Beautiful aquatic plant; tuber; floating leaves/flowers; beneficial to wildlife
<i>Oenothera biennis</i>	Common Evening Primrose	2-5	June-Oct	Yellow	Med	☀	★	Opens in evening; used in dried flower arrangements; can be aggressive
<i>Peltandra virginica</i>	Arrow Arum	1-2	May-July	Yellow	Wet	☀☾●	★	Salt /pH tolerant; grows in water; used in buffer zones; beneficial to wildlife
<i>Penstemon digitalis</i>	Foxglove Beard Tongue	3-4	May-June	White	Med-Dry	☀☾●	★	Ornamental; beautiful flower and foliage; attracts butterflies/hummingbirds
<i>Penstemon hirsutus</i>	Hairy Beard Tongue	1-3	May-July	Purple	Med-Dry	☀☾	★	Versatile plant; low growing; early summer bloom; likes sandy soil
<i>Phlox divaricata</i>	Woodland Phlox	1-3	April-June	Blue	Med	☀☾●	★	Can be aggressive; gorgeous 1½" flower; Caution - No invasive <i>Phlox paniculata</i>
<i>Phlox pilosa</i>	Sand Prairie Phlox	1-2	May-June	Pink	Med-Dry	☀☾	★	Early flowering prairie plant; ornamental
<i>Physostegia virginiana</i>	Obedient Plant	2-5	Aug-Oct	Pink	Med	☀☾●	★	Nectar source; spreads by small rhizomes to carpet area
<i>Podophyllum peltatum</i>	May Apple	1-2	April-May	White	Med	☾●	★	Medicinal uses; dormant in summer; early bloom; produces yellow fruit
<i>Polygonatum biflorum</i>	True Solomon Seal	1-3	May-June	Yellow	Med-Wet	☾●	★	Bell-shaped flowers; black berries in fall; beneficial to wildlife
<i>Pontederia cordata</i>	Pickernelweed	2-4	May-Oct	Blue	Wet	☀☾	★	Provides wave buffering along shoreline; wildlife benefits; grows in water
<i>Potentilla simplex</i>	Common Cinquefoil	½-1½	April-June	Yellow	Wet	☀☾●	★	Groundcover; dainty flower; attracts butterflies; early bloomer
<i>Ratibida pinnata</i>	Yellow Coneflower	3-5	July-Sept	Yellow	Med-Dry	☀	★	Long, drooping petals; wildlife benefits; long-lived; prefers sandy/clay soils
<i>Rudbeckia hirta</i>	Black-Eyed Susan	1-3	Aug-Sept	Yellow	Med-Dry	☀☾	★	Erosion control plant; wildlife benefits; biennial; does well in sandy soils
<i>Rudbeckia laciniata</i>	Cut-Leaved Coneflower	3-10	Aug-Sept	Yellow	Med-Wet	☀☾	★	Easily grow; great for wet areas; grows well in variety of soils
<i>Rudbeckia triloba</i>	Three-Lobed Coneflower	2-5	July-Oct	Yellow	Med	☀☾	★	Thick, low, wet, woods, rocky slopes; long blooming season; attracts butterflies

Plant List

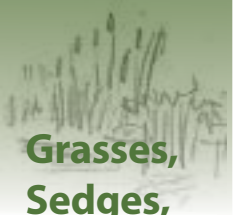
Wildflowers

Plant Names		Height (ft)	Bloom Time	Flower Color	Water Needs	Sun	★	Notes
Botanical	Common							
<i>Sagittaria latifolia</i>	Arrowhead	1-4	July-Sept	White	Wet	☀ ☂	★	Aquatic plant; edible root; wildlife food source; great for water gardens
<i>Salvia X superba</i>	May Night Salvia	1-1½	April-June	Deep Blue	Med	☀ ☂		Very showy; wrinkled foliage; best in poor soil
<i>Sedum "Autumn Joy"</i>	Autumn Joy Sedum	1-2	Sept	Pink	Med-Dry	☀ ☂		Also called Stonecrop; succulent; drought tolerant; does not like clay
<i>Sedum "Vera Jameson"</i>	Purple Leaf Sedum	1	Aug-Sept	Pink	Med-Dry	☀		Ornamental foliage; succulent; drought resistant; clump-forming
<i>Sisyrinchium angustifolium</i>	Blue-Eyed Grass	½-2	May-July	Deep Blue	Med	☀ ☂	★	Low growing; clump-forming; grass-like foliage
<i>Sium suave</i>	Water Parsnip	2-6	July-Sept	White	Wet	☀ ☂	★	Aquatic plant; showy in bloom
<i>Solidago caesia</i>	Blue-Stemmed Goldenrod	2-3	Sept-Oct	Yellow	Med-Dry	☀ ☂ ●	★	Readily re-seeds; provides nectar for butterflies
<i>Solidago patula</i>	Roundleaf Goldenrod	3-6	Aug-Oct	Yellow	Med-Wet	☀ ☂	★	Provides nectar for butterflies
<i>Solidago speciosa</i>	Showy Goldenrod	1-4	July-Oct	Yellow	Dry	☀ ☂	★	Tall and wild; a true prairie species; nectar source
<i>Stachys lanata</i>	Lamb's Ear	½-2	June-July	Purple	Med-Dry	☀ ☂ ●		Furry leaves; drought resistant; can be aggressive; attracts butterflies
<i>Stylophorum diphyllum</i>	Wood Poppy	1-2	May-June	Yellow	Med-Wet	☂ ●	★	Woodland; requires consistently moist soil; blooms repeatedly
<i>Thalictrum dasycarpum</i>	Purple Meadow Rue	3-6	June-July	White	Med-Wet	☀ ☂	★	Attractive foliage and flowers; early summer bloom; may need staking
<i>Thalictrum dioicum</i>	Early Meadow Rue	1-2	April-June	Green	Med	☀ ☂ ●	★	Female and male plants; female plants seed
<i>Tiarella cordifolia</i>	Foamflower	1-2	May-June	White	Med	☂ ●	★	Spike of tiny flowers; attractive foliage turning bronze in autumn
<i>Tradescantia ohimensis</i>	Spiderwort	2-4	June-July	Blue	Med-Dry	☀ ☂	★	Aggressive; each tri-petalled blossom lasts one day
<i>Verbena hastata</i>	Blue Vervain	3-6	July-Sept	Blue	Med-Wet	☀	★	Attracts butterflies; wonderful for cut flower arrangements; can be aggressive
<i>Verbena stricta</i>	Hoary Vervain	2-4	July-Sept	Blue	Med-Dry	☀	★	Attracts butterflies; great for cut flower arrangements; drought resistant
<i>Vernonia missurica</i>	Missouri Ironweed	3-10	Aug-Oct	Purple	Med	☀ ☂	★	Easily grown; attracts butterflies; aggressive; late summer blooms
<i>Veronicastrum virginicum</i>	Culver's Root	2-6	June-Sept	Pink	Med	☀ ☂ ●	★	Small dense flower on tall spike; great for cut flower arrangements
<i>Zizia aurea</i>	Golden Alexanders	1-3	April-June	Yellow	Wet	☀ ☂	★	Can be aggressive; interesting addition to gardens



Plant List

Plant Names		Height (ft)	Bloom Time	Flower Color	Water Needs	Sun	★	Notes
Botanical	Common							
<i>Acorus calamus</i>	Sweet Flag	2-5	May-July	Yellow	Wet	☉☾	★	Wildlife benefits; medicinal uses
<i>Andropogon gerardii</i>	Big Blue Stem	4-8	July-Sept	Purple	Med-Dry	☉☾	★	Erosion control use; preferred by livestock; beneficial to birds
<i>Calamagrostis canadensis</i>	Canada Blue-Joint Grass	2-4	June	Brown	Med-Wet	☉☾	★	Spreads opportunistically by rhizomes
<i>Carex comosa</i>	Bristly Sedge	2-3	May-June	Green	Med-Wet	☉☾	★	Waterfowl food source; long-lived; rhizomes form dense clumps
<i>Carex crinita</i>	Fringed Sedge	2-5	May	Green	Med-Wet	☉☾●	★	Likes semi-shade; forms dense clumps
<i>Carex grayii</i>	Gray's Sedge	1-2	May-June	Green	Med-Wet	☉☾	★	Ornamental grass; interesting flower form; easily grown
<i>Carex hystericina</i>	Porcupine Sedge	2-3	May-June	Green	Wet	☉☾	★	Long-lived; clump-forming; tufted
<i>Carex lacustris</i>	Lake Sedge	2-4	May-June	Green	Wet	☉☾	★	Can grow in shallow standing water; adds color to waters edge
<i>Carex lupulina</i>	Hop Sedge	2-4	May-June	Green	Med-Wet	☉☾●	★	Grows well in shade but does well in sun, too
<i>Carex muskingumensis</i>	Muskingum Sedge	2-3	May-June	Green	Wet	☉☾●	★	Grows well in shade
<i>Carex pensylvanica</i>	Penn Sedge	½-1	April-June	Green	Med-Dry	☉☾	★	Good groundcover
<i>Carex stricta</i>	Tussock Sedge	1-3	April-June	Brown	Wet	☉☾	★	Forms blue-green tussocks/hummocks; slow spreading with dense roots
<i>Carex vulpinoidea</i>	Fox Sedge	2-3	May-June	Brown	Med-Wet	☉☾	★	Rhizomes form dense clumps
<i>Elymus canadensis</i>	Canada Wild Rye	2-5	June-Aug	Green	Med-Dry	☉☾	★	Ornamental grass; rye-like spikes persist in winter; groundcover for dry slopes
<i>Elymus hystrix</i>	Bottle Brush Grass	2-3	May-June	Green	Med-Dry	☉☾	★	Ornamental grass; bristly flowerheads resemble bottle brush
<i>Elymus riparius</i>	Riverbank Wild Rye	2-4	July-Aug	Green	Med-Wet	☉☾●	★	Slightly nodding; long, wide, wheat-like spikes; beneficial to butterflies
<i>Elymus virginicus</i>	Virginia Wild Rye	2-5	June	Green	Med	☉☾●	★	Mixes well with Bottle Brush grass and woodland flowers; grows in forest edges
<i>Glyceria striata</i>	Fowl Manna Grass	1-5	May-June	Green	Med-Wet	☉☾●	★	Bunch-forming; cool-season grass with dense roots
<i>Juncus effusus</i>	Soft Rush	1-4	July	Brown	Wet	☉☾	★	Easily grown in wet/saturated soils; corkscrew stems good in arrangements
<i>Juncus tenuis</i>	Path Rush	1-2	June-Sept	Brown	Med-Dry	☉☾	★	Tolerates drought, compacted soil; may be used as groundcover
<i>Juncus torreyi</i>	Torrey's Rush	1-2	June-Sept	Brown	Med-Wet	☉	★	Tolerates drought; has interesting "seed balls" at tips of stems
<i>Koeleria macrantha</i>	June Grass	1-2	May-June	Green	Med-Dry	☉☾	★	Grows well in clay soils; woodlands; tolerates some flooding
<i>Panicum virgatum</i>	Switchgrass	3-6	Aug-Oct	Green	Med-Wet	☉☾	★	Clump-forming ornamental grass; erosion control; establishes from seed
<i>Schizachyrium scoparium</i>	Little Bluestem	2-4	Aug	Green	Med-Dry	☉	★	Ornamental grass; distinctive blue coloration on stems; attractive fall color



Grasses,
Sedges,
Rushes

Plant List

Plant Names		Height (ft)	Bloom Time	Flower Color	Water Needs	Sun	★	Notes
Botanical	Common							
<i>Scirpus atrovirens</i>	Green Bulrush	3-5	June-Aug	Brown	Wet	☀	★	Soil stabilizer; tolerates flood or drought for short periods; can be invasive
<i>Scirpus cyperinus</i>	Wool Grass	3-5	June-Sept	Tan	Wet	☀	★	Strong fibrous roots form clumps in high water
<i>Sorghastrum nutans</i>	Indian Grass	3-4	Aug	Green	Med-Dry	☀☾	★	Showy; clump forming; often used in wind erosion control; tolerates salt
<i>Spartina pectinata</i>	Prairie Cord Grass	3-7	July Aug	Green	Med-Wet	☀	★	Aquatic grass that tolerates draining; attractive fall yellow color; great plumes



Ferns

Plant List

Plant Names		Height (ft)	Bloom Time	Flower Color	Water Needs	Sun	★	Notes
Botanical	Common							
<i>Adiantum pedatum</i>	Maidenhair Fern	1-2			Med-Wet	☾●	★	Clump-forming; ornamental fern; good for landscape borders
<i>Athyrium filix-femina</i>	Lady Fern	1-3			Med	☾●	★	Attractive in shade beds
<i>Dryopteris marginalis</i>	Marginal Wood Fern	2-3			Med-Wet	☾●	★	Woodland landscape; non-aggressive
<i>Dryopteris goldiana</i>	Goldie Fern	3-5			Med	☾●	★	Large fern; attractive in shady garden borders
<i>Onoclea sensibilis</i>	Sensitive Fern	3-4			Med-Wet	☾●	★	Aggressive in optimum conditions; bright green color; frost sensitive
<i>Osmunda cinnamomea</i>	Cinnamon Fern	2-3			Med-Wet	☾●	★	Excellent for wet areas; yellow in autumn
<i>Osmunda claytoniana</i>	Interrupted Fern	3-4			Med-Wet	☾●	★	Easily grown; use in borders and along streams
<i>Osmunda regalis</i>	Royal Fern	2-4			Med-Wet	☾●	★	Clump-forming; yellow in autumn; needs wet areas
<i>Polystrichum acrostichoides</i>	Christmas Fern	1-2			Med-Dry	☾●	★	Grows in fountain-like clumps; utilized for erosion control
<i>Thelypteris noveboracensis</i>	New York Fern	1-2			Med	☾●	★	Hardy; easy to grow; aggressive



Plant List

Plant Names		Height (ft)	Bloom Time	Flower Color	Water Needs	Sun	★	Notes
Botanical	Common							
<i>Amphicarpa bracteata</i>	Hog Peanut	2-8	Aug-Sept	Pink	Med	☉●	★	Pea-like flowers; delicate twining vine
<i>Clematis virginiana</i>	Virgins' Bower	10-20	July-Sept	White	Med	☉☾	★	Aggressive; fragrant; needs support
<i>Menispermum canadense</i>	Moonseed	8-10	May-July	White	Med-Wet	☉☾	★	Medicinal uses; poisonous if ingested; forms black berries
<i>Parthenocissus quinquefolia</i>	Virginia Creeper	1-60	May-June	Green	Med-Dry	☉☾●	★	Useful in erosion control; beneficial to wildlife; ornamental vine; salt tolerant



Plant List

Plant Names		Height (ft)	Growth Rate	Flower Color	Water Needs	Sun	★	Notes
Botanical	Common							
<i>Alnus rugosa</i>	Speckled Alder	15-25	Med	Brown	Med	☉☾	★	Soil stabilizer; acid to neutral pH; fixes nitrogen
<i>Amelanchier laevis</i>	Smooth Serviceberry	25	Med	White	Med-Dry	☉☾	★	Excellent landscape plant with dark green foliage; blooms in spring
<i>Ceanothus americanus</i>	New Jersey Tea	3-4	Slow	White	Dry	☉☾	★	Has a tap root; do not try to transplant; drought tolerant
<i>Celtis occidentalis</i>	Hackberry	25	Med	Green	Med-Dry	☉☾	★	Easily transplanted; can grow in dry soils; withstands grime of cities
<i>Cephalanthus occidentalis</i>	Buttonbush	5-12	Med	White	Med-Wet	☉☾	★	Used in wetland restoration; great wildlife benefit; best in wet conditions
<i>Cornus amomum</i>	Silky Dogwood	7-15	Med	White	Wet	☉☾	★	Used for windbreaks, wildlife borders, streambank restorations; colorful stems
<i>Cornus racemosa</i>	Grey Dogwood	6-15	Med	White	Med-Wet	☉☾	★	Utilized by several birds; not typically stocked in nurseries
<i>Cornus stolonifera</i>	Red-Osier Dogwood	6-9	Med	White	Wet	☉☾	★	Streambank/slope protection and stabilization; good habitat; plant in masses
<i>Corylus americana</i>	Hazelnut	3-13	Med	Brown	Med-Dry	☉☾	★	Beneficial to a variety of wildlife; medicinal uses; ornamental shrub
<i>Hydrangea arborescens</i>	Annabelle Hydrangea	3-6	Fast	White	Wet	☉☾		Best in partial shade; clump-forming; deciduous shrub; medicinal uses



Plant List

Shrubs

Plant Names		Height (ft)	Growth Rate	Flower Color	Water Needs	Sun	★	Notes
Botanical	Common							
<i>Lindera benzoin</i>	Spicebush	3-16	Slow	Yellow	Med-Wet	☉☾	★	Beneficial to wildlife; in partial shade leaves turn bright yellow in autumn
<i>Physocarpus opulifolius</i>	Eastern Ninebark	3-10	Slow	White	Med	☉☾	★	Ornamental shrub; beneficial to wildlife; used for erosion control on banks
<i>Prunus virginiana</i>	Chokecherry	20-30	Fast	White	Med	☉☾	★	Can grow in acidic to alkaline soils; ornamental small tree or shrub
<i>Ptelea trifoliata</i>	Hop Tree	20	Slow		Wet	☉☾	★	Shade tolerant; seeds and foliage have a unpleasant odor
<i>Ribes americana</i>	Wild Black Currant	3-5	Med	Yellow	Med-Wet	☉☾	★	Can be invasive; wildlife food source; ornamental shrub
<i>Rosa carolina</i>	Carolina Rose	3-6	Med	Pink	Med-Dry	☉	★	Better resistance to disease than most hybrid roses
<i>Rosa palustris</i>	Swamp Rose	3-7	Med	Pink	Med-Wet	☉☾	★	Attractive throughout the year; food source for wildlife
<i>Salix interior</i>	Sandbar Willow	6-20	Med-Fast	Brown	Med-Wet	☉	★	Short-lived; forms colonies; does well in flooded areas
<i>Sambucus canadensis</i>	American Elderberry	6-26	Fast	White	Med-Wet	☉	★	Edible fruit; medicinal uses; beneficial to wildlife; blue-black berry
<i>Sambucus racemosa</i>	Red-Berried Elderberry	8-20	Fast	White	Med-Wet	☉	★	Red berries; raw fruits are toxic
<i>Spiraea alba</i>	Meadowsweet	2-5	Med	White	Wet	☉☾	★	Fragrant; good in low spots or boggy areas
<i>Spiraea bumalda</i>	Anthony Waterer Spirea	2-3	Fast	White	Med	☉☾		Showy autumn foliage; ornamental value; showy flowers
<i>Spiraea tomentosa</i>	Steeplebush	2-5	Med-Fast	Pink	Med	☉☾	★	Showy pink flower spires; blooms in Aug-Sept; good for hedges; rich soils
<i>Staphylea trifolia</i>	American Bladdernut	10-15	Fast	White	Med-Wet	☾●	★	Easily grown; seed capsules used in dried flower arrangements
<i>Vaccinium macrocarpon</i>	Large Cranberry	2-6	Slow	Pink	Med-Wet	☉☾	★	Grows in acidic soils; leaves become purple in winter
<i>Viburnum acerifolium</i>	Maple-Leaf Viburnum	2-6	Slow	White	Med-Dry	☉☾●	★	Reddish-purple fall color; black fruit; develops large colonies; acidic soils
<i>Viburnum dentatum</i>	Arrowwood	3-10	Med	White	Med	☉☾	★	Medicinal uses; bird food source
<i>Viburnum lentago</i>	Nannyberry	14-16	Slow	White	Med	☉☾●	★	Good seasonal color; food source for wildlife
<i>Viburnum prunifolium</i>	Blackhaw	12-15	Slow	White	Med-Dry	☉☾	★	Special concern plant in Michigan; attracts birds; adaptable
<i>Viburnum opulus (var. americanum)</i>	Highbush Cranberry	6-10	Med	White	Med-Wet	☉☾	★	Beneficial to wildlife; good windbreak; red fruit; ornamental shrub



Plant List

Plant Names		Height (ft) (at maturity)	Growth Rate	Flower Color	Water Needs	Sun	★	Notes
Botanical	Common							
EVERGREEN TREES								
Abies balsamea	Balsam Fir	50-75	Slow		Med-Wet	☀☾●	★	Readily transplanted; prefers acidic soils; tolerates wide range of soils
Juniperus virginiana	Eastern Red Cedar	25-50	Slow		Dry	☀☾	★	Used for windbreaks
Picea glauca	White Spruce	40-60	Slow		Med	☀☾	★	Used for windbreaks; adaptable to wide range of conditions
Picea mariana	Black Spruce	25-50	Slow		Med-Wet	☀☾●	★	Interesting irregular form; tolerant of nutrient poor soils; prefer acidic soils
Pinus resinosa	Red Pine	40-80	Fast		Med-Dry	☀	★	Prefers dry, sandy, acidic soils; found in low fertility areas; susceptible to salt
Pinus strobus	Eastern White Pine	70-100	Fast		Med-Dry	☀☾	★	Tolerates many soil types; intolerant to air pollutants; used for windbreaks
Thuja occidentalis	Northern White Cedar	30-50	Slow		Med-Wet	☀☾	★	Prefers neutral soil; adapted for nutrient poor soils
DECIDUOUS TREES								
Acer rubrum	Red Maple	40-60	Med-Fast	Red	Med	☀☾	★	Gorgeous red fall color; fragrant blossoms March-Apr; intolerant to pollution
Acer saccharinum	Silver Maple	75-100	Fast		Med	☀☾	★	Easily transplanted; one of the best trees for poor soils
Acer saccharum	Sugar Maple	50-70	Slow		Med	☀☾●	★	Best in slightly acidic soils; great shade tree; used for maple syrup
Aesculus glabra	Ohio Buckeye	25-40	Med	White	Med-Wet	☀☾		Leaves shaped like a hand; wonderfull color spring-fall; attracts hummingbirds
Betula alleghaniensis	Yellow Birch	50-70	Fast		Med	☀☾	★	Good lawn tree; providing relatively light shade; showy golden bark
Betula nigra	River Birch	40-70	Fast	Yellow	Wet	☀	★	Very attractive ornamental tree; very good for erosion control
Betula papyrifera	Paper Birch	40-60	Fast	Yellow	Wet	☀☾	★	Striking coloration with white bark and yellow fall color; good riparian buffer
Carpinus caroliniana	American Hornbeam	15-25	Slow	Green	Med	☀☾●	★	Beautiful understory tree; difficult to transplant; unique fruit; good fall color
Carya cordiformis	Bitternut Hickory	50-100	Med-Slow		Med-Wet	☀☾	★	Large tap-root makes transplanting difficult; unique bark and fruit
Carya ovata	Shagbark Hickory	40-60	Fast		Med-Dry	☀☾	★	Edible fruit; adaptable to wide range of soils; bark has culinary use
Cercis canadensis	Redbud	15-25	Slow	Purple	Dry	☀☾●	★	Flowers bloom early spring; will grow taller in shade conditions
Cornus florida	Flowering Dogwood	25	Med	White	Dry	☀☾		Excellent ornamental tree; striking display in full bloom
Fagus grandifolia	American Beech	60-80	Slow		Med	☀☾●	★	Prefers acide soils; excellent shade providing tree for large open areas
Liriodendron tulipifera	Tulip Tree	50-100	Fast	Yellow	Med	☀	★	Great ornamental tree; unusual flowers; yellow fall color; disease resistant
Malus coronaria	Sweet Crab Apple	10-20	Slow	Pink	Med	☀☾	★	Native to lower Michigan only, ornamental tree; edible fruit



Plant List

Plant Names		Height (ft) (at maturity)	Growth Rate	Flower Color	Water Needs	Sun	★	Notes
Botanical	Common							
DECIDUOUS TREES								
Nyssa sylvatica	Black Gum	50-70	Med		Med	☀☂●	★	Provides erosion control; attractive dense autumn foliage
Ostrya virginiana	Ironwood	20-40	Med		Med	☀☂	★	Shade tolerant; dark green foliage; attractive cluster of nuts
Platanus occidentalis	Sycamore	60-90	Fast		Wet	☀☂	★	Disease resistant; tolerant to air pollution; rehabilitates mining sites
Populus tremuloides	Trembling Aspen	40-70	Fast		Med	☀	★	Beautiful clear yellow fall color; smooth bark; spreads rapidly
Prunus serotina	Black Cherry	50-75	Fast		Med	☀	★	Fast growing shade tree; leaves may be toxic
Quercus alba	White Oak	50-70	Slow		Med	☀☂	★	Excellent residential tree; large crown; red fall color; dense foliage
Quercus bicolor	Swamp White Oak	40-60	Fast		Wet	☀☂	★	Grows well in compacted soils; drought tolerant; tolerant to flooding
Quercus macrocarpa	Bur Oak	50-80	Slow		Med	☀☂	★	Tolerant to compacted, or sandy soils; deep tap-root facilitates infiltration
Quercus rubra	Red Oak	50-70	Med		Med	☀☂	★	Easily transplanted; tolerant to air pollution and dry soils; shade tolerant
Salix nigra	Black Willow	40-60	Fast		Wet	☀	★	Thrives in wet areas; weak branches; encourages evapotranspiration
Tilia americana	Basswood	50-70	Med	Yellow	Med	☀☂●	★	Shade providing tree; soil-enriching



