

United States
Environmental Protection
Agency

Region 5
77 West Jackson Boulevard
Chicago, Illinois 60604

Illinois, Indiana,
Michigan, Minnesota, Ohio,
Wisconsin



LANDSCAPING WITH NATIVE PLANTS

Prior to the arrival of the first European settlers, the Midwestern landscape was made up of a variety of ecosystems, including tallgrass prairies, oak savannas, woodlands, and wetlands. These ecosystems were home to abundant birds, butterflies and other animals. Most of these areas have been transformed into the agricultural lands, urban centers, and industrial sites we see today. Few acres of the original landscapes remain. For example, approximately 65% of Illinois was originally tallgrass prairie. Today, less than 0.01% of the original prairie survives in small, scattered preserves. Other natural ecosystems have fared similarly.

After European settlement, people planted gardens with plants brought from their home country. They were tiny, comfortable garden plots set in a huge wilderness. Today, however, the reverse is true. Agricultural and garden plants introduced from all over the world dominate the landscape, while native plants are managed in small preserves. In recent years, natural landscaping - using native plants and plant communities in landscaping - has become more common.

What is a Native Plant?

Native plants (also called indigenous plants) are plants that have evolved over thousands of years in a particular region. They have adapted to the geography, hydrology, and climate of that region. Native plants occur in communities, that is, they have evolved together with other plants. As a result, a community of native plants provides habitat for a variety of native wildlife species such as songbirds and butterflies.



What is a Non-native Plant?

Non-native plants (also called non-indigenous plants, invasive plants, exotic species, or weeds) are plants that have been introduced into an environment in which they did not evolve. Introduction of non-native plants into our landscape has been both accidental and deliberate. Purple loosestrife, for example, was introduced from Europe in the 1800's in ship ballast and as a medicinal herb and ornamental plant. It quickly spread and can now be found in 40 states.

In general, aggressive, non-native plants have no enemies or controls to limit their spread. As they move in, complex native plant communities, with hundreds of different plant species supporting wildlife, are converted to a monoculture. This means the community of plants and animals is simplified, with most plant species disappearing, leaving only the non-native plant population intact.

For example, purple loosestrife colonizes wetland areas, replacing native plants unable to compete for available sunlight, water, and nutrients. Wetlands infested with purple loosestrife lose many of their original native plants. This limits the variety of food and cover available to birds and may cause the birds to move or disappear from a region altogether.

Why Should I Use Native Plants?

Native plants provide a beautiful, hardy, drought resistant, low maintenance landscape while benefitting the environment. Native plants, once established, save time and money by eliminating or significantly reducing the need for fertilizers, pesticides, water and lawn maintenance equipment.

Native plants do not require fertilizers. Vast amounts of fertilizers are applied to lawns. Excess phosphorus and nitrogen (the main component of fertilizers) run off into lakes and rivers which harms aquatic life and interferes with recreational uses.

Native plants require fewer pesticides than lawns. Nationally, over 70 million pounds of pesticides are applied to lawns each year. Pesticides run off lawns and can contaminate rivers and lakes. People and pets in contact with chemically treated lawns can be exposed to pesticides.

Native plants require less water than lawns. The modern lawn requires significant amounts of water to thrive. In urban areas, lawn irrigation uses as much as 30% of the water consumption on the East Coast and up to 60% on the West Coast. The deep root systems of many native Midwestern plants increase the soil's capacity to store water. Native plants can significantly reduce water runoff and, consequently, flooding.

Native plants help reduce air pollution. Natural landscapes do not require mowing. Lawns, however, must be mowed regularly. Gas powered garden tools emit 5% of the nation's air pollution. Forty million lawnmowers consume 200 million gallons of gasoline per year. One gas-powered lawnmower emits 11 times the air pollution of a new car for each hour of operation. Excessive carbon from the burning of fossil fuels contributes to global warming. Native plants sequester, or remove, carbon from the air.

Native plants provide shelter and food for wildlife. Native plants attract a variety of birds, butterflies, and other wildlife by providing diverse habitats and food sources. Closely mowed lawns are of little use to most wildlife.

Native plants promote biodiversity and stewardship of our natural heritage. In the U.S., approximately 30 million acres of lawn are cultivated, covering more land than any single crop. Native plants are a part of our natural heritage. Natural landscaping is an opportunity to reestablish diverse native plants, thereby inviting the birds and butterflies back home.

Native plants save money. A study by Applied Ecological Services (Brodhead, WI) of larger properties estimates that over a 20 year period, the cumulative cost of maintaining a prairie or a wetland totals \$3,000 per acre versus \$20,000 per acre for non-native turf grasses.

Replacing Your Lawn

• Proper soil preparation is the most important factor in the success of a native landscape.

• Use a sod cutter (which can be rented) to remove sections of your existing lawn.

• Do not turn over the exposed soil. Disturbing the soil will expose weed seeds and encourage their growth. The weeds will compete with new native seedlings for nutrients, water, and sunlight.

• If you choose to use herbicides to remove existing vegetation, use a low toxicity, non-persistent herbicide such as glyphosate (sold under various brand names). Read the label and follow the manufacturer's instructions carefully.

Seeds vs. Transplants

• Sowing seeds is less expensive than landscaping with transplants. However, native plants grow slowly from seed, often not blooming until the third year. The first few years are spent growing long, extensive root systems. Weeds grow quickly. This is normal, so don't be discouraged.

• Transplants grow more quickly than seeds, often blooming in the first year. Keep your costs down by buying the smallest plants available. Space the plants one foot apart and mark for later identification.

Maintenance Tips

• Mulch with a weed-free material (e.g., clean straw) to keep the weeds down.

• Cut, rather than pull, weeds. Pulling weeds may damage the roots of young native plants. Pulling also disturbs the soil, encouraging weed growth.

• If you use seeds, keeping your landscaped area cut to 6 inches during the first year will help control weeds. Most seeded native flowers and grasses will not grow taller than 6 inches the first year.

• In many Midwestern natural areas controlled burns are necessary to clear away old vegetation and stimulate new growth. Nutrients from the ash nourish the soil. In a home landscape, however, fire is not advisable, and may be illegal next to a building or in an enclosed garden setting. Cutting and removing the debris from the area mimics the natural fire cycle. It exposes soil to the warmth of the sun and encourages growth. Cutting can be done in the spring or fall, or skip a few seasons. Each technique favors different plants and encourages diverse plant growth.

Which Plants Attract Birds and Butterflies?

There are several species of native wildflowers and grasses that will attract particular birds and butterflies.

For song birds:

sunflowers*, blazing star*, white prairie clover, compass plant, prairie dock, big bluestem, little bluestem, sideoats grama, switch grass, prairie dropseed, downy serviceberry, hackberry, dogwood, juniper*, elderberry, and hawthorn*.

For hummingbirds:

columbine, jewelweed*, native phlox*, native honeysuckle, and cardinal flower.

For butterflies:

milkweed*, aster*, purple cone-flower*, blazing star*, native phlox*, black-eyed Susan*, dogbane*, New Jersey tea, coreopsis*, joe-pye weed*, goldenrod*, vervain*, and ironweed*.

*All species

Helpful Hints

- Draw your landscaping plan on paper.
- Start out small, only do a little at a time. Consider converting infrequently used areas of your lawn to native plants.
- Talk to your neighbors about what you are doing. Relaying the benefits of natural landscaping may inspire others to try it.
- Consider putting up a sign (e.g., "Jane's Wildflower Garden"), or putting a border around your native garden to better define it. This will help neighbors feel more comfortable with a different approach to landscaping.
- Talk with local officials about landscaping ordinances you should be aware of (e.g. restrictions on vegetation height).

Questions to Ask When Buying Native Plants

1. Are the native plants locally grown or shipped in? Native plants which are locally grown are best suited to the regional climatic conditions.
2. Have the seeds been propagated in a nursery or collected from the wild? Seeds from the wild need to be protected so that we do not deplete our natural areas.
3. Will the native plants grow best in sun or shade? Survey your plot carefully.
4. What soil type is required? Is it sandy or loamy, wet or dry?
5. Which native plants grow well together? Call your local nature center or Heritage Program Office to find out about plant communities.
6. How long will it take seeds to germinate or plants to mature? The key to growing native plants is patience.

Will Native Plants Aggravate Allergies?

Many native flowers do not cause allergies. The plants responsible for many pollen allergens are not native to the Midwest (e.g., Kentucky bluegrass, Bermuda grass, orchard grass, redtop grass, and timothy grass). Native ragweed is one native plant which is highly allergenic.

Will Native Plants Attract Pests?

Unsecured garbage is the main attraction for most pests such as rodents and raccoons. Native landscaping is not. Native plants will attract butterflies and dragonflies; birds such as martins, hummingbirds, and swallows; mammals, including bats; amphibians such as frogs and salamanders; and insects because they provide shelter and food. In return, wildlife will help control pesky bugs such as mosquitoes. A single bat can eat 3,000 to 7,000 insects per night. Canada geese, also consider a pest in some regions, prefer short turf grass over taller native grasses.

Weed Laws

Some municipalities have "weed laws" to prevent unsightly or poorly maintained property. Natural landscaping does not pose the hazards that the weed laws are intended to address (e.g. problems with vermin). Fortunately, many municipalities are responding to the current trend toward natural landscaping. Some communities have modified weed laws to allow natural landscaping, but require a "setback" or buffer strip to make the landscape look planned. A few municipalities actively promote natural landscaping because of the environmental and economic benefits. Check with your municipal officials regarding weed laws in your area.

Case Studies

Everyone is planting natives: corporations, businesses, schools, local, state, and federal government agencies, developers, and homeowners. Following are some examples of natural landscaping in the Midwest:

Prairie Crossing, Grayslake, Illinois. Nearly 175 acres of native prairies and wetlands are being restored throughout this residential development. In addition to the beautiful landscape and wildlife habitat provided, these areas serve as part of an alternative stormwater management system.

Oak Park, Illinois. Two adjacent homeowners share a wildflower garden which fills their side yards and portions of the front yards. The project was based upon a shared interest in attracting wildlife, reducing the amount of turf grass and the associated use of pesticides, and creating a more diverse landscape.

Wheaton-Warrenville South High School, Wheaton, Illinois. The high school is incorporating native landscaping into its school grounds, initially planting 2.5 acres of upland mesic and wet prairies. The school's goals are to reduce maintenance on unused lawn areas and time demands on limited staff, improve overall aesthetics, restore native habitats, and create a living laboratory for hands-on environmental education.

Olympia Fields Country Club, Olympia Fields, Illinois. The club blends two 18-hole golf courses into a natural setting of native woodlands and rolling topography with large oak trees linking the fairways. Planting native trees and shrubs from locally collected seed, removal of invasive non-native species, reestablishing prairie and savanna vegetation, and controlling erosion with native vegetation are some of the programs in progress.

Lakeview Industrial Park, Pleasant Prairie, Wisconsin. Nearly 500 acres of this industrial park have been dedicated to a large natural area along the Des Plaines River. It includes extensive floodplain wetlands, oak savannas, prairies, and the riverine system. The industry has saved significant sums of money through use of native landscaping. The ecological benefits have exceeded expectations. The project has won wide acclaim for its innovative approach to ecological resources and has forged an important partnership among industry and conservation groups.

Sears Corporate Headquarters, Hoffman Estates, Illinois. Native plants have been incorporated into the main features of this 780-acre property for ornamental as well as functional reasons.

More Information

U.S. Environmental Protection Agency. Green Landscaping with Native Plants, www.epa.gov/greenacres/ or 800-621-8431 (for IL, IN, MI, MN, OH, WI).

Northeastern Illinois Planning Commission (NIPC). Under a U.S. EPA grant, NIPC developed a natural landscaping tool kit for local officials which includes *Natural Landscaping for Public Officials: A Source Book*, 1997, a poster illustrating the benefits of natural landscaping and an annotated slide show. Call NIPC at 312-454-0400, or U.S. EPA at 800-621-8431 to receive a copy of the tool kit. The Source Book is available on U.S. EPA's Internet site.

National Wildlife Federation. The Backyard Wildlife Habitat Program run by the NWF is an excellent source of information at www.nwf.org/backyardwildlifehabitat or 703-790-4434.

Wild Ones. A non-profit organization encouraging natural yards in harmony with nature. Contact them at www.for-wild.org or 500-FOR-WILD. (There is a charge for this call.)

Prairie Nursery. Helpful information on planting with native plants is available at www.prairienursery.com/Quickguide.htm.

Think

Globally



Plant

Locally.

PLANT LISTS

If you are landscaping in the Midwest, you may want to consider plants from the following lists. These lists include some of the species that are commonly available in nurseries and are relatively easy to grow. They are directed towards individuals doing a modest first planting. For large projects, which can accommodate a wide variety of species, you may want to consider consulting a professional with expertise in natural landscaping.

The herbaceous plant lists are divided into plants which thrive in full sun, partial sun and shade. A general rule is that prairie species need full sun; savanna species will grow in partial shade (and many will grow as well, or better, in full sun); and woodland species will grow in shade. It is very important to check catalogs and nursery information before you buy, because plants also vary in their need for moisture.

FULL SUN

Grasses:

Big Bluestem
Little Bluestem
Sideoats Grama
Switch Grass
Indian Grass
Prairie Dropseed
Prairie Cord Grass
Porcupine Grass

Andropogon gerardii
Andropogon scoparius
Bouteloua curtipendula
Panicum virgatum
Sorghastrum nutans
Sporobolus heterolepis
Spartina pectinata
Stipa spartea



Forbs (flowers):

Lead Plant
Pasque Flower
Heath Aster
Silky Aster
Cream Wild Indigo
Sand Coreopsis
Prairie Coreopsis
Pale Purple Coneflower
Rattlesnake Master
Prairie Smoke
Western (or Naked) Sunflower
False Boneset
Round-Headed Bush Clover
Rough Blazing Star
Cylindrical Blazing Star
Pale Spiked Lobelia
Wild Quinine
Prairie Cinquefoil
Gray Goldenrod
Riddell's Goldenrod
Golden Alexanders

Amorpha canescens
Anemone patens
Aster ericoides
Aster sericeus
Baptisia leucophaea
Coreopsis lanceolata
Coreopsis palmata
Echinacea pallida
Eryngium yuccifolium
Geum triflorum
Helianthus occidentalis
Kuhnia eupatorioides
Lespedeza capitata
Liatris aspera
Liatris cylindracea
Lobelia spicata
Parthenium integrifolium
Potentilla arguta
Solidago nemoralis
Solidago riddellii
Zizia aurea

FULL SUN-PART SHADE



Forbs:

Nodding Wild Onion
Prairie Thimbleweed
Butterfly Weed
Smooth Blue Aster
Sky-Blue Aster
New England Aster
White Wild Indigo
Showy Tick Trefoil
Shooting Star
Purple Coneflower
Wild Bergamot (Beebalm)
Foxglove Beard Tongue
Obedient Plant
Black-eyed Susan
Ohio Goldenrod
Spiderwort
Heart-Leaved Meadow Parsnip

Allium cernuum
Anemone cylindrica
Asclepias tuberosa
Aster laevis
Aster azureus
Aster novae-angliae
Baptisia leucantha
Desmodium canadense
Dodecatheon meadia
Echinacea purpurea
Monarda fistulosa
Penstemon digitalis
Physostegia virginiana
Rudbeckia hirta
Solidago ohioensis
Tradescantia ohiensis
Zizia aptera

Grasses:



Common Wood Reed
Canada Wild Rye
Virginia Wild Rye
Fowl Meadow (Manna) Grass
Bottlebrush Grass

Cinna arundinacea
Elymus canadensis
Elymus virginicus
Glyceria striata
Hystrix patula

SHADE

Woodland:



Wild Columbine *Aquilegia canadensis*
Jack-in-the-Pulpit *Arisaema triphyllum*
Wild Ginger *Asarum canadense*
Dutchman's Breeches *Dicentra cucullaria*
Yellow Trout Lily *Erythronium americanum*
Wild Geranium *Geranium maculatum*
Virginia Waterleaf *Hydrophyllum virginianum*
Virginia Bluebells *Mertensia virginica*
Mayapple *Podophyllum peltatum*
Solomon's Seal *Polygonatum canaliculatum*
Bloodroot *Sanguinaria canadensis*
Trillium *Trillium spp.*

GENERALLY WET CONDITIONS

Marsh:



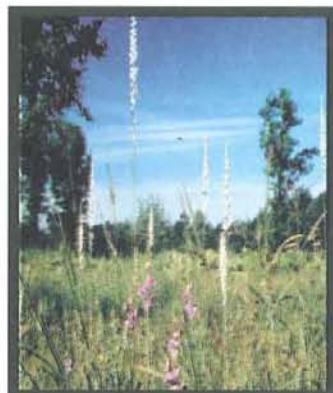
Swamp Milkweed *Asclepias incarnata*
Blue Joint Grass *Calamagrostis canadensis*
Sedges *Carex sp.*
Spotted Joe Pye Weed *Eupatorium maculatum*
Common Boneset *Eupatorium perfoliatum*
Rice Cut Grass *Leersia oryzoides*
Common Water Horehound *Lycopus americanus*
Dark Green Rush *Scirpus atrovirens*
Great Bulrush *Scirpus validus*
Prairie Cordgrass *Spartina pectinata*
Common Cattail *Typha latifolia*

Oak Savanna:



Big Bluestem Grass *Andropogon gerardii*
Little Bluestem Grass *Andropogon scoparius*
Shagbark Hickory *Carya ovata*
New Jersey Tea *Ceanothus americanus*
American Hazelnut *Corylus americana*
Purple Love Grass *Eragrostis spectabilis*
June Grass *Koehleria cristata*
Rough Blazing Star *Liatris aspera*
White Oak *Quercus alba*
Bur Oak *Quercus macrocarpa*
Black Oak *Quercus velutina*
Indian Grass *Sorghastrum nutans*

Lake and Pond:



Hornwort *Ceratophyllum demersum*
Common Rush *Juncus effusus*
Rice Cut Grass *Leersia oryzoides*
Small Duckweed *Lemna minor*
Pickerel Weed *Pontederia cordata*
Common Arrowhead *Sagittaria latifolia*