

PLANT SELECTION FOR SUSTAINABLE LANDSCAPES

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Sustainable landscapes are multi-functional, natural systems that require less maintenance than conventional landscapes. A well-functioning landscape requires fewer resources and less labor to maintain, and has a positive effect on the environment. Through the landscape, homeowners can contribute to:

- Cleaning the air and improving water quality;
- Using fewer fossil fuels (ie. gas, oil, coal) in the form of fertilizer, pesticides, or mowers;
- Providing berries, nectar and other food for birds, butterflies, and bees;
- Capturing carbon from the atmosphere to help control global warming;
- Reducing damage from flooding, wildfire, or drought;
- Reconnecting humans to the beauty of nature and supporting human health.

One of the most important steps in designing a sustainable landscape is proper plant selection. Once you have determined the available light, soil, and water conditions, choose appropriate plants for the site to ensure successful establishment. For more information on proper site analysis, see “Creating a Sustainable Landscape.”

When selecting plants:

- Consider the soil characteristics, climate, sun exposure, water conditions, and existing wildlife.
- Use plants that will perform well over time. Ensure that the mature height and spread of each plant is understood to avoid the need for excessive pruning or regular replacement. Choose disease-resistant varieties of your favorite plants.
- Select plants that don't require intensive care to maintain (deadheading, frequent pruning, etc.).
- Encourage natural layering, from large trees down to low-growing perennials in order to create harmony and provide year-round interest. The top layer of large trees provides shade, a medium layer of large shrubs and small flowering trees draws the eye downward. A smaller shrub layer and an herbaceous layer of flowering perennials, ferns or ornamental grasses offers color and visual interest.
- Select each plant based on its unique contribution to the overall setting, including blooming schedules, fruit display, foliage texture, bark, and growth habit. Perennials may offer color, grasses provide form through winter, shrubs flower at times distinct from the perennials (or evergreen color in winter), trees contribute shade and nesting opportunities for birds.
- Native plants should be a priority in a sustainable landscape. Use native or non-invasive plants that are adapted to the present site conditions. Choose plants that occur together naturally to significantly increase the odds of survival and provide the most benefit to wildlife.
- Group plants with similar watering, fertilizer, and soil requirements together to allow for healthy plants and the most efficient use of resources.
- Strategically place plants to help buffer wind and sun near buildings to reduce energy costs.



- Utilize a diverse range of species in the plant selection. Diverse plantings store more carbon, restore and enhance biodiversity, and are more resistant to weeds and diseases. While conventional landscapes often have less than 15 species in an average single acre lot, the average undisturbed forest or prairie landscape can support more than 100 species in the same area.
- Group plants in odd quantities (1, 3, 5, 7, 9...) for aesthetic appeal.

Prioritize the planting of species that provide the greatest benefit to wildlife diversity. For example, native oak and maple trees support hundreds of species of native butterfly and moth caterpillars, while introduced species support very few to none (*Doug Tallamy, 2007*). Among perennials, goldenrod and aster are among the most beneficial to butterfly and moth species, each supporting over 100 species.

PLANTS FOR A SUSTAINABLE LANDSCAPE

Plants included in this list are native to the US, and are drought tolerant or provide critical food sources for beneficial wildlife. Check the USDA growing zone map to confirm your zone and determine the appropriate plants for your area.

TREES AND SHRUBS:

Bayberry (*Morella/Myrica pensylvanica*)
 Buttonbush (*Cephalanthus occidentalis*)
 Carolina Silverbell (*Halesia carolina*)
 Chokeberry, red (*Aronia arbutifolia*)
 Eastern red-cedar (*Juniperus virginiana*)
 Pine, eastern white (*Pinus strobus*)
 Oak (*Quercus* sp.)
 Red Buckeye (*Aesculus pavia*)
 Serviceberry (*Amelanchier* sp.)
 Sumac, fragrant (*Rhus aromatica*)
 Summersweet (*Clethra alnifolia*)
 Sweet bells (*Eubotrys racemosa*)
 Sweetfern (*Comptonia peregrina*)
 Sweetgale (*Myrica gale*)

PERENNIALS:

Adam's needle (*Yucca filimentosa*)
 Blazing Star (*Liatris spicata*)
 Bleeding heart, fringed (*Dicentra eximia*)
 Bluestem, little (*Schizachyrium scoparium*)
 Butterfly weed (*Asclepias tuberosa*)
 Coneflower (*Echinacea purpurea*)
 Ginger, wild (*Asarum canadense*)
 Indigo, false (*Baptisia australis*)
 Lady fern (*Athyrium felix-femina*)
 Switchgrass (*Panicum virgatum*)
 Yarrow (*Achillea* mill. 'Sunny Seduction')

NON-NATIVE PLANTS TO AVOID USING OR REMOVE FROM A SUSTAINABLE LANDSCAPE:

Species	Reason to avoid or remove:
Barberry (<i>Berberis thunbergii</i>)	Invasive, noxious weed. Harbors ticks.
Burning Bush (<i>Euonymus alatus</i>)	Invasive, noxious weed. Requires frequent pruning.
Butterfly Bush (<i>Buddleia davidii</i>)	Tends to outcompete and crowd out beneficial native plants. Invasive in some parts of U.S. Does provide butterflies with nectar, but does not provide a food source for butterfly caterpillars – also important.
Chinese silvergrass (<i>Miscanthus sinensis</i>)	Reseeds aggressively. Invasive in many parts of U.S. (Some other species of <i>Miscanthus</i> are not invasive.)
Privet (<i>Ligustrum</i> sp.)	Invasive in many parts of U.S. Requires frequent pruning.
Rose of Sharon (<i>Hibiscus syriacus</i>)	Reseeds aggressively. Invasive in some parts of U.S.

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