

Spirit

Sustainable gardening helps to ensure the health of the greater community as well as that of the individual. Research has demonstrated that gardening reduces anxiety, improves mental health, and can help quicken recovery from illness. It fosters a respect for the insects, plants, and animals that share our backyards. A well-planned, native-focused sustainable garden is a wonder to behold.

Additional Resources:

North Carolina Botanical Garden: www.ncbg.unc.edu Displays of southeastern U.S. native plants, workshops, daily native plant sale, reference library.

Going Native website: www.ncsu.edu/goingnative Includes advice on how to design a home landscape using native plants.

Aldo Leopold, *A Sand County Almanac* (Ballantine Books, 1990): A classic realization of the need for a strong, sustainable land ethic.

Douglas Tallamy, *Bringing Nature Home* (Timber Press, 2007): Excellent discussion for the proliferation of native species; includes plant descriptions for attracting butterflies and larvae and other native pollinators.

Deborah Martin, Grace Gershuny, and Jerry Minnich, eds., *The Rodale Book of Composting* (Rodale Press, 1992).

Fern Marshall Bradley, Barbara Ellis, and Ellen Phillips, eds., *Rodale's Ultimate Encyclopedia of Organic Gardening: The Indispensable Green Resource for Every Gardener* (Rodale Press, 2009): For years, Rodale has been the go-to source for organic gardening.

Helen Kraus and Anne Spafford, *Rain Gardening in the South: Ecologically Designed Gardens for Drought, Deluge and Everything in Between* (Eno Publishers, 2009): How to build a rain garden; plant lists formulated for southern gardens. Written by NC State Horticulture professors with expertise in irrigation and landscape design.

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CONSERVATION GARDENING

Sustainable Practices for a Healthy Landscape

The North Carolina Botanical Garden at UNC-Chapel Hill employs and promotes conservation gardening practices. Conservation gardening respects the native ecology of a place and promotes the well-being of natural systems and the pleasures of the gardener. A sustainable garden can be multi-seasonal and colorful, formal or informal; any style of garden can be cared for in a way that nurtures our broader ecological communities. Conservation gardening requires a shift from a human-centric view to a holistic view. Being sensitive to all forms of life and understanding the ecological web helps plan for a sustainable garden.



It Starts with Soil

Soil is alive. It is! Many gardening activities—composting, mulching, watering—feed microbes, worms, and fungi living within the soil structure. These organisms feed on organic matter and break it into components plant roots can take up. Though native plants are adapted to local conditions and can often be grown with minimal soil amendment, urban locations typically have disturbed and compacted soils and may require some improvement. The addition of organic matter will help create healthy soils, which lead to healthy plants that are better prepared to resist disease and insect damage.

Homemade compost is a sustainable source of organic matter. Using homemade compost as topdressing, or mixing it with soil when planting, adds valuable organic matter to foster microfauna and soil health, supply nutrients gradually, and reduce fertilization requirements. Composting plant-based material (vegetables, paper towels, garden waste, etc.) keeps it out of the landfill and saves money on soil amendments.

Proper mulch application improves water retention, reduces weeds, and keeps the root zone cool in summer and warm in the winter. Apply two-inches of mulch after initial planting and watering. But before you spend money on plastic bags of mulch, look around your home to see what is already there. Nature provides mulch materials free of charge every year! Leaf compost, often available free from municipalities, is a great mulching mate-

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NORTH CAROLINA BOTANICAL GARDEN
THE UNIVERSITY OF NORTH CAROLINA AT CHAPEL HILL



rial. Applying mulch every year is not necessary. Over-mulching smothers roots and can create overly moist areas for slugs, snails and harmful diseases to grow. After laying mulch, be sure to pull back it back a bit from trunks of trees and crowns of plants.

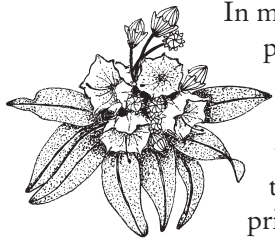
Planting for Diversity

Planning for diversity in your garden benefits the ecological community. Native plants have evolved in balance with wildlife, other plants, soils, and climate of a region. Introducing non-native species (plant or otherwise, but especially invasive exotic species) can negatively impact functioning ecosystems. Indigenous pollinators including bees, butterflies, moths, and wasps are especially dependant on native plant species. The larval stages of many of these insects rely on specific native plants as their food sources and cannot use non-natives species.



The majority of the insects encountered in conservation gardening are not the pests that decimate our plantings and drive us indoors. In a healthy environment, insect populations are kept in check by natural predators. Insects are a primary food source for wildlife including birds, lizards, toads, and small mammals. If an infestation occurs, try manual removal of the pest before resorting to chemicals use. Chemicals often indiscriminately harm beneficial insects.

Paying attention to cultural considerations (soil characteristics, watering needs, sun/shade requirements, etc.) and properly siting plants further promotes a healthy garden. When you plant, avoid overcrowding, which reduces airflow between plants and can encourage disease. Such situations often require plant removal or pruning later to alleviate crowding.



In many cases, fall is the best time of year to plant. The plant is not actively growing aboveground, allowing energy to be concentrated in developing a strong root system. Planting in the spring is also okay as long as the plant has enough time to establish its roots prior to the stresses of summer. Letting a plant establish prior to the stresses of summer heat and drought increases the likelihood of the plant's survival.

Less is More

A sustainable garden maintenance plan values the complete life cycle of plants and provides a healthy and vibrant ecosystem. Leaving seed heads and stalks of perennials and grasses provides protection, nesting material, and food for wildlife during cold, lean winter months. Leaving last year's stems

in place also preserves insect eggs, including those of butterflies and praying mantids, ensuring they will hatch in spring.

A good first step toward sustainable gardening is reducing the amount of lawn on your property. Reducing lawn size reduces the need for gas-powered mowing and therefore helps reduce air pollution and noise. You may be able switch to a battery-powered, electric mower charged with solar energy or "downgrade" to an old-fashioned push-mower: no noxious fumes, no fuel used except for good old-fashioned human-power! Reduce your lawn size by increasing the size of planting beds filled with native shrubs and perennials. Embrace the diversity in your lawn; plants like violets can be a great food source for native pollinators!

Drip, Drop

Rain is a resource; although, most often it is treated like waste being shunted through storm drains and treated at water treatment plants. Slowing surface water flow minimizes surface erosion, thereby reducing the particulate matter and chemicals entering storm sewers and, subsequently, streams. Allowing water to slowly percolate through the soil allows soil microbes and fungi to clean water and recharges underground water tables. Developing a water capture system for irrigation via cisterns, water barrels, ponds, or rain gardens reduces the demand for city water, which can "save the day" during droughts, and makes good sense in wet years too.



Approximately one-inch of water per week is needed by most landscapes. Planting with native plants can reduce the need for supplemental watering because natives are better adapted to regional precipitation patterns. Water the soil slowly and deeply to allow roots to grow deeper and be better suited to withstand drought. Shallow watering keeps the roots near the soil surface, making them susceptible to drying out. Watering the soil through efficient drip irrigation or soaker hoses helps keep fungi, like powdery mildew, from developing on foliage and reduces evaporation. Hand-watering is also a water-wise method. Water early in the morning or early in the evening to discourage water loss through evaporation. Many municipalities have implemented year-round water conservation policies, so check to see what restrictions are in place for your area.

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