

Forest Gardening

Cornell University Cooperative Extension and
New York State Department of Environmental Conservation
www.ForestConnect.info



Do you only have a little light or small gaps in an otherwise shady grove of trees and want to have a beautiful garden? Try forest gardening. Forest gardening is enhancing the look of your tree-covered area through plant cultivation while keeping the feel of a forest. Forest gardening will help you develop the look, feel and function of a healthy forest ecosystem.

Two key components of a healthy forest garden are multiple vegetation layers and plenty of mulch. In a healthy forest, one can find plants growing at every layer- ground cover, understory, and canopy. Including some plants in each layer will give your garden a natural look and function. Mulch is also an important part of forests. Rarely do we see bare soil, but rather a thick layer of duff made up of fallen leaves and twigs. This duff layer protects the roots of forest plants, retains moisture in the soil, and provides nutrients as it breaks down. You can emulate this duff layer with thick mulch (2-4") of woodchips, shredded leaves, or compost.

As with any garden plan, you should evaluate the site conditions of your forest garden. Key components are: hardiness zone, sunlight, slope and aspect, water availability, soil pH, and soil drainage. Make sure that the plants you chose meet the criteria for your garden. Evaluate your forest garden for microclimates- areas with slightly warmer or colder temperatures that may prevent or allow certain plants to grow.

Available water is an important factor to consider, and includes rainfall amounts or water that will be used for watering. Some forest gardens may not be near water sources, and rely entirely on rainfall. If this is the case for your forest garden, choose plants that can handle dry periods.



Rhododendron is an evergreen shrub with attractive foliage and large flowers.

The soils of your forest garden have a significant impact on the plants that currently grow in your forest garden and largely determine what you can and can not plant. Some soils have the ability to hold a lot of water, sometimes to excess, while others can be quite droughty. There are some plants that can handle growing in standing water for long periods of time such as willows, white-cedar, swamp white oak, meadowsweet and red osier dogwood. However, most plants prefer moist, well-drained soils, and too much moisture can rot tree roots and stunt growth. It is generally hard to modify forest soils for drainage, so the best option is to match plants to your soils.

The pH of the soil will also determine which plants will do well. Most plants prefer slightly acidic soils, with a pH of 6.2-6.8. A few- blueberry, rhododendron, hemlock and oak- prefer or will do well at lower pH, <6. Very few can tolerate a high pH, >7.5. Acid-loving trees grown at high pHs can be stunted or yellow. The easiest method is to match your plants to your soils, but if you have acidic soils, lime can be added to raise your pH. Contact your local Cornell Cooperative Extension office for recommendations.

Choosing the plants you want to work with is the next step. You can opt for an entirely native garden, or a mix of native and cultivated plants.



Cornell University

If you're looking for inspiration, head over to your local arboretum. Most will have forest garden plots.

Enhancing Native Populations

You can find plants already growing in your forest, such as trillium, trout lily, and orchids, and cultivate them. Many of our flowering native plants can be divided in the spring or fall to increase their abundance, or you can save their seeds and plant them throughout the landscape.

Transplanting and dividing wildflowers can be tricky. A good rule of thumb is to transplant or divide after the plant has flowered and begun to die back. Avoid very hot weather, and be sure to water the plants after moving. Seeds should be collected after fully ripening, and either planted immediately or stored in a cool dry place until the spring. Many species have specific requirements, such as fall seed planting or out-of-season division or transplanting. Visit www.gardening.cornell.edu or contact your local Cornell Cooperative Extension for more information.



Native wildflowers like Hepatica are an attractive addition to any forest garden.

Other native shade perennials with interesting flowers or fruit are jack-in-the-pulpit, ginseng, bloodroot, blue cohosh, columbine, hepatica, cranesbill, and Solomon's seal. Many of these also have cultivated varieties, which come in a wider range of colors and blooms, and are readily available.

Many of our forest plants are known for their foliage. These are generally green, but exciting in texture. Try non-invasive ferns, May apple, hellebore, wild ginger, heuchera, or skunk cabbage. Or, add hosta, coleus, elephant ear, or other garden shade plants for a punch of color and texture.

There are many native shrubs and small trees that are beautiful in forest gardens. Rhododendron and azalea are two of the most popular, with brilliant spring color and evergreen foliage. Witchhazel has ornate leaves, excellent fall color and small yellow flowers in the fall. Other shrubs to try are dogwoods, viburnums, striped maple, hydrangea, and spicebush.

If you are looking for fruit in your garden, currants, gooseberry, serviceberry, and hazelnut are all excellent shade fruits. If you have pockets of light, try blueberry or raspberry for more flavors.

Tall trees are the canopy, or roof, of your garden. While ground cover plants and shrubs fill in quickly and can easily be added and removed, overstory trees are long-term projects. Generally they take a long time to reach maturity and can encompass a large area with their roots and crowns as they grow. Removing an overstory tree can have a dramatic effect on your garden. Many of our native overstory trees are often lost among the beauty of the lower layers, but there are some aesthetically interesting trees you can use to add more color or texture to your garden. Some native trees with interesting bark are yellow birch, black birch, white birch, river birch (coppery-pink), shagbark hickory, black cherry, and hackberry. You can also try non-natives such as paper-bark maple, lace-bark elm, or weeping copperleaf beech. If you decide to plant specimen overstory trees, make sure they have enough light and room to grow.



Trees like shagbark hickory add texture to your garden.

Non-native ornamental plants can be an excellent addition to forest gardens, but be careful. Some non-native plants can be very aggressive and overwhelm native plants. You are sculpting a garden out of a working ecosystem.

Try to limit the potential permanent impacts of non-native garden plants. Evaluate them for self-propagation rates and check local lists of invasive species before planting.

Another component to think about in your forest garden is design. Both formal and informal designs will work in forests. Don't feel that you have to stick to a "natural state" garden. Forest gardens are well-suited to the idea of creating outdoor rooms, since you easily have the ability to create roofs and walls with larger trees and shrubs. Choose one or two ornamental plants to showcase or create sitting areas, ponds or other focal points to highlight in your room.

Adding architectural elements is also something to think about. Pathways, gazebos, and statuary will stand out among your lush green backdrop. If you have undesirable trees to be thinned out, you could create a nice walking trail by running the small limbs through a chipper and spreading them in between a natural log border.

You can also create collections of similar plants and highlight them throughout your garden. Plants with flowers of the same color or members of a particular genus from around the world (often done with maples) are two examples of common collections.

Before you begin planting your forest garden, be sure to evaluate the current conditions. Some forests are overcrowded and could benefit from careful thinning. To avoid



Mayapple grows well on moist, shaded sites.

damaging new plants, have your woodlot thinned to create growing space, or remove diseased or damaged trees. Remove trees before you start the garden plants or plan removals for the dormant season. Thinning can be dangerous work, and should only be carried out by someone trained for safety.

One of the exciting things about forest gardens is that they evolve over time, constantly changing and creating new elements. Another exciting feature of forest gardens is that once they have been established, they usually require little care. There will probably still be a little weeding to do, but having a thick duff layer, and shade from the overstory plants will generally mean less watering, and less unwanted plants sneaking their way in.

Adding a little slow release fertilizer will generally improve the growth rate and size of your plants. However, before adding a lot of fertilizer or lime, be sure to have a soil test done so that you don't waste your time or money.

Contact your local Cornell Cooperative Extension office for more information about forest gardening, including appropriate shade-tolerant plants for your area.

Web Pages of Interest

The Invasive Plants Council has a list of nurseries that sell native plants at <http://www.ipcnys.org/sections/resources/nurseries.htm>



American ginseng has attractive berries and foliage.