



William T. Kemper Center for Home Gardening

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Woodland and Shade Gardens: Herbaceous Plants

Gardening in the Shade

Many gardeners are accustomed to the ideas of landscaping with perennial beds and borders or sweeping lawns, both of which require direct sunlight to prosper. There is perhaps less familiarity with the concept of gardening in shade. The new homeowner may have purchased property with mature trees, or a long-time resident may find that over time, nearby trees have grown and spread, thereby shading out sun-loving plants.

Trees and shrubs are a valuable investment and can substantially benefit the homeowner in several ways. By acting as a buffer to prevailing winter winds, they may help save on heating costs. Likewise, by providing summer shade they may help to decrease air conditioning needs. They may also serve as a barrier to noise and exhaust from nearby roads, ensuring privacy and aesthetic value. Many outstanding plants grow in shade in their natural habitat and when brought into a woodland setting, can turn a situation that is initially perceived as a negative into a decided asset. It is the goal of this fact sheet to provide a familiarity with some of these plants and the techniques necessary to succeed with their cultivation.

Evaluate the Site

Existing trees can provide the backbone for your design as well as needed shade for plants. The finest woodland gardens are designed to imitate the appearance of a natural woodland. Three distinct levels of vegetation will be present, dominated by the upper canopy, which usually consists of large, native trees. In Missouri, our many indigenous oaks and hickories are ideal, and to a lesser extent, sugar hackberries, hard maples, and tulip poplars. The woody understory is the second layer and it consists of a mix of small trees and shrubs, such as flowering dogwoods, redbuds and azaleas. The third layer is the ground-level plantings which include hardy perennials, ground covers and bulbs, as well as the many native woodland wildflowers.

Many degrees of shade exist. The quality of light is an important factor. Few plants can tolerate very deep shade such as might occur beneath hemlocks or pines. Dappled shade occurs where some sun filters through an open branching pattern, and is generally considered ideal for the greatest number of species. Many plants do well, or at least tolerate morning sun, but may droop or scorch in the heat of direct afternoon rays. If shade is too dense one might consider several options. The tree canopy can be thinned by selectively removing some branches to allow more light to penetrate. Likewise, the canopy may be raised by “limbing up”, or removing lower branches, to allow the penetration of more reflected and filtered light and create a “high shade” situation. In certain situations, removing some trees entirely may be the best answer.

Protecting Trees

It takes many years to grow a tree to a size that effectively provides shade. Trees rely on their roots not only to provide stability, but also for the uptake of nutrients and oxygen. Many ambitious gardeners have installed extensive shade plantings only to discover that in the process mature trees were irreparably damaged. In developing and planting the site one must take precautions to protect the health of existing trees. Rototilling too close to the base of trees may injure some of the woody roots that provide physical stability to the tree. As a result, trees can become vulnerable to the invasion of insect or disease organisms. After just a few years, the trees weaken and gradually die, just as the underplantings are reaching maturity. Suddenly, the landscape is bereft of its essential shade element. Another common practice causing decline in trees is adding soil over the root zone, essentially suffocating the tree.

A safer means of preparing planting sites close to tree trunks is to excavate and amend pockets of soil in areas where individual trees or shrubs are to be placed, rather than wholesale tillage of the entire area. The goal is to spare as many of the major, woody roots and fine feeder roots as possible. Farther out from the trunk, more extensive tillage can be undertaken. Trees can regenerate the fine, hair or "feeder" roots quickly, if these are cut, but this is not so for the thick, woody roots that flare out at the base of the tree. Recent studies suggest a good rule of thumb is to avoid cutting any woody roots that fall within a circle equal to three times the trunk diameter, measured from the outside of the trunk.

Shallow-rooted trees, such as maples, sweet gums and elms with many large surface roots are difficult to work around. Mulching over roots can be an acceptable solution with good visual effect. Some ground covers such as Pachysandra, ornamental dead nettle, yellow archangel, and English ivy may be able to fill in and soften the effect of roots.

Soil Preparation

To minimize stress on new plantings, site preparation should be timed to take advantage of either the fall or spring planting seasons. Start by having the soil tested. This will be helpful in determining pH, critical to some woodland plants such as acid-loving azaleas and rhododendrons, and will also provide information about the presence or absence of other essential nutrients. Most woodland plants thrive in moist, well-drained, humusy soils containing abundant organic matter. Tree roots draw considerable moisture from the soil. The moisture-holding capacity, as well as the nutrient content of soils can be improved by incorporating compost, peat moss, well-rotted manure, or leaf mold into the top soil at each planting site. Beds should either be dug by hand, or tilled as deeply as possible, incorporating a minimum of at least 2 inches of organic matter into the soil. The soil should be allowed to rest and settle for at least two weeks before planting. After planting, beds should be mulched with two to four inches of leaf mold or rough compost. Avoid the mistake of overplanting to achieve an instant effect. Give plants plenty of room to grow. Proper spacing will not only eliminate the need for wasteful thinning, but also ensure good air circulation and minimize the risk of fungal diseases.

Maintenance

Any new plantings will require more frequent watering to help them get established. Generally, deep waterings spaced out as needed are preferable to superficial, very frequent waterings. Soil type, drainage, weather conditions, and the type of plant will determine need. Young trees and shrubs may need to be pruned and trained to develop a healthy framework of branches. Dead wood should be removed as needed. Ideally, the entire woodland garden should receive an annual top dressing of a minimum of two inches of mulch to maintain the humusy soil conditions so vital to the health of the plant community. This is best done at the end of June or early July. Overcrowded perennials will also need to be lifted and divided as often as is necessary.

Choosing Plants

Species adapted to the region will be most likely to succeed. For this reason it makes sense to use native plants whenever possible. However, the greatest variety will be obtained by using a combination of native and hardy exotic selections. Exotic plants with the best chance for success are those that originate in parts of the world subject to a climate similar to ours. Oddly, this is neither England, nor Western Europe. Our region's climatic counterparts actually include areas within the Balkans in Eastern Europe, the Ukraine region in what was formerly the USSR, Southwestern Siberia as well as portions of China and Japan.

Design

Develop a design using plants of various heights, including small understory trees, shrubs, perennials and bulbs. Interplant species to provide a longer range of bloom. For instance, many spring wildflowers and bulbs produce a flush of growth early in the season and bloom before trees leaf out. As the season progresses and shade deepens, their foliage may diminish and in some cases, die back after flowering. Other plants that develop later, such as astilbe, goatsbeard, ferns, and hostas will fill in these areas, masking dead or dying foliage. Pathways are also a key element, not only providing access to plants for maintenance, but also serving as a physical border defining planting areas. Paths have more interest if laid out to wander from here to there, rather than being a straight, direct route. Gravel, brick, or stone can be used for surfacing these pathways, but the simplest materials are bark or chopped leaf mulches which actually create a more natural feel

Texture

Texture refers to the visual effect resulting from the size and shape of a plants' leaves as well as its branching structure. For example, Oakleaf Hydrangea (*Hydrangea quercifolia*) has a somewhat coarse appearance, versus the Japanese Rose (*Kerria japonica*) which has smaller leaves and finer twigs. Just as contrasting fabrics like tweed, corduroy, and velvet may be combined to create a rich effect, so will varied textured plants complement one another.

Color

Though shade plants in general will not provide the profusion of gaudy bloom typical of sunny borders, many do have lovely flowers. Furthermore, a striking array of foliage types in various shades of green as well as variegated colors lend themselves to a wide array of design possibilities.

Hostas in particular are chiefly grown for their mounds of attractive foliage, though some also have showy flowers. They come in a wide range of sizes, from tiny miniatures and ground cover types, to huge clumps which may be several feet high and wide. Leaf colors range from gold, chartreuse, powdery blue, dark or bright green, and many variegated types with white or yellow markings. Ground covers are a useful design element, providing a carpet effect beneath large specimen trees or shrubs, and are especially serviceable for hiding exposed tree roots where this is a concern. Creepers such as vinca and spotted dead-nettle, or spreaders like pachysandra and lily-turf work well for this effect. English ivy and wintercreeper euonymous, while popular, are also extremely invasive and should be used judiciously.

Ground covers with light green foliage and those variegated with silver, white, or gold markings help brighten up dark or dull corners of the garden. They help show off darker specimens, providing a pleasing contrast. These include variegated liriopse, yellow moneywort, yellow archangel, and ornamental dead nettles. Ground covers have the additional benefit of being easy to divide, enabling gardeners to expand plantings economically.

Nursery Propagated Wildflowers

In choosing plants for the woodland, it is important to be aware that many beautiful wildflowers are difficult to propagate or may require very specific conditions to survive. Almost all wild orchids and many trilliums fall into this category. When buying from a nursery, look for plants that have been “nursery propagated”, and not dug from the wild. Be wary of the phrase “nursery grown”, as this may be legally applied to plants dug or collected from the wild and repotted and grown in a nursery for a short time. Be cautious of nurseries offering many difficult to propagate wild plants at very low prices. They are probably harvesting from the wild. Likewise do not remove wildflowers and plants from their native sites. The only exceptions should be those plants about to be destroyed by construction or development.

Plant Selection

The list of woodland garden plants below provides a wide array of choices of plant material. However, this list only provides general suggestions. No two gardens are ever exactly alike. Research the cultural requirements of individual plants and match them to local conditions as closely as possible. Suitable species can be found for virtually every condition. Just the same, there will be the inevitable failures to go with the successes. Experienced gardeners don't hesitate to move plants about in the landscape, searching for just the right spot.

Bulbs

Scientific Name	Common Name	Height (feet)	Flower Color	Season of Interest
<i>Anemone</i> spp.	Anemone, Windflower	0.5-4	Various	Varies
<i>Camassia</i> spp.	Wild Hyacinth	1-2	Blue	March-April
<i>Convallaria majalis</i>	Lily-of-the-Valley	0.50	White	May-June
<i>Claytonia</i> spp.	Spring Beauty	0.75	White	April-May
<i>Endymion hispanicus</i>	Spanish Bluebell	1	Blue, White, Pink	May-June
<i>Fritillaria meleagris</i>	Checkered Lily	1	White, Pink, Purple	April-May
<i>Eranthis hyemalis</i>	Winter Aconite	0.33	Yellow	March-April
<i>Galanthus</i> spp.	Snowdrop	0.5	White	March-April
<i>Leucojum aestivum</i>	Summer Snowflake	1	White	March-April
<i>Leucojum vernum</i>	Spring Snowflake	1	White	April-May
<i>Lilium</i> spp.	Lily	2-6	Various	May-August
<i>Scilla siberica</i>	Siberian Squill	0.5	Blue	March-April

Ferns

<i>Adiantum pedatum</i>	Maidenhair Fern	1-2	Foliage	Seasonal
<i>Asplenium</i> spp.	Spleenworts	0.5-1	Foliage	Seasonal
<i>Athyrium felix-femina</i>	Lady Fern	1-3	Foliage	Seasonal
<i>Athyrium goeringianum</i> 'Pictum'	Japanese Painted Fern	1.5	Foliage	Seasonal
<i>Cystopteris</i> spp.	Bladder Ferns	2-5	Foliage	Seasonal
<i>Dryopteris</i> spp.	Wood Ferns	1-3	Foliage	Seasonal
<i>Matteuccia pensylvanica</i>	Ostrich Fern	3-6	Foliage	Seasonal
<i>Onoclea sensibilis</i>	Sensitive Fern	2-3	Foliage	Seasonal
<i>Osmunda</i> spp.	Flowering Ferns	2-6	Foliage	Seasonal
<i>Polystichum acrostichoides</i>	Christmas Fern	1-2	Foliage	Evergreen
<i>Polystichum braunii</i>	Shield Fern	1-2	Foliage	Seasonal

<i>Thelypteris</i> spp.	Beech Ferns	1-3	Foliage	Seasonal
<i>Woodsia</i> spp.	Woodsia Ferns	1	Foliage	Seasonal
<i>Woodwardia</i> spp.	Chain Fern	1-2	Foliage	Seasonal

Low-growing, Suitable for Groundcover

<i>Aeopodium podagraria</i> 'Variegatum'	Goutweed	0.75	Foliage	Seasonal
<i>Ajuga</i> spp.	Bugleweed	0.5-1	Blue, Purple, Pink	April-July
<i>Asa rum</i> spp.	Wild Ginger	0.5-1	Foliage	Seasonal
<i>Duchesnea indica</i>	Barren Strawberry	0.5	Yellow	June-August
<i>Epimedium</i> spp.	Barrenwort	1	White, Yellow, Red	April-May
<i>Fragaria vesca</i>	Woodland Strawberry	0.5	White	May-June
<i>Galeobdolon luteum</i>	Yellow Archangel	0.75	Yellow	May-June
<i>Galium odoratum</i>	Sweet Woodruff	0.5	White	May-June
<i>Hedera helix</i>	Common English Ivy	0.5	Evergreen	All year
<i>Lamium maculatum</i>	Spotted Dead-nettle	.75	White, Pink	May-July
<i>Pachysandra</i> spp.	Spurge	0.75	White, Pink	February-March
<i>Pulmonaria saccharata</i>	Bethlehem Sage	1	Pink-Blue, White	April-June
<i>Tiarella cordifolia</i>	Foam Flower	1	White	May-June
<i>Vinca minor</i>	Common Periwinkle	0.5	Violet-Blue, White, Purple	April-May

Perennials

<i>Acanthus spinosus</i>	Bear's Breeches	3-4	Purple, Pink	June-August
<i>Aconitum</i> spp.	Monkshood	1-6	Blue, Purple, Yellow,	July-October
<i>Acorus calamus</i>	Sweefflag	3	Foliage	Seasonal
<i>Actaea</i> spp.	Baneberry	1-3	White/Red Fruit	July-September
<i>Amsonia</i> spp.	Blue Stars	2-3	Blue	April-July
<i>Anemone</i> spp.	Anemone, Windflower	0.5-4	Various	Varies
<i>Anemonella thalictroides</i>	Rue Anemone	0.5	White, Pale Pink	April-May
<i>Angelica gigas</i>	Angelica	3-6	Deep Purple	August- September
<i>Aquilegia</i> spp.	Columbine	1-2	Purple-Blue-White	May-September
<i>Arisaema atrorubens</i>	Jack-in-the-Pulpit	1-3	Purple, White	May-June
<i>Arisaema dracontium</i>	Green Dragon	1-2	Green-Yellow	May-June
<i>Aruncus</i> spp.	Goats Beard	1-6	Cream-White	May-July
<i>Astilbe</i> spp.	False Spirea	1-4	White, Pink, Red	April-August
<i>Astrantia major</i>	Masterwort	1-3	White, Pink	June-September
<i>Begonia grandis</i>	Hardy Begonia	1-2	White, Pink	June-August
<i>Bergenia</i> spp.	Bergenia, Pig Squeek	1	White, Pink, Red	April-May
<i>Brunnera macrophylla</i>	Siberian Bugloss	1-1.5	Blue	April-May
<i>Carex</i> spp.	Sedge	0.5-2	Foliage	Seasonal
<i>Chelone</i> spp.	Turtle Head, Snake Head	1-3	White, Pink, Purple	August-October
<i>Cimicifuga</i> spp.	Snakeroot, Bugbane	3-5	White	July-October
<i>Cyclamen hederifolium</i>	Cyclamen	0.5	White, Pink	August- September
<i>Dentaria</i> spp.	Toothwort	0.5-2	White, Pink,	Purple March-

<i>Dicentra</i> spp.	Bleeding Heart	1-2.5	White, Pink, Red	May March-September
<i>Dodecatheon</i> spp.	Shooting-Star	1-2	White, Pink, Red	April-July
<i>Duchesnea indica</i>	Barren Strawberry	0.5	Yellow	June-August
<i>Epimedium</i> spp.	Barrenwort	1	White, Yellow, Red	April-May
<i>Equisetum</i> spp.	Horsetail	1-2	Foliage	Seasonal
<i>Eiythronium</i> spp.	Dogtooth Violet, Trout L	0.75	Violet, White, Yellow	April-June
<i>Filipendula</i> spp.	Meadow Sweet, Dropwort	2-4	White, Pink, Red	June-August
<i>Fragaria vesca</i>	Woodland Strawberry	0.5	White	May-June
<i>Gentiana andrewsii</i>	Bottle Gentian	1-2	White, Blue	August
<i>Geranium</i> spp.	Cranesbills	1-2	Pink, White, Lavender-Blue	May-September
<i>Gillenia</i> spp.	Bowman's Root	2-3	White, Pink	May-June
<i>Helleborus</i> spp.	Christmas/Lenten Rose	1-2	White, Pink, Purple	November-April
<i>Hepatica</i> spp.	Liverleaf	0.5	White, Pink, Red	March-April
<i>Heuchera</i> spp.	Alumroot	1-3	White, Pink, Red	April-July
<i>Hosta</i> spp.	Plantain Lily	1-2	White, Purple	June-October
<i>Houttuynia cordata</i>	Houttuynia	1-1.5	White, Yellow	June
<i>Hydrastis canadensis</i>	Goldenseal	1	Yellow	March-May
<i>Iris cristata</i>	Crested Iris	1	White, Blue, Purple	April-May
<i>Kirengeshoma palmata</i>	Kirengeshoma	2-3	Yellow	August- September
<i>Lathyrus vernus</i>	Spring Veitchling	1	White, Pink, Purple	April-May
<i>Ligularia</i> spp.	Golden Ray	3-6	Yellow, Orange	June-September
<i>Liriope</i> spp.	Lilyturf	1	White, Purple	August- September
<i>Lobelia cardinalis</i>	Cardinal Flower	2-4	White, Pink, Red	July-September
<i>Lysimachia</i> spp.	Loosestrife	0.5-8	Yellow	May-September
<i>Mazus reptans</i>	Mazus	0.2	White, Blue, Purple	May-July
<i>Mertensia</i> spp.	Bluebells	0.5-1	Blue, Pink, White	April-June
<i>Monarda</i> spp.	Bergamot	2-4	Red, Pink, White	June-September
<i>Myosotis</i> spp.	Forget-me-not	0.5-1	Blue, White	May-August
<i>Omphalodes</i> spp.	Navelwort	0.5-1	Blue	March-May
<i>Phlox</i> spp.	Phlox	0.5-4	Various	March-August
<i>Podophyllum</i> spp.	May Apple	1-2	White, Pink	May
<i>Polemonium</i> spp.	Jacob's Ladder	1-2	Blue, Purple, White	April-July
<i>Polygonatum</i> spp.	Solomon's-seal	1-6	White	May-June
<i>Primula</i> spp.	Primrose	0.5-2	Varies	March-April
<i>Prunella grandiflora</i>	Self-Heal	1-2	White, Pink, Red	June-July
<i>Pulmonaria</i> spp.	Lungwort	1	White, Pink, Blue, Red	March-May
<i>Ranunculus ficaria</i>	Figwort, Lesser Celandine	0.5	Yellow, White	March-May
<i>Sanguinaria canadensis</i>	Bloodroot	0.5-1	White	April-May
<i>Sanguisorba</i> spp.	Burnet	1-4	White, Pink	May-September
<i>Smilacina racemosa</i>	False Solomon's-seal	2-3	White	May
<i>Soldanella montana</i>	Blue Moonwort	0.5	Violet	May-June
<i>Spigelia marilandica</i>	Pinkroot	1-2	Yellow, Red	July-September

<i>Stylophorum diphyllum</i>	Celandine Poppy	1-1.5	Yellow	April-June
<i>Symphytum</i> spp.	Comfrey	1-3	Cream, Pink, Blue	May-July
<i>Thalictrum</i> spp.	Meadow Rue	3-6	White, Violet	May-September
<i>Tiarella cordifolia</i>	Foamflower	1	White	April-June
<i>Tovara virginiana</i>	Knotweed	2-3	Foliage	All year
<i>Tradescantia</i> spp.	Spiderwort	0.5-3	Various	April-September
<i>Tricyttis</i> spp.	Toad Lily	1-3	Various	July-Oct
<i>Trillium</i> spp.	Wake-Robin	0.5-2	White, Red	March-June
<i>Uvularia grandiflora</i>	Bell-Wort, Merrybells	1-2.5	Yellow	April-May
<i>Veronicastrum virginicum</i>	Culver's Root	2-6	White	June-September
<i>Vinca minor</i>	Common Periwinkle	0.5	White, Blue, Purple	March-April
<i>Viola</i> spp.	Violet	0.5-1	White, Blue, Purple	April-June
<i>Waldsteinia ternata</i>	Golden Strawberry	0.75	Yellow	April-May