



SITE CONDITIONS OF A SHADE GARDEN

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Most gardeners have one trouble spot in the garden and it is almost always in the shade. You may have tried planting different plants, but they just do not thrive. Let's tackle these tricky garden spots by choosing plants that will! Sun exposure and the physical properties of your soil are key factors of planting success.

The first step to selecting plants is to evaluate your garden. A plot plan is useful as a base for mapping your plants and it will indicate which direction is north. If you don't have a plot plan of your property, a hand drawn outline of structures on your property will do. A quick map search online will show you how your property sits in relation to north. So why is knowing which direction is north in your garden important? It will help you understand sun exposure in your planting areas. There are multiple degrees of sun exposure from full sun to full shade. As you take an inventory of your garden, note the sun exposure levels described in Table 1.

Before you move to the next step of plant selection, it must be brought to your attention that the amount of sunlight a location receives will change throughout the year. For example, it is the middle of winter and you noted on your garden map a planting area that receives full shade. A structure will cast the most shade in winter when the sun is at a lower angle to the horizon. During summer, the sun is at a much higher angle to the horizon and the shadow will be much shorter. In summer, your full shade bed may have full sun if there aren't any other trees or structures nearby to provide shade.

TABLE 1: Sun Exposure Defined	
Full Sun	6 + hours of sun a day
Partial Sun	4 to 6 hours of sun a day, shaded during the most intense sun
Partial Shade	4 to 6 hours of morning sun, with shade the rest of the day
Dappled Sun	Receives a mix of sun and shade throughout the day
Full Shade	Receives very little direct sunlight

The most common shady garden areas are north and east sides of structures and under structures and trees. Some examples of residential structures are house walls, fences, pergolas, decks, and sheds. The amount of shade beneath a tree depends on the density of its canopy. In general, you will have dappled shade under trees and partial sun to partial shade on the east side of a structure. You may have a shade garden with a combination of these areas. For example, you may have some shrubs planted along the east side of your house and a tree that shades them too. These shrubs will most likely be in a full shade zone.

Next, it is time to take a closer look at the soil. Some physical properties of soil include structure, texture, and moisture content. Soil structure is the arrangement of groups of soil particles. A soil that has good structure contains pores for air, water, and nutrients to move through. Roots can grow through soil with good structure easily. Soil texture is the proportion of sand, silt, and clay present. In general, the soil in Placer County contains a large amount of clay. While soil texture is difficult to change, in most situations soil structure can be improved by amending with compost and a topcoat of mulch. For more information on Foothill soils, see <http://pcmg.ucanr.org/files/166289.pdf>

Let's examine some common shady areas. In shady areas along the north side of a home's foundation, the soil moisture can vary. Soil closest to the house may be protected from the home's eaves and dry. If the area receives supplemental irrigation, the soil may remain moist and cool. The soil beneath a mature tree will contain an extensive root system and may be compacted. This means the soil structure is poor. Tree roots typically occupy the top 18 inches of soil and will spread well beyond the canopy of the tree. Anything planted in this zone will be competing with the tree for root space, air, moisture, and nutrients. For example, a redwood tree has shallow and matted roots which makes it difficult to underplant. Most trees have soil spaces among the root system. You will have to carefully investigate where roots are located. If you decide to plant between the roots, plants with small root systems would be a good choice. Prostrate plants will fill a larger space with less soil disturbance. Please note that trees do not like their roots disturbed and the soil level should not be altered. An alternative to planting in

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this zone is to add a 2 inch layer of mulch starting about 4 inches away from the tree trunk. For more information on planting below trees, visit <https://lanaster.unl.edu/hort/articles/2011/PlantingUnderTree.shtml>

By surveying your garden, you will be able to identify the type of shade in your planting areas and soil moisture content and structure. If you are adding plants to an already established planting bed, the new plants should have the same water requirements as the established plants. Additional plant characteristics such as hardiness zone, function of the plant, mature size, deciduous or evergreen, foliage and flower color, and tolerance of deer should be considered when selecting plants. The table below provides some plant suggestions.

Name	Comments	WUCOLS*	Exposure	Soil
*WUCOLS: Water Use Classification of Landscape Species, https://ucanr.edu/sites/WUCOLS/				
<i>Arctostaphylos</i> sp. Manzanita	Many varieties offer a range of sizes. Ground covers tend to be slow to establish among tree roots. These evergreen plants have small white to pink bell shaped flowers in spring. Oak tree compatible.	Low to Moderate	Part Sun to Dappled Shade	Average, Well-drained
<i>Calycanthus occidentalis</i> Spicebush	An evergreen shrub with maroon spring flowers that are wine scented.	Moderate	Part Sun to Dappled Shade	Adaptable
<i>Carpenteria californica</i> Bush anemone	An evergreen shrub with white Camellia-like flowers. Deer tolerant. Oak tree compatible.	Low	Part Shade to Full Shade	Adaptable
<i>Cercis occidentalis</i> Western Redbud	A small deciduous tree with green heart shaped leaves. It has magenta spring flowers and yellow to red fall foliage. This plant likes afternoon shade in the hot inland valley. Deer tolerant. Oak tree compatible.	Very Low	Part Sun to Dappled Shade	Well-drained
<i>Iris</i> sp. Iris	Small rhizomes fit among most tree roots. Deer tolerant. Oak tree compatible.	Low to High depending on variety	Part Shade to Dappled Shade	Average, Well-drained
<i>Leymus triticoides</i> 'Lagunita' Lagunita Wild Rye	1-2' tall spreading grass will go summer dormant if water is withheld. It will stay green in summer with 2 waterings per month. Few seed heads develop and are pet friendly. Good among tree roots. Deer tolerant. Oak tree compatible.	Low	Sun to Dappled Shade	Adaptable
<i>Frangula</i> sp. Coffeeberry	Evergreen shrubs with small yellow flowers that develop into multi-colored berries in fall. Deer tolerant. Oak tree compatible.	Low	Sun to Full Shade	Average, Well-drained
<i>Ribes</i> sp. Currant and Gooseberry	Deciduous shrubs with erect vase shape. Gooseberry plants have spines. <i>Ribes</i> sp. produce multi-colored berries. Flower color depends on the variety. Deer tolerant. Oak tree compatible.	Low	Part Sun to Dappled Shade	Adaptable
<i>Satureja douglasii</i> Yerba Buena	A member of the mint family, this evergreen ground cover slowly spreads. Deer tolerant.	Moderate	Part Shade Dappled Shade	Adaptable
<i>Sisyrinchium bellum</i> Blue-Eyed Grass	A herbaceous perennial that will go summer dormant. It has grass-like foliage and blue spring flowers. Good among tree roots.	Low to Moderate	Part Sun to Dappled Shade	Adaptable, Tolerates heavy clay

References:

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Lichter, John, Ellen Zagory and Pavel Svihra. *Landscaping Under Native Oaks of the Central Valley*. University of California Cooperative Extension. July 2003. <http://pcmg.ucanr.org/files/178863.pdf>

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UC Master Gardeners of Placer County are University of California Cooperative Extension (UCCE) ambassadors to the Placer County home gardening community. Master Gardeners promote environmental awareness and sustainable landscape practices, and extend research-based gardening and composting information to the public through educational outreach. UCCE is part of the Division of Agriculture and Natural Resources (ANR) of the University of California.