RESEARCH LABORATORY TECHNICAL REPORT

BARTLETT TREE EXPERTS
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Preparing a Shade Garden

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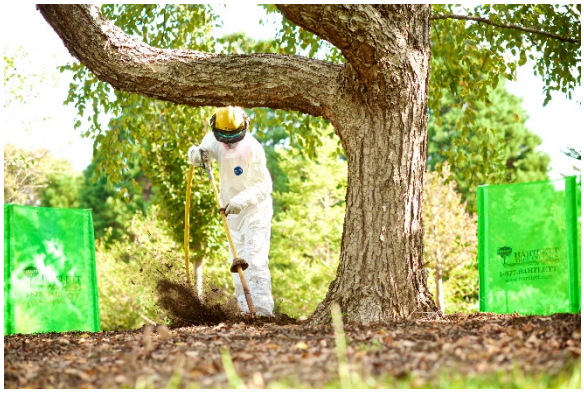
Growing bulbs, perennials, annuals, or shrubs under the shade of a large tree can be a difficult task. All plants need light to grow and only certain species are adapted to low light situations (see Table 1). For these species, mature shade trees are an excellent source of shade or filtered sunlight. When cared for properly, these trees provide wonderful opportunities for shade gardening.

The first step to a successful shade garden is selecting plant species that are adapted to your area and are tolerant of low light situations. The next challenge is planting in an area that already has a dense tree root system. Tree roots tend to be concentrated near the trunk and within the drip line. In the past, these roots made digging or rototilling nearly impossible because accidental injury to the roots could seriously damage the tree. Cutting tree roots, especially those beneath the canopy, is always discouraged by professional arborists. In fact, damage to roots is the leading cause of tree mortality on construction sites. Adding soil over the tree root system to create a bed for shade loving plants can be equally damaging. Fill soil will reduce oxygen levels in the root zone and can change drainage patterns. This may lead to root mortality and stem and root disease.

Preparation of the soil is key to protecting trees when building a shade garden. The Root Invigoration™ program uses a high pressure air excavation tool called an AirSpade® to loosen the soil and incorporate amendments to prepare for planting. With this tool, large volumes of air propelled at supersonic speeds loosen soil without damaging tree roots. Organic matter, fertilizer, and biochar can be incorporated into the soil at the same time to encourage rapid root growth. This process enables landscapers or homeowners to easily install their favorite shade

Figure 1: An AirSpade® is loosening soil and incorporating organic matter for a shade garden planting



loving plants in the prepared soil, often with no tools since the soil is loose and ready to plant.

The roots of the newly planted material quickly and easily grow into the loose, rich soil allowing for rapid establishment. Add water and mulch, which retains soil moisture and provides nutrients as it decomposes. The end result is a great looking and fast-growing shade garden without negative impact on the overstory tree.

As with any work done close to a tree, excess soil should be kept away from the trunk so that the tops of the buttress roots are visible. When irrigating, water should not be directed at the trunk as this can lead to

disease problems. Since there are more plants now growing in the same rooting area and the new plantings are competing with the root system of an established tree, the volume of irrigation water and fertilizer may need to be increased. These factors should be monitored carefully and adjusted until the new plants become established. An experienced arborist can assist in preparing the soil for planting and in determining water and fertilization needs.

Table 1. Species Tolerant of Shade

Trees:	
Acer japonicum	*Chionanthus virginicus*
Acer pensylvanicum	*Cornus florida*
Acer triflorum	*Cornus kousa*
Amelanchier arborea	*Cornus mas*
Amelanchier laevis	*Hamamelis japonica*
Amelanchier × *grandiflora*	*Hamamelis mollis*
Carpinus caroliniana	*Hamamelis virginiana*
Cercis canadensis	*Ilex opaca*
Cercis chinensis	*Magnolia virginiana*
Cercis canadensis var. *texensis*	*Ostrya virginiana*
Shrubs:	
Aesculus parviflora	*Itea virginica*
Azalea spp.	*Leucothoe fontanesiana*
Calycanthus floridus	*Lindera benzoin*
Cephalotaxus harringtonia	*Vaccinium corymbosum*
	Viburnum acerifolium
Clethra alnifolia	*Viburnum carlesii*
Clethra barbinervis	*Zenobia pulverulenta*
Perennials:	
Aquilegia canadensis	*Heuchera* spp.
Aruncus dioicus	*Hosta* spp.
Astilbe species	*Liriope* spp.
Campanula spp.	*Lobelia* spp.
Actaea racemosa	*Osmunda* spp.
Dicentra spectabilis	*Paeonia* spp.
Epimedium spp.	*Pulmonaria* spp.
Hakonechloa spp.	*Tiarella* spp.
Helleborus spp.	*Viola* spp.

Founded in 1926, The Bartlett Tree Research Laboratories is the research wing of Bartlett Tree Experts. The Lab also houses a state-of-the-art plant diagnostic clinic and provides vital technical support to Bartlett arborists and field staff for the benefit of our clients.