

Rain Catcher Pilot Program: Recommended Tree Species

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Abstract

This report provides a list of tree species that are considered well suited for soil conditions associated with raingardens and irrigation areas from rainwater harvesting systems. Two plant databases and local expertise helped inform the recommended species list.

Introduction

The Rain Catcher Pilot Program offers a package of incentives, technical, and logistical support to community members living within the boundaries of the Waller Creek watershed's headwaters to install raingardens and cisterns within residential property. Rain gardens typically receive rain from roofs and/or paved surfaces. Cisterns receive rain from roofs then slowly release it into the soil. Both cisterns and raingardens prolong the period when soil is wet after a rain event. During extended periods without rain, however, soils are dry. Appropriate tree species for these soils are those that can tolerate periods with saturated soils as well as periods with dry soils. This report provides a list of species suited for those conditions.

Methods

Two databases were consulted to determine adequate woody species, both canopy trees and understory ones, for raingardens and irrigation areas from rainwater cisterns: the USDA plant database (USDA NRCS 2014) and the LBJ wildflower center plant database (Lady Bird Johnson Wildflower Center). Species selected met at least one of the following criteria:

- a. Identified as a facultative wetland indicator (FAC) or facultative-upland wetland indicator (FACU) in the USDA plant database (USDA NRCS 2014)
- b. Identified in the LBJ wildflower center database as tolerating a wide range of soils (from well drained sandy or sandy loams to poorly drained clay dominated soils) and conditions including ravines and roadside ditches (Lady Bird Johnson Wildflower Center).
- c. Known to establish successfully in riparian areas planted as seedlings in the City of Austin's Ready, Set, Plant! program and subject to natural rainfall conditions.

Native species meeting these criteria were listed (Table 1), including other relevant criteria such as the reported shade tolerance and commercial size availability. Two locally adapted edible fruit species (non-native) were included due to known tolerance for dry and saturated soils.

Table 1. Recommended raingarden and cistern-irrigation species

Canopy Trees (large)

Common Name	Scientific Name	FAC or FACU	wide range conditions	Successful in riparian restoration	Shade tolerance	available sizes
Anacua	<i>Ehretia anacua</i>				Yes	seedling
Live oak	<i>Quercus fusiformis</i>				Yes	Seedling, 5-gallon
Osage orange	<i>Maclura pomifera</i>				Yes	seedling
Bur oak	<i>Quercus macrocarpa</i>				Yes	Seedling, 5-gallon
Chinkapin oak	<i>Quercus muehlenbergii</i>				Yes	Seedling, 5-gallon
American sycamore	<i>Platanus occidentalis</i>				No	Seedling, 5-gallon
Pecan	<i>Carya illinoensis</i>				Yes	Seedling, 5-gallon
Shumard oak	<i>Quercus shumardii</i>				Yes	Seedling, 5-gallon
Cottonwood	<i>Populus deltoides</i>				No	Seedling
Cedar elm	<i>Ulmus crassifolia</i>				Yes	Seedling, 5-gallon
Huisache, Sweet acacia	<i>Vachellia farnesiana</i>				Yes	Seedling, 5-gallon
Common persimmon	<i>Diospyros virginiana</i>				Yes	5-gallon?

Understory trees (small-medium)

Common Name	Scientific Name	FAC or FACU	wide range conditions	Successful in riparian restoration	Shade tolerance	available sizes
Carolina buckthorn	<i>Frangula caroliniana</i>				Yes	Seedling
Mexican buckeye	<i>Ungnadia speciosa</i>				Yes	Seedling, 5-gallon
Mexican plum	<i>Prunus mexicana</i>				Yes	Seedling, 5-gallon
Mexican redbud	<i>Cercis canadensis var mexicana</i>				Yes	Seedling, 5-gallon
Possumhaw	<i>Ilex decidua</i>				Yes	Seedling, 5-gallon
Red mulberry	<i>Morus rubra</i>				Yes	Seedling, 5-gallon
Retama	<i>Parkinsonia aculeata</i>				No	Seedling, 5-gallon
Roughleaf dogwood	<i>Cornus drummondii</i>				Yes	Seedling

Scarlet buckeye	<i>Aesculus pavia</i> var. <i>pavia</i>				Yes	Seedling, 5-gallon
Texas mountain laurel	<i>Sophora secundiflora</i>				Yes	Seedling, 5-gallon
Texas persimmon	<i>Dyospiros texana</i>				Yes	Seedling, 5-gallon
Texas redbud	<i>Cercis canadensis</i> var. <i>texensis</i>				Yes	Seedling, 5-gallon
Western soapberry	<i>Sapindus saponaria</i> var. <i>drummondii</i>				No	Seedling
Yaupon holly	<i>Ilex vomitoria</i>				Yes	Seedling, 5-gallon
Fig	<i>Ficus carica</i>				Yes	5-gallon
Japanese persimmon (several varieties)	<i>Diopsyros kaki</i>				Yes	5-gallon

Recommendations

The species on this list, except for fruit trees, are native to the central Texas region and adapted to a wide range of soil types and soil moisture conditions. Although other native tree species are also suitable for these conditions, the availability in the nursery industry is limited. It is recommended that this list is reviewed and updated every five years to account for changes in commercial availability and any potential changes in species data or climate.

References

Lady Bird Johnson Wildflower Center. Native Plants of North America.
 USDA NRCS. 2014. The PLANTS Database. The Plants Database.