Department of Horticultural Science

Horticulture Information Leaflet 646

Revised 2/94 -- Author Reviewed 12/98

QUALIFIERS FOR QUAGMIRES: LANDSCAPE PLANTS FOR WET SITES

Thomas G. Ranney, Associate Professor
Richard E. Bir, Extension Horticultural Specialist
M. A. (Kim) Powell, Professor/Extension Horticultural Specialist
Ted Bilderback, Professor/Extension Horticultural Specialist

Wet, poorly drained soils present one the most difficult challenges for growing plants in the landscape. Excessive moisture displaces oxygen in the soil and plant roots can suffocate as a result. Many plants are intolerant of having their roots submerged for extended periods of time. Even though standing water may not be present, poor drainage is often responsible for reduced growth and survival of plants in our landscapes.

When landscaping sites with poor drainage, it is advisable to start with plants that are tolerant of those conditions. Plants native to wet bottomland areas often thrive under these conditions. When selecting and planting trees and shrubs for poorly drained sites, it is important to recognize that plants often need to acclimate to these conditions before they are able to tolerate flooding and low aeration. Even plants that are very tolerant of poor drainage will have shallower root systems on poorly drained sites. Over time, physiological and anatomical changes in the plant can also help to improve tolerance to poor drainage. As a result, it is often desirable to start with small plants that have been grown under conditions as similar to the planting site as possible when planting trees and shrubs on poorly drained sites.

Although many of plants listed in this leaflet can tolerate poor drainage, their growth will often be improved if more desirable growing conditions can be provided. Creation of raised beds, swales, grassed waterways, and drainage lines can help to divert and route excess water away from planting sites and should be considered if drainage is excessively slow.

Below is a list of candidate plants for the landscape that can tolerate varying degrees of wetness. Plants with an asterisk (*) following their name indicates that those species have been known to tolerate flooded conditions for extended periods of time.

Trees

Acer negundo (boxelder)
Acer platanoides (Norway maple)
Acer rubrum (red maple)*
Acer x freemanii (Freeman hybrid maple)*
Aesculus pavia (red buckeye)
Alnus glutinosa (black alder)
Amelanchier canadensis (serviceberry)
Betula nigra (river birch)*
Carya aquatica (water hickory)
Catalpa speciosa (catalpa)
Celtis spp. (hackberry)
Chamaecyparis thyoides (Atlantic white cedar)*
Diospyros virginiana (persimmon)
Fraxinus caroliniana (Carolina ash)
Fraxinus nigra (black ash)*
Fraxinus pennsylvanica (green ash)*
Fraxinus quadrangulata (blue ash)
Larix spp. (larch)
Liquidambar styraciflua (sweetgum)
Maclura pomifera (osage orange)

Distributed in furtherance of the Acts of Congress of May 8 and June 30, 1914. Employment and program opportunities are offered to all people regardless of race, color, national origin, sex, age, or disability. North Carolina State University, North Carolina A&T State University, U.S. Department of Agriculture, and local governments cooperating.

North Carolina
Cooperative Extension Service
NORTH CAROLINA STATE UNIVERSITY
COLLEGE OF AGRICULTURE & LIFE SCIENCES

Trees (continued)

Magnolia grandiflora (southern magnolia)
Magnolia virginiana (sweetbay magnolia)*
Nyssa aquatica (water tupelo)*
*Nyssa sylvatica (*black gum*)*
Nyssa sylvatica var. *biflora* (Swamp Tupelo)*
*Nyssa ogeche (*ogeechee tupelo)
*Pterocarya spp. (*wingnut*)*
Picea glauca (white spruce)
Pinckneya bracteata (fevertree)
Pinus taeda (loblolly pine)
Platanus spp (planetree)*
*Pseudolarix kaempferi (*golden larch*)*
Pyrus spp. (pear)*
Quercus bicolor (swamp white oak)
*Quercus laurifolia (*laurel oak*)*
Quercus lyrata (overcup oak)
Quercus nigra (water oak)
Quercus nuttallii (nuttall oak)*
Quercus palustris (pin oak)*
Quercus phellos (willow oak)
Quercus virginiana (live oak)
*Salix spp. (*willow)*
Taxodium spp. (baldcypress)*
Thuja occidentalis (eastern arborvitae)
Thuja plicata (giant arborvitae)
*Ulmus alata (*winged elm)
*Ulmus parvifolia (*lacebark elm*)*

Shrubs

Aronia arbutifolia (red chokeberry)
*Baccharis halimifolia (*groundsel tree)
Cephalanthus occidentalis (button bush)*
Clethra acuminata (cinnamon clethra)
Clethra alnifolia (summersweet)
Cornus alba (tartarian Dogwood)*
Cornus sericea (red osier dogwood)*
Cornus amomum (silky dogwood)*
Cyrilla racemiflora (swamp cyrilla)
Dirca palustris (leatherwood)
Euonymus americana (American euonymus)
Fothergilla spp. (fothergilla)
Hibiscus syriacus (rose-of-sharon)
Ilex cassine (dahoon holly)
Ilex glabra (inkberry)
Ilex verticillata (winterberry)*
Ilex vomitoria (yaupon holly)*
Illicium spp. (anise-tree)
Itea spp. (sweetspire)
Leucothoe fontanesiana (leucothoe)
Lindera benzoin (spicebush)
Myrica spp. (bayberry/waxmyrtle)
Physocarpus opulifolius (ninebark)
Rhamnus caroliniana (Carolina buckthorn)
Rhododendron arborescens (sweet azalea)
Rhododendron atlanticum (coastal azalea)
Rhododendron vaseyi (pinkshell azalea)
*Rhododendron viscosum (*swamp azalea)
Rosa virginiana (virginia rose)
Sambucus canadensis (elderberry)
Spiraea tomentosa (hardhack)
Vaccinium corymbosum (highbush blueberry)
*Viburnum alnifolium (*hobblebush)
Viburnum cassinoides (witherod viburnum)
Viburnum opulus (European cranberrybush viburnum)

Herbaceous Perennials and Shallow Water/Bog Plants

Acorus calamus (sweet flag)*
Astilbe spp. (astilbe)
Butomus umbellatus (flowering rush)*
Calla palustris (bog arum)*
Caltha palustris (marsh marigold)*
Canna x generalis (Water canna)*
Carex spp. (sedge)
Eleocharis acicularis (spike rush)*
Eupatorium dubium (Joe Pye weed)
Equisetum hyemale (horsetail)*
Hibiscus moscheutos (rose mallow)
Iris ensata (Japanese water iris)*
Iris laevigata (water iris)*
Iris pseudacorus (yellow flag)*
Iris siberica (Siberian iris)
Iris vericolor (blue flag)*
Iris virginica (southern blue flag)*
Juncus spp. (rush)*
Leersia oryzoides (rice cutgrass)*
Lobelia cardinalis (cardinal flower)
Lobelia siphilitica (great lobelia)
Lysimachia clethroides (gooseneck loosetrife)
Myosotis scoparius (water forget-me-not)
Orontium aquaticum (golden club)*
Peltandra virginica (hardy arum)*
Pontederia cordata (pickerel weed)*

Herbaceous Perennials
and Shallow Water/Bog Plants (continued)
Sagittaria spp. (arrowwhead)*
Sarracenia spp. (pitcher plant)
Saururus cernuus (lizard's tail)*
Schoenoplectus validus (soft stem bulrush)*
Scirpus americanus (common threesquare)*
Spartina alterniflora (cordgrass)*
Typha spp. (cattail)*
Vernonia noveboracensis (iron weed)

Sources for More Information on the Plants Listed Above

- Armitage, A.M. 1989. *Herbaceous perennial plants: A treatise on their identification, culture, and garden attributes*. Varsity Press, Inc. Athens, GA.
- Bir, R.E. 1992. *Growing and propagating showy native woody plants*. The University of North Carolina Press. Chapel Hill, N.C.
- Dirr, M.A. 1990. *Manual of woody landscape plants: Their identification, ornamental characteristics, culture, propagation, and uses*. Fourth edition. Snipes, Champaign, Ill.
- Aulbach-Smith, C.A. and S. J. de Kozlowski. 1990. *Aquatic and wetland plants of South Carolina*. S.C. Water Resources Commission, Columbia, S.C.