United States Department of Agriculture

Natural Resources Conservation Service

April 2007

Technical Note No. 73

Identification of Plant Species' Trinomials with Varying Wetland Indicator Status Designations: Northeast Region

Issued April 2007

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720–2600 (voice and TDD). To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, SW., Washington, DC 20250–9410, or call (800) 795–3272 (voice) or (202) 720–6382 (TDD). USDA is an equal opportunity provider and employer.

Acknowledgements

Technical Note No. 74 was produced by the NRCS National Wetland Team (*http://www.wli.nrcs.usda.gov*), Fort Worth, Texas. For further information, contact **Norman C. Melvin**, Ph.D., Team Leader, 817–509–3572.

Photographic credits:

USDA NRCS National Plant Data Center: distribution maps, line art, *Fagus grandifolia* leaf and *Nyssa sylvatica* flower photographs

Will Cook, Department of Biology, Duke University, Durham, NC, photos of *Acer rubrum* var. *Drummondii*

Norman C. Melvin, Ph.D., USDA NRCS National Wetland Team, CNTSC, Fort Worth, TX, all other photographs and text

Identification of Plant Species' Trinomials with Varying Wetland Indicator Status Designations: Northeast Region

Purpose

The purpose of this document is to transmit information on the identification of plant species that have been ascribed with subspecific taxonomic ranks (subspecies, varieties, or other trinomials) and have been listed in the U.S. Fish and Wildlife Service (USFWS) 1988 National List of Vascular Plant Species that Occur in Wetlands (List88) with variable wetland indicator status designations.

Introduction

The wetland provisions in the National Food Security Act Manual (NFSAM) (*http://policy.nrcs.usda.gov/scripts/lpsiis.dll/M/M_180.htm*) and the 1987 Army Corps of Engineers Wetlands Delineation Manual (*http://el.erdc.usace.army.mil/wetlands/pdfs/wlman87.pdf*) both require the use of a three-parameter approach when identifying and delineating wetlands. Based upon the guidance contained in these two documents, a site must possess wetland hydrology, undrained hydric soils, and hydrophytic vegetation to be identified as a wetland. This article discusses information critical in the determination of hydrophytic vegetation as it relates to the use of List88 (*http://www.nwi.fws.gov/bha/list88.html)* and the identification of plant species with trinomials that have been assigned variable wetland indicator status designations. A trinomial (three names; genus, specific epithet, and subspecies or variety) is defined as a taxonomic subdivision of a species based upon heritable differences in morphology, habitat preference, geographic distribution or other trait. These differences are reflected formally in the plant's name, that is, *Acer rubrum* var. *trilobum*. When making a wetland determination, it is important to consider these trinomials since their presence in the community, especially if a dominant, can affect the outcome of the hydrophytic vegetation determination.

By definition, a hydrophyte is a plant growing in water or in a substrate that is at least periodically deficient in oxygen during a growing season as a result of excessive water content (NFSAM § 527.4). These plant species are adapted for life in saturated soil conditions and have developed adaptations (morphological, physiological, or reproductive) that enable them to survive, flourish, and reproduce when anaerobic conditions occur in their root zone. The USFWS, in cooperation with interagency regional and national plant panels, developed and published List88—a compilation of 13 regional editions. This reference lists each of the approximately 7,000 vascular plant species known to occur in wetlands. Each species has been assigned a "wetland fidelity index" or "wetland indicator status" (OBL, FACW, FAC, or FACU) as to its frequency of occurrence in a wetland. It is important to note that the wetland indicator status designation assigned to each species is only an assessment of its frequency of occurrence in a wetland. It is not an assessment of "how wet" or "how deep" a species will tolerate, although it is commonly misconstrued in this way. The NFSAM (§ 527.4) states that "a plant shall be considered to be a plant species that occurs in wetland if such plant is listed in the National List of Vascular Plant Species that Occur in Wetlands. Species with a distribution that crosses the boundaries defined by regional editions of List88 may have more than one indicator status assignment. When this occurs, the indicator status designation assigned to the region where the plant was collected is considered to be the correct designation for determining the presence/absence of hydrophytic vegetation.

Hydrophytic vegetation is generally defined in the plant community context. It is based on the dominant plant species that occur in each community, or by more intensive sampling and using all species encountered. The sampling protocols used to assess the vegetation and make the hydrophytic vegetation determination are described in U.S. Army Corps of Engineers memorandum, Clarification and Interpretation of the 1987 Manual, dated March 6, 1992 (*http://www.saw.usace.army.mil/WETLANDS/Policies/clarif_87_man.pdf*). This clarification cites the "Basic Rule" (the 50% rule) for determining dominant species, and states that each stratum is to be assessed independently in the assessment and cites the USFWS Regional Plant Lists as the source for determining indicator status designations for the dominants identified.

The Regional Plant Lists (*http://www.nwi.fws.gov/bha/list88.html)* contain a subset of the species included

in List88 and include only those species known to occur within the particular geographic region defined by the volume. These regional lists identify the wetland indicator status designation for each species as it occurs in that region. The regional volumes organize the species listings into three separate sections. The first section lists each plant's species name and its associated indicator status designation as determined by the regional and national interagency plant panels. Other information including the author of the species, one common name, and plant habit information is associated with each species. The third section is a listing of synonymy. The entries in this section include older names that appear in floras and/or botanical manuals but are no longer valid; the species is correctly known by a different scientific name. Associated with each synonym name is the accepted name as identified in List88. To determine the indicator status designation for a species listed in the synonymy, the List88 accepted/correct name associated with that synonym must be cross-referenced back to the first section. **Note:** If you are utilizing the PLANTS Web site (*http://plants.usda.gov*) to determine the wetland indicator status designations, the name identified in List88 may not be the currently accepted name in PLANTS. Since 1988, there have been changes to some plant names, and PLANTS maintains the most up-to-date record of these changes. Since the currently accepted names (in PLANTS) and the synonyms (in List88 and elsewhere) are linked together on the PLANTS Web site, there should be no difficulty in moving from one to the other to find the indicator status designation for your species in question.

The second section of each of the Regional Lists includes a few individuals that are varieties or subspecies (i.e., trinomials) of a species, and the indicator status designation for these subspecific taxa are different than the typical variety. In the Northeast, there are a total of nine of these trinomials with variable indicator status designations. When performing a wetland determination and one of these taxa is encountered, the indicator status designation assigned to that trinomial is the correct one to use in the determination of hydrophytic vegetation. For example, Northeast, Region 1, (*http://www.nwi.fws.gov/bha/download/1988/region1.txt)* lists *Acer rubrum* three times in the first section. Each time it is listed, the common names and indicator status designations are different. This triplicate listing signifies that *Acer rubrum* has three varieties or subspecies (i.e., trinomials) with indicator status designations that are different from one another. In the Northeast, many other wetland plant species have trinomials ascribed to them; however, if the indicator status designations for all the trinomials of a species are the same, the Regional List does not list them out separately as in the example of *Acer rubrum*. To confuse matters (and to continue with the example), *Acer rubrum* is listed three times in the first section of List88 but only twice in the second section. When using the list to determine the indicator status designation for each of the trinomials, the first variety listed in the first section of List88 is considered to be the "typical variety." That name is only listed in the first section. The variants of the species are found in the second section of List88. Continuing with the example, *Acer rubrum* var. *rubrum* (red maple) is considered the typical variety and is designated as FAC for Region 1, Northeast. *Acer rubrum* var. *trilobum* (trident red maple) and *A. rubrum* var. *Drummondii* (Drummond's red maple) are listed with designations of FACW. In the Northeast Regional List, these two trinomials are listed in the second section since they are not considered the typical variety.

In addition to *Acer rubrum*, the Region 1, Northeast volume lists three other species in the second section as having trinomials with a wetland indicator status different than the typical variety. These other taxa are for trinomials of American beech (*Fagus grandifolia*), black gum (*Nyssa sylvatica*), and southern red oak (*Quercus falcata*).

So what does all this mean and what are the implications for wetland identification and delineation? When identifying the vegetation leading toward a presence/absence determination of hydrophytic vegetation, it is important that the trinomials of these species are correctly identified and the wetland indicator status designation ascribed to each trinomial is correct. When a species is listed with trinomials having varying indicator status designations, the indicator status designation for that trinomial is the one that should be applied in the vegetation determination. It is important to apply the correct indicator status and, thus, make the proper determination.

The following section is a listing of the species and their trinomials as appear in the USFWS Region 1, Northeast volume of List88. With each trinomial listed are morphological and habitat characteristics that will help in distinguishing the typical variety from the other taxa.

Plants with Multiple Wetland Indicator Status Designations: Northeast Region

Acer rubrum var. *rubrum* L — FAC

Symbol: ACRUR

Common names: red maple, soft maple, scarlet maple

Leaves:

shape – subcordate, suborbicular, to deltoid-ovate

base – slightly cordate to rounded

lobes – (3) 5 acuminate, coarsely toothed, ascending lobes

pubescence – young leaves hairy on the lower surface but becoming glabrate (hairless) with age

width – 6 to 15 cm at the widest point

Flowering time: March to May

Fruiting time: May to July

Range: Quebec to Manitoba and south into Texas and Florida

Habitat: Native tree of mesic and low woods

Acer rubrum var. *trilobum* Torr. and Gray ex. K. Koch — FACW+

Symbol: ACRUT

Common name: trident red maple, three lobed maple

Leaves:

shape – ovate

base – cuneate to rounded

lobes – 3 short (to obsolete) small toothed lobes

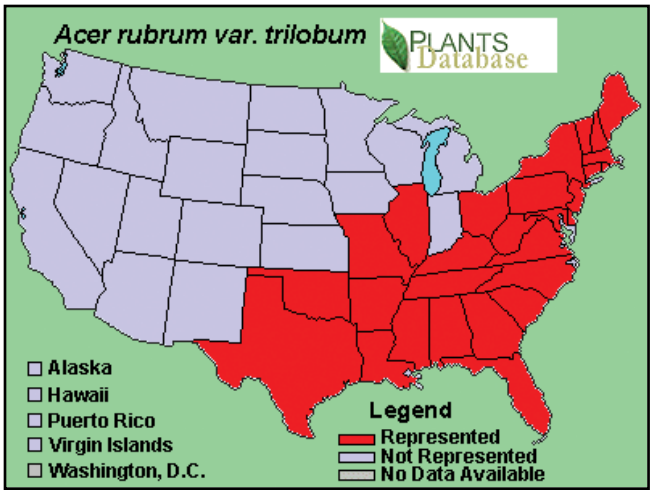
pubescence – variable, glaucus, glabrous, or hairy beneath at maturity width—3 to 10 cm

Flowering time: March to May

Fruiting time: May to July

Range: Canada and south into Texas and Florida

Habitat: Native tree of swamps and lowlands



Acer rubrum var. *Drummondii* (Hook. and Arn. ex. Nutt.) Sargent FACW+

Symbol: ACRUD

***Synonym as appears in the 1988 National List:**
Acer rubrum ssp. *drummondii* (Hook. and Arn. ex. Nutt.) E. Murray

Common name: Drummond's red maple

Leaves:

shape – (similar to var. *rubrum*) subcordate suborbicular, to deltoid-ovate

base – (similar to var. *rubrum*) slightly cordate to rounded

lobes – 5 coarsely toothed ascending lobes but with deeper clefts (or sinuses) than in var. *rubrum*

pubescence – white tomentose (thickly hairy) beneath and remaining with age (this is a very good identifying characteristic)

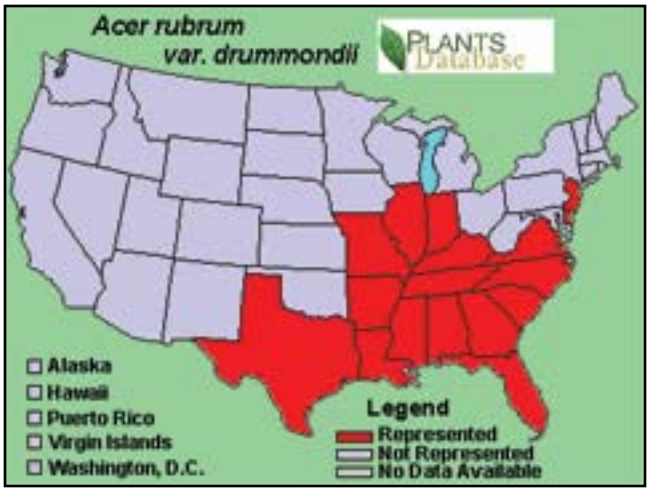
texture – more coriaceous (leathery and dark green) than var. *rubrum*

Flowering time: March to May

Fruiting time: May to July

Range: New Jersey to Illinois and south to Texas and Florida

Habitat: Native tree of bottomlands, sandy woods, and swamps



Fagus grandifolia var. *grandifolia* Erhr. FACU

Symbol: FAGR

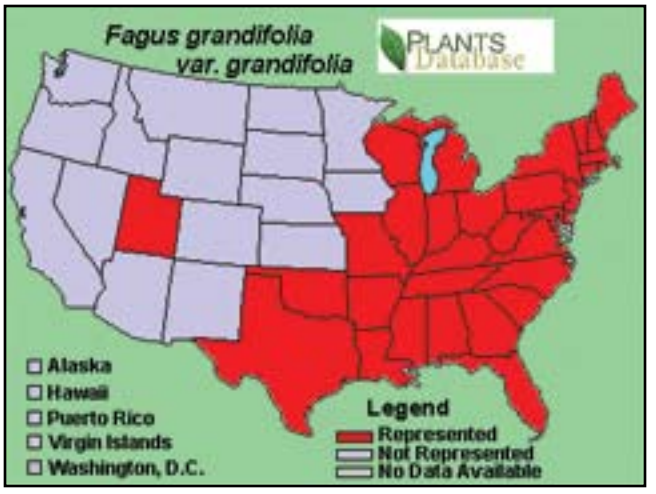
Common name: American beech

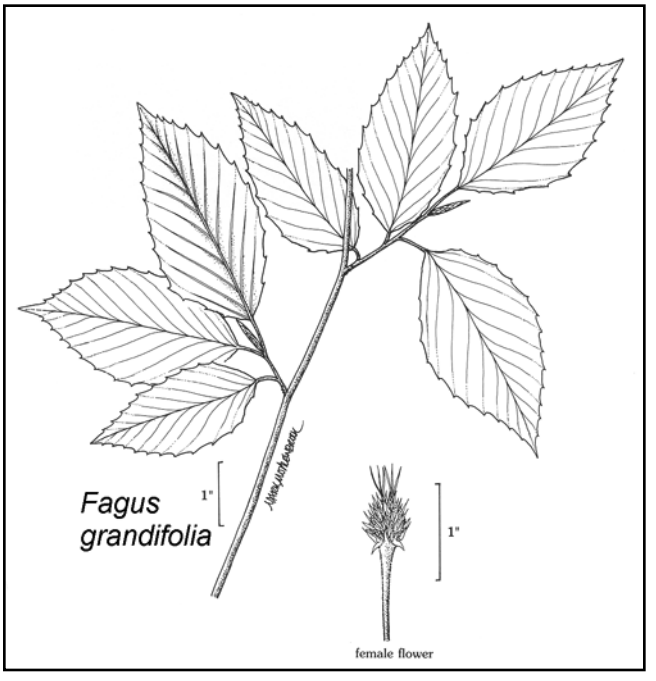
Leaves:
texture – thin, pale to yellowish green
margins – sharply to coarsely serrate
base – mostly cuneate, rounded to subcordate

Fruit: prickers longer (4–10 mm), spreading, erect, or sometimes recurved

Range: Nova Scotia to Minnesota and south to Texas and Florida

Habitat: Native tree occurring in rich upland soils and is a more northern variety even though it can be found in the south





Fagus grandifolia var. *caroliniana* (Loud.) Fern. and Rehd.* FAC+

Symbol: FAGRC

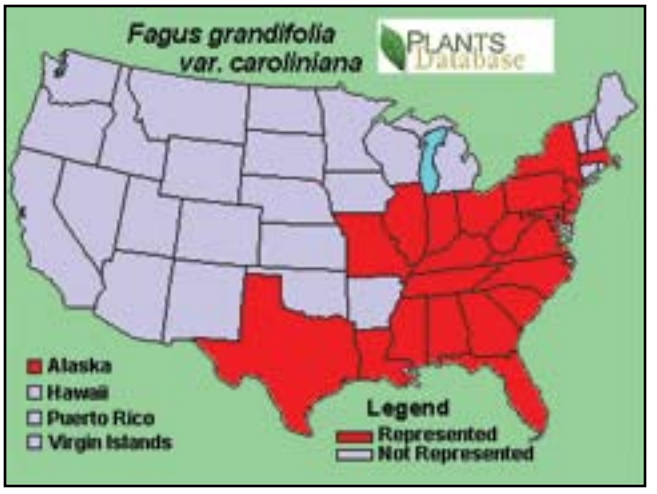
Common name: Carolina beech, white beech

Leaves:
texture – thicker, dark green
apex – strongly acuminate
margins – teeth smaller to merely denticulate
base – rounded or subcordate

Fruit: prickers fewer and shorter (1–3 mm) abruptly reflexed from the base

Range: Massachusetts to southern Illinois and Missouri and south to Florida and Texas

Habitat: Native tree occurring in moist or lowland woods, bottomlands, and margins of swamp boarders. It is a more southern variety as compared to the typical var. *grandifolia*.



* *Note on taxonomy:* Recent changes in taxonomy have submerged (i.e., lumped) var. *caroliniana* into *F. grandifolia*. Although var. *caroliniana* is no longer viewed taxonomically as a variety distinct from *F. grandifolia*, populations displaying the greater hydrology tolerances represented by the former var. *caroliniana* exist and can be identified morphologically. The map shown represents the distribution of *Fagus grandifolia* var. *caroliniana*.

Nyssa sylvatica Marsh **FAC**

Symbol: NYSY

***Synonym as appears in the 1988 National List:**
Nyssa sylvatica var. *typica* Fern

Common names: black gum, sourgum

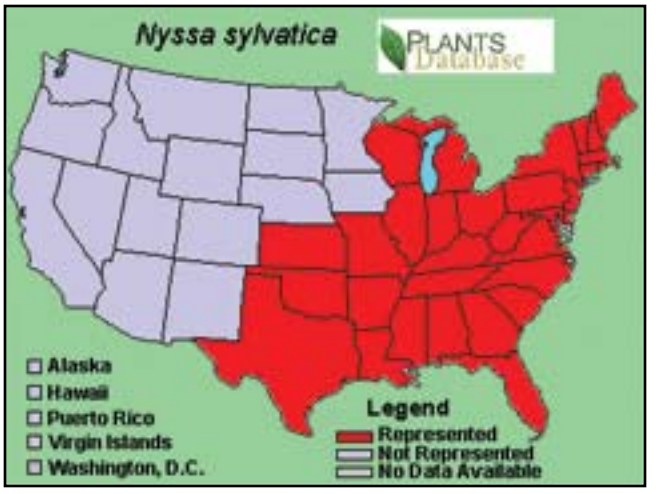
Leaves:
shape – obovate to widely elliptic
texture – thin and membranous
apex – short acuminate
base – acuminate to cuneate
margins – with one or more small, dentate teeth

Fruit: (2) 3 to 4 fruits clustered at the end of the peduncle

Fruiting times: August to September

Range: Maine to Missouri, south into Texas and Florida

Habitat: Native tree growing solitary to widely spaced in uplands and low woods



Nyssa biflora Walt. FACW+

Symbol: NYBI

***Synonym as appears in the 1988 National List:**
Nyssa sylvatica var. *biflora* (Walt.) Sarg.

Common name: swamp tupelo

Leaves:

shape – elliptic to lance-elliptic (oblanceolate)

texture – thick and stiff, coriaceous, nonmembranous

apex – acute to obtuse or rounded

base – cuneate

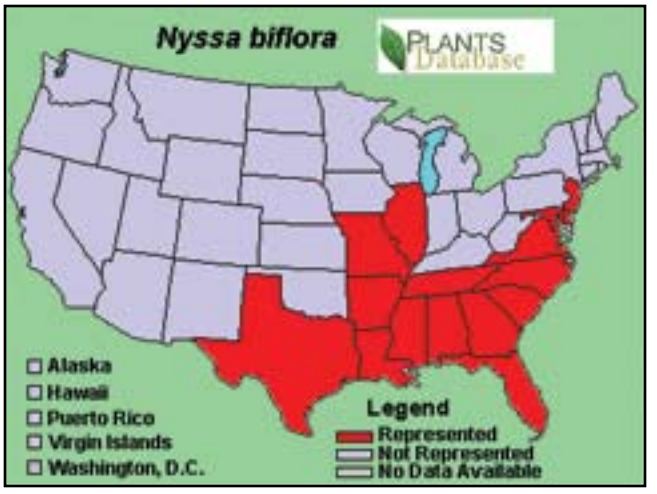
margins – entire (one or two small dentate teeth may be found on seedlings and stump sprouts)

Fruits: 2 (3) in a cluster at the ends of the peduncle

Fruiting dates: August to September

Range: Texas to Florida and north into New Jersey

Habitat: Native tree of inundated swamps, low woods, and wet areas



Quercus falcata Michx. FACU

Symbol: QUFA

***Synonym as appears in the 1988 National List:**
Quercus falcata var. *falcata* (Michx.) Nutt

Common name: southern red oak, red oak, Spanish oak, southern bell

Leaves:

shape – variable but usually with 3 to 5 main lobes and with additional shallow lobes toward the tip, often resembling a bell

lobes – falcate and irregular, the apical lobes abruptly smaller than the main lobes

texture – leaf undersurface densely gray tomentose

base – rounded

Terminal buds: gray tomentose

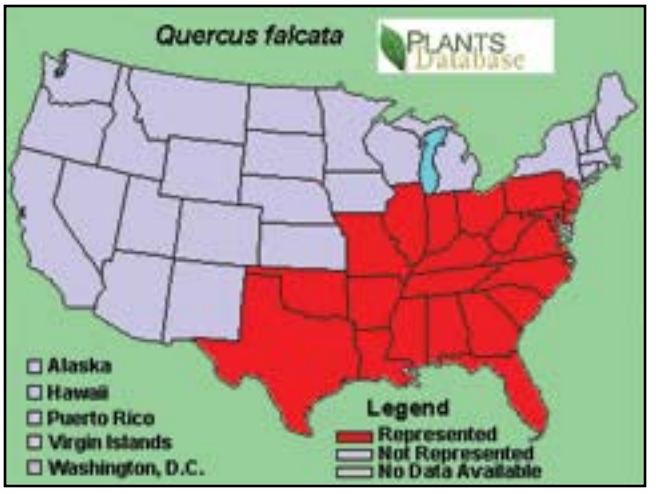
Twigs: gray tomentose

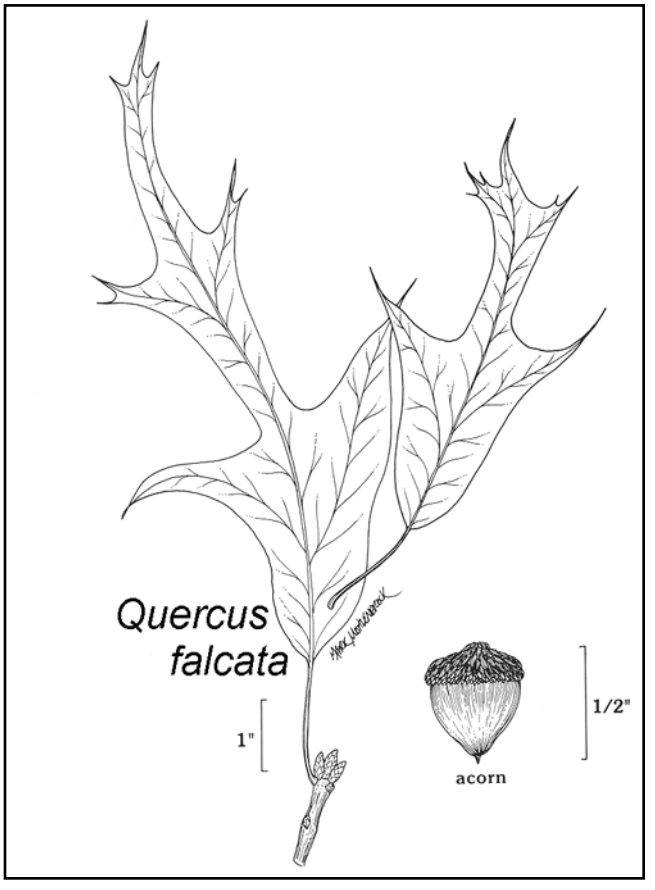
Trunk: dark brown to nearly black

Flowering: March

Range: New Jersey to Missouri and south to Texas and Florida

Habitat: Native tree of sandy plains





Quercus pagoda Raf. **FACW**

Symbol: QUPA5

***Synonym as appears in the 1988 National List:**
Quercus falcata var. *pagodifolia* (Michx.) Ell.

Common name: cherrybark oak, pagoda oak

Leaves:

shape – broader than *Q. falcata* and with more blade tissue, somewhat resembling *Q. rubra* (red oak)

lobes – regularly 7 to 11 single-pointed lobes at right angles to the midvein, diminishing in size toward the apex in a regular and gradual pattern, not strongly falcate

texture – leaf undersurface only pubescent and not densely tomentose

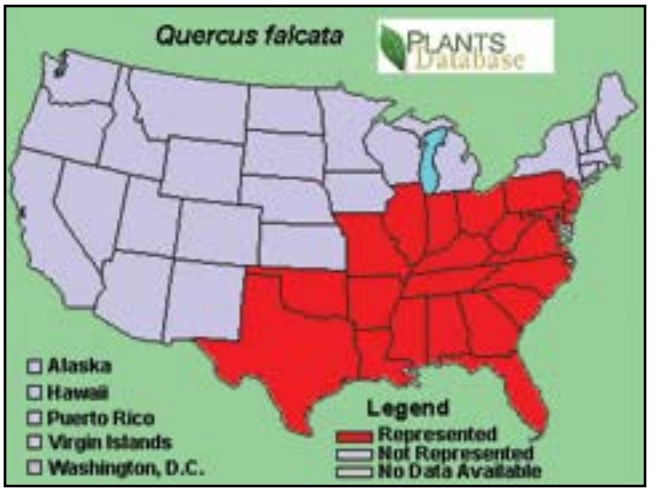
base – sharply angled

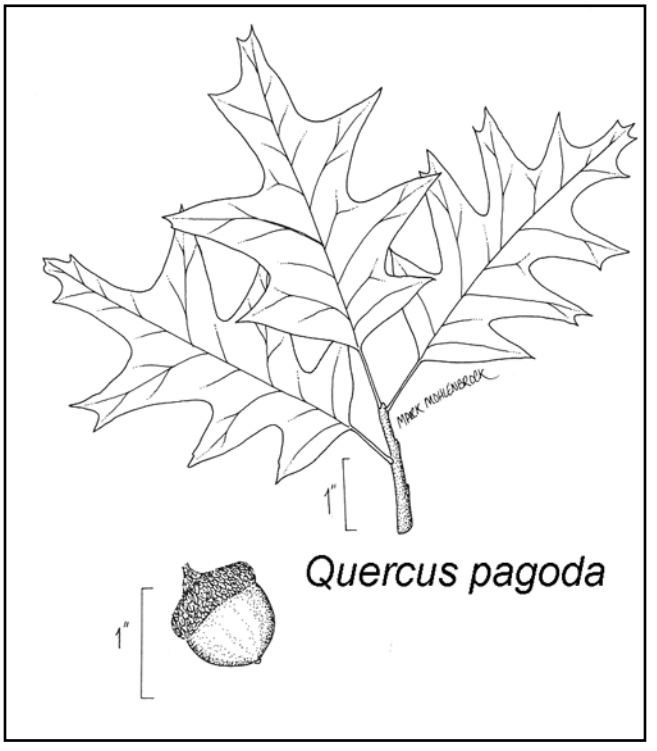
Trunk: reddish brown to nearly black

Flowering: April to May

Range: North Florida to Louisiana and north to Missouri and Maryland

Habitat: Native tree of rich, moist areas and bottomlands





References

The following references were used to develop morphological, habit, and habitat data for the species trinomials:

Brown, R.G., and M.L. Brown. 1972 (1992 update and reprinting). Woody plants of Maryland. Port City Press, Baltimore, MD. 347 pp.

Duncan, W.H., and M.B. Duncan. 1988. The Smithsonian guide to seaside plants of the Gulf and Atlantic coasts from Louisiana to Massachusetts, exclusive of lower peninsular Florida. Smithsonian Institution Press, Washington, DC. 140 pp.

Elliott, S. 1824. A sketch of the botany of South-Carolina and Georgia, J.R. Schenek publishers, Charleston, SC. Facsimile of the 1816–1824 eds., Hafner Publishing Co., New York, NY. p. 603–605.

Fernald, M.L. 1950. Gray's manual of botany, 4th ed. D. Van Nostrand Company, New York, NY. 1632 pp.

Gleason, H.A., and A. Cronquest. 1991. Manual of vascular plants of northeastern United States and adjacent Canada, 2nd ed. The New York Botanical Garden. Bronx, NY. 910 pp.

Godfrey, R.K. 1988. Trees, shrubs, and woody vines of northern Florida, and adjacent Georgia and Alabama, University of Georgia Press, Athens, GA. 734 pp.

Godfrey, R.K., and J.W. Wooten. 1981. Aquatic and wetland plants of the southeastern United States: Dicotyledons. University of Georgia Press, Athens, GA. 933 pp.

Magee, D.W., and H. Ahles, 1999. Flora of the Northeast: a manual of the vascular flora of New England and adjacent New York, University of Mass. Press. Amherst, MA. 1214 pp.

Radford, A.E., H.E. Ahles, and C.R. Bell. 1968. Manual of the vascular flora of the Carolinas. The University of North Carolina Press, Chapel Hill, NC. 1183 pp.

Reed, P. B., Jr. 1988. National list of plant species that occur in wetlands: Northeast (Region 1), USFWS Biological Report 88 (26.1), 111 pp.

Rehder, A. 1960. Manual of Cultivated Trees and Shrubs Hardy in North America. The MacMillan Co., New York, NY. 996 pp.

U.S. Army Corps of Engineers, Waterways Experiment Station. 1987. Corps of Engineers Wetlands Delineation Manual. Vicksburg, MS.

U.S. Department of Agriculture, Natural Resources Conservation Service. 1996. National Food Security Act Manual, 3rd ed. Washington, DC.