

Quercus of the Chicago Region, USA

Common Oaks of the Chicago Region

1

The Field Museum – Division of Environment, Culture, and Conservation

Produced by: Kathryn Stiver Corio and Rebecca Schillo, The Field Museum [<http://fieldmuseum.org/explore/department/ecco>]

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GROUP 1: Unlobed to shallowly-lobed leaves



1 *Quercus bicolor*
Swamp White Oak

Key Characters: 1) Upper leaf surface dark green; underside whitish and covered in short soft hairs 2) Acorn borne on long fuzzy stalks 3) Frequent in moist woodlands and floodplains 4) Distinguished from white and bur oaks by its shallow leaf lobes.



2 *Quercus imbricaria*
Shingle Oak

Key Characters: 1) Oblong leaves with smooth edges 2) Acorn nearly globular 3) Locally common in dry woodlands.



3 *Quercus muhlenbergii*
Chinquapin Oak

Key Characters: 1) Leaves long, slender, coarsely toothed 2) 9 to 13 teeth on each side 3) Occasionally found on rocky, wooded slopes.

GROUP 2: Lobed leaves with pointed bristle tips



4 *Quercus velutina*
Black Oak

Key Characters: 1) Upperside of the leaf shiny, underside scurfy and hairy 2) Inner bark yellow-orange, very bitter 3) Common in dry, sandy, upland terrain.

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GROUP 2 cont. Lobed leaves with pointed bristle tips



- 5 *Q. ellipsoidalis/coccinea* Hills/Scarlet Oak* Key Characters: 1) Deeply cut, nearly round, C-shaped sinuses (depression between the leaf lobes) 2) Underside of leaf hairless 3) A corn cap covers one third to one half of nut 4) Scarlet foliage in autumn 5) Common in dry, well-drained soils.



- 6 *Quercus palustris* Pin Oak Key Characters: 1) Deeply cut U-shaped sinuses (depression between the leaf lobes) 2) Acorn small and round with cap covering only ¼ of the nut 3) Lower branches point downward 4) Occasional in poorly-drained soils.



- 7 *Quercus rubra* Red Oak Key Characters: 1) Upper surface of leaf dull, not glossy 2) Acorn cap covers only the base of the nut 3) End buds shiny, reddish brown 4) Bark forms long, broad, flat ridges as it ages 5) Common in rich woodlands.

GROUP 3: Lobed leaves with rounded tips



- 8 *Quercus alba* White Oak Key Characters: 1) Leaves hairless with blunt lobe tips 2) Acorn cap warty and hairy, covering ¼ of the nut 3) Bark light gray and broken into blocks 4) Very common in woodlands.

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GROUP 3 cont. Lobed leaves with rounded tips



9 *Quercus macrocarpa* Bur Oak

Key Characters: 1) Leaves variable but often with a distinct deep middle depression 2) Underside of leaf with soft white hairs 3) Acorn cap fringed, covering most of the nut 3) Twigs with corky ridges 4) Very common in sunny habitats.



Quercus alba
White Oak



Quercus rubra
Red Oak



Quercus velutina
Black Oak



Quercus macrocarpa
Bur Oak



Quercus palustris
Pin Oak

IDENTIFICATION TIPS

- Identification of *Quercus* (oak) species is challenging because oaks frequently hybridize and the resulting offspring have characteristics intermediate between the two parent species. There is also great variation in the size and shape of leaves and acorns within each species and even on individual trees! Leaves growing in the sun are smaller and more deeply lobed than those growing in the shade and leaves of sprouts are often larger with less defined shapes than those from mature trees. It is best to look at several leaves from the same tree before using the key.
- Leaves of oak species commonly have hairs on the underside of the leaf in tufts at the point where smaller veins branch from the main vein. Hairs referred to in the key are in addition to these tufts.
- All oak species have a cluster of terminal buds at the end of each twig. This can be helpful in winter tree identification.

OAK RESOURCES

Barnes, B. and Wagner, W. Michigan trees: A guide to the trees of Michigan and the Great Lakes Region. Ann Arbor: The University of Michigan Press. 2004. 447p.

Biagi, A. and Jensen, R. The genus *Quercus* (Fagaceae) in Indiana: Phytogeography and key to the species. Proceedings of the Indiana Academy of Science, 104; 1995. p.11-24.

Swink, Floyd and Gerould Wilhelm. Plants of the Chicago Region. 4th ed. Indianapolis: The Indiana Academy of Science. 1994. 921p.

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A Key to the Common Oaks of Chicago Wilderness

- 1. Leaves not lobed.
 - 2. Edges of leaf smooth or wavy but without teeth.
 - 3. Edges of leaf wavy (sometimes appearing to have very shallow lobes), underside of leaf whitish and thickly covered with soft short hairs, acorn 2-3 cm long, bark of branches peeling in papery strips..... *Q. bicolor* (1)
 - 3. Edges of leaf smooth, underside of leaf lighter than above but not white, soft hairs present but not thickly covering leaf, acorn 1.2-1.6 cm long, bark not peeling..... *Q. imbricaria* (2)
 - 2. Edges of leaf with coarse teeth, 9-13 teeth per side.....*Q. muhlenbergii* (3)
- 1. Leaves lobed.
 - 5. Ends of leaf lobes pointed with bristle tips.
 - 6. Underside of leaf more or less hairy, acorn cap scales spreading and square at tips with silky hairs, buds densely covered with grey-white soft curly hairs..... *Q. velutina* (4)
 - 6. Underside of leaf without hairs (except in tufts where veins branch from the main vein), acorn caps and buds not as described above.
 - 7. Cap of acorn shaped like a toy top or cup covering a third to a half of nut.
..... *Q. ellipsoidalis*/*Q. coccinea** (5)
 - 7. Cap of acorn saucer shaped covering only the base of the nut.
 - 8. Upper surface of leaf shiny or glossy, acorn 1.3cm or less in diameter, 1cm or less long..... *Q. palustris* (6)
 - 8. Upper surface of leaf dull, acorn 1.3-2cm in diameter, 2-3cm long..... *Q. rubra* (7)
 - 5. Ends of leaf lobes rounded without bristle tips.
 - 9. Sinuses of sun leaves do not nearly divide leaf, acorn 1.3-2cm long, cap warty, hairy, covering ¼ of nut, branches not corky or ridged..... *Q. alba* (8)
 - 9. Leaves growing in sun nearly divided by deep sinuses near the middle of the leaf, acorn 1.5-3cm long, cap covering most of nut, cap conspicuously fringed, branches often corky and ridged..... *Q. macrocarpa* (9)

**Q. coccinea* and *Q. ellipsoidalis* are very similar and the acorns are necessary to identify them. Acorns of these species are distinctive where the trees grow at the northern or southern edge of their ranges. Where they overlap in the Chicago region they are less distinctive making identification quite difficult. For the purposes of this guide we have treated them together. The serious student interested in learning more about this oak group, should read Dr. Andrew Hipp's research: <http://arnoldia.arboretum.harvard.edu/pdf/articles/2010-67-4-hill-s-oak-the-taxonomy-and-dynamics-of-a-western-great-lakes-endemic.pdf> (Hipp, Andrew L. Hill's Oak: The Taxonomy and Dynamics of a Western Great Lakes Endemic. *Arnoldia* 2010 Nov 4; 67:2-14.).

Key modified from:

Barnes, B. and Wagner, W. Michigan trees: A guide to the trees of Michigan and the Great Lakes Region. Ann Arbor: The University of Michigan Press. 2004. 448p.

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