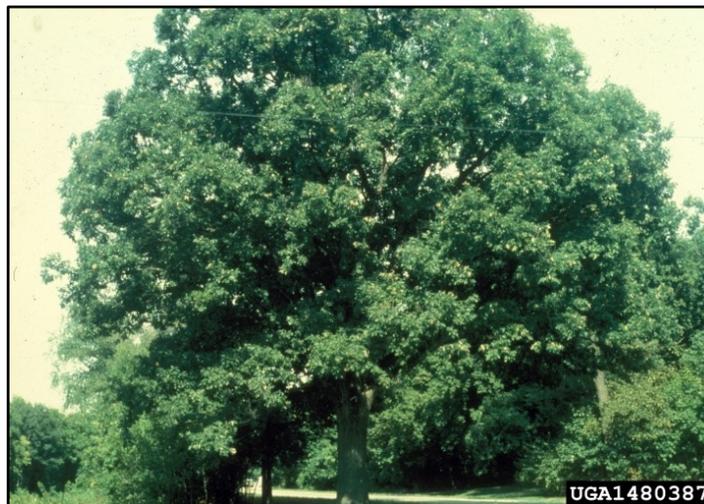


Quercus alba white oak

Why Observe?

Your observations of white oak, as part of the Quercus Quest campaign, support a larger project funded by the National Science Foundation's Dimensions of Biodiversity Program to understand the complexities of oaks and their ecosystems. Your data will be used to understand the relationship between climate and leaf and flowering phenology in eastern white oak, bur oak, and their relatives.



UGA1480387

[Richard Webb, Bugwood.org](http://RichardWebb.Bugwood.org). [CC BY 3.0 US](https://creativecommons.org/licenses/by/3.0/)

Tips for Identification

White oaks are long-lived shade trees occurring across eastern Canada and the US. Trees can grow to 100 feet tall. Bark is light gray with shallow furrows forming scaly ridges or plates, leaves are 4-8 inches long and have 5-9 lobes, acorns are 1 inch long, light brown. (Source: US Forest Service)



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[David Stephens, Bugwood.org](http://DavidStephens.Bugwood.org), [CC BY-NC 3.0 US](https://creativecommons.org/licenses/by-nc/3.0/)

Be aware there is variation from individual to individual within a species, so your plant may not look exactly like the one pictured. If you are uncertain whether or not a phenophase is occurring, report a “?” for its status until it becomes clear what you are observing after subsequent visits.



Andrew Hipp. [CC BY-NC-SA 4.0](#)

Breaking leaf buds

One or more breaking leaf buds are visible on the plant. A leaf bud is considered "breaking" once a green leaf tip is visible at the end of the bud, but before the first leaf from the bud has unfolded to expose the leaf base at its point of attachment to the leaf stalk (petiole) or stem. For *Quercus alba*, leaf tips may appear reddish.



Paul Bolstad, University of Minnesota, [Bugwood.org](#). [CC BY 3.0 US](#) (cropped)

Increasing leaf size

A majority of leaves on the plant have not yet reached their full size and are still growing larger. Do not include new leaves that continue to emerge at the ends of elongating stems throughout the growing season.



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Flowers or flower buds

One or more fresh open or unopened flowers or flower buds are visible on the plant. Include flower buds or inflorescences that are swelling or expanding, but do not include those that are tightly closed and not actively growing (dormant). Also do not include wilted or dried flowers. For *Quercus alba*, the male inflorescence is a catkin which is initially compact and stiff, but eventually unfolds to become longer and hang loosely from the branch. Female flowers are very small and petal-less, emerging from the growing stem at the point where a new leaf is attached.



Paul Wray, Iowa State University, [Bugwood.org](#). [CC BY 3.0 US](#) (cropped)

Fruits

One or more fruits are visible on the plant. For *Quercus alba*, the fruit is a nut (acorn), partially covered with a "cap", that changes from green to yellow-green to light brown or dark red brown.



Paul Wray, Iowa State University, [Bugwood.org](#). [CC BY 3.0 US](#) (cropped)

Leaves

One or more live, unfolded leaves are visible on the plant. A leaf is considered "unfolded" once its entire length has emerged from a breaking bud, stem node or growing stem tip, so that the leaf base is visible at its point of attachment to the leaf stalk (petiole) or stem. Do not include fully dried or dead leaves.



T. Davis Sydnor, The Ohio State University, [Bugwood.org](#). [CC BY-NC 3.0 US](#) (cropped)

Colored leaves

One or more leaves show some of their typical late-season color, or yellow or brown due to drought or other stresses. Do not include small spots of color due to minor leaf damage, or dieback on branches that have broken. Do not include fully dried or dead leaves that remain on the plant.



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Open flowers

One or more open, fresh flowers are visible on the plant. Flowers are considered "open" when the reproductive parts (male stamens or female pistils) are visible between or within unfolded or open flower parts (petals, floral tubes or sepals). Do not include wilted or dried flowers. For *Quercus alba*, the male flowers will open once the initially compact catkin has unfolded and is hanging loosely. Female flowers are open when the pistils are visible, but will be very difficult to see where they are out of reach.



Paul Wray, Iowa State University, [Bugwood.org](#). [CC BY 3.0 US](#) (cropped)

Ripe fruits

One or more ripe fruits are visible on the plant. For *Quercus alba*, a fruit is considered ripe when it has turned light brown or dark red brown.

Phenophases not pictured: Falling leaves, Pollen release, Recent fruit or seed drop