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## Native Oak Trees

The oak family (Fagaceae) includes over 600 species which are distributed across the temperate zones of North America, Europe, Asia, and even south into Polynesia. Oak trees often have historic/aesthetic value and, in many places, they are important for timber. Oak wood is durable, tough, and attractively grained. It is especially valued in shipbuilding, flooring, furniture, railroad ties, barrel making, tool handles, and veneer. The bark of some oaks has been used in medicine, tanning, dyes and for cork. Acorns, the fruit of oak trees, have long been a source of human and animal food.

According to Seed Plants of Northern Arizona (by W.B. McDougall), north central Arizona has eight species of true oak. Identifying individual species can be tricky as they are known to hybridize with each other. Four *Quercus* species are fairly common in our general area. These are: Emory oak (*Quercus emoryi*); Arizona white oak (*Q. arizonica*); Gambel oak (*Q. gambelii*); and shrub live oak (*Q. turbinella*). The other four species: canyon live oak (*Q. chrysolepis*), net-leaf oak (*Q. rugosa*), wavyleaf oak (*Q. undulata*), and Dunn oak (*Q. dunnii* also called the Palmer oak, *Q. palmeri*) are less common.

Gambel oak is found at higher elevations and is “winter deciduous”: its leaves are shed with the arrival of cold weather in the fall. The rest of our native oaks are usually found at lower elevations and are often described as “evergreen”. However, it is more accurate to describe them as “drought deciduous”. In Arizona, the months of May and June typically have little or no precipitation. During this period, the drought deciduous oaks shed many (and sometimes almost all) of their leaves to reduce water demand. This is an adaptation that allows them to conserve their resources during the driest times and reinitiate growth with the coming of summer rains.

**Gambel oak** (*Quercus gambelii*) is one of the easiest species to recognize, having deeply lobed, “typical” oak leaves. The bark is grayish in color. It also can exist as a shrub or a tree, and can reach a height of 40 feet or more. It is the only winter deciduous oak in our area and grows between 5,000 to 8,000 ft elevations. Large stands of shrubby Gambel oaks can be seen on the slopes of Mingus Mountain.



**Emory oak** (*Quercus emoryi*) has dark green, oblong, shiny leaves with spines at the margins (leaf edges). The bark is black on mature trees. It can exist as a shrub or a tree, can reach a height of 40 feet or more; trees often have very upright growth habit. It is drought-deciduous and grows between 3,000 to 8,000 ft elevations.

**Arizona white oak** (*Quercus arizonica*) has pale green leaves which often have marginal spines, but may also have smooth leaf margins. The bark is whitish on mature specimens (hence the name). It can exist as a shrub or a tree, and can reach a height of 40 feet or more; trees often have a spreading/rounded growth form. It is drought-deciduous and grows up to 7,500 ft elevation.



**Canyon live oak** (*Quercus chrysolepis*) is related to the live oaks in California. It has medium green leaves and grows as a tree up to 80 feet or as a dense shrub up to 15 feet. It has a short trunk, 1 to 3 feet in diameter with large, horizontal, spreading branches and a rounded, broad crown.

**Shrub live oak** (or scrub oak) (*Quercus turbinella*) leaves are often very similar in appearance to Arizona white oak, but tend to have pricklier margins. It seldom grows higher than 8 to 10 ft and is a major component of the interior chaparral vegetation type. It is drought-deciduous and grows in elevations as high as 8,000 ft.



**Palmer oak** (Dunn oak) (*Quercus palmeri*) also has a shrubby growth form, but has dark green shiny leaves with coarse spines on the leaf margin. It is common in the foothills of the Verde Valley and on drier slopes of the surrounding mountains.

**Netleaf oak** (*Quercus rugosa*) is a large, slow-growing evergreen oak with a spreading, conical growth habit. Depending on the moisture available in the environment, its height will range from 20 to over 30 feet. The bark is either light or dark brown and has a characteristically rough and scaly surface. Twigs are brown and turn gray with age, extending outward to form a broad, rounded crown.

[Photo and description source](#)



**Wavyleaf oak** (*Quercus undulata*) is a deciduous or semi-evergreen shrub or small tree, to 10 ft. Leaves are shallowly lobed, dark bluish-green above, dull green and densely hairy below.

[Photo and description source](#)

Oaks make excellent landscape trees. The native species discussed above are not often cultivated due to their slow rates of growth. However, two non-native species suitable for our area are Texas red oak (*Q. buckleyi*) and Heritage live oak (*Q. virginiana* 'Heritage'). Both are somewhat slow growing but perform well in our climate.

Photo source of Gambel, Emory, Arizona white, Canyon live, Shrub live and Palmer oaks: [University of Arizona Yavapai County Native and Naturalized Database](#)

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