Welcome to Shields Oak Grove

Shields Oak Grove is named for Judge Peter J. Shields, often called the father of the UC Davis campus. Judge Shields and his wife Carolee created a fund to provide support for the Arboretum's land along the waterway.

Dr. John M. Tucker was a professor of botany, director of the Arboretum (1965-66 and 1972-84), and a prominent oak researcher. Many of the oaks in Shields Oak Grove were started in the 1960s from acorns collected from around the world for his research.

Dr. Tucker created an endowment to help preserve the Grove for future generations. Contact the UC Davis Arboretum to learn more about supporting Shields Oak Grove and other giving opportunities.

Explore Shields Oak Grove to learn more about these amazing trees.

Test Your oak wisdom

Lift the flaps to check your answers.

What do all oaks have in common?

How many kinds of oaks are there?

Where do oaks grow in the wild?

How tall do oaks get?

How long do oaks live?

What are oak apples?

Peter J. Shields Oak Grove

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**Test Your Oak Wisdom**

Lift the flaps to check your answers.

- Oaks are trees and shrubs that belong to the genus *Quercus*, meaning “fine tree.”
- Oaks have acorns—nuts that grow in a scaly cup.
- Oaks have tassel-like hanging flowers; their pollen is distributed by the wind.
- There are approximately 500 species of oak trees and shrubs in the world.
- The UC Davis Arboretum collection includes about 100 species, varieties, and hybrids.
- Oaks are native to the Northern Hemisphere, from the cold northern latitudes to tropical Southeast Asia and Central America. Shields Oak Grove features oaks from around the world.

Oaks are native to the Northern Hemisphere, from the cold northern latitudes to tropical Southeast Asia and Central America. Shields Oak Grove features oaks from around the world.

- 400 years—oldest native valley oak (*Quercus lobata*) in the Arboretum.
- 1,500 years—oldest English oaks (*Quercus robur*)—This 1,000 year old tree grows in Sherwood Forest.
- 13,000 years—shrub oak (*Quercus palmeri*) in Riverside County, California.
- An oak apple, or gall, is not a fruit at all. When a tiny wasp injects its egg into an oak twig, the tree forms a growth of plant tissue, called a gall, around the egg. The gall provides food and protection for the wasp larva as it matures and eats its way out—look for the tiny exit hole.

Explore Shields Oak Grove to learn more about these amazing trees.

**Peter J. Shields Oak Grove**

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What Do Oaks Look Like?

This white oak (Quercus alba) is what someone from the eastern U.S. would consider a typical oak, but... oaks are variable.

These are all different kinds of oaks. Can you find leaves and acorns that look like these in Shields Oak Grove?

Peter J. Shields Oak Grove

What Do All Oaks Have in Common?

- Oaks belong to the genus Quercus and the plant family Fagaceae, the beech family
- Oaks have acorns – nuts borne in a scaly cup
- Oaks have tassel-like catkins (hanging male flowers) that release pollen in spring

All photos were taken by Allan Jones

All acorns and leaves are actual size

Oaks rely on wind to carry pollen from the male flowers (shown here) to the female flowers, which are tiny and nondescript.
Growing up in a living museum of plants

Age 46 – Sampled and Pressed
Arboretum volunteers collected and pressed samples of my stems to add to the UC Davis Herbarium (a collection of pressed plant samples), so researchers can study me and make sure I’m properly identified.

Age 43 – On the Map
Student mappers determined my GPS location and added me to a new digital map. Researchers can now find me on a map on the Arboretum website.

Age 42 – A New Label
I got a new label that helps visitors identify me and learn where my species grows in the wild.

Age 40 – Health Check-up
I get periodic health checks from an arborist, or tree doctor. In 2003, my health was rated as good.

Age 39 – Becoming a Mature Tree
Around this time I started flowering every spring and making acorns every fall. UC Davis classes started to come here to study me and the other oaks.

Age 36 – Planting
I was so small when the gardener planted me here from my nursery pot that I had to be hand-watered and protected from rabbits with a wire cage.

Age 35 – Joining the Scientific Collection
The curator gave my acorn an accession number (A63.0009) to track my life and times in the Arboretum.

Age 2 – My Wild Origins
A UC Davis student collected my acorn in west Texas while working for botany professor John Tucker.

Arboretum volunteers collected and pressed samples of my stems to add to the UC Davis Herbarium (a collection of pressed plant samples), so researchers can study me and make sure I’m properly identified.

Student mappers determined my GPS location and added me to a new digital map. Researchers can now find me on a map on the Arboretum website.

I got a new label that helps visitors identify me and learn where my species grows in the wild.

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**Should I Grow an Oak?**

You decide. Many oaks thrive in hot Central Valley summers, but some are too big for urban gardens.

**To grow...**
- Picturesque spreading branches add beauty to the garden; mature trees increase property values
- Many oaks are long lived and drought tolerant, provide shade, and require little maintenance
- Contrary to popular belief, many oak species grow rapidly and tolerate normal garden irrigation
- Oaks support native wildlife like jays, squirrels, insects, and songbirds
- Some oaks, like valley oak, are resistant to Sudden Oak Death, a disease that is epidemic in coastal northern California (not currently a problem in the Central Valley)

**or not to grow?**
- Trees that are too big for the site can cause problems for home gardeners
- Pruning large trees can be expensive, and spreading roots can lift sidewalks and damage foundations
- Leaf litter and acorns can be messy
- Evergreen oaks create deep shade that makes it hard to grow other plants
  - Native oaks and lawns are not compatible—frequent irrigation can cause fungal diseases in some oaks
  - Deep-rooted seedlings can be a challenge to weed
  - Some oaks, like coast live oak, are susceptible to Sudden Oak Death disease in coastal regions (not currently a problem in the Central Valley)

**Recommended Oaks for the Central Valley**

**Valley Oak**
*Quercus lobata*
Mighty deciduous oak of the Central Valley is upright and fast-growing when young. It grows to 50-70 ft. tall with a spreading crown as it matures. Tolerates moderate irrigation, heat, and alkaline soils and is immune to Sudden Oak Death.

**Southern Live Oak**
*Quercus virginiana*
Picturesque evergreen oak of the South, with wide, open canopy of glossy leaves. Grows moderately fast to 40 ft. tall and wide. Tolerates irrigation or dry conditions. Immune to Sudden Oak Death.

**English Oak**
*Quercus robur*
Fairly fast-growing deciduous tree to 50-60 ft. tall with a wide, open canopy. There are also upright forms with narrow canopies. Tolerates occasional to frequent watering. Immune to Sudden Oak Death.

**Gambel Oak**
*Quercus gambelii*
Small, rugged oak to 30 ft. tall, deciduous, adaptable to many soil types and moisture levels. Fast grower on rich soil. Can be multi-trunked. Immune to Sudden Oak Death.
What Can I Plant Under oaks?

If your oak is native to a region that is dry in summer, like California or the Mediterranean basin, you need **plants that like dry shade**.

Because over-watering can harm mature native oaks, plants grown under these oaks need to thrive with low summer water. Many California native plants are good oak partners because they can grow well with deep watering once or twice a month.

**Try these oak partners:**

- Snowberry (Symphoricarpos albus var. laevis)
- Hummingbird sage (Salvia spathacea)
- Canyon snow Pacific iris (Iris douglasiana)
- California fescue (Festuca californica)
- Deergrass (Muhlenbergia rigens)

Visit the Arboretum website (arboretum.ucdavis.edu) for more information on these and other local favorites.

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A single western scrub-jay can harvest up to 7,000 ripe acorns in the fall in California.

**Jays: Accidental Gardeners**

Jays “plant” oak trees by stashing their acorns underground.

- The jay carries the acorns away and buries them one at a time.
- Covering the acorns with leaves or pebbles helps hide them from other jays and acorn thieves like squirrels.
- The jay can remember where the acorns are “planted” for up to eight months and will dig them up to eat later in the year.
- Any leftover acorns can start to grow into new oak trees.

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**Peter J. Shields Oak Grove**

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This English Oak Does it All!

Lift and learn how different parts of the English oak have been used throughout the ages.

Wine, Dine, Write, Ride

Dine?

Honor?

Sail?

Write?

Ride?

Wine?

Quercus robur, English Oak

English Oak

Quercus robur

• English oak is native to Europe, Asia Minor, the Caucasus, and parts of North Africa
• Trees may live up to 1,500 years
• Reaches 50–70 feet tall with a trunk diameter of 12 feet

Cultural Importance
• Oaks were sacred to Norse, Celtic, Slavic, Teutonic and Greek peoples
• English oak’s ancient Celtic name Dur means door—the tree was considered a threshold to other dimensions
• Druids built sacred circles of stones under spreading oaks or in oak groves

Peter J. Shields Oak Grove

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This English Oak Does it All!

Lift and learn how different parts of the English oak have been used throughout the ages.

**English oak** has been used as symbols of courage, strength, and honor in many cultures. The oak leaf wreath shown here came from a burial site in the Dardanelles (modern Turkey) from the 4th Century BC.

**Distribution of English oak, Quercus robur.** Also called le chêne pédonculé (French), die Stieleiche (German), kocsányos tölgy (Hungarian), el roble (Spanish), sommereik (Norwegian), la farnia (Italian), ficheiro (Portuguese), stejarul (Romanian), tammi (Finnish), dosya (Turkish), zomereik (Dutch), and dub letní (Czech).

**Cultural Importance**
- English oak is native to Europe, Asia Minor, the Caucasus, and parts of North Africa.
- Trees may live up to 1,500 years.
- Reaches 50–70 feet tall with a trunk diameter of 12 feet.

**English oak leaves** have been used as symbols of courage, strength, and honor in many cultures. The oak leaf wreath shown here came from a burial site in the Dardanelles (modern Turkey) from the 4th Century BC.

**Ink made from oak galls** (round growths caused by insects) was the standard writing and drawing ink in England and the rest of Europe from about the 12th century to the 19th century, and remained in use well into the 20th century.

**English oak wood** has been used to make wine barrels for centuries for its water-tight properties. Aging wine in oak barrels can affect its flavor, color, and texture.

**Wood from the trunk and branches of English oak** has been prized as a shipbuilding material over the centuries for its strength and flexibility. Viking ships, the great ocean-going vessels of the early middle ages, were built of the wood of English oak trees.

**People have pastured pigs and other livestock in English oak woodlands to feed on acorns for thousands of years.** Spanish ham from Spain, Alentejo ham from Portugal, and Westphalian ham from Germany are all produced from pigs fed on acorns.

**English oak leaves** have been used as symbols of courage, strength, and honor in many cultures. The oak leaf wreath shown here came from a burial site in the Dardanelles (modern Turkey) from the 4th Century BC.

**Quercus robur, English Oak**

**Peter J. Shields Oak Grove**

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