



The Seed

Oak People

Jim Locklear, former Executive Director,
Nebraska Statewide Arboretum

I have a test I administer, in secret and in silence, to traveling companions along a stretch of road in southeast Nebraska. It is not a test of knowledge, or of character, but of timbre.

Driving along this particular highway, about thirty miles outside of Lincoln, you come upon a stand of bur oak, tracing the meanders of a creek that creases the rolling farm country. It's not a forest, but more of an open, grassy savanna, the trees spaced in a way that releases their crowns to fullest development.

Over the years, having made scores of trips along this road, I have concluded that people fall into two categories – those who see the oaks, and those who don't.

It's an easy thing to not see the oaks. Traveling along at highway speed, your mind set on driving and the business of the day, you can whiz past this spot in just moments. And bur oaks are not exactly extroverts; they have a contented, dignified beauty that doesn't shout for attention.

Even so, I have noticed that some people cannot travel past this stand without reacting to it. As I watch out of the corner of my eye, I see their head turn slowly toward the oaks, as if locked on by radar. They usually don't say a word, but their involuntary response speaks volumes. They are oak people.

Actually, I find that most members of the Nebraska Statewide Arboretum are oak people. We can't really put it into words, but oaks mean something special to us. With only seven species native to Nebraska (compared to twenty-something in Missouri), and these mostly confined to a couple of our southeastern counties, we feel oak-deprived. We envy Missourians their Ozarks, Kentuckians their Appalachians. We ache for oaks.

Aldo Leopold once wrote, "I love all trees, but I am in love with pines." I appreciate his sentiment, but it's oaks for me. And, I suspect, for you.

I hope you enjoy this issue of *The Seed*, this celebration of oaks.

The Mighty Oak

Or, oaks are just so darn cool!

Justin Evertson, Nebraska Forest Service for the Nebraska Statewide Arboretum

Most people who like trees also seem to be very fond of oaks (genus *Quercus*). In fact I have yet to run into any tree-minded person who says they dislike oak trees. To be sure, there is the occasional oddball saying the pine or maybe the ash or even the hackberry is their favorite tree. And of course there are some school janitors, mower operators and other disconnected types who don't seem to care much about any tree. My hunch is that such people have yet to be around oak trees. Otherwise, how could someone not be impressed with living things that bestow so much use, beauty and inspiration upon us?

Many words and phrases have been used to describe the oaks. Some that come to my mind include long-lived, majestic, bold, kingly, massive, colorful, full-of-life, and awe inspiring. Others have described them as beautiful, haunting, gnarly, twisted, resilient, solid, miserly and cautiously attentive.

Of course the description of an oak will vary among species. For example a pin oak (*Quercus palustris*) might be described as being soldierly with its strong central leader and upright habit. Although it can get wide with age, it is obviously trying to grow tall as it reaches for the sky. The bur oak (*Quercus macrocarpa*) on the other hand might be better described as a sumo wrestler. It strives for a squat and spreading habit. Unlike the "wizard-hat" shape of the pin oak, the bur oak takes on more the look of an open umbrella.

Oaks have so many great attributes that it's hard to focus on just a few. In the interest of brevity, however, I offer the following top ten reasons why I enjoy them so much:

• They are found in almost any soil situation imaginable.

- Oaks are the backbone of the eastern hardwood forest and they occur naturally in all contiguous 48 states of the U.S.
- They are long-lived and relatively disease and pest free.
- Oaks are stout and tough and hold well against weather extremes.
- They provide abundant shade and wind protection as they mature.
- They provide some of the best lumber for furniture and building.
- Oaks provide food and shelter to an astounding variety of wildlife.
- They are beautiful in form, texture and color (including fall color!).
- They are easy to grow from seed.
- When the right species is selected for a given site, an oak needs almost nothing to thrive. In fact, if we don't kill the tree in careless management of the landscape we will likely have a friend for life!

Another great attribute about the oaks is that there is a species for nearly any size and growth form desired. Hill's oak (*Quercus ellipsoidalis*) has an upright habit and may grow to 75' tall. A white oak (*Quercus alba*) takes on a rounded shape between 50 and 60' tall. The upright English oak (*Quercus robur* 'Fastigiata') may grow up to 50' tall but only 5 to 10' wide. A gambel oak (*Quercus gambelii*) makes a nice multi-stem patio size tree from 15 to 25' tall. And the dwarf chinkapin oak (*Quercus prinoides*) is often grown as a spreading shrub that stays under 15' tall.

There's just no doubt about it. Anyone looking to plant a tree would be wise to consider an oak. Such a tree will not only provide great benefits and inspiration to the person who plants it, it will quite possibly do the same for many generations to come. What a gift for the future!

"Exactly what *The Seed* will look like when it has grown is yet unknown. What we do know is that it has been planted in the rich earth of Nebraska. It will be nourished by the contributions of many affiliates. Therefore, it is hoped and, indeed, believed that *The Seed* will in good time grow into a lusty sapling, even into a mature tree shedding its shade and fruit on the people of Nebraska."

Joe Young, April 1978

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Oaks for the Future

Guy Sternberg, Starhill Forest Arboretum, Petersburg, Illinois

The central United States, where the eastern forests give way to the western grasslands, is oak country. We have several native oaks—chiefly the majestic bur oak (*Quercus macrocarpa*), plus white (*Q. alba*), black (*Q. velutina*), chinkapin (*Q. muehlenbergii*), post (*Q. stellata*), northern pin (*Q. ellipsoidalis*), and a few others here and there—which thrive in areas where prairie would otherwise rule the landscape. These oaks, along with some riparian trees like cottonwoods and ashes that hug the creeks and rivers, are what give us a three-dimensional landscape and a reason to look up. They are the structure of our outdoor space, the shade on our houses, the home of much of our wildlife, and the

picturesque frames for our magnificent sunsets.

All of the native oaks are great trees. But for managed landscapes, where roaring prairie fires are confined to history books and where occasional irrigation during droughts can help new little trees become established, the future has additional oaks for us to try. Some of these are new hybrids and other cultivars selected for their picturesque form, colorful foliage, fast growth and other attributes. Watch for new selections from the hybrid *Quercus* x *?refii* var. *warei* such as 'Regal Prince', 'Windeandle', and 'Chimney Fire'—all narrowly upright forms that provide the accent value of a Lombardy poplar in a strong-wooded tree that can live for

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The distinct shape of bur oak leaf (*Quercus macrocarpa*) in autumn.



The thick, leathery leaves of blackjack oak (*Quercus marilandica*).



The handsome, lustrous foliage of black oak (*Quercus velutina*).



The glossy, chestnut-like leaves of sawtooth oak (*Quercus acutissima*).

Nebraska Native Oaks

Bob Henrickson, Nebraska Forest Service for the Statewide Arboretum

Quercus alba, white oak

A handsome oak with deeply cut leaves that turn bright red in fall and remain on the tree through winter. Slower growing but long lived, developing ash-gray bark on older trees. Leaves reddish when unfolding. Native to extreme southeastern Nebraska. 70' high.

Quercus macrocarpa, bur oak

A picturesque, durable oak with dark green, leathery leaves that flutter to the ground after the first hard freeze.

Tolerates drought and alkaline soils. Fast growing when planted young. Native throughout Nebraska and the Great Plains. To 75' high.

Quercus marilandica, blackjack oak

A seldom seen native of southeast Nebraska; very gnarly growth habit and unusual, handsome foliage; tough 30' tree for well-drained soils; very drought tolerant.

Quercus muehlenbergia, chinkapin oak

This oak is native to the southeastern portion of the state along the rich

bottomlands and dry slopes of the Missouri River bluffs. Its ash gray, flaky bark and lustrous, coarsely toothed foliage are attractive, but I really enjoy its majestic growth habit. This is a bold tree that should be planted more often. 40-50' high, 40' wide.

Quercus prinoides, dwarf chinkapin oak

This is one of the best native shrub oaks available. Very clean toothed foliage, almost holly-like. Height rarely exceeds 15 feet. A tough, reliable performer for a small garden site. Native to extreme southeastern Nebraska. Hardy to zone 4.

Quercus rubra, red oak

A fast-growing oak with a broad-spreading, open crown. The leaves are medium green and turn russet to brick-red in fall. Prefers well-drained soils and full sun. Native to southeastern Nebraska. 50' h, 50' w.

Quercus velutina, black oak

Similar to red oak but native to more upland forests along southeastern Nebraska; handsome glossy leaf and great orange-red fall color; excessive taproot so transplant young; needs full sun; tolerates variety of soil types. 50-60'

Regional Native Oaks

Quercus bicolor, swamp white oak

This oak is as broad as tall and forms an open, round topped crown. Mature trees form rugged old trunks with flaky, grayish-brown bark. It has deep green leaves that are whitish and velvety beneath. Adaptable to a variety of soil types and transplants easier than most other oaks. Native to Iowa, Missouri eastward to the Atlantic. 40-50' high.

Quercus coccinea, scarlet oak

Dark green deeply lobed leaves turn glowing scarlet in late fall. Looks similar to red oak but occupies upland, droughty soils in nature. Brilliance of fall display depends on the latitude of seed origin, as this oak is native from Missouri eastward to Georgia. Up to 60'.

Quercus ellipsoidalis, hill's oak

Similar in appearance to pin oak but the only oak in this group that is tolerant of alkaline soils. Deeply cut leaves turn a deep crimson earlier in the fall. Tough, drought tolerant tree native to Minnesota and western Iowa. 50-60' h. Hardy to zone 4.

Quercus imbricaria, shingle oak

An unusual oak with lustrous lance-shaped to oblong leaves that turn a rich bronze color in fall. The leaves persist into winter and it performs well in a variety of sites and conditions. Early settlers used wood for shingles 50-60' high. Hardy to zone 4.

Quercus lyrata, overcup oak

This oak grows naturally on poorly drained, clay soils from Missouri eastward. Long lobed leaves offer little fall color and acorns completely enclosed in a knobby cap. Mature trees thriving in Auburn, NE. 50' high. Hardy to zone 5.

Quercus michauxii, swamp chestnut oak, toothed leaves similar to chestnut

Hardy Oaks from Abroad

Quercus acutissima, sawtooth oak

The shiny leaf is similar to chestnut with bristly, saw-like teeth along the leaf margins, turning yellow in fall. Dense symmetrical crown and fast growing. Best in well-drained soils and avoid highly alkaline soils. Native to China, Korea. Hardy to zone 5.

Quercus aliena, Oriental white oak

Rare in cultivation, this fine 40-60' oak is noted for its large 4-8" leaves which are glossy dark green, toothed and conspicuously ribbed. Similar to chestnut oak. Fast growing and drought tolerant. Height to 60'. Hardy to zone 5.

Quercus cerris, Turkey Oak

A handsome Eurasian oak with triangular teeth on the leaves. Fast growing to a broadly pyramidal habit and grows well in clay. Handsome grayish-black bark in checkered plates. Little fall color and holds leaves late. Northern strains fully hardy to zone 5.

oak but more leathery; attractive, scaly bark; tolerates wet or dry soils; native to lowlands as far west as Missouri; fall color bronze-red. Hardy to zone 5.

Quercus nuttallii, Nuttall oak

The southern look-alike to pin oak. It grows naturally along the lower Mississippi Valley up to Illinois. Fast growing and tolerates higher pH, and red fall color on leaves that will drop in fall. A good acorn producer. 40-60' high. Hardy to zone 5.

Quercus palustris, pin oak

This durable oak grows naturally on poorly drained, claypan soils in southeastern Iowa and Missouri. Avoid planting in high pH soils. Brilliant red fall color, persistent leaves in winter ideal for windbreak. 60'

Quercus prinus, chestnut oak

Also called rock oak because of its ability to grow in rocky, shallow soils. Tolerates high pH. Also found in rich river bottom lands from Illinois eastward. Handsome chestnut-like leaves turn deep red in fall. Easy to transplant, best on deep, fertile soils. 60' high.

Quercus shumardii, shumard oak

A large durable shade tree with a pyramidal habit and spreading with age. Lustrous, leathery leaves that turn yellow-bronze to reddish fall color. Smooth gray-brown bark develops shallow ridges with age. A medium to fast growth rate. Noted for its drought tolerance and ability to adapt to various soils and sites. 40-50' high. Zone 5.

Quercus stellata, post oak

Scrub Oaks for Small Landscapes

Quercus gambelii, Gambel oak

Native Rocky Mountain oak with a shrubby growth habit but also grows as a small tree to 30'. Glossy, leathery, deeply lobed leaves turn bronze to yellow in fall. Tolerates drought and high pH soils. 15-30' high, 12-20' wide. Zone 3.

Quercus ilicifolia, bear oak

The scrub oak of New England and the Middle States often forming thickets. Dark green, deeply lobed leaves emerge with pink flush. Grows to 15' tall. Hardy to zone 5.

Quercus stellata, desert scrub oak

The name 'stellata' means "star-shaped" leaves. A tough, small, scrubby tree with a dense, rounded habit. Leaves persist through winter. Requires a dry, well-drained site. pH tolerant. Native to Oklahoma and eastern Kansas. 40' high, 30' wide. Zone 5.

Quercus turbinella, desert scrub oak

A tough, little scrubby oak from southern Colorado with interesting holly-like leaves. Turbinella means "little top", and refers to the tiny cap of the acorn.

A slow growing shrub with leaves that persist in winter. 10' high. Zone 5.

Quercus undulata, wavyleaf oak

A rare small tree or large shrub, native to the southern Rocky Mountains. Thick, leathery leaves are blue to green in color and have wavy margins. Tolerates dry soils. In a very protected site may be semi-evergreen. Full sun. 10-20' high. Zone 4.

Quercus pungens var. *vaseyana*, vasey oak or shin oak

A premier tree for landscaping in dry areas. It can be a large shrub or small tree. Its leaves are glossy green and semi-evergreen. Bark is silvery and scaly. Extremely drought tolerant tree from the West. 40' high, 40' wide. Zone 5(6).

"If I had a place bigger than 200 feet square, I'd plant a white oak, *Quercus alba*. It is the final summing up of everything splendid in oaks. The only trouble with planting one is that 150 years or 350 years from now, it will break some gardener's heart to see it die."

Henry Mitchell,
The Essential Earthman

Hybrid Oaks: Fast Growing Natural Hybrids

Oak trees are social plants. You could even call them promiscuous, often cross-pollinating with other similar species in the oak family. This tendency creates hybrids. Like many families, the oaks are made up of many individuals some of which is difficult to tell who their parents are. As the offspring mature, it usually becomes apparent who they parent tree was. Often these hybrids are found in nature where two species overlap and the socializing begins. You can call it nature's breeding program, where hybrids share the best traits and variations of their parents.

Some hybrids exhibit two to three times the growth rate of their parents. Trees often start bearing at a younger age than pure species. It can take 15-25 years for many species oaks to shed one acorn. Many hybrids begin bearing in 4-8 years from seedling. Hybrid oaks can have a wider range of adaptability to soil types and cold hardiness and exhibit greater vigor if the conditions are not optimum compared to the pure species. Being hybrid anything doesn't mean you're better, just unique. The oak family has yielded a number of distinct and

Oaks for the Future continued from front centuries. A similar selection from a related hybrid is *Quercus bimundorum* 'Crimson Spire'. All of these resist the mildew problems associated with one of their progenitors, the fastigiate European *Quercus robur*, and are much superior for North American planting.

Watch in the future also for selections from native hybrids like *Q. x bebbiana* 'Taco' and *Q. x deamii* 'Champion'. They are being grown already by some progressive nurseries in Europe, and they will be coming back home to America someday as their attributes become better known. 'Taco' is an extremely tough and vigorous tree with outstanding form. 'Champion'—a large, strong-growing tree propagated from the national champion of its kind—is the first seedless oak cultivar ever produced, for areas where seed litter cannot be tolerated.

Many other oaks will do nicely in the average Midwest landscape situation if given a head start. Some of them are bottomland species like overcup oak (*Q. lyrata*), swamp chestnut oak (*Q. michauxii*) and swamp white oak (*Q. bicolor*) which are very tolerant of compacted urban soils. Others are obscure species known from only a few locations in the wild, like Stone Mountain oak (*Q. georgiana*) and maple-leaved oak (*Q. acerifolia*). Both of these trees will fit a small yard and provide brilliant scarlet autumn color.

All of these are fully winter hardy in Zone 5 (southeastern Nebraska) or colder. Once established, they are just as dependable as our local native oaks. You will have to search for them, and some of them are not even available at American nurseries yet, but patience has its rewards.

So if you have a beautiful native oak on your land, preserve it as part of your heritage. Pass it along in healthy condition to your grandchildren. Plant a few of its acorns to perpetuate the local genotype. But then consider the diversity that you can add to your neighborhood without venturing past the boundaries of the genus *Quercus*.

NOTE: Guy Sternberg and James W. Wilson are the authors of *Native Trees for North American Landscapes* published in January 2004 (available from Timber Press at arboretum.unl.edu/booksandgifts).

unique types of hybrid trees, with some even showing up in nurseries and garden centers.

All of the following natural hybrids are adapted to the rigors of the Midwest and are hardy to -30 degrees. All are available through select mail order nurseries or contact the NSA office for source information.

Bebbs Oak, *Quercus x bebbiana* (*macrocarpa* x *alba*)

This hybrid between bur oak and white oak is one of the best for growth rate and acorn production. Highly adaptable to soil types with deeply cut leaves and bur oak-like acorns without the fringe. Excellent branching habit and oval crown. Height and width to 60'.

Bimundors Oak, *Quercus x bimundorum* (*alba* x *robur*)

The English and our native white oak are very compatible. Hybrids develop a nice dense crown, vigorous growth and mildew resistant foliage. Easy to transplant and tolerates a wide variety of soil, but best in a well-drained site. Heavy acorn production. 'Crimson Spire' is a narrow selection of this outstanding tree. 45' high and 15' wide.

Burenglish Oak, *Quercus robur* x *macrocarpa*

One of the best hybrids with excellent growth rate coupled with its ability to grow in a wide variety of soil types. It is resistant to mildew, transplants easily, and has nice symmetrical crown and straight growth habit. It has glossy dark green, tatter and mildew resistant foliage. The cultivar name is 'Heritage' oak. Height to 70'.

Burgambel Oak, *Quercus gambelli* x *macrocarpa*

This hybrid develops a compact rather bushy crown to 40' or more. Handsome deeply cut foliage and bur oak-like acorns without the fringe. One of the earliest and the best for acorn production. Best in dry, well-drained sites.

Procer Oak, *Quercus bicolor* x *robur*

Procer is latin for tall. This hybrid between swamp white oak and English oak is fast growing with a strong central leader and good acorn crops every season. It is mildew resistant and side branches tend to grow more upright. It is tolerant of a wide range of soil types, wet or dry. 'Regal Prince' is the cultivar name of this oak specifically selected for its fast growth rate. Height 60-80'.

Sargent Oak, *Quercus robur* x *prinus*

An excellent hybrid between English and chestnut oak with a broad almost flat-topped canopy with a wide branching habit. Resists mildew. Height to 50'.

Sauls Oak, *Quercus alba* x *prinus*

A hybrid between white and chestnut oak with red and yellow fall color. Sauls oak grows fast like chestnut oak and has a wider pH tolerance than white oak. Grows more upright and transplants easier than typical white oak. 50-60' h.



The flowers and emerging foliage of black oak (*Q. velutina*).



Acorns of (top to bottom)
English oak (*Q. robur*),
gambel oak (*Q. gambelli*) and
red oak (*Q. rubra*).
Cover: Bur oak acorn (*Q. macrocarpa*).

"In 1978, this publication was a mere dream, a vision of high aspiration for the 35 initial members. To them, The Seed was six to 12 pages, typed, photocopied and stapled in the corner. To us, this early work was the foundation of a publication that would bring hundreds of Nebraskans information on elm trees and wildflowers, grasses and herbs; a newsletter that would evolve into a means of creating awareness of such issues as energy conservation, plant endangerment and community resources."

The Seed, Autumn 1988

For information on how to become an Arboretum member, call 402/472-2971, email cpxton1@unl.edu or visit arboretum.unl.edu.



"Old bur oaks are like the tribal elders of the forest. Throughout their life they have thrived and they have suffered, but they endure—eventually outliving all their neighbors (including us). They are a patient tree—never in a hurry. They are slow to put leaves on and slow to let them go. Other trees 'foolishly' expend their energy, grow impatiently, searching for their day sun. Meanwhile the old 'elders' of the forest witness their foolish and frivolous expenditure resources. We should all take some good advice from these old oaks."

Jeff Fields, Superintendent, Ponca State Park



A Bur Oak Diary

Justin Evertson, Nebraska Statewide Arboretum

One of the inspiring things about oak trees is their ability to live a long, long time. Incredibly, some oaks in the United States are thought to be over 1,000 years old! Even in Nebraska, several oaks are known to be over 250 years old. Most of Nebraska's best native oaks were harvested for lumber after the state was settled in the late 1800s. Because oaks can regenerate new trunks, it is thought that some trees may actually have root systems that are significantly older than their trunks. Thus some Nebraska oaks could possibly be between 500 and 1,000 years old as well!

The trunk of one old bur oak tree that grows in Ponca State Park in northeast Nebraska has been core dated to be more than 360 years old. It is thought that the tree sprang to life from an acorn no later than around 1640. Imagine the stories such a tree could tell if it could keep a diary. A few of its entries might read as follows:

October 7, 1640. I fell as an acorn from the boughs of my mom's big branches the other day. I rolled several feet down the hill and came to rest against a rotting log. A squirrel came and carried me away. Thankfully, he didn't eat me like he did several of my friends. Yikes! She put me in the ground in this nice sunny spot.



May 15, 1641. The squirrel has not been back! The ground is getting warmer every day and I now have a taproot 12" into this loose, rich soil. I think I will try to start reaching for the sun so I can make some food with my first new leaves. With any luck I'll have a good trunk started in no time.

June 27, 1647: My trunk has been chewed on by animals every spring and winter since I sprouted. My roots stretch for quite a ways but my fourth attempt at a trunk is only about 5' tall so far. Yikes - here comes another deer!

October 12, 1655: Things are looking up. My trunk is now 2" in diameter and I am nearly 10' tall. A deer nibbled on me yesterday but the damage doesn't feel too bad.

June 3, 1672: I'm growing fast now. My trunk is at least 6" across and I am nearly 20' tall. A group of smelly bison stomped through the area today. One of them scratched his hide on my bark. For a while I thought he might snap me in two.

July 20, 1678: I finally feel like a tree. I must be 25' tall and my trunk is about 12" across. It also looks like I'll have my first good crop of acorns this year.

September 3, 1692: It never seems to rain anymore and it is always hot. The ground is very dry and my roots are struggling to find water.

March 23, 1693. A terrible fire swept through the area overnight. Many young trees that had managed to hang on through the last several dry years were burned up.

May 14, 1694. It snowed all winter and now it seems to never stop raining. I have seen the sun only once in the last several days. My roots are hoping for drier weather so they can breathe again.

October 15, 1727. I'm now over 40' tall and I can nearly reach the big old bear of an oak that has stood nearby since I first sprouted. I'm not as big as I was though since I lost a large branch last night in a terrible ice storm when a tree nearby broke apart and fell on me.

August 3, 1740. It's great to be 100 years old!

September 7, 1804. I have seen a young man wander through the area now for the second time in three days. He keeps calling for a Captain Lewis and Lieutenant Clark. He appears to be lost and nearly starving. I'd hate to be his horse!

September 10, 1804. A large party of people in boats floated up the river today. They have set up camp less than a mile upstream. Several of them have walked nearby shouting for a Private Shannon.

November 14, 1836: The last many years have been good. The rains come regularly and I seem to be growing well. I am now over 60' tall and nearly as wide.

July 15, 1882: People are very common in the area now and some have even built cabins nearby.

August 12, 1894: The weather has turned very dry again and it seems like weeks since it last rained. The old bear of an oak that has been my companion for over 150 years was chopped down two days ago.

May 15, 1940: There has been a lot of activity in the forest in recent years. Many people have been busy building roads and shelters. I have heard them say that we are now part of something called Ponca State Park. I am 300 years old now, but I feel great!

June 22, 1964: Someone drilled a long probe into my trunk today. I heard them say that they thought I might be the oldest tree around now.

May 14, 2005: A big ceremony took place today. Many people gathered nearby and I heard them proclaim me as a "National Historic Tree." With any luck I'll live another 360 years!