

## Northbrook's Champion Bebb Oak (*Quercus xbebbiana*)

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with editorial comments by

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The Village of Northbrook is located in the Northfield Township of Cook County in metropolitan Chicago. The land was originally wet prairie with the swells and swales typical of glaciated landscapes of the Midwest. Many of the swells are uplands that had contained numerous mesic tree species, primarily the oak and hickory savannas recorded by early settlers to the area. In 1839 and 1840 the surveyors made excellent records of what they saw, including the identification of original vegetation. Their records give a vivid picture of what was prairie ("fit for cultivation"), marsh ("worthless"), slough, creek, river (Chicago), and timber groves. Most of the tree species recorded are still growing in Northbrook.

Northbrook's champion oak, which is believed to be a Bebb oak (*Quercus xbebbiana*), has been growing on the northwest side of town in the originally recorded timber grove for an estimated 245 to 400 years. Core samples to determine the true age have not been taken with an increment borer for fear of endangering the tree's health. Other oak trees removed in the area have been dated between 186 to 271 years old, (based on an index provided by Dr. Thomas Green, Ph.D.) and their sizes ranged from 42" to 47" DBH (diameter at breast height). The Bebb oak measures 56 feet in height (17.1 m) with a 155" (3.9 m) circumference. The DBH is 49.3" (1.3 m), last recorded in September, 2001. It has a thick trunk, which supports a massive, 84-foot wide (25.6 m) low canopy attesting to its growth in a presettlement savanna. Most oaks which grew in this habitat tended to have a more open habit with extensive lateral branches that were as thick as trunks of other smaller trees nearby.

The Bebb oak grows on private property on Sunset Lane in northwest Northbrook. The tree, growing in a grove surrounded by smaller, offspring oaks, was well cared for by a couple who



**Fig. 1.** The old Bebb oak, arboreal emblem of Northbrook, IL.

*Photo courtesy of the author.*

bought the house in 1949 and later sold it to the current owners in 2000. The former owner reminisced in 1998 how thickly forested his neighborhood had been with bur and white oaks before construction and development in the town caused a lot of the larger oaks to be removed.

The tree was considered a bur oak (*Quercus macrocarpa*) until Dr. Thomas Green, Professor of Forestry at Western Illinois University, was asked to evaluate it in 1999. Dr. Green performed an intensive survey of many oaks in Northbrook that year. After looking at this tree's leaves and bark over one growing season, Dr. Green believed that the tree was a naturally occurring hybrid called *Quercus xbebbiana*, or Bebb oak. The leaves indicated a mix of white oak (*Quercus alba*) and bur oak leaves.

## RESOLUTION

*During the past several years the Village of Northbrook has worked to preserve and protect existing trees and enhance community appreciation of the importance of trees in the environment and ambiance of the community.*

*In 1994, Northbrook was designated as a Tree City USA in recognition of the forestry programs of the Village in preserving our trees and the annual planting of additional trees on parkways and public properties. Each year as part of the Earth Day Celebration, seedlings are distributed for planting by the residents to further promote the tree environment in Northbrook.*

*With all these efforts and as the Centennial approaches, it seems appropriate that the Village officially recognize and declare a specific species as Official Tree of the Village of Northbrook. The oldest "Champion" tree in the community - the Bebb Oak (*Quercus x bebbiana*) - is located on Sunset Lane. This tree is estimated to be between 245 and 400 years old. It is a hybrid tree of Bur and White Oak parents and was originally part of the Northbrook Grove which was surveyed and described as early as 1840, just after the first Sherman family settlement in Northbrook. This particular Bebb Oak is now a magnificent 48 inches in diameter, the largest and oldest quality tree in Northbrook and is representative of this unique species. Bebb Oaks are found throughout the Village wherever Bur and White Oaks are found.*

*NOW THEREFORE, BE IT RESOLVED by the President and Board of Trustees of the Village of Northbrook, County of Cook and State of Illinois, THAT:*

### The Bebb Oak

*is hereby named as the Official Tree of Northbrook in recognition and the magnificent and historic stature of this unique species in our community.*

*As the Official Tree of Northbrook, all Bebb Oaks are to be protected from removal or excessive trimming without specific authorization of the Forestry Manager in the Public Works Department.*

ENACTED AND PASSED: This 11th day of January, 2000

*Mal W. Daniel*  
Village President

ATTEST:  
*Dona N. Lewis*  
Village Clerk



Fig. 2. The proclamation naming *Quercus xbebbiana* the municipal tree of Northbrook. Photo courtesy of the author.

Generally Dr. Green looks at the leaves and bark of an oak. When he finds characteristics that do not fit one or the other species, he determines the oak is most likely a hybrid. Acorns are very useful in identification, but they were not present at the time of the initial survey. The acorns picked in 2001 had characteristics of a bur oak with the fringed cap. However, the cap did not cover the whole acorn. Rather the acorns appear to be narrower than a typical bur oak and the cap only covers the acorn about 3/4 of the way down. The fall color of the Bebb oak is a bur oak color- golden yellow brown.

The Bebb oak was named by C.M. Schneider in honor of Michael Shuck Bebb, an Illinois botanist. Dr. Schneider was the first to describe the Bebb oak in 1906 from a sample of a tree from the Bebb family farm southwest of Rockford, Illinois. Although the hybrid oak is named for Mr. Bebb, Bebb's true acclaim comes from his taxonomic work with willows.

Because of the unique characteristics and powerful stature of the tree, the Director of Public Works, Jim Reynolds, took an interest in the tree. Mr. Reynolds, a public servant for Northbrook for over 33 years, had an opportunity to observe the tree over many growing seasons. He soon deemed it his "favorite tree in Northbrook". Because of his growing affection and interest for the Bebb oak, he worked diligently to have the tree recognized for its contribution to Northbrook. He petitioned the Village Board to have the tree designated as the official Village tree.

Other oaks found growing in the Village during the survey conducted by Dr. Green were found to be Bebb oaks. However, the designation of the most notable tree of them all went to the historic Bebb oak on Sunset Lane. On January 11, 2000, Northbrook's President and Board of Trustees officially designated the Bebb oak as the Official Tree of Northbrook. The Bebb oak has been recognized in various promotional works relating to the trees of Northbrook, most notably "Gems of Northbrook", a 4 color, award-winning booklet.

Since propagation of future generations from our Village tree is of utmost importance, the Village contracted with St. Aubin's Nursery of Kirkland, Illinois to propagate approximately 150 seedlings from acorns from the massive Bebb oak. The initial plan was to buy back the trees in 7 to 8 years at 80% of the current selling price for that species. Unfortunately, rodent predators during heavy snow cover destroyed virtually the entire crop that winter. A second batch of acorns was collected in 2001, which marked a bumper crop for acorns in the Illinois area. This batch of acorns was delivered in September 2001 to Possibility Place Nursery, in Monee, Illinois for propagation. Mr. Connor Shaw, owner of Possibility Place Nursery, specializes in native woody plants of the Illinois region. His propagation techniques include planting the acorns when their moisture content is still high, using long, fluted grow-tubes with water wells, and yards of chicken wire enshrouding each cell pack to prevent predators from destroying the crop. He keeps the seedlings in cold frames until they are ready to be moved into grow-bags for final nursery liners. We will find out this spring how well the seedlings are growing.

However, as Dr. Green cautioned, the only exact way to get Bebb oak seedlings is from vegetative propagation. As with all hybrids, the fruits can exhibit characteristics of one or the other parent. Pollen source and species makeup of the surrounding oaks would greatly influence seedling genotype. If we study the seedlings, we may be able to tell which parent characteristic predominated in the 2001 acorns, bur or white oak.

In June of 2000, new owners bought the property with the Bebb oak on Sunset Lane. The new owners showed the same enthusiasm for the grove of Bebb oaks in front of their home. They also had plans to build a new home on the 2-acre parcel. That same year, they applied for a permit to build a much larger house on the back of the lot, while still living in the smaller house in the front.

This was a situation that was unusual since most permits require demolition of the existing residence before a new home can be built. In an effort to protect the Bebb oak from the inevitable construction disturbance, Village officials negotiated an agreement with the owner. The agreement allowed the home to be built while the owners lived in the old house, if they agreed to protect the Bebb oak above and beyond what was called for in our strict tree protection ordinance. The agreement, called a restrictive covenant, established certain protective requirements. In the event anything happened to the tree because of construction, the owners

agreed to replace the tree for its entire value. In exchange, the owners would receive a variance to the existing code that allowed them to remain in their dwelling during the construction of the new home. Protecting the Bebb oak now would require unique site design and construction logistics as well as additional diligence by Village officials to monitor construction activity to ensure the tree's safety.



**Fig. 3.** Northbrook takes care to protect its old Bebb oaks during construction.

*Photo courtesy of the author.*

Northbrook has a comprehensive tree preservation ordinance that was passed on August 16, 1999. Later, in March 2001, the ordinance was modified to protect "Heritage" trees. The ordinance calls for protection of all trees 6" DBH (diameter at breast height) or larger in the entire yard. Trees that merit extra protection are trees that are considered "landmark" or "heritage".

**Landmark Trees - 12" DBH and larger**

Basswood, Black Walnut, Buckeye, Gingko (male), (16"+),  
 Hickory (6"), Ironwood (6"), Kentucky Coffeetree, (36"+)  
 Norway Maple-including Schwedler, Crimson King,  
 Oak (8"+)-all species, Red maple, Sugar maple,  
 White ash, Conifers-Bald Cypress, Cedar (single stem),  
 Dawn Redwood, Fir, Spruce and White Pine.

**Heritage Trees - 30" DBH and**

Oaks (all species), Hickories  
 Ironwood (10"+), American elm

Heritage trees include the very best specimens of selected landmark trees and pre-date, or correspond with, the incorporation of the Village of Northbrook in 1901. Another characteristic of Heritage trees is that they have survived catastrophic diseases that have killed trees of that species either regionally or nationally. If tree removal of any of these Landmark or Heritage trees is required, a replacement guarantee of an equal number of inches is needed before the tree removal is granted. If a Heritage tree is requested to be removed, a special

hearing is held before the Village Board of Trustees, the Village Manager, and the Village President before the permit can be granted. A zoning variance or design modification is frequently the better alternative to removing an irreplaceable tree. During construction, all trees 6" DBH or larger must be fenced off with tree-preservation fencing. Additionally, any impact by utility work must be approved prior to excavation. In some cases, the utility work must be directionally bored, or augered underneath the tree's root system. Currently, there is no fee for a tree removal or preservation permit.

Since the Bebb oak is considered the Village Tree, the Village officials met with the home's general contractor, landscape architect, engineer, and the owner before any construction work actually began. Issues regarding the logistics of the construction were discussed well ahead of time. In some instances, several meetings were held on site to go over changes that had to be made in the field. To date, the tree is surviving well during the construction.

Thanks in part to the concerted effort of the Northbrook Public Works staff, the Building Department, and the Engineering Department, the tree has been saved from repeated tree-preservation fence violations, as well as intensive utility trenching work. Augering of the pipes was required in any area that might adversely impact the root system of the oak trees. In one case, the water service was moved to the west of the oak grove to prevent any possible impact on the Bebb oak.

Because the Bebb oak is so important, the owners agreed to have the tree pruned this winter. While the tree care company was inspecting the tree during pruning, they discovered a large hollow in the top of the tree. The hollow was the result of a leader had decayed at some point in the tree's life. Upon closer inspection, the hollow was wide but not deep, and it looked as though the tree had compartmentalized any further decay. Residents told us that they believe a resident screech owl uses this hollow as a home.

Although the tree care company had prescribed fertilizing the tree, the Village arborists disagreed, stating that the high salt content in the fertilizer might be detrimental to the tree and actually cause it to decline. The Village is in the process of performing tests on the impact of using mycorrhize to help oaks recover from stress. If positive results are obtained, the Village will recommend this treatment for the Bebb oak as a preventive measure to buffer any construction injury that was incurred to roots outside of the critical root zone.

Measures are being taken to change the existing tree-preservation fencing to chain link fence because of the continued enforcement problems with the orange construction fence currently being used. Because of the small access areas, many of the perimeter trees are suffering construction damage that ultimately will be fatal to the trees. Large semitrucks continue to access the back of the lot and knock down the fence as they go. Putting up the fencing repeatedly has become a regular ritual for the general contractor.

As more trees are removed, the entire profile of the canopy trees will be changed in this area. These changes will affect water percolation rates that, with the increased impervious surface caused by the new house, will affect the groundwater table profile where the Bebb oak grows. These changes may ultimately affect the tree negatively. These kinds of subtle construction impacts account for tree mortality after construction that in many cases is diagnosed as senescence due to the tree's age.

Although Northbrook's ordinance is strong, the subtle habitat changes caused by construction are difficult to enforce and measure. Often a tree preservation official puts credence in the tree's ability to recover from the shock of the whole construction process and adapt to the new conditions it is forced to live in. However, just like with people, the older the tree, the harder it is to change and adapt. We hope that the Bebb oak will continue to be our Village Tree for many years to come. Thanks to our aggressive tree preservation efforts, the tree has an excellent chance of survival.

*For more information, contact Terry Cichocki, Northbrook Tree Preservation Officer  
847/272-4711 ext. 203.*