The Arboretum’s Oak Collection

By Dirk Giseburt
Photos by Niall Dunne

When I was a child growing up near Seattle in the ’60s, my family made a ritual annual stroll with my grandmother down Azalea Way in the Arboretum near the peak bloom of spring. The abundance of flowers was impressive, but what caught my eye—even as a kid—was the resplendent golden oak, Quercus robur ‘Concordia’, on the uphill bank. What my emotional response to this standout tree was exactly, I can’t recall. It is a vivid memory, though, of a vivid tree.

The Arboretum would look very different without this and the scores of other oaks in the collection. Much later in life, when I was inspired by Art Kruckeberg and wanted to figure something out about oaks, the Arboretum was one of my best teachers. I picked up the booklet, “The Woody Plant Collection in the Washington Park Arboretum” (1994), and scouted out all 74 taxa listed there. Just one of them, the Garry or Oregon white oak (Quercus garryana), is native to this territory.

The years march on. Oaks can live for centuries, but how are all these exotic species faring in our cool, sub-Mediterranean climate? How are they functioning in the broader collection? How is the Arboretum using them in its research, teaching and conservation roles? What’s new or up-and-coming in terms of collection additions or modifications?

Ray Larson, interim director and curator of Living Collections at UW Botanic Gardens, graciously met me over Zoom to talk about some of these questions.

Where did the original collection come from?
In terms of pure numbers, the familiar, large deciduous oaks of Eastern North America (ENA)—such as northern red oak (Quercus rubra), pin oak (Q. palustris), and scarlet oak (Q. coccinea)—predominate the oak collection.
at the Arboretum. (See the full list by searching for “Quercus” in the online Collections Database at depts.washington.edu/uwbg/gardens/bgbase.php.) Two historical factors are responsible.

First, when the Massachusetts–based Olmsted Brothers firm was laying out Seattle’s park system early in the 20th century, it emphasized big street trees from back East. Many of the oldest oak specimens are strung along the south end of Lake Washington Boulevard by the Japanese Garden. (The Boulevard was developed a few decades before the establishment of the Arboretum in 1934.) Another early-planted grouping is out on Foster Island. Original data for these accessions are quite thin, and one occasional pleasure for Ray has been trying to figure out the identity of specimens in relation to the Olmsted plans. Just a couple of individuals remain unidentified.

If you look at the historic records for these plants, you’ll see many of them don’t have complete accession number dates. (They are instead designated with an “X,” indicating uncertainty.) Also, some “predate WPA,” short for the Washington Park Arboretum. Of the oaks marked with an “X,” most are trees of eastern U.S. origin. In addition to the three species mentioned above, there are a good number of white oak (Q. alba), bur oak (Q. macrocarpa), and chestnut oak (Q. prinus, now named Q. montana). Another abundant “pre-WPA” tree along the Boulevard is the common oak (Q. robur), a European species popular in parks and public gardens worldwide. It has proved weedy in King County, however. (In my little corner of “old” Mercer Island, common oak and its hybrid derivatives are by far the most common self-sowing oaks.)

The second reason for the predominance of eastern oaks can be traced to early partnerships with other arboreta. When the idea of a collection arboretum was implemented in 1936–38, a call for seed contributions went out in substantial measure to large, institutional sources east of the Rockies, such as Harvard’s Arnold Arboretum and the Morris Arboretum in Philadelphia. Washington Park Arboretum’s founders laid out a taxonomic arrangement for the new collections, and the oaks were sited in the northern section of the park (just west of the current Graham Visitors Center) in accordance with the Olmsted Brothers’ Master Plan of 1936.

The accession numbers from the late 1930s tell how the range of species from the East Coast, Southeast and Mississippi Valley filled out the main collection site. Among them are swamp white oak (Q. bicolor, with its notably white leaf undersides and native range of Maine to Kansas); turkey-foot oak (Q. falcata, native from New York, sweeping southwest to Texas); shingle oak (Q. imbricaria, mainly from the central Ohio and Mississippi valleys); chinkapin oak (Q. muehlenbergii, the most widespread North American species, ranging from New England to New Mexico); and many specimens of water oak (Q. nigra, a bottomland species from New Jersey south and west to Texas).

Putting these species together, you might think you were visiting the humid forests of Kentucky, Tennessee or southeast Missouri, where just about all of them converge. However, accessions from this period also included lots of daimyo oak (Q. dentata)—profiled in the Fall 2019 issue of the “Bulletin”—and a few other selections from East Asia, again emphasizing origins with humid summers!

**How have the big trees from continental climates fared here?**

The big oaks from ENA have grown big—and are still growing! From Ray’s perspective, the original choice to plant, say, five specimens of each taxon rather than maybe two has had some negative consequences. The oak canopy, together with
the native canopy of conifers and big-leaf maples, is really as much forest now as an arboretum in some places, and close-up appreciation of the variety of the species sometimes is limited to the trees’ bark. Even some more recent accessions, like silverleaf oak (*Q. hypoleucoides*) from the southwestern U.S. and Mexico (dating to 1968 and added in the main Oak Collection area) has grown tall and narrow, unlike in its native habitat, where it is small and shrubby with a rounded crown.

To extend the variety of the collection, Ray can’t help but contemplate some editing. This may also occur naturally. So far, the translocation of these exotic species to our climate has not yielded any widespread early senescence or losses. However, fast growth in Seattle conditions may ultimately be threatening to the humid-summer or cold-winter species. Climate change—bringing longer, hotter, drier summers to our region—may also take a toll.

**How have plants from more intense, Mediterranean-like climates performed?**

One of the challenges in the Arboretum is wet soil, and one of the victims, in Ray’s view, was a very old California black oak (*Q. kelloggii*)—a rare montane California component of the Olmsted-era plantings that appears to have succumbed from poor drainage.

This specimen was planted near the new Birch Parking Lot, in an area that has long been wet and has a lot of clay in the soil about two feet down. New specimens of this species were planted in more suitable conditions in the Cascadia Forest of Pacific Connections and appear to be doing well.

Ray suspects some other species that inhabit hotter, dry climates, like the interior live oak of California’s foothills (*Q. wislizeni*), have—over past decades—lacked the summer heat they need to sustain good health. However, summers are getting hotter, and Ray is interested in building the collection of Mediterranean-climate oaks to test how they will fare here.

Two cork oaks (*Q. suber*), native to southwestern Europe and northwest Africa, have grown to maturity in the Mediterranean section along Arboretum Drive since being planted in 1958. The soils in this area are faster draining, and the specimens seem to be doing well. (The surrounding canopy was thinned back a few years ago to provide more afternoon sun.) Their thick, cracked bark—used for wine bottle stoppers and more—is always a sight to behold.

**What paths forward?**

For all the emphasis I’ve put on the early-planted ENA oaks, there is enough diversity of *Quercus* in the Arboretum to merit its recognition as a Nationally-Accredited Plant Collection through the Plant Collections Network of the American Public Gardens Association (APGA; see publicgardens.org/programs/about-plant-collections-network). Ray is excited about the possibilities of collaboration with other network members in *ex situ* conservation of threatened species through the sharing of germplasm. This effort is also linked to the Global Conservation Consortium for Oak sponsored by Botanic Gardens Conservation International (bgci.org).

*Quercus* is a diverse and important genus across the northern hemisphere (and dipping into the southern hemisphere in Indonesia), with
between 435 and 550 species (taxonomy being a fraught discipline). Vying with *Pinus* as the genus with the greatest biomass in the northern hemisphere, *Quercus* nevertheless includes scores of endangered and threatened species (nearly one third in total) according to the International Union for the Conservation of Nature Red List. Sixteen of the 91 species native to the United States are deemed threatened with extinction. Renewed intensity of seed-collection efforts through the Plant Collections Network aims to ensure that no U.S. species actually goes extinct.

One example is the exceedingly rare maple-leaf oak (*Q. acerifolia*), found only in several isolated locations in Arkansas. The Arboretum received acorns of this taxon two years ago. Another is the Boynton oak (*Q. boyntonii*), which the Arboretum received in 1999. It is a dwarf species—previously known only in six counties in Alabama—though a field survey sponsored by the APGA in 2020 found a population in a seventh county and was pleased to find nearly 500 individuals across about two-thirds of the species’ range. (I stumbled upon the Arboretum’s five specimens of *Q. boyntonii* by chance in some rough brush about 10 years ago—and you might have to follow the same method, as the Collections Database lists the grid-square location as “Inquire.”)

Ray has other partners in propagation. He has received a number of seedlings and acorn selections from seed exchanges at the triennial conferences of the International Oak Society (internationaloaksociety.org). Specialty nurseries that focus on Mediterranean climate and aridity-adapted species have been the source of many recent additions. Far Reaches Farm in Port Townsend has also done some propagation for the Arboretum. And it is a two–way street: Ray participated in a seed–collection expedition to the Siskiyous two years ago with staff from the Kruckeberg Botanic Garden and Heronswood Garden and is sharing seeds of the Northwest’s charming shrubby oaks—deer oak (*Q. sadleriana*), huckleberry oak (*Q. vacciniifolia*), and Brewer’s oak (*Q. garryana var. breweri*)—with public gardens around the country. (These species, purchased from the late Mareen Kruckeberg after reading about them in Art’s “Gardening with Native Plants of the Pacific Northwest,” were the ones that got me going in the oak world and revived my childhood wonder.)

Ray says the Arboretum’s nursery currently has specimens of many new oak species growing in large pots. There is a premium to planting out only well–established plants, given the prevalence of rabbits and the unpredictability of human–plant interactions. Ray is currently assessing areas in the oak collection, and other areas with enough sun, for new planting sites and hopes to plant out many in the coming year. Readers, if you see semi–open spaces in the Arboretum with pretty good sunlight and relatively dry soil, check back again to see if Ray and team have taken advantage for the siting of a new oak accession.

**How are oaks used for environmental education?**

The Arboretum also makes regular use of the oak collection in kids’ nature classes. The variety of leaves—lobed and entire, bristle–tipped and rounded, stiff and limber, tomentose and smooth, large and tiny—makes it a nice teaching collection. Oaks play an important role in many ecosystems and have a rich history of cultural uses. Nice stimulus for adult brains, too! It will repay the visitor to connect with the *Quercus* collection multiple times a year.

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