US Champion White Oak: European Treatment

It's not beautiful, but it's the largest of its kind, and it's in Virginia! The Bothwick Oak was the national champion before, until 2004, when a corn-fed upstart on an Indiana farm took over. A huge canopy proved its undoing, as it was toppled by a gust of wind in a summer storm. Courtesy of the record-keeping folks at American Forests, the death of the old king was recorded, so long live the new king!

When Virginia's vigilant Big Tree co-ordinating team at Virginia Tech University got wind of that Midwest regnicide, they oversaw the passing of the crown back to its old coastal plain home in Brunswick County, just 5 miles off the interstate highway I-85, south of Petersburg. 5 miles is no distance at all, to see the biggest specimen of the species you've climbed more than any other, and studied all your life.

The narrow county road passed well-established farms, with recently-built residences looking small, beyond huge, flat lawns. Even on a foggy February day, from the road a football-field distance or more away, the oak's dimensions were impressive. It towered around the two-story dwelling behind it, and might have been sizable when the house was built circa 1734.

A broad base supported a wide spread, and though many leaders were lost, one remained, and reached a respectable height. Your eyes automatically fill in the blanks, imagining what this *Quercus alba* could have been. But the tree before you, with its roots, flare, trunk and crown, is the scope of the job.

Roots are covered from the driveway to the woods by 'mixed turf'. The owner keeps it mowed close, in a battle against woody weeds. Mowing seems to encourage privet, the three green clumps shooting upward. If the roots cannot be pulled out, a low cut with loppers followed by mechanical suppression, as with a flat stone, can do a good job on this invasive weed. The closer you get to the trunk, the smaller a part that grasses play. In his seven years of residence, the owner reports no disturbance underground.

The buttress roots to the south look like they were hurt a long time ago. The westward one girdles the stem well above grade and sustained major mechanical damage. The other three have a typical form and less scarring. It looks like they just wasted away. Facing the house, soil compaction on this side of the trunk is inevitable, so the #1 ingredient specified will be air. Pressurized air and water will open holes and fracture subsoil two foot deep and more. Composted oak leaves, twigs and acorns blended with porous aggregate will be poured back in, to maintain aeration and boost fertility. Soil probing and analysis will indicate what other amendments might fit the site.

After the area's raked smooth, identify the most compatible groundcover, such as nitrogen-fixing or tap-rooted species to preserve where they meet the objective. A layer of cardboard will suppress the competition, with an inch or two of chipped oak branches and acorns and leaves on top. The rest of the flare will be surrounded by the same surface layers, extending to the outermost root that protrudes above the surface. Any future soil work should be gradual, to avoid shocking the tree system. The roots of some native bulbs and wildflowers are chemically compatible with oak. Adding companion plants to the unmown area as it expands over time might also help the oak by attracting beneficial insects.

Trunk decay is evident in decrepit fungal fruiting bodies to the left, in a sinus between two vascular columns that extend from the earth to the sky. 2' high and 1' wide, the conks being shed from that hollow-sounding area resemble *Inonotus dryadeus.* Located in the next sinus north of the stem-girdling root, with the ancient concrete filling inside it and the lighting conductor alongside it, the conks indicate that interior decay is extending northward. However, the squat form of this tree, and its sparse crown weighted away from the domicile, lowers its risk potential. Assessing the buttress roots, this tree has 9 intact and 3 decayed, ~75% still functional and supportive. Moving on!

The north view shows a dysfunctional sinus ending in a seam >10’ above grade. Lightning damage was theorized, but evidence is inconclusive. No continuous seam can be traced from flare to apex, but most of the upper crown is gone. Time, and callus, heals all wounds. Aerial assessment might indicate lightning; it might not. Being the tallest thing around in its day, that would be no surprise. The mallet yields no hollow sound outside the sinus, in the two columns arising from the buttresses, so compartmentalization seems to be effective. The growth of these buttresses and the response growth in the burl show that the tension side is anchoring the tree, and preventing failure in the direction of the ~380-year-old building. Moving on!

Concrete inside the next sinus to the north indicates this cavity is quite old. The fungus and the tree have coexisted for a long time. White and green growth on the bark are epiphytes. Lichens and mosses are associates of the tree, as is the vine creeping upward. Loose material could be removed from this crevice and relocated to the dripline, but no excavation should be done at this early stage. It would be nice to find the woundwood on both sides of the cavity without digging too much. A long probe inserted into this cavity might come out the other side, but that would not be abnormal for a tree of this age. No invasive probing is warranted.

A hollow has formed inside of one mower-damaged buttress root. Inside are signs that other creatures have moved in, to occupy the space once held by wood. Open to spores and wind and water, mower wounds are far more damaging than they get credit for.

The eastern view shows an intact base, other than that thickly-ringed hole in the buttress root. The black area to the right is the dysfunctional sinus, with high ridges of bark appearing unaffected on either side. The sinus to the left has a seam above, but no dysfunction evident to the eye or ear. The piney woods beyond could use some thinning, though.

Crown damage may have been caused by overengineered cables, but this work was likely done before there was a national standard for supplemental support. This leader lost its ends after the cable held it rigid. For present purposes there is no maintenance required, other than to avoid the area under the dead stub. New growth looks vigorous outside the shade from the pines. One-third of the suppressing pines should be removed every 3 years.

Behind natural breaks and natural reduction cuts, apical influence spreads from inner terminals, each reiterating natural tree form and harvesting sunlight, as nature intends. Very little energy is wasted, each twig positioned to do its job, and do it well. Observe the natural form and the future potential of these branches. The tree knows what it is doing; it is we who must learn.

The lightning protection system is broken above, and swallowed below. Fasteners must be replaced, conductors should be held outside of the bark. Compromised sections can be ‘bridged’ with new conductor to supplement the old, new fasteners preferably in contact with the old.

The stub to the left may have been as high as the storm-damage-repair crew could reach; natural breakage is seldom that low. The loss cost the tree a lot of crown volume, symmetry, and resources. Light tip reduction of two branches are the only pruning needs seen from the ground.