

VALUING AND MANAGING VETERAN TREES

'Death with dignity' can be avoided by learning to manage the once-beautiful veteran trees.



A Tradmastarna ("Tree Masters") arborist shakes the leader he just pruned, to assess its movement. Tradmastarna hires contracting arborists from around the world, including Australia, to maintain valuable trees, like this hollow veteran oak at Sweden's Royal Botanic Garden.

Trees that have stood the test of time and show some battle scars, dead branches, and other signs of aging are often referred to as veterans. On a once-beautiful tree, these signs might suggest a 'mortality spiral' to tree owners, and to arborists. 'Death with dignity' may seem simpler than dealing with maintenance and liability concerns, but with proper standards to follow, veteran tree care methods are straightforward and defensible. The British have been at this for a long time. Their tree care standard describes a natural process of pruning veteran trees: "Retrenchment pruning is a phased form of crown reduction, which is intended to emulate the natural process whereby the crown of a declining tree retains its overall biomechanical integrity by becoming

smaller through the progressive shedding of small branches and the development of the lower crown (retrenchment). This natural loss of branches of poor vitality improves the ratio between dynamic (biologically active) and static (inactive) mass, thus helping the tree as a whole to retain **good physiological function...** The pruning should be implemented by shortening heavy, long or weakened branches throughout the crown, while retaining as much leaf area as possible and encouraging the development of new secondary branches from epicormic shoots or from dormant or adventitious buds."¹

Tree care training, oversensitised by the scourge of lopping trees, traditionally teach the myth that it is biologically better

to remove a branch than to reduce it. But wounds close at any growth point, where the same types of tissue are seen, if the cuts are small enough. UK and German standards advise limiting wound size to no more than four inches in diameter.

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The 2012 ISA Best Management Practices for Tree Risk Assessment echoes the UK guidance on retrenchment: "Tree risk assessors should resist the ultimate security of risk elimination based on tree removal and consider possibilities for retaining trees when practicable... Over-mature trees in natural settings may reconfigure as they age and deteriorate, a process sometimes called '**natural retrenchment**'. They may continue to grow trunk diameter while branches die and fail – reducing overall height of the tree and **increasing stability**. Where tree risk is a concern, tree risk assessors can imitate this process by recommending crown reduction."²

RETRENCHMENT BY CROWN REDUCTION	LOPPING
Retains enough foliage to maintain tree health	Removes too much foliage, starving the tree
Releases gradual sprouting from interior nodes	Forces panic sprouting internodally or near wounds
Endocormic growth from dormant (pre-existing) buds is well attached, with buttressing at base of sprouts	Epicormic growth from adventitious (newly formed) buds is weakly attached, with no buttressing
Smaller wounds that tree can compartmentalise	Large wounds at poor locations, causing rapid decay

The leading US tree care textbooks and current research confirm this approach. "Old trees that are of low vigor and have failing branches can often be made healthy and attractive by removing the weak-growing and dying limbs in their extremities, particularly their tops."³ "The objective is to make reduction cuts so that branch tips are left intact on the outer edge of a new, smaller canopy."⁴... Reduction pruning anticipates the natural process of "**growing downward**"⁵... A 15 per cent

reduction can increase the stability of a branch⁶ or a tree⁷ by 50 per cent.

Inspecting the flare is essential before pruning can be specified. The US standard advises that the "objectives... be established, the method, area, depth, and limitations of inspection, as well as the tools and equipment needed. Mulch, soil, and other materials should be removed as needed to allow for the inspection. Inspection should include the conditions in the crown that may reflect root conditions:

- Stem tissue connecting the crown and the roots
- Girdling of the buttress roots or stems by roots or other materials, and the tree's response
- Tree association with beneficial and harmful insects
- Tree association with pathogenic and beneficial microorganisms (e.g. mycorrhizae)
- Wounds and the tree's response to wounds
- Mechanical damage to detectable roots and response
- Indications of root disease and response
- Graft unions in grafted trees"⁸

The flare is the transition zone, where the stem broadens and roots extend into the earth. The flare should always be visible, but all too often we see that it's obscured by fill contacting the trunk. If the flare of your veteran tree is concealed, gently and gradually remove the material, and keep

the trunk tissue dry. If a shovel or trowel is used, press the blade against the trunk, slide it carefully downward until resistance is met. Push the handle toward the trunk, moving the blade away from the trunk.

This is a delicate operation, and encountering roots that squeeze the stem is not uncommon. You can remove any of these smaller girdling roots as needed, but larger girdling roots are best managed from experience. Root collar examination (RCX) may reveal softness, oozing, insects, or holes in that sensitive area. Clean out any dead material to diagnose and treat these conditions, then examine the soil. If probing shows that

soil is hard or compacted, these areas might be treated as number four under 'Specifications'. Fertile material removed from the flare can be spread on the outer root zone, and future management should keep the flare visible.

Prescribing this work might follow a simple template. Determine what the scope of the work will be and what objective(s) are to be achieved. Then list the specific steps that will be needed in order to meet the defined objectives.⁹

As an example, to the right are the before and after photos of a *Quercus stellata* and the scope, objectives, and specifications for its retrenchment.



SCOPE:

Quercus stellata with extensive root loss. Six feet wide at the base; over five feet of that is hollow.

OBJECTIVE:

Reduce the load and the risk, with low maintenance needs.

SPECIFICATIONS:

1. Reduce downward and horizontal segments of overextended branches, clearing the branches below by two to four feet. Cuts less than three inches, to upright laterals, less than eight per cent total foliage
2. Remove or reduce crowded branches, less than four per cent total foliage, smaller than three-inch cuts
3. Reduce declining leaders three to six feet. Smallest cut possible, near vigorous growth or buds
4. In an area between three and 20 feet from the trunk, use an air/water tool to make holes 18 inches apart, greater than two inches wide and greater than 12 inches deep. Force 50 per cent compost/50 per cent soil conditioner into the holes. Mulch with two inches of woodchips

Vocational Education and Training on Veteran Trees, or 'VETree', started as a European network exchanging knowledge on veteran tree management. Seasoned

veteran tree managers from England, Sweden, Spain, Romania, and Belgium have delivered advanced training to future trainers, who will be able to use case studies with specifications, and 'ready-to-use' course material adaptable to any site. Available in late 2014, this training will be supported through HistoricTreeCare.com with e-learning tools and video. Exemplary work done by Veteran Tree Group Australia is similarly shared in other regions.

Landscapes are healthier and more ecologically sound with a diversity of plant species, and ages. Veteran trees can add a timeless quality to a garden, providing opportunities for biological, cultural, and historical interpretation. By sustaining these titans of ecology, and training a new generation of veterans, we can bring beauty and environmental health to our gardens for centuries to come.

References

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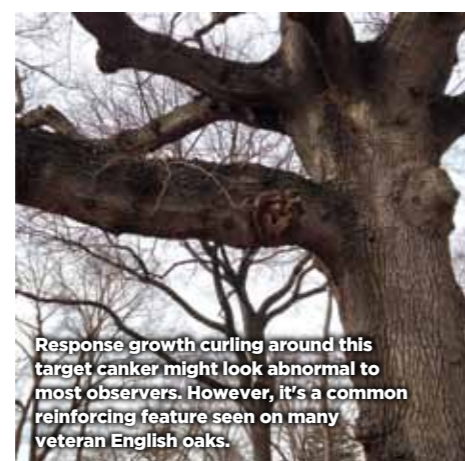
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Guy Meilleur is an ISA Board-Certified Master Arborist, and principal of Historic Tree Care. He may be reached at historictreecare@gmail.com AA



Fruiting bodies of this lacquer polypore, *Ganoderma lucidum*, get more appreciation from visitors than their 35-metre host. Trees coexist with decay fungi through routine management.



Response growth curling around this target canker might look abnormal to most observers. However, it's a common reinforcing feature seen on many veteran English oaks.