

Notes on Devon Ancient Tree Forum meeting at Escot

On 30th August the Devon branch of the ATF visited Escot Park. We started with a general look at the importance of ancient trees and the very positive approach the estate is taking. Mr and Mrs Kennaway use Major Tree Services to manage their trees and woodland. Simon Major, who owns the firm, is very knowledgeable about ancient trees and makes decisions based on specific conditions of individual trees to extend their lives, make them safe and improve their wildlife value. He also showed us various interesting techniques he is trying out on the estate.

Escot hosts the Beautiful Days festival when thousands of people move onto the parkland for a weekend. Some vulnerable trees are fenced out of the festival area to protect them but others are right in the middle and there may be a need to reduce risk. Therefore some work is done on reducing sail area by sensitive reduction of the canopy. A small reduction of leaf area from the outer part of the crown significantly lessens the effects of wind resistance as the outer branches have the most leverage.

The estate no longer fertilizes or sprays the grasslands in order to protect the trees' root systems better. They have also stopped grazing the front park to reduce compaction by livestock and instead have a cutting regime.

Simon Major is trying green wood chips as a mulch over the roots of some trees to remove nitrogen remaining from past management. Fertilisers have a detrimental effect on tree roots because the high levels of nitrogen kill off the mycorrhizae (fungal threads) growing around the roots of most trees. These mycorrhizae help the tree by taking up essential minerals that the tree root system itself cannot draw out of the soil, including phosphorus and potassium, and then passing it through their cell walls into the cells of the root system. The mycelia of the mycorrhizal fungi spread much more widely in the soil than the tree roots and so extend the nutrient foraging area of the tree and also draw water from a larger volume of soil than the tree roots can alone. Mycorrhizal fungi also block the access of pathogens to tree roots and so offer protection from soil-borne disease. So too much nitrogen in the soil has the potential to damage the health of trees. The bacteria that decompose the green woodchips need nitrogen which they withdraw from the soil, which benefits the tree.

Another technique Simon uses at Escot is to pile brush around the roots of vulnerable trees. This has a combined effect of keeping people away from the sensitive root area but also provides a habitat for white cord fungi which creates a biological barrier to black cord fungi such as Honey Fungus (*Armillaria mellea*).

We looked at a particularly large English Oak which had a temporary route for vehicles at the Festival at around one and half times the distance of the canopy spread. There were discussions about possible damage to the root system of compaction - even for a short period of time. Keith Alexander, a director of ATF, advises trying to keep areas of compaction at a distance of around 15 times the diameter of the tree. Incidentally BS5837 (2005) - "Guide for trees in relation to construction" identifies the root protection zone as 12 times the diameter of the tree.

We looked at the effect of different fungi on different species of tree. It is really important to consider which species of tree and which species of decay fungi you are dealing with

when making decisions. We had an interesting discussion on why some species of tree can “seal off” decay better than others. *Ganoderma australei* (formerly *adpersum*) can be beneficial on Oak, for example, in its hollowing effect (a hollow tube being slightly flexible and therefore less likely to snap than a solid one). However it was suggested that the same fungus in Beech could lead to the tree’s collapse. There are different schools of thought on why this may happen; it may be the difference in structure of the cell walls or in annular rings.

It is just as important to understand the characteristics of different fungi. We found Chicken of the Woods (*Laetiporus sulphureus*) which is one of the few fungi capable of degrading the durable heartwood of Yew and Sweet Chestnut. Sapwood is seldom infected resulting in trees maintaining a full and healthy canopy. Infected wood is prone to brittle fracture however which can be sudden and catastrophic. We also found Dryads Saddle (*Polyporus squamosus*) which on some species, such as Lime, causes a soft and spongy rot whilst in others, such as London Plane, the wood becomes brittle.

Dead wood in a native Oak and Sweet Chestnut will stand for years due mainly to its structure but also its resistance to decay. However in a Horse Chestnut, Ash, Sycamore or Lime it may break out quite easily. Lucombe Oaks – being hybrids – vary in their characteristics so may share the dead wood retention of either parent.

The visit provided a great example of how to retain ancient trees carefully and responsibly through knowledge of their physiology and ecological interactions. Many thanks to Simon Major and Mr and Mrs Kennaway for hosting it.

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