

TREE PROTECTION AT FESTIVALS - by Geoff Monck, BSc (Hons), FdSc Arb, M. Arbor. A

Introduction:

A native English or Sessile oak tree, growing in ideal conditions (such as those found in many Greenfield sites) can quite typically live in excess of 800 years, with its ecological value and significance (importance to other wildlife), aesthetic appearance, cultural significance and prominence in the landscape increasing steadily over this period. Many other native species can also live for up to 400 years or more in these conditions. When you consider this fact, you can begin to appreciate that when any tree, but particularly mature trees, occurring on ecologically sensitive Greenfield sites, are damaged or killed unnecessarily, it is a real tragedy, resulting in the loss of (on a human timescale) a near permanent feature of the landscape, as well as important habitat for other wildlife.

This article explains how a lack of understanding of the physiology of trees has led to them historically being afforded inadequate protection at many festivals, which has quite likely resulted in much damage occurring to trees at many festival sites to date. As even a severely damaged tree may take several years to finally die, it is likely that the effects of such damage would not even be noticed by the untrained eye until several years down the line. Given this timescale, it is likely that this impact upon trees on a site may never even be attributed to the festival or festivals that were once held there. On a happier note, this article then goes on to explain how we can prevent this damage occurring at future festivals.

The Problem:

Most people would be of the opinion that 'protecting' any trees located on a festival site would primarily involve preventing people from climbing them, or maybe even from vandalising them. This 'protection' is unfortunately missing the most crucial factor, and fails to protect the most vulnerable part of a tree – its roots. This is the inevitable end result of the common misconception that a tree's roots grow downwards, out of harms way.

In actual fact, a tree's roots grow mostly outwards away from the tree, rather than downwards, with the majority of the important fine feeding roots which are essential for absorbing the water and nutrients that the tree needs to live, being located in the top two feet of soil. The root spread of an 'open grown' tree will usually be somewhere between 1.5 and 2.5 times the spread of the tree's crown (its branches). Armed with this knowledge, it is not then wholly surprising that by far the easiest way for a tree to be seriously damaged and eventually killed (short of felling it) is by damage to these fine feeding roots. The mechanism by which this can easily occur at a festival (or anywhere else for that matter) is compaction of the soil.

The damage compaction of the soil causes:

When the soil within which a tree's roots are situated becomes compacted, all the air normally present in the tiny pore spaces between soil particles is forced out of the soil, which means that the tree's roots can't 'breathe' and they begin to die off. As the roots die off this will be simultaneously reflected above the ground by progressive dying back of the tree's crown, with the tree becoming increasingly 'stag headed'. It is important to make a distinction here between the natural, gradual

process of a tree's crown receding back downwards as it enters old age, and the unnatural, relatively rapid die back caused by damage to its roots.

The former, natural process occurs with all trees as they pass through the later part of their life cycle. As they become over mature and gracefully descend into old age, the crown slowly dies back from the top and the tree sends more shoots out at the bottom, forming a lower and smaller 'secondary' crown, this process is known as 'growing down'. It occurs naturally over what can be a period of several hundred years for many of our longer lived native species. It is throughout this period of its life that the tree has its greatest ecological importance and significance.

This natural process of 'growing down' should not be confused with the rapid die-back resulting from compaction damage to the roots. In this case, if the compaction and resulting damage to the roots is severe, it forces the tree through this whole process within just a few short years, ending with the vastly premature death of the tree. The effects of compaction are most obvious to the observer when previously healthy trees in their prime, suddenly, over the course of a year or so begin to enter a rapid decline becoming 'stag headed'. Any moderate level of compaction will kill roots, induce an unnatural decline of the tree and shorten its life, but the more severe the compaction, the quicker the decline and death of the tree.

What causes soil compaction and how easily can it occur?

Compaction can occur very easily and can be caused particularly easily by vehicles, but also by medium volumes of foot traffic. This effect is massively accelerated in wet conditions when the ground becomes waterlogged, it will also occur much more readily on heavy clay soils than sandy, free draining soils. Obviously, the level of compaction damage that will be caused to a tree's root plate is directly related to the volume of traffic (pedestrian and particularly vehicular) passing over it. Although in dry conditions the compaction effect is less than in wet conditions it will still occur but more gradually. A level of damage that could occur in just one wet festival, could take a few years of the festival being held there in dry conditions to be reached. Nevertheless, even in dry conditions trees by major thoroughfares experiencing some vehicular and heavy foot traffic could be badly affected within just one festival. As the British summertime weather is virtually impossible to predict more than a few days in advance, a festival should always be set up for the likelihood of rain (however much we will be hoping that it doesn't!).

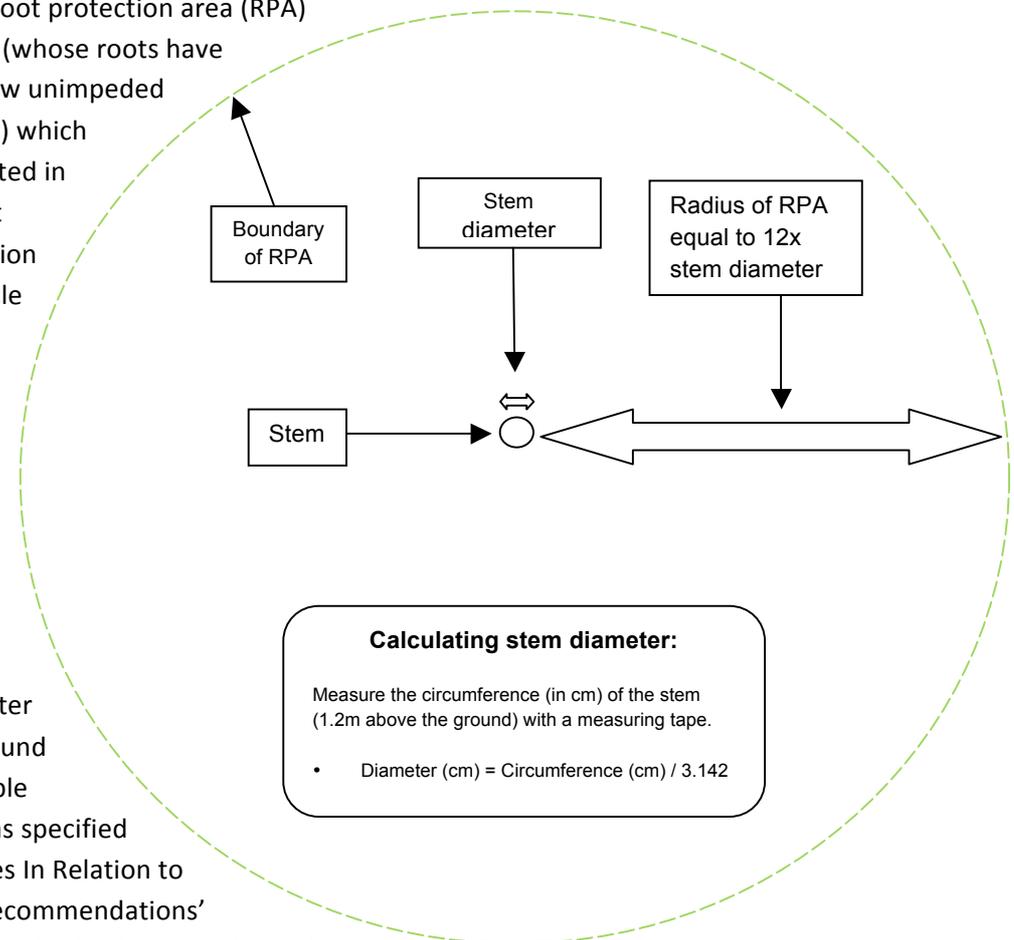
It should be noted here that compaction of the soil is cumulative, and the ground will usually not just 'recover' if it is subsequently left alone. The only way of reversing soil compaction in a tree's root zone is by an expensive (but not necessarily prohibitively so) process of re-aerating the soil by injecting air under high pressure, a service which is offered by some specialist arboricultural consultancies and contractors.

How can compaction damage to trees be prevented?

Thankfully, this problem can usually be easily prevented with prior planning of the festival layout. This applies equally for set up and subsequent disassembly of the site, as well as the festival itself. The following points are provided for informative purposes only:

- The MINIMUM root protection area (RPA)

around any tree (whose roots have been able to grow unimpeded by any obstacles) which MUST be protected in order to prevent serious compaction damage, is a circle around the tree with a radius equivalent to 12 times the diameter of the stem, measured at 1.2m above the ground (or 10 times the diameter measured at ground level for a multiple stemmed tree) as specified in 'BS 5837: Trees In Relation to Construction- Recommendations' which is just as applicable here. As this is the **minimum** RPA necessary to prevent any serious damage, if space allowed it certainly wouldn't hurt to extend this area a little further. See diagram insert.



- All major thoroughfares through the festival site should be situated so that they do not encroach into this minimum RPA (or whenever possible be situated well away from it).
- All trees in areas where any significant volume of traffic (pedestrian or vehicular) is anticipated should have this RPA completely cordoned off.
- The barrier used for this needs to be robust enough to ensure that people and vehicles walk / drive around the RPA and don't cut through it, simply taping off the area is not enough.
- Wherever possible, assembly and subsequent disassembly of the site, which is when the majority of the vehicular access on the site occurs, should be done when the ground is dry.

HOWEVER: If a tree's root growth has been impeded from forming an even, circular shape around the tree by any sort of natural or man made obstacle (or attraction such as a water source), then it is recommended to consult an arboriculturalist in order to accurately assess its probable root spread and required RPA.

Some examples of such obstacles (and attractions) are, but are not restricted to:

- A river, stream or canal
- Sudden changes in ground level (i.e. steep drops of a couple of feet or more)
- Buildings or walls with foundations
- A tarmac, concreted or paved area
- A ditch or any boggy area which easily becomes waterlogged in wet weather
- Areas that are (or have been in recent years) regularly ploughed / cultivated
- An area where the soil has been badly compacted at some point in the past
- An area where the ground has become polluted / contaminated from past usage

What if there is not enough space on site to take the tree protection measures outlined above?

There obviously may well be some occasions or sites where taking the above steps could create obstacles that may even preclude the site from being able to hold a festival, or you may want to have a couple of trees in a busy area under which people can sit in the shade if the weather is hot** (see important tree safety note below). In such instances it will be necessary to seek the advice of an arboriculturalist as it MAY be possible to take steps to protect the ground from compaction, or to reach a compromise solution in SOME instances.

The constraints represented by trees should be considered when initially assessing a site for its suitability, before any definite decision is made to hold the festival there; the advice of an arboriculturalist would be invaluable here, particularly if it is evident that the tree constraints may well cause an issue.

In conclusion....

The main points to take away from this article are:

- In the first instance, when judging potential sites upon which to hold a festival, the constraints of the trees on site should be given equal consideration to the other site constraints being assessed.
- If trees do occur on your festival site, you will need to design the site layout around the trees as far as is possible to avoid risking damaging them. Seeking the advice of an arboriculturalist is always recommended.
- You need to make sure that trees have been properly considered and that you've taken steps to ensure that their RPA is adequately protected if necessary.

- You also need to ensure that you have properly considered your 'duty of care' in relation to the safety of trees on site (see important note below).
- If trees on a site are not given the consideration they deserve, potentially, just one weekend of fun for a few, could have a significant ecological impact on a site for centuries to come.

****Important note on trees and your 'duty of care':**

If you allow people under the canopy of any tree (or anywhere near a tree which is in danger of falling, which only a competent arboriculturalist can accurately assess) on a festival site and someone was injured or killed (by falling deadwood or other potential defects) and the area under the canopy of the tree (or within striking distance around that of a tree liable to fall) had not been robustly cordoned off and accordingly signed, the land owner and / or festival organisers would, without a shadow of doubt, be found by the courts to have been negligent in their 'duty of care', unless they had taken the 'reasonable' precaution of first having had the tree(s) inspected by a competent, insured arboriculturalist – you have been warned!

Please note that this information is provided purely for informative purposes only, and is not intended to form a set of guidance to be used without seeking the advice of a competent arboriculturalist. It is recommended that the advice of a competent arboriculturalist is always sought where trees occur on a site, and the article's author and 'A Greener Festival Ltd' do not accept any liability for any damage caused to trees, persons or property resulting from following this information.