

Why light a bonfire?

Thankfully the practice of burning unusable wood on site is gradually disappearing. In natural forest ecosystems the natural decay of dead wood and the recycling of nutrients and minerals released in the breakdown processes are fundamental and essential to the well being of the forest. Leaving lop and top to decay down naturally - not just burning on site in the old traditional way, is therefore very important.

Decay fungi, a very large and diverse group, are the primary organisms in the breakdown of all plant matter aided by bacteria, insects, invertebrates and other organisms. They are also believed to keep out other fungal colonists from the areas they occupy. This diverse group includes specialist and generalist fungi which therefore not only recycle all the material in the woodland but by defending their areas of influence they also inhibit the spread of other colonists including pathogens.

In the decay process the minerals and nutrients produced are often transferred by another very large and diverse group of fungi, the mycorrhizal fungi, directly to the tree roots. Mycorrhizal fungi are beneficial to the tree in another way - by rapidly colonising new root hairs as they are produced and fusing with them, they then exclude other fungal colonists, which might include pathogens.

As these two groups of fungi permeate every part of the forest and every tree they are actually practising biological control of pathogens and therefore maintain a healthy natural forest.

With the arrival of the chainsaw, the felling contractor is now leaving lop and top as a general practice in woodlands and this material is starting to supply the same decay process as in natural woodland systems. Wood chips if also left on site will eventually benefit the surrounding trees in a similar way. However removal to another site to be used as a wood mulch where it only replaces other dead unsightly plant material cleared solely in the pursuit of tidiness, represents a loss to the original woodland, depleting its minerals and nutrients. Scattered piles of lop and top from a felling operation were found recently in a forest in Eastern Germany. In this instance it appeared that the lop and top had been collected up into piles in such a way as to allow natural regeneration to occur.

Every bonfire in woodland can have two very distinct and detrimental effects on trees and woodland in general. These effects should be termed 'zones of influence' – the aerial zone and the subterranean zone. The aerial zone can often be all too easily seen when trees overhanging and surrounding the fire have leaves, twigs, boughs and often trunks scorched by the heat and flames. However with increasing distance from the fire the effects of the heat might take a much longer period to appear. The subterranean zone below ground, which is never seen and usually ignored, will be affected in a similar way- and the damage may eventually prove to be more significant in the long term. It might be argued that soil would have a greater insulating effect against the immediate heat of a bonfire. However it could also be argued that the soil that has gained heat will retain the degree of heat for longer periods and therefore might well achieve a similar overall effect to the instant heat above ground.

Both zones or 'cones' of influence are obviously three dimensional although the zones are not symmetrical - the closer the bonfire is to the tree the greater the damage to roots or limbs affected by the heat [see diagram]. Wherever there is cell damage it will result in dysfunctional

wood either above or below ground. Dysfunctional wood allows the activation of latent fungi present in the tree, allowing decay processes to start up in these areas or opportunities for invasion and colonisation by other fungi including pathogens. The more dysfunctional wood the greater the effect on the efficiency of the tree and its future growth for many years.

Another effect of bonfires is the heat sterilisation and desiccation of the soil in the immediate area with the obvious disastrous effects on the forest soil ecosystem of bacteria and invertebrates etc. Biological control over the area will have vanished. Tree roots eventually entering and re-colonising this area may not find their beneficial mycorrhizal fungi present to colonise them and subsequently protect them against pathogens.

There can be no logical case for a bonfire in natural woodlands. Many of the minerals and nutrients are exported from the area. Up in smoke. Yet again more depletion of the forest reserves. Bonfires cost manpower, which means money. Why spend money? Let the natural system do the work of decomposition and recycling and then the whole system including the forester benefits.

Ted Green – Pressing on Fungi first.
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