

Waiting for a tree's demise - there lingers the beetles and flies

The presence of dead trees, or dead wood on living trees, is not a sign of poor health in a nature reserve - quite the reverse; decaying wood provides a rich resource for an immense diversity of organisms. In a natural woodland over half of all species depend on dead wood.

Through the survey work of Shotover Wildlife, it has been established that Brasenose Wood and Shotover Hill are both nationally important places for insects that depend upon dead wood. Many species are especially rare, with only a few other records in Britain in the past 100 years.

Organisms such as fungi and insects that have a life-supporting dependence on dead wood are described as being **saproxylic**.

What is dead wood?

Dead wood is a living habitat, an ecosystem, and an intricate microcosm that is an essential component of any natural woodland. Dead and decaying wood takes many different forms depending upon its size, how the wood died, and the sequence of decomposition it follows thereafter - be it dry, damp or wet.

The term 'dead wood' applies to a whole tree, whether upright, fallen or felled, or a branch of a tree that has been severed or has died naturally. Other types of dead wood include tree stumps, roots, twigs and logs.

The journey of dead wood

Once dead, wood begins a new life as it embarks upon a slow 'journey' back to the soil. This phase of gradual decomposition is crucial for recycling the nutrients that are essential to the cycle of life, and all of the woodland organisms that are involved along the way.

Saproxylic activity goes on both above and below the ground and moisture is a key factor for the route taken by any newly deceased timber. Dead wood on damp ground will be quickly reduced by fungi and the insects that can burrow into the softened wood, whereas sun-baked wood - normally all or part of a standing tree - becomes dry and hard, and takes very many years to return to the soil. Sooner or later however, all natural dead wood crumbles, 'mushes' down or is processed by animal digestion, and recycled as fresh sustenance for new growth.

Throughout these various journeys, dead material from trees provides an inordinate range of niches for saproxylic organisms to function: mostly fungi, beetles and flies, but also a large number of moths, thrips, bugs, spiders and millipedes.

The special case of fire

Trees may also meet their death having been scorched or decimated by fire, and some saproxylic species are especially adapted to this opportunity.

At Shotover, where living gorse is occasionally killed by fire, the remaining blackened stems often become colonized by the scarce fungus *Daldinia varians*. This bracket fungus is similar to the black Cramp-balls (*Daldinia concentrica*) found on Ash trees. The scarce, dependent and eponymous Cramp-ball Fungus Weevil (*Platyrhinus resinosus*) has been found in the vicinity of the burnt gorse at Shotover, demonstrating the sequence of life that can be stimulated by a fire.

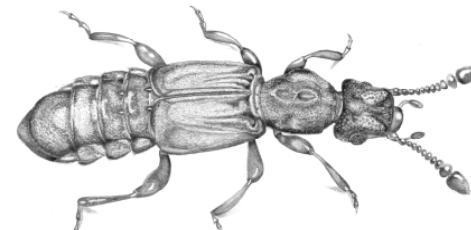
In many cases an organism will be part of a sequence in which it will utilize the prior activity of another. At its simplest, a great many insects develop in, and feed on, fungi growing on wood. Many wasps and bees use holes that have been ready-made by beetles; and by enlarging them, can then benefit even larger hole-nesting species. Some insects depend on sap-runs where a tree is reacting to colonization by a fungus.

The British **Rhinoceros Beetle** (*Sinodendron cylindricum*), with its horn at the front, does indeed look quite like a rhinoceros – although it is only 15mm long. The larvae can gnaw and burrow into quite hard timber, feeding and growing for 2-3 years before eventually emerging from the hole as an adult.

This beetle has been seen several times on Shotover in recent years, yet curiously there would appear to be no historic records of this handsome and neatly cylindrical insect.

The importance of dead wood for Shotover

Providing a continuity of dead wood habitat allows the saproxylic fauna to follow the natural succession of decay, in both the long and short term, and across the full range of habitats. Even a brief period of dead wood shortage, at a particular stage of decay, can be a threat to sensitive species.



Euplectus tholini (1.5mm)
a rare saproxylic Rove Beetle in Brasenose Wood

Too much dead wood in a woodland is a very rare occurrence indeed

All too often dead wood, as well as freshly cut wood (the beginnings of potential habitat) is tidied-up or simply viewed as firewood. In a natural area, burning freshly cut wood reduces an important habitat; burning older wood from a natural area will be burning some of Britain's rarest biodiversity.

When fires are used to dispose of woodland timber that is perceived to be unwanted, it consumes wood much faster than it can be replaced naturally. The depletion of this most important habitat takes very many years to replenish.



Tanyptera nigricornis (16mm)
a scarce saproxylic Cranefly on Shotover Hill

The Stag Beetle at Shotover

Shotover once had the Greater Stag Beetle but it has not been seen for decades and is now probably lost. This magnificent insect (up to 7cm long) depends upon a large quantity of undisturbed dead wood for its survival, and is undoubtedly a victim of 'tidying up' in the woodlands.

Helping Shotover's insects flourish

Most woodlands in Britain would benefit from a greater volume of dead wood, and so help the much-overlooked species of dead wood to flourish.

Shotover Country Park has been shown to be nationally important for the insects that depend upon dead wood, and wherever and whenever possible the volume of dead wood needs to be enhanced so that the very special biodiversity of Shotover can continue into the future.

The log on the ground needs to be respected and viewed in its true context - current and future habitat for a great many rare species.

Shotover Wildlife is an independent voluntary organisation founded to research and communicate the importance of Shotover Hill for wildlife

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DEAD WOOD on SHOTOVER



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