

THE COTSWOLD ASH POLLARDS – A UNIQUE HERITAGE IN NEED OF ACTIVE CONSERVATION

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Introduction

The Cotswolds are well known for their limestone grasslands and drystone walls, but ask people about tree heritage and they will undoubtedly talk about ancient woodlands and fail to mention the old ash pollards. And yet the Cotswolds are virtually unique in Britain for their special heritage of ash pollarding. These old ash pollards are living history, a characteristic feature of the sustainable land management systems of past centuries. They also support biodiversity of European significance.

Pollarding for fodder and fuel

Pollarding is the practice of cutting trees above the reach of browsing animals in order to generate a sustainable resource from the branches. The length of cutting cycle varies according to the type of product desired, as does the proportion of the crown that is removed on any one occasion. If cut sympathetically the tree is able to re-grow its crown time and time again, without any loss of structural integrity. Cut badly and the tree may decline in health, become structurally unsound, and even die.

But what were the products of pollarding? Old ash pollards are very widespread across the Cotswolds, especially in the north and through the river valleys. It follows that pollarding was once a common activity and clearly the products were in great demand. Unfortunately, as with so many everyday essentials, little or nothing has been written down about how the trees were managed and why. Good clues are, however, available from other parts of Britain and Europe.

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The other part of England where there are large numbers of old ash pollards is the central and eastern Lake District. Here the trees were cut primarily as leaf fodder, as an alternative to hay. Similar pollarded trees can be seen in southern Norway and Sweden, which are also known to have been used for leaf-fodder. In these areas the growing season for hay meadows was short and it was often difficult to grow enough hay to get the livestock through the long winters, and so the nutritious foliage of ash trees was cut, dried and stored in barns in a similar way to hay making.

Ash is a very palatable tree to large herbivores such as sheep, cattle and deer. The foliage and thin bark of branches is eaten with relish – the animals recognise this as being especially enjoyable to eat and will target it. The thick bark of the trunks is less nutritious and offers some physical protection from gnawing, but may be vulnerable if the animals are desperate for nutrition.

Leaf-foddering has died out in these northern climates but can still be seen in other parts of Europe, notably in the mountains of northern Spain. Here the ash trees are mostly shreds rather than pollards, the trunks being left taller and small branches are cut from the sides as well as the tops. Freshly cut branches are fed to the animals soon after cutting and provide a nutritious supplement especially in the spring, after the long cold winters in the mountains.

In east Devon, old ash pollards around Branscombe were cut primarily for the wood from the poles which provided high quality fuel for the bread ovens of the local bakery. The old trees stand in old pastures and it seems likely that the cut branches were left for the local livestock to strip the leaves and bark, as part of the seasoning of the wood prior to removal and burning.

It seems likely therefore that the Cotswold ash pollards were similarly a multi-purpose resource for the local people, providing both leaf fodder and fuel wood, and probably also a handy source of long straight

branches for short-term repair of walls, etc, etc. Perhaps the leaf fodder was most needed in high summer when the pastures had become droughted, or in the spring as a boost after the long winter – as in northern Spain, or maybe the bark of freshly cut branches could be important during periods when deep snow covered the pastures? We just don't know.

Biodiversity values of open-grown trees

Large old trees can provide important habitat for specialist wood-decay (saproxylic) fungi and invertebrates as well as bark-living (epiphytic) lichens, mosses and invertebrates. The most important trees for this wildlife tend to be open-grown, and for a variety of reasons.

Enclosed and ungrazed woodlands predominantly comprise relatively young trees; woods are poor places for trees - they die young under these overcrowded conditions. If they are not cut down by people, they will suffer from canopy competition with their neighbours, and younger more vigorous trees will eventually overtop and shade-out older and aging individuals. While an open-grown ash tree may live for many centuries and develop a broad and strong trunk, a woodland-grown ash tends to be drawn up tall and thin, and rarely achieves its full potential. Woodland trees therefore tend to support a restricted range of deadwood fungi and invertebrates as wood volumes are relatively small, while the shady conditions are poor for epiphyte development.

Open-grown trees have the potential to develop large old trunks full of habitats for specialist wood-decay fungi and invertebrates. The well-lit trunks provide a very favourable surface for epiphytes which is potentially available for many centuries and so the epiphytic communities can develop and diversify over long timescales.

Wood-decay fungi and invertebrates

Recent investigation of the invertebrates which live in the old ash pollards across the Cotswolds has demonstrated that these trees support an extremely interesting fauna and one of European significance.

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Conservationists were alerted to this importance as a result of beetle-recording by a local amateur naturalist (Whitehead, 1996) on Bredon Hill in Worcestershire – an outlier of the Cotswolds - and this work has subsequently been extended into the north Cotswolds (Alexander, 1999 & 2003; Whitehead, 2002).

The most important wildlife habitats are provided by the large old living trunks of the ash pollards. In trees only the outermost growth rings have living tissue; the older growth rings deep within the trunk are dead tissues which can be exploited only by specialist heartwood decay fungi. The most widespread of these fungi in the Cotswolds is the weeping polypore *Inonotus hispidus*, but southern polypore *Ganoderma australe* and other bracket-fungi may also decay the ash trunks. The central woody tissues are broken down by the fungi and the trunks begin to hollow. Debris accumulates in the base of the hollows and composts down to form a wood mould. It is this wood mould – the end product of centuries of tree growth followed by fungal decay – that provides the most important habitat for rare and threatened wood-decay invertebrates.

Violet click beetle

The flagship species for the conservation of the old Cotswold ash pollards is the Violet Click Beetle *Limoniscus violaceus* – a medium-sized black click beetle with a violet metallic sheen. This is a rare species throughout its European range, and this range is now extremely fragmented and its populations highly isolated as a result. Suitable old hollow trees have become extremely rare and localised across Europe, and landscapes with sufficient old trees to maintain viable populations of this beetle are now being designated as Special Areas of Conservation (SAC) under the EU Habitats Directive. Violet Click Beetle was found to be present on Bredon Hill and its habitat there now has special protection as a SAC. It is unclear however if this population is sustainable as the population of host trees has a poor age structure.

A very limited investigation of the similar habitats that extend across the north Cotswolds immediately discovered another population, at Dixton Wood. Here the beetle was found developing in the hollow base of an old ash coppice stool. One of its few known French sites is also old coppice, but it seem unlikely that such old coppice stools provide a viable long-term habitat for the beetle as the wood volumes are much smaller than those provided by old open-grown trees. Such sites also tend to be coppices where the trees have been singled for conversion to high forest and, as such, do not have a future unless coppicing resumes.

Other rare beetles in the old pollards

Violet is not the only rare click beetle inhabiting the old ash pollards. *Ampedus rufipennis* is one of the cardinal click beetles, somewhat larger and with vivid scarlet wing-cases. This too was originally discovered on Bredon Hill, but has now been found on a number of sites in the north Cotswolds, across Alderton, Alstone, Dumbleton, Gotherington, Southam, Stanton and Toddington parishes. If this species is this widespread in the old ash pollards then so might Violet Click Beetle also be! Another rare click beetle *Ischnodes sanguinicollis* – black but with a red pronotum or ‘collar’ - is often associated with Violet in its European sites and is also known the old ash pollards across Alderton, Alstone and Dumbleton. The old pollards also support populations of another rarity, the medium-sized black click beetle *Prokraerus tibialis*.

While the Cotswold ash pollards are exceptional for their rare click beetles alone, there are also a whole host of other nationally rare and scarce wood-decay beetles present. Another wood mould specialist present is the rare darkling beetle *Prionychus melanarius*, although this is more widespread in the county in the traditional orchards of west Gloucestershire.

Site quality

The quality of this wood-decay beetle fauna in the Cotswold ash pollards is so high that comparisons have to be made with the single

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most outstanding British site, Windsor Forest and Great Park, recognised throughout Europe as the top British site. Windsor is the only other British site for Violet Click Beetle, and is the other major British site for *Ampedus rufipennis*, and yet it does not have *Prionychus melanarius*. While to suggest that the north Cotswolds are of similar conservation importance to Windsor would be going too far, it is true to say that - like Windsor - the old ash pollard landscapes of the north Cotswolds are of European significance for their rare beetles.

One of the more striking features of this exceptional wood-decay beetle fauna is that it had been so overlooked by earlier entomologists. All of the species mentioned were unknown in the Cotswolds until Whitehead's work stimulated investigation of the old ash pollards – see Atty (1983) – although it seems likely that Atty (pers. comm.) had seen *A. rufipennis* but misidentified it as *A. cinnabarinus*, which at the time was the only red click beetle known from the county (the Forest of Dean is one of its national strongholds). This does not imply recent colonisation of the county however, as the species concerned are widely acknowledged to be relict species of the primeval forests of Europe. They are difficult to detect unless specifically sought, and with specialist knowledge of how to find them. They are species which require the type of knowledge only developed by expert field naturalists, but unfortunately such people just had not been investigating the old pollards

Conservation requirements

The current population of ash pollards is in a very precarious state. Many of the trees are very old, and most have developed heavy crowns through neglect of active pollarding. New generations of trees are not coming on. With the trees now being out of the normal cycle of pollarding their restoration needs to be taken very carefully. The heavy crowns run the risk of the trunk failing through the weight, and collapse being a serious risk; these were working trees, responding to past human interventions in their growth - continued human intervention is needed if we are to retain this historic feature of the Cotswold

landscape and protect the rare and threatened wildlife that has adopted them. But re-cutting the entire old crown may be more damaging than continued neglect. It is important to apply expert arboricultural knowledge to any future programmes of cutting. Consideration needs to be given to promoting new generations of trees to support the considerable biodiversity interests and whether or not new pollards are the way forward for both biodiversity and landscape heritage.

Interestingly, Green (2010) suggests that we should be rediscovering the benefits of pollards not only for their essential contribution to sustainable farming and especially healthy and productive soils, but also for being capital assets creating beautiful landscapes, maintaining biodiversity and offsetting carbon to reduce climate change. He points out that trees provide many products, such as timber, fuel, fruits and shade, especially on low productivity soils.

Ancient Tree Forum and the Gloucestershire Invertebrate Group leading the way

Just two organisations have been leading the way on drawing attention to the trees. The Gloucestershire Invertebrate Group have been recording the invertebrates while the Ancient Tree Forum has held two of its national field meetings locally to discuss the special interest of the trees and their conservation management needs.

The Cotswold AONB Partnership would appear to be ideally placed to take an active role in promoting interest in - and conservation of - this heritage. They are the most obvious body to provide a constructive overview of the resource, while environmental stewardship under Natural England can hopefully provide the site by site advice and contribute resources.

Conclusions

The old Cotswold ash pollards provide links with a past historic land-use pattern which was closely tied in with livestock-rearing. They are as much part of our Cotswold heritage as are the limestone pastures and

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drystone walls. They too have considerable biodiversity interest. The evidence in support of the national - and even European - significance of the old Cotswold ash pollards is incontrovertible and yet the trees are not attracting the attention of the conservation bodies which are active in the county. It is very difficult to understand why this should be.

What needs to be done?

1. Document the locations of the trees, eg through the Ancient Tree Hunt project (www.ancient-tree-hunt.org).
2. Research their history and promote interest in them.
3. Assess their conservation management needs and initiate sympathetic action.
4. Establish new young pollards.
5. Bring the pollards back into everyday use by using the products as livestock fodder and firewood.

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