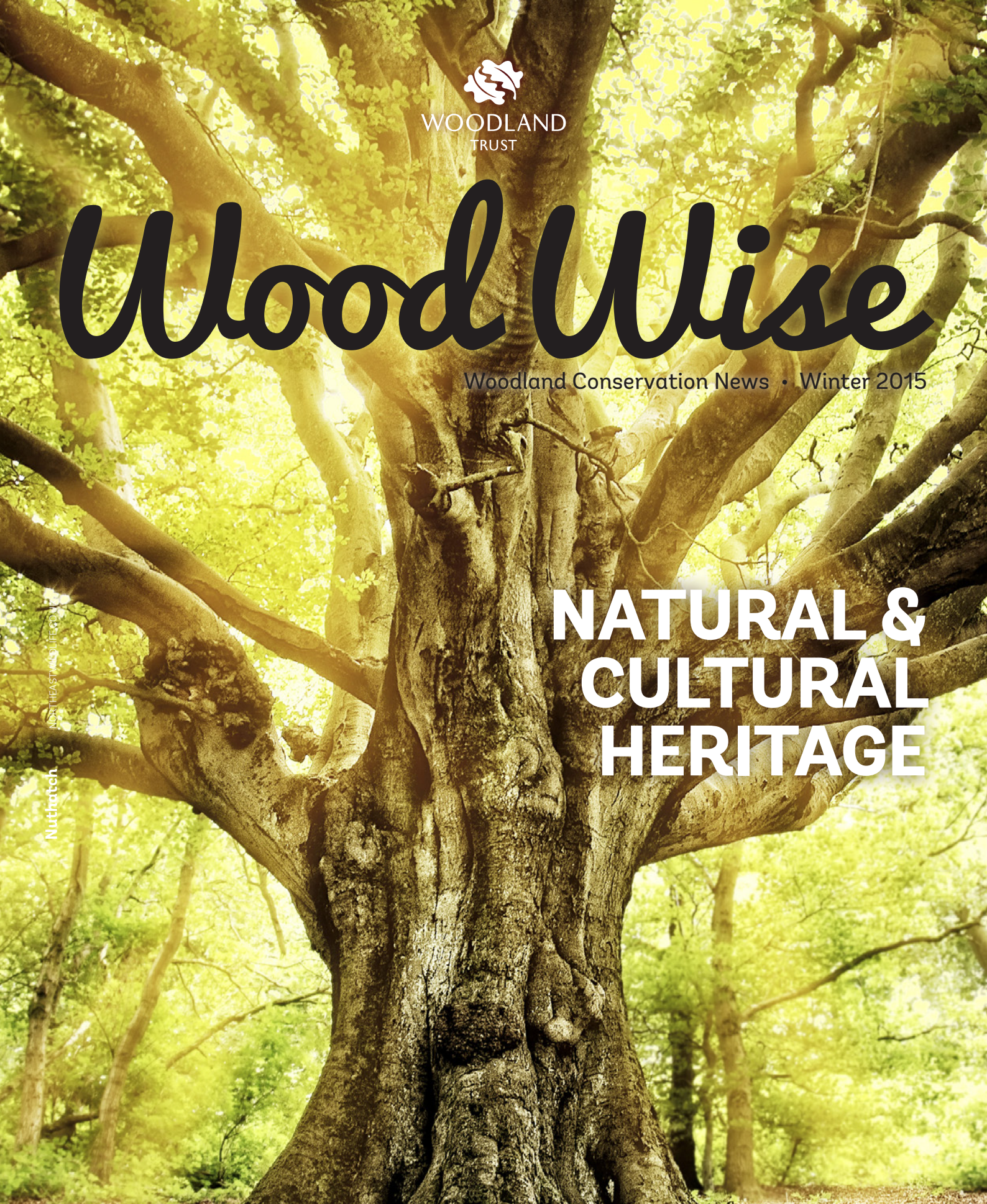
WOODLAND TRUST

Wood Wise

Woodland Conservation News • Winter 2015



NATURAL & CULTURAL HERITAGE

Nuthatch NORTHEAST WILDLIFE PHOTOGRAPHY

READING OUR ANCIENT LANDSCAPES

BALANCING NATURE AND CULTURE

TREES AND ARCHAEOLOGY CONFLICTS

USING TREES AS HISTORICAL EVIDENCE

GARY ROGERS-WIKIMEDIA COMMON

White Coppice Geology Trail

Natural and cultural heritage

Heritage links to the past, supports the present and influences the future. It can come in many forms, such as inherited genes passed down from one generation to another (be that human or oak tree), but the heritage of interest for this issue is natural and cultural.

Natural heritage: this is all the natural resources and biodiversity that make up landscapes. It includes the underlying geology, soils and landforms, as well as all the flora and fauna, and the ecosystems they create.

Cultural heritage: this relates specifically to humanity. Physical artefacts of human history preserved, deliberately or by chance, inform us of our cultural heritage, but societal traits and structure are also part of this.

Valuing our legacy

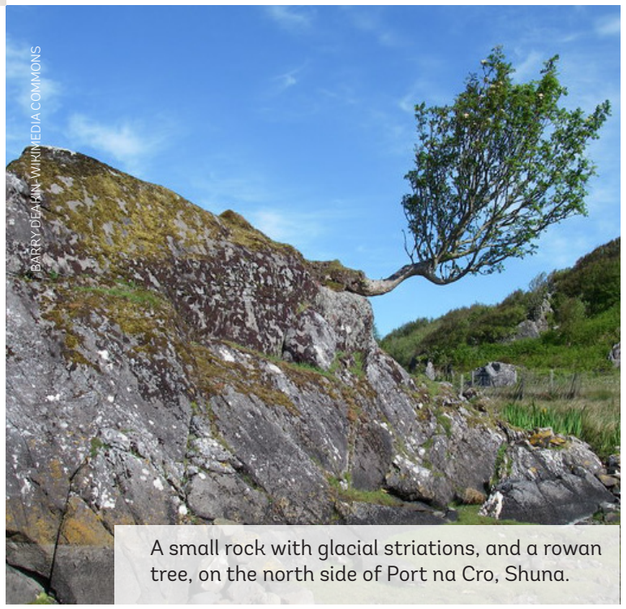
The distinction between natural and cultural heritage is not entirely clear-cut, after all humans are as much a part of nature as any other species (despite efforts to detach ourselves from it). Nature influences the course of human history and evolution, while we influence the ecosystems around us.

We value both types of heritage, as both tell stories through time and show us how we are here today. Natural heritage delivers many services that support our lives, but it also offers less tangible benefits. Evidence shows that regular contact with nature is an important element of human physical and mental health and wellbeing.

The stories that our cultural heritage provides gives us a sense of place and belonging in the society to which we are born, an understanding of how our species has developed over time. But both aspects (natural and cultural) ultimately provide stories, and these have been an important part of humankind since the evolution of speech and cave paintings.

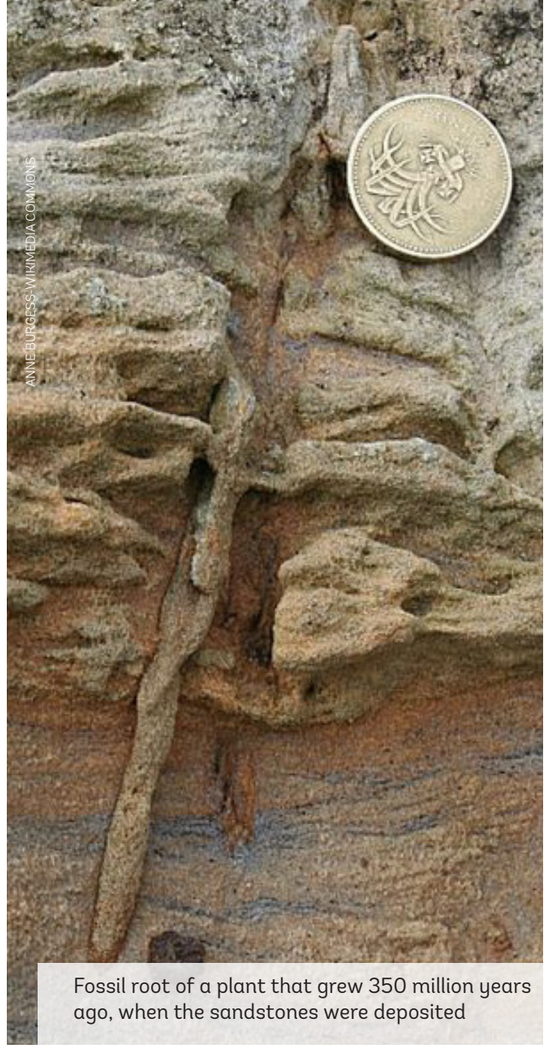
Losing the past

We too often see the erosion of our natural and cultural heritage. But these were passed down to us and we have a responsibility to ensure they are conserved for future generations, to support and enhance their lives as they do ours.



BARRY DEAN-WIKIMEDIA COMMONS

A small rock with glacial striations, and a rowan tree, on the north side of Port na Cro, Shuna.



ANNEBURGESS-WIKIMEDIA COMMONS

Fossil root of a plant that grew 350 million years ago, when the sandstones were deposited

At times there can be conflicts between natural and cultural, and there is a need to strike a balance to preserve the two. Some cultural heritage is directly linked to nature and the resources humans used to survive and advance. Sometimes there is a need to tame elements of nature to preserve important archaeological features. But both can have a place in the landscape.

The following articles look at some of the heritage features of UK woodland and work to understand, conserve and restore them.

Irreplaceable ancient landscapes

Ian D. Rotherham

Contrary to popular belief, our ancient woodlands are not 'wildwoods', or even remnants of '*wildwood*' – Professor Rotherham gives his view on our wooded heritage..

These truly cultural wooded landscapes mix nature and human history, woven as uniquely rich tapestries of ecology and history. The story of the woods is there to be 'read' by those with the time and enthusiasm, from prehistory to the present day.

First step into your wood

The landscapes, geology and climate, and even differences in industries and manufacturing history, have influenced woods to create strong regional distinctiveness. This created woods with local character depending on the ecological type of woodland present originally, and the varying uses to which it has been put through centuries of human endeavour. From Chiltern bodgers, to Cumbrian tan-bark merchants, they each left unique and indelible footprints in the landscape, and to walk through the woods today is to follow the ghostly pathways of those who have gone before.

There is widespread popular and academic interest in woodlands and their history and archaeology, but limited literature on woodland history, heritage and archaeology. Based on thirty years of field and archival research our views of woods and other treed landscapes have changed. With the publication in 2008 of the *Woodland Heritage Manual*, there was for the first time an accepted approach to these subjects and interests in this long-neglected field.

Working the woods early 1900s

Cultural importance of woods

Woodland history and heritage cover many topics from extractive industries in woods, to crafts based around harvesting and processing of woodland products. For centuries, these crafts were at the centre of British society; fundamental in creating and protecting many landscapes we value today. However, particularly from the 1880s to the 1900s, with changing technologies and markets for products, many woodland traditions and crafts were abandoned and forgotten. Just a few of the old crafts survive today and then mostly as museum records or demonstrations, but the footprints of lost craftsmen are indelibly etched into ancient woods across the landscape.

The problem for the woodland enthusiast is to recognise and understand the evidence. This is like stepping back in time to a land where indigenous peoples speak a different language or a local dialect. Even the woodland wild flowers and their distributions tell stories of site usage and history, as do formerly 'worked' trees, what we describe as 'culturally modified trees'. Humps and bumps of soil are now archaeology and irreplaceable heritage, but incredibly vulnerable and easily lost. These woods contain uniquely rich diversities of features ancient and modern, from woodbanks and ditches, to trackways, charcoal hearths, Q-pits, bell-pits, quarries, mines, sawpits, and building platforms.

Pages of the ancient woodland story

Reading the woodland landscape can span thousands of years of history, even in urban ancient woodland. This ability can help reconstruct a local landscape and its unique historic timeline. Evidence is physically imprinted into our environment, and woods and wooded landscapes are recorded in the names of places, settlements, and fields such as Wood End, Wood Lane, Hagg Side, Hollins End, Endowood, Woodseats, Woodthorpe, Willowgarth, Owlerton and more.

A traditional besom maker or broom squire 1930s

Woodseats for example would be 'the cottages deep in the wood', and Clayroyd a 'woodland clearing with clayey soil'. Miry Shroggs Greave is 'wet, scrubby woodland'. From early medieval times, woods were named: Park Spring or Parkwood Springs (the park coppice wood), West Haigh Wood (the enclosed wood), Newfield Spring (the coppice wood by the new field), and many others. Family names also reflect wooded past with Underwood, Woodward, Hurst, Frith, Wood, Turner, Collier, Greenwood, Tanner, Wood, Forester, Warren, Warrender, Stubbs, and Parker, being examples.

Ghosts of woodland past

To walk through an ancient wood is to tread in the footsteps of the ghosts of those who once lived and worked in the medieval and early industrial countryside. The ancient wood is frequently part of a greater landscape of medieval park, of common or heath, of chase or forest. Identifying ancient coppice stools, stubbed boundary trees, or veteran pollards from a long-forgotten deer park or old hedgerow, aids understanding of how countryside looked and functioned in times past.

Charcoal Burning in the Lake District

These wonderful ancient landscapes come to life as we unfurl the history of woodland workers and others over a thousand years or more. In many cases, there are strong regional differences and identities that persist in today's woods. These may relate to particular industries and intensive uses such as the Derbyshire and South Yorkshire charcoal makers who worked to fuel the Industrial Revolution. With practice, these regional identities can be recognised and identified. Fragments of ancient woods are to be discovered as broad 'hedgerows' along old sunken lanes and trackways in urban and rural landscapes. They often have veteran trees and woodland indicator plants, and are found close to rivers and streams, in green-spaces such as golf courses, and even on modern housing estates. You just have to look.

Finally, the treescape studies lend themselves to local groups and local enthusiasts; almost everyone has one or more suitable sites accessible on their doorstep. Many areas remain little known and poorly understood. Studying your local patch can make a real and lasting contribution to our knowledge and understanding of these most iconic and important, but often misunderstood, features.

Enter your local wood with eyes wide open, and, with practice, you can read landscape and ecology like the pages of a book.

Using woods for historical evidence

Ancient woods are remarkable repositories of history, heritage, and archaeology; of the woodland and its management, and of people and communities living there – perhaps back to prehistoric times. Surprisingly, until recently archaeologists have largely overlooked them. This is not always the case when there is obvious, major heritage on a site, such as some of the Chiltern beech woods where massive prehistoric fortifications are well documented. Yet in the heart of Sheffield city, in Ecclesall Woods, an entire hilltop enclosure, a Romano-British field system, a medieval deer park boundary, and hundreds of charcoal hearths, lay undiscovered until about ten years ago.

However, history begins yesterday and so, not all heritage is ancient! More recently, two other more modern forms of woodland archaeology have come to light, the first being extensive but sometimes enigmatic remains of wartime and military uses, from bomb craters, to trenches and gun positions. These date from the Napoleonic wars to Cold War military activities of the 1950s and 1960s.

The second type is what my colleague Paul Ardron and I describe as 'community archaeology', of dens and play areas of children and young people. These include BMX tracks and for example, the rough shelters sometimes built for war-gaming or by itinerants. All these activities add to the centuries-old history of the woods, though some erode our older heritage.

Trees beyond the wood

Through research and events over thirty years or more, new ideas and questions arise. In 2012 for example, we organised a conference and published a book called 'Trees Beyond the Wood'. With the Ancient Tree Forum and the Woodland Trust, we were probing the medieval origins of our so-called 'ancient woods', and looking beyond them into the vast tracts of wood pasture that Dutch ecologist Frans Vera has hypothesised, and in England, the 1086 Domesday account describes.

We then stepped out of the 'wood' to consider ancient trees in the wider landscape, and go in search of 'shadows & ghosts'. The latter are tantalising fragments of once widespread wood pastures and wooded commons, now lost in an ocean of agri-industrial lands or urbanising sprawl, but picked out by 'indicators' such as bluebells, ***Hyacinthoides non-scripta***, greater stitchwort, ***Stellaria holostea***, or dog's mercury, ***Mercurialis perennis***. From upland moors, to lowland heaths and commons we find tiny fragments, mere pieces of a gigantic jigsaw puzzle of lost landscapes.

Aside from excitement and academic interests, these shadows and ghosts and their ancient indicator flowers provide hope for the future. Given time and careful nurturing, the fragments and their ecologies can recolonise future landscapes. It is best to let nature take the long route to recovery rather than being tempted to speed the process by ill-advised reintroductions. The latter merely serve to dilute and diffuse the messages and evidence of history and play into the hands of claims by developers and politicians that ancient woods and other habitats can somehow be 'offset'.

Irreplaceable and essential

Our ancient landscapes, including woods and wood pastures are irreplaceable artefacts of history, culture and ecology overlaid and interwoven. The results are in effect like medieval illuminated manuscripts, lovingly inked by hand onto vellum and parchment. Newly planted woods by comparison are like modern paperback novels – still a good read but not quite the same!

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Greater stitchwort

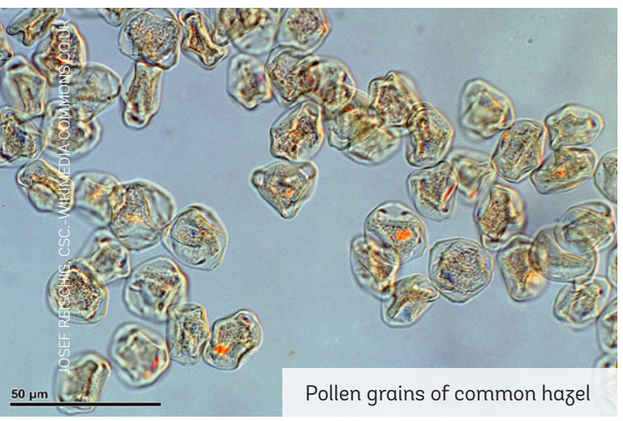
Trees as historical evidence

Thoughts of historical evidence may conjure images of unearthing Roman remains or discovering lost cities – but what about trees?

In the UK, trees are important biological features that have transformed landscapes, supported biodiversity and been an essential resource for people for thousands of years. Evidence of past tree cover, including how it was managed, is part of the story of the ecological development of the land and the people that lived on it. Unlike stone structures, trees decompose to leave mere stains or pollen fragments behind, but these can still be analysed.

Living trees and their landscapes can give us lots of information. Some trees live hundreds or thousands of years; the UK's oldest are yews, *Taxus baccata*, thought to be perhaps 5,000 years old. The Council for British Archaeology (CBA), an educational charity, promotes the use of trees and woodland features as historical evidence and produces resources to inform their Young Archaeologists Club.

A variety of research methods can be used on trees and their remains to discover more about a landscape's history and the culture of the people who lived there. For example, tree management can give us an insight into the activities of past communities and their reliance on trees to support their daily lives. While wooden artefacts have been discovered that show how important wood has been to cultural development.



Pollen grains of common hazel

Studying pollen records

The study of microscopic particles, palynology, is used to identify pollen remains in soils and sediments. This gives evidence as to the species of trees that inhabited a particular landscape at different times throughout history. It can also tell us about environmental change, such as the decline of elm, *Ulmus glabra*, during the Neolithic period. However, care must be taken as some pollen disperses more easily and some persists better than others in the soil records.

Pollen records help us understand how trees recolonised Britain after the last ice age. Oliver Rackham looks at this in his book *Ancient Woodland: its history, vegetation and uses in England*. Between 12,000 and 10,000 B.C., early colonisers birch, *Betula* spp., and aspen, *Populus tremula*, were first to return as the ice retreated, with pine, *Pinus sylvestris*, found in the very south east. As the climate warmed, 10,000-8,700 B.C., woodland covered almost all of the country and records of alder, *Alnus glutinosa*, probably lime, *Tilia* spp., and abundant hazel, *Corylus avellana*, are now found.

Then 8,700-8,000 B.C. saw the first records of oak, *Quercus* spp., and elm while pine extended northwards and hazel southwards. Hazel abundance was extremely high from 8,000 to 6,200 B.C., and this is the time birch declined and later colonisers (oak, elm and lime) increased in area and number. Also, the first records of ash, *Fraxinus excelsior*, beech,

Slice of petrified wood

Fagus sylvatica, holly, *Ilex aquifolium*, and perhaps hornbeam, *Carpinus betulus*. are found. By 6,200 B.C. pine was in decline, lime was common in England but never reached Ireland and alder becomes one of the most common pollen types found.[1]

This shows a long process of early successional trees taking the lead as the ice melts and becoming dominant, then gradually being taken over by later stage species. Also, evidence of what the climate was like to influence the spread or decline of different species. The eventual result was what is often referred to as the ancient 'wildwood', although the density of this over other habitats is highly debated.

Fossilised wood

Around the world there are lots of examples of fossilised trees or tree remains, these can be beautiful snapshots in time. There are different ways wood can be fossilised and the study of it is called palaeoxylology.

Petrified wood: a process called permineralisation occurs when the organic materials of a tree submerged in rich sediment are replaced with minerals. The structure and detail of the tree's form, such as the growth rings, can still be seen in the resulting stone.

Mummified wood: the mummification of trees can take place in very dry or cold climates if they are rapidly buried. For example, trees

Prehistoric wood excavation

Fossilised tree stump, Wales

that were 2 to 12 million years old were found beneath a glacier in the Arctic. Buried in a landslide and frozen in the extreme cold that can reach -50°C, even the delicate leaves had been preserved.

Submerged forest: trees submerged beneath seas or lakes can be buried in sediment. At Borth, Wales, the acid conditions of the peat have preserved an ancient woodland whose trees are thought to date back to 1500BC. They were once only visible at very low tides, but storms in early 2014 uncovered more of the stumps.

Trees and climate

The dating and study of annual growth tree rings, or dendrochronology, can tell us what age a tree was when it was felled. But rings along cores taken from living trees can also be studied. Each year trees grow new wood between the last year's growth and the bark. Wide rings can show evidence of wet years where water was abundant during the growing season, whereas narrower rings show drier years. But they can also demonstrate temperature and cloud cover, which also impact tree growth.

This study of the annual rings of living and well-preserved dead trees can be extremely useful to climate scientists when looking at change and conditions over time. However, it does have its limits. For example, in temperate regions only the growing seasons are recorded as there is no growth during winter; whereas in the tropics the growing season is year round so growth rings are not created. There are also some areas on the planet where trees do not grow.

Tree management

Coppicing and pollarding are ancient techniques humans used for managing trees. The long straight shoots they produce can be used for fencing, weaving, and furniture making, while dried leafy branches can be used as fodder or bedding for livestock. Looking at the locations of these trees across the landscape can give clues as to human activities in those places through the ages.

Coppicing: young tree stems are cut down to near ground level. This tends to be done cyclically, leaving several years between cuttings. Short rotation coppicing is done every 3-5 years and produces thin stems, longer is needed for larger timber. Multiple stems grow from dormant buds on the stool. It is a good way to produce large amounts of fast growing timber without killing the trees and needing to replant. Hazel, ash, willow, *Salix* sp., and non-native sweet chestnut, *Castanea sativa*, are among the most frequently coppiced species.

Pollarding: this is similar to coppicing, but the stem is cut higher up (about 3-4 metres from the ground), to prevent browsing animals reaching the new, tender shoots. This technique was favoured in areas with large concentrations of grazing animals, such as wood pasture habitats. Today, pollarding is often done to urban trees to control their growth.

Human's use of wood

Many wooden archaeological artefacts have been discovered that show how people have used trees over the millennia. Wooden spears found in an open cast coal mine in Germany in 1995 are believed to date back to 400,000 BC. But wood has also been carved into bowls, cups, boxes, combs and mirror frames over the centuries, and shaped to build houses, carts and ships.

The cultural impact the wheel has had makes it one of civilisation's greatest inventions. The oldest wheel to be found is made of ash and oak and was uncovered in the Ljubljana marshes in Slovenia. Using the radiocarbon method of dating objects, experts estimate it is between 5,100 and 5,350 years old.

Valuable historical evidence

The wealth of information we can get from trees about the past, environmental and social, is useful and important. Trees have been a part of this planet's and human history for millennia and will hopefully continue to be so.

The Woodland Trust is currently championing the creation of a national register of 'Trees of Special National Interest'. These are ancient, veteran, heritage, notable and/or champion trees (see the ancient tree issue of Wood Wise for more definitions), which are important features of the UK's landscape and culture.

Germany, Poland and Sweden already have registers for their historic trees, but the UK is recognised as being a hugely important place for them in Europe. Simply due to the length of time they have existed and interacted with the environment and humans, ancient trees should be valued and protected.

To support the campaign for a national register go to: www.woodlandtrust.org.uk/vitrees

[1] *Rackham, O. (2003). Ancient Woodland: its history, vegetation and uses in England. Castlepoint Press, Kirkcudbrightshire.*

CBA Volunteers at a charcoal kiln in Lloyd's Coppice, Ironbridge

Hackfall landscape

Balancing Hackfall's heritage

To Hackfall's calm retreats, where nature reigns In rural pride, transported fancy flies. Oh! bear me, Goddess, to these sylvan plains, Where all around unlaboured beauties rise' – The Tourist's Companion (1818).

Hackfall is 47.6 hectares of ancient semi-natural woodland and historic landscape garden, set in a steep gorge in the village of Grewelthorpe, North Yorkshire. It is designated as a Site of Special Scientific Interest (SSSI) as well as being within an Area of Outstanding Natural Beauty (AONB) and a Conservation Area. The site is also mentioned in the Domesday Book.

Its paths, follies and ponds were created in the mid-18th century by William Aislabie, whose father John bought Hackfall in 1731. During the late 18th and 19th centuries the designed grottos, glades, rustic temples, waterfalls and dramatic vistas made the site a popular tourist attraction. But by the early 20th century it became largely abandoned and neglected.

Much of the wood was felled in the 1930s for its valuable hardwoods. The removal of mature oak, *Quercus petraea*, and beech, *Fagus sylvatica*, trees negatively impacted the ecology of the site, as well as damaging the original footpaths and some buildings. Although a small number of Scots pine, *Pinus sylvestris*, were planted following the felling, most of the site was left unmanaged for 50 years and naturally regenerated. Many of the trees are now less than 80 years old.

Restoration project

In 1988 the Hackfall Trust was established. The the Woodland Trust acquired Hackfall in 1989 on a 999 year lease, to conserve the site for its natural and cultural heritage. Following this, it was registered as Grade I on the English Heritage 'Register of Parks and Gardens of Historic Interest'.

In 2007 the Hackfall Trust and Woodland Trust began a £1 million Heritage Lottery Funded project to restore Hackfall's cultural heritage. A team of landscape architects, ecologists and hydrologists were brought together by the Landscape Agency. The aim was to retain and restore the biodiversity value of the site as well as reviving the paths, weirs and follies.

It took several careful years of planning and work by professionals and volunteers to rejuvenate Hackfall's woodland garden splendour. Buildings, overgrown and damaged by insensitive felling, were faithfully restored, including the Grade II listed Rustic Temple and Fishers Hall. The gravity-fed water jet in Fountain Pond is particularly impressive.

It was difficult to balance the needs of the different listings (Grade 1 historic landscape garden, SSSI, AONB and Conservation Area) but the project was successfully completed in 2010. It won the European Union Prize for Cultural Heritage/Europa Nostra Awards in 2011 in the conservation category: "The Jury was captivated by the authenticity of the restoration of the ruined buildings, highlighting the garden's poetic communion with nature."

Ecological value

Designated as a SSSI, Hackfall is ecologically diverse and important. The alkali soil is formed from glacial till and a number of springs bring up water saturated with calcium carbonate from the underlying geology. This deposits tufa, a porous rock created by the calcite-rich water, which is beneficial to ferns, mosses and liverworts.

Hackfall folly

The tree canopy is made up of sessile oak, rowan, *Sorbus aucuparia*, ash, *Fraxinus excelsior*, wych elm, *Ulmus glabra*, silver birch, *Betula pendula*, and sycamore, *Acer pseudoplatanus*, with a hazel, *Corylus avellana*, and holly, *Ilex aquifolium*, shrub layer. Other notable plant species, including some ancient woodland indicators, can be found around the site. These include dogs mercury, *Mercurialis perennis*, herb-paris, *Paris quadrifolia*, twayblade, *Neottia ovata*, and the unusual parasitic toothwort, *Lathraea squamaria*.

Hackfall also supports an impressive number of birds. All three native woodpeckers have been recorded, although the red status lesser spotted woodpecker, *Dendrocopos minor*, is becoming rarer. Nest boxes have provided breeding opportunities for small numbers of nuthatches, *Sitta europaea*, pied flycatchers, *Ficedula hypoleuca*, and marsh tits, *Poecile palustris*, as well as larger numbers of blue tits, *Cyanistes caeruleus*, and great tits, *Parus major*. Amber listed woodcocks, *Scolopax rusticola*, have also been seen.

It is a great place for invertebrates and over 400 species of moths have been recorded (some rare at county level) across the site. These include the tiny *Micropterix aureatella*, which has a wingspan of just 9-11 mm. The variety of insects helps feed at least four species of bats; common pipistrelle, *Pipistrellus pipistrellus*, soprano pipistrelle, *Pipistrellus pygmaeus*, brown long-eared, *Plecotus auritus*, and Daubenton's, *Myotis daubentonii*.

In 2012, Hackfall's three SSSI management units were reassessed by Natural England. Two were found to be in favourable condition and one unfavourable recovering. Sycamore is quite aggressively dominant in the less favourable SSSI unit, but is below the 30 per cent favourable condition target in the other two. Thinning of the sycamores is part of the continued conservation work at Hackfall.

Preserving the dream

The Nidderdale AONB Conservation Volunteers carry out an ongoing programme of tasks to keep Hackfall in good condition. Activities include path maintenance, ensuring viewpoints and sight lines are kept open, and keeping ponds, streams and cascades clear. They also work to remove invasive non-native species that outcompete native plants for space and resources, e.g. Himalayan balsam, *Impatiens glandulifera*, and sycamore.

One of the greatest challenges now is managing the increasing number of visitors to the site. The restoration work resulted in visits rising from 3,000 a year to around 15,000 in 2011/12. This means more resources are needed to maintain paths, but also to ensure the delicate ecology of the site is conserved. One positive benefit of the surge in interest is the increased awareness people have of Hackfall's wildlife importance, including educational visits by school children.

The balance between natural and cultural is now about right. There are a few other vistas that could have been opened up, but it was important to leave some sections of naturally regenerated woodland for wildlife. However, the opening up of areas and restoration of key water features has supported a variety of invertebrates and freshwater species, as well as benefitting the site's heritage value.

Hackfall continues to be cared for by the Hackfall Trust and Woodland Trust to ensure its natural and cultural heritage is retained for future generations of wildlife and people.

Common pipistrelle in flight

Blue tit

Hackfall other

Hackfall stonework

Trees and archaeology conflicts

Archaeological features are found all over the UK as humans have spread across the land, creating objects and manipulating their environments.

Evidence shows the damage activities such as drainage can have on archaeological sites. Since as early as the 17th century ploughing has been acknowledged as an issue to the conservation of earthwork monuments such as barrows. More recently, research has been done on the impacts of trees and woodland activities on archaeology, such as new planting, tree growth, woodland management and issues arising during tree removal.

Many existing wooded environments contain important historical features, and the challenge is to find a balance between trees and archaeology. There is a desire to expand the UK's woodland from its current 13 per cent of land cover, one of the lowest in Europe. To achieve this, new areas need to be planted or allowed to naturally regenerate. However, some of these sites may contain undiscovered archaeological remains. Therefore, the archaeological potential of all proposed planting sites needs to be investigated before tree planting or woodland regeneration takes place.

Root structure impacts

The roots of trees can be problematic for archaeological features found close to the soil surface. Around 80-90 per cent of tree roots are found in the top 0.6m of soil, creating a shallow but widespread root plate. Few roots grow deeper than 1-1.5 m where a lot of subsurface archaeology is often found.

Tree species selection can also be a factor, as different species penetrate the soil to different depths. Ash, *Fraxinus excelsior*, has typically shallower roots, reaching a depth of just 1.1 m; whereas Scots pine, *Pinus sylvestris*, has much deeper roots that can typically reach 2.1 m.

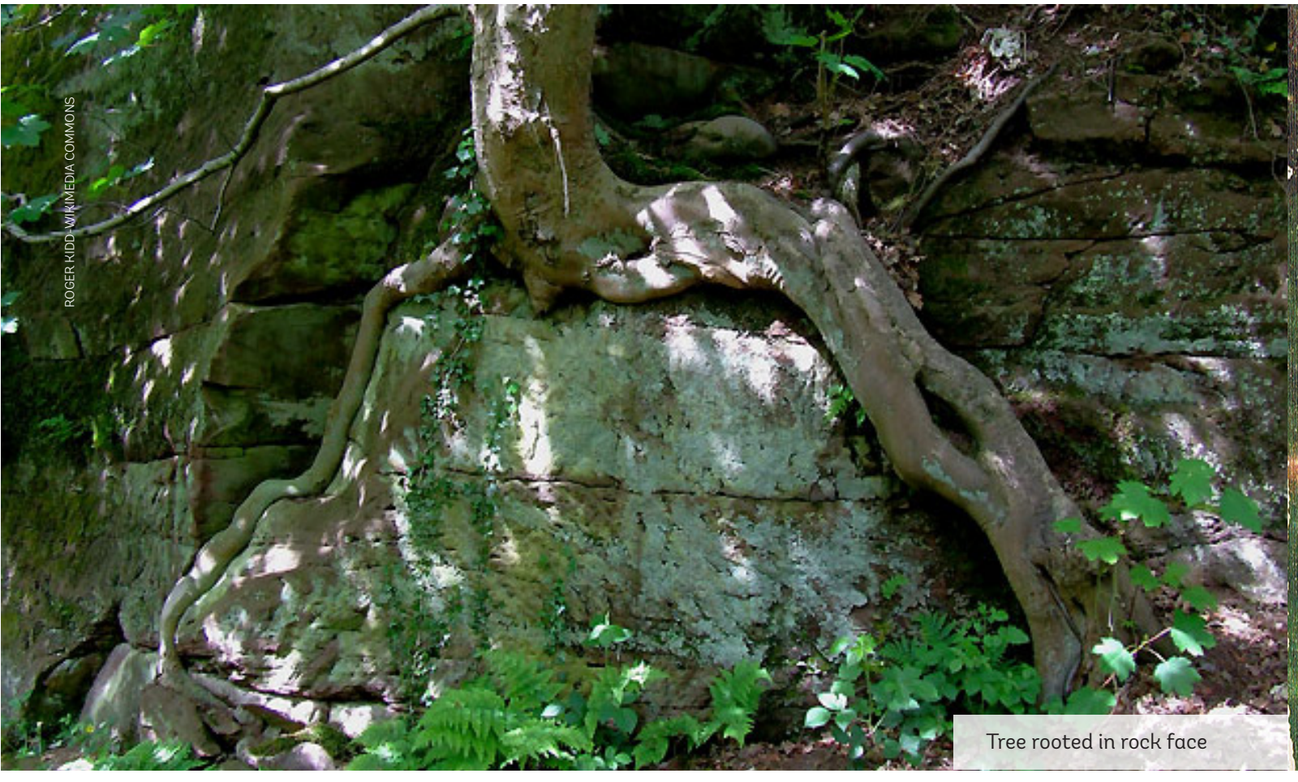
Interactions between trees roots and archaeology can result in the disturbance of archaeological layers. Trees can also alter the hydrology and soil chemistry, change the soil structure and stability, and cause damage through wind-throw and the effects of root exudates.

The main concern is the impact on the different archaeological layers deposited over time from different activities – the stratigraphy. Tree roots can grow into these layers, disturbing and mixing them up. This essentially loses the context of the evidence, which is key to understanding a site's history, and the association of artefacts with undisturbed archaeology.

Building archaeology into the plan

There is some archaeology that is entirely woodland related. Charcoal hearths and saw pits reflect people's close relationship with woods throughout history. In other cases, archaeology that is not directly associated with woods can still be preserved if managed well.

Open areas in woodland increase the structural diversity of the habitat, which in turn enhances the biodiversity and ecological value of a wood. They can also be used to protect archaeological remains in new and existing woodland. By designing glades and other open spaces around archaeologically sensitive areas, woodland designs and management plans can accommodate and protect archaeological remains while still achieving their woodland objectives.



ROGER KIDD/WIKIMEDIA COMMONS

Tree rooted in rock face

Charcoal Burners' Hut, Markash, New Forest, 1920s

Protecting valuable archaeology

As a responsible landowner, the Woodland Trust appreciates the need to preserve archaeology in woods so it continues to fulfil future generations' cultural, spiritual and intellectual needs. Some monuments contribute significantly to a wood's spirit of place, but even unseen archaeological deposits are unique records of the past that if destroyed can never be replaced. It is only from such records that much of human history is known to us.

Little Doward, near Whitchurch, is a mixed site, containing ancient semi-natural woodland, wood pasture and a Scheduled Ancient Monument – an Iron Age Hill Fort the Woodland Trust is working to preserve. When the Trust acquired the site in 1991 it carefully cleared 10 hectares of non-native conifers planted on the fort 50 years before. That area is now grazed on an annual basis to retain its openness.

Ashenbank Wood in Kent contains a number of archaeological features, such as a Bronze Age barrow from 2400-1500BC, a medieval wood bank and the remains of five World War II RAF bunkers. To preserve the barrow and bunkers, livestock graze the areas between June and November to keep them free of trees.

Ancient and veteran trees and ancient woodland also provide valuable links to our past. They can be considered as 'living archaeology' and their management and protection should reflect their cultural as well as biological significance. Like archaeological remains, they are irreplaceable and hugely important.

Little Doward hill fort archaeological dig

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