



# Atlantic woodlands: our temperate rainforest

*Mention Atlantic woods and many folk think of oakwoods but there is much more to our temperate rainforest than oak, as Richard Thompson and Sandy Coppins explain.*

While the oakwoods are a key component of our Atlantic woodlands, they are joined by a range of other types including high elevation birchwoods, species-rich pinewoods, cliff-side upland mixed ashwoods and wind clipped coastal hazelwoods. These collectively are our 'temperate rainforest'. On a global scale, this is a very restricted habitat, found elsewhere in places such as the Pacific north-west and cloud forests of the Canary Islands. The Atlantic woods of Scotland and west Ireland (and to a lesser extent north-west Wales and south-west England) are therefore a really valuable resource of international importance.

These woods are characterised by their luxuriant growth of bryophytes (mosses and liverworts), lichens and ferns. They experience an equable climate; in general warm and wet although droughts and severe winters are not unheard of. How far from the Atlantic can they be found? Well, woods that bear some similarity to those in the far west can be found in the Trossachs and south Loch Ness. Indeed, outliers as far east as Newcastleton in the Borders and Cawdor in Nairnshire have fragments of Atlantic-like woodland in sheltered humid gorges. However, core territory for this habitat is in west Argyll, the west Highlands and north-west Sutherland. The Index of Climatic Oceanicity (Averis et al. 2004) has been used to define boundaries more precisely with the real Atlantic woods beginning in index 20.

## Shaped by use

Like all other Scottish woods, our predecessors have shaped those around the Atlantic coast to a greater or lesser

extent. However, the severe terrain that occurs in parts of this region (cliffs and gorges) offers scope for the highest degree of naturalness that we are likely to encounter in any British woods. Historic management was no doubt complex and varied but the following describes some general patterns of development. Prior to the 18th century, most woods were used to shelter livestock and there was *ad hoc* use of timber for domestic purposes. Pasture woodland was dispersed in a mosaic with small arable fields. There is evidence of pollarding in some woods, no doubt for small roundwood but also for 'tree hay' to feed livestock. Holly was a popular species for this in various parts of the uplands of Britain and fine examples of such 'hollins' can be seen within the steep, wooded hillsides above Loch Etive and Loch Creran. In other Atlantic woods, centuries of grazing by livestock and deer have led to the fragmented scatter of old trees that we see on many western hillsides today.

The Napoleonic wars (1803–1815) saw a change in fortune for many Atlantic woods. Whereas, further east, the practice of coppicing in oakwoods had been underway for some time, demand for iron and leather saw a brief period of industrialisation in what we would think of today as remote peninsulas. Charcoal for iron smelting and tannin-rich bark for leather tanning were in demand. This led to enrichment of woods with oak and cyclic exclusion of livestock by dykes topped with wattle fencing. The scale of operations was brought home to me when standing in the grounds of the Bonawe furnace, in Taynuilt. The charcoal sheds are huge and a painting

showed a flotilla of charcoal boats under sail down Loch Etive. Within 80 years, advancing technologies meant the collapse of the coppice market. Although short-lived, this period of industrialisation left its mark. It is interesting to note that many of our designated oakwood sites went through this brief industrial phase.

## Another world

Most Atlantic woods are exquisite places characterised by deep, endless carpets of mosses of different textures and shapes; a mosaic of colours from warm ginger to emerald green. Epiphytes hang in curtains and add to the feeling of serenity. With the aid of a hand lens, a whole new world appears. Take a look at the grey scaly patches on an ash stem and you may see bright orange 'jam tarts' surrounded by silver halos. These are lichen fruits. Behind them will be coral-like fingers and white whiskers – more lichen characteristics. This is the stronghold of lobarion lichens (the lungworts), big showy species for the most part, of greys, greens and browns. Take a closer look at smooth stems of hazels and rowans and you will see another community of dots and 'scripts' or scribbles.

Many stems are covered in a complex-looking plant with round overlapping leaves of a translucent magenta colour and, interspersed among these, may be apple green strap-like leaves. These are *Frullania* and *Metzgeria* - both liverworts found frequently in Atlantic woods. Boulders are amongst the richest places for the rarer bryophytes that this habitat is so important for, especially shaded faces and those that occasionally get washed over by river

spaces. Here there is little competition from the aggressive, more common species. Atlantic woods are also known for their sheets of bluebells interspersed with greater stitchwort and primroses. Characteristic birds include wood warbler (with its rich “tuw tuw tuw” call) and redstart. It has to be said that midges and ticks are also significant features of these woods and visits are best timed in early spring or mid to late autumn to avoid the worst!

### Restoration management

There is a resurgence of interest in managing Atlantic woods for timber. I have had some involvement in oakwood thinning trials and workshops to demonstrate approaches to stem selection and alternative forms of extraction. The latter aspect is very important and

I have sadly seen a few cases where, despite the best intentions of the local community, felled trees have stayed in the wood because the correct equipment was not available. Use of chainsaw mills, mini-forwarders, horses and winch tractors all have their place. The designation of an oakwood as a Site of Special Scientific Interest or Special Area of

Conservation does not automatically exclude it from thinning operations if these can be shown to have a positive impact on the designated features. However, in such sensitive woods, SNH is likely to require a strong rationale for management and detailed surveying for lichens and bryophytes, together with control and monitoring of herbivore impacts on subsequent regrowth. The products from these woods can include crucks and beams for traditional house building, knees for boats and characterful ‘pippy’ craft wood for cabinet making. It is not just oak that is of interest for its wood products.

On the National Forest Estate (NFE) and elsewhere, large areas of Planted Ancient Woodland Site (PAWS) are being restored to native woodland and felled areas frequently regenerate densely, predominantly

with birch. There is increasing interest in managing this resource to yield fuel wood and, ultimately, some sawn timber. Targeted respacing and thinning will not only yield wood products but should also benefit biodiversity. In other places, such as the evocatively named Faery Isles, we are using Highland cattle to manage the birch thicket. Managed grazing is a useful tool where mosaics of woodland and open ground are the aim (for example, to maintain habitat for the rare chequered skipper butterfly, now restricted to Lochaber and north-west Argyll). It is also a great opportunity to integrate and adapt traditional livestock husbandry into forest management and begin to break down the perceived barriers between the two land uses.



So, all is well with our Atlantic woods? Sadly, no. Two factors are having a dramatic negative impact in many cases: over-grazing by deer (and in some cases feral goats and sheep) and dense thickets of rhododendron. The Native Woodland Survey of Scotland found that 38 percent of Atlantic woods were substantially over-grazed. It is not hard to find such a wood, and not easy to find shelter within on a winter’s day as the wind has neither understorey nor field layer to

hinder it. Such open woodlands are unsustainable and some regeneration within the adjoining landscape is essential. The composition of that regeneration is also important and should ideally include species such as oak, hazel and goat willow if we are to pass on robust woods that will deliver a range of objectives in the future. However, the density of that regeneration influences lichens, bryophytes and butterflies and achieving regeneration together with the maintenance of open glades is the biggest challenge to managers of these woods. On the NFE, we are working hard to tackle over-grazing and have recently published a deer management strategy that places as much importance on the enhancement of priority habitats as it does on the protection of restocked conifers. We are undertaking landscape-scale clearance of rhododendron with the long-term aim of eradicating it from the NFE. This is a hugely ambitious

task and ultimately relies on the removal of neighbouring seed sources. However, much progress is being made and habitats are beginning to recover.

### People

An article on Atlantic woods would not be complete without mention of some of the experts and characters that we associate with these wonderful habitats. Peter Quelch is the first person who comes to my mind. He has an uncannily understated ability to read landscapes and interpret their past management. Every hour in a wood with him is an education and a privilege. Similarly Bob Black, an excellent ecologist who has a deep understanding of how these ecosystems function and a practical approach to their management. The list goes on. There is a small group of lichenologists and bryologists who are deeply fascinating people and give their time and expertise willingly to help us mortals to appreciate the wonders of this miniature world. There are also a handful of fellow advisors who expend countless hours debating how to achieve conflicting objectives and, perhaps most importantly, there are the folk who earn their living grafting away to clear rhododendron and patiently stalk deer - enduring midges and rain day after day. Working in an Atlantic wood definitely has its compensations though. On more than one occasion, a brightly lit early spring day has momentarily gone dark as a white tailed eagle has skimmed the low canopy of an oakwood above my head. And there can’t be many places in the world where you can stick your head out of the wind clipped canopy to enjoy the spectacle of grey seals porpoising through the turquoise sea.

*Richard Thompson is Native Woodland Ecologist for Forest Enterprise Scotland. He worked previously for Forest Research as their Upland Native Woodland project leader.*

### References:

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- Coppins, A.M. & Coppins B.J. (2012). *Atlantic hazel - Scotland’s special woodlands*. Atlantic Hazel Action Group, Old Poltalloch, Kilmartin, Argyll, PA31 8RQ (E: gordon@nativewoods.co.uk). Also obtainable from NHBS - search using ‘Hazel’.



# Most ancient habitat: Atlantic hazelwoods

Some pure stands of Atlantic hazel are thought to be remnants of post-glacial colonisation; land constantly wooded for over 9,500 years. The mechanism for this early arrival may have been floating hazelnuts, drifting on sea currents from Ireland and washing up on the western shores of Scotland. A woodland with 75 per cent hazel cover in the canopy is defined as a pure stand of hazel. In the past, hazel was believed to be a naturally occurring understorey shrub, found only within woods with tall trees such as oak or ash. This was largely based on the way woodlands were managed in lowland England over the last several thousand years, where hazel was regularly part of the coppice-with-standards form of management, and this had become ingrained in the way people thought about hazel. However, recent observations of hazel on the Atlantic edges of Scotland and Ireland, have recognised that hazel is, in fact, a pioneering species of open ground. It will spread rapidly and form dense closed-canopy stands, effectively excluding other tree species. Some of the Atlantic hazel stands in western Scotland are believed to have survived in unbroken succession for thousands of years, and have retained a unique lichen flora, with some species so far not found anywhere else in the world.

Hazel grows naturally as a shrub with many stems arising from the root stock. If hazel is coppiced it will, of course, sprout again with many stems arising from the coppiced stool. Hence, it is difficult to distinguish between a natural multi-stemmed hazel wood, and one that has been coppiced, which is why hazel is often referred to as 'hazel coppice' (whether it has been coppiced or not). But there are two clues. The first is a lack of documentary evidence, or oral history of hazel being completely

Above: Green lettuce *Stictia*. Photo: Brian Coppins. Previous page clockwise from top left: Celtic rainforest at Knapdale; Hazel gloves fungus and glue fungus; *Frullania* on hazel; Blackberries in custard; Lungwort, Taynish; Autumn light in woods at Taynish. Photos: Sandy Coppins, Neil Sanderson.

coppiced in a particular hazel wood. The second clue lies with the lichens. Where hazel has been coppiced, the range of lichens on them will be few, and tend to be of common, widespread species. However, in stands of hazel that have not been coppiced, you can expect to find a richer range of lichens, including the real hazel specialists. Of course, Atlantic hazel woods were used by people in the past, but this tended to be low key - folk simply cutting the individual stems they needed, rather than coppicing the whole stool.

Hazel woods were traditionally used as sheltered grazing for stock. This was often at a sustainable level, but where over-grazing has continued over long periods, then the hazel 'wood' tends to become fragmented, and the hazel stools instead of being multi-stemmed, develop into hazel 'trees'. In the last scenario, if grazing is removed, then hazel will soon revert to its natural multi-stemmed state. But, if grazing continues, then eventually, the old hazel stems succumb and die off.

The richness of lichens and bryophytes is magnified in Atlantic hazelwoods. Have you ever noticed how the stems of hazel in the west of Scotland are not 'hazel' brown but silver? This is due to some lichens growing within the bark. These will include a complex mosaic of graphidion (or script) lichens on smooth bark, including one with dark purple fruiting bodies on a deep yellowy-green base, known as 'blackberries in custard'! Apart from these coastal temperate woodlands of north-west Scotland, west Wales and south-west Ireland, this lichen is otherwise known only from Macaronesia. There are some other real rarities here; one, *Graphis alboscripta*, the white script lichen, is found nowhere else in the world. Leafy lobarion lichens are really abundant on older stems and add further to the aesthetic luxuriance of this extraordinary habitat. The rarer bryophytes here are minute,



distinguished by minor differences in leaf shape and orientation. To see the whole plant at all needs a hand lens and to appreciate the features that the patient bryologist describes again and again requires a great deal of experience and a steady hand. Again, some of these species are really rare, one or two largely restricted to Atlantic hazel. There are two extraordinary fungi as well: one looks like a pair of orange washing-up gloves (this is really rare - pictured on the previous page) and another glues deadwood into the canopy, preventing it from falling and being consumed by other fungi on the ground.

This richness is due to the long period of ecological continuity and can easily be lost as a result of inappropriate management, principally coppicing and over-grazing. It is ironic that coppicing, seen as one of the most important conservation tools in southern England, will destroy this habitat of international importance. Indeed the words 'hazel' and 'coppice' are synonymous to many. Hazel rods are useful material though and, where they are needed, selection of one or two straight stems from multi-stemmed stools will have a much less harmful impact.

**Sandy Coppins** is an internationally recognised lichen expert.

If you are interested in learning more about Atlantic hazel, there is a wonderful book written by Sandy and Brian Coppins (see book review on page 39) or visit <https://sites.google.com/site/atlantichazelgroup/home>