

REMNANTS OF A COASTAL WOODLAND THAT ONCE SKIRTED THE ATLANTIC EDGE OF EUROPE, SCOTLAND'S WESTERN OAKWOODS ARE A MAGICAL TEMPERATE RAINFOREST HABITAT – WITH A BIODIVERSITY THAT BEARS COMPARISON WITH THEIR TROPICAL EQUIVALENTS, DISCOVERS **RICHARD ROWE** ▶

# RAINFOREST RELIQS

PHOTOGRAPHY: LORNE GILL/SNH; RICHARD ROWE; SUNART OAKWOODS; BEN AVERIS

**I**T IS DANK AND HUMID, the air thick with moisture. All around is a sea of green as a carpet of mosses, liverworts and lichens cling to seemingly every rock and hang from tree branches gnarled with age. I am standing on a rocky slope in the heart of Ariundle, a National Nature Reserve and a key link in a narrow chain of ancient oakwoods that spill down to the shores of Loch Sunart on the Ardnamurchan peninsula.

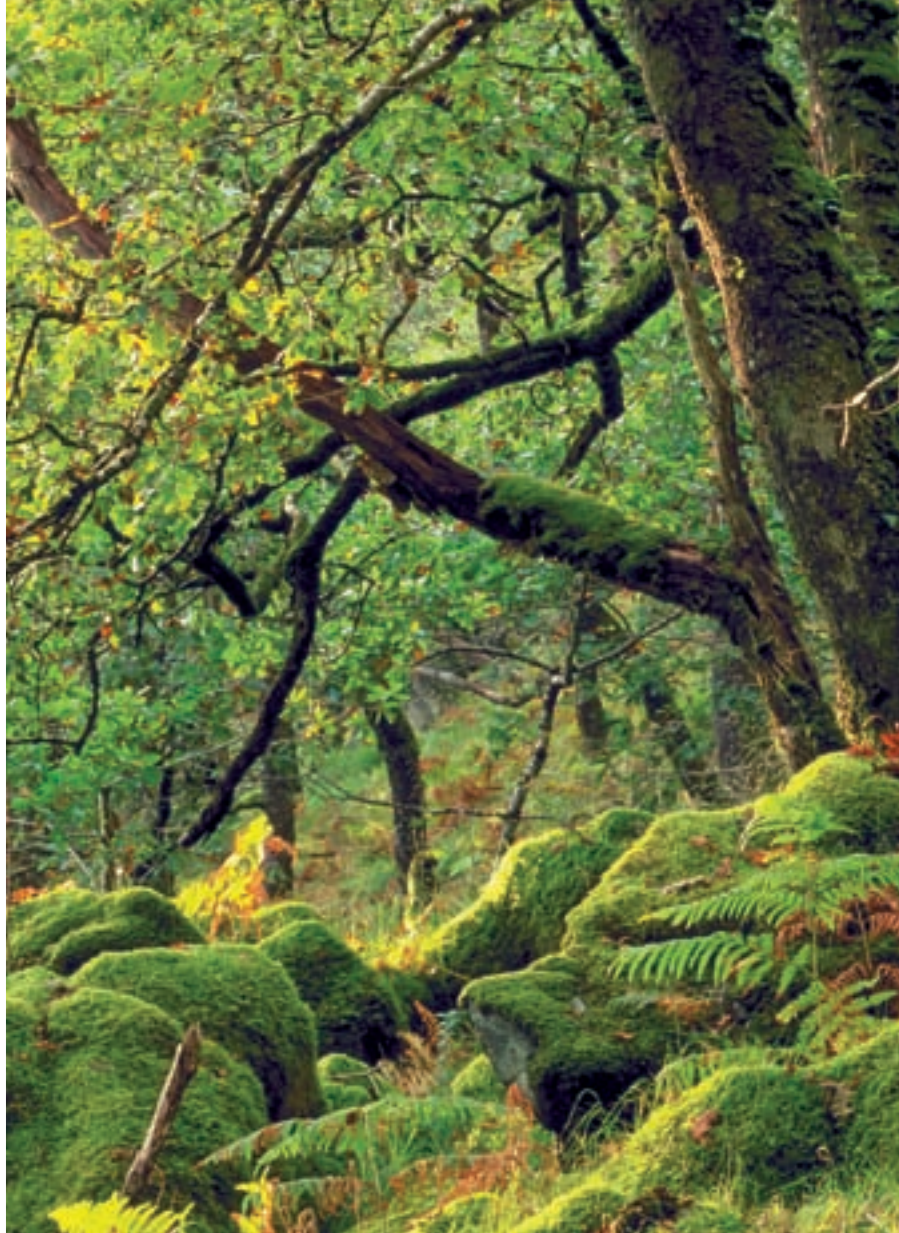
Ariundle is typical of the remnant patches of Atlantic oakwoods that run north from Argyll to Letterewe on the shores of Loch Maree and out to the east coast of islands such as Mull and Skye. Our very own temperate rainforest, it is a magical woodland habitat that most of us are relatively unaware of, despite Scotland having some of the best examples of its kind anywhere in Europe.

Crouching down, I can see that the seemingly uniform mass of vegetation at my feet is actually made up of hundreds of individual plants, their delicate shoots glistening with moisture. And it is these lower plants – the often unheralded mosses, liverworts, lichens and ferns – that are one big reason why these woods and many others like them are so special.

That the woodland and its luxuriant ground cover are here at all is thanks to a happy union of geography, geology and oceanic climate. These western oakwoods first colonised rocky coastal ground after the last Ice Age, with the trees, mosses and other plant life thriving on the acidic soils and regular soakings from moisture-laden winds.

Today, protected by a host of conservation designations, the Atlantic oakwoods are home to literally hundreds of species of plants and animals. Green may be the predominant shade for much of the year, but in spring the woodland is also alive with bluebells, wood-sorrel, primrose and other colourful flowering plants.

The woods are a stronghold for migrant birds such as



“THE CLIMATIC CONDITIONS ARE SIMILAR TO THOSE OF MONTANE CLOUD FORESTS IN THE TROPICS”

wood warbler, redstart and pied flycatcher – fleeting summer visitors that share the canopy with year-round residents such as buzzards, great spotted woodpeckers and various mammals. The closest you might get to spying a pine marten, or even an otter, may be the animals’ fragrant ‘scat’ left on favoured rocks, but they are here alright. So, too, are badgers, roe deer, red squirrels and other secretive denizens of the woods.

However, it is the lower plants that dominate, with Scotland recognised as one of the best places in the world for its assemblage of mosses and liverworts (collectively known as bryophytes). These simple plants tend to favour damper conditions, with the rocks and ravines of humid oakwoods offering a near-perfect habitat. “Several species grow more luxuriantly in these humid conditions, while some appear to need such conditions to grow at all,” explains Ben Averis, a botanical consultant who spends much of his time exploring the hidden micro-flora of Atlantic oakwoods such as Ariundle.

Meanwhile, the oaks are fascinating specimens in their own right and play a vital role in the woodland ecosystem; the longest lived trees can grow for 200 years, stand for a further 200 and then spend another couple of centuries gradually dying away. During that time, the trees’

deeply rutted bark and network of branches and shoots are home to a galaxy of insects which, in turn, attract birds that prey on them.

But to call these woodlands simply ‘oakwoods’ is misleading; other native trees such as birch and rowan are also commonly found, while on richer soils ash and hazel may be present – or even dominate the canopy. And it’s this mixture of tree species that gives the woods their incredible biodiversity.

Subject to serious amounts of rainfall – the Loch Sunart area sees more than two metres per annum – the Atlantic oakwoods are considered part of a much wider temperate rainforest system; the climatic conditions are similar to those of montane cloud forests in the tropics, while the same damp, equable climate is also found at varying altitudes to the north and south of the equator, leading to such woodland creeping up the edge of continents.

The western coasts of Britain and Ireland offer by far the best conditions in Europe and share similarities with the western seaboard of North America, particularly Oregon, Washington State and British Columbia; the west coasts of Chile and New Zealand’s South Island; Tasmania; and parts of Japan.

“They are narrow zones of a wet, equable climate that






extend up the edges of continents scattered widely but discontinuously around tropical latitudes,” explains Averis. “Here in Scotland, we are connected ecologically with many places around the globe. People are often amazed to see palm trees growing on the west coast, but the people who planted them didn’t really need to. We already have tropical affinities in our native flora – it’s just that the plants are much smaller.”

### **HUMAN INTERVENTION**

But for all their apparent wildness, man has played a major role in the shape and character of these woods – to the point where they can only really be described as semi-natural. In fact, their very survival has been much less about conservation and more about their practical value.

From the time of the very earliest hunter-gatherers, the oakwoods have provided food, shelter and livelihoods for communities. Early farmers used the oakwoods as pasture woodland, pollarding selected trees a metre or so off the ground, leaving wood pasture for livestock below and a steady crop of timber above, safely out of browsing range.

However, the woods were exploited most heavily in the 18<sup>th</sup> and 19<sup>th</sup> centuries when they were intensively managed to provide charcoal and tan bark for the burgeoning iron and leather industries. Timber was cut on an industrial scale with the oak poles used as a source of charcoal to power iron smelting furnaces such as the one at Bonawe near Taynuilt in Argyll. Birch and other less valuable species were cut out and the gaps planted with oak to form an even age ‘crop’.

The oak poles were stacked on raised, often circular charcoal platforms that can still be seen in the woods today. There are thought to be more than 400 platforms in the Sunart area alone, while there is also ample evidence of 

Shades of green: a typically well-carpeted woodland floor at Ariundle (above left); the remains of a charcoal burning platform in the woods at Loch Sunart (below left); oak seedling (below)



old enclosure dykes and pony tracks for removing the wood.

Local charcoal burning led to some interesting historical connections, points out Derrick Warner, Area Officer for West and East Lochaber at Scottish Natural Heritage (SNH). Charcoal from Ariundle and Glencripesdale on the southern shore of Loch Sunart was sent to Bonawe to help produce cannon balls that were fired at Trafalgar. "When news of Nelson's death was announced, a memorial was built at Taynuilt that can still be seen at the back of the village today," he says.

The widespread practice of charcoal burning explains the multi-stemmed shapes of some of the older trees in oakwoods up and down the west coast. To ensure a steady supply of timber, the oaks were coppiced at ground level to promote the growth of additional stems and then harvested, usually on a 20-year cycle. At the same time,

while sporting a strange-looking head-dress, it is likely to have been Hope. "The midges are pretty bad, so I have pioneered a special anti-midge set-up," he says with a chuckle. "You can't see properly through a midge net, so I have cut a hole in mine and super-glued it around a pair of lab specs."

Hope's studies focus on the oakwoods because of their international recognition as important habitats. However, their history of past use complicates matters. "Over time, woodlands tend to gradually accumulate lichen species, but large-scale coppicing can effectively reset the lichen clock because when you remove the tree stems you remove the lichens within them," he explains.

The best lichen diversity today is often found in those areas of woodland that were once used as wood pasture, where the trees were left to grow old or perhaps pollarded – but never coppiced. Very old 'veteran' trees tend to support a high diversity of species amongst their niches, such

## “THERE IS A WHOLE NEW WORLD TO SEE WHEN LOOKING THROUGH A HAND LENS”

trees that were cut had their bark stripped and crushed to produce tannin for processing leather. Today, however, bark is stripped from trees only by deer that tiptoe silently through the forests.

"During the intense period of oak utilisation, these woodlands would have become very oak-dominated, whereas we expect the predecessor woodlands would have been much more mixed," explains Joe Hope, a lichenologist with the Royal Botanic Garden Edinburgh. "Woodlands that are wall-to-wall oak today usually suggest heavy utilisation at some point in the past."

Hope is currently half-way through an 18-month project exploring the concept of ecological continuity and, specifically, whether the age of individual woodlands and the oaks within them have a bearing on the diversity of lichen species.

He has spent plenty of time in the field in recent months – perhaps causing a double take from passers by. If anyone visiting an Atlantic oakwood over the summer spotted a figure showing a keen interest in tree trunks

as gnarly bark, sap runs, and exposed deadwood.

Gauging the age of woodlands to study is always a tricky business, but with the use of old map sources, including the incredibly detailed first edition six-inch-to-a-mile OS series maps, Hope has selected 14 sites, from Tarbet on the Kintyre peninsula to Mallaig in Lochaber.

To standardise data, he is exploring a relatively restricted niche – just the lower two metres of the oak stems. "A typical tree might have anything from two to 25 lichen species in the lower stem, but if I looked at the upper stem and branches I might find many more, and if I looked at other tree species I'd find completely different lichen assemblages."

The impact of man's past use of the oakwoods is mirrored when it comes to mosses and liverworts, says bryologist Ben Averis. "Some oakwoods in the west Highlands are more uniform and less rich than elsewhere – having been used commercially, the woodland has a fairly even age canopy. But what makes a big difference for mosses and liverworts is how rocky it is."



## HUMAN TOUCH

Take a stroll with woodland archaeologist Peter Quelch and you quickly start to see the wood for the trees. A former Forestry Commission officer, he now uses a combination of ecological expertise with documentary history and old map research to interpret how nature and man have combined to influence woodland structure and composition.

"The oakwoods we see today are the product of a long interaction between man's use and ongoing natural processes," he explains. "In Scotland, it is very rare to find examples of oak woodland that are completely natural. Most have been used in some way down the ages."

Having parked up by a wooded ravine in the Glen Shira oakwood near Inveraray, we have barely left the car before he

starts highlighting specific trees and explaining just why the structure of the woodland is as it is. To my untutored eye, it seems very much like any other, albeit arranged in a narrow band sandwiched between a conifer plantation and a steep-sided gorge.

But, gradually, with guidance, the picture becomes clearer. The first trees encountered are non-native and have been planted most likely for cosmetic reasons, but we soon come across an expanse of predominantly oak woodland that extends in places over the lip of the ravine. Some have succumbed to gravity, or just rotted away in the damp air, leaving plenty of dead wood on the floor to be colonised by an array of fungi.

It is clear that these trees were valued more for practical than aesthetic reasons.

Most of the standing oaks are relatively young – around 150 years old, Quelch estimates – and many show signs of coppicing, with multiple stems sprouting from disjointed bases. "It's fine for oak to be coppiced in this way, as long as there is sufficient space between them for acorns to germinate and seedlings to grow. What kills them is cutting and then heavy grazing."

The need to protect the oaks from unwelcome grazers explains the remains of what must have once been a sizeable stone dyke that runs parallel with the gorge, its sides plastered in mosses and ferns. Such features and variants in tree-form and structure are all part of the fascinating bio-cultural heritage of these woodlands. "They all have a story to tell," says Quelch, as we pick our way back down to the car.



Originally from Wales but based in Scotland for more than 20 years, Averis has a particular love of exploring the hidden nooks and crannies of these damp western woodlands. Although he gets excited about the European or even global rarities that are found in hidden rocky gullies and ravines rather than within the dense 'bryo-mass' on the main woodland floor, he retains a love of the plants' sheer visual appeal that first drew him into this specialised world. "In my twenties, I used to hitchhike around Wales exploring the hills in search of mosses. There is a whole new world to see when looking through a hand lens, with so much variety and beauty in shape and colour."

It is little wonder that he recommends always packing a hand lens when visiting such places: there is much to be gained from looking closely at these tiny plants and the equally minuscule creatures that live among them, he says. "Another good thing about bryophytes is that, unlike vascular plants, they don't die back seasonally so you can see them all year round."

Like many specialists, Averis smiles ruefully when he thinks how his chosen field rarely receives the recognition it deserves, but his point is serious. "Woodland regeneration gets a high profile, particularly oak, but going back to our affinities with the tropics, Scotland really is one of the best parts of the world for mosses and liverworts. A lot of people don't realise just how special it is."

### **OAKWOOD REVIVAL**

In more recent times, the oakwoods have faced something of an uncertain future. With a decline in the demand for charcoal for the iron industry, attention turned instead to agricultural and forestry expansion; large swathes of woodland were cleared or grazed heavily by livestock, before later being underplanted with faster growing conifer species, such as Sitka spruce.

Add to that the additional grazing pressure from deer that happily skipped through fences left unrepaired and the shading out of seedlings by invasive rhododendrons planted by Victorian estate owners, and many of Scotland's Atlantic oakwoods were in deep decline.

In Ardnamurchan, where oakwoods have a particularly lengthy history of human utilisation, efforts have been

made to arrest this decline through the Sunart Oakwoods Initiative (SOI) – probably the best example in Scotland of a collaborative effort to secure the future of local oakwoods. Formed in the mid-1990s, the initiative is

Kids play: learning about the oakwoods (top); the woods are full of striking liverworts (middle left) and cushion-like mosses (middle right); heading through a tunnel of trees at Ariundle (bottom)

a partnership between local communities, private landowners and agencies such as Forestry Commission Scotland (FCS), SNH, Lochaber Enterprise and the Highland Council.

The aim has been to not only restore the native woodlands but also generate significant conservation, economic and recreational benefits for the local community. "We are looking at a 100-year plan for the area," explains Michael Foxley, a local doctor and counsellor who has been a driving force behind the initiative. "The whole point is to have an integrated woodland, one in which people work and play, and brings real benefits to the community." He has no interest in the woodland being an untouchable museum piece, but rather "a living, working landscape".



Ecological restoration has taken the form of clearing rhododendron and Sitka spruce as well as careful deer management to reduce grazing pressure and allow the regeneration of native broadleaved trees. Much of the work has focused on the core area of oakwoods in the narrow corridor that runs along the north shore of Loch Sunart and down into Morvern.

“Driving between Strontian and Acharacle you can see a real difference, with plantations coming down and native woodland springing up,” comments Foxley. “With each felling cycle, we will see a greater mosaic appearing.”

Meanwhile, on the opposite side of the loch, SNH is in the final stages of an 18-month project to remove a large area of conifers from the much more remote Glencripesdale National Nature Reserve. “A major part of the project focused on the remote nature of the site and the transportation of timber to markets,” explains SNH’s Derrick Warner. In a nod to days gone by, much of the timber is being shipped out by barge to Northern Ireland for processing.

Recovery of the site will be through natural regeneration, at least in the short- to medium-term. “In the immediate future, there will be an increase in plants and animals which will take advantage of the increased amounts of lying dead timber,” he explains. “Beetle and fungi numbers will boom over the next few years and much of the early regeneration will be of birch, although some oak and ash should also come through. We’ll need to keep an eye open for any rhododendrons that may appear and control them accordingly.”

Work in and around Ariundle, meanwhile,

Basket cases: learning new skills in the woods (below); the chequered skipper butterfly is one beneficiary of conservation efforts at Ariundle (bottom)

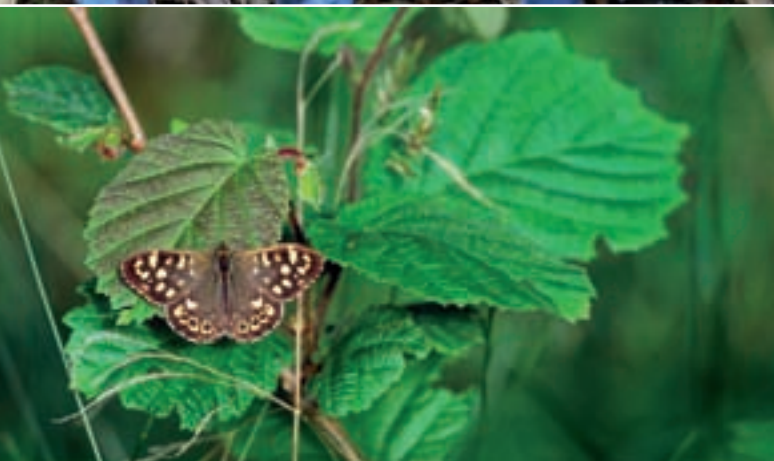
has been more about the provision of access for locals and visitors, as well as efforts to improve conditions for particular species of wildlife. The trapping of mink along the shores of Loch Sunart has made life more tolerable for nesting seabirds, while work continues in the woodland glades at Ariundle to create conditions that suit rare butterfly species, such as the chequered skipper.

Tourism has also benefited with a network of footpaths and cycle ways developed to help people explore the woodland, while the turf-roofed Garbh Eilean wildlife hide overlooking Loch Sunart at Artery has proved a popular spot for spying seals, otters and other loch-side creatures.

SNH is now in the process of rewriting the management plan for the area, with the local community very much part of that process. “Fundamentally, the community value the woodland,” says Warner. “It’s seen as a selling point for the area and the green lung of Strontian.”

Just as importantly, there is now a much broader understanding of the contribution that sustainable management of the woodland can bring to the local economy. Over the past decade, the Sunart Oakwoods Initiative has helped run hundreds of woodland training courses, with Sgoil na Coille (or Forest School) at Salen a valuable community resource for woodland-related education and training.

Although on nowhere near the industrial scale seen before, local woodlands are once again supporting livelihoods, with timber used for wood fuel, fencing, house construction, boat building and craft work. “We are getting back to using the oakwoods to support rural development,” comments Kirsty Mann, FCS Community Forester for Sunart and Morvern. “This approach has ensured not just community benefits, but also the very survival of the oakwoods.” ■



## OAKWOOD GEMS

Scotland’s Atlantic oakwoods are atmospheric places to visit at any time of year. Some, such as Glencripesdale in Morvern, are best reached using a mountain bike if you really want to explore deep into the forest, but there are plenty of others that are much easier to access and have a network of trails to enjoy. Here are a few sites to get you started – just don’t forget your waterproofs:

### TAYNISH NATIONAL NATURE RESERVE, ARGYLL

An ancient woodland on a scenic peninsula that juts into Loch Sween, near Tainuilt.

### BARNLUASGAN, ARGYLL

A Forestry Commission-managed oakwood in Knapdale Forest, close to the Crinan Canal.

### GLASDRUM NATIONAL NATURE RESERVE, ARGYLL

A dramatic woodland that climbs from the shores of Loch Creran up the slopes of Ben Churalain.

### ARIUNDLE NATIONAL NATURE RESERVE, ARDNAMURCHAN

Superb Atlantic oakwood site easily reached from Strontian.

### GLENBORRODALE RSPB RESERVE, ARDNAMURCHAN

A small but rugged woodland reserve overlooking Loch Sunart, west of Salen.

### TALLADALE, WESTER ROSS

Glorious gorge oakwood by the equally picturesque Loch Maree.

For more on the Sunart Oakwoods Initiative, visit [www.sunartoakwoods.org.uk](http://www.sunartoakwoods.org.uk)

And if in the area, be sure to drop into the Ardnamurchan Natural History Centre at Glenmore (open April to October) [www.ardnamurchannaturalhistorycentre.co.uk](http://www.ardnamurchannaturalhistorycentre.co.uk)

### RECOMMENDED READING

*A History of the Native Woodlands of Scotland 1500–1920*, by TC Smout, Alan R MacDonald and Fiona Watson, Edinburgh University Press, 2005.