

Rooting the Future Forest

This article is the text of a presentation given by **Sir Harry Studholme** to the 'Valuing Treescapes Conference' (UKtreescapes, 2024) at the University of Exeter in July 2024.

It is a great pleasure to be asked to speak at this conference. As my contribution, I would like to tell you about where I come from.

If you climb to the top of this building (at Exeter University) and look southwest, you will see a solitary beech tree standing in farmland, on a high ridge, silhouetted against the horizon. This is a sentinel, an outlier, of the forest hidden below the ridge: the Perridge forest, whose woods have been my home all my life. My children grew up under its protective branches, and I sprinkled the ashes of my father and grandparents to rest in its soil. For over

60 years I have watched and learnt from this forest. For the last 35 years it has been my turn in the family to care for it, harvest its surplus and farm the land that borders and threads through the woods, while looking to its survival for future generations.

The changing forest

The mix of trees – gnarly oaks, feathery birches and elegant Douglas firs – make a frame, but they are only one element of a complex, multi-sensory, multi-layered place of intertwined relationships. Gossamer thin subterranean



Perridge forest from the air, Fordlands Pond in foreground. (Photo: Evolving Forests)

tendrils of fungi link with the roots of the trees and mine a soil churned by worms and alive with numberless invisible microbes. Above ground, insects buzz and flutter among the flowers, snakes weave through mosses, while deer peep shyly from thickets and hunting hawks ride the thermals above the tree tops. These are worlds rich in smells, colours and sounds.

Wander through the woods on a May morning and a songbird orchestra serenades the marbled dawn. Sit by a forest pond on a July evening; marvel at the nimble acrobatics of the bats and how they counterpoint the muscular occasional jump and plop of the trout, both bingeing on the spritz of insects shimmying above the water.

To use the mundane language of ecosystem services, the forest supports a diversity of plants, insects, amphibians, reptiles and mammals, along with ten or so red-listed bird species. Clean, pure water washes out of the hills into the headwaters of two rivulets, which run into the river Exe. The forest landscape provides a backdrop to the homes of 20 or so people and the workplaces of 20 or so more. Around 2,000 cubic meters of timber are cut each year, for building and making. This is less than a years' growth, so, hundreds of tonnes of carbon dioxide are sequestered in the remaining wood.

This seems an eternal idyl, but dig deeper and this forest, like every forest in these islands, is threatened: by disease, by a changing climate and by society's disconnection from the productive landscape.

When all our mature elms succumbed to Dutch elm disease during the 1970s, we thought it an anomaly. But now ash, which occupies 11% of the Perridge forest, is dying, and over the next few years may become unusual, instead of ubiquitous. The other blights, Phytophthoras, caterpillars and beetles defoliating or killing chestnut, larch, oak and alder elsewhere in Britain have mostly left us alone, for now, but they are creeping closer. Globalisation has given plant pathogens unprecedented travel opportunities.

Rapid climate change over decades is stressful to a forest environment, adapted to change over millennia. The symptoms – like more frequent mast years, budburst a month earlier than in the 1950s and increased disease susceptibility – are gradual and subtle. Happily, the wildfires and insect plagues devastating forest landscapes around



Fordlands Pond, formerly part of an 18th century pleasure ground.
(Photo: Evolving Forests)

the world are not yet so severe in Britain, but we won't escape forever. *Ips typographus* has already breached the border. Longer and more frequent droughts, higher rainfall and more severe storms are inevitable.

This would be less concerning if the ice ages of the last million years or so had not simplified our flora. We have relatively few native tree species in these islands. The exact number, somewhere between 32 and 85, depends on how many rarities, thorns and hybrids you include.

This compares with hundreds in the US or thousands in China and South America. The absolute number is not so significant. More worrying is that we only have ten or so forest dominants, like oak and ash and beech and elm that provide the height and structure of a forest. We have already lost elm and are losing ash. Some of the rest are threatened.

There is a possibility that by the end of the century we could have lost nearly half our dominant, forest-defining, native species.

Worrying yes – but there is much we could do, but to do it we will have to change our thinking, our stories and our forest language. This will not be comfortable. To quote from a great Italian novel on the experience of revolutionary change: “Se vogliamo che tutto rimanga com'è bisogna che tutto cambi”, which translated means: “if we want everything to stay as it is, everything must change”.

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Well established mixed broadleaved woodland. (Photo: Evolving Forests)

Forestry is a long-term business

I hardly need say: trees are a long-term business. The Perridge forest is still recovering from the devastation of World War II. It has taken three generations and three quarters of a century of care and investment to regrow a productive forest. The oaks my grandfather planted to replace trees requisitioned for the First World War are not yet mature. Decisions we take now will matter in 50 or 100 years' time. I wonder though: have policy makers and NGOs fully grasped what climate projections mean for managing forests?

Planting is a precious moment, deciding the future of a sapling and a plot of land for potentially centuries. We know our climate is likely to warm, within a generation or so, by one, perhaps even two or three degrees. Should we think harder, before choosing to plant woods of native broadleaves, that thrived in a one degree colder past? In England, such 'semi-natural' woods already overwhelmingly dominate our forest. They cover more of the country than they did when my grandfather was planting oaks in the 1920s and deer and grey squirrels were rare; animals which are common now and whose nibbling and gnawing means that few new native woods

will grow into tall trees or sequester much carbon dioxide.

The policies are well-meaning, but do not good intentions pave a road to hell? Knowledgeable forest voices, often clumsy, quiet and complex, tend to be drowned out by sophisticated, self-confident and simplistic rhetoric, in the echo chamber of social media. Language has become emotive, discussion difficult:

"Do you manage a commercial forest?" I am asked.

The word "commercial" dripping with overtones of scorn. Am I wrong to be proud of being part of an ancient, indigenous tradition growing the wood from which civilisation was crafted?

"Do you grow conifers?" I am asked. The word "conifer" reeking of disapproval. Yet conifers are wholly of this place. They are the ancient trees. Some were growing in these islands 300 million years ago, 200 million years

before the angiosperm hardwoods. They supply almost all of the wood we use. So why, unlike elsewhere in the world, don't we celebrate pines, cedars, junipers, spruces, firs, and yews, for the beautiful trees they are, essential to our future?

Enthralling, eloquent ideas like 'temperate rainforest' or 're-wild' evoke heart-warming longing for an idealised

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past. Leaving aside whether that past existed, does this siren language block our ears to practicalities over how we adapt to the future?

The need for new thinking

As Einstein once said: “We cannot solve our problems with the same thinking we used when we created them.” But we innately prefer the familiar. Conservationists are inherently conservative. We have been making up stories around trees for thousands of years. These resonate in our souls, entwined into the very way we see ourselves. Is it any surprise that thinking differently about forests is hard? The ‘Valuing Treescape Conference’ is framed around ‘rights of nature’ and better protection for trees. However, I wonder, do we need to totally rethink our concepts of protection?

Our forests have expanded in area nearly every year of the last century, more than doubling over the period. There are 45 trees in Britain for every person. Our trees are older and our woods more extensive than for most of the Middle Ages. Britain is thought to have the greatest number of ancient trees in Northern Europe. In England, broadleaved woods cover 980,000 ha, nearly 50% more than the total woodland of 1900. So, reduction in woodland biodiversity is probably not from lack of woods but from how we look after them.

The law already protects trees. Tree Preservation Orders and felling licences are just the latest generation of tree protection legislation dating from 1482. That is, if you exclude the 1217 Charter of the Forests. The planning system has a strong presumption against developing forested land, especially ‘Ancient Woodland’, so, areas lost to new building are a minute fraction of new development. To cut down more than a few trees already involves dispiriting bureaucracy. Are we sure more law would outweigh the consequences of discouraging care for trees?

Britain’s ‘Ancient Woodland’ is, as is elegantly described in the books of Oliver Rackham, man-made. Our most ancient trees are yews, possibly planted with intention in holy sites, or former oak pollards, given their squat shape and longer life by regular cutting in their youth. The twisted shapes of now rebadged rainforests were sought-after timber for 18th century shipwrights. The flora and fauna of ancient woodland are a consequence of millennia of human management.

People arrived here before the trees. These islands had been tundra and ice for tens of millennia, when a few hardy, nomadic hunters chased migrating herds of reindeer to take advantage of a summer flush of grass, as the Holocene began 12,000 years ago. These hunters were followed by



Encouraging natural regeneration. (Photo: Evolving Forests)



50-year-old productive Douglas fir. (Photo: Evolving Forests)



A new planting of a range of species being trialled on the estate. (Photo: Evolving Forests)

pioneer trees, resilient Scots pine and light-seeded birch. The forest was, from its beginning, entangled in human lives. The sticky resins needed to join wooden shafts to stone spearheads came from trees, whose timber could be used to fuel fires and build shelters. Not heavy demands on an extensive forest, but elsewhere in the world Mesolithic people used fire to manage whole landscapes for hunting. Perhaps they did this in Britain too.

In time other tree species came to displace the pines and birch. Some blowing in on the wind, others hitching lifts with birds and animals. Species with heavy, edible seeds like oak and hazel may well have been brought by Mesolithic women. Long shelf-life foods, like acorns and cob nuts, were always critical to feed families. Could men have ever been relied on to bring home the venison? About 7,000 years ago farmers began to reshape Britain's forest, pushing back its boundaries with stone axes and domesticated livestock, and changing its species composition. Later, imported technologies of first bronze and then iron made the axes sharper, and the felling faster, so that by the time the Romans chronicled their invasion, the English landscape was largely deforested and the woods that remained valued resources.

A village beside the Perridge forest is called Dunchideock, Celtic for 'fort in a wood'. The eroded ramparts of a hill fort still stand majestically in the forest

today. They were topped by a wooden palisade, when, in about 49 AD, Vespasian, the future Roman Emperor, invaded with his 2nd Augusta legion. He built the fort of Exe Chester and went no further west. Looking out towards Dartmoor, his legionaries would have seen the wooded hills of Perridge, in which a village of indomitable, unconquered Britons were probably cutting trees for building, making and burning.

Over the two thousand years since Vespasian, our woods continued to be managed, for much of that time grazed as wood pasture. The trees were pollarded or coppiced to provide firewood and timber in sizes that could be easily cut and carried by a man. A few 'standards' were left to grow tall, but only, as mechanisation made handling of larger timbers easier, after the industrial revolution, would the high forests in fashion today, come to dominate the landscape. And our entanglement continues. We stand on wooden floors, sit at wooden tables and read from books and LCD screens made from wood pulp. We bring trees into our gardens and our towns. Whether we see it or not the forest is everywhere, and we are part of it.

Homo sapiens arrived in Europe around 40 or 50 thousand years ago. Since then, our forest's ecology has been evolving with us, changing everywhere all of the time, even if at a pace too slow for us hasty humans to see. This

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should not be news. As bronze axes were transforming the British landscape, the Greek philosopher Heraclitus taught that: “The only true constant is change”, “No man can swim in the same river twice”. He might have said: “No woman can walk in the same forest twice”. Trees grow, extending their canopies to shade out competition. Left unmanaged, woods develop dark, dismal understories. Lady Park Wood in the Wye valley has been monitored since the Second World War, to record what happens without management. Over 80 years the biodiversity of Lady Park, other than the shade loving bryophytes, has gradually declined.

Good forest management works with nature to encourage her natural surplus. It breaks the canopy’s photosynthetic monopoly, mimicking natural disturbance to let sunlight through, to warm and enliven the plants and creatures of the understory. Through increasing complexity, forests can be made more resilient to storms and diseases, like the current plague of ash dieback.

Forests face man-made threats. Unintended maybe, but we bear a responsibility and should not turn our back. Trees march to the beat of a different drum to ourselves, so, this is careful, patient work, but we should not despair. We can do things nature cannot. We can move seeds and saplings in a day, over distances that trees might take hundreds or thousands of years to travel. We can plan, think, and research on timetables impossible to forests by themselves, helping them develop resilience to disease or storm or fire. We have practical expertise in adapting forests to face the future. Plant hunters have scoured the world for centuries for species to grow in our gardens and arboreta. So, many trees suited to a future climate are already growing here. Those that merely survive in our historically mild climate, may thrive in a warmer future. For example, giant redwoods threatened by climate change in their home of California are happy in Devon.

In the Perridge forest we try to work with the grain of nature, thinning our woods carefully, to regulate the light that reaches the understory, to encourage regeneration and biodiversity. We cautiously introduce species, from America or Eurasia, whose relatives were here before the ice ages. We reinforce species, already in the forest, by planting saplings with genetics from further south. We look to create a more biodiverse and resilient woodland, storing carbon both in its trees and in the timber that leaves the forest, and able to survive the uncertainties of the next few centuries. I will not live to see if we succeeded, but my children and grandchildren may.

And one final thought. Climate change occurs because we are altering the atmosphere towards that of our



*Introducing complexity, including *Taxodium distichum*.
(Photo: Evolving Forests)*

geological past. Tens of millions of years ago, our tiny primate ancestors evolved, during the 22 million years of the Eocene epoch. They lived on a planet with higher levels of CO₂ than today, with a warmer, wetter climate. Our coastline then was fringed with mangroves and nypa palm, and the land almost entirely forested. We may be destroying the conditions for humans to survive but simultaneously re-creating better conditions for trees. Our human moment is a blink in the eye of geological time. The woods may not remain the same, but they will adapt eventually and survive inexorably. Time is on their side. It may take a million years but be in no doubt. The future is forested.

Reference

UKtreescapescapes (2024) Understanding Memory of UK Treescapescapes for Better Resilience and Adaptation (MEMBRA). Available at: <https://www.uktreescapescapes.org/projects/membra/>

Sir Harry Studholme Bt. DL, MA (Cantab), FCA, CTA, FICFor (Hon) was Chair of the Forestry Commission between 2013 and 2020 and owns and manages the Perridge Estate in Devon. He is also an Honorary Professor of the Centre of Rural Policy Research at the University of Exeter and a Fellow of Forest Research.