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W2W to Business
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Celebrating 25 years

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Ash used by Andrew Dix for a bike frame



Sweet Chestnut used in the Duchy garden furniture range



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His Royal Highness The Prince of Wales

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Roger Richardson, James Walmsley, Hugh Williams,
Tabitha Binding

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25 Years - Our Silver Jubilee

by Lewis Scott, Co-founder and Managing Trustee

It is hard to believe that it is now a quarter of a century since I sat talking to the late, great Peter Goodwin about how to find enough quality timber in the UK for our cabinet making businesses, rather than relying on the resources of other countries.

I recall us bemoaning the parlous state of British broad-leaf forestry. I remember my quoting statistics that we in the UK at that time had only 8% tree cover as compared to 23% in the EU as a whole. Timber and wood-based products were then the sixth largest import item in our balance of payments. We all know that stats can vary a little, but what was crystal clear to us was that action was needed. Enter our motto for the last quarter of a century “Action not Words”! We didn’t just want dramatically to increase tree cover because wood is a beautiful and renewable natural resource, but because of the wonderful environmental and ecological benefits provided to us and our planet by trees as they grow.

We talked about “sustainability” a word so common-place today but virtually unheard of a quarter of a century ago. From our inception we championed Continuous Cover Forestry, uneven age silviculture. We wanted to avoid the complete domination of monoculture and clear felling. We wanted quality, predominantly native, broadleaf hardwoods, such as Oak, Chestnut, Walnut, Cherry, Beech to name but a few. Further, we wanted diversified multi species, multi age woodlands. Climate change and the proliferation of tree pests and diseases would now seem to support our strategic approach.

However, in the beginning we were a tiny fledging charity with conviction and ambition but with little money and no staff or other resources. But my co-founder was the indefatigable Peter. We asked land owners and foresters to join us, we asked cabinet makers, joiners, carpenters and other wood users to join us, and you did. We wanted WH to be the vehicle via which we all could collectively put something back for future generations, in the form of healthy flourishing and productive trees and woodlands.

When we were in the process of setting up Woodland Heritage I wanted some advice, and Peter said “why



Peter Garthwaite OBE 1909-2001

don’t you speak to Peter Garthwaite”, which I duly did. After many phone calls and much impeccable advice I said “wouldn’t Peter Garthwaite make a great patron for the charity” and Peter Goodwin’s characteristically direct response was “good idea, ask him”. When I did ask Garthwaite he responded by saying “Well, what an honour to be asked, you do realise I am in my eighties!” Of course I hadn’t, and rather had a picture of someone in their early sixties. It was an absolute honour to have known and worked with the man. Garthwaite’s knowledge and wisdom it turned out was matched only by his humility.

In 1995 Peter Garthwaite OBE wrote:

“My forestry philosophy has not altered in the 65 years that I have been in practice: it is that wood is a renewable resource, and woodlands and forests should be managed to produce the highest quality timber of which the site is capable; and that as a general rule when trees have reached their prime maturity, they should be felled to live on for many years in such form that their quality dictates; as oak beams supporting the roof of a cathedral; as fine craftsman-made furniture; as a framework for a house.”

I’ve always thought that the true role of Woodland Heritage was to “win hearts and minds” about the importance of trees and wood to our world – to have healthy forests that benefit people and wildlife and a source of timber and forest products – the two aims are not mutually exclusive. Look at the alternatives to wood such as the plastics clogging up the oceans and threatening wildlife and our food-chain. A forward-looking food

producer has now replaced plastic packaging with wood veneer. What was wrong with taking your groceries home in a brown paper bag constructed of natural cellulose fibres (from fast grown conifers) gradually melting back harmlessly and seamlessly into our soil and water courses. A perfect virtuous circle. How have we managed to forget so much?

So what have been the milestones in WH's development over the years? Well, the need for an educational/training course became apparent, if we were to help pioneer and foster the resurgence of a "Wood Culture". Accordingly, we put together a course called "From Woodland to Workshop" (W2W), which very much did what it said on the tin. Foresters attending started learning what happened to their trees/logs after "being sold at roadside", they learned about saw-milling, kiln drying and woodworking. You had cabinet makers and joiners learning about forestry and where their precious wood came from. Hundreds of learners (some young, some not so young) have participated in our W2W course over the years and now have a better understanding of the supply chain and the needs of the market.

We wanted to extend and enhance our understanding of Continuous Cover Forestry (CCF) techniques and many of the Garthwaite Bursaries we award every year have funded people to attend a CCF course or go on a study tour. Other Bursaries have been used to study forestry in other parts of the world to seek out best practice and disseminate new knowledge for the benefit of UK forestry.

We have supported many diverse projects, from paying for the translation of the French forestry book "Le Chêne Autrement" ("Oak: fine timber in 100 years") to providing a power generator to support a small sawmilling co-operative. We have contributed to research into grey squirrel control, into the diversification of tree species we grow in our productive woods, and into new silvicultural techniques. We have long had a special relationship with Ben Law and his green woodworking apprentices, helping them with early training and offering places on our W2W course.

We have worked tirelessly to raise funds for research into "Acute Oak Decline" (AOD) and we have worked for over a decade now with Forest Research and a myriad of research departments, including the Universities of Bangor, and West of England (Bristol) as well as Rothamsted, to combat this threat to our iconic English Oak. To-date WH has raised over £2.5m for research



Sydney Draper 1925- 2015

to defend our national tree. I think that is maybe a milestone! It's certainly a celebration of successful public-private partnership in action.

By dint of our small size and resource constraints I would say we have consistently punched far above our weight, but, by the same token, we have always known we can make substantial progress only by avoiding duplication of effort and by working in partnership with other like-minded organisations. A recent example of this philosophy is our being a founding member of the "Action Oak" initiative. This is an innovative public-private sector consortium which includes the Duchy of Cornwall, the Department for Environment, Food and Rural Affairs (Defra), the Forestry Commission, Forest Research, the Northern Ireland Forestry Service, the devolved Governments of Scotland and Wales, and leading charities such as the Royal Botanic Gardens, Kew, the National Trust, and the Woodland Trust. It exists so that working together we can defend our iconic Oak tree from all comers, disease or pest, through a holistic and integrated programme of research and action.

Someone else that I simply must mention is the late Sydney Draper, a long-time supporter, friend and benefactor who never missed a field weekend. Down from Scotland he and his trusty friend Allan would come and invariably win the bottle of champagne for the furthest

travelled. He literally lived for his trees and had been the head of Forestry at the World Bank. Sydney used to say that without trees there would be no life on earth as we know it. His generosity enabled the charity to reach two significant milestones: employing our first ever full-time employee, Guy Corbett-Marshall, who is now steering the charity through an exciting new period of growth; and the purchase of Whitney Sawmill near Hay on Wye, where we are working to put into practise our motto of action not words. We are proud to say that all logs are now purchased and processed locally.

Successful broadleaf forestry requires a plan and three generations of continuous management to implement it. It's about our future and that of our trees. WH's 25th anniversary comes at an exciting time. Perhaps never before has there been as great an understanding and appreciation of the multiple benefits of trees, wood, and forests. There is a growing momentum now as timber is once again being advocated as a major component in construction. We are seeing wood and wood-based alternatives to plastic emerging into markets at an increasing rate, and the socio-economic benefits of healthy trees and woodlands, and indeed the 'urban forest', are becoming more widely known and appreciated by a general public around the world which is asking for change. The next 25 years promise to be exciting, but let



Peter Goodwin 1942-2017

us not forget mistakes that we have made in the past, and avoid repeating them in the future.

"The one who plants trees, knowing that he will never sit in their shade, has at least begun to understand the meaning of life." Rabindrath Tagore (1883-1902)

On that weighty but meaningful note, I wish you all the very best for the rest of 2019– and here's to the next 25 years!

A turn for the better



The work of Woodland Heritage member and celebrated craftsman, Richard Chapman, is known to any WH member who has attended a Field Weekend and had the pleasure of seeing Richard's work presented to a succession of hosts, to thank them sincerely for letting members visit their woods.

So, when the Duchy of Cornwall was approached to provide UK sourced timber and advice on what to present to the Top 5 Modern Slavery Influencers last year, Geraint Richards, the Duchy's Head Forester and WH Trustee thought instantly of Richard.

The commission was to create an award that was unique and not award like, and which became five stunning, turned vases, each unique with a small plaque on the underside for each winner.

Sir Harry Studholme

Winner of the 2019 Peter Savill Award

The Peter Savill Award

For a significant contribution to British Forestry

THE PRIZE

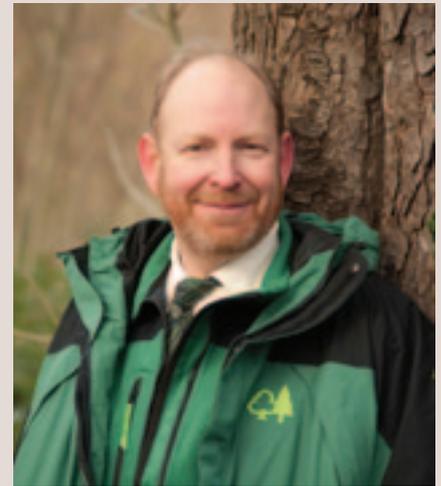
Each year Woodland Heritage awards a prize to recognise the contribution of an individual who has significantly benefited British forestry.

CRITERIA

The contribution to forestry made by the selected individual must be in sympathy with the objectives of

Woodland Heritage, and in one of the following areas of forestry: silviculture; research; wood processing; marketing; education.

Normally the prize will focus on a contribution to one of the above with an emphasis on Britain, broadleaves and lowland forestry, although not exclusively so.



Woodland Heritage is delighted to announce that the winner of this year's Peter Savill Award is Sir Harry Studholme, current Chairman of the Forestry Commission.

Sir Harry Studholme Bt, DL, MA (Cantab), FCA, CTA has owned and managed a family farming, forestry and property business near Exeter for over twenty years. He became a GB Forestry Commissioner in 2007 until appointed Interim Chairman from January 2013 to January 2014 and then Chairman in February 2014.

Sir Harry was Deputy Chairman of the Independent Panel on Forestry which reported in July 2012 on the future of the UK's state-owned forests after the government announced plans to sell off the British state forests.

For Sir Harry, 2019 is set to be a hectic but no doubt very rewarding year, leading the Forestry Commission through its Centenary celebrations, just one notable element of which will be the 'Resilience

Garden' at the Chelsea Flower Show, a project that he has championed since its inception. Additionally, he is President of the Devon County Show in 2019. The show will understandably be focusing on Forestry.

Woodland Heritage has worked most closely with Sir Harry over the last two years setting up and developing Action Oak. Sir Harry's influence, drive and determination have been major factors in taking forward this unique partnership that is set on creating a better environment in which the Oaks of today and tomorrow can flourish, less beset with the pests and diseases they face today.

Active across the UK and internationally, Sir Harry's heart lies in his beloved South West where he started the South West Wood Show in 1995 and remained Chairman until 2004. The show continues to this day as the Confor Woodland Show, due to be held next on September 5 and 6 2019 at Longleat. In 1996 he initiated the first National Forestry Conference held at Cirencester. In 2008 he brought together a

partnership that became the National Tree Safety Group.

Sir Harry was Chairman of the South West Regional Development Agency from 2009 to 2012 and led a number of projects outside forestry such as chairing the Finding Sanctuary project on proposals for marine conservation areas from 2007 to 2011. He believes the forestry experience of balancing sustainable production with a healthy environment was invaluable in mediating between environmentalists and the fishing industry.

From 2011 to 2017 Sir Harry was Chairman of the FTSE quoted Phaunos Timber Fund, an international forestry Investment Trust and in 2017 he was appointed as an honorary professor of the College of Social Sciences and International Studies at the University of Exeter.

He is an Engineering graduate of Cambridge University, a Chartered Accountant (FCA), an Honorary Fellow of the ICF, a Chartered Tax Adviser (CTA) and an accredited Commercial Mediator (CEDAR).

Goodbye Graham

Hello Tabitha!

Graham Taylor MBE, MICFor, Managing Director of Pryor and Rickett Silviculture, stepped down as a Trustee of Woodland Heritage at its AGM in Staffordshire last June after eight highly productive years on the board.

Awarded an MBE for services to forestry in 2017, Graham is personally responsible for over 10,000 acres of forested land in England and has overseen the growth of Pryor and Rickett in recent years, as well as making major contributions to the growth of Woodland Heritage.

Lewis Scott, Co-Founder of Woodland Heritage commented: *'Graham arrived at a really important time in the development of Woodland Heritage and helped guide the charity to a new level of working. The Trustees are most grateful to him for his unwavering support throughout his eight years and are delighted that he will remain involved in Woodland Heritage's work as a leader on our Woodland to Workshop course and in helping to plan our annual Field Weekend. It was most apt that he should finish his time as a Trustee at 2018's event.'*

Graham Taylor replied:

'I enjoyed my time as a Trustee of Woodland Heritage immensely and it was very fitting that my final, 'formal' duty was to lead the ever-enthusiastic, ever-knowledgeable, ever-questioning members of Woodland Heritage around the glorious setting of Weston Park. As ever, our hosts for the weekend were so generous and kind. I will remain in touch and see this very much as an 'au revoir' for now, especially as I'm continuing as a director of WH Timber.'

Nine months after Graham's departure, Woodland Heritage is delighted to announce that Life Member, Tabitha Binding, has agreed to become a Trustee, and attended her first meeting in March.

Tabitha's background is in softwoods, with 20 years' experience in garden furniture manufacture, from forest through to trade customer.



Graham Taylor MBE



Tabitha Binding

When she started a job with Coed Cymru, the Welsh woodland charity, as a Supply-Chain Manager for their EU and Welsh Government-funded project, 'Improving the supply chain for low value Welsh timber', she always felt that her hardwood knowledge was lacking.

Tabitha came across Woodland Heritage's 'From Woodland to Workshop' course by chance when she was following up an enquiry and visited the Whitney Sawmill website. Luckily there was a place on the May 2012 course and she was encouraged to take up the offer by Coed Cymru director, David Jenkins, an encouragement that was astutely judged, as Tabitha received the Prince of Wales Award for being the top student on the 'W2W' course that year.

Tabitha remained in touch with Woodland Heritage after moving from Coed Cymru to a new post at Wood Knowledge Wales. Most recently she has joined TRADA and a full account of her current role appears on pages 44 and 45 of this Journal.

Bringing both a deep affinity for the aims of Woodland Heritage and great practical experience of the whole timber supply chain, Tabitha is an ideal addition to the board of Trustees.

Goodbye 'B'

Hello Kelly!



Belinda Moore



Kelly Morss

In 1994, Woodland Heritage was co-founded by Peter Goodwin and Lewis Scott, supported from the very outset by Belinda Moore, known to all simply as 'B'.

For members, Peter and Lewis were there to answer the pressing forestry questions of the hour, but for the day-to-day conversation, to find out how the charity was getting along, or simply to answer a query about subscriptions, 'B' has always been the person at the end of the phone, an e-mail, or a letter.

As a result of that regular and friendly dialogue, 'B' has become the font of all knowledge at Woodland Heritage and thus a very hard act to follow when she retires at the end of June.

'B' has an ability to remember people and places and has made so many fruitful connections to the benefit of the charity, very often giving a much-appreciated piece of advice to the steady stream of young foresters she has met.

The engine room behind making sure that all goes like clockwork at the Field Weekends and Woodland to Workshop courses, as well as being ever-present at all of WH's events, 'B' has also co-ordinated the annual creation and dispatch of the much-respected Journal. In more recent years, she has also ensured that Woodland Heritage

makes the most of its support for the annual Celebration of Craftsmanship and Design exhibition.

There is so much more that could be said of 'B', but all connected to Woodland Heritage will no doubt join in wishing her a very happy retirement, whilst also sending very best wishes and thanks to 'B's longstanding and ever-resourceful colleague, Lynn Graham, who has also decided to end her much appreciated time with Woodland Heritage. We very much hope that we shall meet them both again many times in the future.

Joining Woodland Heritage in April as Finance, Membership and Administration Officer, Kelly Morss has been following Woodland Heritage's progress since she attended the Woodland to Workshop course in May 2016. She has been a member since then.

Kelly found the Woodland to Workshop course to be a really positive experience for many different reasons and was delighted the following year, when she was asked to be part of the joint project between Woodland Heritage and Grown in Britain about realising the value of timber. Her film debut can still be seen on the Grown in Britain website, questioning industry experts, Graham Taylor and Dougal Driver, about the benefits of bringing woodlands into productive management.

Kelly has a wide experience in administration both within the forestry industry and in other areas including her own business; she is also currently studying for a Level 2 Certificate in Forestry.

Kelly has a very good understanding of what it takes to run a business and thrives making its everyday operations a success. Full of enthusiasm for her new role, Kelly also has experience of working in the charity sector and has undertaken voluntary fundraising, including by running the Cheltenham half marathon in September last year having taken up running only in May.

We wish Kelly every success in her new role. So please contact her and say 'Hello!' (office@woodlandheritage.org)

Neil Girvan

Winner of the 2018 Prince of Wales Award

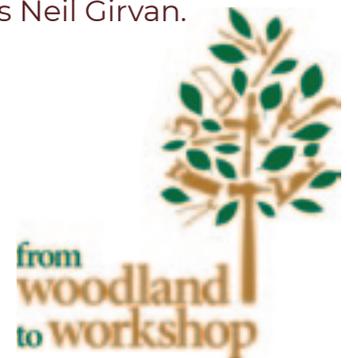
The annual **Prince of Wales Award** is presented to the most outstanding attendee on our **'Woodland to Workshop'** courses.

Choosing the annual recipient of The Prince of Wales Award is never an easy decision for the 'W2W' tutors because we are privileged to have such wonderfully enthusiastic and talented individuals attend our courses from across the UK. We are, however, delighted to announce that the recipient of the Award for 2018 is Neil Girvan.

Neil's hunger for knowledge was most noticeable and we look forward to hearing how he applies what he learned to the family business in Scotland.

On behalf of the course tutors, congratulations Neil!

Geraint Richards
Trustee



Neil Girvan is a partner in a family farm in the Scottish Borders which is keen to further develop the forestry and timber side of the business. He read about our 'Woodland to Workshop' courses many times and was keen to take part. We were delighted to have been able to offer him a place on the May 2018 course and noted that one of the reasons he wanted to be there was because he was, "Trying to grow Oak in 100 years!"

Neil is hoping to develop their forestry management by establishing an Oak woodland on the farm, as well as adding value by increasing their timber processing by cutting and drying more hardwood timber in their own sawmill at home. As such, an important element of our course for him was measuring timber and learning about the drying process,



as well as spending a whole day in The Duchy's Timberline and Mary Glover woodlands. He also managed to find the time to turn a beautiful Walnut sphere which has pride of place at home.

Neil is also an active member of The Association of Scottish Hardwood Sawmillers (ASHS), an organisation which was originally started by a group of like-minded hardwood sawmillers.

Neil said:

"We have continued to plant more Oak (Quercus robur), our idea is to plant 1000 every year for 10 years but having seen the Wild Service trees on the course we managed to plant 250 of them along with the Oak."

"The course was tremendous for me and the knowledge the Tutors have to pass on is amazing in every respect."

"I will continue to refer back to what we learned on the course for years to come, as well as having the opportunity to meet all the other incredibly interesting students."

"Many thank yous to Woodland Heritage for running the Woodland to Workshop course"

Our 2019 Field Weekend

THE COTSWOLDS – GLOUCESTERSHIRE

Thursday June 13 morning Westonbirt, The National Arboretum, Tetbury

Two hour guided walk led by Westonbirt's Director, Andrew Smith, and members of his team, looking at some of the 15,000 specimens of 2,500 species from the far corners of the globe in this magical tree garden, with time devoted too to discussing timber and the timber buildings on site.

Thursday June 13 afternoon Timberpride Ltd, Tetbury *by kind permission of Alec and Victoria Golesworthy*

Established in 1995, Timberpride is a business with forestry proudly at its heart, which understands how ethically to deliver a sustainable supply of honest quality Oak through proven and efficient woodland management practices. This is why it builds its Oak frames by hand, using traditional hand cut joints that endure for generations, harnessing the skills of its highly experienced craftsmen, free from automated processes that fail to take account of the nature of a piece of wood.

The company selects all its Oak only from well managed British woodlands, milling in Tetbury on our on-site sawmill ready for the carpenters to turn into Oak frame buildings. To maximise use of this raw material it also produces Oak for flooring, cladding and glazing cover boards. *Natural Oak that doesn't cost the earth.*

Friday June 14 all day Northwick Estate, Upton Wold *by kind permission of Ian and Caroline Bond*

Led by our hosts, the day will be spent at the private Estate of a longstanding member of Woodland Heritage. Our tour will include a visit to two separate managed woodlands, the first hugging the intimate Norcombe valley, the second at Sedgcombe. Beside the latter is delightful parkland, including a viewpoint over the Cotswold Hills; a perfect spot for lunch.

In the afternoon, there will be the opportunity to see possibly the largest collection of Walnuts in the world, as well as the estate's lovely gardens surrounded by a Cotswold panorama of fields and trees.

Saturday June 15 all day Cirencester Park, Cirencester *by kind permission of Lord Bathurst*

Our final day will be spent at Cirencester Park which forms part of the beautiful and historic Bathurst Estate and which extends to some 15,500 acres of countryside and, as such, is one of the largest privately owned estates in southern England. It has been managed continuously since the 18th century. A most fitting venue for our special 25th anniversary year!

However, our day will be very much a 'forestry' day spent in the company of Keith Mills, only the fourth forestry manager for the Bathurst family since WWII, looking at some of their 3,400 acres of mixed woodland which he manages with passion. Our AGM will be held early in the afternoon after which we will continue with our forestry visit.

The Bathurst family is dedicated to biodiversity and the estate is a key national site for various species, including a rare butterfly, as well as registered seed stands, various silvicultural systems, veteran trees and stunning landscapes and vistas.

Members and all their guests will be very welcome

Book now by contacting Woodland Heritage
enquiries@woodlandheritage.org.uk
or **01428 652159**



**WOODLAND
HERITAGE**
Celebrating 25 years

A tribute to Roger Venables

by Lewis Scott



Roger joined Woodland Heritage as a Trustee in 1996 and was actively involved from day one despite his many other interests, charitable work and dedication to his family and his church.

He tried to retire several times suggesting that perhaps people thought he might be a bit too old and wouldn't want to listen to him. He couldn't have been further from the truth! However, we finally relented and in 2014 we let him step down – well not completely.

Roger Venables was born in Stafford into a fourth generation family business in sawmilling and joinery manufacture. With over forty years' experience in the UK Forest Industry he built two hardwood sawmills and led a successful sales team in hardwoods and joinery. His experience in the use of English Oak led to him taking part in the design development teams working on the re-roofing of York Minister, the Restoration of Windsor Castle, National Trust properties such as Uppark and the Shakespeare Globe Theatre in London. He was closely involved in the manufacture of joinery and timber framing using English Oak in Europe, America and Japan.

Roger started his career in the harvesting and marketing of hardwoods from the forests of Britain. His interest, knowledge and experience in UK forestry led to his being retained as an adviser to the Forest Authority in the UK. He also served on the EEC committee examining and putting into place European Oak standards and he regularly lectured to Forestry students, architects and structural engineers.

In 2000 he undertook a lecture tour to various University Forestry and Wood Science Faculties across the USA. On retirement he worked as an independent consultant throughout the forest industry including the Welsh Development Timber II programme and a 'Cornwall Objective One Study' on Sawmilling for Working Woodlands.

Roger's other interests involved the chairmanship of a Building Society, the Frontier Youth Trust (National Charity) as well being an Elder of his local church. Ten years ago, he encouraged and supported the establishment of Street Pastors in Stafford.

Roger's contribution and valuable input to Woodland Heritage at our annual Field Weekends' discussions was often supported by anecdotes and stories, to reinforce that vital link between tree growers and the

end users of wood. He also remained very much involved with the Charity through its 'from Woodland to Workshop' courses by sharing his knowledge, expertise and experiences with our students. His lecture about the Renaissance of European Oak and his involvement with the restoration work at Windsor Castle, York Minster and Shakespeare's Globe was a real treat and a tremendous insight to the length and breadth of his knowledge. Roger also enjoyed visiting the sawmill and meeting our students who held him in their highest regard, as we all did.

On behalf of our Trustees I thank Ruth and the Venables family for allowing us to share some of Roger's life with them. We also thank the family for their kindness and generosity in providing a bursary in memory of Roger to help some deserving individuals to attend our from 'Woodland to Workshop' courses.



Roger Venables at the Field Weekend

Field Weekend 2018

Thursday 21 June – Forestart

by Andrew Pickup

It was a sunny afternoon as Woodland Heritage members and friends gathered with anticipation for the start of the 2018 Field Weekend. Our rendezvous was an ordinary looking car park at the back of some light industrial units, but looks belie the importance of the work that goes on here.

Our hosts for the afternoon were Forestart, and we were warmly welcomed by Rob Lee and his team. Forestart's Shropshire seed unit may look unassuming, but for over 30 years they have been playing a leading role in the UK's forest industry - collecting, processing, storing and distributing millions of tree seeds every year to nurseries across the country.

As we followed Rob inside their processing facilities, it quickly became apparent that there is no 'off the peg' equipment for processing tree seeds - the industry is just too small. All their equipment therefore has to be home-made or adapted from something else, and they have created an impressive array of contraptions over the years.

Our first stop was the wet seed processing room which tackles fruiting species such as Cherry, Hawthorn or Crab Apple. The techniques are low-tech, but effective. A cement mixer starts the process of separating seed from pulp and an array of buckets, sieves and hose pipes adorn the walls.

Next was the dry seed processing area. An ancient winnowing machine separates impurities from batches of acorns while gravity tables and an air suction machine can be precisely calibrated for sifting and grading smaller seeds. All was quiet on a Thursday afternoon in June, but during the peak season over 30 staff are employed and the facilities are a hive of activity.

Great care is taken at each step of the process to provide the highest quality product - understanding, and meeting, their customers' needs has been key to Forestart's success over the years. Each batch is carefully quality controlled and germination rates are tested. Of course, if germination is more reliable and wastage is less, nurseries need to buy fewer seeds, but they are happy to pay a little bit more for quality and consistency.

Once the seeds are cleaned and graded, the next step is cold storage. This serves the obvious function of keeping the seeds fresh and viable until they are dispatched to the nursery, but a period of stratification is also essential for many species to break dormancy. At peak capacity Forestart have over a billion seeds in cold stores - spread across several different sites to lower the risks to their precious stock.

While some tree seeds will store successfully for several decades, acorns will typically remain viable for only six to nine months. This presents problems due to the irregularity of Oak mast years in the UK, leaving nurseries



Cold storage room at Forestart



One of several poly-tunnels at Forestart



Part of Forestart's seed orchards

unable to meet the market's demand for UK provenance plants in some years.

Solving the storage problem could therefore be financially rewarding as well as beneficial to the forest industry and Forestart are investing tens of thousands of pounds in developing new techniques. They were happy to report some progress and can now achieve 70-80% viability after two years' storage, but the acorns have to be top quality to start with, requiring properly managed seed stands.

Rob makes a plea to owners and managers to look out for exceptional stands of any species and consider registering them as seed stands – good seed stands can be worth more than the timber value, but they do need looking after. They need to be well thinned to promote crown development and have to be kept clean underneath to facilitate seed collection.

Collecting seeds from forest stands that exhibit the best health, form and vigour is a good start to ensuring the resulting plants inherit the same traits, but Forestart are taking this genetic selection further and now have almost 50 acres of seed orchards. So we gathered up into a car convoy to look at the orchards on the ground which they are hoping to expand.

We re-convened at the entrance to one of their more established orchards of hybrid Larch. There were widely spaced rows of trees, much like a conventional fruit orchard. However, anyone expecting to see trees of exceptional form and vigour were disappointed. On the contrary, many were growing at strange angles and were heavily branched. As Rob explained, orchards are established from grafted stock and the scions are taken

from branch wood on mature trees, which retain their mature characteristics so flower and fruit much earlier than seedlings. This means that an orchard can yield viable quantities of seed in less than a decade – rather than many decades for a forest stand.

The main reason for collecting together vegetatively propagated trees is that doing so gives much greater control over the genetic makeup of the seeds it produces. Phenotypically superior trees are identified from stands across the country, propagated and brought together in one place so they cross pollinate. The resulting seedlings exhibit demonstrable improvements in form and vigour.

As we moved on to a Sitka Spruce orchard, we heard how this can be taken a step further. 'Full sibling' crosses involve controlling the pollen transfer so that both parents are known. The female flower is sealed inside a plastic tube to prevent contamination and then pollen is manually transferred from the chosen father. This process is labour intensive – each cone may only yield 20-30 seeds, so the expensive seeds are used by nurseries to establish stock hedges to be harvested for cuttings to produce 'veg. prop.' trees for the forest.

While a lot of this research has focussed on Sitka Spruce due to its longstanding importance for the forest industry, other species are starting to yield results thanks to the pioneering work of Forestart and close partnership with the Future Trees Trust. Wild Cherry is a good example, Forestart's orchards are now yielding enough seed to meet almost all of the UK demand – some 300,000 seedlings per year. These plants are a far cry from the 'jam factory' progeny commonly planted in the 1990s and have fine form with good apical dominance and light branching.

As we gathered together to thank our hosts, we reflected on the importance of the work they are doing. Government funding comes and goes, forestry policies change, but over the last few decades Forestart have quietly been getting on with it. In the process they have built not only a successful business, but also an impressive legacy for Britain's forests.

Friday June 22 – Norbury Park Estate

by Ed Clark

For the second day of our tour we had the privilege to visit Norbury Park Estate where Professor Jo Bradwell has implemented a far-sighted and dynamic approach to estate management. He has planted new woodlands to field-test a whole range of potential forestry species in UK conditions, and has been instrumental in establishing a new world-class forestry and environmental research facility with the University of Birmingham.

We gathered for an introductory lecture in ‘The Long Barn’; a Grade II listed building formerly used as a pheasant rearing shed. The quality of the restoration was exceptional giving us an insight into Professor Jo Bradwell’s desire to improve the Estate by investing for the long-term.

Professor Bradwell explained his medical background and described his motivation to buy a few acres of woodland to provide his own firewood supply. But when the opportunity arose, he settled on the 1,500 acre Norbury Park Estate previously owned by Lord Lichfield.

When he bought the Estate in 2008, it contained 350 acres of established woodland. A further 350 acres of new woodland has been planted by Jo Bradwell over a period of five years at 70 acres per year. More than 300,000 trees of 100+ different species have been planted, with the ambition of sequestering 1,000 tonnes of carbon per year, which would be achieved from this acreage at an average yield class of just under three tonnes per acre per year.

Actions taken by the Estate to improve its carbon balance include:

- Installing 100kW of solar photovoltaic panels on the estate sawmill roof. These have generated 100MWh of electricity since they were installed.
- Estate timber is used for the restoration of Estate buildings, which minimises the transport miles associated with building materials, and locks up CO₂ for the long term.
- The Estate properties have been converted from fossil

fuel-based heating systems to biomass heating, which is self-supplied by the woodlands. The Estate has a 140kW boiler which requires around 300 tonnes of chipped wood per year.

- A firewood business has been established which supplies seasoned hardwood firewood to local customers. Logs are seasoned for two years before sale, and 200-300 tonnes of firewood are produced per year.
- Professor Bradwell has made a £15M investment in the establishment of BIFoR (The Birmingham Institute of Forest Research), with world class facilities to study the effect of increasing CO₂ levels on established native woodland.

Planting

Following the passionate and enthusiastic lecture, we set off onto the Estate, calling first at several stops through the newly planted woodlands. The stands of trees have been established mostly as intimate mixtures at 1000 trees/acre. Initial phases of planting were more conservative, with commercial mixtures predominating. Later phases of planting have included a broader palette of exotics and ornamentals, contributing to the list of over 100 species. The intention is for the native broadleaved component (65%) to dominate in the long term, and Oak to be the primary canopy cover when the stands reach maturity. Many of the species chosen will be unfamiliar to the British sawmilling market, but they have been selected based on their expected survival at this site, and the vast majority have some form of timber use in their natural ranges. A few examples include Eucalyptus, Catalpa,



Discussing the diverse new woodlands

Ginkgo, Sequoia, Nothofagus, Liriodendron, Platanus, Cercidiphyllum, exotic Acers and Pines. As well as a diverse range of species, the selection of provenances has been varied as well, with the example given that the Oak component included acorns collected on the estate and contract grown, British stock, as well as some French and German seed sources.

Squirrel control is being undertaken with 100 Kania traps mounted horizontally on boards, rather than vertically on trees. This allows the traps to be baited with a trail of maize into the entrance and makes them faster to empty and reset. During the summer the majority of the traps are relocated to the edge of the Estate to control squirrel recolonisation. Up to 30 squirrels a day are caught at peak times, with a total of around 800 per year. The numbers of catches have not dropped over recent years, suggesting that movement of squirrels onto the Estate is fairly constant.

We discussed a variety of alternative control measures, which may assist with the prevention of squirrel damage to woodlands. These include research into immunocontraception, and pine marten releases, which are ongoing in Wales and the Forest of Dean. There are also ongoing developments with automatic and self-monitoring traps which may significantly reduce the labour cost of squirrel control.

Sawmill

Entering the yard at the sawmill we paused beside an 18 tonne butt of West African Sipo (also known as Utile), imported via Vandecasteele, Belgium. There are no immediate plans for this at present, but it is such a large piece that it forced the purchase of a new loader to improve handling facilities at the mill. There are ten species of tropical hardwood in stock at the mill at present, including Afromosia, Afzelia, Padouk and Wenge.

The lynchpin of the milling operation is a Mebor 1200 super profi sawmill. This is a new business venture trading as Shelmore Timber. The primary purpose is to add value to Estate timber for sale, supplemented by the sale of some bought-in timber from elsewhere.

The 350 acres of mature woodland are managed by halo/crown thinning, and produces around 700 tonnes of sawlogs, 400 tonnes of firewood, and 300 tonnes of woodchip each year. The trees with good vigour and form are retained, and competitors are thinned out. Understorey is retained to shade lower portions of stems



Shelmore Timber's impressive Mebor saw

and reduce epicormics. The whole management system focuses on investment in quality and improvement in the long-term.

The mill is also equipped with newly constructed drying sheds with racking for timber. Estate grown Oak is quarter sawn up to 4" thick, and seasoned for up to four years. During our visit, the team were in the process of delivering their first large order: the beams for a timber framed house to Oakwrights at Hereford.

The firewood operation is run in parallel with the mill. Hardwood firewood is usually air dried but if necessary, it can be force-dried using an old potato shed with drying fans powered by solar panels on the roof. Blocked up firewood is currently sold locally for £140/tonne.

We then returned to The Long Barn for an excellent lunch, kindly laid on by the Estate. Geraint Richards thanked Professor Bradwell on our behalf, and presented him with the Peter Savill Award and a Richard Chapman burr bowl. A birthday cake to celebrate our host's birthday the following day was presented by the Estate staff.

BIFoR

After lunch we boarded mini-buses and travelled a short distance across the Estate to visit BIFoR FACE (Birmingham Institute of Forest Research, Free-Air Carbon dioxide Enrichment), which is the flagship experiment for the Institute.

We were greeted by Professor Rob Mackenzie, who introduced us to the £15M project. It entails more than 100 masts, weighing two tonnes each, which were lifted into the mature Oak woodland by helicopter. These masts pump out elevated levels of CO₂ to simulate



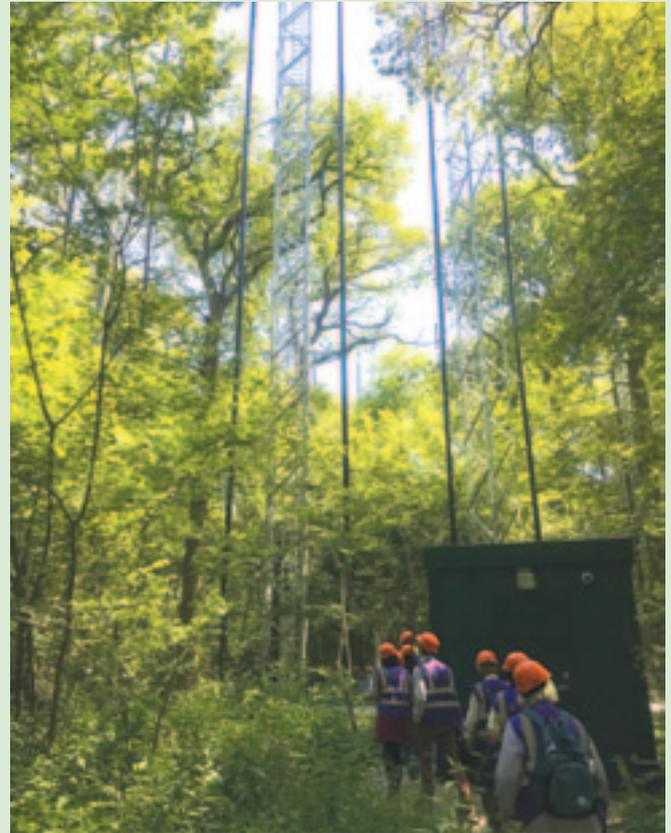
Research for BIFoR FACE can involve a head for heights

expected atmospheric conditions in 2050. The experiment then catalogues the effects of this elevated CO₂ on the woodland biosphere and rhizosphere. To put this in context, the atmospheric CO₂ in 1900 (when these Oak trees were seedlings), was 290-300ppm. Present CO₂ levels are 400ppm, and by 2050 this is expected to have risen to 550ppm.

The CO₂ used in the experiment is a waste product from an ammonium fertiliser plant in Cheshire which would otherwise be released into the atmosphere. On average the experiment uses 15t/CO₂ per day, but it may be up to 30-50t/CO₂ per day in windy conditions. CO₂ from a fertiliser plant is used because it has a different isotopic signature to contemporary CO₂, therefore its movement into the biosphere can be tracked and measured.

The objective is for BIFoR FACE to help us better understand the whole woodland ecosystem's interaction with the atmosphere, and also how this relationship will change in a higher-carbon future environment. Plant growth may accelerate, and it may be that other resources become the limiting factors of plant growth and development, eg. nitrogen, phosphorus, water.

We were led through the site between arrays of space-age monitoring equipment. Students were busily gathering



CO₂ enrichment comes in three sets of towers across BIFoR FACE

data, including one PhD student who ascended a rope into the canopy to collect samples. We all departed suitably impressed, and in no doubt as to the scientific rigour that was being applied.

Ranton Woods

We finished the day with a visit to Ranton Woods, guided by Robin Daniels. This separate 500 acre holding had also previously belonged to Lord Lichfield, and was purchased by Jo Bradwell two years after the main Norbury Park Estate.

The entrance to this part of the Estate is through grazed parkland, and it was clear from the moment we arrived that this very scenic landscape had a secluded and peaceful feel. As we assembled in front of the ruined abbey, with a spectacular view across a lake, we were treated to the sight of a peregrine falcon circling above. This was originally an Augustinian abbey, established in 1190, called "St Mary in the Woods", which was home to twelve monks. The abbey was dissolved by Henry VIII in 1536 and all that remains now is the 14th century church tower with a Norman arch.

In 1820 a Georgian style house was built alongside the abbey remains, incorporating some elements of the previous Norman and Tudor structures. The house was



Ranton Lake

occupied by Dutch troops during the Second World War and accidentally destroyed by fire in 1943; it has been ruined since.

The Georgian stables are intact and converted into office and accommodation space and there is a small arboretum which has been surveyed by Bede Howell.

Since acquiring this estate, a Diamond Wood has been planted. This national project saw the creation of 60 new woodlands each of over 60 acres, in commemoration of the Queen's Diamond Jubilee in 2012. This particular Diamond Wood extends to 75 acres and wraps around the pre-existing formal part of the Estate, lake and arboretum. The design includes a variety of educational, recreational and ornamental features, such as at least one pure stand of each native British tree and shrub, a Yew maze, avenues, landscaped water features, Royal Oaks from Windsor Great Park, and mapped walking trails for use on community outreach days and school visits.

Six years since planting, many of the trees are now well established. Much of the planting was carried out by a planting machine, with a team of eight people able to

plant, stake and guard in excess of 6,000 trees per day. After a leisurely circular walk, we finished the day back at the idyllic setting in front of the ruined abbey.

It was a real pleasure to have the opportunity to visit the Norbury Park Estate and to see the scale of experimentation that is being spearheaded by Professor Jo Bradwell and his team. Through BIFoR, his enthusiasm, enquiring nature, and foresight are already bearing fruit in the scientific community. Long may this continue. We are very grateful for such a very generous and mind-opening visit.

Saturday June 23 – Weston Park

by Andrew Pickup



The south facade of Weston Park

On the Saturday morning we gathered on the 'Plane Tree Lawn' in front of the impressive south façade of Weston Park. The eponymous Plane tree is sadly no more, but ahead of us stretched a glorious expanse of parkland and we knew we were in for something special.

We were welcomed by Michael Evans, recently retired head Land Agent for the estate. Michael explained the recent history of Weston – former seat of the Earls of Bradford. The house, grounds and 1000 acres of parkland were given to the nation in 1986 by the 7th (and current) Earl following the death of his father. Since then, Weston Park has been managed by a charitable foundation with the objective of preserving the landscape, buildings and impressive collections of art and antiques for the nation. Today, it is a thriving example of a busy, public-facing estate and it hosts a range of events, festivals and functions throughout the year.

Gareth Williams, Weston's curator, told us more of the history, which possibly stretches back as far as Roman times conveniently located as it is, just off Watling Street. The origins of the house we see today were in the 1670s when the then owners, Sir Thomas and Lady Wilbraham, set about substantially remodelling and extending the medieval hall in line with the latest Restoration style. They engaged the services of the architect William Taylor,



Along the Chestnut avenue

but it was Lady Wilbraham who is thought to have provided much of the vision and drive behind the project.

The gardens and grounds were landscaped around the same time, in the formal style of the day, but little remains of the layout of the 1670s, following the drastic re-modelling that was undertaken a hundred years later by one Lancelot 'Capability' Brown. He showed little of the sentimentality we might feel today about a hundred year old landscape and set about breaking up avenues, opening vistas and planting clumps of trees in strategic locations to look as naturalistic as possible. Looking out over the deep ha-ha he created, the thousand acres of mature parkland we see today are a wonderful realisation of Brown's vision.

It looks as if little has changed over the last two centuries but in fact during the 20th century, the landscape has been through changes just as drastic as Brown himself implemented. During the 1960s, the 6th Earl set about enthusiastically afforesting the 'unproductive' parkland with a range of conifers. But times change and the historic landscape is now far more valuable to the estate so it has been carefully restored over the last ten years. Before heading out into the park to hear more about this process, we took a walk into the welcoming shade of the Temple



Deeper into Temple Woods

Wood pleasure grounds, guided by the Head Gardener, Martin Gee.

As we admired the impressive range of exotic trees and shrubs, Martin pointed out the layers of history. We stopped at just the right point to see clearly a straight line of ancient Sweet Chestnut, a remnant of an original 1670s avenue, partially retained by Capability Brown and skilfully incorporated into the latter's, very different, landscape.

Rhododendrons are a later Victorian addition and are thriving on the damp, acidic soil – in fact they are thriving a little too much in places and are gradually being cleared back. One of the challenges of managing a designed landscape with such a long history of alterations is just which period to focus on for the ongoing management.

We paused from such musings to admire a fine Tulip Tree planted in 1930. Terry Merchant, head forester, believes it could be a useful alternative to Ash or Poplar as it thrives on moist, fertile sites. In its native North-America the timber is widely used for furniture and interior joinery. It is quite soft, but very stable and machines well. Genetics are important though as not all Tulip Trees have such good form.

We returned to the cars to go in convoy up into the park where our first stop was to visit the King and Queen Oaks.



The King Oak

These two venerable trees were already of note when surveyed in 1884 – at the time the King was estimated to be about 550 years old, dating it to around 1330 and therefore one of the last remnants of the old medieval parkland. The Queen tree is perhaps a century younger and very much still growing. Conifers were planted right up to canopies in the 1960s and prior to the final removal of the conifers in 2009, they were gradually haloed to prepare them for the change in conditions.

Nevertheless wind damage remains a risk and Terry is considering carefully reducing some of the main branches. Surgery on such an elderly patient would clearly have to be done with care, in several small stages. Attention also needs to be paid to what is going on below-ground. Tests have revealed some evidence of compaction, but Terry is wary of any drastic interventions such as air spading and prefers the gentler approach of excluding livestock and letting the worms do the rest. Under his watchful eye and light touch, the Queen Oak should have many more years left in her.

We returned to our convoy and to the last stop of the morning – The Knoll, one of the highest points in the park. From here we enjoyed a glorious view back to the house, a view that has only recently been re-exposed. Terry told us more about the process of parkland restoration: the conifer crops were conventionally harvested and the timber removed, the brash was then baled and also removed, finally the site was mulched to remove stumps, chain harrowed and sown with grass. A few years on it is hard to tell it has ever been any different – only the very experienced eye can pick out a fresh new 'skirt' of growth round some of the old parkland trees since they were released from the lateral shade.



Douglas Fir stand in Lizard Wood

Lizard Wood

After lunch we had a short drive to the nearby Lizard Wood and congregated under the cool forest canopy. It was hard to believe that after devastating war time felling the site had reverted to open, scrubby heathland by the 1950s which was then cleared with bulldozers, exposing the pebbly, infertile soil. An unpromising prospect for re-forestation! However, the 6th Earl set about it with characteristic enthusiasm and a penchant for experimentation. About a tenth of the 250 acre site was dedicated to a forest garden – planting a wide range of exotic species in close mixtures to see what survived.

Elsewhere more conventional species were planted. Our first stop was a stand of Douglas Fir, established at 5ft x 5ft spacing. It was difficult to establish on such a hostile site and beating-up went on for ten years. Even then it was a mediocre crop, but the benefits of a close initial spacing began to pay off and many careful thinnings later, it is a fine stand. Terry Merchant is keen to learn lessons from the past though, and the intention is to manage the woodland through continuous cover, retaining the forest microclimate and promoting natural regeneration.

So far regeneration is prolific following heavy crown thinning. Although regeneration appears dominated by Western Hemlock, research student Zoe Adlington has found Douglas Fir, Silver Fir and Red Cedar all regenerating well. Early cleaning is likely to be needed

though to retain a good diversity of species in the next generation.

As we walked on through the wood, we came to the start of the forest garden and a stand of Southern Beech (*Nothofagus procera* and *N. obliqua*), regenerating prolifically and looking thoroughly at home 7,000 miles from their native territory. The winter of 1981 saw temperatures as low as -20°C which killed many of them, but the remaining individuals are clearly hardy and hopefully their offspring will inherit this trait.

Sawmillers are divided over Southern Beech's potential – young, fast-grown trees tend to corkscrew when milled, but it is hoped that slower grown, more mature trees will be better – they are certainly valued for a range of uses in their native South-America. *Phytophthora pseudosyringae* is a potential threat, but so far these trees are healthy, possibly as a result of the relatively low humidity and free-draining soils. Notably, despite little or no squirrel control, Southern Beech appear much less susceptible to that pest than their European cousins.

We continued on through wonderfully diverse woodland, testing even the most experienced forester's identification skills. Silver Birch, on closer inspection turned out to be *Betula papyrifera* and *Betula lenta*. What looked like Western Red Cedar, was actually Northern White Cedar (*Thuja occidentalis*) and a stand of finely-branched and well-formed conifers turned out to be the much-maligned Leyland Cypress (although different selections than the common hedging clone). Reports are that it mills well producing a surprisingly hard, durable timber.

It was a privilege to see the results of a visionary owner's experiments almost seventy years on at a time when diversity and alternative species are more relevant than ever. We are grateful to our hosts, particularly Terry Merchant, for so generously sharing his time and expertise. A fitting finale to another inspiring field weekend!



Looking over Weston Park from The Knoll

Field Weekend Snapshots



At Forestart's seed orchards



Gathering outside the Long Barn



A presentation to Prof Jo Bradwell



Rob Lee receiving thanks from Geraint Richards



In the Temple Woods



Graham Taylor giving thanks to Michael Evans



Rob Lee imparting his knowledge



At Forestart seed orchard



On the path to Temple Woods



Investigating the Queen Oak



At Lizard Wood

Letters to the Editor...

Dear Lewis, Belinda and all who made the weekend 'tick'

Field Weekend 2018

And what a weekend it was! The outstandingly favourable weather did, of course, help!

Elizabeth and I thoroughly enjoy ourselves and I had the benefit of learning useful information at each location, to which must be added the pleasure of the assembled and knowledgeable company.

As for my crippled condition, at all points I was treated with kindness and practical help, so that I was able to hear what was said at the various stops as well as seeing the subject of the discussion – work on forest seeds, on very mixed experimental planting and, on very varied management of parkland assets.

If I'm spared, I do hope to attend next year; if not, please find some good to be interred with my bones!

Best wishes and thank you all,
Bede (Howell)

P.S. The enclosed name badges are returned, with apologies. Keep them for further use at WH occasions, rather than as tokens to be deployed at the Pearly Gates. Quis est ipse homo?

Dear Lewis

That was a special day at Weston Park so many thanks to you and Belinda for arranging it all. It was a real treat to see such an historic and scenic park. All the speakers were most informative and full of useful advice and tips.

Some of the trees in the garden area were exceptionally interesting and a privilege to see.

Yours ever
George (West)

Dear 'B'

Thank you and all your colleagues for an absolutely fabulous weekend of visits and discussions. It is a high bar of course given the standards which we have been led to expect, but 2018 was without doubt Premiership stuff.

Being among experts always garners an awareness of how little one knows, but this is tempered at WH by the geniality and openness of everyone involved, such that I always learn a remarkable amount... and while having a splendid time.

Everything ran like clockwork (there is no harm in the odd overrun here and there) and I am under no illusions that this happens with ease – a sincere thank you for all your hard work: I know that you are key to all that happens but please extend my appreciation to trustees, helpers, hosts, one and all.

Gratefully, all the best and à la prochaine!
Richard (Adams)

Dear 'B'

Once again your organisational skills have triumphed making yet another study weekend with Woodland Heritage memorable. We thoroughly enjoyed this one: perfect places, perfect weather, perfect hospitality and really, really interesting information.

I hope your week's holiday does its job by revitalising you and that is it as you wanted it to be.

We loved staying in South Shropshire. The peace and tranquillity was wonderful as was the scenery. I think it will become a regular holiday destination.

Thanks again to you and Lewis.

All the best from us both.
Sarah (Wain) and Jim (Buckland)

Woodland Heritage's 'Woodland to Workshop' experience heads north!

With twenty courses delivered already and the 250th student due to attend the Woodland to Workshop in May, sights are now being set to extend its learning principles to a new venue led by a complementary charity, 'north of the Border'.

Scheduled for 2-4 September 2019, the Small Woods Association (SWA) will be running a 'Woodland to Workshop Scotland' course at the Dovetail Scotland workshop, Fintry, Stirlingshire courtesy of Steve McLean. The course will be run in conjunction with the Association of Scottish Hardwood Sawmillers (ASHS), of which Steve was Chairman. The current incumbent being Keith Threadgall who will be one of the tutors and with whom Woodland Heritage has worked both through his role at Wood-Mizer UK and via our courses at Whitney Sawmills, Herefordshire.

Another link to WH's Woodland to Workshop will be Gavin Munro, who will be one of the Scottish tutors,

exemplifying the fact that this new Scottish course will feature a mix of the familiar learning to be gained at Whitney, with material more directly relevant to both Scotland and to the host venue itself, which does include both a young woodland and timber-framed buildings made by the owner. A fourth day to try some furniture making is likely to be an added feature.

The fee for WH's three-day Woodland to Workshop course is now £650 per head and it is expected that the new SWA course will have the same fee, thanks to help with establishment costs from the Woodland Trust and Forestry Commission Scotland.

For more information on the Scottish course please go to smallwoods.org.uk/courses-events/course-info
For details of WH's next course please go to woodlandheritage.org/woodland-to-workshop

"The ultimate course for those who want to meet and learn from the real experts!"



Woodland Heritage is proud to announce the dates for its unique three-day training courses

An innovative course linking 'tree growers with wood users', to broaden horizons and raise awareness by educating participants from the forest through to the workshop and beyond...

Supported by knowledgeable practitioners and eminent speakers from the industry, our next groundbreaking courses will be:

7 - 9 May and 23 - 25 September 2019

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Whitney-on-Wye, Herefordshire

Based in the woodland, timber yard, sawmill and joinery workshop. Numbers will be restricted to enable a 'hands on' and highly interactive approach, ensuring a learning opportunity of enduring quality.

Some subsidised places will be available to deserving and committed individuals.

For further information please contact Woodland Heritage

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The Association of Pole-Lathe Turners and Greenwood Workers

by Harry Rogers, Secretary, APTGW

This year's Bodger's Ball was held at the Weald & Downland Living Museum in West Sussex, over the weekend of 12-13 May 2018.

This was a wonderful venue and has excellent displays and buildings that were of great interest to our members. While at the Ball we made furniture that would be appropriate for the Weald & Downland Living Museum display houses, and these were judged by members in the craft competitions.

It was a very well attended event, and in the two days leading up to the Ball, we ran well subscribed craft courses in pole lathe bowl turning, basket making, saw sharpening, timber framing, blacksmithing, spoon carving and leatherwork.

Over the Ball weekend there was a comprehensive programme of greenwood working displays, a lot of socialising and the chance to share skills and knowledge. We are always very pleased to see new members and we encourage you to consider attending 2019's Bodger's Ball.

Once again, we had a very large display marquee, which coped well with the huge turnout for the Craft Competitions, and the standard was, as always, very high. Members are naturally very keen to win the prestigious Woodland Heritage 'Best in Show Award'. Traditionally



James Hookway's Woodland Heritage 'Best in Show' winning entry of his carved wooden rose.

this had often been awarded to accomplished chair makers, but in recent times winners have shown incredible imagination, with some very novel entries, and this year was no exception.

James Hookway was awarded 'Best in Show' for a wonderful carved wooden rose that showed incredible detail and skill. Voting for the Woodland Heritage 'Best in Show Award' is very democratic: Members of the Association can each vote on the craft competition entries, so the winner really is being assessed by a very wide judging panel! Chairman, Jon Warwicker observed that the competition was very strong, but James' entry was a worthy winner of the £100 prize money. Jon gave special thanks to Woodland Heritage for helping to promote these woodland crafts and keeping them alive.

There was no candidate for the Woodland Heritage Award for



Photo: Simon Daniell

James Hookway receiving the Woodland Heritage 'Best in Show' award from APTGW chairman Jon Warwicker

Best Newcomer, but it's pleasing that 2017's winner, Yoav Elkayam, is making a great success of his greenwood work, has been a tutor on advanced pole lathe bowl turning, and has a substantial Instagram following which promotes the greenwood crafts.

The Association of Pole Lathe Turners and Green Wood Workers has more than a thousand members worldwide, and membership continues to grow.

The 2019 Bodger's Ball will be held near Cambridge, at the National Trust Wimpole Hall, Arrington, SG8 OBW, on 11 and 12 May 2019, with courses two days prior on the 9 and 10. For the latest information please visit: bodgers.org.uk

Annual Wood Awards Winners 2018

by Francesca Gregson

The winners of the Wood Awards 2018 were announced at a ceremony held on November 20 at Carpenters' Hall, hosted by David Hopkins, Director of the Timber Trade Federation.

Photo © Alan Williams



Storey's Field Centre

Storey's Field Centre and Eddington Nursery by MUMA was awarded the Mears Group Gold Award, the winner of winners, as well as being the Commercial & Leisure category winner. Liveryman Stephen Corbett, chair of this year's buildings judging panel, commented, "The best building rose to the top for its winning combination of architectural merit, structural ingenuity and flawless execution." The 100-place nursery is arranged around three sides of a landscaped courtyard. On the fourth side, is the civic-scaled community centre including a 180-seat main hall.

The Sultan Nazrin Shah Centre, winner of the Education and Public Sector category, houses a large lecture theatre, a student learning space, seminar rooms and a dance studio. Judge Ruth Slavid said, "This is a building of tremendous quality and atmosphere, where every detail has been thought through." The architect was Niall McLaughlin Architects.



Photo © Nick Cane

Sultan Nazrin Shah Centre

The winner of the Interiors category was the **Royal Academy of Music Theatre and New Recital Hall** by Ian Ritchie Architects. The 309-seat Cherry-lined Susie Sainsbury Theatre now forms the heart of the Academy. Inspired by the curved shapes of string instruments, it has been acoustically refined to deliver excellent sound. Above the Theatre, the European Oak lined 100-seat Angela Burgess Recital Hall provides 230m of additional space for student rehearsal, public performance and recording.

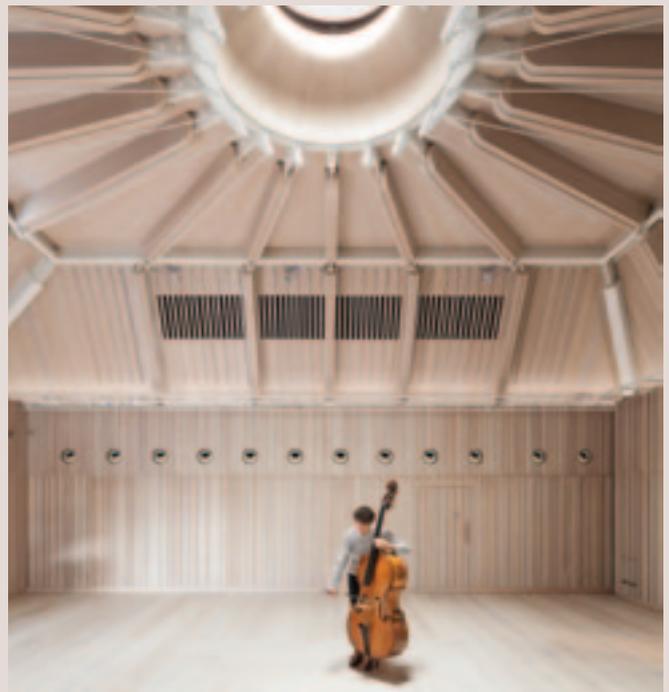
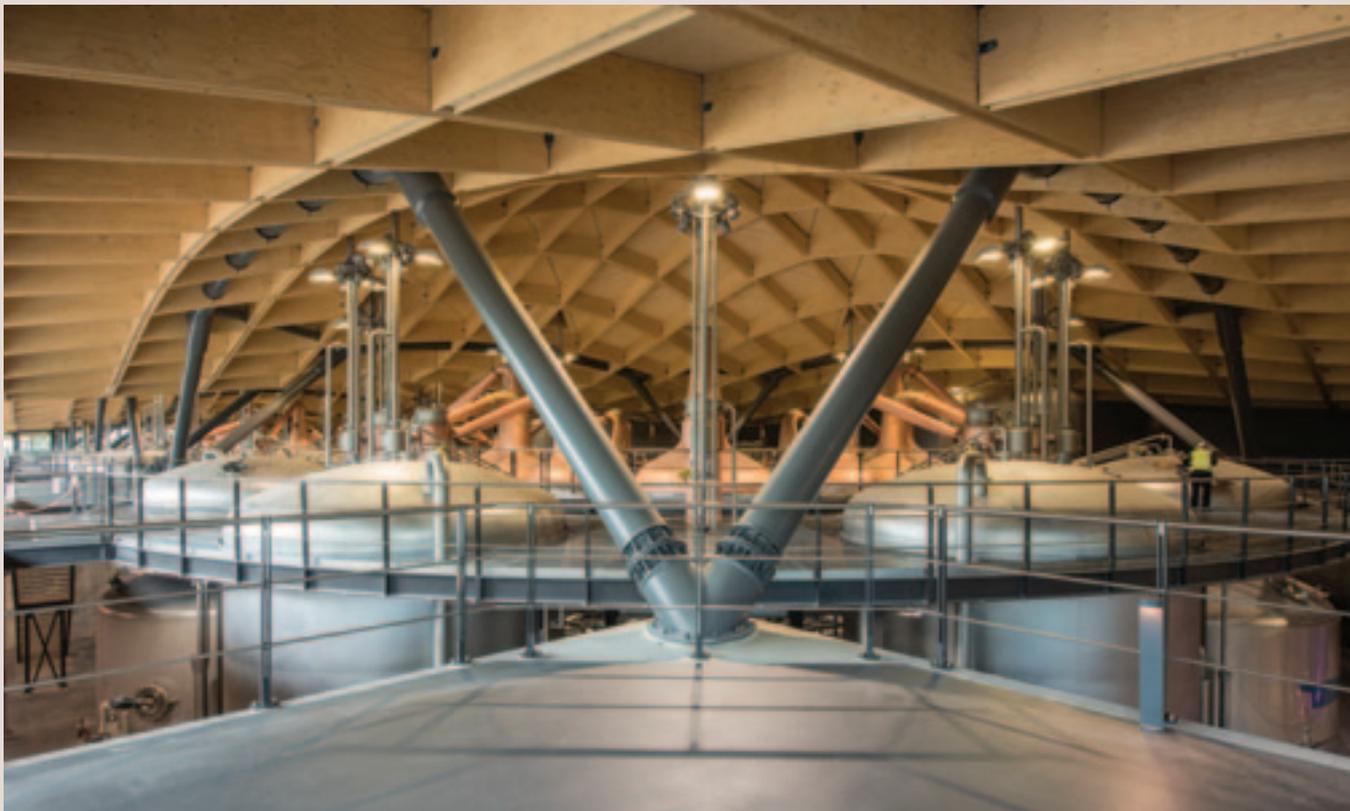


Photo © Ian Ritchie

Royal Academy of Music Theatre



The Macallan Distillery and Visitor Experience

The winner of the Private category was **Old Shed New House** by Tonkin Liu, a timber framed and clad home sited within the landscape of North Yorkshire. Judge David Morley said that the project “seems perfectly suited to its owners: this building is simple and modest but also delicate and uplifting to visit.” Previously an agricultural shed, the structure has been transformed into a gallery for a lifetime’s collection of books and art.



Old Shed New House

Look! Look! Look!, winner of the Small Project category, is a pavilion within an 18th century walled garden originally designed by Georgian landscape designer Lancelot ‘Capability’ Brown. Designed by Studio

Morison, the judges praised the project’s sense of fun. The Birch ply and fabric structure is a contemporary version of the follies or ‘eyecatchers’ featured in 18th and 19th century landscaping. The structure is made of 90 rhomboid timber cassettes with fabric pulled over and invisibly fixed to each.



Look Look! Look!

The Structural Award winner was **The Macallan Distillery and Visitor Experience**, chosen from all the shortlisted buildings. Judge Nathan Wheatley commented, “This unique roof unites architecture and

engineering to create one of the largest timber structures in the UK and is the crowning glory of the new distillery.” The architects were Rogers Stirk Harbour and Partners; the project was engineered by Arup.

Photo © Jim Stephenson



Woodland Classrooms

Studio Weave’s **Woodland Classrooms, Belvue School**, a secondary school for students with moderate to severe learning difficulties and a range of other needs, was awarded the discretionary Judges’ Special Award. The project stood out on the strength of its achievement for the schoolchildren who have been rewarded with an unforgettable, life-changing learning environment. 150sqm of intimate extracurricular spaces with domestic quality have been built on a modest budget. The boundary between the playground and adjacent woodland was identified as the border between familiar school territory and the magical, mysterious world beyond, with the new Woodland Classrooms acting as a gatehouse.

The Bespoke winner was **Cleft**, a series of cabinets made from different Japanese tree species. Corinne Julius, head of the furniture & product judging panel, commented, “We were enchanted by Cleft’s doors: they make you want to examine the material and touch it.” Designer Peter Marigold, worked closely with Tadanori Tozawa of woodworking manufacturer Hinoki Kogei. The wood chosen for each cabinet was selected carefully according to how it would split and work in relation to the overall cabinet dimensions.



Photo © Narasa and Partners

Cleft



Ballot Chair

The judges felt that the 2018 Production winner, Edward Barber and Jay Osgerby’s **Ballot Chair**, represented a masterclass in what an exercise in simplicity should look like.

Within the Student Designer category there were two cash prizes; £1,000 for Winner and £500 for People’s Choice. Voting for the People’s Choice Award took place at the Wood Awards shortlist showcase at London Design Fair in September. The overall winner was **Objekt Bord** by Ellen Svenningsen from the Building Crafts College.



Objekt Bord

Further information about each of the winners can be found on the Wood Awards website.

The Wood Awards 2019 call for entries runs from March 12 until May 24.

Fast forward for Continuous Cover Forestry in Ireland

by Ted Wilson and Padraig O Tuama

The past year has seen significant developments in Irish forestry, nowhere more so than in Continuous Cover Forestry (CCF). As many readers of this journal will be aware, CCF is the management of irregular structure woodlands, with multiple canopy layers and an emphasis on natural regeneration to achieve stand renewal and sustainability.

Traditionally, production forests in Ireland have been managed on a rotational system, often with clear-felling and re-planting in Sitka Spruce stands taking place on a 35-40 year cycle. For owners of small woodlands, CCF is becoming increasingly attractive due to savings in management costs, such as replanting and weed control, while generating a continuous income from regular stand interventions. CCF has been the subject of much discussion but relatively few woodlands are currently being managed on CCF principles. This situation appears destined to change with new policy measures, investment and research coming on stream, as described further in this article.

Forest policy

After a period of consultation, Andrew Doyle TD, Minister of State for Forestry, announced on 22 January 2019 a new grant scheme dedicated to CCF. This initiative is part of a wider strategy to promote the sustainability, resilience and biodiversity of Ireland's forest estate. Administered by the Forest Service, the new scheme will open to a maximum of 30 projects in 2019. As this is a pilot scheme, a review will follow and it is expected that the measure will be extended forward from 2020. The scheme provides funding over twelve years to assist with management planning, with cost based payments of up to €750/ha in year 1, another payment of €750/ha between years 4-8 and a final payment of €750/ha at year 12, all payments based on work in a transformation plan being completed. Applicants must prepare a management plan that conforms to a standard template; foresters making application on behalf of clients must provide evidence of prior knowledge or training in CCF.

The new CCF management grant has been called a landmark event for forestry in Ireland. Highly anticipated, there have been a significant number of applications within just the first two months of the ministerial announcement. Ireland has approximately 22,000 small and farm woodland owners, suggesting there is potential for CCF to be widely adopted.

New Investment in CCF

Another notable development for CCF took place in May 2018 with the launch of the SLM Silva Fund. This fund will be managed by SLM Partners, an asset management company that acquires and manages rural land on behalf of institutional investors. The company's mission is to scale up regenerative, ecological farming and forestry systems that deliver financial returns and environmental benefits. The SLM Silva Fund is backed by the European Investment Bank (EIB), Irish investors and other European institutional investors. The EIB investment package includes €12.5 million in EU guaranteed loans plus additional funding for training and development activities.

The EIB investment package for CCF in Ireland is part of the bank's Natural Capital Financing Facility. This facility was launched in 2015 and is a €400m initiative intended to protect Europe's natural capital. Ireland already has a highly competitive and productive forestry sector, but the new funding will enable institutional investors to support alternative sustainable forestry models. Through wider application of CCF principles, the scheme will support Ireland's ambition to protect biodiversity, soils and landscapes, and to combat threats associated with climate change.

The investment strategy for the fund is to acquire existing plantations in Ireland and, where possible, transform them to CCF. The increment in growth is removed as 'income', preserving the 'capital' of the standing forest. SLM Partners is collaborating with Purser Tarleton Russell Limited (PTR), a leading forestry management consultancy and research firm with deep experience in



Pro Silva Ireland International Study Tour to Alsace, France, in September 2018

Continuous Cover Forestry. PTR will be responsible for managing the forest properties after acquisition. Significant effort will be invested in monitoring environmental impacts, training and research over the lifetime of the fund.

Research and development

In terms of R & D, the most important project currently taking place is the TranSSFor Project. This is dedicated to the transformation of Sitka Spruce stands to continuous cover forestry. Given that Sitka Spruce accounts for over 50% of the productive forest area in Ireland, it is essential

that more detailed research is conducted with this species to understand how it can be managed according to the principles of CCF.

The core component of the TranSSFor Project is a long-term thinning study taking place in two woodlands, one being an upland forest on gley soil, and the other being at a lower elevation on brown earth. The overall aim is to compare crown thinning and graduated density thinning with the more conventional (low) thinning. The trial was established with first thinning in 2010. The forest stands are currently at the third thinning stage and are

being assessed in terms of stand stability, productivity, timber quality, environmental impacts, operational factors and economic performance. Crown and graduated density thinning are thought to promote stand structural diversity; the first results are expected to be published in 2020. Initially, this project was led by University College Dublin (UCD); the current phase is being led by Teagasc, the Agriculture and Food Development Authority of Ireland, in collaboration with UCD. Research partners include Coillte, the state forestry company, and a farm woodland owner.

Linked to silviculture research at the TranSSFor Project sites is a study of tree marking, which is the process of selecting the trees to retain and trees to remove at each thinning intervention. Most foresters are familiar with low thinning, but less comfortable with alternative approaches that promote irregular stand structures. Earlier research has shown that there is demand for training in CCF, among both foresters and woodland owners.

Other research taking place at the present time includes monitoring of research stands established by the Irregular Silviculture Network (ISN). Seven different forest type stands have been identified in the network, with detailed measurements taking place on a 5-year cycle. This is generating information on the transformation in stand structures, natural regeneration, economic performance and ecological attributes.

Related to current research, there is a strong emphasis on knowledge transfer across the Irish forestry sector. Forestry Knowledge Transfer Groups (KTG) has been set up under a scheme supported by the Department of Agriculture, Food and the Marine (DAFM), with local groups of private woodland owners working together to develop skills and understanding in woodland management. Regular meetings and forest visits are a feature of KTGs with additional support from the advisory team at Teagasc. CCF is being introduced as one of the topics to the farm forestry owners thereby widening the knowledge and interest in CCF in Ireland.

Pro Silva Ireland

ProSilva Ireland (PSI) was founded in 2000 and has close to 100 members. It is the leading non-profit organisation and registered charity dedicated to CCF in Ireland. Over many years, Pro Silva Ireland has forged strong links with related groups in Europe, including the Continuous Cover Forestry Group in the UK. This has facilitated a great deal

of knowledge sharing and many forestry friendships. Pro Silva Ireland organises two Forest Days that take place throughout Ireland each year in forests being transformed to CCF, for the purpose of education and promotion of Pro Silva principles. PSI also organises an annual international study tour and have participated in DAFM forest policy consultations. Pro Silva Ireland is also a prime mover in the promotion of skills and training, with a new programme of two-day short courses in tree marking and stand transformation being launched from Spring 2019.

Coillte

In a new development for Coillte a project called BioClass has mapped biodiversity areas across the estate. It flagged sites where CCF is the recommended management option for enhancing biodiversity value of the forest stand while also managing for quality timber.

Concluding points

As in the UK, forestry is in an expansive phase at the present time in Ireland. High timber prices continue to spur on the sector and draw more woodland into active management. The imperatives to enhance the resilience, sustainability and biodiversity of woodlands are stimulating new interest in CCF. With the introduction of a new grant, investment initiatives and training programmes, it certainly appears to be fast forward for CCF in Ireland.

More information

- Pro Silva Ireland – prosilvaireland.com
- Forest Service - agriculture.gov.ie/forests-service
- Teagasc Forestry Development Department - teagasc.ie/crops/forestry
- SLM Partners - slmpartners.com/activities/slmsilva
- UCD Forestry - ucd.ie/agfood

Authors

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Le bois d'oeuvre c'est l'avenir!

by Simon Burvill, a Trustee of Woodland Heritage and co-founder of Gaze Burvill furniture makers

Last August, while staying with Christian Gaze, co-founder of Gaze Burvill who lives in the Midi-Pyrénées, I visited Daniel Darré our French Oak supplier and Richard Muzas, a silviculturist who invested in Daniel's business in 2010. (See article on this subject in the WH Journal 2013). This was the first time that Christian and I had met Richard who had agreed to show me some of the forests in the region where the Oak we use comes from.

As soon as we met I knew that we would get on well. Richard is a charismatic Gascon with broad shoulders, an energetic stride and the lead singer and guitarist in a local rock band. He is a gregarious companion, but with a deep understanding of the woodland, and the importance of the long term view when it comes to trees.

Unlike Oak forestry in the UK, which is best managed when in private hands (as observed on WH Field Weekends), both Richard and Daniel are emphatic that in France it is in state-run forests (ONF) that the Oak is best managed by far.

Indeed the most prestigious Oak forest in France (and arguably the world) is the Forêt de Tronçais, planted by Jean-Baptiste Colbert, Louis XIV's minister, who in the mid 17th century oversaw the creation of Oak forests to supply the French Navy 150-200 years later, not knowing the changes in shipbuilding that were to come. The code of practice for an admirable French forestry tradition was then reinforced by Napoleon and in the Forêt de Tronçais there are stands which still operate on a 200 year cycle.

As Richard explained to me, France is approximately 25% forested, and 30% of forests are state-owned, 70% private-owned. However, in the South West region which I was visiting, the ratio is 20%/80% state/private and the majority of the Oak in Gascony is *Quercus robur* - (interestingly also known as 'English Oak', particularly



Richard Muzas on the right, shows Christian Gaze the shallow trench which marks one owner's boundary in Monk's Wood



(Left) I count the rings of one of the larger trees harvested, 153 years old, this will produce fine Oak for Gaze Burvill. (Top right) A stack of Oak firewood. (Bottom right) A row of 'Bois d'oeuvre' saw logs the best of which, marked with a yellow circle, are destined for Gaze Burvill

in the USA!) rather than *Quercus petraea* which is more prevalent in other areas of France. The problem with private ownership in France is that forests get divided into ever smaller parcels, because of inheritance laws. Richard took Christian and me to visit the 'Bois des Moines', or Monks Wood, unsurprisingly close to a monastery, where he and his team were doing some work, and which he explained has reached a point where its 70 hectares (170 acres) now has 70-100 owners. Obviously trying to get a coordinated forestry plan together with so many owners is impossible, particularly as many of the owners do not



Images: Luc Viatour

(Left to right) 1 A typical view of the impenetrable neglected woodland that Adour Forêts finds and restores to management. 2 Another section of the wood after thinning and with some good looking stems left to mature. 3 Young Oaks are regenerated naturally when the forest floor is kept clear. 4 A 'Geai' (pronounced 'Jay'), the forester's friend.

even know that they have inherited it, let alone having any concern for its management. This is where a combination of dedication and technology has helped Richard bring some of these neglected forests back into management and he is producing some very fine Oak from them.

To keep his team of foresters occupied and to run his company, Adour Forêts, on a scale that makes it sustainable, Richard needs to be working a minimum of 250 hectares of Oak woods per year, extracting about 150m³ of firewood and 50m³ of 'Bois d'oeuvre (saw logs) per hectare while leaving the best semi-mature specimens to take advantage of the light created in thinning to mature for a final cut in 30-50 years time, while in the meantime promoting natural regeneration in the gaps between. Richard has acquired 350 hectares of woodland of his own, as well as developing a system to bring absent owners into the fold, to bring as much woodland back into management as possible.

As we crossed the gently undulating hills north of Tarbes he demonstrated his approach. We were driving up a wooded escarpment and Richard's keen eyes spotted that although the woods surrounding us had not been managed recently, they had been managed originally and there were some good Oaks of varying size in there. He got out his smart phone and on it he had a special GPS app which not only showed a satellite picture of where we were but also, superimposed on it, a grid of all the different parcels of land. He could therefore note down the reference numbers of those with woods that need managing and send them through to his assistant whose full time job is finding out the owners from the Town Hall, tracking them down and finding out if they knew they owned part of a forest and would they like it managed? With Richard's company sharing the proceeds with the owner, it is a win-win-win situation, the woods get brought back into management by Adour Forêts, the owners get some income and Gaze Burvill, amongst others, gets some very fine Oak with which to produce our furniture.

There is however room for unscrupulous players to abuse the situation and Richard pointed out evidence of this while we were driving around. To cut trees in privately owned French woods under 25 hectares, there is little regulation. The temptation is great and an 80-90 year old good quality straight tree will fetch a much higher price than a scrappy 40 year old one, even though, if the older tree were left to mature, it would fetch a considerably higher premium. As we came to the crest of a hill we saw the shadow of a woodland where this has happened, the contractors have taken the 'cream of the crop' and left scraggy trees behind just so that they could say that it had not been 'clear felled'. This is a sad sight for a proud forester, and Richard is infuriated by this short termism, as not only has a future opportunity for more mature fine timber been lost, but the best acorn sources too, as the good seed comes from the best trees (and their genetic code), so future regeneration of the good trees may also be lost without 'les grandpapas de la forêt', as Richard calls them.

Throughout the day Richard pointed left and right to indicators of both good and bad practice, friends and foes. Friends include the jay ('geai' in French) which is a significant help in regeneration as they plant the acorns a good distance from the tree from which they came. The biggest menace is roe deer ('chevreuil'), but, interestingly, there is not the big problem with squirrels, because the resident species is the red squirrel not the grey, which has become a scourge in the UK. An avoidable problem is a kind of grass which comes into the forest in damp areas when too much felling has been done, and where openings are too large. It comes from contractors/foresters who do not know what they are doing - the grass suppresses regeneration to create gaps in the forest, leading to epicormic growth and other issues.

After a fascinating visit and greatly encouraged by meeting Adour Forêt's young team I came away thinking that as long as people like Richard continue their good work, there will always be fine 'English Oak' grown in France!



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and may they continue caring
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Mountain Oak Woodcraft

founded by Jack Holden, a former W2W student

Mountain Oak Woodcraft is rooted in the woods of the South Lakes, coppicing and thinning the Hazel, Oak and Birch dense woodlands. Keeping in mind what I learned from the 'Woodland to Workshop' course and since completing the three-year Bill Hogarth MBE Memorial Trust apprenticeship (coppiceapprentice.org.uk) in traditional woodland management and green woodworking, I have spent 18 months building my business, specialising in cleft Oak gates, fences and furniture, as well as teaching courses in axe felling, beam hewing and cleaving.

Cleft Oak is especially durable, being split or 'riven' down the grain instead of sawn. The shining medullary rays so sought after in expensive quarter sawn cabinetry run out radially, giving a route of weakness to split down into workable sections. My love for the unique character in trees drives the design of all my creations, and is often something that only cleaving, adzing and axe-hewing can reveal.

As my business develops, I have found that my interest in woodcraft is not bound by hand tooling. More of my work has led me to an interest in sawmilling and timber framing, especially now with my involvement in a new sawmill project where I live in Witherslack. The South Lakes are a woodland-rich landscape, much of which is in sore need of management. Linking this with my passion for quality timber products is truly inspiring. I find myself not only looking for straight, clean stems, but looking up into the boughs of trees, seeing braces, crucks, rails and arches.

The future for Mountain Oak Woodcraft is to continue building on tying in these shapes found in nature with high quality timber from well managed woodlands. Harnessing the natural strengths and curves of trees is something which has defined the way we have built over the history of working with wood and can feel quite elemental. The work that goes into splitting and shaping the tannic fibres of Oak can leave you with a sense of immensity, not just through the years of that tree, but the memory of our relationship with Oak through the ages.



Jack Holden



Arch by Mountain Oak Woodcraft

Whitney's wood works wonders!



Andrew Dix's Ash bicycle frame

One of the many aspects of the work of Whitney Sawmills that appealed to Woodland Heritage when it was deciding whether to buy the business, was how the mill supplied not just a wide range of essential day-to-day products, but also the way it was involved in many unusual projects.

Under Will Bullough's expert direction, Whitney Sawmills had supplied fine Oak for the King's Dining Room in Edinburgh Castle and Sweet Chestnut for the royal row barge Gloriana, amongst many other notable commissions.

In more recent times and linking Will's ownership with that of Woodland Heritage, what had become dying Elms from Scotland were milled at the end of 2017 to be used in the restoration of HMS Victory.

Continuing the theme of species under threat, a truly unique bicycle frame has been created by Herefordshire maker, Andrew Dix. This stunningly beautiful object has been made out of Ash supplied by Whitney Sawmills; Fellow Ash and bike fan, and well-known author and TV presenter, Rob Penn, is just one of the admirers of this amazing new use for the species, which now adds to the many that Rob described in his book 'The Man who made things out of Trees'.



Teresa Bailey (Small Woods Association's Heritage Crafts trainee) with one of the longest open railway gates

Although Whitney Sawmills supplies hardwoods most frequently, it has a longstanding reputation and tradition for Douglas Fir as well. A popular cladding and beaming material, perhaps one of the most unusual commissions received in recent times has come from the Small Woods Association and which was to supply the Douglas Fir for the restoration of the single longest span railway gates in the UK. Due to be in place in Ironbridge during 2019, these unique gates are a landmark on what is now a cycleway along the former railway line at this World Heritage Site.

Further case studies of projects that Whitney's timber has helped come to fruition can be found at whitneysawmills.com/case-studies, part of the new website recently redeveloped by Surrey-based designers Alex Campbell-Hart and Louise Dunkley of Incandescent Design.

More in-depth and very local examples of how Whitney Sawmills is working within Herefordshire appear over the next three pages of this Journal.



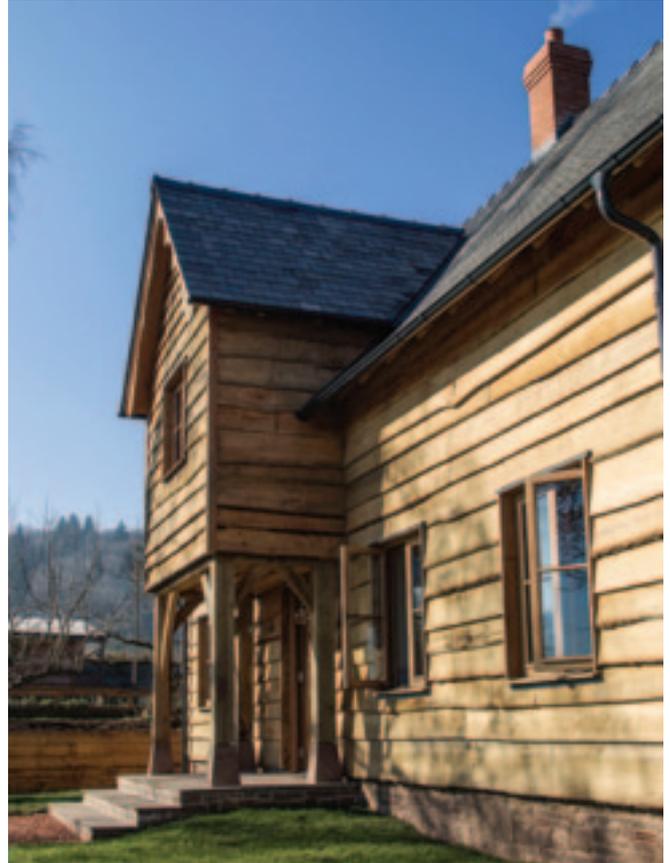
**WHITNEY
SAWMILLS**

Shenmore Lodge

by Geraint Richards, Head Forester, Duchy of Cornwall, and WH Trustee



Previous attendees on Woodland Heritage's Woodland to Workshop course may well remember meeting at the start of Day Two in a building at the entrance to the Duchy of Cornwall's Timberline Wood. The building was not in keeping with the surrounding environment and was in need of considerable refurbishment. The decision was made to replace rather than refurbish the building and in February this year His Royal Highness The Prince of Wales opened the 'Shenmore Lodge'. The oak timber for the building's frame and the larch cladding was sourced from local Duchy woodlands. Carpenter Oak, based in Devon, developed the detailed design but Whitney Sawmill was also involved in milling components for the project.



Photos © Charles Sainsbury-Platt

It is the Duchy's intention that the Shenmore Lodge will be used for a variety of purposes, particularly those promoting education in rural issues such as the Woodland to Workshop course. Future attendees on the course will be able to appreciate first-hand the quality and beauty of the Shenmore Lodge. Those of you who attended previous courses can always book again!



A virtuous wood circle in Herefordshire

by Rose Harrington – Queenswood Heritage Gateway Project Officer

I began working at Queenswood Country Park and Arboretum in the summer of last year as Project Officer for the Queenswood Heritage Gateway project, a project exploring the history and heritage of this much-loved country park.

I am new to working in the woods and it was partly the location of this job that drew me to the role in the first place. During my first months in post, it has been fascinating meeting some of the people who make a living out of working in the woods, finding out how to manage a healthy woodland and the myriad of uses of British grown timber.

In January, I interviewed Guy Corbett-Marshall from Woodland Heritage to learn more about how Woodland Heritage works to promote good forestry stewardship and the varied use of high-quality British timber. The charity promotes the whole of the timber supply chain – from saplings to timber framed builders.

As part of the heritage project at Queenswood, we have commissioned a contemporary artwork to sit at the heart of a First World War Commemorative Woodland within

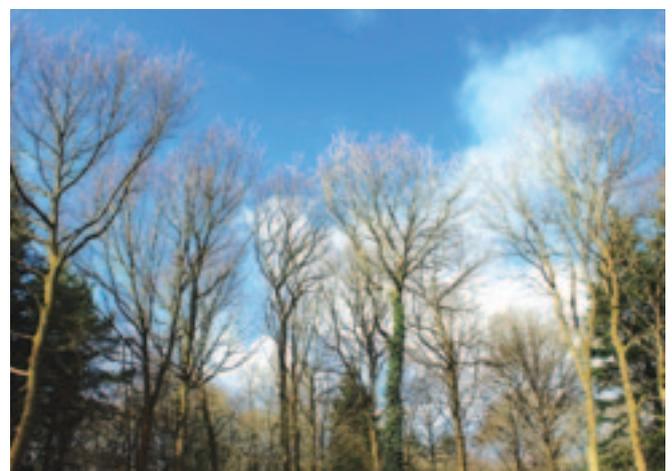
the arboretum. We are working with visual artist Des Hughes to create an artwork that considers the impact the First World War had on the people and the landscapes of Herefordshire.

To realise this vision, we needed to fell ten Oaks that had grown up since Queenswood was clear-felled to provide timber for the First World War all those years ago. We have left an outer circle of Oak, encircling the commemorative woodland area to show the growth of the Oak over the last hundred years. We have also left the stumps of the felled trees to recognise what was there before. There is one stump at the centre of the woodland which will act as the focal point of the commission and will have seating all around it for people to be amongst the woodland and to remember the sacrifices of the First World War.

Queenswood is a special place for many people from Herefordshire and beyond with over nine hundred trees having been adopted over the years, so I understand why some people have found it sad to see trees being felled. This is why I wanted to better understand the journey of our trees that had been growing at Queenswood for over 80 years and to ensure that they were put to good use. Guy explained that Woodland Heritage encourages



The area of Oak woodland identified for the commemorative woodland is about ninety years old, the trees here were growing very closely together and the canopy was dense obscuring the light.



Ten trees have been removed from the commemorative woodland to allow for the planting of new trees in a circular motif as part of the contemporary artwork designed by artist Des Hughes



The stump at the centre of the commemorative woodland will be used as a focal point to the artwork and will have a commemorative plaque placed on top and benches that have been made using the felled timber will surround the stump

sustainable woodland management, capable of growing high-quality timber whilst providing an environment that supports wildlife. In 2016 Woodland Heritage took over Whitney Sawmills, a Herefordshire based sawmill that specialises in the supply of everyday timber such as planks and boards for anyone to buy, as well as for high profile, bespoke projects, such as the creation of the Gloriana and for restoration projects such as at Edinburgh Castle and HMS Victory.

The mill represents the ethos of the charity and is at the centre of the supply chain. The charity wants Whitney Sawmills to showcase that there is a viable future for the smaller sawmill and the mill is delivering these objectives directly.

Whitney demonstrates the important journey between planting a tree and its end use, which is a long one. When a landowner takes the decision to plant a tree today, he will not see a return on his investment for two to three generations, but this decision to plant a tree is crucial for the future British timber supply chain. It is also important, if not more important, to manage our existing woodland, such as that at Queenswood.

The Oak trees at Queenswood would have been planted all those years ago after the First World War which saw our forests decimated. They were to be used by future generations and therefore it is fitting that the timber removed from Queenswood will be taken to Whitney Sawmills, just over twenty miles away, milled and returned to us as benches, signs and other timber products. The benches will be returned directly to the copse of woodland



Guy Corbett-Marshall interviewed by Rose Farrington

to provide quality, long-lasting seating at the heart of the woodland. They will be used by visitors to the commemorative woodland to rest as they explore the rich history of the site and contemplate the impact of the First World War.

I appreciate that for many people it is always sad to see a tree being cut down, however, just like any other crop, it was planted to be used. It is only if we ensure that sustainable woodland management continues that we will see woodlands like Queenswood survive and thrive for future generations to plant, enjoy and utilise.

The First World War Commemorative Woodland and artwork have been commissioned as part of the Heritage Gateway project that seeks to uncover and celebrate the history and heritage of Queenswood. The project has been jointly funded by the Heritage Lottery Fund and the European Agricultural Fund for Rural Development. The creation of the artwork itself has been funded by a public fundraising appeal, which has received almost £12,000 in donations from the Herefordshire community.

The artwork will be dedicated as a memorial to the First World War on 29 June 2019 by Lord-Lieutenant Lady Darnley, Her Majesty The Queen's personal representative in the county, as part of wider events taking place on Armed Forces Day, and to mark one hundred years on from the official end of the War.

The First World War Commemorative Woodland has been developed with funding from the National Lottery Heritage Fund, a number of other grants and through the generosity of the Herefordshire community who have donated to the Commemorative Woodland Appeal and is part of the wider Queenswood Heritage Gateway Project.

Irregular Silviculture Network

An update

by Andy Poore, Vice Chairman, Irregular Silviculture Network (ISN)

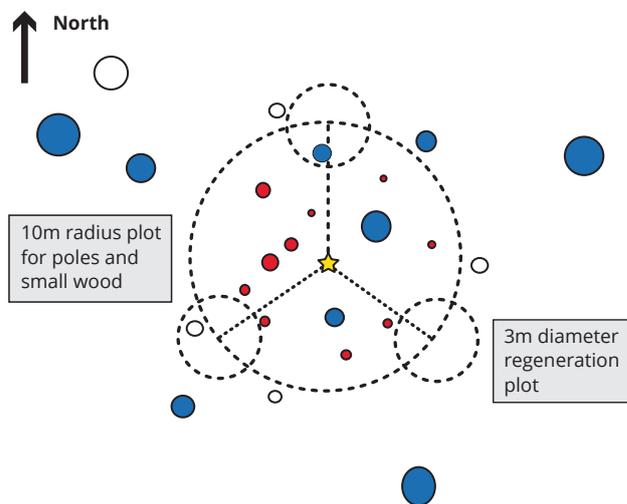
The Association Futaie Irrégulière (AFI) was founded in 1991 to monitor the development and the economic performance of irregular high forest stands. The AFI began as a group of French private forest managers in partnership with one of the leading irregular forestry academics in France.

Their aim is to chronicle management and record evidence of Close to Nature and Continuous Cover Forestry practices with an emphasis on permanently irregular stands. The AFI now consists of over 100 Research Stands in France, Belgium, Switzerland, Ireland and the UK.

The **Irregular Silviculture Network (ISN)** was established in 2017 to provide an English-speaking interface for the AFI. Like the AFI, ISN membership is open to forest managers, owners and scientists engaged in irregular high forest management. Members have access to specialist software and data resources and to training in the monitoring of irregular stands. There will also be opportunities for members to meet other members from UK, Ireland and Europe and the ISN will also be used as a vehicle to undertake other research projects in irregular forest management.

The *AFI Research Stand Network* includes stands formally selected within the Network and subject to the AFI Monitoring Protocol which covers a wider range of dendrological, economic and biodiversity parameters. The ISN also promotes an *Abbreviated Protocol*, a methodology with more limited scope designed to be applied more widely for forest management purposes at the forest estate level and for benchmarking between forests.

A Development Fund was set up to facilitate the setting up of the ISN and to promote other research projects into irregular silviculture. This Fund has now funded a series of initiatives:



Stand management requires accurate plotting of trees

- **AFI Reports:** Since 1991 all reports of measurements in AFI Research Stands have been processed and stored using a number of Excel spreadsheets and produced only in French. The AFI have now created a new system which allows more automated report construction and the ISN Development Fund has been funding a parallel exercise which allows the construction of report templates in English administered by the ISN.
- **ISN Abbreviated Protocol Workbooks:** the Development Fund funded the creation of Excel workbooks and an associated manual. The first Measurement spreadsheet has been circulated to members.
- **AFI Research Stand Selection Process:** Phil Morgan, Chairman of ISN, now has the authority to authorise acceptance of stands into the Network on behalf of the AFI. In the past candidate AFI sites required site visits and authorisation by French AFI colleagues.
- **Database:** a database has been constructed giving the basic details of existing AFI Research Stands in the UK and Ireland and those ISN Research Stands which have been established to date. In due course we should be in



A research stand

a position to share data on AFI and ISN stands across the membership.

A number of associated research projects are underway:

- **Economics of Harvesting in Irregular Forests Project, Stourhead (Western) Estate:** ISN and WH Member Dan Stover has completed a UCNW Bangor, MSc Dissertation “Comparative Costs of Harvesting Irregular and Regular Mixed Conifer Stands at Stourhead (Western) Estate”. This dissertation is a very rare recent example of a harvesting study and the first in permanently irregular stands in the UK. The dissertation is available at selectfor.com/articles. We are now working on the wider question of whether we can model whole system harvesting costs for irregular and even-aged systems.
- **Rushmore Woodland Biodiversity Research Project:** a major research project established in 2014, and incorporating a PhD, looking at the relationship between structure and biodiversity output in semi-natural stands dominated by Ash, Oak, Hazel and Birch, using birds, moths and bats as the biotic groups being investigated. In particular the project compares irregular high forest, coppice and limited

intervention. The Project Description and the first peer-reviewed paper on the basic bird data is available at selectfor.com/research. Further papers on moths and bats will follow and then a synthesis paper explaining the results. Initial results are very positive for irregular high forest. This study incorporated elements of the ISN methodology.

- **Ash Die Back (ADB) Research Project:** a PhD study, again based on the Rushmore Estate, which has large areas of Ash-dominated forest, looking for the first time at the relationship between individual tree condition (controlled by management), stand condition, genetic tolerance and the leaf-biome on the one hand and the degree of susceptibility to ADB on the other. Stands being investigated include irregular high forest. The Project started in January 2019. The Project Description is available at selectfor.com/articles.
- **Stourhead (Western) Irregular Coniferous Forest Biodiversity Project:** a related research project to that at Rushmore but this time looking at the biodiversity output of the irregular mixed conifer stands at Stourhead (Western) estate and comparing them with more even-aged stands. There has been little research looking at the biodiversity of evergreen coniferous stands in Lowland England let alone investigations relating structure to biodiversity richness and abundance. A project design has now been finalised and funding is being sought with a view to starting the four-year project this year.
- **Transformation of Sitka Spruce Stands to CCF:** Ted Wilson is leading this Irish Project in association with Paddy Purser, both Board members of ISN. A five-year Teagasc-funded project began in 2017, in collaboration with University College, Dublin, which builds on an earlier study of the initial stages of transformation of two Sitka Spruce stands, by investigating their progression through continued management interventions. Further information is available at selectfor.com/articles.

For further information on membership of the Irregular Silviculture Network please contact David Pengelly at david@selectfor.com.

Teaching timber

by Tabitha Binding, University Engagement Manager, TRADA and Trustee of WH

Timber, as a growing renewable resource that absorbs CO₂ and sequesters it into buildings, is the construction and building material of the 21st century. If we are to capitalise on timber qualities, students leaving higher education must know how to design, engineer, specify, construct and price projects that include timber and timber products, elegantly, economically and effectively.

In my first year as the Timber Research and Development Association's (TRADA) University Engagement manager, I have found that, apart from a few pockets of real knowledge, timber is hardly taught about at all. Most students in architecture and engineering now leave higher education having never visited a forest nor a sawmill, having never handled a piece of timber – let alone understanding the difference between a hardwood and a softwood.

TRADA aims to address this lack of knowledge by working closely with the timber industry and professional partners, building on and expanding its current engagement with both lecturers and students.

TRADA's resources

Learning resources

Available free online to all students and lecturers, these resources can be used for self-study or incorporated into courses. The eight sections and 64 modules, starting with 'Timber as a material', lead through timber characteristics, environmental aspects, connections, engineering, construction principles, and fire resistance of timber buildings.

Case studies

With more than 100 examples of timber in construction, from bridges to high-rise residential buildings, each case study is populated with architectural drawings, images and engineering details. The case studies also include project information, background information and construction methodology.

Timber lectures

Free to full TRADA member universities, we work with individual lecturers and departments to make each lecture relevant to the year and course. Spending up to a day on site, we supplement the talks with relevant timber samples, competitions and books.

Student competitions

Multidisciplinary competition

My first job at TRADA was to run an inaugural multidisciplinary competition, Urban Buzz. The brief – to design a car park from timber – led to 30 universities and 60 students from the disciplines of architecture, architectural technology, engineering and landscape architecture competing. Sponsored by the timber industry and judged by leading professional practices, the two-day event enthused the third year students and gave them knowledge, understanding and a passion for timber not previously held.



The sixty students who took part in TRADA's Urban Buzz

Timber Trade Journal (TTJ) University Research competition

This award acknowledges the work that university students carry out at both undergraduate and postgraduate level. TRADA and Timber Expo jointly sponsor the annual TTJ Timber Innovation Award for Innovative University Timber Research.

In 2018, Rolando Madrigal Torres, Evgenia Spyridonos, En-Kai Kuo and Eleni McKirahan, from the Architectural



Sawmill Shelter at Hooke Park

Association's innovative Design + Make programme, won the category for their work on the Sawmill Shelter.

The research, an investigation into the limits of small-section home-grown timber under tension, involved designing an intricate and lightweight anticlastic timber net. The resulting structure serves as a full-scale prototype for later builds by consecutive students at Hooke Park.

Who teaches the teachers?

TRADA is collaborating with the East Anglia Timber Trade Association (EATTA) and industry sponsors on a five-year education plan. 'Who teaches the teachers?' saw myself and three lecturers from the Universities of Anglia Ruskin, Suffolk and Hertfordshire travelling to Sweden in September.

'The aim is for each lecturer to enliven students' and colleagues' interest in the timber business and in timber as a sustainable building material,' says EATTA Chairman Chris James of Nason Davis.

The three-day trip involved visits to:

- SCA's tree nursery where 100 million tree seedlings are produced each year
- SCA's sustainable forests. SCA owns 2.6 million hectares in northern Sweden
- Tunadal Sawmill – one of SCA's five sawmills

Stephen King, Sales Director of SCA Wood Industrial Solutions, commented: 'We are firmly rooting our commitment to the timber industry to help engage those responsible for inspiring the engineers and architects of tomorrow. Seeing our operations first-hand will hopefully provide lecturers with the experiential knowledge they need to impart enthusiasm for wood use in construction to the next generation.'



SCA explain how their Swedish forests are managed

Hands-on learning

As part of my role, I plan to encourage and promote more hands-on learning. Kate Darby invited me to see how one group of practitioners has developed this concept.

Established in 2005, Studio in the Woods is an ongoing education and research project, founded and convened by Piers Taylor (Invisible Studio) with Kate Darby (Kate Darby Architects), Meredith Bowles (Mole) and Gianni Botsford (Gianni Botsford Architects). It was designed as a vehicle to test ideas through making at full size. Each year, the founders are joined by several practitioners and academics in leading workshops for participants over three or four days.

The focus of the 2018 studio was the exploration of future uses for the timber of the Wyre Forest, which is predominately Oak and has been unmanaged for several years. Sixty participants split into six groups, and over the three-and-a-half days selected their building materials, conceived their designs and then constructed them.

Jamie Rest, studying at the University of Sheffield for his RIBA Part 2 after his year out in practice with Architype, commented: 'Making by hand and at full-scale forces us to understand materials and how they come together in a way that is perhaps difficult to be taught in an academic context. By seeing making as part of the design process as opposed to 'making the design', projects are often enhanced as a result of the happy accidents and discoveries that are made along the way.'

2019/2020

During the coming year I am keen to explore other ideas. I'd like to forge links between Woodland Heritage members and academia. If you would like to get involved or have any suggestions, please get in touch.

Why Mowat & Company recently joined Woodland Heritage

by Alex Mowat

Every day the world around us is getting increasingly complex. Everything is demanded faster and better. There are multiple organisations working and promoting a huge range of causes and opinions. Every industry and profession is becoming increasingly specialised. The consequence is that we don't always see the wider picture. All this applies to the timber cycle: woodland management, silviculture, design, construction, joinery, furniture-making and product retailing is no different.

My work as an architect at Mowat & Company operates in this context of specialisation. We design with timber in many ways including structures, building components, finishes, furniture and restoration. The result of this specialisation is that we are sometimes not exposed to other disciplines which should be integral and right next to us in our thought process.

We recently joined Woodland Heritage to help us address this issue. We hope that through our membership we can connect with those that grow and supply fine timber, manufacture and construct and ultimately sell our designs. By connecting with others, we hope to better understand our part in the chain, to extend our knowledge and improve the quality of our work. We are conscious that beyond these immediate connections there lie many other long-term opportunities for nature and society that can be unlocked, some of them hidden from our immediate view and which may well be longer than our individual lifetimes.

Our experience when designing for our clients has taught us that such links can bring direct benefits. I want to share three examples of this where collaboration helped us work in timber at different scales and with different tree species.

1 Holt Door Handles

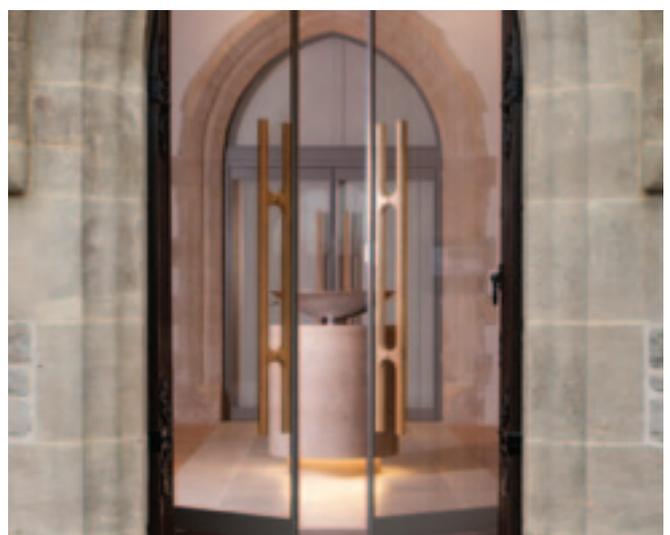
During many travels across Northern Europe, I observed the Nordic tradition of using timber for many everyday items. I was inspired by the beautiful aesthetic and smoothness that develops over time the more a wooden



Inspiration – Timber door handle on Muuratsalo Sauna, Northern Finland



Holt door handles – Production at Young and Norgate's workshop



Holt door handles – The first new handles at the restored Winton Chapel in Winchester

item is used. On return to Britain I set about designing a range of timber door handles that could be applied in commercial environments.

Pages of sketch books were filled, CAD models were built to visualise the shapes, plastic rapid prototypes were 3D printed and I even consulted academic professors. However, the breakthrough happened when I spent time “on the tools” in a joinery workshop with Ross Norgate of Young & Norgate. We made a plywood jig, we set up a table-top router, we tested different materials including Bamboo, Beech, Oak, Sapele and Iroko. In a few hours we had simplified the design to use one single router bit to reduce manufacturing time (not the complexity of the four separate bits I had unwittingly sketched). I left with some full-sized prototypes, lots of new knowledge and a huge grin. I knew that I had something that was going to work.

My next link up had to be with a professional marketing and distribution team. I arranged to meet with Allgood, a company I had admired since my first days as an architect for their great British modernist ironmongery. At the first meeting I had hardly finished unwrapping the prototypes before their sales director whipped out a screwdriver and fixed one of them to a sample door. He called a few colleagues from upstairs, they pushed and pulled the door, nodded to each other and turned to me and said: “Yes we will do it!” In April 2015 we launched the first commercial timber handles onto the market. We used the name Holt after the English place name that is the traditional place name for a wood. (e.g Northolt means North wood).

The Oak range now includes pull and lever door handles, house numbers, a coat hook, grabrails, a toilet brush and toilet roll holders. The range has been specified for buildings as diverse as Tate Modern, a Buddhist retreat, Winchester’s historic Winton Chapel and award-winning social housing in Croydon. When the handles were installed at Maggie’s Cancer Centre in Oldham, we discovered a hidden benefit of having timber door handles. After chemotherapy people often find it painful to touch hot or cold items including metal door handles. Wooden handles and grabrails are warm to the touch and are much more comfortable for the patients.

2 Falmouth School – Cross Laminated Timber Extension

As part of an educational programme called “Joined up design for schools” we received a brief informed by pupils at Falmouth School to re-configure and extend their design technology studios and workshops. They



Holt door handles – Handles at Tate Edit shop at Tate Modern, London



Falmouth School – Speedy assembly of the pre-cut cross laminated timber panels

wanted a new building that would inspire future students and demonstrate sustainable construction. The school’s governors and the council estates department wanted it to be built from start to finish in the short Easter holidays.

We listened to these requirements and wondered how all this was going to be possible. We had read about a relatively new technique of factory-made Cross Laminated Timber (CLT) panels that was commercially available in Austria but had not yet reached mainstream UK construction. We prepared some initial designs to use

flat transportable CLT panels in a folded arrangement to achieve the required spans and stiffness to generate huge north-light windows for the new design studio. We hoped this would be both practical and inspirational for the future pupils. We worked closely with Austrian firm KLH Massivholz GmbH to cut the panels, transport them from Austria via Falmouth Docks and assemble them on site in three days to the amazement of the pupils, governors and the council. I won't lie...we were amazed too!

The sustainability targets were met with this new timber technology. The CLT volume is 67m³, this timber volume removed approximately 53.6 tonnes of CO₂ from the atmosphere. The transport emitted 4.3 tonnes of CO₂. Offsetting the CO₂ transport emissions had a 'net gain' of 49.3 tonnes of CO₂ removed from the atmosphere (that is equivalent to 123,250 miles of car driving). These are statistics that are unthinkable with either steel or concrete structures.

The resulting building has achieved the desired inspirational effect. One of the pupils was inspired to study engineering and recently graduated from Cambridge University. The building was recognised with an International Green Apple Award for the Built Environment, a RIBA Award for Architecture, the LABC South West Award for Best Education Building and it was the Winner of the Wood Awards Off-site Construction Award.

3 Berry Bros & Rudd - Oak Day

For the last five years we have been working closely with Berry Bros & Rudd, London's oldest wine and spirits merchant. We have re-developed their shop interiors, offices and cellars, as well as restoring some of the fabric of their fabulously wonky Grade II* listed buildings in central London with Oak panelling, beams, shelves, racking, desks and chairs.

Oak is intrinsically linked with the production of both wine and spirits. Oak barrels are used for maturing whisky, sherry, port and fine wines with the Oak tannins giving so much of the flavour. It does not stop there: once matured, the bottles are sealed with corks harvested from the bark of *Quercus suber* Oak trees.

Whilst working on these projects our team was keen to learn more about Oak, specifically why it has such longevity appropriate to this 400-year-old company. Following an inspirational talk by Charley Brentnall of Carpenter Oak Ltd we set off to their workshop for a hands-on day, learning the techniques of manufacturing



Falmouth School – Speedy assembly of the precut cross laminated timber panels



Berry Bros and Rudd – Oak Day. Some of our architects couldn't keep away from the power tools



Berry Bros and Rudd – Oak Day. Other architects preferred the traditional method of hand-making pegs



Berry Bros & Rudd - retail interior at 63 Pall Mall with new oak floor and reclaimed oak ceiling

and assembling green Oak architectural frames. Our studio manager wielded an alarmingly oversized chainsaw morticer to make the mortices, our architects measured up and cut huge tenons and drilled the offset holes, two of us got busy cleaving the Oak tapering pegs to hold it all together. Thanks to the great team at Carpenter Oak we left with a huge respect and admiration for green Oak construction. Thankfully we also left with all our fingers and toes.

Connecting with the carpenters and sharing their knowledge and tools brought us a deeper understanding and empathy with how Oak is used in construction. Having drummed up our enthusiasm we are now looking for the opportunity to put this knowledge into practice by designing a green Oak framed building. Hopefully one that will have a life of hundreds of years like our ancient cathedral roofs.

These are just three examples of the direct benefits that we have received from connecting to other people and disciplines working with timber. As new members of Woodland Heritage we hope to make more connections and deepen our understanding of timber. We are especially

excited to be attending the Woodland to Workshop course in May and to meet more people at the Field Weekend in June. Our instinct is that there are hidden unexpected benefits to be gained, benefits that I can't even describe or imagine today.

Our longer-term hope for our membership of Woodland Heritage is that we can explore the wider benefits of "tree farming" beyond our industry. Tree farming helps atmospheric CO₂ levels, provides anti-flooding measures, as well as providing biodiversity and creating calm recreational places in our crowded, busy world. As a member of Woodland Heritage, we hope we can help more people see woodland as "tree farms" that are an active, changing, beautiful, inspiring, profitable and essential part of Britain.

Mowat & Company are an independent company of architects, designers and lateral thinkers who find elegant - often unexpected - solutions. Our work is always imaginative and underpinned by history and analysis. We believe that good design unlocks hidden opportunities.

For more information visit our website: mowandco.com

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25 Years of Woodland Heritage



The first Board of Trustees



Co-Founder and Chairman Peter Goodwin



Geraint Richards and Julian Evans



Another great Field Weekend, Shropshire



*First Field Day at Weasenham Wood May 1997.
Major Richard Coke and Belinda Moore*



Ben Orford – our first Apprentice



Lord Gardiner, Biosecurity Minister and Guy Corbett-Marshall



Trustees 2018, Buckingham Palace



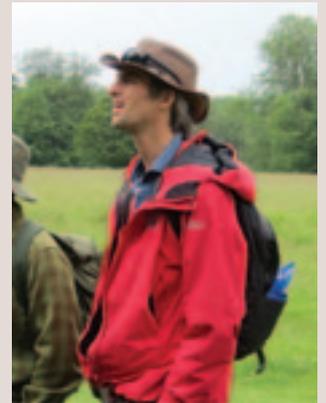
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Towards a Strategy for UK Forest Genetic Resources

Clare Trivedi (RBG Kew), Stephen Cavers (Centre for Ecology and Hydrology), Jo Clark (Future Trees Trust), Joan Cottrell (Forest Research), Nick Atkinson (Woodland Trust)

Over the last two years a wide range of stakeholders have worked together to produce a Strategy for UK Forest Genetic Resources. The Strategy will be launched in June 2019 at the Future Trees Trust Annual Supporters meeting which this year will take place at Kew's Millennium Seed Bank.

This project has brought together foresters, plant conservationists, landowners, geneticists and tree breeders amongst others. But what are Forest Genetic Resources, why are they so important and what is the purpose of the new Strategy?

Most people are familiar with the concept of biodiversity – the variability among all living things and the ecosystems that they inhabit. Not everyone is so familiar with the understanding that biodiversity includes not only variation between species and ecosystems but all variations within species

A particularly important aspect of biodiversity is the genetic material that is used by people or which has a potential value for human societies. These are known as 'genetic resources' and include all living material that

contains functional units of heredity such as living plants, seeds and propagules, tissue samples and DNA samples. Those genetic resources that come from woody species are described as Forest Genetic Resources (FGR). They are crucial to the adaptation, evolution and protection of our ecosystems, landscapes and production systems and provide essential natural capital for benefits such as wood fuel, timber, carbon capture, soil and air quality protection, and recreation.

The ability of woodlands and trees to meet present and future societal, economic, and environmental challenges depends on genetic diversity within tree species. Genetic diversity provides the potential for tree species to survive, adapt and evolve under changing environmental conditions and to be resilient to stresses such as novel pests and diseases. Furthermore, genetic diversity provides the building blocks for tree improvement and breeding to produce new varieties and to strengthen useful traits. As we face the uncertainties of a changing world, genetic diversity will be essential to secure our woodlands and trees, in all their roles, when new challenges or opportunities emerge, and if different traits become desirable or necessary for survival.

This need to protect FGR has been recognised internationally through the Convention on Biological Diversity and, more specifically, through the UN Global Plan of Action for Forest Genetic Resources. Across Europe a collective effort to organise knowledge and protect the genetic variation in Europe's trees is managed through the EUFORGEN network.

Understanding and conserving UK FGR

The UK is home to a range of native, non-native and naturalised trees and shrub species that have adapted in various ways to their growing environments. Some of this genetic diversity has evolved naturally over generations as species have adapted on a fine scale to local conditions. In



Millennium Seed Bank vault



Stool bed at Kew

other cases diversity is the product of deliberate efforts to develop varieties that are productive in UK conditions. However, for most species the distribution and spatial structure of genetic variation is currently poorly understood and lacks a coherent management strategy.

Effective protection of FGR requires both ex situ and in situ action. Ex situ collections already exist through Kew's UK National Tree Seed Project, a range of provenance and progeny trials, and clonal seed orchards. Co-ordination and extension of ex situ activities is required to develop an integrated, comprehensive and accessible gene-bank of UK FGR. More urgently, in situ conservation through designated gene conservation units is vital to support dynamic conservation of the UK's FGR in the landscape and to complete the European range-wide effort through EUFORGEN. This new Strategy aims to support existing initiatives which recognise the need to protect genetic diversity and create a framework for collaboration to better understand, protect and use the genetic diversity in the UK trees.

The Vision

To promote awareness and understanding of UK Forest Genetic Resources by extending knowledge of the pattern and drivers of genetic diversity and local adaptation in UK trees: making this understanding easily and widely accessible and using this knowledge to underpin the conservation and sustainable use of trees and woodlands in the UK.



Photo: Maya McCracken

Ash bagged in south Wales – Sept 2015

The formal objectives of the strategy are to:

- Catalyse collaboration for new research and better understanding of UK FGR
- Guide in situ and ex situ conservation of UK FGR
- Promote the value of UK FGR and support wider initiatives to make use of them

We aim to achieve these objectives through working together to coordinate activity across the UK, developing a framework that encompasses current activities, identifies knowledge gaps, initiates new collaborations and helps to establish new research and conservation.

Once the Strategy is launched an action plan will be developed comprising the following elements:

- 1) Collaboration for change
- 2) Communicating the value of UK FGR and promoting its use
- 3) New research and coordination of existing knowledge on UK FGR
- 4) In situ conservation via Gene Conservation Units
- 5) Ex situ conservation

We look forward to working with a wide range of stakeholders to take this vital new initiative forward.

Barking up an Oak tree – The story of Cork

Text by Edward Parker. Photographs © Edward Parker



*Cork Oak forests are part of the management system known as *dehesa* in Spain and *montado* in Portugal. The terms refer to extensive Oak woodland interspersed by areas of grassland and scrub vegetation, orchards and cultivated fields. This type of forest management has maintained a landscape and an environment considered to be the most ancient still in existence in Western Europe*



The maintenance of cork Oak forests as part of a mosaic of habitats around the Mediterranean is believed to have helped conserve not only rare wildlife such as Bonelli's eagle and Iberian lynx but has also maintained local micro-climates that are reminiscent of pre-Roman times when the climate was cooler and wetter



*Recently harvested cork Oak trees in Andalusia. Cork is the fire-resistant inner bark that can be harvested from the cork Oak *Quercus suber*. It can be harvested every nine years without harming the tree. It is generally believed that the Greek philosopher Theophrastus was the first to discover that once the cork layer was removed from the tree a sheath of much better quality quickly reformed*

Cork Oak harvesters enter the forests in June, July and August. They expertly use curved axes to cut through the bark and inner bark and then prize off large oblong sheets of cork using a wedge on the handle of their axes. These sheets are then scraped and boiled to soften the cork and allow the curved panels to be straightened





Harvesting cork still employs tens of thousands of people in Portugal and Spain. Its main commercial use today is as an insulating material in commercial cold stores. More excitingly, cork has been to space! The space shuttle's external fuel tank was partly insulated by around 500 pounds of cork taken from the bark of 225 cork Oak trees in Portugal



Every year cork harvesters such as Francisco Horgelo Sanchez move through the Oak forests of Spain and Portugal selecting trees from which to remove the cork. A cork tree can be harvested sustainably every nine years and there are ancient cork trees that have been regularly harvested for more than 200 years



Each cubic centimetre of cork contains more than 40 million tightly packed, thick-walled cells. Each of the dead cells contains 50% air and it is this along with their low permeability that gives cork its buoyancy, sponginess and its ability to resume its shape after being compressed



A cork wedding dress for sale in Sardinia. Cork has had many uses over the last few thousand years. The ancient Greeks used it to make stoppers, sandals and buoys for fishing nets and the Romans used cork to make beehives. Since the 16th century cork has been used widely by the bottle industry for stoppers.

Edward Parker is an environmental campaigner and award-winning photographer, whose work has graced countless publications across the globe, including the recent 'Celebrating our Oaks' book and exhibition in support of Action Oak. Since 2014, Edward has been Director of the Springhead Trust in Dorset.

Woodland to Workshop 10 years on



Our first course, May 2008



Gathering by the lecture room



Will Bullough highlighting characteristics of Oak



The Prince of Wales award is received by Nina Williams



Ben Asson instructing in the workshop



In the drying shed



Measuring timber in the round



Wood-Mizer (UK) – regular sponsors of Woodland to Workshop



Another happy group of students



Profit or loss?



Geraint Richards – Tutor



Graham Taylor – Tutor



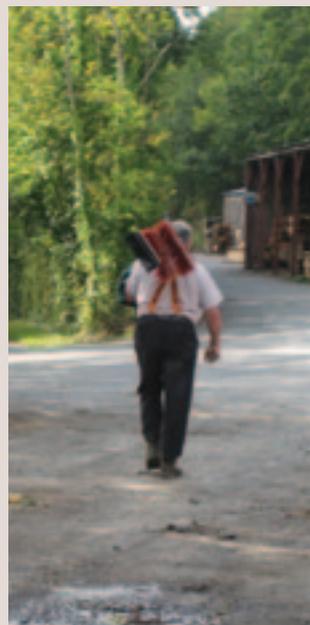
Species identification



Measuring exercise



Measuring sawn timber



Gavin Munro – Tutor



In Whitney Woods

From an Acorn - a story of Remembrance and Hope

by Romilly Burvill

“When we plant trees, we plant seeds of peace and seeds of hope”. Wangari Maathai was the founder of the Green Belt Movement, an environmental non-governmental organisation focused on the planting of trees, environmental conservation and women’s rights in Kenya. Her words ring out all too truly today, and are transcribed on a seat with another remarkable story to tell.

This story starts in 1917, when a collection of acorns was recovered from the battlefield of Verdun, and brought to Royal Botanical Gardens, Kew. The devastating battle of Verdun was fought between French and German troops, lasting for ten months until 18 December 2016, with over 700,000 casualties estimated, and scant strategic gain for either side. One of the two Oak trees grown from these acorns, now fully mature, was damaged in the 2013 St Jude’s Storm, and had to be felled.

Kew’s Head of Arboretum, Tony Kirkham, was determined to use the tree to create a bench to mark the centenary of the end of World War I. He contacted Gaze Burvill, Oak outdoor furniture specialists. Simon Burvill, the co-founder of Gaze Burvill and a Woodland Heritage Trustee, was hesitant. Parkland trees tend not to produce very good timber.

A trip was planned to view the trunk with timber expert, Geoff Tyler, who saw that there was usable material in the parkland-grown tree, and Geoff also had the foresight to ask Tony if other trees had come down in the storm which might also produce good or interesting wood. It was all taken to Helmdon Sawmills in Northamptonshire to be quarter sawn. This highly skilled process aids the long term stability of the Oak, and reveals its eye-catching medullary rays. On arrival, expert miller Steve prepared all the trees for sawing, removing the bark, and inspecting them closely with metal detectors. Despite this precaution,

during milling, with 18 beautiful Oak boards of Verdun Oak successfully sawn, and the final quartered segment of the trunk in process, a loud bang revealed six nails hidden deep in the wood, which left a broken saw-blade and a large piece of partially milled Oak in a state too dangerous to saw into.

The rogue segment was salvaged, and became a beautiful sculptural bench for Kew in its own right, as a commemoration of the end of Battle of Verdun.

The good boards were air-dried for two and half years until the end of 2017, then kiln dried at the very end of the year for delivery to Gaze Burvill’s works in Hampshire in spring 2018.

The design was to be monumental, both to remember the Kew fallen, but also to celebrate the regenerative powers of nature, so much in abundant evidence at Kew. The position for the new seat within the Gardens was close to where the tree had stood, with one side looking towards the Temple of Arethusa war memorial, and the other looking out, south towards the Palm House. The dual aspect inspired the new seat’s name, ‘Remembrance and Hope’.

The first side, which faces the war memorial, would have the concave side of the curve, and be a contemplative space, enveloping and sheltering, for ‘Remembrance’. The other side represents ‘Hope’, and faces the Palm House, convex, curving upwards and outwards, to be optimistic in outlook, confident and open to the world.

The design of the piece started with a full-scale mock up model built at the Gaze Burvill workshop, allowing the comfort lines and a profile to be developed. Various forms were projected onto canvas - including the outline of the Palm House, shadows of branches, and also the Kew Tree Walk, as sources of inspiration. To create both sides, two structures were created to provide a strong support for the Verdun Oak elements, each precision cut by laser by FD Metalworks. Rusted ‘Corten’ steel offsets are scorched



Remembrance and Hope installed at Kew – the Remembrance side

Oak for Remembrance, while marine grade stainless steel provides a brighter look for Hope.

It was important throughout the design and making processes to include as much of the Oak from the Verdun tree as possible despite having to work around large knots and cracks. The fluid design of the Hope Seat allowed us to work with the grain and avoid structural flaws in the wood when creating the organic shapes of the back. Where there was not enough wood for large pieces, timber from two other Kew trees was used.

At its workshop in Hampshire, Gaze Burvill has a state-of-the-art 5-axis CNC machine which gives the accuracy needed to execute complex designs, such as the coils at the back of Remembrance, reminiscent of the barbed wire of the trenches, but softened and scorched to give comfort and an illusion of depth. For Hope, there are vigorous, organic shapes of natural fronds and branches, each cut by hand and following the grain.

Tony Kirkham and his team took a cutting from the fallen Verdun Oak to be grafted to create a new sapling, which was planted out when the seat was unveiled, so that a new *Quercus petraea* will put down roots and reach for the light at Kew to tell a new tale of Remembrance and Hope. Wangari Maathai’s quote has been hand carved onto the front of Hope, and Laurence Binyon’s famous words sit on Remembrance, facing the war memorial;

*“They shall not grow old, as we that are left grow old:
Age shall not weary them, nor the years condemn.
At the going down of the sun and in the morning,
We will remember them.”*

Remembrance and Hope was unveiled on 8 November 2018, by Victoria Wallace, Director General of the Commonwealth War Graves Commission, in the presence of the Directors, Trustees and guests of Royal Botanic Gardens, Kew and Simon Burvill and team members.



Remembrance and Hope installed at Kew – the Hope side

A 200 year forestry partnership

Reflections on the British-Australian forest and wood products heritage

by Bill Hurditch¹

Despite Australia's very long human history and the intimate association of its first peoples with their forests, the science and practice of forest management in Australia is young and still evolving. To date, that evolution owes a lot to the strong partnership between British and Australian foresters, extending for more than 200 years.

In this 25th anniversary year for Woodland Heritage it's timely to reflect on British-Australian forestry collaboration and our historically close wood and paper trading links. Beyond mere nostalgia, however, it's also important to ask what a new, future partnership might entail.

The early years – the first foresters

When the first British settlers arrived at Sydney Cove in 1788 the trees and their timbers were strange to European eyes. Like the harsh environment, the Eucalypt trees were difficult to manage, with the colony's first Governor remarking:

The timber of the site is well described in Captain Cook's voyage but unfortunately it has one very bad quality which puts us to very great inconvenience: I mean the large gum-tree which splits and warps in such a manner when used green, to which necessity obliged us, that a storehouse boarded up with this wood is rendered useless.²

The new arrivals in each coastal settlement of *Terra Australis* clearly had some wood utilisation challenges to overcome! Besides the reactivity of sawn Eucalypts, the widespread aboriginal practice of burning the open woodlands limited the amount of available "clear wood" due to cambium damage from fire and associated butt hollows.

Softer hardwoods such as Australian Red Cedar (*Toona australis*) and native conifers such as Hoop Pine



C.E. Lane Poole - "Arguably Australia's most famous forester ..."

(*Araucaria cunninghamii*) and Huon Pine (*Dacrydium franklinii*) in Tasmania, were later discovered further afield and quickly became the timbers of choice for the colony's carpenters. But their supply was limited and the forests harbouring them were hostile and remote.

As the colonies' need for food-growing increased, land clearing gathered pace. Although the propensity for eucalypts to coppice caused headaches for the farmers who were more familiar with more docile British landscapes, by the mid-1800s it became clear that forest clearing was becoming an environmental, social and economic problem for the emerging nation.

Enter the first European foresters whose primary task, as agents of the Crown, was to protect the landscape from further clearing and to steward the young nation's timber resources. From these earliest days the contributions of British heritage foresters and timber managers was central in helping shape the discipline of forestry in the infant Australian colonies.

An example is Charles Lane Poole. Born in Sussex, England, in 1885, Lane Poole was Australia's first Inspector-General of Forests and the first Principal of Canberra's fledgling Australian Forestry School (1927-1944) from where hundreds of "home-grown" foresters later emerged.

The influence of early British foresters on Australia's forests and wood industries ⁴

William Carron

Born in Pulham, Norfolk, Carron sailed to Sydney as a botanist and was appointed director of Sydney's Botanic Gardens in 1848.

In 1875 Carron was made "inspector of forests and forestry ranger for the Clarence River district". He made parliamentary reports on twenty forest reserves in northern New South Wales, and "... condemned the practice of wastefully barking trees for building purposes and warned that the supply of Red Cedar would soon be exhausted if current cutting procedures were continued ..."

Charles Lane Poole

Born in Sussex, England, in 1885, Lane Poole was described as "arguably Australia's most famous forester ..."

Lane Poole was appointed Australia's first Inspector-General of Forests and trained many of the country's professional foresters at Canberra's Australian Forestry School. He introduced systematic, science-based forestry to Western Australia and made the first thorough inspection of the Papua and New Guinea forests. In 1918 he fashioned Western Australia's first Forestry Act, which "... gave that State the basis for a sound forest policy and provided for the dedication of State forests in perpetuity...". He was the first Principal of the Australian Forestry School in Canberra (1927-1944).

John Ednie Brown

Born in Scotland and trained in forestry in Edinburgh, Brown worked as assistant agent and forester on the Invercauld estate in Aberdeenshire, followed by stints at plantation establishment and management in Yorkshire and Sussex.

Brown became director-general of forests in New South Wales in 1890 at a salary of £800 a year, and first conservator of forests in South Australia six years later. He began the early plantings of commercial softwoods in South Australia and was reputed to be "... about the most competent man in dealing with forestry in all the Australian colonies ...". Brown's South Australia role was given to another English forester, Walter Gill, who "... expanded the area of Radiata Pine plantations mainly in the south-east where land was available. The rainfall at 700 mm a year was higher than in most of the rest of the Colony, and the trees grew well on the deep sands..."

Alexander Kethel

Born in Perth, Scotland, Kethel emigrated to New South Wales and became a prominent Sydney timber merchant

Kethel "... crusaded for permanent (forest) reserves, listing the variety of native timbers and evoking the spectre of their disappearance. He urged appointment of properly trained staff, the establishment of a forestry school and the placement of forestry management under an independent commission..." Kethel also chaired the State's first royal commission, established in 1907 to investigate forest management and resources.



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Celebrating Our Oaks

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woodlandheritage.org/shop/celebrating-our-oaks-book

These early foresters laid the essential groundwork for the conservation and expansion of a productive Australian forest estate, initially dominated by natural Eucalypt hardwood forests with smaller volumes of indigenous pine, mainly of White Cypress Pine (*Callitris columellaris*) and several species of Araucaria. By 1965 there were 15 million hectares of public forests allocated for timber production across the nation. This meant that, with a population of around only 11 million, Australia had more economically harvestable forests per capita than most developed nations at that time. In that year the national production of sawn wood was about 3.5 million cubic metres³. Most, by far, was from naturally-growing forests of many and mixed tree species. Less than 2 per cent of those commercial forests were plantations.

The 'forest wars' and new plantations

This reliance on natural, publicly-owned forest resources, together with a confluence of external social and economic shifts, led Australian forestry into a period of significant unrest during the 1970s. Contributing factors were the introduction of more intensive silvicultural practices in some forestry regions, the emerging global market

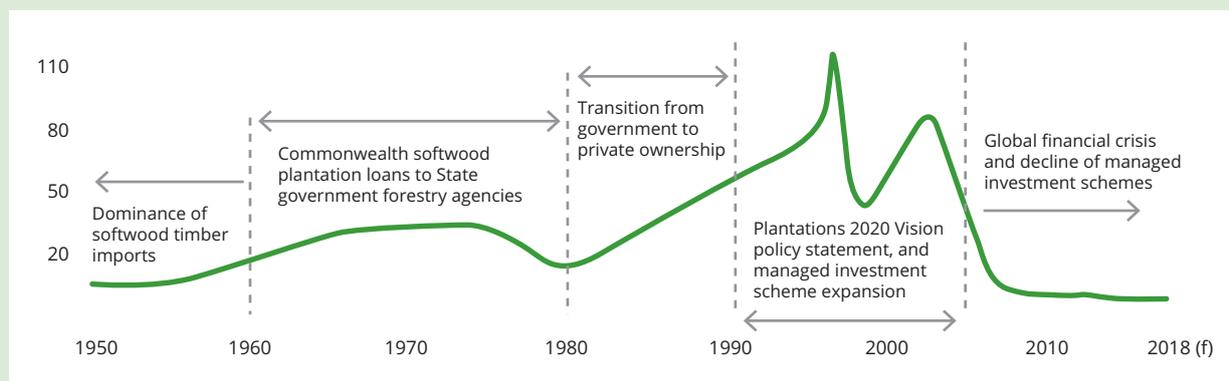
for pulpwood ("woodchips"), for which Australia was strategically positioned to take advantage of, and the emergence of a nationally-organised environmental protest movement.

Viewed in retrospect, the period amounted to a "perfect storm" which wrought profound changes upon and within Australian forestry and its reliant industries and communities - changes that have re-defined the sector today. Those changes were spurred (unwantedly by many at the time!) by certain UK media icons such as Dr David Bellamy and Sir David Attenborough – yet another angle to our collaboration theme!

While Australian foresters in most states still manage large areas of natural Eucalypt and Cypress Pine forests for local industry needs and for some export, the so-called "forest wars" over the past 40 years accelerated a transition of Australian wood production towards a dominant plantation resource. One key policy aim has been to try to achieve, through plantation investment, a level of timber self-sufficiency in the face of a long history of timber and paper imports.

Australia's elusive quest for timber self-sufficiency

The accrual rate of Australia's timber plantation estate has fluctuated since the post-WW2 period in response to changing influencers on new timberland investment. After an impressive series of estate expansions, the most recent official data indicate the overall national planted timber estate is now contracting, albeit slightly – a fact raising concern amongst industry and regional development leaders.



Australian timber plantations – establishment rate since 1950 ('000 ha per year)⁶

This slow-down in *de novo* timber plantation establishment is due to factors such as the exit of state governments from forestry ownership, controversy around tax arrangements for plantation investing, regulatory uncertainty over water and carbon pricing, and unfamiliarity of finance groups with this investment class.

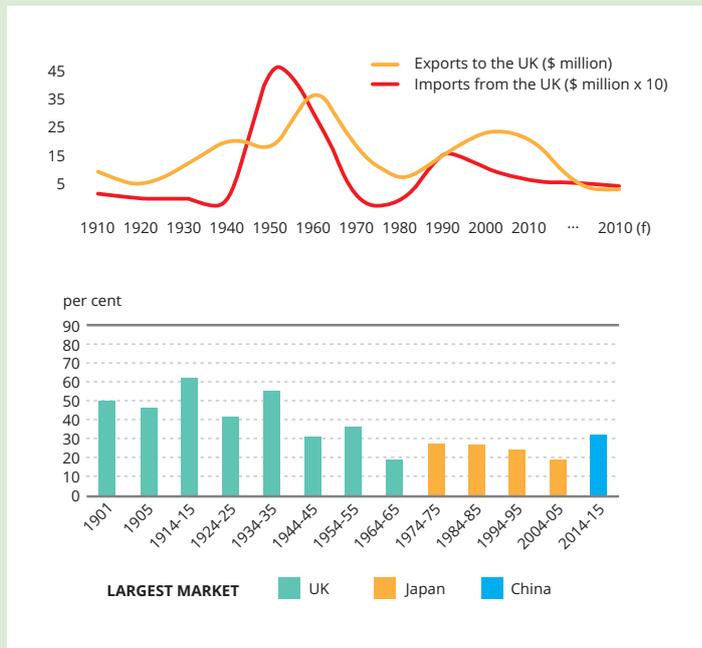


Softwood plantations now supply more than 80% of Australia's sawn timber production



Australian plantations now supply fibre for world-class pulp and paper investments such as Visy's \$1.1 billion plantation-based Kraft pulp and paper mill at Tumut, New South Wales

UK-Australia timber and paper trade⁸



Australia-UK's wood and paper trade 1910-2018 (in AU\$ million - 2018 basis) is charted in the top graph.

The UK was Australia's largest overall merchandise export partner (for all goods) until the mid-1960s, when the UK turned its attention more closely to Europe. From then on, Japan and more latterly China have assumed that mantle, as shown by the bottom chart.

The transition has gathered pace, with this past decade witnessing 160% growth in the harvest of plantation-grown Eucalypt logs, mainly for exported pulpwood, paralleled by a 54% drop in native forest log harvests. Softwood plantations now supply more than 80% of Australia's sawn timber production⁵ plus fibre for some new world-class pulp and paper investments.

That said, Australia's trade deficit in wood and paper products remains a significant challenge for forest and industry leaders, with the nation currently facing a significant shortage of plantation timber for its future

industrial needs.

Forest products trade between Australia and the UK

As well as our historic forestry partnership, Australia and the United Kingdom have enjoyed a strong trading relationship in wood and paper products. Australia has typically imported much more in value terms from the UK than it exported to the UK.

This is due to Australia's historic shortage of softwood construction timber and paper, which UK producers

(especially paper producers) have continued to help satisfy, even after the inevitable trade shift that occurred in the 1960s as Britain joined the EEC. Today, UK paper manufacturers continue to enjoy \$30m-\$50m per annum of paper exports to Australian customers.

New forestry partnership opportunities

On one reading of history, with Australia's locus moving closer to Asia and the UK's elsewhere, the once strong Australia-UK forestry relationship could drift further apart.

However, renewed trade alliances are already being forged as we move through the "Brexit era"⁷. Quite apart from that, the resurgence of global investment in forests and their products, especially in meeting climate, energy and smart building challenges, brings new collaboration

opportunities between Australian and UK foresters, processors and investors. Three areas that come to mind, amongst many more, are plantation investment by UK funds, contracts for forestry carbon credits, and science and professional services (see below).

Beyond the "transactional" opportunities for forestry and forest industry collaboration between Australia and the United Kingdom in the coming decades, there lies a deeper and more enduring cultural basis for our forestry partnership. We will do well if we continue to foster and grow that culture, with the aim of together meeting the world's sustainable development challenges – challenges for which modern forestry has many practical answers.

For a full list of references go to woodlandheritage.org/wb-journal

New opportunities for forestry collaboration between Australia and the UK

1 Investment by UK funds in greenfield Australian plantations

Australia needs upwards of one million additional hectares of new timber plantations to satisfy its current and medium-term future wood and paper processing needs. That expansion will require around \$8 billion of new private investment. Although forestry is still seen as something of a "specialist" investment class, the past decade's performance by UK forestry investors has returned double digit total returns, eclipsing more conventional asset classes like property and equities⁹. There are excellent grounds for UK funds to look to Australia for new plantation project opportunities.

2 Contracting for carbon credits from existing and new plantation projects

Actively managed forests represent a generally under-appreciated source of carbon abatement and other climate moderation resources. The UK's forests and woodlands contain around 800 million tonnes of CO₂e, and Australia's forests contain around 13 billion tonnes¹⁰. Both governments have committed to reduce each nation's carbon emissions (Australia by at least 26% of 2005 levels by 2030, and the UK by at least 80% of 1990 levels by 2050). The Australian Government recently expanded its official *Carbon Farming Initiative* rules to enable qualifying industrial timber plantations to generate carbon credits as part of its *Emissions Reduction Fund*. Carbon rights so generated can be traded with third party participants. As the quest for industrial emissions reduction opportunities increases, such carbon instruments are likely to become sought-after assets.

3 Professional services collaborations in forestry and landscape management expertise

As well as 25 years of *Woodland Heritage*, this year marks the 100th anniversary of the establishment in 1919 of some iconic forestry institutions in the UK and Australia, including the Forestry Commission of Great Britain (whose objects includes establishing a national woodland estate and encouraging, private landowners to achieve maximum timber production from their properties) and the first Australian Forest Products Laboratory, located in Western Australia operated under the Government Institute of Science and Industry¹¹. Successive generations of Australian foresters have been trained at places such as the Oxford Forestry Institute, Bangor and Aberdeen Universities, and on many estates. The arrival of *Industry 4.0* and the *Internet of Things* impacting new forestry technology, with AI and machine learning, plus the imperatives of the circular economy, bring a host of new ways for Australian and UK forest professionals to engage, learn from and encourage each other.

Woodland Cruck Barn

Part 3 - Rankin's Legacy

by Ken Hume, Executive Trustee, The Oxfordshire Woodland Group

"Knowledge is of no value unless you put it into practice" - Anton Chekhov (1860-1904)

Kenneth N Rankin was the founder of The Economic Forestry Group (EFG). In 1959 he set about planting trees in his own woodland as a demonstration of his astute belief that one day his investment would pay dividends for future owners (Steers, 1996). The trees that he planted are now being felled and used to build the woodland cruck barn.

Following the article by Ken Hume published in Woodland Heritage 2018 re building A Woodland Cruck Barn work has proceeded at a more determined pace to complete and enclose the cruck barn frame. This work was completed by Christmas 2018.

Woodland and trees

The woodland cruck barn project owes much to Oxfordshire Woodland Group (OWG) Fellow Jeremy Hunter for his dedication to the project - selecting, felling and extracting the necessary trees to be converted on the mobile saw to produce over 2500 cedar and larch shakes (big shingles).

Jeremy maintained a watchful eye on our five m³ quarterly felling allowance selecting mainly Western Red Cedar (80 - 95 ft) to make shakes and Douglas Fir (95 - 105 ft) to make feather edged weather boards. It was important to ensure that each tree was converted with maximum efficiency to keep wastage to a minimum.



A sequential work programme was then undertaken using a mobile saw to make and then fix sarking boards to the rafters, followed by fixing shakes and sidewall weatherboard.

Sarking boards

After the roof sarking boards were fixed to the rafters they were covered with a permeable membrane.

Shakes

All of the shakes were cut to a standard 24" long, tapering from 0.75 / 0.375" thick with these varying in width from 4" to 10" with the optimal width being 8" (Wilbur, 1992).



All sap wood was removed from each shake to ensure maximum durability of same. The shakes were stacked in a thick to thin end square pattern that provided good ventilation between each shake with approximately two months being needed to dry the shakes. The shake stacks were stored on the upper joist and plank floor inserted on top of the cruck mantles (tie beams) and wall plates. The stacks became a refuge for moths which inhabited the cool dark spaces between the shakes.

The shakes were fixed to the sarking boards using stainless steel ring shank nails with only one nail being needed per shake with a second nail fixing being borrowed from each subsequent layer of shakes fixed to the roof (Wilbur, 1992).

Internal scaffold floors

The inserted upper floor also acted as an internal scaffold enabling the sarking boards to be fitted and fixed from inside the roof and shakes to be fed directly out through the rafters to a person working on a ladder laid up the exterior of the roof. As work progressed a second floor was inserted at collar (attic) level to enable high level roof fixing work to be safely carried out in a similar fashion.



Fixing the roof ridge planks was a challenge with these being made up and edge profiled from durable Western Red Cedar heartwood that was cut into three lengths to ensure that these could be safely carried up and fixed in position by one person working on the ridge at the top of the ladder.

Feather edged weather boards

Once the roof was completed we moved on to making feather edged weather boards. It is fairly easy to make 1.5" thick planks by sawing a log "through and through", thereafter removing the waney edges to produce a fairly square edged thick plank. Each log produces a number of different widths of planks depending on which part of the log it is cut from and generally these were 10" / 9" / 8" and 6". These planks were set on the sawbed at an angle and



then resawn through and through to create two feather edged boards. These boards taper in thickness across their width from 1 ins to 0.5 ins. This is not a perfect process since when the slabs are cut any internal stresses that exist within the tree are released and so a degree of variation in thickness can be experienced along the length of a board if the thick plank bends or twists. Unlike the shakes an acceptable amount of sapwood can be left on the edges of the weather boards.

Fitting the feather edged boards is quite a challenge especially when trying to avoid multiple in-line vertical joints. A range of board lengths were produced ranging from 6' to 9' 6" long. This enabled efficient selection choices to be made in order to minimise wastage. The boards were initially screwed into place with the intention of later replacing the screws with handcut rosehead nails (25p each).



Doors and shutters

The main barn doors and shutters were built in position as one solid double width door or shutter. After the hinges were fixed the doors and shutters were then cut in half in situ to make two perfectly hung and balanced doors and / or shutters.



Contact details:

trustees@oxfordshirewoodlandgroup.co.uk
<https://twitter.com/OWGGroup>

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Giving life to the Rackham legacy

by Ian Baker, Chief Executive, Small Woods Association

Readers will be aware of the immense legacy provided to the Woodland and Forestry sector by Oliver Rackham. Some will also be aware that Oliver Rackham also left the prodigious outputs of his life's work primarily to Corpus Christi College, Cambridge (CCC), where it is slowly being digitised for wider availability.

Oliver divided his legacy. The primary academic record went to CCC, but the part of it that was more personal to him and was in his home at the end of his life, was left to Woodland Heritage. After some discussion, WH determined to pass this onto the Small Woods Association in 2018, and the Association started work on cataloguing the collection, and started to think about how it might be displayed.

Although Oliver Rackham's role as one of the founders of the study of Woodland History and Ecology in the UK will guide us in the story we look to tell, fundamentally we would like to employ Oliver's legacy to inspire the next generation of natural scientists. The material we are sorting through is a key part of the story of how a small group of creative minds peeled back the layers of the story of Britain's woodlands and provided the foundations of the understanding we have today.

One clear conclusion that can be drawn from the material we have been sorting through is that much of the equipment he used was both home-made and highly original. In fact, the rudimentary nature of the resources that he had at his disposal make it clear that the most powerful element was his own imagination. Apart from things he could make and think, there was very limited access to the sort of analytical information aids that today's researchers would naturally take for granted.

One obvious example is that the level of computing power that was required for Oliver to do his early research is far



Here's one we made earlier

outstripped by that in the pocket of every teenager. This is ably demonstrated by the original punched paper tapes that he used, some of which are in the material currently being catalogued.

A significant part of the material passed to us appears to relate to his earlier work on Barley. One box contains scores of uniquely numbered tins, each of which contains a small number of barley seeds. These and the many tobacco tins, match boxes and other 50s and 60s ephemera are very evocative of the era and can be used to help create the atmosphere of the times.

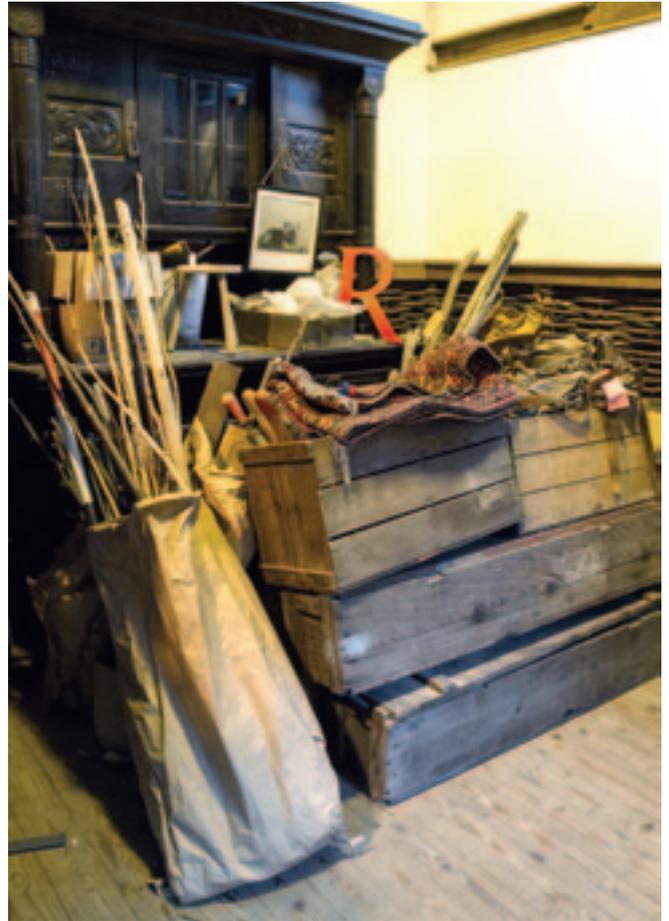
One of the items in the collection is Oliver's Research Fellowship Thesis on Transpiration. The beautifully precise hand drawn illustrations show not only the quality of his draftsmanship, but also the "make do and mend" nature of the equipment used. See the clothes peg in the illustration opposite.

Another fascinating aspect of the "Blue Peter" spirit that infused his research methods is illustrated by the device above. One box we are sorting through contains about 30 of such numbered devices which are literally made of wash bottles and sticky backed plastic.

The devices that look like some sort of galvanometer also appear to be home made, or maybe made by laboratory



A galvanometer



A significant job to sort carefully through the material



Oliver Rackham was an adept draftsman

technicians at CCC, as they have no makers' names or serial numbers. They appear to be for field use with their leather shoulder straps.

There is a significant job to be done in sorting carefully through the material. Whilst we suspect that a substantial part of it will prove to be of little interest, we know there are important groups of items in the collection and there are likely to be connections yet to be made between them.

Our intention, once we have a clear idea of the significance of the material, is to work with those others with a strong interest in Oliver's legacy, ie, Woodland Heritage, the Friends of Oliver Rackham, and hopefully, the Woodland Trust and Corpus Christi College, to agree the best way to present this material. This is likely to include the display of a selection that picks up an element of the narrative and enables viewers to grasp the significance of his work. One of the key choices that will need to be made will be who should be targeted by the display. For example, if it is to be used to inspire the next generation, should this be specific to GCSE, A level, Undergraduate, or try to span all three levels.



Two of the uniquely remembered tins

Should anyone believe they have information that may help us in putting together the story behind the collection, we would love to hear from you via archivist@smallwoods.org.uk. Once we are clear about the next stage, there will be a funding need. We would be like to hear from anyone interested in supporting the next stage, via ianbaker@smallwoods.org.uk

Creating Working Woodlands

by Carol Rowntree Jones, Media Relations Officer, National Forest

The original strategy for the National Forest, published in 1991, talks of a 'vision of a true, working forest'. Now, some 28 years later, this is beginning to take shape.

Woodlands planted in the early days of the National Forest are now at the stage of first thinning. Six years ago the National Forest Company (NFC) introduced a programme of advice and support plus a new woodland management grant, to sit alongside its incentives for tree planting, demonstrating its commitment to best practice in looking after woodlands for the good of the trees, wildlife, access, and to help mitigate the effects of pests and diseases. The Forest now has an impressive 75% of all its woodlands in management, against a national figure of less than 60%.

But creating a truly working forest is a bigger picture than simply thinning the trees. The National Forest was created to bring economic, environmental and social benefits to an area that had at its heart the former Midlands coalfield, and, throughout its 200 square miles, to be an example to the country of how trees transform lives and landscapes.

For the National Forest to be a 'working forest', it means involving its communities in its management as well as creating employment in woodland businesses (over 300 jobs to date). It also means helping the farmers who planted trees in the early days of the Forest to become foresters in 2019.



An early timber crop in the National Forest



Photo: David Scovell

Heartwood's charcoal retort at Timber Festival

Much of the work of the forestry and community teams within the NFC over the last two decades has been underpinned by this need to create a working forest. Community projects have encouraged looking after the trees as much as planting them. The forestry team offer training events and skills-based workshops in woodland management for the Woodland Owners Club, helping members learn how to care for and make the most of the opportunities offered by the woodlands they planted.

Following a successful application to the Esmée Fairbairn Foundation, the NFC has a three-year project underway with two new part-time posts to focus efforts on developing working woodlands and communities involved.

Woodland Business Adviser Dave Garner has a background in developing working woodlands within the Forest and is enthusiastic about growing the woodland business economy.



Harvesting timber in the National Forest

As Dave says: *“The National Forest saw the first planting of trees in 1991 and since then has transformed the area from 6% to 21% woodland cover. We are now entering a challenging period as more and more of the woodland needs on-going management to ensure the health of both the trees and the woodland environment. To provide this substantial increase in woodland management and realise their true economic value, we need to deliver significant growth in all aspects of the woodland economy, which is where my role comes in.”*

The new Woodland Communities Adviser, Zoe Sewter, has lived and worked in the National Forest for nearly 20 years and is uniquely placed to access the right people to help make things happen.

Zoe says: “There is a real energy being generated here now: as the trees have grown, so have the communities. We have a great deal of enterprising, community-led volunteer activity already happening here, and I’ll be helping co-ordinate and connect people with each other and to local woodlands. I’d like to create a useful network to help share the learning; promote examples of good practice; help groups with their management structures and governance; and upskill volunteers. Our support will ensure that communities can maximise the benefits that woodlands bring, developing a strong woodland culture and local stewardship.”

Last year’s Timber Festival saw a wonderful example of the kind of innovation that is emerging from the National Forest. Through a partnership with Making Woods Work, the festival offered a Timber Seed Fund, inviting woodland businesses and entrepreneurs, from in and outside the Forest, to pitch ideas for new projects to expand their work, or to create new opportunities.

The winning bid came from a consortium of three young Forest-based organisations: CEEP, a local charity offering creative outdoor activities to support vulnerable adults;



Photos: National Forest Company

Award winning projects are making a difference

Darren Abell, who runs a small woodland business and won an inaugural National Forest Woodland Management award for his young woodland in Linton and the Heartwood Community Woodfuel Group, which operates in the heart of the Forest which attracts volunteers who give their time and energy to help manage woodlands and receive firewood in return for their labour.

They brought their collective strengths together to make the most of their skills and the small timber coming out of the Forest – they pitched into charcoal making.

Charcoal can be laden with air miles and deforestation as it sits on the garage forecourt. Heartwood was funded by the recent Black to Green project in the heart of the Forest to purchase a charcoal retort, and from this came the winning idea to design and produce marketing material (including a website and packaging) for locally-produced charcoal to be distributed and sold within the Forest.

Timber 2019 will provide an opportunity for the newly formed cooperative to launch their initiative and share their vision with a wider audience. It will provide charcoal burning demonstrations, sell its products and attract new members.

This combination of people and businesses provides a perfect example, albeit small-scale, of the opportunities that exist for bringing product, resources and markets together in the National Forest.

It also acknowledges the fundamental importance of the on-going vision behind the Forest. It is vital to involve local people in its upkeep and maintenance, with all the benefits that brings for their health and well-being, their connection to nature, and a sense of pride in where they live; and of making the woods work in all senses: economically, socially and environmentally.

timberfestival.org.uk / nationalforest.org

Tree Health Resilience Strategy

by Professor Nicola Spence, Chief Plant Health Officer, Defra

Our trees are precious natural resources. They shape our landscapes and provide habitats and food to support our wildlife. They are an essential part of every community, and they support our wellbeing and our economy. We are passionate about our trees and need to take action to protect them from pests and diseases and preserve the vital social, economic and environmental benefits that trees provide. The asset value of our trees has been partially estimated at £175 billion.

Over the last few decades threats to tree health have increased with globalisation in trade and travel and an increased volume and diversity of plants and trees entering the UK. This has the potential to introduce pests and diseases with the capability to devastate our native ecosystems, horticulture and gardens. Such an example is Ash Die Back, a chronic fungal pathogen that could lead to the loss of the majority of Ash from our landscape.

That is why in May last year Defra published the new Tree Health Resilience Strategy. The strategy sets out plans to protect England's trees from pests and diseases and to meet our pledge to be the first generation to leave our environment in a better state than we found it, as set out in the 25 Year Environment Plan that Government also published last year.

The strategy was developed in partnership with a number of organisations in the tree sector and is intended for use by people managing trees in all settings.

Building resilience of our treescape is a critical issue. Healthy trees, woods and forests will be less prone to pest and diseases and will recover more quickly than if stressed.

The strategy articulates four **environmental goals** to improve the resilience of our treescape:

- **Extent** – a continued increase of trees, woods and forests

- **Connectivity** – enhancing the linear forest and matrix of trees within other habitat settings
- **Diversity** – enhancing the genetic diversity and increasing the structural diversity of our treescape
- **Condition** – encourage healthier trees and thriving woodlands and forests

It also sets out priority areas for collective action summarised as a set of **behaviour goals**:

- Working together to protect and value our trees as important natural capital
- Putting biosecurity at the heart of all activities, including onsite activity, to buying practices
- Developing and applying the latest science and evidence to our approach on tree health
- Building knowledge and capability to apply the concept of resilience at all levels
- Applying the principles of the environmental goal to the management of our trees, woods and forests

Collectively, policy makers, regulators, landowners, trade bodies, nursery owners, foresters, woodland owners, charities and local authorities will be working to deliver the environmental and behaviour goals through a National Action Plan. The plan focuses action in a number of areas: improving awareness of biosecurity to ensure the strongest controls are in place, improving safe sourcing, better preparedness and contingency planning, as well as applying the broad concepts of resilience to the management of trees, woods and forests and a local, regional and national level. Further information can be found at [gov.uk/government/publications/tree-health-resilience-strategy-2018](https://www.gov.uk/government/publications/tree-health-resilience-strategy-2018)

Some key highlights announced in the strategy include:

Improving biosecurity standards and safe sourcing – supporting development of assurance schemes

Defra has been supporting the sector to improve standards and reduce the risks of importing pests and diseases through the development of initiatives such as plant health assurance schemes.

Defra is supporting an initiative by the Horticultural Trades Association and Grown in Britain to develop a voluntary accreditation scheme for the UK nursery sector to drive up standards of biosecurity among nursery staff.

The HTA has recently launched a new Plant Healthy website planthealthy.org.uk which provides a self-assessment tool for horticulture businesses and organisations to improve the biosecurity of sourcing systems and advance plant health management practises. The free tool is available on the website.

The tool is based on the recently published Plant Health Management Standard (PHMS) – an initiative that Grown in Britain and the Horticultural Trades Association (HTA) have been working hard to advance, along with many other organisations. The standard provides a set of requirements for businesses to meet with a view to protecting the horticultural supply chain and the wider countryside from damaging pest and diseases.

Plant health alliance

The establishment of a new senior UK committee of representatives has been established from across the trades and professions that will drive forward better biosecurity practices.

Over the last year the plant health sector has self-organised to establish a senior UK committee of representatives from across the trades and professions (nurseries, foresters, horticulturalists, landscapers, garden designers and retailers) that will be tasked to look at future biosecurity issues and work with Defra to ensure preparedness for top threats such as Xylella and Emerald Ash Borer.

Announcement of Government's commitment to consult with the sector to explore opportunities for quarantine for high risk hosts

One of the primary risks to our biosecurity comes from the international trade in plants and plant products. There are EU regulations controlling the import of such material from outside the EU, but free movement of these goods within the EU (other than plant passporting of high risk species and additional requirements for Protected Zones). We are continuing to seek opportunities to reduce the risk of importing pests and diseases. We recognise that some within the sector have already taken steps to introduce quarantine measures. We have started to discuss the issues with the sector and plan to consult more widely later this year.



Launch of Action Oak

Action Oak is a new public-private partnership model of investment in Oak health launched at the Chelsea Flower Show in 2018. The campaign is raising vital funds for further research, education and monitoring to help inform the management of our Oak trees.

Research will include the first detailed picture of the current health of our nation's Oaks to gain a greater understanding of how to preserve them in our landscape for this and future generations.

The partnership includes eleven founding partners including Woodland Heritage and representatives from charities, Government, and landowners. For more information on how you can support Action Oak please see actionoak.org

Work to support the management of Ash Die Back

Defra has funded the Tree Council and Fera Science Ltd to create a toolkit to help local authorities and large landowners plan and manage Ash Die Back (and other pests and diseases) in a strategic manner locally.

In February, the Tree Council launched the toolkit which can be accessed at bit.ly/2Hj19kS

A number of other actions set out in the Tree Health Resilience Strategy are also in progress. Looking forward, next year will be the International Year of Plant Health, and Defra is working with a number of its partners within the sector to identify opportunities to mark the occasion.

A year of progress for Action Oak

by Sarah Jeffery, Project Manager



In the year since its launch at the Chelsea Flower Show in May 2018, Action Oak has gained increasing momentum and support. The launch at Chelsea attracted a great deal of interest from celebrities to ministers, all wanting to know more about protecting our mighty Oaks. The wave of interest and enthusiasm for the work of the initiative has led to even more partners joining Action Oak, with over 30 members now engaged in its work.

The reaction from the public and interest in Action Oak's approach was amazing. People realise that we need to act, and to act now, to face the challenges threatening the survival of the UK's most iconic and well-loved tree.

By popular request, a smaller version of the Chelsea stand has started to tour the UK. One venue was the Royal Botanic Gardens Edinburgh where it attracted a lot of interest. The display will continue to tour UK venues promoting the work of Action Oak and highlighting the key messages on protecting our Oak, biosecurity issues and the wider plant health agenda.

In June 2018, partners came together at an event at the Royal Botanic Gardens Kew, a day which included a round-up of the work of the Action Oak steering and sub-committees, highlighting achievements and plans for the forthcoming year. The afternoon included an update on key research areas including genomics, the PuRpOSE



Kew stakeholder event, June 2018

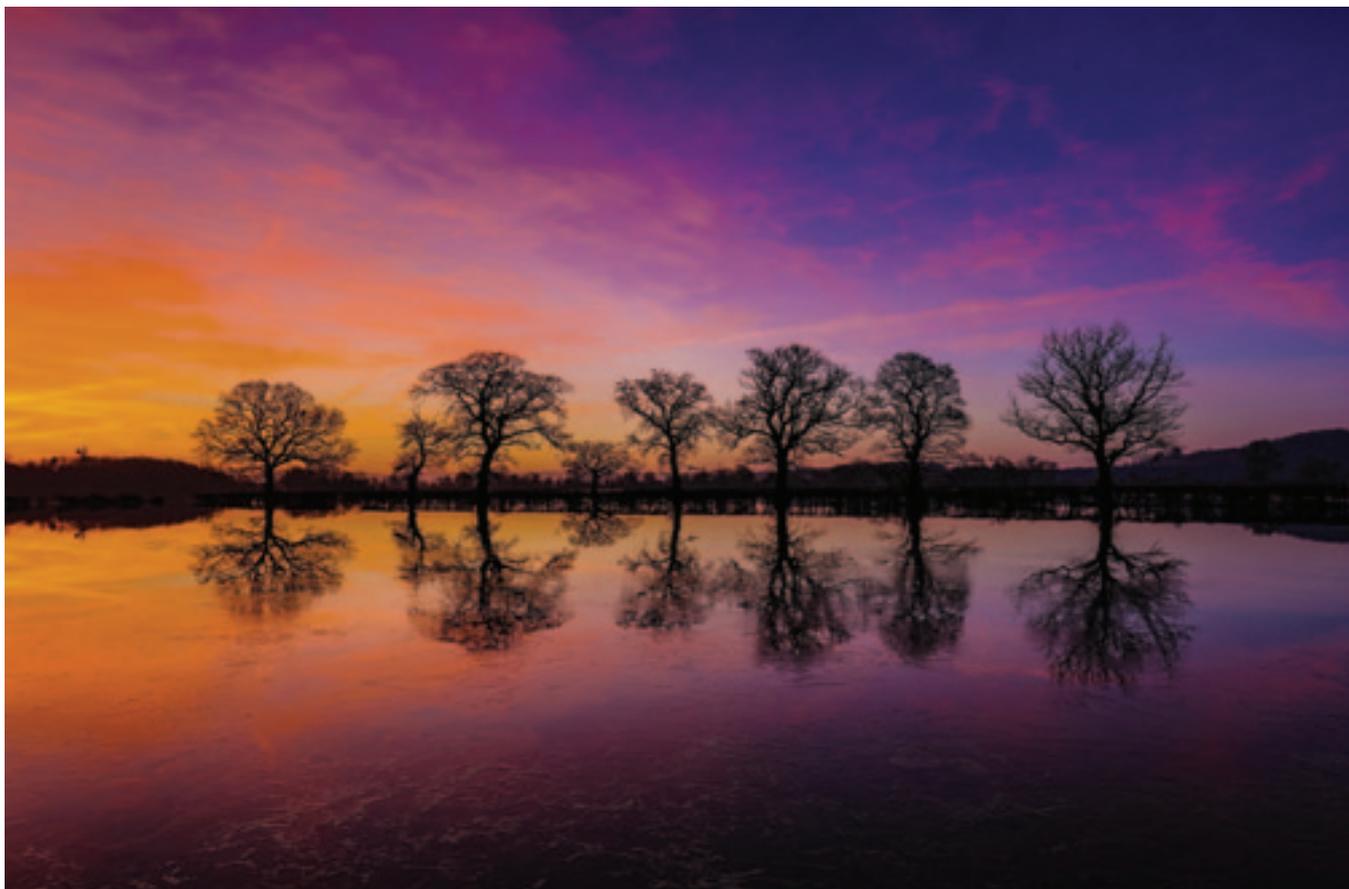
project and BIFoR (Birmingham Institute of Forest Research).

The day was an excellent opportunity for the wider partnership to gain an insight into the work happening under the Action Oak umbrella.

Action Oak also worked with the renowned International Garden Photographer of the Year competition on a special award, 'Celebrating Our Oaks', which was a great success! Alongside the winning entries submitted, a number of well-known photographers and celebrities kindly donated photographs for inclusion in the book and photography exhibition.

The exhibition is currently touring the UK, having successfully launched at Wakehurst in January. It has also visited Westonbirt and the Yorkshire Arboretum, and will move on to Belvoir Park Forest Belfast, The Botanic Gardens of Wales and The Green Wood Centre at Coalbrookdale, Ironbridge.

The 'Celebrating Our Oaks' book has been very well received. Containing beautiful images of Oaks from around the UK, it was launched at Knole Park by Biosecurity Minister Lord Gardiner in November 2018 and remains on sale via the Woodland Heritage's and Woodland Trust's websites and the tour venues across the UK.



As well as promoting the work of Action Oak, research has also gained momentum, with BIFoR receiving funding from the JABBS foundation to carry out research into Oak Tree Defences, to add to ongoing research from Kew, Forest Research and the PuRpOsE project, as well as the many projects investigating AOD that continue to be supported by Woodland Heritage.

BIFoR and Professor Jo Bradwell hosted an Action Oak meeting last summer at the BIFoR FACE facility, Norbury Park, attended by HRH The Prince of Wales, Lord Gardiner and tree champion, Sir William Worsley, all keen to learn more about the work of Action Oak and the research at BIFoR. The day included a tour of the facility and a meeting to discuss Action Oak's progress to-date, as well as the next steps for the initiative.

Following a successful application from Woodland Heritage, The Prince of Wales's Charitable Fund has agreed to fund Action Oak for the next three years, supporting the project manager and ongoing development of the initiative. This very welcome support will help Action Oak to continue to grow.

Other new partnerships and offers of support are being developed. Please keep looking at actionoak.org for the

latest news and the new fundraising schemes expected to launch later in the year.

Looking forward to the rest of 2019 and beyond, Action Oak is entering a phase of delivery, developing a range of demonstration sites, aimed at educating and informing the wider public about the threats and challenges facing our Oaks, as well as the wider plant health agenda. These sites will carry a range of information and encourage positive behaviours around biosecurity, as well as involvement in citizen science projects such as Observatree.

As part of its centenary celebrations, the Forestry Commission is planning a Chelsea show garden, the Resilience Garden, which will highlight the challenge facing trees in the future including climate change and pests and diseases. There are also plans for a series of events for the 2020 International Year of Plant Health, including talks and conferences to raise awareness of the challenges facing us all.



Continuous Cover Forestry (CCF) two-day course, Ruthin/Clocaenog October 2018

by Jonathan Burke

The course

This was an affiliated Forestry Commission England course (3.48B CCF2 Silviculture of CCF) provided by Dr Jens Haufe and supported in the field by Dave Williams of National Resources Wales (NRW) in October 2018. Attendees absorbed classroom material at the Lyons Woodland Hall hotel in Ruthin, North Wales, then made afternoon visits to nearby NRW CCF plots in Clocaenog forest, which has 2000 ha under CCF management.

There were 15 participants, with the majority from either the Forestry Commission England or Scotland and four independent foresters. Jens took us through an introduction of Continuous Cover Forestry (CCF), ecological foundations, site assessment for transformation, thinning interventions, harvesting, regeneration and most importantly, making it work. The following are some of the main points discussed by the group, as well as some of my own observations.

CCF Introduction

Continuous Cover Forestry (CCF), according to FC guidelines is one of a selection of silvicultural systems such

as coppice and minimum intervention that lead to more resilient and sustainable forests. These are classed under Low Impact Silvicultural Systems (LISS) that are part of the shift away from the clear fell/restock system that has been favoured for the best part of the last century.

On this course, CCF took the form of uniform shelterwood, irregular shelterwood, strip, and group, or single-tree selection. Of course, one system does not fit all situations. There are many considerations including management objectives, climate and topography, previous management and relentless economic factors. The last of these may not be as much of an issue once the stand is established and there are examples of CCF managed woodlands providing reasonable returns on investment, but the jury is still out!

The key consideration seems to be that the income from CCF is periodic whereas, over the course of the equivalent clearfell/restock rotation model the main economic return is provided generally at the end of the rotation. In fact, it could be said that the pure CCF model does not have a rotation as it will continually provide that income from regular thinnings.

Establishment of stable trees would seem to be a major factor in the success of CCF. As it will not be possible to



A new stand of Sitka Spruce after final crop trees are removed



Using a borer to discover the density of timber grown

establish some species at certain elevations, a silvicultural toolbox, using options including clearfells with a matrix of multi-aged stands could bring the most benefits from economic, resilience and environmental factors.

The cost of achieving these benefits will entail more planning and a greater number of interventions. As well as cultural inertia, these budgetary factors may be the defining factor why CCF is not as popular in Britain as it is in Europe; the advent of payment for environmental benefits could see a shift towards CCF in following decades.

How to do it

We learned that transforming a stand from a clearfell/restock system depends on specific site conditions such as soil, climate and species information; how long it will take varies, dependent on many variables and can be months or decades.

It is generally accepted that younger stands have more potential for transformation. Decisions about transformation are strongly supported by good data collection. This data is richer when local records are kept such as weather, soil and thinning history. These all complement local knowledge of the environmental conditions.

National databases such as the Ecological Site Classification (ESC) have data on soil moisture regimes and soil nutrient regimes but this applies to suitable species for planting, not for regeneration. The more intimate the knowledge of the site, the more potential for successful transformation. Long-term local readings from a weather station with added historical observations of mast years and flowering times create a rich data set to support transformation decisions. In addition, digging holes for site soil horizons will be much more accurate than national databases.

Stability - a key aim

The choice of CCF system and the method of transformation from one system to another is very much dictated by stability issues. Species with deep roots can be more stable than flat plate species such as Spruce. This can be leveraged by thinning early to encourage good root growth. A good indicator of a root stable tree is the crown distribution which develops more in trees with more space. Species light demand can also determine levels of thinning, with light demanders such as Larch responding well to a more open canopy with the opposite for shade tolerant species.

Thinning regime – an integral part of CCF management

More light thinning interventions at shorter intervals can have a positive or negative effect on stand stability. It is this balance that is hard to grasp without doing. It has been said that CCF is the process of continually thinning, dependent on which system is used. Although single-tree selection is probably the only classified silvicultural system, the rest are tools in the transformation box according to Jens. This hints at the direction in Low Impact Silviculture Systems (LISS) moving from simple to complex types. This will require a greater knowledge bank and more in-depth data to inform decisions. Furthermore, management that is more active on the ground will be needed with techniques that are more intimate. All of which bodes well for professional foresters who embrace challenges in the scope of their work. The increased thinning regime will also need improved access with the creation of more rides at distances of as little as 10-20m.

Natural regeneration

Simply put, natural regeneration (NR) is dictated by the surrounding seed sources, plus the incoming wind-borne seeds that tend to be from the pioneers such as Birch, with additional seeds from animal/bird transportation and the original seed bank.

There are many other ecological considerations to bear in mind. For example, Oak NR has a deep root so can establish itself through a large litter layer and have a higher survival rate through drought conditions and vegetation competition, although it does need a decent amount of light and so is susceptible to competition from vegetation such as bracken.

To most practitioners but not all, supplemental planting is an option when NR is poor, especially if a change in species is required. There will most likely be a need for cleaning and removing unwanted species that are determined to stick around. Without this operation, dominant species such as Sitka Spruce (SS) can out-compete the preferred species. It is a requirement of felling licences that restocking takes place within five years which can be problematic for sites switching from a clearfell model. The problem can be eased with cultivation of advanced regeneration, if the current species is acceptable. An attentive thinning regime to encourage this will be needed. Again, we come across the issue of transformation that mainly uses an increase in thinning (every five to ten years) to create stand stability and potential for natural regeneration. The later this process is started the higher



Examination of a spade dug soil horizon

risk of failure. Hence the suggestion that it can take a couple of rotations to transform larger areas of forest to CCF.

NRW Clocaenog Forest – Dave Williams

Dave has been practising various methods of LISS for NRW for almost 20 years. His consistently adaptable approach and resistance to classify this approach into one or another system box, allows adaptability to site conditions and species response.

If pushed, he would state that he employs a simple uniform shelterwood approach moving towards a more complex irregular structure. There are also examples of mini clear-fells on a matrix of sites, as well as strip and group selection. It is apparent how this palette of tools, complemented with an in-depth local knowledge, can benefit from a certain open and curious approach towards the outcomes desired; a perfect atmosphere for trying out the new, more resilient species that we need to find for a changing climate. It is also apparent what a valuable knowledge bank NRW has in Dave Williams.

With Dave and Jens, we looked at respacing and thinning stands as well as Sitka Spruce final crop (or harvest thinning) with under-storey natural regeneration present. We also made a comparison with a similar Sitka Spruce stand that

has had a standard thinning regime with no potential understorey when close to harvest, in other words a typical clearfell then restock site.

The benefits seem tangible: no real loss in overall production, no fallow years between rotations and no restock costs. In fact the next crop is already away when the final seeding trees are removed, if indeed they are, as these trees can provide a useful habitat for insects, fungi and bacteria that help improve soil and local ecological conditions which in turn can be seen to increase the stability and production potential of the next stand.

This type of continuous thinning approach to forestry would seem to have many benefits for the public forest estate. Apart from the apparent aesthetic improvement (which may have some benefits in the future), the biggest change would seem to be a financial and cultural one. It is still up for debate whether the increased cost of thinnings and the loss of lump sum income at the end of rotation, are equivalent economically with a more stable and regular periodic income. If so, then a move towards low impact silviculture and, even more specifically, continuous cover forestry on the appropriate sites would seem a necessity for nationally managed forests that seek to meet the changing needs of society over the long-term.

Summary

My experience of this CCF course was most enjoyable and very positive. The information was extensive and the course structure excellent. The marking and thinning exercises were useful but there seemed to be an appetite for a further level of systematic data application to standardise approaches to thinning decisions. Other CCF techniques are available and in the future technology of forestry, techniques that use full tree and stand life modelling would seem to favour the management of forests using CCF.

The course was very inclusive with a group recognition of participants at varying levels of understanding. This atmosphere, where ideas can be developed, needs a certain open mindedness and a 'low cost to being wrong' that inspires a healthy curiosity.

Further thanks must go to the Continuous Cover Forestry Group for promoting the information and the links to the course. In addition, special thanks to Belinda and Guy from Woodland Heritage for being the main foundation of my Professional Career Development so far.

Continuous Cover Forestry Group

2019 Events Programme

CCFG England Field Visit to Forestry Commission's forests at Whinlatter and Dodd Fell, The Lake District

Wednesday May 22

This will be a return to the primarily CCF managed Douglas Fir stands last visited by CCFG at the 2014 conference. The areas have recently been thinned, both first thinning of the natural regeneration and further thinning of the large overstorey trees. The visit will be an opportunity to see and discuss the changes to the structure of these woodlands and discuss future management.

CCFG Scotland Field Visit to Craigvainean, Dunkeld

Thursday September 19

The 2019 Scottish CCFG field visit will be hosted by Forest Enterprise Scotland around Craigvainean, Dunkeld. We plan to build the programme around looking at examples of different types of thinning interventions in the developing regeneration e.g. early interventions, the management of more advanced natural regeneration of conifer and broadleaf and crown thinning.

CCFG England Field Visit to Forestry Commission's Thetford Forest District

Wednesday September 25

An opportunity to see and discuss some mature research species trials (established as an understorey) and more recent underplanting in diseased and thinned Corsican Pine using a far wider range of species than traditionally used in this area. The various underplanting techniques used and the options for future management will make for interesting discussions.

CCFG Wales Field Visit tbc

October, date tbc

We are in discussions with a potential host in south east Wales where we hope to meet to discuss broadleaf silviculture in the first half of October. Further details will be provided as soon as we have them.

Field visits are open to members (free), non-members (£15) and students (free). All who are interested in managing woodlands sustainably are strongly encouraged to attend.

CCFG Foreign Study Tour to Italy

June 6-9

Hosted by Pro Silva Italy, we will see CCF in practice on steep terrain in different forests in the Piedmont Alps in north-western Italy. Costs and details to be confirmed. Keep visiting ccfg.org.uk.

ProSilva Europe Annual General Meeting 2019, Slovenia

September 11-14

The 30th anniversary conference of ProSilva will be held from 11-14 September 2019 in Radlje ob Dravi, Slovenia, on the theme of "Reconnecting forestry science and practice: networking knowledge".

Course - Continuous Cover Forestry in the uplands course by Jens Haufe Clocaenog Forest, near Ruthin

October, date tbc

The Forestry Commission CCF courses provided by Jens Haufe will be available to CCF members again in 2019. The training course will give a general introduction to the principles of CCF. Indoor sessions will cover underlying ecological principles, thinning, stand stability and transformation methods. Clocaenog forest boasts about 2000ha under CCF management and provides the perfect location to experience various stages of transformation from even-aged monoculture to diversely structured CCF systems. Practical exercises include thinning, site assessment and development of management plans. Spaces are limited so please book early.

For further information contact Mandy Clinch
administrator@ccfg.org.uk
ccfg.org.uk

Editor's Note: Woodland Heritage supports the CCFG's aims by considering grant applications for its members to attend events at home and overseas. Students and young foresters, in particular, are encouraged to apply for support. Applications are judged on individual merit with preference given to those engaged in forestry, or the production of quality timber. Successful applicants are required to produce an illustrated report for publication by Woodland Heritage and the CCFG



The Best Use of British Timber Award

Celebration of Craftsmanship & Design 2018

This exhibition in Cheltenham continues to be the largest selling exhibition of high quality bespoke furniture in the UK with around 300 exhibits from over 70 workshops. Jason Heap, the organiser and exhibition director, as well as a fine designer and talented maker, is a committed advocate of using responsibly sourced timber. He is personally passionate about using locally sourced timbers whenever possible which gives the added value of knowing a little more about the timber that has been used in a particular project.

Woodland Heritage is proud to recognise each year at the Celebration of Craftsmanship and Design exhibits that, in our view, support the economic and environmental value of trees and promote wood as a renewable natural resource. Using British timber encourages the sustainable and economic value of our woodlands, as well as supporting the wood chain. Well-managed, healthy woodlands can also provide an environment that supports wildlife, flora and fauna, whilst ensuring that traditional woodland skills are not lost.

The Woodland Heritage 'Best Use of British Timber' Award 2018

In determining the winning exhibits for this year's 'Best Use of British Timber Award', marks were given for design, species selection, use of timber, craftsmanship and provenance of the wood used. Points were also given to entrants who provided proof that they had gone out of their way to source timber locally and/or find out where their timber came from. Our native timbers have such beautiful potential which lies hidden, just waiting for talented craftsmen or women to maximise it, as demonstrated by our winners this year.

Once again the Woodland Heritage judges were spoilt for choice, but it was Daniel Harrison's stunning, elegant and tactile 'Grace' circular dining table in Ash that immediately caught the judges' attention, closely followed by Thomas Jones's 'Corvus' chest of drawers.

WINNER

Daniel Harrison

'Grace' circular dining table
danielharrisonfurniture.com



This amazing circular table was made from various types of Ash wood, including locally sourced Welsh Ash. Ash is Daniel's favourite timber and as such he wanted to show as many varieties within this piece as possible - Olive Ash for the top, Ripple Ash for the base and the use of laminated native Welsh Ash for the spokes of the base structure. Daniel commented: "With the onset of Chalara (Ash Die Back) I thought it important to raise awareness and to celebrate one of our finest native tree species."

The Ash used for this project was sourced from Andrew Williams (A W Hardwoods Ltd) within a ten mile radius of his sawmill in Swansea, just down the road from Daniel's workshop. The wood was air dried then second seasoned slowly in Andrew's heated drying shed. Most of the wood Andrew has at his mill is locally sourced and many of the trees have been personally felled and converted by him. He has a deep knowledge and understanding of trees and is especially keen to promote our native woods.

The table base was inspired by the sweeping curves of a gramophone horn and was challenging to construct due to its narrow centre which meant that the components had to be quite thin. Lamination and tongue and groove

construction ensure that a strong and functional base was created which is extremely elegant and visually pleasing.

Judge's comment

"This beautiful circular table stood out immediately. The figure on the top is just stunning to look at and also to feel – very tactile. The unusual fluted underframe demonstrates great craftsmanship and design. It seems fitting to have 'Ash' standing out at this point in time when we are losing so many of our native Ash trees to Chalara".

Based in Swansea, Daniel Harrison is a designer and maker of bespoke furniture creating free-standing and fitted pieces, as well as having been commissioned to create large sculptural carvings, staircases and fine boxes and other products. He prides himself on using locally sourced sustainable woods and enjoys problem solving whilst reflecting deeply on new ideas and processes. His keen eye for detail and meticulous approach is reflected in the quality of the work he produces.

HIGHLY COMMENDED

Thomas Jones – Beneath The Bark

'Corvus' chest of drawers
beneaththebark.co.uk

Thomas Jones combines making furniture with working



for a commercial timber yard in Suffolk on the Sotterley Estate. This is a perfect combination as he often gets first sight of any logs that come into the yard. They are milled and seasoned on site. Those which are too characterful in their grain for commercial products such as structural beams are therefore more suited to furniture. This is the case with this chest of Elm drawers where the timber has been utilised beautifully to enhance the design of a very functional piece.

Judge's comment

"A 'curvy' version of a classic chest of drawers. The use of Burr Elm on the drawer fronts is very dramatic. Elm is a beautiful timber and its natural beauty is exhibited by this piece – even the back has dramatic graining."

Thomas Jones originally trained as a traditional boat builder and spent several years restoring vintage Broads sailing cruisers. He branched out into wildlife wood carving and now creates bespoke pieces of fine feature furniture hand crafted from native timbers and often inspired by the subtle curvature of boat building design. An essential element of his design process can be summed up by an old boatbuilding saying "Let your eye be your guide" and this is reflected in his pieces which accentuate the wild and beautiful grain which can be found in the forks and bends of a tree.

Jason Heap is to be congratulated on his exhibition which will celebrate its 25th Anniversary in 2019 at Thirlestaine Long Gallery in Cheltenham from 17 – 26 August 2019.

Woodland Heritage is pleased to be returning in 2019 in its own 25th year, renewing its sponsorship of the 'Best Use of British Timber Award'.

Judges: Lewis Scott, Belinda Moore

info@celebrationofcraftsmanship.com
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Garthwaite Travel Bursaries

Since 1994, through the inspiration of our late Patron, Peter Garthwaite OBE, we have supported foresters of all ages to travel to many countries to study aspects of forestry, or wood processing outside the UK. Some twenty-five years on, many of these individuals remain in touch and are still putting their experiences to good use. Previous countries visited include the USA, Holland, Germany, Switzerland, Finland, Sweden, France, Croatia, Ireland, Latvia, Czech Republic, Greece, Denmark, Italy, Austria, Japan and Canada.

The Trustees of Woodland Heritage continue to invite applications for bursaries to study an aspect of forestry or wood processing outside the UK.

Eligibility

Applicants must either be forestry practitioners in the UK, or intending to become so after completing a forestry education. Preference will be given to those whose interests are in the production of high quality timber and to those most in need, most likely at the start of their careers. Applications for support on compulsory tours (e.g. as part of a University group) will not be considered, nor will retrospective applications.

Applications

Details of how Woodland Heritage awards grants can be found on our website. Application forms should be requested by email or phone using the details below.

Successful applicants will be expected to produce a short article/report with photographs on their travel for publication in the Woodland Heritage Journal and/or website.

Woodland Heritage, PO Box 168, Haslemere, GU27 1XQ
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experts in continuous cover forestry...

Courses in Continuous Cover Forest Management

IRREGULAR SILVICULTURE IN THE LOWLANDS: TRANSFORMATION IN PRACTICE

Marking is a difficult skill to learn, particularly within an unfamiliar discipline such as Irregular Silviculture. These Courses provide an in-depth introduction to the theory and practical application of irregular silviculture in coniferous and broadleaved stands with the emphasis on lowland forests.

The Courses incorporate a marking exercise in which the trainees, in groups of two, undertake the marking decision process for themselves within a one hectare stand under transformation and interact with two experienced practitioners. On the completion of the marking exercise, the trees selected for removal by each group are inputted into a spreadsheet which provides a detailed summary of the silvicultural and economic

consequences of the each marking. These data can be compared between the groups and with the marking of the local manager.

The two day course incorporates site visits in irregular coniferous and broadleaved stands and looks in detail at the silviculture of transformation and the monitoring of stand structure and performance.

The Courses are based on the Stourhead (Western) Estate, Stourton, near Mere, and the Rushmore Estate on the Wiltshire/Dorset border. The Courses are designed for 14 trainees and will be led by Andy Poore and David Pengelly, both leading exponents of Continuous Cover Forest Management.



**WOODLAND
HERITAGE**
Celebrating 25 years

Woodland Heritage continue to offer up to two bursaries per course
Members of Confor could consider applying for assistance to their Education & Provident Fund
(confor.org.uk/resources/education-provident-fund)

**For further information see the Courses section on selectfor.com
or contact David Pengelly at david@selectfor.com**

A modern reference to temperate woody plants



Trees and Shrubs Online is the International Dendrology Society's ambitious project to create a modern, web-based encyclopaedia of woody plants which are hardy in the world's temperate climatic zones.

The website is built on a core formed by the full text of the famous *Bean's Trees and Shrubs Hardy in the British Isles*, and that of *New Trees* by John Grimshaw and Ross Bayton, published in 2009 and covering new introductions to cultivation since the last revision of Bean's text in the 1980s. These two essential references are now available to anyone, anywhere, with an internet connection.

The long-term aim of the project is to renew this text, and an international team of authors is busy preparing new entries for *Trees and Shrubs Online* creating a fresh body of information for the twenty-first century that will make this the pre-eminent resource for anyone interested in trees and shrubs.

Currently there are articles for some 730 genera and 4,500 species. Each entry includes a full botanical description and a body of discursive text that covers such topics as how and when the species was introduced to cultivation, its horticultural requirements and applications, where the finest examples may be seen, and other interesting observations by the expert author.

This work is being overseen by John Grimshaw who is Editor-in-Chief and WH Trustee Tom Christian who works part-time on the project as Assistant Editor.

Trees and Shrubs Online has been supported to date by the International Dendrology Society and other charitable trusts, together with philanthropic individuals who have taken up an opportunity to sponsor a favourite genus or family. The site, and its phenomenal breadth of content, is freely available to all, so please visit the site, use it, tell others about it, search for a favourite tree or shrub or research something new – it really is an extraordinary resource.



Trees and Shrubs Online

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Lignum and Ash

by Peter Eggington, E.A. Clare and Son Ltd

In late October 2018 WH Trustee Tom Christian met Peter Eggington quite by chance on a wooded hillside in the Lake District. The ensuing conversation revealed Peter's background in working with wood, and in particular a connection to the manufacture of bowling bowls and snooker cues. After the inevitable 'lightbulb moment' Peter kindly agreed to provide the following article on the subject.

There are two manufacturing units in Liverpool that still make sports items from wood. These are part of the family business E.A. Clare & Son Ltd. **Drakes Pride** is probably the last of the bowls manufacturers still making Lignum Vitae bowling green bowls, and **Peradon** are the largest and oldest remaining manufacturer of traditional snooker and billiard cues in the UK.



The colour and grain of high grade Lignum Vitae Bowls are a delight to see and as timber has a warm 'feel' they are also very tactile



A picture from the 1935 catalogue showing the stock of Lignum Vitae logs

Lignum Vitae Bowls

Lignum Vitae is a timber from trees of the genus *Guaiacum* native to the Caribbean and northern South America. The name Lignum Vitae, meaning 'wood of life', is occasionally used for other unrelated timbers, but for our purpose, we are talking about timber derived from *Guaiacum* species. Indeed, there are three species of *Guaiacum* but only one of these is suitable, *Guaiacum officinale*, so knowledge of the species is required.

Lignum Vitae is one of the most outstanding of all timbers; it is not only one of the hardest and heaviest known but has an almost unique property of being self-lubricating (interestingly, Lignum is bought by weight, rather than the more usual cubic measurement for logs).

As a result, not only was it used for lawn bowls but also for bearings and bushing blocks for propeller shafts of ships, as well as being ideal for pulleys on sailing ships. The caption of the old picture of logs mentions its medicinal properties and the turnings and sawdust were once exported to Japan. The writer can also remember that Lignum sawdust was sold to a London pharmaceutical firm. It has a long history of import to Europe beginning in the 16th century, but after many centuries of exploitation it is now on the United Nation CITES list (Control In the Trade of Endangered Species) and thus requires special licences for its export and import, and so these days it is very difficult to obtain suitable timber for the manufacture of traditional bowls.

The bowls are made mainly for crown green bowls players and these days are turned down from larger flat green bowls, as it is all but impossible to import the very high quality Lignum Vitae required for bowls; this has meant that the majority of both Lawn and Crown green bowls made in recent years have been either a phenolic or melamine composition.

The tradition of making bowls in Liverpool goes back a long way. It was in 1820 that Darlington's was founded, and as Drakes Pride was formed from the nucleus of that firm, it can trace its methods and knowledge back to that date.



Stages in production of Lignum bowls

The way Lignum Vitae bowls were made was a very skilled job, not just from the skills needed for hand turning, but right from the initial selection of the original logs; the careful cutting to ensure that a set of four (or pair) came not only from the same log but from alongside each other in that log.

In the 1970s it was already getting difficult to obtain Lignum in log form as the exporting countries wanted to retain some additional value for themselves. So, Drakes Pride imported turned cylinders of Lignum, the centre of the cylinder being as close to the heart of the log as possible. The cylinders were dipped in wax to seal them to prevent cracking during shipping. The wax basically did the job of protecting each cylinder of timber in the same way the sap wood on a log would have done.

Those logs which had too large a heart crack would be unsuitable, note however that all Lignum Vitae has a heart crack, and it is likely that the white mounts were used originally to hide these cracks. The heart of the timber has to be so positioned in the log to allow it to be the centre of the bowl. So, if it was too close to one side to allow for this, the log would be rejected.

The heart timber itself is very dark in colour, but the sap wood is pale yellow and is sharply defined. It is only the dark timber that is required, so any logs that did not have sufficient diameter of dark timber would be rejected, and equally if the log was too large in diameter, resulting in too much waste, this would also be rejected.

The next stage is to produce the 'blanks' from which the craftsman-turner would make the bowls. For any Lignum bowls, to make a set the 'blanks' have to come not only from the same log but also side by side in that log, otherwise the gravity of the bowls would not be the

same. Given that they are from a naturally grown piece of timber, the likelihood of the bowls being of 'similar' weights could not be expected or achieved.

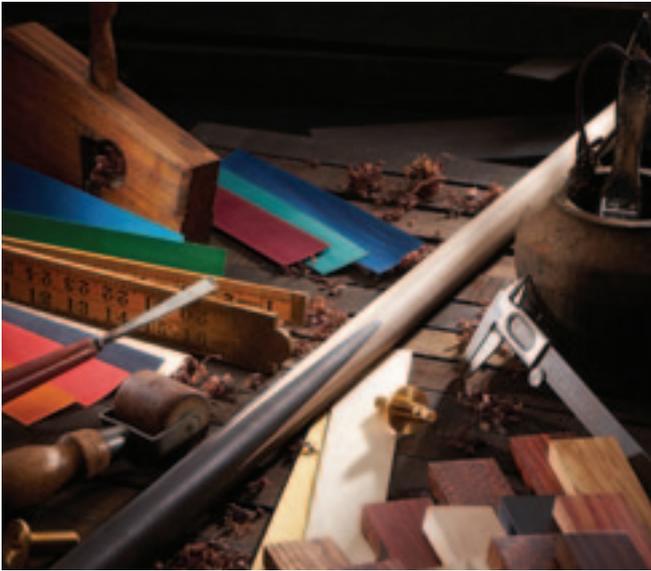
The first stage of producing the 'blank' from the selected log was to produce a cylinder which could be put between the centres of a ball turning lathe. It is worth noting that at every stage, the timber requires careful inspection and sealing, to ensure that it does not crack. The craftsman-turner would take the rough ball shaped blank and turn it into the recognisable shape of a bowl. The skill required to do this, using only hand tools and a template to give the running sole shape, was to say the least an art, and was down to eye and hand co-ordination as well as experience. By offering up the metal template of the sole to the piece being turned and judging the amounts of material to be turned off, the craftsman would produce the required shape and dimensions; they would also position the top rings which delineated the running sole.

After that first stage the mounts (discs) would be fitted and the inner rings and any other decoration would be cut onto the bowl. Then followed the next, most skilful job; checking out the bias. As you can imagine, even allowing for the skill of the turner, the bowls required biasing to that specified by the customer and/or the governing bodies of the game.

Finally, the bowl would have been hand polished, either black if the original timber was not considered to be 100%, or natural if the timber was considered the very best. I am sure there are still a lot of crown green bowlers who have found memories of the 'Extra Quality' bowls, which were polished natural and had the Deluxe decoration on them. Now we use a very hard-wearing spray finish rather than hand polishing with shellac.

These traditional skills still exist, although now the 'ball' shape blank is turned on the same CNC lathes as we use for our Drakes Pride composition bowls; this means that they are more accurately made to the required geometric shape than could have been achieved by even the most skilled craftsman. All the other skills remain the same, especially when it comes to the biasing.

New Lignum Vitae bowls will lose some 20-46 gms in weight in the first year, after that, with care and attention involving the bowls being re-polished at least biannually, they should give many, many years of service.



Hand spliced cue

Cues

Peradon is probably the largest UK manufacturer of snooker (billiard) cues and is certainly the oldest still in operation, founded in 1885. Most cue-shafts are made from Ash which then have exotic hardwoods and veneers added to the butt section.

Ash shafts are made only from the highest-grade Ash from North America; we find the climate in this region results in the best rate of tree growth to give the grain structure we require. After felling, the trunk of the tree is cut into planks at the mill to our requirements, which we have found generates the straightest grain structure and degree of rigidity suited for quality cue production. After kiln-drying the planks are shipped to our Liverpool factory where we inspect and cut them into squares, ready for shaping to tapered cue blanks.

Maple shafts are also often used. Ash and Maple are the traditional timbers predominantly used for the production of cue shafts with Ash currently the most popular. Players will however often opt for Maple for its clean appearance and its more rigid playing characteristics. All Maple shafts are produced from quality North American Maple, selected for high rigidity and appearance.

Ash planks are examined as they are sawn into either 152 x 38 mm, or 122 x 38 mm square section; these 'cue-shaft blanks' are then left to rest for at least six months.

Once 'rested' the initial first turning is now done on a vertical CNC lathe to produce a rough oversize tapering shaft. Originally this would have been done using a hand plane on a bench and was a very skilled job. At this point



Stock of ash shafts

Gluing veneers for hand spliced cues

further selection is made to assess how the growth rings show on the timber and to see how stiff the blank is. The growth rings are described by players as the 'feathers' and they like to see them clearly defined in a straight line up the shaft of their cue. A shaft blank that is whippy and bends easily is not suitable for a cue and will be rejected; the rejection rate can be as high as 25%. The shafts that pass the initial quality inspection are then further examined to select the best quality shafts; it is those cues that command the highest prices. This selection requires knowledge and experience to grade the shafts and only about 9% will meet the exacting specification as first grade. The tapering blanks are again left to 'rest'.

After another six months' 'rest' the next turning takes place; this takes the taper shafts closer to the finished size. A further inspection of the grain and rigidity is undertaken, and a final quality grading takes place after which the shafts are once again left to 'rest'. The idea of 'resting' between the turning processes is to avoid 'shocking' the timber, which may occur if it was machined to size in just one process.

The next stage is to add the butt sections to the ash shaft. The chosen hardwood is machined to a square section at the chosen length. To produce a machine splice cue, the butt section is by popular demand a solid piece of either ebony or rosewood - all of the exotic hardwoods used in the cue making are specially selected and imported to Peradon's specifications from sustainably managed forests. The ash shaft section will be selected from a 122 mm ash blank. The picture shows a machine splice cue. The ash shaft and the hardwood butt are machined so that they fit together and the joint bonded together. A machine spliced cue is recognisable by the top of the figures of the butt section being pointed. A cue can have additional



Machine spliced cue

decoration added to the butt section by bonding different coloured veneers or different timbers, such decoration is added before the final finished turning. This machine spliced cue has also had extra decoration added with a sycamore and an ebony splice being bonded to the butt section.

A cue described as a hand spliced cue uses the longer 152 mm ash blank and then has long veneers of either ebony or rosewood bonded to the shaft. This is done in several operations to ensure that the long veneers are evenly fitted to the shaft; again additional decoration can be applied such as Thula Burr or Snake wood which enhance the visual appeal of the cues.

After the final turning both machine and hand spliced cues can be made into two-piece cues, either with the brass joint ID fitted at the mid-point of the cue, or the other popular jointed cue, usually described as a ¾-jointed cue, has the joint position in the butt section. A hand-spliced cue can be recognised by the fact that the long veneers have rounded points on the shaft of the cue. Originally the hardwood butt sections gave the cues a natural weight of about 15 oz. but over the years the

players have demanded heavier cues, so all modern cues have additional weight added and care must be taken in how and where this additional weight is placed. The natural balance of the cue is generally positioned just about at the point of the butt, so the cue is bored from the butt end up its length to position the weight at the correct position this held in place by glue and a dowel.

At all stages of the production the shafts and bonded shafts and butts are checked for straightness. This ebony hand splice cue has an additional thin sycamore veneer with a further Cocobolo veneer; its description is a ¾-jointed Salisbury model cue complete with a mini butt extension.

Once the cues have had the final turning, they are sealed with a specially selected blend of oils using numerous fine sanding and oiling processes to not only seal the timbers but to also give a smooth silky feel to the cue, before a final inspection prior to being individual wrapped ready for the customer.



Machine spliced cue

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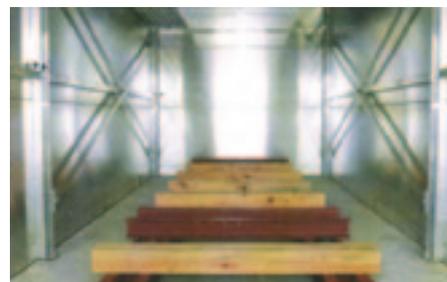
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Bangor Forestry Students' Association

by Sarah Ellis, Woodland Heritage's Student Ambassador

Bangor University in North Wales is where the Bangor Forestry Students Association (BFSA) is based. The Association is involved in local, national and international forestry activities which provide excellent opportunities for students to develop their practical and networking skills with like-minded people.

Woodland Heritage and Bangor University have been working together for several years now. Students have had the opportunity to attend conferences, workshops and Field Weekends such as the one held in June 2018. Most recently, there has also been a collaboration between Woodland Heritage, Bangor University and the Continuous Cover Forestry Group (CCFG); where Bill Mason, chair of the CCFG, was the guest speaker at an event held in March at the University.

My name is Sarah Ellis, I am a third year MFor Forestry Student at Bangor University and I have had the pleasure of being the Woodland Heritage Student Ambassador from 2017 to 2019. In this role I have contributed to Journal articles, organised symposiums and helped promote Woodland Heritage to the students at Bangor.

In June 2018 I attended the Field Weekend on the borders of Shropshire and Staffordshire, which I found to be very insightful into forestry innovations and tree species selection. This year we hope for a greater turnout of Bangor forestry students through earlier advertising and across a greater range of media.

Woodland Heritage have also helped source funding for the BFSA to host the Northern European Regional Meeting (NERM) for the International Forestry Students Association (IFSA) this year in North Wales. This event showcased the region and its fascinating forests to around 60 international students with a theme of highlighting succession and change in the North Wales landscape over a seven-day event in April 2019.

Local Activities

BFSA have been involved in numerous and various activities over the past year, which include:

- Invasive species removal with Treborth Botanical Gardens and Penrhyn Castle
- Numerous guest lectures including Shireen Chambers and Andy Lederer from the Institute of Chartered Foresters (ICF), Andrew Heald from Confor, Gary Kerr from Forest Research, Charles Dutton at a joint RFS / BFSA event, Richard Alford from Send a Cow and Jemima Letts from Tree Sparks
- Helping in community woodlands such as Elwy Working Woods and Llyn Parc Mawr
- Participating in the Anglesey Woodland Festival

BFSA have also taken a step to increasing the mixed broadleaf forest cover in North Wales by helping landowners who want to plant trees and thereby give something to future generations. So far this academic year, BFSA has planted more than 1200 trees across three locations in North Wales.



Photo: Christopher Andrews, 2018

Bangor students planting trees

National attendance

BFSA members have attended a number of conferences across the UK. Three Bangor students won the RFS Spencer Bursary to attend 'The Future for English Woodlands' conference at the National Memorial Arboretum, including Jemima Letts, Sarah Ellis and David Cracknell.

The ICF Wales Regional Conference sponsored seventeen students to travel to Cardiff to attend. A further three



IFSS Mexico with Ellinor Dobbie, George Dennison, Chris Andrews and Sam Cameron



Sarah Ellis visiting Mary Sutherland's plaque in New Zealand

students from Bangor went to the National Tree Officers Conference in Telford and Jemima Letts attended both the NUS Sustainability Summit in Manchester and the ICF Forest Skills and Education Conference in Birmingham. Amy Harrington was at the SuperWood Confor conference in December.

International involvement

Bangor student Catherine Pearson is the new Liaison Officer for the Commonwealth Forestry Association within the International Forestry Students Association (IFSA).

Students have also been attending international events and conferences including: Catherine Pearson and George Dennison went to Bonn Germany for COP24 (Nov 2018), as well as Jemima Letts and George Dennison at COFO24 at the UN in Rome in June 2018.

2018's International Forestry Students Symposium (IFSS) was held in Mexico, which four BFSA members attended.

New Zealand couldn't be much further away from the UK if it tried but in December 2018 and January 2019 I travelled around the country learning about the incredibly diverse landscape and management, as well as visiting and speaking with staff from the Scion Forest Research Centre and the Department of Conservation (DOC). During my travels I also stopped to see Mary Sutherland's tree and plaque in the Redwood forest of Whakarewarewa and to walk in the footsteps of the first female forestry graduate from Bangor University. Bringing back what I learned to Bangor, I presented a talk on the student's perspective of the New Zealand landscape in February 2019.



Bill Mason, Chairman of CCFG

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Book Review

'Cherry' Ingram

Review by Tom Christian

Japanese Flowering Cherries are among the most familiar and best-loved ornamental trees grown in the UK and Ireland and indeed in various other parts of the world.

In their native land they have a history going back over a thousand years, and yet two hundred years ago they were virtually unknown in western gardens. Even one hundred years ago they were rare collectors' items generally confined to specialist collections, but by the mid-late 20th century they had become one of the most ubiquitous flowering trees available in Britain.

During the so-called 'Cherry boom' in the 1950s they were planted in their thousands to line roads in our villages, towns and cities, in public parks and around war memorials, and in the gardens of grand country houses and suburban terraces alike. Even today they are still produced in huge quantity and remain enormously popular in all these situations. But how did this essential component of British springtime become such a staple?

The answer lies, in part, in the passion and endeavours of one man, the late Captain Collingwood 'Cherry' Ingram (1880-1981). Born into England's late Victorian upper-middle class, as a 'gentleman of leisure' he was able to devote his life to his passions, including ornithology and horticulture, the latter dominated by a near-obsessive love of the blossoms of Japanese Cherries, sparked 100 years ago when in 1919 he and his young family moved into a house in Kent. Planted in the large garden were two fabulous flowering Cherry trees – a rare sight at the time – and when Ingram first saw these in flower it sparked an interest that would become an obsession which, over the following decades, would see this remarkable group of plants become one of the staples of ornamental horticulture the world over.

In 1926, during his third and final visit to Japan in search of rare and obscure varieties, Ingram became deeply troubled by the ambivalence of the Japanese establishment to its horticultural heritage. Fearing that many of the most beautiful Cherries might be lost forever through this



disinterest, and Japan's strive for uniformity fuelled by its early 20th century politics, Ingram vowed to do something. So it was that almost by accident Ingram's Kent garden became a global repository and central exchange for Cherries.

Through his actions, and those of his many correspondents, Ingram secured many cultivated varieties that had been teetering on the brink of probable extinction in their homeland. Some of the Cherries now most beloved of western gardens were saved from oblivion – a form that may have been represented by a single plant in the grounds of a Kyoto temple may now be represented by tens of thousands of offspring all around the world thanks to Cherry Ingram.

In her thoroughly researched book, Naoko Abe shines a light on a story that is remarkable in having gone untold for so long. The life of Collingwood Ingram; a social history of Japan since the late 19th century; and the fall and rise of a most beautiful group of trees, trees which we are only able to take for granted thanks to the coming together of these three seemingly disparate strands, are eloquently braided together by Abe in a tale that will fascinate, and give cause for us to look at an old favourite with new eyes.

Life with veneers is rarely smooth

by Philip A Cheshire

I started as a sole trader at the start of 1965 after leaving a timber and veneer company based in the east end of London which had old stocks of saw-cut veneers. With the knowledge I had of these old stocks I started supplying the antique restoration trade with these veneers and also inlays and lines which I purchased from another company.

A turning point was when the source of inlays in the UK ceased and they had to be imported from France with the prices dramatically increased. I decided to have a go at producing myself and over a period worked out how to manufacture most of the lines and inlay designs using basic wood working machines. Business was helped by the rapid rise of the English Reproduction Furniture trade and also by producing strips, firstly in African Walnut and then Obeche for a company that supplied speaker grills to the radio trade.

As we progressed we invested in a new type of Japanese veneer slicer which we thought would do away with a great deal of expensive saw dust. In the end this was not the case however, another door opened and suddenly in addition to inlays we were producing thick cut Ash veneer for tennis rackets. In fact I remember watching a certain famous player at Wimbledon on TV and thinking “go on break another one”.

As doors open they also close, I had visited the factory where the rackets were produced and heard the mention of graphite fiber. Not putting two and two together the end result was a phone call which lost us 80% of our turnover. A time to go and dig the garden for a few days. The door opened again when we found our Japanese slicer was ideal for cutting yew tree veneer for the now large Reproduction Furniture Trade. In fact we purchased a second one and spent over 18 years slicing yew tree veneer. This brings me to the reason for supporting Woodland



There are many types of veneers, but one of the most valuable is Wild Service Tree

Heritage. Whilst travelling the country buying logs in many beautiful woodlands, I met many caring people not least Peter Goodwin. He was one of my first inlay customers at Titchmarsh & Goodwin and also a great source of advice and information. I saw the effort he was making with his oak tree nursery at Winesham and how he was trying to influence the local estate owners to take more care of their woodlands.

After our yew tree period we got involved in the door trade and we designed the Innova inlay door range for Premdor for which we produced many thousands of meters of inlays over a period of about ten years. Inlays are less fashionable and now a small part of our business, so we have diversified into producing lippings for the door and corporate furniture trade. This came about because a company asked us if we could produce 3mm x 22mm lippings. After inlays these were tree trunks to us. Now with our door trade and furniture contacts we specialise in producing lippings in volumes which are similar to inlays in years back. One very pleasing thing with the lippings is that all our waste is now turned into briquettes for wood burning stoves.

It's been an interesting fifty odd years. Doors close, doors open, diversifying, seeing opportunities. It's been great fun and a privilege to work with wood all my life.

Report: ‘Irregular Silviculture in the Lowlands: Transformation in Practice’ The SelectFor course

by Sam Manning

The 1,072-hectare ‘Stourhead Estate’, on the Dorset-Wiltshire border was the seat of an aristocratic dynasty for over 500 years and has accumulated a rich legacy of exquisite architecture and ornamental gardens, set amongst a vast area of idyllic farm and woodland.

Now in part-ownership of the Hoare family and the National Trust, Stourhead’s woodland is under the management of ‘SelectFor’, a forestry consultancy company specialising in ‘Continuous Cover Forestry’ (CCF).

On the 18th and 19th of April 2018, David Pengelly BSc For, FICFor and Andy Poore MSc EnvFor of SelectFor hosted one of their widely acclaimed courses in CCF management titled, ‘Irregular Silviculture in the Lowlands: Transformation in Practice’, at Stourhead. Sixteen participants from a range of professional and academic backgrounds within the forestry attended.

CCF, a relatively new concept to UK forestry, is a selection system that aims to produce an uneven aged structure with permanent canopy retention, systematically removing low-quality stems to increase timber value

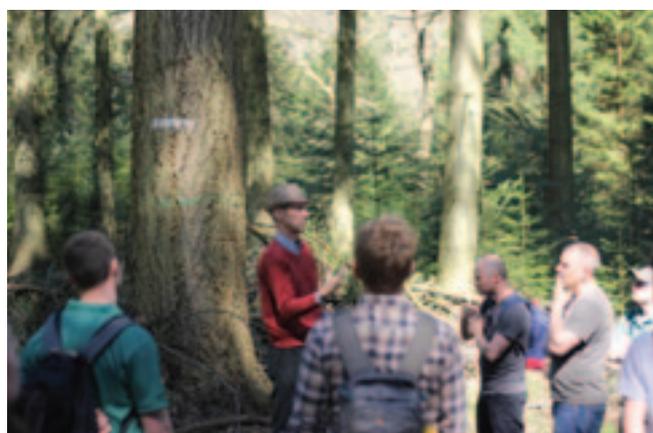
and decrease costs by utilising natural regeneration for restocking, eliminating the need for clear-felling. With this method of management comes a host of environmental and social benefits, such as wildlife habitat retention, greater aesthetic value, higher carbon sequestration and protection of soil and water courses from erosion.

“*They make a lot of money too*”, Andy Poore comments off hand as he affectionately surveys a CCF stand of Sitka Spruce (*Picea sitchensis*) and Douglas Fir under his management, during a tour of ‘Dropping Gutter’ at Western Estate, Stourhead. Originally an economics graduate from Cambridge, Andy delivers a thorough and convincing argument, throughout the two-day course, on the strong financial case for CCF management over traditional methods of short-rotation clear-felling. By reducing planting and ground preparation costs, and slowly increasing the value of large-diameter timber, CCF is providing an attractive new management option to estate owners, particularly in the lowlands. During a presentation, Andy shows us examples of Oak timber in France selling for £2000 per cubic metre, from a stand under CCF management.

During the two days, we are given an extensive tour of forest stands at both the Stourhead and Rushmore



“Clumpiness is good” – Andy Poore explains the finer points of natural regeneration to the group



David Pengelly introducing participants to an irregular stand at Stourhead Estate



On the march at 'Dropping Gutter', Stourhead

Estates (near Tollard Royal), all in varying stages of 'transformation', from even-aged stands, to a CCF selection system. Every aspect is covered, from the spatial planning of extraction racks, to the dynamics between basal area removal and natural regeneration success, to the methodology of monitoring stand increment and age class structure in a one hectare 'marteloscope' (derived from the French term 'martelage', meaning 'marking trees for cutting'), which act as an important tool for making management decisions in a CCF stand. We were also given the chance to practice tree marking, splitting into pairs and selecting trees to remove based on several criteria such as whether they are competing with more desirable stems, have poor form or growth increment, or have reached their 'target diameter' (the size at which a species should be removed, based on their increment growth). Andy adds that monitoring and data collection in UK forestry is severely lacking, and both are "essential to the management of CCF stands".

David and Andy also talk with great excitement about the increasing amount of research into the biodiversity benefits of uneven age forestry, citing soon-to-be-published papers revealing that CCF systems have higher species diversity and richness than both traditional coppicing systems and non-intervention woodlands in the UK. They have also been involved in the translation of a textbook produced by the French speaking 'Association Futaie Irrégulière' into English. French expertise on the subject of CCF management is decades ahead of the UK, we are told, and collaboration between European countries on developing the silvicultural practice is increasing. SelectFor deliver a robust argument for the benefits of CCF management over clear-felling, the product of years of expertise and shared passion for the subject. The course was an exceptional cascade of information that, as a forestry student, I found invaluable in helping to shape my understanding of silviculture and forest management.



A broadleaf stand marked for thinning at Rushmore Estate, Tollard Royal

Personal highlights included lessons on the endemic mistake of overstocking broadleaf woodlands that is common in UK forest management and seeing first-hand the effects of strategic basal area removal on light levels and ground vegetation. I highly recommend the experience to anyone with the desire to expand their understanding of CCF or forestry in general.

My attendance on this course was made possible by grant funding from Woodland Heritage. I would like to extend my deepest gratitude for their generous investment which has helped to expand my capacity as a UK forestry professional.

Sam Manning was one of several individuals who received support from Woodland Heritage to attend SelectFor's courses in 2018. To read their reports, please go to woodlandheritage.org/wh-journal.



Participants carrying out a marking exercise in a transformation stand

Future Trees Trust in 2018

by Tim Rowland – Chief Executive Officer

2018 was a pivotal year for Future Trees Trust. A generous legacy grant in 2017 from the Patsy Wood Trust enabled us to increase our ambitions and to fulfil our intention to ensure our work is carried on by the next generation of foresters and researchers.

After 27 years of continuous growth and development and with Tim Rowland's appointment as CEO and the employment of an administrative assistant, Deborah Scott-Isaac, last year was the right time to review our operations. The review indicated that while we were performing well, we needed a broader skill-set as we move from the development stage of our research programmes, to more of an outward-facing organisation, delivering improved seed to industry.

The review also recognised that, like much of the forestry sector, we lack younger people with an interest in tree improvement and genetics. The legacy grant has enabled us to employ our first full time researcher, **Jo Clark** who joined Future Trees Trust in October 2018.

The grant will also enable us to employ a full-time research assistant, who we will be recruiting in 2019. We will be working with colleges and industry, supporting young people with an interest in forest genetics in work placements, as well as supporting two PhDs over the next

five years. We will be seeking work placements, so if you are interested in hosting someone for a few weeks, do get in touch.

Tree Health

As a charity dedicated to providing improved seed to the industry, we recognise the impact that pests and pathogens are having on many of our tree species.

Future Trees Trust was a key partner in the Living Ash Project which concluded this year. A conference was held at Earth Trust in October to celebrate the success of the project with over 80 delegates attending. A visit to Paradise Wood, Earth Trust's research woodland, showed delegates the very rapid and devastating effects Ash Die Back has in young stands, but also hope for the few individuals that show resistance to the disease. Over 400 trees were selected for resistance from the project and were grafted on to rootstocks. These, along with grafts from Forest Research's mass screening trials, will be planted out next year as a clonal trial and to form the genesis of a new Ash breeding programme.

As well as working on Ash Die Back, we are working with Forest Research on Chestnut Blight, seeking occurrence of hypovirulence to Chestnut Blight in our Chestnut populations. Hypovirulence is a virus disease of the fungus that causes Chestnut Blight, *Cryphonectria parasitica*, and is used as a form of biological control against the virus. It weakens and slows down Chestnut Blight by reducing pathogenicity of the fungus. Should hypovirulence be found in Britain it will be a vital tool to help combat Chestnut Blight.

Future Trees Trust is also a member of Action Oak – the cross-sector initiative to research the many diseases threatening our Oak trees. Jo Clark sits on the Research committee and Tim Rowland works with the Fundraising and Communications committee.

Photo © Adrian Houston



Tree improvement

While recognising that tree health is of paramount importance, we continue our tree improvement work to deliver better quality seed to industry in terms of form and vigour. An important aspect of this work is to ensure that the populations we put together as seed production units are genetically diverse, recognising that genetic diversity is the key to combating new pests and diseases.

We now have clonal seed orchards of phenotypically superior trees for Sycamore, Birch and Cherry. These orchards produced more than a million improved seed in 2018! Although an amazing achievement, we still have a long way to go. We also have orchards for Sweet Chestnut, but these are still too young to be producing any seed.

Oak seed supply is also a problem, largely because of its infrequency in masting and that even when there is a mast year, the seed cannot be stored. We are therefore very excited to be planting out first clonal orchards for Oak, one for Pedunculate Oak with the Woodland Trust in the National Forest, and three with Sessile Oak, two in England and one in Northern Ireland.

Oak is notoriously difficult to graft and we have had poor results, particularly with *Quercus robur*. We climb an additional 20 – 25 trees each year to obtain the best quality graftwood (one-year old wood from the very top of the tree) and so our seed orchards will be planted over the next few years, adding to the number of grafts each year to ensure genetically diverse seed orchards for Oak.

Seed from all these orchards will fall in to the *qualified* category of Forest Reproductive Material (FRM). We continue with our work on progeny testing to quantify levels of genetic gain and raise seed to the highest category of FRM, that of *tested*.

2018 saw us work with Hornbeam for the first time as part of the Sustainable Seed Source Project in partnership with Woodland Trust. After surveying 25 sites, recommendations were made to register five stands as *source selected*, and ten stands as *source identified*. These will be the first stands on the National Register of Hornbeam and an important first step for seed supply.

'A portrait of the Tree' exhibition

We were delighted when photographer Adrian Houston mounted an exhibition called "A Portrait of the Tree" at the Unit Gallery in London in September, with donations



Photo © Adrian Houston

made to Future Trees Trust from the sale of each item. Adrian has photographed a host of famous people's favourite trees and mounted a spectacular exhibition of his photographs, (two of which are reproduced here) with accompanying text from each landowner explaining the story behind their favourite tree. The exhibition was a great success. The contribution to Future Trees Trust is still being calculated, but it engaged every visitor with the marvel and significance of trees in our landscape.

Finally, we would like to thank those long-standing members of FTT who were instrumental in getting us off the ground and who have between them given over 50 years of service: **John Fennessy** and **Gerry Douglas** who have stepped down as Trustees, and our retiring Chairmen, Geraint Richards and Graham Taylor. Without these individuals, we would not have made the progress we have, and we owe them a deep debt of gratitude. Both Graham and Geraint are still actively involved in our work, and we are all looking forward to the next exciting chapter in our development.

Our new Trustees are:

John Leigh-Pemberton (Chair of Trustees) – Torry Hill Chestnut Fencing Ltd

Christine Cahalan – Ex forestry lecturer at Bangor University

Roger Coppock – Ex Forestry Commission

Jason Hubert – Forestry Commission

Robert Lee – Forestart

Alice Snowden – Cheviot Trees

Andrew Stafford – Ex Director of the Dulverton Trust

The Deer Initiative

By David Jam, Executive Director

The Deer Initiative – Who are we and what do we do?

The Deer Initiative (DI) (formed in 1995) is a broad partnership of statutory, voluntary and private organisations dedicated to “ensuring the delivery of a sustainable and, well managed wild deer population in England and Wales”.

What this translates into is that the DI works with a partnership of 27 organisations which have an interest in deer, from government, land management NGOs, conservation organisations, animal welfare organisations, shooting associations, veterinarians, researchers and of course the forest and woodland sector.

The DI uses this partnership as a forum for discussion and consensus building in terms of the management of both deer and wild boar.

The DI has five strategic objectives

- 1 **Managing deer and boar:** to continue to manage populations at a landscape scale through partnership working,
- 2 **Developing the evidence base:** to review, collect and, where necessary, commission research and evidence gathering on population dynamics, management methodologies and other fields as required.
- 3 **Building capacity:** to ensure that best practice, knowledge and skills are utilised across the sector, through the development and encouragement of accredited training and professional support for all those with deer management remits and interests.
- 4 **Informing and communicating with policy makers, decision takers and the general public, to ensure that high quality evidence-based information is available and effectively disseminated to all those with both a direct and indirect impact upon the issues related to deer management:** and to engage the wider public in developing understanding of the issues, the challenges and possible solutions.
- 5 **Maintaining effective delivery partnership:** to ensure the most efficient, sustainable and cost-effective delivery of the outcomes.

Deer abundance and impacts

All species of deer are increasing both in numbers and range in England and Wales. Numbers are estimated to be nearing two million across the UK and there is currently no obvious reason why this trend should not continue. Wild boar are also expanding their range in England and in the longer term may be expected to establish in areas of high woodland cover.

Whilst deer and wild boar have a value, aesthetically, culturally, as a sporting quarry and for their meat, they can also have negative impacts. There is a wealth of evidence in the UK and elsewhere that indicates that in areas where they reach high density, wild ungulate (hoofed mammal) populations have a series of adverse effects upon their environment.

These adverse effects may cause serious conflicts with other land use objectives such as agriculture and forestry or through implication in the spread of disease to humans or livestock and through involvement in collisions with vehicles (circa 74,000 in the UK per annum). Wild boar also have the potential to be directly aggressive toward people.

Within woodlands, their favoured habitat, deer can have particularly serious impacts. Most species of deer seasonally browse newly planted trees, natural regeneration, or coppice regrowth. The effects of this can be establishment delay or even failure, disruption of silvicultural systems such as continuous cover or coppicing, and damage to tree form and timber quality.

Both deer and boar can have a substantial impact on seed reserves; consumption of seed/mast by deer or wild boar and, more significantly, browsing of young seedlings and saplings may significantly compromise native woodlands and is one of the major factors resulting in woodland degradation and loss. Deer and boar may also have a pronounced detrimental effect on the composition of the ground flora and overall woodland structure by removing the plants which woodland birds, invertebrates and small mammals rely on for food and shelter. This can also have seriously negative effects on gamebird rearing and management for those landowners whose woodlands are integral to their shoots.



Browsing often leads to multiple leaders which reduce the viability of the final timber crop or can retard growth leading to longer rotation length. In extreme cases this can lead to poor stocking density and increase branch thickness and density and therefore more large knots.

Fraying, bark-stripping or bole-scoring is particularly problematic in broadleaved silviculture and saw log quality suffers as a result.

Current management

Culling of deer and boar is carried out by a mix of professional controllers and private recreational volunteer hunters. It seems likely that the professional controllers will continue to decrease and management will become even more dependent on recreational hunters. Currently, based on figures from the British Association for Shooting and Conservation, 50% of the deer culled in UK are culled by recreational hunters who make up 85% of those shooting deer.

Historically such management has primarily been motivated by sporting interests and has not been particularly effective or well-co-ordinated. Since deer are in law, *res nullius*, the right to take deer resides with the owner of the land on which they are taken. Neither the objectives of management nor the implementation of that management are currently under the control of national or regional authorities. The right to manage (or not to manage) rests solely with the landowner. Thus, to achieve management at an appropriate scale we need some form of voluntary co-ordination and agreement between landowners in a given area.

The future

The DI is working with the Forestry Commission (FC) and Natural England (NE) to develop landscape scale remedies to reverse the decline of a number of woodland Sites of Special Scientific Interest (SSSIs) which are in unfavourable condition because of deer impacts. This project is also delivering four other outcomes:

- 1 Identifying the obstacles to deer management and how these can, if at all, be overcome.
- 2 Highlighting the most effective methods for catalysing and increasing the effectiveness of deer management within present legislative frameworks.
- 3 Identifying where current woodland and agri-environmental support mechanisms incentivise landowners and managers to undertake effective deer management.
- 4 Helping to inform future management decisions and support mechanisms particularly in relation to the delivery of the Defra 25-Year Environment Plan.

The FC/NE project is demonstrating that in certain areas of England there are insufficient levers or motivations to encourage or enable landowners to manage deer at levels where they do not come into conflict with agricultural, woodland management or biodiversity objectives. The broader impacts deer are having effects on carbon sequestration, water quality and flood management are less obvious but nonetheless apparent.

As a result of this, the DI is working with FC and Defra to ensure that deer are firmly embedded in any future woodland policies, woodland and agri-environmental support schemes.

We recognise wild deer as a valuable component of natural capital, but they need to be managed to exist sustainably within the environment. Their habits, behaviour and reproductive potential are all dictated by the way we manage land and natural resources. We have a responsibility to ensure that they are managed in a sustainable and well-evidenced manner.



For further information on The Deer Initiative please visit thedeerinitiative.co.uk

Sylva Foundation launches a premium account for “myForest”

by Gabriel Hemery

Since its launch in 2009, Sylva Foundation’s myForest web tool has been growing steadily, just like the woodlands it exists to support. The environmental charity has relied on word-of-mouth and a strong reputation for the increasing popularity of its online tools and resources supporting woodland management.

myForest is used by thousands of woodland owners, managers and educators, to map and manage more than 75,000ha of woodland across Britain. Its development has been supported in part by charitable trusts, government bodies, corporations, and individual donors. However, myForest requires regular funding to support maintenance and development, and the Sylva Foundation receives frequent requests for new features.

Behind the scenes, thanks to core support from the Dulverton Trust, the Sylva Foundation has been hard at work developing a range of additional premium-level tools which it now hopes some woodland owners and managers will opt to use. Paul Orsi from Sylva Foundation, who manages myForest, explained:

“We have introduced these additional tools in response to demands by users. We have kept the costs as low as possible, at only £24/year for a Woodland Owner account and £120/year for an Agent account. We hope that some owners, managers, and agents, will subscribe to a premium account. The income generated will support ongoing maintenance and allow us to invest further in the future of myForest.”

The most significant addition to the service, accessed via the new premium account, is access to digital mapping from the Ordnance Survey (note that additional costs apply dependent on usage). This is likely to be popular with those requiring maps for formal applications, or where existing aerial mapping imagery is poor. Alongside OS mapping, various other options are on offer, including: advanced printing, overlaying of data layers such as ancient woodland boundaries, plus a range of reports such as summary reports for species and age-class distributions. It is also possible to export a work programme to a spreadsheet so that it can be taken into the field or shared with others. More features will be added to premium accounts over time and the charity will be developing a myForest mobile app by the end of the year.

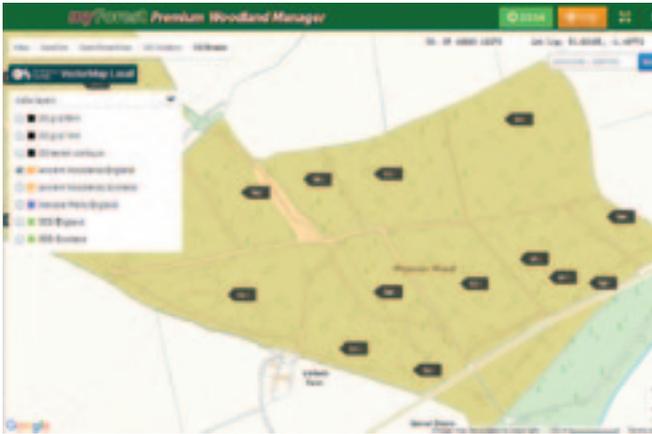
Woodland Heritage members can take advantage of a 20% discount for a myForest premium account by using the following code before the end of May: WH20. myforest.org.uk

myForest FAQs

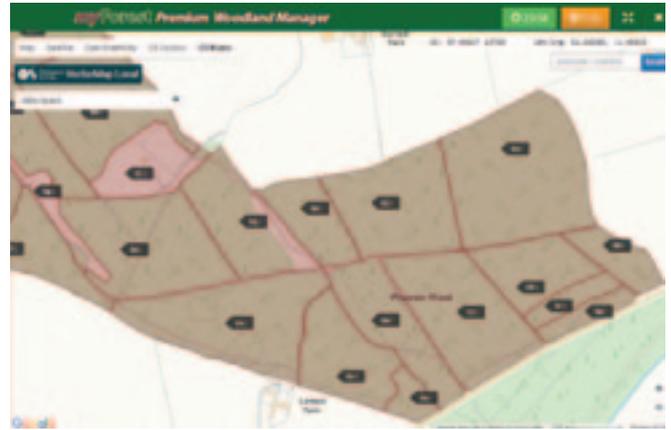
What is it?	It’s an online tool for woodland management.
What can I do with it?	Produce sub-compartment maps, forest inventories, management notes, a UKFS-compliant management plan, a deer management plan, and much more . . .
Who uses it?	4,601 woodland owners and 1,046 agents to manage 77,175 ha (189,850 acres) across Britain. 823 businesses listed on a free directory.
Is my data secure?	Sylva Foundation never shares personal data without user’s permission. You can download your data, in various common formats, at any time.
Why is much of it free?	myForest is run by Sylva Foundation, an environmental charity which supports sustainable forest management.
Where do I sign up?	myforest.org.uk

Essential tools provided for free in myForest

- Store woodland information, produce an inventory, maps, and a management plan compliant with Forestry Commission (England and Scotland)
- Web tools to help assess, record and manage woodland resources for owners, managers and educators
- Undertake a self-assessment of management against the UK Forestry Standard (UKFS) with the Woodland Star Rating
- Manage deer populations by creating a deer management plan, storing annual monitoring data and link to the myForest Deer Manager app
- Educators can survey the trees on a site, map features, and complete an ecological impact assessment to produce a woodland education management plan



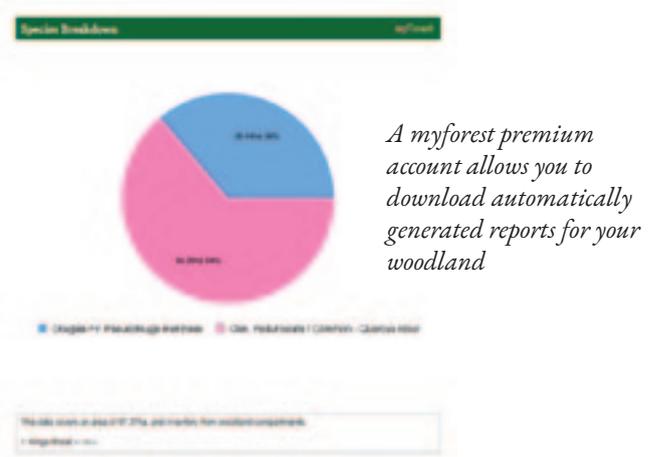
Showing data layers such as ancient woodland



Showing OS background



Among other new features added to myforest is a new measuring tool



A myforest premium account allows you to download automatically generated reports for your woodland

Features	myForest lite	myForest premium
Basic Mapping	✓	✓
Charle Woodland Star Rating	✓	✓
Management Plans (compliant with FC England and FC Scotland)	✓	✓
Felling licence application (FC Scotland)	✓	✓
Deer Management Functions	✓	✓
Plan of Operations (compliant with FC England)	✓	✓
Sub-cpt plan (inventory, work programme, management notes) pdf output	✓	✓
Print Management Plans	✓	✓
Collaborative Management Tools	✓	✓
Printing maps - basic	✓	✓
Advanced Mapping Features	✗	✓
Ordnance Survey Mapping Functionality (*additional costs apply)	✗	✓
Links with Felling Licence Online (FC England)	✗	✓
Overlaying with additional data layers e.g. ancient woodland	✗	✓
Work programme – export to spreadsheet	✗	✓
Species report	✗	✓
Age-class report	✗	✓
Printing maps - advanced	✗	✓
£ cost per month (owner/agent)	FREE	£2 / £10

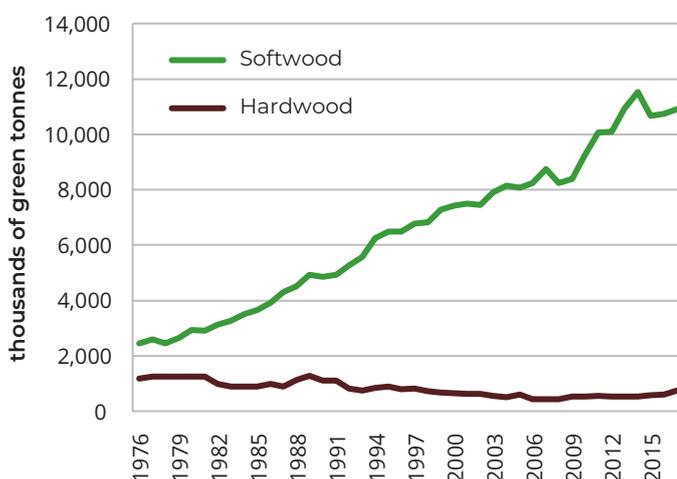
A reflective look at timber over the past 100 years

*by Jessica Sharp, Senior Strategic Communications Officer –
Woodland Creation, Forestry Commission*

Following the passing of the Forestry Act in 1919, the Forestry Commission (FC) was founded to replenish the nation's strategic timber reserves in the wake of the First World War. At this time there was a record low of just 5% forest and woodland cover in the UK. Over the past 100 years, policies to increase it have increased the figures to 10% in England, 15% in Wales, 19% in Scotland and 8% in Northern Ireland, with the area of woodland in the UK estimated to be 3.17 million hectares in 2018.¹

Throughout the past century, conifer plantations have dominated much of the FC's woodland creation efforts with conifers now accounting for around half (51%) of the UK woodland area (although this proportion varies from 26% in England to 74% in Scotland). The resulting forests have provided a resource which spawned the modern timber processing industry as seen in the UK today. The availability of large volumes of softwood has attracted foreign investment from companies including panel board manufacturers such as Egger (Austria), Norbord (Canada), Kronospan (Austria) along with paperboard producer Iggesund (Sweden).

UK wood production 1976 - 2017



At the same time, British wood processing firms including BSW and James Jones & Sons have expanded to process the larger volumes of timber reaching the market as the new forests matured. Over the last 40 years, softwood production has increased from around two million tonnes a year to over ten million tonnes a year². This is clearly something to be celebrated, and today, those original forests established in the 1920s, '30s and '40s are in their second or even third rotation.

Although the growth of the softwood sector has been spectacular over the past 100 years, our broadleaved woodlands have not perhaps fared as well. Changes in rural labour patterns, increased availability of imported timber and home grown softwood products have contributed to reduced levels of hardwood production and woodland management in recent decades. This is something Woodland Heritage cares passionately about and FC is pleased to work with the charity to help reverse this trend. We wish Woodland Heritage every success in supplying its Whitney Sawmills with timber from UK woodlands.

The benefits of forests go far beyond just timber, and forests today are expected to provide a wide range of additional services to the environment and society. Sustainable woodland creation delivers a range of benefits including reducing pollutant levels, conserving topsoil, creating diverse habitats, as well as improving the health and well-being of all by giving people space in which to exercise and enjoy nature.

To reflect these evolving forests, forest design has also progressed and modern multi-purpose forests incorporate open space and softer edges compared to the plantations of old. The UK Forestry Standard (UKFS) ensures that modern foresters consider the wider social and environmental aspects of land management, and that timber production does not compromise soil, water or biodiversity.



Horses used to play a key part in removing timber from the forest



Lumbergirls operating a portable liner saw

Disease has been another factor forests have faced over the past century, with broadleaved woodlands being arguably more seriously affected. First, Dutch Elm Disease changed the landscape during the 1970s, and now Ash Die Back looks set to do the same. Regardless of woodland type and location, it is vital that woodland owners and managers improve the resilience of their woods to climate change as well as pests and diseases. This can be achieved by increasing the number of species and age classes present in woodlands, perhaps by adopting a continuous cover approach to management, and owners doing all they can to avoid introducing new diseases to their woodlands.

Despite the challenges of disease and climate change, the outlook for forestry is bright. Timber prices are increasing, as are volumes of wood reaching the market. More wood than ever before is being used to provide the construction sector with sawn timber and panel products. Bioenergy is now a mainstream technology providing renewable power and heat via around 15,000 installations commissioned in the last decade. Research is being carried out into products such as Brimstone thermally modified wood being developed by Vastern Timber (with support from an FC forestry innovation fund grant), British grown hardwood cross laminated timber (also supported by FC innovation funding), and chemical production using wood in biorefineries.

The government remains committed to increasing forest cover and the value of the non-timber services and environmental benefits provided by woodland is becoming more widely understood and appreciated. To support this, throughout 2019, the Forestry Commission will celebrate 100 years of forestry with a programme of events taking place throughout England. The milestone will

be marked by celebrating the vital contribution forests make to enhance our wellbeing, economy and environment and includes new areas of woodland creation and tree-planting projects, as well as a garden at RHS Chelsea Flower Show exploring climate change and plant health.

As we look ahead to the next hundred years and at how forests will continue to play a critical role in underpinning the resilience of our environment, landscapes and economy into the future, we can say with confidence that society will continue to depend on woodlands to provide clean air, timber, and an environment in which to relax and reconnect with nature throughout the next century.

To learn more about the Forestry Commission, visit: gov.uk/government/organisations/forestry-commission

Or see the Scottish Forestry website at: www.forestry.gov.scot

For Wales, visit: naturalresources.wales/guidance-and-advice/business-sectors/forestry

- 1 forestresearch.gov.uk/tools-and-resources/statistics/statistics-by-topic/woodland-statistics/
- 2 forestresearch.gov.uk/tools-and-resources/statistics/forestry-statistics/forestry-statistics-2018/uk-growthtimber/



Drilling into Oak Decline's past

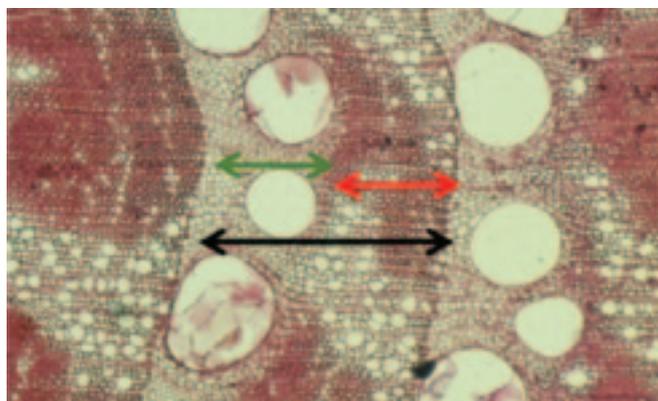
by Professor Mary Gagen, Department of Geography, Swansea University

In 2014, Sandra Denman contacted our Tree Ring Research Group at Swansea with a problem. She felt that it would help the attempt to understand Chronic (COD) and Acute Oak Decline (AOD) if the historical growth of trees at affected sites could be explored through tree ring analysis.

As one of the UK's major dendrochronology labs, she was hoping Swansea might be able to help. Since then we have become part of Sandra's growing group of research partners seeking to understand the current Oak Decline phase, what it means for the UK's native Oak woodland and how we can manage trees growing at affected sites.

Dendrochronology is, quite literally, the study of 'tree time'. In parts of the world with a seasonal climate trees produce one ring per year. Growth of the annual ring begins in the spring, when temperatures rise high enough for cell division to start, and continues until the temperature drops again and the ring stops growing as the tree shuts down for the winter. That cessation of growth makes the sharp, visible ring boundary at the end of the ring.

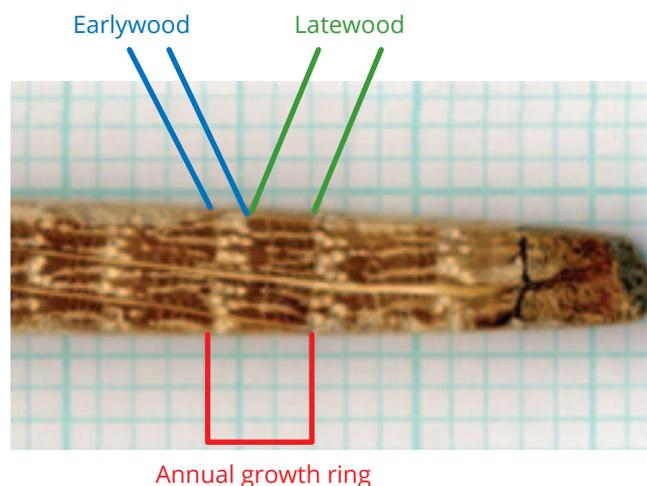
Oak tree rings are particularly beautiful in close-up, with their huge early wood vessels scattered throughout the spring wood and pale rays criss-crossing the rings. The light part of the ring is called the 'early wood'. It grows in the spring, before the new buds have opened into leaves.



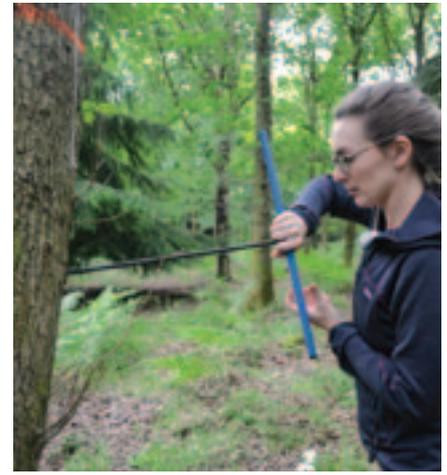
High magnification photograph of English Oak (*Quercus robur*) tree rings. The spring part of the ring (the 'earlywood') is indicated by a green arrow. The summer part of the ring (the 'latewood') is indicated by a red arrow, and the black arrow shows the annual growth ring

It is made from sugars stored from the previous summer and contains the large vessels (the pale 'dots' in the images above and below) that Oak trees use to pump water up to the opening leaves in spring. Oak trees are incredible water movers, transpiring up to 150,000 litres of water per year, and these earlywood vessels are vital for moving all that water from roots to leaves. As summer progresses the tree starts to produce darker, 'latewood' cells. They have thicker cell walls and are small and dense. The early and late wood from the same year make up the annual tree ring.

The width of the ring, the density of the wood within it, and the variability in certain aspects of the wood chemistry, change from year to year according to how suitable for growth the climate was that year and the other stresses the tree was under (like fire, disease or insect outbreak). That variability gives a unique barcode signature to every ring in trees across a remarkably wide region. By pattern matching the tree ring widths (or density, or chemical variables) a precise date for every ring in the tree can be derived. This technique produces two types of data useful to science; the actual date of the rings can be used in archaeology to date building timbers, and the pattern of wide and narrow rings tell us about the environmental and climate history the tree experienced as it grew. Climatologists use this information to study climate changes in the past, but the width of the ring is not just controlled by the year's climate but also by



The annual growth ring, earlywood and latewood, in an English Oak tree (*Quercus robur*)



Photos: Josie Duffy

Core sampling for dendrochronological analysis at Chestnuts Wood. Pictured is Swansea University PhD students Neil Matthews and Josie Duffy

the processes that have gone on in the forest that year, including decline phases, insect outbreaks, management processes in the forest and events such as wildfires or pollarding. In that way, tree ring science can tell us a lot about the tree's growth history.

We were tasked with taking core samples from trees at Speculation Canop and Chestnuts Wood in the Forest of Dean, both sites profoundly impacted by Chronic Oak Decline. We took core samples, using a tree ring increment borer to extract a small 5mm core from one radius of each tree trunk. We then measured the ring widths back through the core to when the trees were young and explored what the pattern of wide and narrow rings revealed about the history of tree growth at the site.

Speculation Canop and Chestnuts Wood

Chestnuts Wood has been noted in records since 1282 and is mentioned in a Royal Charter establishing the Abbey of St Mary de Dene (Flaxley Abbey) in 1140. Henry II granted the Cistercian monks permission to take timber from the extensive Chestnut groves once on the site of the present day Chestnuts Wood. In later centuries the woodlands comprised 19th century 'Napoleonic Oaks', so called because of the era in which they were planted. A later planting phase then occurred in the 1930s and 1940s and the majority of the Oaks now standing at Chestnuts Wood are from this later phase of planting. Decline is recorded at Chestnuts Woods from 2012 and currently clusters of dead trees and those with external canopy symptoms such as die back of fine branches and broken branches, are present. The surrounding Birch, Rowan and Sweet Chestnut seem unaffected.

Speculation Cannop is part of Serridge Enclosure, originally comprising 409 acres (165 hectares) enclosed

sometime in the reign of George III (1760-1820), according to the Journal of the House of Commons of 1788. The site is another 'Napoleonic Oak' site but with older trees still present in abundance from the planting of 387 acres (156 hectares) with *Quercus robur* via a mixture of acorns and young transplanted trees sometime around 1812. The Oaks were originally inter-planted with Spanish or Sweet Chestnut (*Castanea sativa*) to supply the Royal Navy with building timbers. The site at Speculation Canop has two distinct areas, a wetter southern compartment where drainage operations had been carried out probably in the post war era circa 1950, and a drier northern compartment, where most of the Oak trees presently showing external decline symptoms are found.

Sampling tree cores

Tree coring is a relatively fast and simple process and it is known not to be harmful to healthy trees. Although there is no evidence that decline can be spread between trees by coring, we first designed a protocol for coring declining trees, to absolutely minimise any chance of spreading agents, like some of the fungus, insects and bacteria that may be involved in decline, between the trees. Two borers were used, one for healthy trees and one for declining trees. Moreover, each borer was thoroughly sterilised in between coring, as were our boots and additional equipment. Core samples were then heat sterilised before being taken back to our lab in Wales (where decline is largely absent at the moment due to the thermal limits of the *Agilus* beetle – Wales is just too cool and damp).

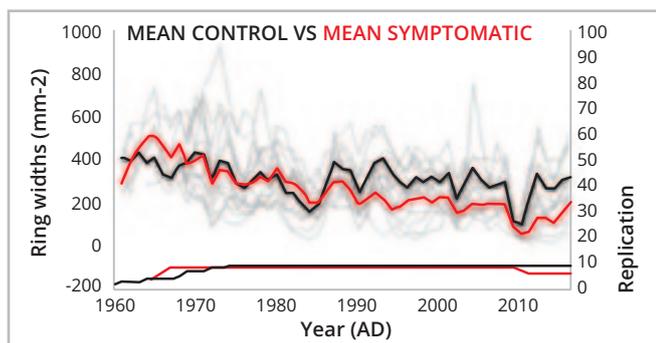
Ring width histories

At each site a pool of 'symptomatic' and 'control' trees were cored. Symptomatic trees showed clear, external, canopy symptoms of decline whilst control trees had healthy canopies, trunks and bark.

The process of measuring the ring widths in core samples is, in contrast to coring itself, slow, detailed and repetitive. The measurer slowly gets an eye in for how the trees at a particular site grow. Do the trees tend to produce very wide rings, or narrow ones? Is the growth complacent – with little variability from year to year – or is it highly sensitive to the environment with strongly varying patterns of wide and narrow rings through time? What was immediately obvious from the Speculation Canop core samples was that these were trees that had been through a lot. There were strongly varying patterns of growth over the decades with periods when some trees seemed to be growing strongly and vigorously for several decades, and then sudden phases where some trees crashed in their growth and very narrow rings would follow.

At Chestnuts Wood the situation was similar but, because the trees we sampled are much younger than those from Speculation Canop, there was not the same pattern of decades with good growth and poor growth.

At Chestnuts Wood we were interested to see when the ring widths in the trees started to show signs of reduced growth in comparison to the reported external canopy symptoms around 2012. The mean ring widths in the control and symptomatic trees diverge, around 1985, long before any reports of external decline symptoms. This can be seen in the graph (below) and is known, from other scientific studies, to be a common feature of decline. It seems there is a lag between the tree started to experience decline in its trunk growth and when it shows external canopy symptoms. At Chestnuts Wood this lag is profound, covering a period of at least 20 years.



Ring width measurements at Chestnuts Wood. The red line shows the mean annual ring width in the cores that came from trees with external decline symptoms at Chestnuts Wood, and the black line the mean ring width in the cores that came from trees without external symptoms. From about 1985 the ring widths in the symptomatic trees are narrower than those in the healthier 'control' trees, indicated that the trees are not able to grow their trunks as fast. The grey lines show the ring width measurements for all the trees and the red and black lines are the average of all the trees in that category (red = symptomatic, black = control trees).

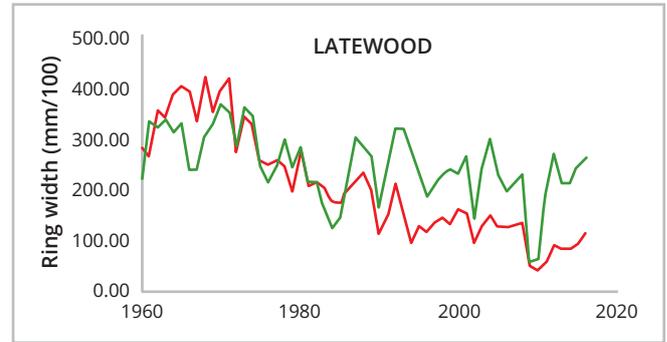
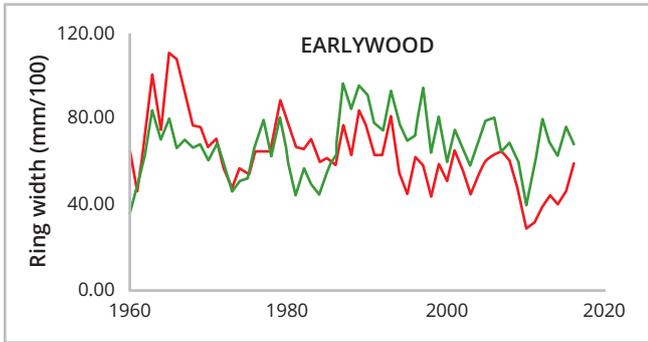
The tree ring width measurements from Speculation Canop had indicated that the reduction in total ring width, once decline sets in, was dominated by reduced growth in the latewood portion of the ring. This is entirely logical as Oak trees absolutely have to produce early wood. The early wood is needed to translocate water up to the buds and leaves, each spring. Trees under stress can afford to reduce the width of their latewood in the summer though. The results from Speculation Canop were interesting enough for us, with additional funding from Woodland Heritage, to revisit the Chestnuts Wood samples to see if we could measure the latewood and earlywood ring portion separately. This isn't an easy task as, in the stressed trees, the latewood is very narrow, sometime just a few cells wide, and the growth can become distorted and hard to see, even under the microscope.

In their early years of growth, the symptomatic trees at Chestnuts fluctuate at the same ring width, or a small percentage less, than the average annual growth in the control trees. By 2002 though, the decadal average ring width in the symptomatic trees is 34% lower than that of the control trees (based on an average of 16 trees). In particular the latewood portion of the ring – that formed in the summer – seems to narrow progressively over a number of years in those trees currently showing external decline symptoms.

Around 1985 there is then a clear divergence in the growth of the symptomatic and control trees and, after approximately 2010, the control trees appear to 'recover' in their growth better than the symptomatic trees. This is more pronounced in the latewood than in the earlywood.

There is evidence that climate might be involved in the onset and advancement of decline, in addition to other abiotic and biotic factors. As pathologists are understanding more and more about these complicated syndromes it seems that there really is a complicated mosaic of factors involved, of which climate is certainly one.

Instrumental climate station records, from the Meteorological Office, were examined for the period around 1985 in an attempt to explain the ring width divergence. The winters of 1985 and 1986 were anomalously cold and dry in England, and the preceding summers of 1983 and 1984 saw widespread drought and heat in England. These climate anomalies in the mid-1980s seem to have caused declines in ring widths at Chestnuts that some trees recovered from and others did not with the declining growth then going on to be manifest in external canopy symptoms by 2010.



Mean ring width for symptomatic (red) and control (green) trees at Chestnuts Wood. Earlywood is shown separately to latewood

Stable isotope analysis of tree rings helps build up the decline picture

As mentioned above, we can measure the chemical composition of the individual tree ring wood, as well as the width of the ring, and lots of other variables in fact. The group at Swansea are experts in the chemical analysis of tree rings and an additional element to the study at each site has been to measure the stable isotopes of carbon and oxygen in the tree ring samples.

Isotopes are simply different types of element, carbon has three types, two stable isotopes and one radio isotope, carbon 14, which is used to radio carbon date natural materials. The two stable carbon isotopes, carbon 12 and carbon 13, occur in different amounts in the tree rings according to what the climate was like in a given year and according to whether the tree ring was made from that year's sugar, or the previous year's stored starch. It is relatively simple to measure the amount of each isotope in a wood sample from each tree ring – a mass spectrometer is used.

The two graphs above show the results of analysing the stable carbon isotopes in the tree rings from Chestnuts Wood. The top graph shows the earlywood portion of the ring and the lower graph the latewood portion of the ring. Remembering that the declining trees struggle most to make latewood, not earlywood, the results tell us more about how they respond to the onset of decline. As the decline sets in in the trees, before they show external canopy symptoms or even symptoms of reduced ring width, the latewood carbon isotope values increase in the symptomatic trees. Higher stable carbon isotope values indicate that there is more of the heavier isotope in the wood. There are several possible reasons for this. However, the one we think is the most likely is that the tree is having to use starch from its reserves because it can't make enough sugar from its leaves in the summer as decline sets in. We know, from careful chemical analysis, that starch has more heavy carbon in it in comparison to

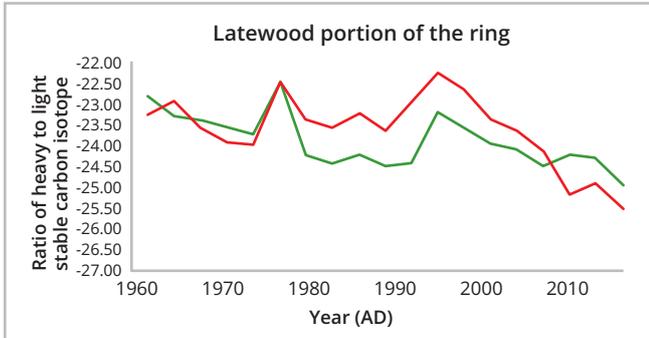
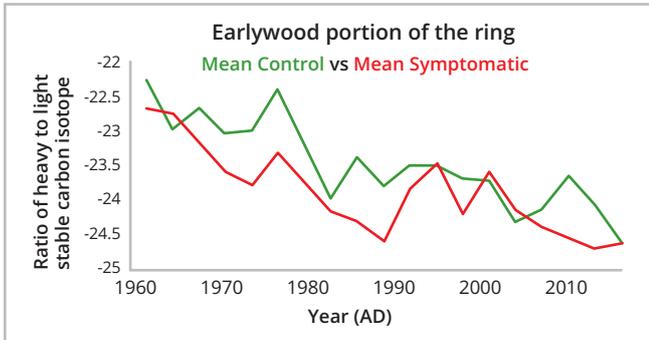
sugar. So the 'heavy' latewood values, from around 1980 in the symptomatic trees at Chestnuts Wood, reveal that the trees are struggling to make sugar in the summer and having to use stored starch reserves to produce latewood.

Looking into the past to help our future woodlands

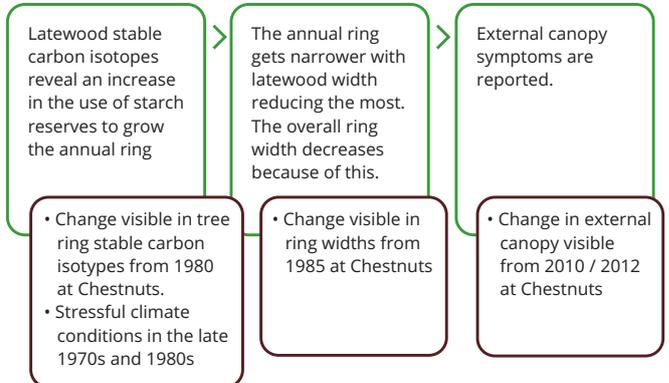
We still have a way to go to understand the decline histories in the Forest of Dean and how tree ring analysis can help us to managed decline. However, we have been able to build up a picture of how tree rings change as decline sets in. This is helpful because we can take the information from tree ring histories, what it tells us about how stressed the trees are and use it to inform management practice. For example, a tree that was showing rapidly declining latewood ring widths, even without externally visible symptoms, is revealing itself to be under stress already and steps can be taken by those managing the site to maximise the chance of the tree's recovery.

We have laid out (below) the chain of events we see when we explore ring width histories in declining trees based on our pilot investigation at Chestnuts Wood. The first evidence is seen in changes in the stable carbon isotope composition of the latewood. Its high values reveal that the trees is under stress and having to use stored starch to produce the ring. Perhaps the extreme climatic events of the late 1970s and 1980s started this phase at Chestnuts Wood. Later, the annual ring reduces in width as the tree cannot grow a wide latewood ring using its depleting starch stores. Finally, external canopy symptoms are seen as the tree begins to struggle to produce fine roots and branches and comes under attack from a wider range of biotic factors.

Our pilot study suggests there is some scope for monitoring the ring width development of sites at risk from Chronic Oak Decline. Short 'punch' cores can be taken, of the outermost five or ten rings, very easily and



Stable carbon isotopic analysis of the tree ring wood in symptomatic and control trees at Chestnuts Wood. The control trees are shown in green and the symptomatic trees in red and the top graph shows the earlywood samples, the bottom graph the latewood samples. The lines are the mean of all the trees we analysed. The higher the stable isotope value, the more 'heavy' carbon is included in the sample, most likely produced from starch stores, not sugars, starch being enriched in the heavier carbon isotope in comparison to sugar.



quickly and, by analysing the ring growth each year, the health of the trees could be monitored via their annual trunk growth, adding knowledge to the monitoring of external symptoms and helping us to manage our vital Oak woodlands for the future.

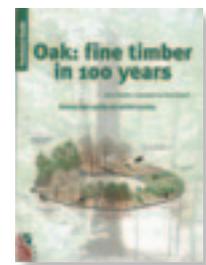
More information on AOD can be found in the separate Acute Oak Decline Newsletter 2019.

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