

Woodland Heritage

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Peter Savill Remembered
Wild Service Tree
The Cornish Pilot Gig
Fenland Black Oak

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Gearing up our supply chain

by Lewis Scott, Co-Founder and Trustee of Woodland Heritage

As the 2020s begin, what are the hard realities that will determine whether much vaunted and ambitious tree planting targets are met and indeed fulfil their overall potential to create a resilient treescape for the future?

In short, what do we have to do to have the infrastructure in place to make the most of this chance of a lifetime, in a country with one of the lowest percentages of tree cover in Europe?

In February I met Dougal Driver, Chief Executive of Grown in Britain (GiB) and Ian Tubby, Principal Advisor, Business and Markets, Forestry Commission (FC), to discuss the opportunities and threats that lie ahead.

The major challenges we identified included:

- Supply of land
- Supply of seed and planting stock
- Skills
- Biosecurity
- Ongoing management

Supply of land

The new Environmental Land Management Scheme (ELMS) will need to make tree planting at least as attractive to landowners as agriculture. Still very much in development, topics such as what species to plant and what provenances of native species are eligible highlight the challenges in creating a new system that makes forestry a viable option for landowners far more used to farming.

Nursery capacity can be increased with investment, but land use change is never simple with many owners reluctant to embrace the 'for ever' change that occurs once trees are planted. Rather than stock, it could be lack of ground in which to plant that threatens some missed targets over time.

Supply of seed and planting stock

Seed supply could be a limiting factor with few suppliers and not enough active seed stands. Registering more seed stands on both private and public land could be a relatively easy win in the short term; even the softwood favourite of Sitka Spruce has only a dozen or so seed stands to collect from.



Even Sitka Spruce has a limited number of seed stands

The planting target of 30,000 ha of new woodland a year is likely to require a further 30 million trees a year, on top of the current demand for 100 million per annum (roughly 70:30, restock: woodland creation).

With biosecurity an ongoing threat, it is encouraging that >90% of our young trees are UK supplied. Imports may be restricted anyway as other nations seek to plant more trees in their own countries. So, despite the setbacks of 2018 when an estimated ten million trees were lost to drought, recent investments by both public and private nurseries should bring increased supply in two to three years' time of perhaps 20-25 million trees per annum. There may be further refinements needed, however, such as in capacity to offer cell grown trees, as well as a greater variety of species and provenances, all of which should address some of the risks posed by a changing climate. The likelihood is that the extra 30 million trees will not be needed immediately, so the signs are encouraging that we could plant more and become self-sufficient in stock.

Skills

The Forestry Skills Forum, in a skills audit partly funded by Woodland Heritage in 2017, had already identified planters as being in short supply, with a large number of employers stating that if planting targets are to be met, investment in training is required; this was written without any knowledge of the much larger targets since proposed for planting. Both GiB and FC have noted skills shortages in the nursery sector, characterised by smaller independent businesses with a heavy reliance on staff from around the world and often an all

hands to the pump approach when weather is unfavourable. In all there is little resilience currently in the supply side.

Biosecurity

Our woods and forests are ravaged by imported pests and diseases and planting stock has been one of the major culprits for allowing hitchhiking from abroad. The new Plant Healthy Certification being launched by the Plant Health Alliance in 2020 and certified by Grown in Britain, is a major step to preventing further devastation from the nasty diseases that lurk across the waters.

Ongoing management

Over 40% of UK woodlands are under-managed or unmanaged, leaving millions of pounds of resource untouched and in many cases woodland biodiversity suffers as a result.

So, as with planting, some additional financial incentive for management might be needed to supplement the basic return from the timber itself and to incentivise the restoration of management in currently neglected woodlands.

Opportunities

The new ELMS will take time to stimulate the start of the timber supply chain, but right now, large businesses are pushing more than ever before to implement large carbon offsetting schemes. This can involve working with charities with big planting targets themselves like The Woodland Trust, which has already planted three million trees in a partnership with Sainsbury, whilst a further ten million are planned over the next decade to help absorb 2.5 million tonnes of the carbon produced in Lloyds Bank's operations. Further, most welcome news is that the National Trust plan to plant twenty million trees and increase the tree cover on their holdings from 10% to 17% by 2030; great ambition and leadership.

I can't help wondering if we need a national task force to coordinate all of our efforts?

We are the second largest net importer of timber in the world and need to use more timber to help reduce CO2 emissions, whilst locking up carbon for generations in the finished products created by the wood.

Cost is still the major determinant in choice, but there is a growing interest in using UK timber, so how can we convince mainstream consumers that they should buy British, whether as individuals or businesses? One way is to insist on the Grown in Britain certification mark on products.



One in the ground; millions to go

When Woodland Heritage acquired Whitney Sawmills it meant that what is an increasingly rare example of a UK hardwood sawmill remained in operation, buying British logs and converting them to fine British timber which from this year carries the GiB certificate. In a very small way, could our sawmill be the manifestation of a turning around in fortunes of hardwood sawmilling, perfectly timed to help bridge a gap? After all, the swathes of planting planned should result in unprecedented levels of thinnings, hence our delight in being able to work with John Makepeace and the RSA on the 'Branching Out' project.

After the thinnings though will hopefully come the timber, ready to be fed into Whitney and other established mills, maybe supplemented by mobile millers able to feel confident to put down roots and establish their own roles in a growing timber supply chain, roles that Woodland Heritage would be delighted to help shape and advise on.

The next decade needs to lay the foundations for a timber supply chain that must be larger, more connected and more efficient if it is to play a key role in the Net Zero economy necessary in 2050. The opportunities are there, the threats potentially manageable, it is now down to collective willpower to create a thriving industry that will serve society, the economy and the environment well by the middle of this century.

Dr Peter Savill

1939 - 2019

by Professor Jeff Burley, former Director, Oxford Forestry Institute

Dr Nick Brown, Principal, Linacre College, Oxford

Dr Gabriel Hemery, CEO, Sylva Foundation, Little Wittenham, Oxfordshire



Dr Peter Savill presenting his Award to Dr Joan Webber in 2016 and to Gary Battell in 2017

This obituary of Dr Peter Savill is co-authored by three of us who knew him as an outstanding forest researcher, teacher, student supervisor, author, manager and collaborator in various national and international organizations, and a personal friend. He was one of the leaders in British silviculture and forest management and appreciated globally – throughout temperate regions particularly.

Peter was born in London in 1939 and his main school was St Paul's, London. His forestry career began in earnest in 1959 when he matriculated at Bangor University for a BSc in Forestry. When he graduated in 1962 he was appointed as an Assistant Conservator of Forests in Sierra Leone where he thrived in the very different ecological and social conditions. In 1966 he returned to the UK as a Forest Officer in the Northern Ireland Forest Service where he combined a busy working life with academic study. In 1971 he completed an MSc in Forestry at Bangor and, in 1977, a PhD at Queen's University, Belfast, on "Upland silviculture in Northern Ireland". This laid the foundation for a successful career and experience in temperate forestry.

In 1980 Peter took three months sabbatical leave to attend the Forest Research Methods course at the

then Commonwealth Forestry Institute in Oxford. His unrivalled combination of professional experience and research expertise made him the perfect candidate for the post of University Lecturer in Silviculture in the University, a post to which he was appointed in 1980. Here he lectured to undergraduates reading for the BA in Agriculture and Forest Sciences. Unfortunately the University, with an amazing lack of foresight and appreciation of the upswelling in public interest in forestry, closed the degree one year later.

However, Peter's talents were not wasted; he took on substantial teaching for the MSc course in *Forestry and its Relation to Land Management* and became the Course Director in 1996. Alumni of this course are a veritable "Who's Who" of British and international forestry. More than 570 students graduated in the course on Peter's watch, many of whom have written to express their sadness at his loss and their appreciation of his kindness, humanity and gentleness. Many of these students were members of Linacre College where one of us (NDB) is Principal. Peter was a Fellow, then Senior Tutor, and finally Vice-Principal. Apart from his excellent lecturing and leading the students' field studies, Peter was outstanding as a supervisor of MSc projects

(more than 50) and doctoral theses (26). Throughout his time in the Oxford Forestry Institute Peter contributed diligently to the policy development and management of the Institute and in 2000 he was promoted to a Readership in the University.

Another of us (GH) had the great pleasure and privilege of working with Peter for 16 years to establish a research woodland for hardwoods at the *Northmoor Trust* (now the *Earth Trust*) in Little Wittenham near Oxford. This woodland eventually contained 25 international species with provenance and progeny trials of many hardwood species of great importance and potential within the UK. Two of us (GH and JB) worked with Peter in various roles to establish and manage the *British and Irish Hardwood Improvement Programme* (now the *Future Trees Trust*) with a large network of field trials and collaborators across the British Isles. Peter was also a major influence in the founding and trusteeship of the *Sylva Foundation* in which GH is Chief Executive Officer.

Apart from his work in Sierra Leone, Peter played a significant role in the development and leadership of research units on silviculture and forest management in

the *International Union of Forest Research Organizations* of which the third of us (JB) was President. In this role he stimulated research and great cooperation between forest scientists in many temperate countries with hundreds of individuals participating in conferences and meetings.

Emanating from this lifetime experience Peter published or co-published over a hundred peer-reviewed papers and conference contributions plus four important books. Of these "*Silviculture of trees used in British forestry*" has reached its third edition and was described perfectly on Amazon as the Bible for silviculturists and indeed for all those interested in forestry. For many years he was editor of "*Forestry*" the journal of the *Institute of Chartered Foresters*. He was elected to a Fellowship of the ICF and recognized by the award of the gold medal of the *Royal Forestry Society*, a rarely awarded honour.

It is poignant that, just as the world is waking up to the fundamental importance of trees and forests for human welfare and survival, we lost in 2019 a man who was one of our wisest guides.



On a seed collecting expedition in Kyrgyzstan



Looking over Paradise Wood, Little Wittenham



Working in Sierra Leone

Professor Julian Evans and Dr Gabriel Hemery

Joint winners of the 2020 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 joint winners of this year's Peter Savill Award are Professor Julian Evans and Dr Gabriel Hemery. This is only the second joint award and has been done in recognition of the close working relationships that both winners had with Dr Peter Savill.

To further break with tradition, rather than short biographies appearing of the awardees, both write about their relationships with Peter Savill, and thereby help to illustrate just some of the reasons why both are most worthy recipients of this prestigious award.

Professor Julian Evans

Peter and I got to know each other well in the 1980s. My 'Plantation Forestry in the Tropics' (Oxford, 1982) had come out and perhaps as a result, along with my interest in broadleaved silviculture in Britain, I became a regular guest lecturer on the



Oxford Forestry Institute's Masters degree. During such visits to Oxford I would meet Peter and it was then that the idea grew: what about a temperate equivalent of my tropical book? As one does, we worked up drafts, OUP were interested, and in 1986 Savill and Evans was born, 'Planation Silviculture in Temperate Regions - with special reference to the British Isles'.

It was right that Peter took precedence as his input was the greater. Indeed, I am sure he became frustrated with me as co-author - he

was excited by this, his first book, whereas, for me, it was my third in four years as 'Silviculture of Broadleaved Woodland' (HMSO) had been published in 1984.

Savill and Evans sold quite well, but I think we both felt it wasn't quite 'hitting the right button' and we decided to re-cast it to give it a European focus. Two co-authors joined us, Daniel Auclair (INRA) and Jan Falck (Umea, Sweden) and in 1997 'Plantation Silviculture in Europe' was published, again by OUP. The publisher produced both hardback and paperback simultaneously which made it more readily accessible to students who were, of course, one of our main audiences.

Working with Peter on these two books and continuing professional association in visits to Oxford, at field meetings, and in conferences has been one of life's privileges for me. To receive this award is honour indeed.



Dr Gabriel Hemery

I first met Peter Savill in 1991 when I was a fresh-faced geography graduate; he was an advisor to the Northmoor Trust (now Earth Trust) when I joined the charity as an estate warden. Little did I know then that we would work closely together, under many guises, for the next 28 years. He became my professional patron, guiding me in my forestry work and personal development, he became my supervisor for my DPhil at Oxford, was a frequent companion on various organisational boards and committees, and eventually he became the chair of trustees for a charity that I co-founded in 2009.

At the Northmoor Trust, from 1992, Peter and I worked closely together to forge ideas for a research woodland dedicated to hardwood trees. We worked together for 16 years to create 'Paradise Wood' which eventually contained 25 international field trials and 100,000 young trees. We spent many days together measuring hundreds of trees, endured freezing fingers and sunburnt necks, and enjoyed enlightening visitors from around the world.

It was Peter who convinced me to apply to study for a DPhil at Oxford, and, as my academic supervisor, he

guided me through an incredible three-year journey of self-discovery and silvicultural wonder. It wasn't only trees either; I remember on my first day, meeting in his room in the Oxford Forestry Institute and his saying, "Gabriel, there's a marvellous new search engine called "Google."" I returned to my lab and wondered how I should go about turning on my first ever PC. What was a "browser" anyway?

I still enjoy regaling anyone who will listen with tales from the walnut-fruit forests of Kyrgyzstan where I had the pleasure of Peter's close company for three and a half weeks on a legendary seed-collecting expedition as part of my DPhil research. Together we experienced lost luggage, fantastical champion trees (Common Walnut with straight stems and a first branch at 26m, all naturally grown!), and the deepest personal kindness you could ever wish for from a travelling companion.

Peter and I were deeply involved in the formation and evolution of the British and Irish Hardwoods Programme, which became the Future Trees Trust in 2014. When I acted as its Research Co-ordinator he advised and supported me in helping establish field trials across Britain and Ireland, and we spent some memorable times together hunting hardwoods in Italy, and studying 200-year Oak silvicultural systems in France. Peter was instrumental in introducing me to the work of Woodland Heritage, and I had the privilege of serving as a fellow trustee from 2004 to 2009. In 2008, when I started to work on a vision with Sir Martin Wood for a new forestry charity, it was Peter to whom I turned for advice, contacts and sage counsel. It was an obvious choice to invite Peter to become one of the founding trustees for the Sylva Foundation in March 2009. In 2014, Peter became chair of the trustee board for Sylva, a position he held until

retiring in 2019, shortly before his death. I could not have wished for a more dedicated and thoughtful chairman during those formative years in creating and nurturing the young charity.

Peter and I co-authored dozens of research and technical papers, many of which remain the most highly cited articles in my name. Of course, his bible on the 'Silviculture of Trees Used in British Forestry' was essential reading for me while I was writing my first book, 'The New Sylva' (Bloomsbury, 2014), and typically for Peter, he shared unpublished versions of his latest edition to help me in my book research.

Peter Savill has left a magnificent legacy to forestry. When, before his funeral service, I compiled memories from his former students and colleagues from across the world among the dozens of comments there were certain keywords that shone out and which tell of his personal impact: **great, gentle, kind, helpful, knowledgeable, patient, wise, humble.**

I was inspired to write a poem in Peter's memory which I read at Peter Savill's funeral service on 13 December 2019.

Peter Savill DBH

*An undefined acronym would never escape
I can imagine in the margin
A green biro question mark
And a circled 'RIP'*

*Generations of foresters
Nurtured and inspired
By basal area and DBH
That's diameter at breast height*

*Silviculturist, scientist, tutor, and friend
At 1.3 metres
His heart had the greatest
Diameter at breast height
Peter Savill, DBH
Distinguished Brilliant Human*

A celebration to remember

It was an honour for Woodland Heritage to be able to celebrate the Silver anniversary of its founding, held at the Highgrove estate, in the presence of our Patron His Royal Highness The Prince of Wales. A tour of the beautiful grounds in the glorious summer sunshine was followed by a reception where our guests had the chance to meet His Royal Highness and enjoy a very special birthday party.



Susan Bell, Polly Phipps, Sarah Wain and Gary Battell



Dr Sandra Denman, Forest Research Acute Oak Decline



Nick Hill and Luke Hemmings, both winners of the Prince of Wales Award for Woodland to Workshop and Tabitha Binding



Francis Fulford, Luke Thompson-Coon, John Deakin and David Barbour



Caroline and Richard Fry, Tom Christian



Burr Sweet Chestnut Wood Turning



Lewis Scott, co-founder and acting Chairman presenting the piece to His Royal Highness

A presentation fit for a Prince

We decided to present His Royal Highness The Prince of Wales with something very special, something unique even. As it happened, we found an interesting piece of history linking our presentation with one made to Her Majesty Queen Elizabeth The Queen Mother in 2000.

Turnings – the first and the last

The beautiful piece presented to our Patron was produced by Master Turner, Richard Chapman. It was created from the last remaining piece of burr Sweet Chestnut removed from Anmer Hall some twenty years. Pleasingly and most fittingly, the first ever piece produced was commissioned by the staff at Sandringham on the occasion of Her Majesty Queen Elizabeth The Queen Mother's 100th birthday. The rose bowl was presented by a retired Sandringham orchard manager, who had collected chestnuts from beneath the tree as a small boy.

The stump was in the ground for twenty years and was excavated, split into quarters and brought to Richard Chapman's workshop. The stump was some ten feet across and needed two trailers to take it away.

Due to the size of the stump and its exceptional character, many other notable pieces have been turned from it by

Richard Chapman, a Woodland Heritage member for the last twenty years, and which have included:

- A present commissioned by Sandringham farmers for the wedding of the Duke and Duchess of Cambridge in 2011
- The trophy presented each year to the winner of Woodland Heritage's Peter Savill Award for a 'significant contribution to the British Forest Industry'
- The trophy presented to the winner of the Woodland Heritage 'Best in Show' award at the annual Bodgers' Ball, staged each year by the Association of Pole-Lathe Turners and Green Woodworkers



Geraint Richards, Woodland Heritage Trustee and Bede Howell

International Year of Plant Health 2020 - Why plant health matters – and how you can help

by Nicola Spence, Defra's Chief Plant Health Officer

As a child, helping my grandfather in the garden and regularly visiting Kew Gardens, I was compelled to investigate plants and understand how they worked. I was particularly fascinated by plants which produce our food such as bananas, coffee and cocoa. As someone who has always had a passion for plants, I'm a firm believer in the importance of involving the public in ensuring plant health. We have a collective responsibility to protect the health of our nation's plants.

I was appointed as Defra's Chief Plant Health Officer in April 2014 as part of the government response to the discovery of Ash dieback, a serious disease affecting Ash trees in the UK.

I lead the government response to strengthen protection for our plants and trees. I combine science, policy, outbreak response and recovery, working with a wide range of external partners and stakeholders. I enjoy my work immensely and having a science background, gives me confidence in the technical advice I give to a range of different audiences. I can also make a real difference in securing better protection for our plants and trees.

International Year of Plant Health (IYPH)

The IYPH is a once in a lifetime opportunity to raise global awareness on how protecting plant health can help end hunger, reduce poverty, protect the environment, and boost economic development. From the biggest forests and national parks, to what we plant in our own gardens, this year will celebrate this rich tapestry of beauty we see in everyday life. Events are being organised around the world to celebrate the IYPH and in the UK we are planning a range of events with Defra working with a number of organisations. To find out more about the UK's planned activities look at the Plant Health portal.

I publicly launched IYPH by planting a tree in our new Ash archive. We are very excited about all the events and activities



Planting in the Ash archive

we are planning in the UK to celebrate IYPH, and we would like as many people as possible to be involved.

Why plant health matters

Plants sustain life. They make up 80% of the food that we eat and produce 98% of the oxygen we breathe. They provide homes for our wildlife and make our countryside a wonderful place to explore, enhancing our lives and wellbeing. They support our communities and contribute to our economy. In the UK around nearly 600,000 jobs are supported by ornamental horticulture and landscaping, equivalent to 1 in every 62 jobs.

Between 2016 and 2018 the trade in plants and plant commodities was worth around £14 bn (22 Metric Tonnes) annually of which £12 bn (17 Mt) was imports to the UK.

Yet they face continuous and increasing threat from pests and diseases on a global scale. Moreover, international travel and trade has tripled in volume in the last decade and can quickly spread pests and diseases globally causing great damage to native plants and the environment. In the UK alone there are 127 plant pests and diseases that are considered high risk.

An infographic titled 'International Year of Plant Health 2020' from the Department for Environment, Food & Rural Affairs. It features several statistics and facts about plant health. The top section states 'Healthy plants benefit people, the environment and the economy'. Below this, it says 'Approximately 1.3 billion kg of air pollutants were removed by woodlands, plants, grasslands and other UK vegetation (2015)'. Another section notes 'The world's food supply depends on about 150 plant species, of which just 12 provide three-quarters of the world's food'. A third section states 'A mature evergreen can intercept more than 15,000 litres of water per year, helping to reduce the risk of flooding'. A fourth section says 'The correct placement of trees around buildings can reduce the need for air conditioning by 30%, and reduce winter heating bills by 20-50%'. A fifth section mentions 'The UK fresh cut flower and indoor plant market is worth £2.2 billion at retail level'. The final section states 'Around 568,700 jobs across the UK are supported by ornamental horticulture and landscaping, that's equivalent to 1 in every 62 jobs'. The infographic also includes a temperature gauge showing 18°C and a pair of pruning shears. The URL 'https://planthealthportal.defra.gov.uk' is at the bottom.

It is therefore vitally important that we protect our plant and tree ecosystem from anything that can diminish its health, damage our landscape and impact the economy.

Top threats to global plant health

Maintaining plant health in a changing climate is likely to become a global problem and the long-term effects of climate change on our crops and natural environments are unknown. Climate change is likely to influence the occurrence, prevalence, and severity of many plant pests and diseases affecting decisions on which crops are grown and how they are managed.

Countries may have to adapt to changing climates by diversifying the crops they grow and the different species they plant in the natural environment, while following strict biosecurity measures to help protect our landscapes from climate change, pests and diseases.

What can you do?

We all have a collective responsibility to look after our plants, and to practice good biosecurity by:

- **Taking care** of the plants we have at home or at the office by following advice from rhs.org.uk/advice/plant-care/all-plant-care-advice
- **Buying responsibly** - source plants from reputable nurseries and suppliers and check the plant's origin.
- **Looking out** for any unusual symptoms on trees and plants and reporting them to the Forestry Commission's Tree Alert website
- **Cleaning your boots** and equipment before and after going out and about in woodlands and parks to help limit the spread of potentially devastating plant diseases.
- When returning from abroad, **don't risk** bringing plant pests into the UK with you – don't bring back plants and cuttings.

Further information

Countries all around the world are planning a number of events and activities to highlight and promote IYPH – see the FAO's official website for more information. Follow Nicola Spence on Twitter @plantchief. Follow and tag your posts with #IYPH2020 on social media to raise awareness about the importance of #PlantHealth and to share best practices.

fao.org/plant-health-2020/about/en

Field Weekend 2019

Thursday June 13 - Westonbirt

by Kelly Morss

Traditionally the Woodland Heritage Field Weekend gives our members the chance to visit estates, woodlands and workshops which are not usually open to the general public.

However, with an opportunity for a guided 'back-stage' tour of the site, our first visit was to Westonbirt, The National Arboretum in Tetbury. Westonbirt is open to the public and easily accessible to all but we were afforded an insight behind the scenes with Andrew Smith, Director, and Mark Ballard, Curator.

Westonbirt Arboretum is an estate established in Victorian times by Robert Holford and now owned by Forestry England. The Grade I-listed landscape has an internationally recognised collection of over 15,000 trees originating from China, North America, Chile and Britain. In the last few years the estate has benefitted from a £4.3 million regeneration programme, the first phase of which included the Visitor Centre.

It was a damp start indeed to my first Field Weekend but our members are not deterred by a little bit of rain. We ventured off towards our first stop at the Westonbirt Woodworks, run by Paul Hayden who took over the former garden centre in 2016 to teach green woodwork and Windsor chair making. Paul introduced us to the workshop and the adjoining shop as his students went about making their chairs. In 2019, Paul and the Friends of Westonbirt Arboretum raised money to build a timber shelter for the sawmill which certainly caught our members' interest.

We headed underneath the impressive Stihl timber walkway and towards the greenhouses, nursery and some of the back of house operations where we discussed seed provenance, propagation and their challenges. It is interesting that some of the most remarkable features on a site are ones that people rarely see such as the impressive single span Corsican Pine beams in the Machine Shed.



Mark Ballard, Kelly Morss and Andrew Smith



Professor Julian Evans and Andrew Smith

Part of the Wolfson Tree Management Centre along with the Mess Room, the Machine Shed features 20-metre long trusses that are complete lengths of 140-year-old Corsican Pines that were felled as part of the routine maintenance of the Westonbirt estate. These beams were hand hewn on site, with all timber for both the Mess Room and Machine Shed not only originating from the estate, but it was also milled there too, the work being undertaken by trainee carpenters and volunteers under the guidance of a skilled contractor.

The buildings were designed by Piers Taylor of Invisible Studios who can be seen presenting television series such as 'The World's most Extraordinary Houses'. Built by Buro Happold, other estate timber used included Oak, Spruce, Larch and Douglas Fir with the designs adapted to suit



Paul Hayden of Westonbirt Woodworks

the felled material as it became available. Project objectives included a minimal carbon footprint and designs that blended into the surrounding trees as much as possible.

We finished off the morning with a walk around the beautiful grounds with stops and discussions along the way finally returning via the timber walkway.

As you may have read in our 2019 journal, I have been taking over from 'B' in her role over the past year. I have big shoes to fill and facing my first Field Weekend two months into the new role was daunting to say the least. I would like to thank all our members and guests for making me feel so welcome to the Woodland Heritage team and at ease at what is such an important event for us. This year I'll make sure I have a word with the Met Office to organise some better conditions. It is after all, in Devon.

Letter from Professor Julian Evans OBE FICFor Chair (2013-19), Forestry Commission's Expert Committee on Forest Science.

Thirty years ago, Westonbirt was one of my responsibilities as the Forestry Commission's Chief Research Officer (S) at Alice Holt. It was at that time that its oversight transferred to Forestry Commission England while maintaining close liaison with research. I was disconcerted by the change but based on what we have seen today, it was absolutely the right step to take. Forestry England, and the staff at Westonbirt in particular, are to be congratulated on providing a first-class resource that is enjoyed by the public at large while retaining a top-level science and research dimension with



Corsican Pine roof beams



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links internationally. The quality of the facilities and the vision for its use are outstanding and we can all go from here proud of Westonbirt being The National Arboretum every bit the equal of anywhere in the world.

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Field Weekend 2019

Thursday June 13 – Timberpride

by Guy Corbett-Marshall

Ever since meeting Tetbury timber-framer, Alec Golesworthy for the first time at an event ‘on the other side of town’ to his business a few years ago, a thought has stayed with me that his approach is very similar to that of Woodland Heritage: driven by a passion for wood, very much at home with ‘the establishment’, but then with a practicality to be a little unconventional when considered necessary.

In Alec’s case, a notable divergence comes with timber accreditation schemes: they have their place, they do a good job overall, they suit many and provide an important framework for an industry that too readily might get seen in some of the public’s eye as ‘loggers’.

But what amount of paperwork detailing the journey of an Oak log from a distant French forest can substitute for Alec visiting a British woodland, managed sustainably by a professional, and with all necessary felling licences in place, choosing the trees that he wants and then being able to sit down around a table with a client, with the facts to hand as to precisely which wood their timber frame will have come from, so that from the outset the eager buyer can absorb the heritage being bought and which can then be recounted with pride to friends and family in the future.

This process of awareness raising (education sounds rather paternalistic) as to how a timber frame or flooring is sourced and built, how it’s the end-result of a fascinating and very long-term process embedded in the British countryside with the minimum of ‘timber miles’, leads then on to another revelation for the client: look up at the beams in the showroom’s ceiling, or down at the floor and absorb the cracks, knots and other ‘faults’ that provide a character that cannot be fabricated.

If ‘perfection’ of grain and texture is what you want, then there are other firms that can provide what might end up looking a rather soulless end-result. After all, to get ‘perfection’ much



Simon Burvill shares a joke with a piece of wood

completely usable material will have been sacrificed along the way, a wasteful process that the Timberpride team cannot live with, especially when that raw material might have taken over a hundred years to be ready to use.

I’m not sure that Woodland Heritage members had been fully briefed about the Timberpride philosophy before they arrived, they were simply given an introduction that: ‘the tour will be led by Alec and Victoria Golesworthy and their team at Timberpride – a team of master craftsmen who produce a range of Oak framed buildings (including garages and extensions), cladding, solid Oak floors, beams and furniture to the highest standards of workmanship’.



Hand tools still have an important role to play

And all of that they were given, as well as kind and generous hospitality, much imparting of wisdom and most importantly of course, the philosophy that differentiates Timberpride from other Oak framers. Whether by subject or reputation, or simply a desire to make the most of the Field Weekend, the visit to Timberpride was very well-attended, so much so that we were arranged into three groups to take the tour each in a different order, before congregating again for refreshments and the chance to be photographed as part of a feature on Timberpride in a forthcoming issue of ‘Cotswold Life’. The itinerary had been carefully crafted by Victoria Golesworthy, the first person to see the value and importance of Timberpride’s work nearly 25 years ago and who has been instrumental in every aspect of the business ever since.

As the saying goes, “in no particular order” the groups toured the office, yard, workshop and even the biomass boiler, there to help heat the premises and to contribute towards the overall aim of creating zero-waste within the business.

In the office, Kim described the process of how a client wanting a garage, an extension, a truss, or even a commercial building might arrive with anything from a rough sketch to a fully designed thought. Whatever the product, the Timberpride team (a compact one of eight) listens to the client, clarifies their objectives then designs a product that fits with their brief, be it design led, budget sensitive or a balance between the two. And of course, it must be both practical to build and as light a touch in terms of consuming precious homegrown Oak as possible.

In the workshop, Marcus described how every product is hand-made by the small, skilled team working to each unique design. Having chosen logs that will fit the bill yet not waste timber through over-specification, the team of carpenters



Alan Johnson talking to Victoria Golesworthy

set out the British Oak beams on trestles then measure, draw and scribe each joint before cutting and shaping the mortice and tenons by hand, using their experience to choose and then create the necessary selection of joints. Each carpenter will work exclusively on a product and will carve his initials in a secret place where they will not be found for hundreds of years, the frame locking up carbon throughout that time.

In the yard, Alec described how he chooses a range of usable logs of different lengths and grades so that there is a greater likelihood of the right log being available for the right end-use; always with an eye to minimising waste, he explained that cladding and flooring can both be cut as ‘falling boards’ after the beam has been created, only then will thoughts turn to the remaining wood being used for biomass. And with the logs sourced in Britain, biosecurity is enhanced, avoiding the increasing risks of importing Oak from abroad, another guiding principle for Alec. It was at an event about biosecurity that we had first met after all.

A most informative afternoon concluded with the whole group enjoying refreshments at which Geraint Richards made a presentation to Alec and the Timberpride team to thank them for all of the time and hard work that they had put into making the visit so rewarding for WH members.

timberpride.co.uk

Field Weekend 2019

Friday June 14 – Northwick Estate

by Ed Clark

Not to be put off by the unseasonably cold and wet weather, around 65 members assembled for the second day of our tour at the Northwick Estate, kindly hosted by longstanding Woodland Heritage member, Ian Bond.

Mr Bond bought the 4,000-acre estate in 1973, and later supplemented it with around 450 acres of woodland, purchased from the Forestry Commission. The whole estate is managed in-hand, with a variety of enterprises including: alternative energy via anaerobic digestion, and wood pellets from sawdust; a deer park, and an accompanying venison business that supplies Waitrose; beef cattle; and a pheasant and partridge shoot.

After a brief introduction we climbed onto three covered trailers for the short drive to the anaerobic digestion plant. Mr Bond was an early entrant into this market, starting in 2009 with a 1MW plant. The facility has required significant investment, including its own electricity substation, and a recent £7-8M refit following a fire. It now employs ten people, generates up to 6MW of energy, and exports natural gas via pipeline to Wales. At the time of our visit, 4.4MW was being generated, enough to power 8,000 homes.

Around 2,000 tons of food waste are received per week from manufacturers and supermarkets. The waste is



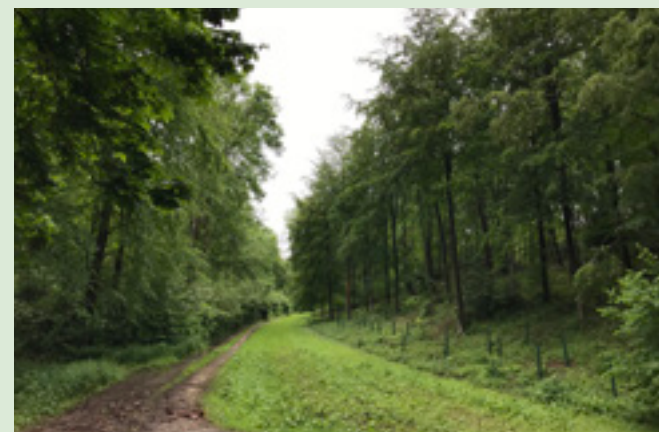
Anaerobic digestion plant

shredded and screened to remove any packaging, then digested to produce methane. Some of the methane is used to generate electricity by gas turbines, and the surplus is fed into the National Gas Grid via a pipeline. The resulting digestate is pumped underground and can be spread as fertiliser between February and April each year.

This part of the visit was certainly a first for Woodland Heritage, but a very interesting opportunity to see how the Estate has diversified and embraced new technology. The result is a thriving business producing renewable energy from waste products, and a significant financial return.

Norcombe Valley

Back on the trailers, we moved to the Norcombe Valley and were dropped off at its top so that we could enjoy a gentle downhill walk through this part of the Estate. The undulating terrain is ideal for shooting, and the mixed woodland is managed primarily as sporting cover. The woods were originally planted as mixtures of Norway Spruce, Douglas Fir, Ash and Beech, and have been thinned to remove some of the Spruce and Ash with the intention of growing the Beech on as a final crop. Where the ride edges have been opened up there has been planting with Beech, Oak, and Douglas Fir. At the moment, the quantity of timber derived from thinnings is relatively low, and therefore the produce is mostly sold locally as firewood.



Norcombe Valley



Sedgecombe Wood

Discussion moved to the market for Beech, for which there is little domestic demand and is therefore most often sold as firewood. However, a comment was made about the potential for export to India where it can be processed into the central layer of hardwood plywood. It may be possible to yield £70-80/m³, but would need loading into containers and a sufficient quantity to justify the logistics involved. It is also popular in Eastern Europe, particularly for steam-bent joinery and furniture.

The Estate's approach to Chalara is to avoid proactively felling Ash, and to avoid any clear-felling if possible. In response, Prof Julian Evans described the mass screening trial that has been carried out by Forest Research which indicates that 1-5% of Ash trees might show tolerance of Ash dieback. Karen Russell continued by saying that Ash dieback can be expected to weaken the tree, increasing the likelihood of death by another secondary infection.

To replace Ash, alternative species are being considered and trialled, including: Tulip Tree, Black Walnut, a variety of Oaks, Douglas Fir, and Wild Service.

Sedgecombe Wood

Continuing on to Sedgecombe Wood, which also has a strong sporting focus, we stopped alongside a pheasant pen to see a stand of mixed broadleaves. Originally planted with Norway Spruce, Ash and Oak, the Spruce was removed in earlier thinnings, and now the Ash is being thinned to favour the Oak and other minor broadleaves, including Beech, Sycamore and Sweet Chestnut.

On looking at a nice stand of 60-70 year old Ash, Julian Evans noted that most stems were forked at 25-30 feet and that the cause of this might be either the Ash bud moth (*Prays fraxinella*), or a late frost when the stand was establishing.



Upton Wold

Once again, the discussion turned to alternatives to Ash, with Sycamore being a worthwhile consideration subject to adequate squirrel control. Squirrel control on the estate is carried out by shooting, by a team of three gamekeepers. Squirrels are such a frequent conversation topic at Woodland Heritage meetings that some members noted with surprise that this was the first mention of them during the day.

Possibly as evidence of the high levels of squirrel control on this Estate throughout our walk, we were accompanied by constant and varied birdsong. Mr Bond commented on some of the ornithological highlights on the estate, including Hen Harriers, Kingfishers, Wrynecks, Spotted Flycatchers and Lesser-Spotted Woodpeckers.

Parkland

We stopped at a shooting lodge overlooking the parkland to eat our packed lunches, generously supplemented by tea and cakes provided by Mr Bond and his staff. The parkland provides a fantastic vista and contains around 400 Red Deer. The deer were brought to Gloucestershire by Mr Bond from another of his estates in Scotland and the herd is managed to provide venison for Waitrose. After lunch we assembled for a group photo before getting back onto the trailers and returning to the house, Upton Wold, and the gardens.

Upton Wold

We assembled in front of this beautiful Cotswold stone property, known as Upton Wold. Built in 1603 and Grade II* listed, it was derelict when Mr Bond arrived at the Northwick Estate. It has been fully restored and is now the primary residence of Mr Bond and his family. He had previously lived at the main house, Northwick Park, but sold it in 1983 and it was converted into apartments. Upton Wold can definitely be considered to have one of

the great gardens of the Cotswolds. Originally designed by Colvin & Moggridge, it is the combined dedication of Ian and Caroline Bond that has developed the gardens over the last few decades. Despite the torrential downpour, we could see that the garden is designed to frame the views out into the surrounding landscape. The change in levels and aspect of each part of the garden open up multiple vistas, and complement the surrounding parkland and rolling hills.

Moving through the gardens, we paused to see the wildflower meadow below the house. Mr Bond recounted that Dame Miriam Rothschild had advised him on creation of the meadow, and that she provided the wildflower and grass seed that was drilled for the initial establishment, some 28 years ago. Timing of the annual cutting depends on the season, but always after the seed has fallen, and before August 1. All the cut hay is removed to maintain the nutrient-poor status of the soil and is fed to the cattle and deer on the Estate.

We then passed into 'the hidden garden', which contains a collection of yellow Magnolias, Echioms, and Trilliums, and was inspired by the work of Sir Peter Smithers. A little further on, we found an enormous Caucasian Wingnut (*Pterocarya fraxinifolia*) that Mr Bond explained he had planted himself, 44 years ago.

Walnut collection

Mr Bond's Walnut collection was the next stop on our tour, and it was well worth waiting for. It is designated a National Plant Collection by Plant Heritage (formerly the National Council for the Conservation of Plants and Gardens), hosts more than 200 cultivars, and 19 of the 22 known species of Walnut that occur worldwide.



In the beautifully designed gardens

In explanation of his passion for Walnuts, Mr Bond recounted how he had lived in the Scottish Highlands as a child and was accustomed only to coniferous trees. On moving south at the age of ten, he moved into a property with an enormous Walnut tree in the garden and he has been extremely fond of them ever since.

He also explained that the three species that are missing from his collection are from Haiti, Cuba, and the Dominican Republic: any members planning a visit to these parts of the world should get in touch with him!

Beyond the Walnut collection we reached a labyrinth which was to be the final scheduled stop of our visit. Mr Bond commissioned this labyrinth to commemorate the medieval village of Upton which was abandoned after the Black Death in 1345, the remains of which lie under the surrounding field. The labyrinth contains 12 stones representing the apostles, and the route through from the entrance to the centre symbolises the journey of the soul through life.

The day concluded with the members assembling to thank Mr Bond for his generosity and great hospitality. Tom Christian presented him with a beautiful bowl turned by Richard Chapman, which he correctly guessed was made from Walnut. Guy Corbett-Marshall also presented the Prince of Wales award to Neil Girvan. It remains only to finish by saying that it was a fascinating day, with a great variety of topics covered, and definitely something of interest to everyone.



Walnut collection

Field Weekend 2019

Saturday June 15 – Cirencester Park

by Andrew Pickup

The final day of Woodland Heritage's 2019 Field Weekend took us to Cirencester Park, where we assembled in eager anticipation on the Broad Ride – a spectacular five-mile long avenue that bisects the Park. We were warmly greeted by Lord Bathurst, his forest manager Keith Mills, and consultant Graham Taylor.

Lord Bathurst gave us a brief history of the estate, which was bought in 1695 by Sir Benjamin Bathurst for his son, who became the first Earl Bathurst. The First Earl set about major landscaping work on retiring from politics in 1714, was advised by his friend, the poet Alexander Pope. Together they laid out the network of formal avenues and rides that intersect the woodlands and define the Park today. Continuity of ownership for over 300 years has allowed the careful custody of this historic landscape, which is now generously shared with the public, who are given free access everywhere.

There is continuity in the forestry department as well – Keith Mills first came to the estate in 1980 and is only the fourth forest manager since the Second World War. Over the last four decades he has built up an intimate knowledge of the Estate's 1500ha of woodland and knows the challenges of forestry in this part of Gloucestershire only too well – in some areas there is as little as 3" of topsoil over the underlying limestone.

Our first woodland stop was a fine mature Sycamore stand dating to 1900. It is one of only four registered Sycamore seed stands in the UK and includes two 'plus trees' identified by the Future Trees Trust. The Sycamore we stood by exhibited all the desirable traits for timber trees: cylindricality, apical dominance and fine lateral branching. Of course, many decades of excellent silviculture have helped, but there is a strong chance that trees this impressive will also have good genes, so scions are now being grown on in seed orchards with clones of other plus trees from across the country.



Rowan Reid assessing a Sycamore

Sycamore, grown well, is a superb tree and could have an increasing role on these calcareous soils as Ash is lost to Chalara. However, gathered in such a fine stand of Sycamore and pondering its increased use in the future, conversation inevitably turned to grey squirrels. The trees we were standing under were going through their vulnerable younger years before the arrival of the greys, but the highest level of vigilance will be necessary to protect the next generation.

There has been a consistent squirrel control programme on the estate for the last 20 years, primarily using a team of licenced squirrel shooters who are paid a bonus per tail. Between them they shoot around 1000 each year, but the battle is not always won, and pockets of damage still



Sir Harry Studholme commenting on squirrel damage

occur. Trapping is ruled out due to the public access – sadly, traps tend to get vandalised. On the plus side, only about 10% of the woodlands host a pheasant shoot, so squirrel populations are not supported by pheasant feed through the winter.

We walked a short distance to the second stop of the morning, a stand of Beech also dating to 1900. It was originally established in with European Larch and Scots Pine nurse, which have now been removed, leaving another fine stand, also a registered seed stand. This, along with the previous stand, earns more from seed collection than the timber would be worth, so it will never be clear felled. Instead a continuous cover approach will be adopted and there is already good natural regeneration of Beech coming up and the stand will be gradually thinned to release it.

Keith Mills pointed out that while the trees appear to be free from damage, once felled, past squirrel damage is revealed which can still ruin the timber. Conversation returned once again to the frustrations of dealing with grey squirrels. Sir Harry Studholme, chairman of the Forestry Commission, updated the group on research into immuno-contraceptives. A product called GonaCon has been demonstrated to be effective in grey squirrels, causing infertility to both sexes, but the challenge is a practical (and squirrel-specific) method of administering it. If fed orally, it passes straight through their digestive system, but work is being done on injecting it into microscopic pollen grains which then get absorbed into the bloodstream.

Natural predators also offer some hope. To date, 50 pine martens have been released in mid-Wales and more are due to be released this year in the Forest of Dean. Cirencester Park certainly forms a large enough body of woodland to accommodate some, but it remains to be seen whether they will arrive here and, if they do, whether they will have a significant impact.

Another squirrel predator is already present on the estate – the goshawk. There are several nesting pairs, which can catch as many as five squirrels per day when feeding their young. It is likely though that significant progress will be achieved only through a multi-pronged attack and many more decades of committed control, research and raising awareness amongst the public.

Our third stop of the morning was in a p1981 mixed conifer stand including Silver Fir, Grand Fir, Douglas Fir and Norway Spruce in an irregular intimate mix. The species grow at similar rates on these soils making intimate mixtures very successful and hedging against future pests and diseases.

Keith saw the previous Western Hemlock crop harvested and this one planted and is now thinking about the next rotation. Like most of Cirencester Park, this area is designated as an ancient woodland site, but he is not planning to restore it to native species. Instead he plans to keep gradually thinning and promoting the prolific natural regeneration of Fir and Spruce. Graham Taylor pointed out that, even on the relatively dry, thin soils a yield class of 20m³/ha/year is achievable for some conifers, three times the yield of most broadleaves. Maintaining a proportion of high yielding, fast-growing timber is important economically for the estate, but is also essential to sustain Britain's sawmills.

Given the uncertainties over our future climate and pests and diseases, there are good reasons for increasing the range of tree species we grow, rather than limiting ourselves to a narrow range of native broadleaves. We took up this theme on our next stop – the experimental 'College Plots' established by the Royal Agricultural Collage in the early 1900s.

The site includes small stands of a wide range of different species and is one of only five 'forest gardens' in the UK. The site provides a fascinating insight into the early experimentation with new species and the estate has continued managing the area in the same spirit. As groups become over-mature or windblown they have been cleared

and re-planting with minor species such as Japanese Cedar (*Cryptomeria japonica*), Cedar of Lebanon (*Cedrus libani*), Himalayan Cedar (*Cedrus deodara*), English and American Walnut – the latter is doing particularly well and seems to suffer less from the attention of deer and squirrels than Common Walnut.

We returned to the Broad Ride for lunch, making use of the Horse Guards pavilion to shelter from a brief shower of rain, before returning to the woods to look in more detail at the Estate's approach to continuous cover silviculture.

The stand we gathered in was originally a plantation of European Larch dating to around the 1820s. Most of this has now been felled, yielding some excellent quality boat skin logs, but retaining a few as future veterans. Heavy thinning of the Larch had allowed Ash to regenerate over the years. This is now mature and will be selectively felled. There are also groups of Norway Spruce and Douglas Fir planted about 40 years ago following previous selective fellings.

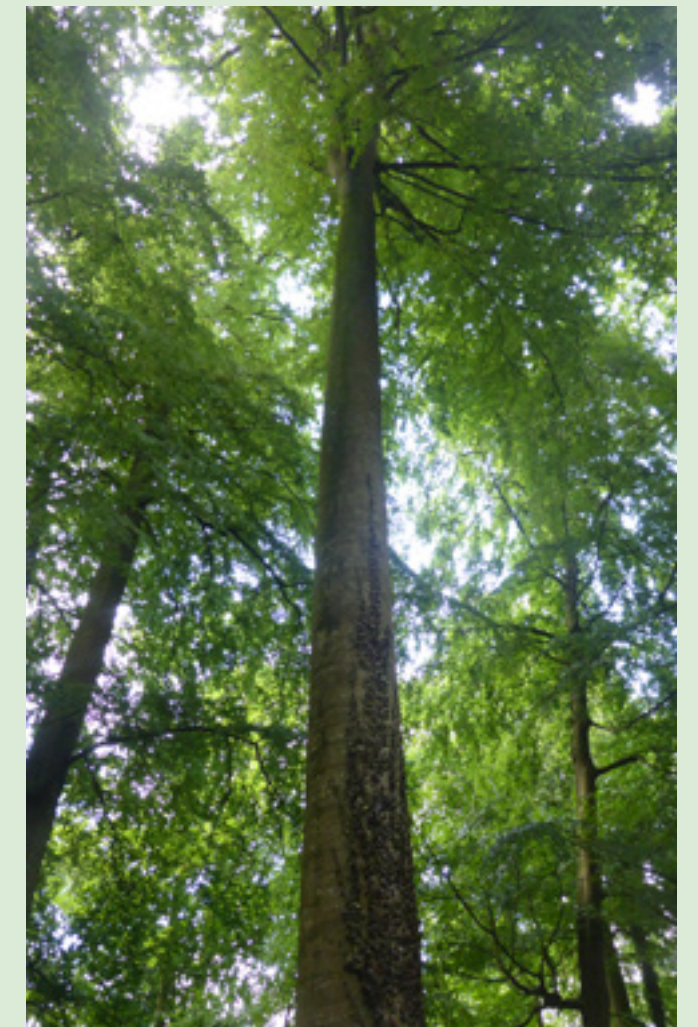
This irregular silviculture allows flexibility to respond to market requirements or diseases such as Chalara; it reduces impacts on the historic landscape and maintains a woodland microclimate for regeneration – particularly important on these soils. There are challenges of course, not least the skill and silvicultural knowledge needed to manage it.



The author, Andrew Pickup, taking notes

Deer browsing is also an issue from the three species on the estate – fallow, roe and muntjac. All have been growing in numbers in recent decades but are now being brought under control through a collaboration with celebrity chef Mike Robinson who runs a successful business processing all species of wild deer for supply to the public and restaurant trade.

Our final stop of the afternoon was a short drive away, and they had certainly been saving the best till last. We were treated to a stand of 300-year-old Beech, dating to the original planting by the first Earl Bathurst and believed to be Versailles provenance. The Bathurst Estate, like many across the country, was called upon to provide vast quantities of timber for the war effort, but these fine trees were saved as they provided aerial cover for American tanks massing before D-Day. Gun-barrel straight and completely clean for 60ft, they must surely be some of the finest Beech anywhere in the country. The Woodland Heritage crowd fell uncharacteristically silent as we stood in awe of these magnificent trees and contemplated all that they had seen; a fitting end to another inspiring Field Weekend.



One of the finest Beech trees in the country

Field Weekend Snapshots



Presentation to Belinda on her retirement



At Cirencester Park



In the Westonbirt nursery



A wet start to the weekend



Admiring a stand of Beech



Keith Mills, Head Forester at Cirencester Park



A glimpse of sunshine during our AGM



Ken Hume



Claire and Rowan Reid



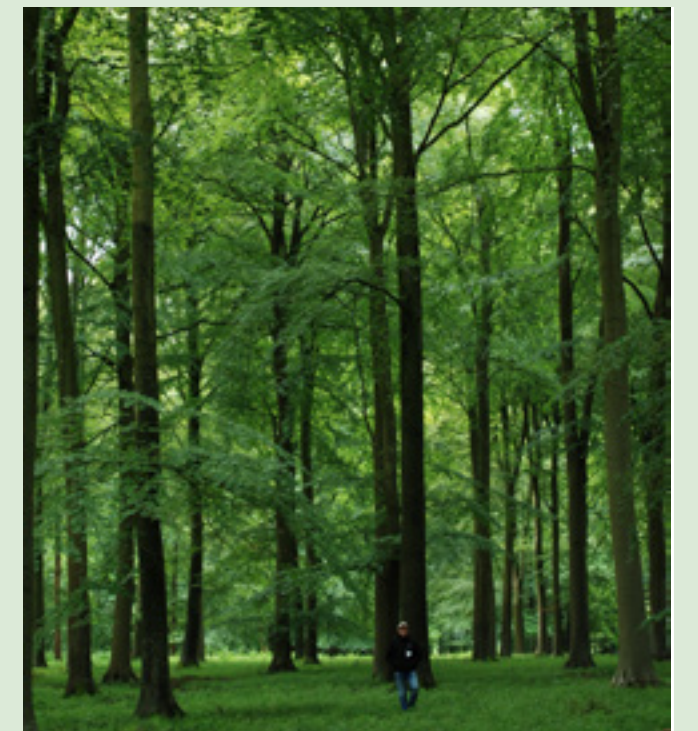
Braving the elements at Northwick Estate



Transport for the day around Northwick Estate



WH members always come prepared



Investigating a Beech stand

All Field Weekend photos courtesy of Kelly Moss



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Our 2020 Field Weekend

WEST DORSET and MID-DEVON

Thursday June 11 morning

Farrs, Beaminster, Dorset *by kind permission of John and Jennie Makepeace*

A natural designer and craftsman, John Makepeace rose quickly to become an internationally recognised design consultant, before buying Parnham House in 1976 to set up a college alongside, but separate from, his own furniture studios. Parnham provided an integrated education for furniture designers and makers going into business, from which flowed the purchase of Hooke Park from the Forestry Commission in 1983. John sold Parnham and bought Farrs in 2001. Here he has his design practice, gallery and an impressive range of indigenous trees seasoning for future commissions.

Thursday June 11 afternoon

Hooke Park, Dorset *by kind permission of the Architectural Association*

Hooke Park is the Architectural Association's 140-hectare working forest which contains a growing educational facility for design, workshop, construction and landscape-focused activities, with an ethos of material self-sufficiency. The campus has a 30-year history of experimental timber construction and rural architecture started by the Parnham Trust, and given to the Architectural Association in 2002. The masterplan for campus development was redrawn by the AA and continues, with new workshop and accommodation facilities designed and built by students of the AA's Design + Make masters' programmes.

Friday June 12 morning

Perridge Estate, Longdown, Devon *by kind permission of Sir Harry and Lady Lucy Studholme*

The Perridge Estate comprises 1000 acres of spectacular Devon countryside including 650 acres of woodland. It was Sir Harry's father who came to Perridge with the aim of planting the Estate and to change uneconomic forests to woodlands that would employ people and produce timber that could be sold. This strategy has been continued since 1990 by Sir Harry, equipping him to become a most respected Chairman of the Forestry Commission, a role he held until February of this year.

Friday June 12 afternoon

Great Fulford Estate, Dunsford, Devon *by kind permission of Francis and Kisbanda Fulford*

The family seat of the Fulford family for over 800 years, Great Fulford is both a Grade I listed house but also testimony to the determination and resilience of one family to pass on its legacy from generation to generation, a journey that has been far from smooth and is far from over. The estate's woodlands will be stimulating with the likelihood that "Francis Fulford's rugged philosophy will infuriate as many people as it delights, few will be bored..." if this visit matches the critique of his book: 'Bearing up – the long view'.

Saturday June 13 all day

Clinton Devon Estate, Merton, Devon *by kind permission of Lord and Lady Clinton*

Clinton Devon Estate owns and manages 1,900 hectares of woodland in Devon, its legacy of tree planting and forestry management resulting in multi-purpose woodland of 25% native broadleaves within a mosaic of commercial conifers, much of which occupies steep slopes on ancient woodland sites. The long-term vision is to hand-on a more diverse forest in terms of species and irregular structure which will help to protect the soil and store carbon dioxide as well as helping to meet the challenges from new pests and diseases.

Members and all their guests will be very welcome

Book your places now by contacting Woodland Heritage

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**WOODLAND
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The Woodland Heritage Garthwaite Travel Bursaries

Silviculture on steep terrain

By Alex Gilham, Forestry MSc student at Bangor University, and Nick Hill, Woodland Creation Forester, Forestry and Land Scotland

Woodland Heritage Garthwaite Travel Bursaries helped Alex Gilham and Nick Hill to attend the joint CCFG/Pro Silva Ireland study tour on the 6-9 June 2019 in Northern Italy. Alex describes the busy programme, whilst Nick reflects on how he might apply what he learned.

Over the three-day tour, we were taken to Val Susa, west of Turin, the Aosta Valley near Saint-Rhemy-en-Bosses on the Swiss boarder and Val Sessera, north east of Turin.

Val Susa, on day one, is an area of predominantly Larch forest where the management exists along-side other important functions, such as skiing, mountain biking and walking. The area is owned by 14 municipalities but managed under one consortium for consistency. Historically these forests were managed with large clear fells followed by direct seeding, planting and natural regeneration. We were shown examples of shelterwood systems used by the consortium and unsuccessfully planted areas where disease and bad form were present due to, as discussed, the use of an inappropriate provenance of tree species.

Day two took us to the Aosta Valley near the French boarder, to a site of mainly Larch and Norway Spruce, managed predominantly as a direct protection forest for the defence of the many alpine villages below. Natural regeneration is the main afforestation technique where gaps created by the selective harvesting of large trees offer regeneration opportunities. Trees left during interventions are favoured in clusters ('collectivo'), which enhance stability over time. Structural diversity benefits young trees from browsing and disease. En route to the summit, we passed two 'V' shaped, man-made stone wall buildings which were created in the 19th century as a defence system against avalanches. These were never tested by an avalanche and due to the high up-keep costs they have been replaced by large wire fencing.

Day three was in Val Sessera in the Biella Alps. This is a Natura 2000 protected site, managed to retain the presence of an endemic species, the beetle, *Carabus olympiae*. This species was close to extinction during the 1920s so the LIFE CARABUS project was created with an aim of introducing a new model of forest management, environmental protection and the development of rural Alpine areas. Around 25 percent of the park is covered in predominantly Beech forest, previously coppice which was used for charcoal, with some conifer plantations elsewhere. The park includes many private owners who are often pleased with the financial recuperation of management practices, but not always the aesthetic restoration, although operational costs for many foresters are a barrier, with many having only enough funds to secure one fifth of the timber they would like to remove.

Alex Gilham



The group discusses silvicultural decision making and operational practicalities in a stand recently thinned and extracted by skyline



The group viewing the local landscape of high alpine peaks, forested lower slopes and valley bottoms laced with roads, railway lines and villages from a stone avalanche defence built in 1841. Forests provide a key protective function, slowing and catching avalanches and rock falls

Forest management on steep terrain is a significant challenge in many parts of the UK. Decades of post war woodland expansion have driven productive conifer and mixed broadleaf woodland out onto evermore challenging ground.

This legacy is now stretching the creativity and expertise of contemporary foresters in steep slope harvesting and in setting long-term visions for such sites. In a social and political climate that has rejuvenated woodland expansion efforts in recent years, we are looking again at the diverse benefits (e.g. soil stability, infrastructure protection, biodiversity, timber) provided by woodland on steep ground. A few key points that I took from the trip are mentioned below.

Throughout the tour we were shown a range of continuous cover forestry systems working on steep alpine



A solar compass used by foresters to achieve optimum exposure to direct daylight when designing canopy gaps created by group felling

terrain. Objectives include sustained provision of physical avalanche protection to infrastructure and dwellings lower down, resilience to fire and severe winter weather, and improvement of local biodiversity. Thinning and harvesting operations are often extremely challenging, commonly requiring extraction by skyline. The economic sustainability of such work appears to rely generally on the following principles:

- A high value product. Furniture grade European larch is frequently achieved thanks in part to slow growth under continental alpine conditions.
- Long-term working relationships with small teams of specialist skilled operators and buyers. This is complimented by a vibrant local woodland culture with woodland work a visible part of many local livelihoods and village identities.
- A hands on approach to making and communicating informed management decisions, e.g. innovative use of solar compasses to calculate optimal gap size and shape with desired daylight hours, aspect, slope and canopy height considered, during tree selection by foresters.

Now back to my day job, designing new woodlands for former open cast coal mines in Central Scotland, my vision into the potential for steep slope forestry on my sites has gained further clarification. The more I see of forestry industries and practices around the globe, the more I appreciate our common issues in each of our local contexts. Long may such exchanges of lessons, experience and specialist expertise continue!

Nick Hill

The Best Use of British Timber Award Celebration of Craftsmanship & Design 2019

by Julie Heap

Sponsored by Woodland Heritage, this award promotes the use of home grown timber to produce pieces that have added meaning beyond their basic function.

The use of local materials has numerous benefits for the designer-maker's local economy and environment. The proper felling, processing and drying of wood are skilled trades that are important to preserve the continued effective management of the woodlands, forests and landscapes that we all enjoy. By using local materials in bespoke work, exhibitors are ensuring that it is used beautifully, in an item that will be cherished and kept for generations.

Two Boxes, Two Tales, Two Timbers!

WINNER

Adrian McCurdy

The 'Ark'
adrianmccurdy.co.uk

Everything about this piece is bespoke and considered, leaving the judges in no doubt of their decision as they commented: *"A masterpiece of skill and commitment made over several years, materially extraordinary, a truly individual*



piece of craftsmanship, and a contemporary expression of a craft tradition. We hope it finds a loving home."

This is a sculptural version of a medieval Ark. The original use for an Ark would have been in kitchens for storing grain and flour, presumably in bags, securely away from mice, etc. The lid of the Ark is also multi-functional and removable. When inverted to rest on its own feet it becomes a large basin for bread making and mixing. A large and heavy piece it has always been constructed to be flat-packed, with wedged mortice and tenon joints.

But could Adrian take this traditional construction and create a contemporary version that could have a modern function to store the clutter that we all accumulate! As his wood stock grew the temptation became greater to assemble a mix of gently undulating pieces. Searching through his riven Oak stock dating back to 2005, he found material from several trees to choose from, all of which were felled near his workshop in the Scottish Borders.

At the time of splitting these logs, Adrian's objective was to create possibilities for the years ahead, without knowing precisely what he would eventually make after four years seasoning in his drying barn. The more exciting cleaving projects were always the biggest butts that had, by size, the greatest potential for different furniture ideas. They could of course also be the biggest mistakes if inside a log a large knot was discovered, or spiral growth released propeller shapes of twisted wood.

The front two Ark boards are spoke-shaved green, acting as the starting point along with the four uprights from a different and smaller tree. The undulating front panels with relatively parallel ends were a lucky find and got Adrian started about five years ago. Drawings along the way helped to get joint sizes and positions, but Adrian had to sift through all his wood to ensure the rest of the piece could be completed at a scale to suit the front, being guided by his stock and experience rather than by an initial drawing. The jointing was very demanding on wood that changes

shape in every direction and the process of levelling using spirit levels and scribing the shape from one piece to the other is similar to Oak frame building skills. Had he not had that experience Adrian could not have attempted the project. The boards are mostly thinned to be as light as possible, yet strong enough to be carried around as a flat-pack. The loose components of the Ark are precisely fitted, so could be made only of pure quartered timber to ensure their ongoing stability as other sawn-board conversions might soon warp and cease to fit. The entire Ark is made without sanding. It has only the smooth finish of hand tools such as sharp wooden planes and spokeshaves.

HIGHLY COMMENDED

Jonathon Vaiksaar

Burr Elm and Resin Jewellery Box
jonathonvaiksaar.co.uk

Judge's comment

"The extraordinary combination of wood and a new material, translucent resin, heightens the beauty of the burr Elm."

The beautiful Elm timber for this box was sourced from a Northumberland sawmill. It had been picked and dried by a fellow cabinet maker who shares Jonathan's passion for hunting interesting UK timbers from the backs of sheds! An expensive acquisition, Jonathan was determined that none of it would go to waste! The bulk of the timber was used to make desk boxes, however several small, waney edged offcuts remained.



Such small and irregular offcuts present a quandary that will be familiar to many makers – beautiful timber that is just too awkward to be sensibly used. Undeterred, it was Jonathan's use of casting resins to enable the timber to become part of a practicable panel that impressed the judges.

Jonathan turned the challenges that the offcuts threw at him into advantages, as the waney edges provided him with an opportunity to expand on his previous resin castings and to wrap the resin and timber around the box as well as the lid. This was not simple, as cast resins can sag, expand and contract once set without proper treatment and this is certainly not something that is desirable when forming three-way mitres!

The resin was tinted to ensure the contents of the box remain unseen until opened when the light then passes through and reveals the further use of the waney edge in the internal lining. The tray and hinges are made from Sycamore and dyed black to ensure they do not contrast too heavily with the Elm. Overall, a very pleasing aesthetic with the bonus of an unexpected surprise when a seemingly solid panel reveals itself to be anything but!

Celebration of Craftsmanship & Design

The UK's largest selling exhibition of contemporary bespoke furniture by many of the finest designer-makers and artisan workshops in the British Isles.

300 exhibits from over 70 exhibitors will be at Cheltenham College's Thirlestaine Long Gallery from 22-31 August 2020, with many vying to win Woodland Heritage's coveted 'Best Use of British Timber Award'.

Judges: John Makepeace OBE, Roger Richardson.

info@celebrationofcraftsmanship.com
celebrationofcraftsmanship.com



Whitney Sawmills – supplying timber and learning

by Guy Corbett-Marshall

Whitney Sawmills supports UK timber growers by buying logs grown in sustainably managed British woodlands, with all the benefit they bring to people and wildlife. The mill also contributes towards the supply of sustainable wood to the public in the UK.

At the centre of the timber supply chain, Whitney Sawmills helps to maintain hardwood sawmilling in the UK which has declined greatly over recent decades, playing its part in staving off obsolescence for this centuries' old industry. In doing all of this, the mill helps to fulfil Woodland Heritage's charitable objectives.

Logs are bought from many sources each year and the milled timber is then sold to a very large number of buyers. Every year, some of Whitney's sales achieve a little more profile than the average. 2019 was no exception, with two projects showing the versatility of UK grown Douglas Fir and with which it is wonderful for Whitney Sawmills and Woodland Heritage to be associated.

The Jackfield railway gates (their construction by the Small Woods Association, featured in last year's Journal) are the longest single span railway gates in the UK and are once again a landmark on what is now a cycleway along the former railway line at the Ironbridge World Heritage site.



Jackfield Gates

The second project was the Wave, Petter Southall's most ambitious steam-bent structure yet, a pavilion for the RHS Chelsea Flower Show 2019 and which was part of Thomas Hoblyn's Dubai Majlis show garden. Thirty-foot lengths of solid Herefordshire Douglas Fir were bent using only skill, steam and manpower; possibly the most radical steam-bent form ever made.

The Wave is available to buy at Sladers Yard Gallery in Dorset, ready to be installed in a permanent location and to be a remarkable and beautiful feature in any garden.

But Whitney Sawmills offers additional public benefit to supporting a sustainable timber supply chain in the UK. With talk currently very much focused on the value of trees, of their contribution towards fighting climate change and of their value to society in terms of products they can provide (amongst many other vital roles), it was a pleasure for the mill to put on a guided walk around the mill and the neighbouring woods for the first time at the Hay Festival.

A full minibus of people came to Whitney for this event and were shown how a hardwood sawmill works in transforming logs into some of the many products that the public use that are made of timber. At the end of May, the woods were alive with wildlife, showing the wider benefits of management.



The Wave by Petter Southall



Irish foresters attending the Woodland to Workshop course

Sharing knowledge is most important as the challenges facing the timber supply chain are complex and certainly not parochial. It was therefore a great pleasure for Woodland Heritage to stage a slightly different running of the established 'Woodland to Workshop' course at Whitney Sawmills in October. All the delegates for 'W2W23' came from Ireland, a country where tree cover fell to less than 1% (the only country in Europe where such complete forest destruction took place), but where it's recovered to 11%, aiming for 17%.

Not surprisingly, almost all the fabric of a timber industry vanished as a result of the massive decline in tree cover, so the group of Irish foresters and timber users who came to Whitney were most keen to learn what might be involved in re-establishing its foundations and particularly for the hardwood sector, as much of Ireland's initial woodland recovery programme was devoted to softwoods.

Woodland Heritage's charitable aims as delivered by Whitney Sawmills, and the skills and experience of the staff, mean that in forestry circles in both England and Wales, it is seen as a venue at which to learn and gain knowledge.

So 2020 started with several opportunities to pass on expertise to people of all ages and abilities within the forestry industry, ranging from those with almost no previous experience, to those with a lifetime's, but still keen to learn more about sawmilling.

The first engagement of the year was for sawmill manager, Dermot Doyne, along with one of the mill's directors, Graham Taylor MBE, to talk about markets for Ash in the light of the many issues facing landowners now that Ash Dieback is starting to cause significant problems. This opportunity came at the suggestion of Confor Wales, recent visitors to Whitney Sawmills, and helped organisers



Wavy-edged Welsh Ash supplied for dining table and backed benches by Uniqueworks Handmade Furniture

of the special event at the Royal Welsh Showground, the Institute of Chartered Foresters and Focus on Forestry First, to cover a most important topic for those attending. Although Oak remains Whitney Sawmills' most popular species, Ash sells steadily and is a most versatile of timbers. It is too good simply to send to biomass, due to the likely flush of supply as a result of diseased trees needing to be felled whilst they still have an economic value.

The day after that speaking engagement, and at the request of Keith Jones, Area Director, Forest Services North West and West Midlands at Forestry Commission England, Whitney Sawmills hosted a visit by the Forest Services' Executive Team, which later went on to visit the nearby Duchy woodlands.

Despite the depth of knowledge within that team, it had not visited a sawmill that mainly mills home-grown hardwood timber. Attendees were keen to get an overview on the availability of good quality timber and its prices. Along with milling and its costs, they also wanted to learn about current demand and end uses whilst seeing the mill in action, including looking at good quality logs and various timbers air-drying.

Whitney Sawmills' ability to impart important advice and information relating to hardwood sawmilling is now bringing some repeat visits by people of all ages and abilities keen to learn more about this process. So in March it was lovely to welcome back the Prince's Trust with its latest group taking part in the 'Get into Woodlands' scheme, aimed at young people looking for new options for their careers. Later in the month, undergraduates from the University of Cumbria (National School of Forestry) were due to return, keen to better understand how timber can be and is utilised.

whitneysawmills.com

Report: 'Irregular Silviculture in the Lowlands: Transformation in Practice'

The SelectFor course

by David Cracknell, a 2019 participant supported by Woodland Heritage

As foresters we like to keep things simple. For centuries we have planted trees, clear-felled them, then replanted the same compartments. Wait 40 years. Repeat. We have convinced ourselves that regular patterns and even-aged tree stands are what make sense practically and economically.

This is perhaps inevitable. As human beings, we are comfortable with regularity, patterns, repetition and sameness. The very dictionary definition of irregularity is “not being or acting in accord with laws, rules, or established custom”. We have not followed the wisdom of Marcel Proust, who declared that “the regularity of a habit is generally in proportion to its absurdity”.

But nature does not conform. It is lopsided, asymmetrical, and its patterns are Fibonacci sequences, not regular and uncomplicated designs. So why in the UK have we been unable to approach woodland stands in a way more like our continental cousins, with a more “natural forestry” approach?

These questions came to me as I attended SelectFor’s fascinating “Irregular Silviculture in the Lowlands: Transformation in Practice” course in April 2019. We were stationed at Stourton (Western) Estate in Wiltshire, on the edge of the Cranborne Chase AONB, and expertly tutored by the knowledgeable team of Andy Poore and David Pengelly. Over two days, including several site visits, we learned in detail how to apply a more natural form of forestry, one that our French *amis* have pioneered for decades, and some even for centuries.

The *futaie irrégulière* approach – akin to “continuous cover forestry” (CCF) in the UK – involves a set of interventions, including selective felling and cleaning operations which create structural and species diversity in



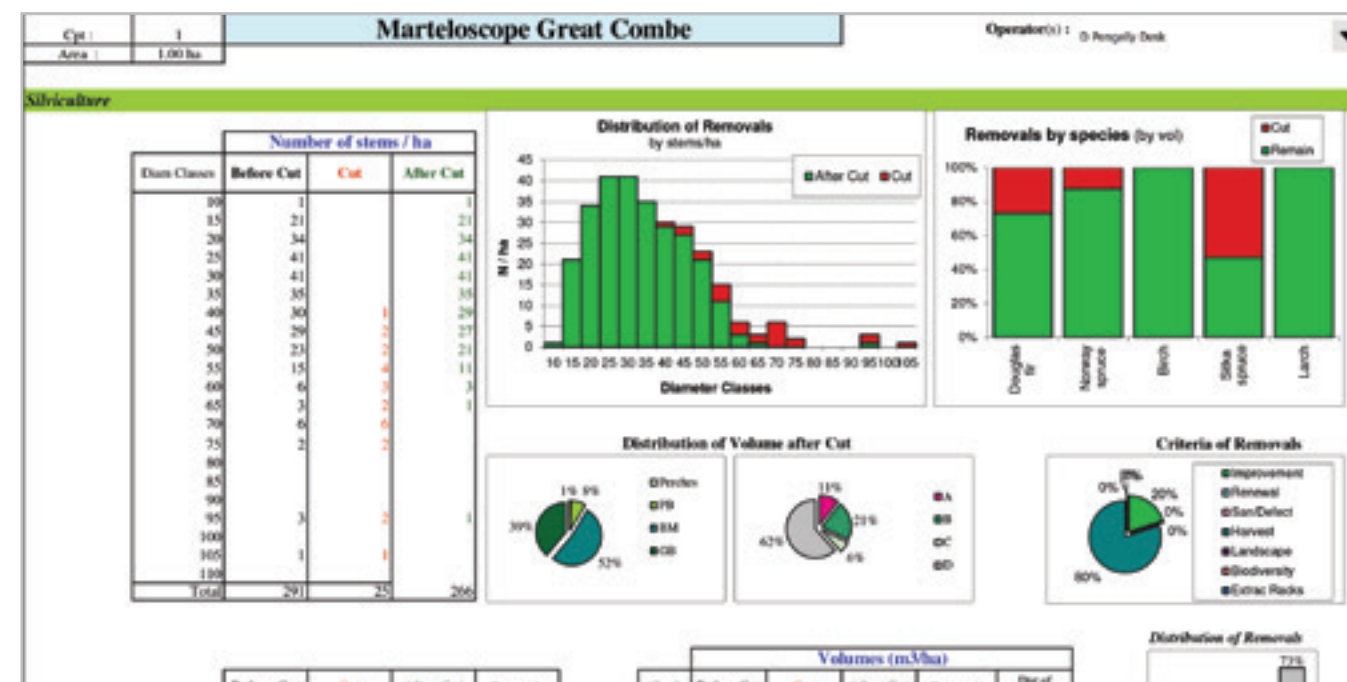
Andy Poore

the forest. The aim is for mixed, uneven-aged stands, just as nature intended.

The practice has the deepest respect for ecosystems; but this is not some wishy-washy New Age hippy activity. It is highly scientific, mathematical, and above all it seeks the continual harvesting of the highest-quality timber, maximising growth potential of specimens and the best possible profit for the forester.

Trees are individually selected, or removed in groups, leaving free-standing clumps and canopy gaps where natural regeneration is encouraged. The harvest is a permanent one which retains the integrity of the woodland, compared to a clear fell, and is arguably more profitable in the long run.

The principle of IF is brilliantly simple but ingenious: if you know precisely what is in the forest stand, and are measuring at regular intervals how much those trees are growing, then you can make accurate predictions about the standing value of the forest and run economic models of the effect of different levels of intervention.



Example of part of a Marteloscope

Conventional forestry is mere informed guesswork based on past yield classes. Under irregular forestry, you are intelligently armed with the knowledge of what is actually happening in real time in your woodland. You can even spot the effects of diseases early on and adjust your silvicultural response before financial ruin beckons.

Poore and Pengelly certainly make a very compelling case for IF with their detailed measurements of sample plots and stands, and working off spreadsheets and software which assist in making fine in situ judgments about which trees to remove and when: for profit, sustainable timber production, structural development, natural regeneration and stand stability.

To this pair of tree geeks, size is very important, and they are obsessed with charting things like “volume removed”, “size class distribution”, “growing stock size” and “increment across size classes”. The detail and complexity are at first intimidating; but once you get the idea and have completed the practical exercises on the ground, it all makes perfect sense. Like nature, irregular forestry thinks of everything, and has a satisfying completeness to it.

Of course, the advantage of CCF over conventional forestry is that you get your money at regular intervals. This is all about working out to the last penny how much you could make by selectively removing a certain number of trees within the stand, and how much will be left standing in monetary terms. One of the practical exercises on the course was to try a marking exercise ourselves. Armed with a precise map

of every tree by specie and DBH in a one-hectare plot – known as a ‘Marteloscope’ - we were split into teams of two and told to mark-up individuals for removal based on various forestry objectives. We decided to prioritise, as would-be managers, immediate profit, biodiversity, improvement, renewal, landscape, etc.

It was a fun competition between the different teams to see who could match Pengelly’s “ideal” scenario of balancing the need to take good quality harvestable specimens for profit now, and longer-term goals of regeneration and leaving enough sustainable standing volume for future income.

For example, you might choose to take all of the three or four “Grade A & B” Douglas Firs today, with a tempting roadside value of £2,000 each; but wouldn’t it be better to take a profit on one or two now instead, and save the others as seed trees whose retention contributed to the landscape or ecosystem services.

The following morning, Andy revealed our results he had inputted to spreadsheets developed by the AFI in France and revealed the “winners” who came closest to the optimal solution.

All round, as a student or a practitioner looking for more detail and confidence in irregular forestry, this was a fascinating two-day course. There was ample course lecture material, takeaways and time to ask questions. And the cakes during coffees breaks were excellent!

International Forestry Students' Association – Northern European Regional Meeting 2019, Wales

by Peter Roe, NERM chairperson / BFSA president / Bangor University
BSc Forestry student

The Northern European Regional Meeting (NERM) 2019 was hosted in North Wales from April 12-19 by the Bangor Forestry Students Association (BFSA), the International Forestry Students' Association (IFSA) branch of Bangor University. The organising committee warmly welcomed 30 IFSA members from across Northern Europe, with a few from further afield.

The week was busy from start to finish. It was filled with late nights, early starts and busy days. There was plenty of engaging debate within the IFSA delegation and with a wide range of forestry professionals hosting our site visits; particular interest was found in balancing a variety of management objectives in a typical condition.

Arrival-day was followed by day-two (April 13), which had a simple goal: get to know and bond with each other, whilst reaching the top of Wales' tallest mountain, Yr Wyddfa (Welsh name), aka Snowdon. The ascent was a success and spirits were high which was good as the descent did not go quite as planned, although there was plenty of chat and laughter throughout.

Our third day (April 14) took us to Porthmadog to catch a steam train to Maentwrog forest with Tilhill, a leading forest management, timber harvesting and marketing business, working across Great Britain. This site was particularly interesting to visit as it demonstrated a forest being managed under a diverse set of management objectives, with timber production a lower priority than other conservation objectives. We discussed issues in various sub-compartments which were under attack from *Phacocryptopus gaeumannii* (Swiss needle cast), as well as controlling invasive species and managing for biodiversity, whilst still turning a profit on investment. We were also treated by Tilhill to an excellent and much appreciated lunch in the middle of the woodland.

Day-four (April 15) was our first venture into Anglesey. We split into two different groups and spent half the day at one community woodland before changing places. The first woodland we visited has been successfully run under the Llais-y-goedwig community woodlands scheme for a few years. It plays host to a variety of activities such as charcoal making, engaging young and disabled people with woodlands, as well as wildlife spotting and conservation. The second site we visited was a relatively new woodland with many areas dedicated to coppicing; we enjoyed learning about the financial backing for these ventures and how they were viewed by the local and wider community.

In the evening we introduced our guests to one of the more energetic parts of Welsh culture, the Twmpath. It can be likened to a Scottish céilí: a high energy group dance involving lots of swinging round, changing of partners and skipping.

The next day (April 16) we returned to Anglesey to visit the biggest forest on the island. Newborough forest is managed by the state and is adjacent to an outstandingly popular beach. We discussed many issues of managing the site including, pests and diseases, red squirrel



At Maentwrog



Snowdon

At conservation, timber production, ecosystem services and aesthetics. We spent time in the woods as well as along the beach, talking about how the forest copes with encroaching dunes and the many other challenges of its location. We also visited research plots looking at the water table and how the forest alters it. We visited this site with one of our lecturers, Dr Lars Markesteijn, as well as several forestry professionals from Woodland Heritage, Natural Resources Wales, Forest Research and Welsh Government.

In the evening we held the famous IFSA International evening which was a wonderful fast-track experience of everyone's cultures. We went around table-by-table explaining the food and drink that was on offer, as well as demonstrating a traditional song or dance. The evening carried on late into the night and many good times were had.

Our next site visit (April 17) was to Gwydyr forest located next to Betws-y-Coed, guided by Dr James Walmsley. Here we practiced some basic tree identification skills, discussed why the forest was planted in the first place and evaluated its success. We took a break midday to go for a wild swim in the stunning Afon Llugwy, one of the forest's many scenic rivers. We then visited restock sites, young plantations and mature stands managed under a range of different silvicultural systems, including the beautiful Artists' Wood, resembling a 'close to nature' forest management approach.

After a fun seventh day (April 18) at both Bounce Below and Zip World with a BBQ in the evening, it was with a heavy heart that we woke up in the morning and packed our bags on the final day of NERM 2019 (April 19). We bundled everyone into the minibus to the station,



Day 7 – Gwydyr

where we said our goodbyes and waved old and new friends alike onto their trains; we were sure that memories had been made that would be treasured for many years to come (or at least until the next NERM).

On behalf of the organising committee for NERM 2019, I thank our sponsors for helping put on such a fantastic event; without their help this would not have been possible. Sincere thanks go to BSW and Tilhill for both an excellent field trip, but also for their vital, initial backing as without it we would not have been able to get this event off the ground. This then enabled us to seek and obtain generous financial support via Woodland Heritage from both the Welsh Government and The Henry C Hoare Charitable Trust, at a time when we needed it most. Thank you Woodland Heritage for your general support and guidance throughout the organisation process.

Finally, a huge thank you to everyone who helped and guided us from both our university, Bangor University, and its Students Union.

Trapping *Agrilus biguttatus*: field testing of coloured traps with Oak-derived leaf and bark volatile lures

by Philip JL Gould¹, Liz Richardson², Paul Turner², Nathan Brown², Gary Battell³, Rod Pass⁴, Mark Oram², Michael A Birkett¹, Sandra Denman² and Jozsef Vuts¹

¹ Rothamsted Research, ² Forest Research, ³ Suffolk County Council, ⁴ Oakbank

Acute Oak decline (AOD) poses a serious threat to native Oak species in the UK and is of significant concern to the timber industry.

The biotic component of AOD is characterised by the co-occurrence of necrogenic microbial communities that form weeping bark lesions (Fig. 1A) and galleries made by the larvae of the two-spotted Oak buprestid beetle, *Agrilus biguttatus*, within the living bark (Fig. 1B). The relationship between the larvae and necrogenic bacteria is complex and largely unknown, but if larvae come into contact with the bacteria, their activities can increase the extent of bark lesions and thus the severity of AOD.

As a proactive step towards managing the potential risk that the larvae of *A. biguttatus* may pose to Oak trees, it would be prudent to determine methods to reduce the potential risks the beetles pose, without causing damage to the wider ecology of woodlands. Sensitive and highly selective methods of trapping beetles is one technique that could be used to this end. Previous research has identified synthetic blends of leaf and bark volatiles that produced strong attraction responses from *A. biguttatus* beetles.

The main goal of this project, funded by the Rural Payment Agency, was to field-test designs for *A. biguttatus* traps, using different coloured traps baited with leaf and bark volatile blends. If this new trapping device could be optimised, it might become a valuable tool for monitoring the spatial and temporal population dynamics of *A. biguttatus* in the UK, and it could be used for selective trapping to control this component of the AOD complex.

Adults of *A. biguttatus* (Fig. 1C) are difficult to observe as they feed and mate in the canopy of Oak trees, and their larvae develop beneath the bark. At approximately 10-13 mm in length, the adults are larger than other British



Figure 1. A: Stem bleed caused by AOD. B: *A. biguttatus* larval galleries. C: Adult *Agrilus biguttatus*. D: D-shaped *A. biguttatus* exit hole. Scale in mm

species of *Agrilus* (although some overlap can occur) and they can be readily identified by the pair of white spots on the elytra (wing cases). Females lay eggs in bark crevices on English and sessile Oaks (*Quercus robur* and *Q. petraea*), from where the larvae burrow through the outer layer to feed on the living, nutrient-conducting, inner bark and cambium, and the freshest layer of sapwood, forming long, sinuous galleries (Fig. 1B). If numbers of larvae are high, trees can be seriously damaged or even killed, when the galleries may have a “girdling” effect and restrict the flow of nutrients within the tree. Depending upon local conditions, development takes one to two years, after which the mature larvae pupate in the outer bark and the following summer the adults emerge, creating characteristic D-shaped exit holes (Fig. 1D). The beetles fly into the tree crown where they feed and mate, after which the females descend to the stems and lay their eggs. There would therefore be two suitable points to trap beetles: at emergence and at egg laying.

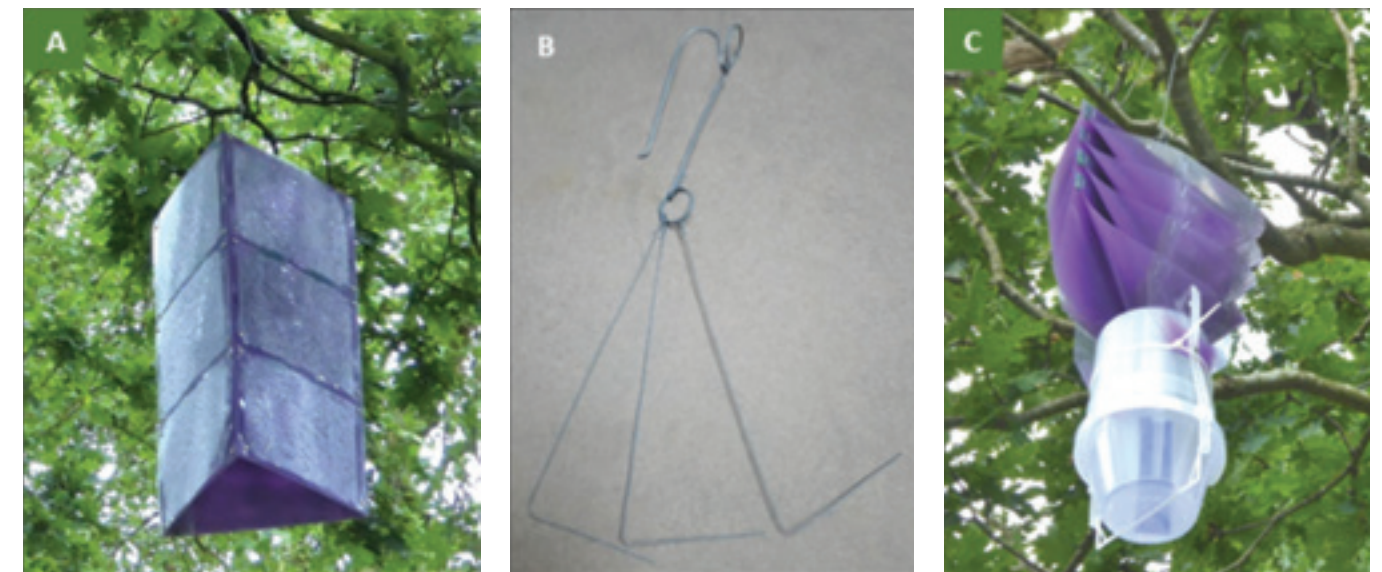


Figure 2. A: Prism trap showing sticky sheets. B: Suspension wires, ring and hook for a prism trap. C: MULT funnel trap with clear VARb3 funnels sprayed purple.

Materials

Prism traps were manufactured from sheets of 4 mm-thick translucent corrugated plastic (sourced from theplasticshop.co.uk). Using a design similar to that in a study by Francese *et al.* (Fig. 2A), a 244 cm x 122 cm sheet made two traps. Their study found that significantly more *Agrilus planipennis* were caught using purple traps, and Brown *et al* had a similar result when trapping *A. biguttatus* in the UK. Therefore, the sheets were sprayed purple using Plasti-kote “Satin Sumptuous Purple” – a shade found, after spectrophotometry testing, to be comparable to that in the previous studies.

Suspension wires and hooks for both trap types (Figs. 2B and 3B) were designed and manufactured at Rothamsted. All holes for the wires were pre-drilled so the traps could be flat-packed for transport and easily assembled in the field.

The sticky sheets were constructed by and sourced from CSALOMON® (Plant Protection Institute, Centre for Agricultural Research, Hungarian Academy of Sciences, Budapest). The sticky component was Oecotak, a polybutene and wax mixture made by Oecos Insect Monitoring & Control Equipment (Kimpton, UK). Three sheets were used to cover each panel of the prism traps (Fig. 2A) and were attached using document fasteners.

Each funnel trap, also sourced from CSALOMON®, consisted of a bucket with a rigid plastic funnel (model MULT), above which was attached a tier of four flexible plastic funnels (Fig. 2C). Fifty-six traps were required for this work, using a mixture of clear and green funnels

(version VARb3) along with extra clear funnels sprayed purple. Prior to deployment, all funnels were coated with a dry PTFE lubricant spray (WD-40 Specialist Dry Lubricant with PTFE, amazon.co.uk) to make the plastic more slippery.

Three different lures were used in conjunction with the funnel traps: leaf and bark volatiles, and a volatile blend identified from stressed Oak leaves. Based on previous studies, these were synthetic blends created at Rothamsted and are not yet commercially available. The different volatiles were either injected onto a piece of dental roll (cotton wadding) and heat-sealed within a small polyethylene (PE) bag attached to a plastic strip (again sourced from CSALOMON®) or enclosed in a small plastic bag (Fig. 3). Individual lures were wrapped tightly in aluminium foil and each type then stored together in a resealable plastic bag in a freezer. An air entrainment process was used to test each lure to ensure an adequate quantity of synthetic volatiles had been placed in each dispenser so that they would last long enough to be changed every two weeks.

Methods

Trapping started at eight sites across the UK in mid-June, these were Langdale Wood and Bell Coppice in Worcestershire and Shropshire respectively; Sherrardspark Wood in Hertfordshire; and Ickworth, Gipping, Helmingham, Staverton Park and Sotterley, all in Suffolk (Fig. 4). These sites were chosen based upon previous studies and field visits undertaken by members of the Rothamsted and Forest Research teams in 2018.



Figure 3 A: Dental roll / PE bag dispenser and small ziplock bag. B: Volatile lure attached to the hanging ring of a clear funnel trap.



Figure 4 Trapping sites 2019

Four trapping areas or “blocks” were chosen at each site, based around a tree or trees identified as having recent *A. biguttatus* activity (D-shaped exit holes) and obvious signs of AOD (stem bleeds). Previous work found that greater numbers of beetles were trapped in open areas as opposed to within woodlands, therefore each block was also in the open and preferably on the northern edge of a clearing, thus providing a southerly aspect (a preference shown by the beetle) within which to place the traps (Fig. 5). Blocks were all situated at least 20 m from each other, with most being considerably further apart.



Figure 5 View north at Block 1 at Staverton, showing the prism trap (left) and two funnel traps (centre and right)

Initially one prism trap was installed in each block. These were lifted using a telescopic pole and suspended from a suitable branch at a height of approximately 5 m (Fig. 6); then left in place throughout the season and checked once a week to record new captures of *Agrilus* beetles. Once trapping was completed the sticky sheets were covered with clear plastic, removed from the trap panels and stored in a freezer until specimens could be removed. Upon removal, specimens were bathed in limonene to dissolve any Oecotak residue and then stored in alcohol (70% ethanol) until identification could proceed.



Figure 6 Installing a prism trap at Sotterley

Due to limitations on the number of funnel traps available, it was possible to use them at only two sites. Based on previous studies, information from local experts and occurrence of previous *A. biguttatus* activity, Helmingham and Staverton were chosen. The first of the funnel traps were installed in late June when, in every block, one each of green, purple and clear (control) traps were hung on branches approximately 5 m above the ground and about 5 m from one another. A single Clothes Moth Killer Strip (made by Zero In and available at amazon.co.uk) was placed in the bucket of each trap to kill insects as they were caught; the strips were replaced every three weeks, or if they had been soaked by rain. All traps were checked weekly, whereupon the catches were carefully removed and stored in a freezer.

Using the same method, further traps with lures were added to each block throughout the season (Table 1). The lures were transported in a cold box and unwrapped and attached to the trap (using a short length of wire – Fig. 3B) only once a suitable location had been identified.

In order to test the final lure, extra funnel traps were required. Therefore the decision was made to stop the trapping at Helmingham and concentrate on Staverton,

Date	Trap Colour / Lure Combination								
	Green	Clear	Purple	G&L	C&L	P&B	C&B	G&S	C&S
26th Jun									
3rd Jul									
10th Jul									
17th Jul									
24th Jul									
31st Jul									
7th Aug									
14th Aug									
21st Aug									
28th Aug									
4th Sept									

Table 1 Treatment schedule at Helmingham and Staverton throughout the 2019 field season. G&L: green trap with leaf lure. C&L: clear with leaf. P&B: purple trap with bark lure. C&B: clear with bark. G&S: green trap with stress lure. C&S: clear with stress. *Helmingham traps moved to Staverton

where more specimens of *A. biguttatus* had been recorded. Extra traps were added to each block at Staverton, along with the formation of a fifth full block. Trapping continued until the end of the season, with all traps (prism and funnel) collected by early September.

Results and Discussion

Processing of the insects caught in the traps is ongoing and final data will be reported once available. Specimens have also been preserved and will be used for other types of analysis such as molecular biology studies. Only preliminary results have been gathered thus far: these show that specimens of *A. biguttatus* were trapped but that these were outnumbered by other species in the genus (Table 2). *Agrilus laticornis* was by far the most numerous, followed by *A. sulcicollis* and *A. angustulus*. The beetles appear to show a preference for the green funnel traps, but this will become clearer with further analysis. The samples will also be checked to see if they contain any specimens of known *A. biguttatus* parasitoids and whether there is any correlation with trap type, colour or lure.

The additional three species are all broadly similar, being noticeably smaller than *A. biguttatus* (ranging from 4 to 8.5 mm) and lacking the distinctive white spots. *A. laticornis* has a uniform blue to bronzy-green colouration; *A. sulcicollis* is usually iridescent blue but can sometimes be green; and *A. angustulus* can range from olive-green to bronze or dark blue. The larvae of all three develop in the bark of Oak trees, although *A. angustulus* (Europe’s commonest species of *Agrilus*) is also known from Beech, Hornbeam and Hazel.

Past studies have found that, out of three trapping heights tested (1.5, 6.5 and 13 m), the greatest numbers of *A.*

Trap Type	Total Catches of <i>Agrilus</i> Species			
	<i>A. laticornis</i>	<i>A. sulcicollis</i>	<i>A. biguttatus</i>	<i>A. angustulus</i>
Funnel	166	9	9	3
Prism	81	84	11	0

Table 2 Total catches of *Agrilus* beetles. Funnel traps: Helmingham and Staverton only. Prism traps: across all eight sites

biguttatus were caught at 13 m, followed by 6.5 m. The traps in this study were hung at about 5 m because this was the upper limit of what was easily possible using the telescopic pole. Hanging the traps higher up (perhaps using ropes suspended over upper branches) may have produced bigger catches of beetles. However, for the number of traps being used, and for the frequency that they were emptied, this would have been impractical, with similar implications for practical use in forestry. It would also have been advantageous to have been testing all trap types and all lures for the whole of the season, but issues regarding the supply of funnel traps meant that this was not possible.

Ideally, there would now be a second trapping season at a site known to have a strong population of *A. biguttatus* where, given the results so far, studies might concentrate on using green traps with or without different lures. Now that all supplies have been sourced and tested, it would be possible to start with all traps operating at the beginning of the season, providing greater opportunities to also conduct studies to determine the optimum height for maximum beetle catches.

Acknowledgements

We are very grateful to all of the landowners and site managers that allowed us access to each of our trapping locations. Without their help and support, none of this work would have been possible.

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Acute Oak Decline (AOD)

A brief news update

by Sandra Denman, Project Leader and Senior Research Scientist, Forest Research

As 2020 is the 'International Year of Plant Health' (IYPH), it presents a duty and an opportunity to raise global awareness and focus attention on the need for, and benefits of, protecting plant health.

Recently I was reminded that 40% of the world's food crops are lost to pests and disease (P&D) and one report claims that we lose between 3 and 7 billion trees annually with a considerable percentage of that attributed to destructive P&D.

Improved health of all plants will result in reduced crop loss that should help reduce food and fibre shortages and lessen hunger, whilst greater success of tree establishment in reforestation efforts will ensure healthier trees with better longevity. There will of course also be other positive spin off effects such as promoting species abundance and biodiversity, contributing to mitigating air pollution and climate change, stabilising soils, boosting economies and wellbeing of people, and benefits for the rural economy.

Over the year, both internationally and nationally there are numerous events planned to focus attention and awareness of the need for improved plant health. I urge you all to find out more about these and attend those of interest. I plan to hold knowledge exchange events to pass

Figure 1: A schematic diagram of the Nitrogen Cycle that takes place in soils

on our recent research findings themed around IYPH and will ensure stakeholder involvement and engagement to facilitate two-way communication, obtain views and help ascertain future research needs to help us ensure healthy, resilient Oak populations.

Looking back, my key efforts in 2019 were largely focussed on collating research data, writing reports and scientific articles, and very importantly, writing several



Sally Simpson (Woodland Heritage funded AOD project officer) and Carol Knight (Contracts FR Finance) keeping tabs on student contracts and reports!



The FR Finance and Human Resources team headed by FR Finance Director Meirion Nelson (seated) having fun and a good laugh.

grant applications to continue supporting research of unanswered Acute Oak Decline (AOD) and other Oak decline questions as we have reached the end of a large Defra sponsored project and other funding has dipped. We are hugely excited about our project proposals and hope we are lucky enough to win funding.

2019 was a year where public concern about climate change and global warming reached an all-time high and 2020 is seeing great emphasis placed on moving towards net zero carbon emissions within the foreseeable future. Tied to this is an exponential increase in tree planting to reach government targets in a relatively short time. I have two key concerns from the perspective of the health of our Oak trees, the first centres on seed supply, successful germination and subsequent tree health, the second is about the effects of predicted greater summer heating and drying out of soil and soil nutrient imbalances created as a consequence of pollutants.

Over the past four years our Defra funded research focussed on elucidating predisposition drivers that make Oaks susceptible to AOD and Chronic Oak Decline (COD). Results showed that at the national scale high AOD occurrence correlated with drier, warmer conditions and lower elevations in England, in addition levels of high dry nitrogen and low dry sulphur deposition were significant.

At the site specific scale although analyses are far from complete and we will report on this more fully next year, I want to briefly mention the importance of soil chemistry, particularly soil carbon (C), nitrogen (N), acidity and vital nutrients for growth and healthy development of Oak e.g. phosphorous (P), calcium (Ca²⁺), magnesium (Mg²⁺) and potassium (K⁺). It is a complicated picture and requires a lot more investigation, but our first results indicate

that the pH of the soil/root microenvironment (called rhizosphere soil) of AOD affected trees is more acidic than that of healthy trees. Tree feeder roots are known to manipulate the pH of their rhizosphere to their benefit. A more acidic rhizosphere can aid mobilisation of nutrients and is thought to be a tree stress response inducing the rhizosphere microbiome (i.e. the microbial community surrounding tree roots) to aid nutrient uptake in times of need. On the other hand, acidification of the wider forest soil environment can be related to Ca²⁺, Mg²⁺ and K⁺ limitations, and to Al³⁺ toxicity in fine feeder roots.

Such chemical imbalances were recorded on some sites in both the bulk soil and the AOD trees' nutrient uptake. This indicates that soil chemical imbalances and nutrient limitations play a predisposition role in making trees susceptible to AOD. Signs of inhibition of P and N tree uptake were also noted at some AOD sites. Thus, soil acidification appears to have negative effects, but elucidating cause and effect at different sites is difficult as acidification can occur due to a number of processes for example nitrification. Both N limitation and excess are key indicators of nutrient imbalance.

We know that microorganisms are crucial in regulating soil N changing its chemical structure into forms that plants are able to use. Denitrification is a stepwise reduction of nitrate into nitrite, nitric and nitrous oxide and back to dinitrogen gas; this process is depicted in Figure 1.

As part of the Defra funded project, post-doctoral researcher Dr Kelly Scarlet and Dr Corinne Whitby (Essex University) used microbial community analysis together with soil chemical analyses (carried out by Dr Elena Vangelova, FR) to find out if there were differences in the microbial communities responsible for cycling N in soils in declined compared to healthy Oak trees. It was clear



FR Chief Statistician Dr Jack Forster who ensures that results reported are statistically verified.

that healthy trees were associated with a higher abundance of ammonia oxidising bacteria (AOB) than declined trees and that this relationship was strengthened in less acidic environments. Denitrifying bacterial abundance was also influenced primarily by soil C:N ratio, and correlations with AOB. These findings suggest that amelioration of soil acidification by balancing C:N may positively affect the microbes responsible for driving N transformations, and reduce stress in declining Oak trees. This work is in its early stages but looks promising for delivering practical, easily applied management solutions.

Apart from the hard core science, I want to make mention and pay tribute to all those who work so hard behind the scenes, providing essential back up support that enables recruitment of skilled scientists, or are involved in planning experiments and helping with the logistics of arranging site visits, accommodation, scientific meetings, journals and reports. We simply could not do and deliver the work we do without all this support.

Special mention and thanks must be given to Sally Simpson who is our AOD Project Officer, funded by Woodland Heritage. Sally takes charge of communicating and arranging the travel aspects of field trips and meetings, and she organises our report-back meetings. Sally has also taken on the extremely important job of reporting results of our swab testing service. Sally and Carol Knight, who is based in FR finance, keep tabs on student and post-doc contracts, reports and payments. Carol has supported us for the full decade of the AOD project. Thank you both for everything you do to make us function so effectively! I also want to pay tribute to the wider FR HR and finance teams who give us support in getting visiting scientists in post and ensuring their wellbeing while with us. Our



FR Technical Service Unit Research Worker Stephen Whall helping Dr Sandra Denman and Dr Bridget Crampton during an investigation of a 'mysterious stem disease' of mature oak which is characterised by outerbark flaking and cracks on the trunk and buttress roots.

FR Technical Services Unit (TSU) is key to our work and deserves particular mention. TSU provides specialist forestry skills, experience and a capacity to conduct field work across Great Britain. The tasks they carry out vary from involvement in planning, to organising and undertaking a range of tasks to support Oak decline research. So far, they have completed a survey of Oak woodlands across England and Wales to determine the extent of AOD; propagated and maintained trees for experimental use; collected foliar and soil samples for laboratory analysis, and excavated tree root systems using air spades. They also collect a wide range of data from Oak monitoring plots at locations across England, Scotland and Wales to inform the monitoring and modelling research on current and future Oak health and resilience especially under changing climates. Finally, we also owe great thanks to statistician Dr Jack Forster who is also involved from the planning stage of our experiments to yielding statistically valid results.

In conclusion I feel that 2020 is a vibrant start to what promises to be a very dynamic decade. Never before has the world needed trees and tree research as much as it does now. It is a monumentally exciting time for us as tree health specialist researchers and we owe much gratitude to you all for your help in support in striving towards our common goal of safeguarding and ensuring best health and resilience of our trees for future generations. I wish you a happy and productive tree year; may everything be very oaky!

The Fenland Black Oak Project

by Roger Richardson

5000 years ago and deep inside the East Anglian Fenland Basin a forest of amazingly tall trees once stood. Over time, and a rise in sea level, these spectacular Oak trees fell into the silt of the flooded forest floor where they became preserved as black treasures.

This article is a very much shortened version of parts of an excellent and fascinating website. Read it all here: thefenlandblackoakproject.co.uk. Woodland Heritage is greatly indebted to the Trustees of the Project for permission to use its text and images.

In 2012 came news of an amazing discovery. At over thirteen metres long and perfectly preserved, a giant from that ancient high forest had been found buried in a fenland field. Against all odds, a team successfully lifted, milled and dried 'The Jubilee Oak' and now these master craftsmen are setting out to give this piece of history a magnificent new legacy.

From that tree The Fenland Black Oak Project is creating a unique table for the nation. Now money is needed to complete this magical story. Please contribute to it and become a part of this legacy.



Excavation of the 'Jubilee Oak' in 2012

The Story

In 2012 a Fenland farmer hit an obstacle while ploughing. Some days later and with the aid of a 14 ton excavator and two teleporters a huge semi-fossilised Black Oak tree emerged from the peat.



Cabinet maker and Black Oak specialist Hamish Low was immediately contacted to assess the viability of its preservation. Not only did he deem it suitable for preservation, it was also decided that an attempt must be made to retain its extraordinary length. Hamish became the project leader and a charity (The Fenland Black Oak Charitable Incorporated Organisation) was established with a very diverse group of specialists to try to make this happen. After close consultation with the Palace, it was agreed that the tree, and the table to be made from it, could be called the Jubilee Oak in honour of the Queen's Jubilee in 2012.

The Jubilee Oak is a very rare and special example of Black Oak. Its sheer scale led to its extraordinary degree of preservation. It was so vast that its apocalyptic descent would have smashed and crushed everything in its path as it buried itself in the silt of the forest floor. The degree of preservation was very exciting. However, it was only after it was fully measured that Hamish and the team realised there were no root or canopy ends. This was astonishing because it meant that they were looking at what must have been only a small length of a much, much larger tree.

“We could only imagine the majesty and grandeur of the ancient forests that covered much of Britain thousands of years ago. We had to preserve the integrity of this tree. To cut it into more manageable lengths was unthinkable.” As soon as Black Oaks are exposed to the elements they rapidly deteriorate, so while all the logistical challenges associated with milling a tree over thirteen metres long were resolved it was wrapped and reburied.

Saw Milling

To preserve Black Oaks they must first be converted into planks to manage even rates of water extraction. A saw mill was flown from Canada by Logosol (see website) and after four days of assembly the longest saw mill in the country was set up alongside the buried Jubilee Oak.

It is impossible to predict what any tree will yield before it is opened up. This is particularly true of Black Oak with the logs having been buried in the peat for thousands of years. The Jubilee Oak hinted at great potential but there was always the possibility of unseen defects preventing us from keeping the planks intact over their full length.



The visual impact of good Black Oak boards can evoke a sense of wonder and we were certainly unprepared for what this extraordinary tree actually yielded. Leaving aside

their ancient provenance and unprecedented length, some of these quarter sawn planks are figured over their entire length and are breathtakingly beautiful; ten sequential boards quite unlike anything seen before.

Drying and Preservation

Black Oak must be dried artificially because traditional air drying is too aggressive. The milled planks were transported to the Building Crafts College where a bespoke fifteen metre dehumidifying kiln had been designed and built specifically to dry the Jubilee Oak planks. The kiln had three dehumidifiers and eleven additional fans.



Complete control was essential over air flow, moisture extraction, temperature and relative humidity. All these parameters, together with daily measurements and monitoring, needed considerable adjustments and balancing. Incurring the amount of shrinkage we expected over a short length is famously difficult, we were attempting to achieve this with boards over an unprecedented thirteen metres long.

Eventually – after nine months – the dehumidifiers were switched off for the last time. Drying was an astonishing success. These had become arguably the rarest, most valuable ten sequential planks in the world. We had extracted 397 gallons of water of water which amazingly equates to four gallons per cubic foot and drying had reduced the weight of these planks by 1.6 tons. They had shrunk by over one third of their sawn thickness, a quarter of their width and even 150 mm in their length, and yet they were flat and true over their whole length.

Looking Ahead

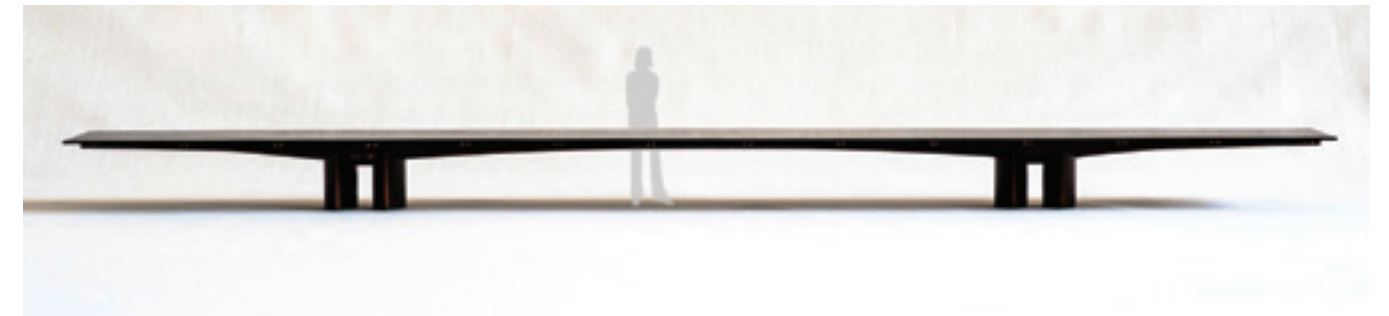
Large tables are symbolic at traditional ceremonies and state events. The Jubilee Oak represents an opportunity to make the greatest of them all.

So far the challenges and uncertainties associated with The Fenland Black Oak Project have been spectacularly overcome. The need now is to protect the ‘not for profit’ ethos of the project and to make the Jubilee Table a reality.

The table top itself was constructed in the summer of 2019 and was an extraordinary success. The story, and the remarkable detail of the making of the top, is shown on the website (thefenlandblackoakproject.co.uk) and will be featured in next year’s Journal. The trustees now have to raise £50,000 for the essential metal under-structure which will complete the project.

“We have saved this magnificent tree for the nation and are now seeking donations to ensure the completion of this enormous, unique and breathtakingly beautiful table.”

You can easily make a donation on the Just Giving page justgiving.com/fenlandblackoak.



For more information about supporting the project please contact Hamish Low at thefenlandblackoakproject@gmail.com

By donating to The Fenland Black Oak Charitable Incorporated Organisation you are enabling possibly the last of the Fenland giants to be preserved for future generations long after its spectacular discovery, excavation and conversion. It is intended to keep and display the table in Ely Cathedral near to the fen where this Black Oak had lain for so many thousands of years.

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Interior of the kiln showing the heat exchangers and intermediate ceilings



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Action Oak Report 2019/20

by Sarah Jeffery, Project Manager

For Action Oak, 2019/20 was a busy period, its second full year of operation, now firmly in place and able to handle a diverse range of activity.

Reaching people

The IGPOTY (International Garden Photographer of the Year) “Celebrating Our Oaks” displays continued to travel around the UK: Yorkshire Arboretum, Belvoir Park Forest (Belfast), Royal Botanic Gardens Edinburgh and The Green Wood Centre, Ironbridge (Small Woods Association). Reaching over 150,000 people on site and many more via social media, the exhibition has sparked much interest and a bilingual version, launched at the Royal Welsh Show, is on tour throughout 2020.

The display that launched Action Oak at the RHS Chelsea Flower Show in 2018 has also been to RHS Cardiff, RHS Chatsworth, Sand Hutton and RBG Edinburgh over the last year.

The feedback from the public attending the events has been very positive, with many people being pleased to see a proactive approach to tackling the problems and looking at preventing the potential spread of pests and disease. Footfall at the shows, RHS Cardiff, RHS Chatsworth, Sand Hutton, RBG Edinburgh and the Royal Welsh Show will mean that over 250,000 people will have seen the Action Oak stands and information.

Action Oak was also a partner in the Forestry Commission Centennial Garden at RHS Chelsea Flower Show in May where the messages of resilience in the UK’s treescape were highlighted.

Looking forward to the next twelve months, we will be working with partners to deliver several events for the International Year of Plant Health 2020, highlighting the importance of Oak trees alongside biosecurity messages, ensuring that awareness of the challenges we face is disseminated both to woodland managers and the wider public.



International Garden Photographer of the Year exhibition at Westonbirt (top) and the Action Oak stand at RBG Edinburgh

The debate on tree pests and diseases took place in the House of Lords in February, highlighting the importance of tackling the threats to UK biosecurity. The speakers mentioned all the key forestry organisations and initiatives, including both Woodland Heritage and Action Oak.



Action Oak mug by Emma Bridgewater

The new Action Oak website and branding is well underway. The website will contain a donate function, links to latest research and signposts to information on the UK’s Oak. We are also working on developing key messages for the public about actions they can take to protect Oaks, including not bringing plants in from abroad, not damaging trees and not parking on tree roots etc. This will be rolled out during 2020.

The social media reach of Action Oak continues to increase with over 1,300 followers on Twitter and Facebook.

Raising money

September saw the launch of the Emma Bridgewater Action Oak mug – £5 for every mug sold was donated to Action Oak. The mug proved so popular that it sold out before Christmas.

Working with partners, Action Oak is currently developing two PhDs with Aberystwyth and Cardiff universities, focussing on root rot and Oak powdery mildew.

Work is also ongoing with Newcastle University to develop a Climate Change PhD and with Future Trees Trust to deliver an Oak masting PhD.

Alongside this are two new Defra funded PhDs based at the Royal Botanic Gardens Kew, with a further two funded by the JABBS Foundation based at BIFoR.

Donations via the website have been steady and we will continue to build this function via the new website.

Funding applications are being developed alongside the Botanic Garden of Wales and Yorkshire Arboretum to deliver two Action Oak Awareness Centres, promoting the importance of the UK’s Oak trees to the hundreds of thousands of visitors to these sites each year. The sites will deliver activities for the public, educational events and trails highlighting key messages around the importance of our Oak trees.

Three research consortia have submitted Action Oak supported proposals to BBSRC for research into Bacterial Plant Pathogens, with decisions still awaited at the time of writing regarding research proposals including subjects which address the priorities outlined in the Action Oak Knowledge Review.

Woodland Heritage member and Field Weekend host in 2019, Timberpride, continues to highlight the work of Action Oak on its website.

Underpinning all our work has been the ongoing and much appreciated support of The Prince of Wales’s Charitable Fund that funds Action Oak’s core costs. In addition, Action Oak is most grateful to the Henry C Hoare Charitable Trust for its generous donations since 2018.

Sharing Knowledge

In June, there was a second successful Action Oak partner event at the Royal Botanic Gardens Kew. The event showcased some of the important research being carried out around the UK and saw the launch of the Action Oak Knowledge Review, highlighting the six grand challenges facing the UK’s Oak trees. The full document can be found at actionoak.org/downloads.

Action Oak was a theme for a half-day within BIFoR’s annual two-day meeting in January this year. The session included updates from researchers across the UK and a wonderful keynote address from Professor Lynne Boddy of Cardiff University on the importance of mycology.

Work is also underway with the Heart of England Forest to develop a new Action Oak woodland. The woodland will provide the possibility of demonstrating a variety of subjects including species selection, planting technique and tree protection. The site will provide a valuable academic opportunity as well as a chance to show woodland managers the latest research findings being put into practice.

actionoak.org

Wild Service Tree on trial

by Christopher Guest and Guy Corbett-Marshall

The successful growing and harvesting of hardwood trees in the UK has suffered for 50 years and more and continues to suffer a range of threats perhaps unparalleled in its history.

The loss of Elm, the inexorable removal of Ash, the pests and diseases afflicting the Oak, as well as all species having to adapt to a changing climate, make the challenge for the grower to choose the best (quite possibly alternative) species to plant more difficult by the day. So is this the time to add the often overlooked Wild Service Tree (*Sorbus torminalis*) more into the planting mix, even if only as a minor forestry/woodland component given its species ecology, site requirements and growth dynamics? After all, there are fairly few recognised pests and diseases affecting this species, which may do well in a warming climate.

To help the UK grower be better informed, a Seed Source Trial has been established by Woodland Heritage, Heart of England Forest, Fontmell Hill Estate, Sotterley Estate and forestry advisor, Christopher Guest, to make both a strong case for the Wild Service Tree, but also to consider more options than just UK-sourced seed.

As made clear in Nick Marsh's article also in this Journal, Wild Service Tree is widely recognised and valued for its natural beauty and can achieve prices into thousands of euros per log in Europe when of veneer quality. Little wonder that significant knowledge exists particularly in France and the Germanic countries where Wild Service Tree is grown to produce high quality timber, where markets can be very strong, and where seed source trials and tree breeding have been carried out since the late 1970s.

Following a visit to Germany and France in spring 2017 to see the finest specimens in Europe and to learn more from the Continent's most eminent growers, it was resolved in summer 2018 by the three landowners that a Seed Source Trial be established at their sites in lowland England, spread widely between Suffolk, Warwickshire and Dorset.



The different provenances begin their lives at Forestart

The objectives of the trial are to test different seed sources of Wild Service Tree for survival, growth, health and stem quality in order to provide recommendations for silviculture.

In autumn 2018, seed was collected from three sites in England (Herefordshire, Lincolnshire and the Trial site in Warwickshire), four in France, one in Germany and one in Italy, with the intention of establishing which might be the best seed source for future UK growers of Wild Service Tree. To give the Trial its best possible start, the UK's foremost tree seed merchant, Forestart, agreed to clean, stratify and propagate to sapling stage the seed sources to be tested.

The three Trial sites (all former arable or pasture) were prepared last autumn, with planting taking place in November 2019 or



Saplings graded and ready for dispatch

January 2020 across uniformly agreed one-hectare plots. At each Trial site 5,015 saplings have been planted, including 576 Wild Service Trees, 64 of each of the nine different seed sources. The design of the experiment incorporates four replicates per site with the companion trees planted being Pedunculate Oak, Hornbeam, Field Maple and Hazel.

The mixture of species was planned to avoid any risks that might be associated with planting Wild Service Tree in pure stands, whilst also mimicking a forest type in its natural range. In the unlikely event of poor performance or failure by the Wild Service Tree, the Oak acts as an insurance policy to ensure some economic return for the participating landowners, whilst the Field Maple and Hornbeam may detract attention from squirrels towards the Wild Service Tree and Oak.

The design and the protocol for the Trial have been created by Christopher Guest, an experienced forest manager with particular knowledge of Wild Service Tree, in association with recognised European expert, Jens-Peter Skovsgaard. Christopher will also write all reports and take annual measurements of survival, height and diameter for the first phase of the Trial to spring 2023.

All species were spaced 1.5 m x 1.5 m apart with extraction racks (planted with Hazel) the only exception at 2 m x 2 m. All Wild Service Trees were given an initial measurement after planting and each sapling is identifiable with a code linked to the design of the planting grid.

All trial sites have been fenced against deer, rabbits and hares, with tree guards used to help support only the smaller Wild Service Tree saplings in the size class 20-40 cm, with the larger 40-60 cm robust enough not to need extra protection. Saplings were graded by size within each seed source, so that each site had a similar starting point;



Tree planting at Fontmell

a suitable supply of back-ups to be used for beating-up when necessary, was also supplied to each site. All the companion species came from the same seed sources.

The one factor that is different at each site is its characteristics, so all sites have been described in detail to include geographical coordinates, altitude, aspect, precipitation, former land use, ground flora, surrounding vegetation, soil type (soil pits were dug at each site), soil nutrient status and terrain.

Because this Seed Source Trial is the first of its kind in the UK and thanks to the careful preparation by all those concerned, Forest Research is keen to register the trial in its Silviculture experimental database so that it can be readily accessible to scientists in the future.

As well as donating the plot given over to the Trial, each landowner is responsible for establishing and maintaining their site. In addition, a grant of £9,960 has been secured from The Scottish Forestry Trust. Woodland Heritage has pledged £2,600, but more donations will be gratefully received at woodlandheritage.org/make-a-donation.



Seed donor tree, Ast Wood, Herefordshire

Heart of England Forest

– a growing national resource

by *Laura Diep, Marketing and Communications Manager, HoEF*

The Heart of England Forest has an ambitious vision – to create and conserve a 30,000-acre Forest for the benefit of people and wildlife. To achieve this goal, we will plant at least 13 million native broadleaf trees there.

It has never been more important to invest in our natural environment. Britain has one of the lowest percentages of tree cover in Europe at about 13% with native broadleaf woodland cover even lower at 2%.

Planting trees and creating new woodlands is no longer just a positive ambition for the country, it is essential. It is the simplest solution to help mitigate climate change and create new green spaces that can help reconnect people and communities with nature and the natural environment.

The Forest so far

Planting tomorrow's great native woodland has already started. The Forest covers a mosaic of habitats across nearly 7,000 acres of land, including 4,000 acres of new woodland and 600 acres of beautiful, established and ancient woodland. So far, we have planted 1.8 million trees.

The Forest stretches up the Warwickshire / Worcestershire border, from the present-day borders of Shakespeare's Forest of Arden to the edge of the Vale of Evesham – the north Cotswolds to south Birmingham. With Birmingham, Coventry, Worcester and Warwick all less than 30 miles away, the Forest is an accessible refuge and resource for the densely populated urban areas that surround it.

At only 13% of the way towards our goal we are already the largest new native broadleaf forest in England. More than a new woodland for the region, The Heart of England Forest is already a wonderful national asset for the country.

A Forest with permanence

We acquire the land to create the Forest to ensure that it is here in perpetuity. With 180 acres of land acquired last



Woodland creation and mature woodland in the Forest

year, plus our most recent acquisition of 310 acres of land in Binton, we are succeeding in building a three-year land bank to secure the future of the Forest. This includes time to carry out meaningful consultation, consult with other stakeholders such as landscape architects and archaeologists, and to plan a new woodland according to the features on the site, taking advantage of the potential to create wetland and species-rich grasslands as part of this diverse mosaic.

As we want to create new woodlands and green spaces that can help reconnect people and communities with nature and the natural environment, the local community is at the heart of everything we do. We work hard to communicate with our neighbours about our plans and encourage input, create opportunities to work with each other and ensure the Forest has benefits for local people stretching beyond just the environmental, to social and economic, too.

Creating future Forest guardians

As we are creating and conserving a Forest for generations to come, inspiring children to care for the natural world around them is an important part of our work. After all, they are the future guardians of the Forest.

Our progressive, curriculum-linked learning programmes for schools continues to go from strength to strength with children spending a total of 12,979 hours in the Forest in 2019, learning outside the classroom and connecting with nature.



Learning in the Forest

Working with primary and secondary schools, pupils visit the Forest weekly, termly or half termly in order to maximise the benefit to learning, personal development and mental health. They take part in activities to engage their learning in literacy, numeracy, geography, history, science, art and DT, and a close working relationship is forged with our partner schools as a result.

This programme of frequent, continuous and progressive learning outside the classroom can demonstrate greater impact than single interventions, and is proven to facilitate behaviour change, creating our future guardians of the Forest.

Investing in the foresters of tomorrow

Creating and nurturing this huge Forest requires a knowledgeable and passionate team, so we continue to invest in our forestry staff and in the foresters of the future.

The national Forestry Skills Plan reports that more than 50% of the current sector workforce is over 40 years old, and that there will be even worse skills shortages in the future if the number of new entrants into the sector does not increase. The Heart of England Forest internship programme provides budding foresters with the skills and experience needed to forge a career within the modern forestry industry.

Our interns receive a high-quality internship within a unique setting as part of a paid one-year placement. The programme offers a complete woodland journey from our in-house tree nursery, through to woodland creation, planning and maintenance.



Tree planters

Alongside our internship programme, we are proud to be one of the first organisations in the country to welcome a new Forestry Apprentice. Phoebe joined the team in November and will get hands on experience in all aspects of social forestry.



Looking above you!

2020 and beyond

We are already seeing the Forest having a positive impact on biodiversity and we have plans for even more community engagement through a broadening volunteer programme. Our varied and ever-expanding events programme is encouraging more people to visit the Forest and benefit from spending time in nature. We want to help reverse centuries of woodland decline and to continue to grow one of the largest forests in England. It's an ambitious vision, which we're determined to make happen, one tree at a time.

heartofenglandforest.com

Annual Wood Awards Winners 2019

by Francesca Gregson, Distrikt Communications

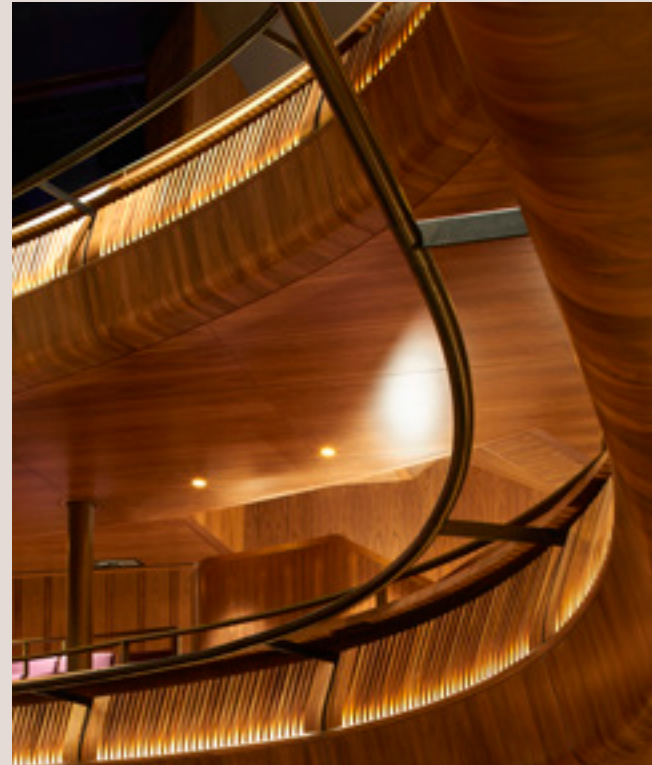
The winners of the Wood Awards 2019 were announced at a ceremony held on November 19 at Carpenters' Hall in London hosted by Priya Khanchandani, editor of Icon magazine. Established in 1971, the Wood Awards are free to enter and aim to recognise and encourage outstanding design, craftsmanship and installation using wood.

Photo © Magnus Dennis



Cork House

The judges selected **Cork House** by architect Matthew Barnett Howland, Dido Milne and Oliver Wilton as this year's Gold Award and Private category winner. Judge Ruth Slavid commented: "This is a really exciting project. Not just a house, it is also a piece of research." Cork House is built almost entirely from cork and timber. Monolithic walls and corbelled roof pyramids are built with loadbearing expanded cork made from the bark of the Cork Oak tree, a by-product from wine stoppers. The house is a prefabricated kit of parts; 1,268 blocks of expanded cork were CNC-machined off-site. The Commercial & Leisure winner was Royal Opera



Royal Opera House – Open Up

House 'Open Up' by Stanton Williams. Striking the right balance between heritage and 21st century life, the transformation of the Royal Opera House reimagines the world-renowned home of ballet and opera. Improved access and transparency, a completely new Linbury Theatre and new foyers, terraces, cafes, bars, restaurant and retail facilities extend the building's life outside performance hours.

Cambridge Central Mosque by Marks Barfield Architects was selected as the Education & Public Sector winner. Judge David Morley said: "This building is an exemplar of how wood can enable a structure to become the primary representational element of a building." The mosque is a calm oasis of contemplation inspired by an image of the garden of paradise. Repeating star octagons are converted into a continuous structural pattern. Alternate octagons are converted to the structural columns or 'trunks'. The thirty trees create an overall impression of stillness, quiet and focus.



Photo © Morley Von Sternberg

Cambridge Central Mosque



Battersea Arts Centre

The Interiors winner was **Battersea Arts Centre** by Haworth Tompkins. In March 2015, a fire broke out in the northern half of the 1890s grade II* listed building destroying the roof of the largest performance space. The original decorative plaster barrel vaulted ceiling was completely lost. Rather than replicating the lost ceiling, a contemporary plywood lattice ceiling was conceived. The new ceiling follows the curvature of the original and echoes the motifs in the plasterwork.

MultiPLY by Waugh Thistleton Architects, the 2019 Small Project winner, is the first structure made from UK manufactured CLT (cross-laminated timber). The vertical maze of stacked modules and staircases creates labyrinthine spaces which intertwine. MultiPLY demonstrates how engineered timber structures can be reconfigured, reused, repurposed and ultimately recycled. Like a piece of flat-packed furniture, it arrives as a kit of parts and can be quietly assembled in under a week.



MultiPLY

This year's Structural Award winner was **House in a Garden**. Judge Nathan Wheatley said: "This is an exceptional structural form of elegant and slender timber ribs, a structural arrangement which is exciting, efficient and responds perfectly to the study of natural light." The house is on ground and two basement floors surrounded by gardens, light wells and skylights. The roof curves into an oculus. Shaped and informed by light and shadow, the



House in a Garden



The Kissing Benches

roof's tent-like form creates a new place for life to occur. Wood-lined 'internal' spaces (living rooms and bedrooms) are juxtaposed with marble-lined 'external' spaces (wet areas, pools and courtyards).

The Furniture & Product judges selected two winners within the Bespoke category. Alison Crowther's **The Kissing Benches** were awarded for their simplicity and honesty to the material. The benches were made for the new Figaro Garden at Glyndebourne. Gigantic beam sections of green English Oak have been hand-carved to create a contemporary take on an old style of outdoor seating. David Gates's **Littoral Chances 1&2** received a Bespoke award for its singular vision and how it highlights just how much a material can be adapted to an individual's style. This unmatched pair of collecting cabinets is based on the beauty of chance composition. Gates is drawn to industrial and agricultural architecture, including jetties and pylons, and the paraphernalia that populates these sites.

Ian McChesney Bench produced by Benchmark was the Production winner. Judge Sebastian Cox commented: "Seeing something in the production category that is so sculptural is lovely." These highly crafted benches were



Littoral Chances 1&2



Ian McChesney Bench



Bio Iridescent Sequin



Udon Stool

made in two sizes. The gently pillowed top and bottom give the benches a very natural feel. They were carved initially on a 5-axis CNC machine and then assembled and finished by hand to create the elegant edge profile.

Within the Student Designer category there were two cash prizes: £1,000 for Winner and £500 for People's Choice. The overall winner was **Bio Iridescent Sequin** by Elissa Brunato, which the judges praised as a refreshing alternative to finishes and colour within the fashion industry. Brunato's Sequin uses bio-technologies to create colourful shimmering sequins from naturally abundant wood. The People's Choice Award was given to **Udon Stool** by Anton Mikkonen from The Sir John Cass School of Art. The stool consists of five parts, all CNC routed with a 2D CNC machine.

Further information about each of the winners can be found at woodawards.com.

The Wood Awards 2020 call for entries runs until May 22.

The Cornish Pilot Gig

by Anne Curnow-Care, Secretary CPGA and Brian Nobbs, boat builder

"There's nothing, absolutely nothing, half so much worth doing as messing about in boats."

Kenneth Grahame, 'Wind in the Willows'

A famous quote that truly reflects the world of Gig rowing, but also reflects that fact that the boats are works of art and something that captures the attention of all.

A traditional clinker built boat is 32 foot in length, with a minimum beam of 4 foot 9 inches. A wooden boat that from its interception / birth takes on a name and life of its own. The long story of clinker boat building is a continuing form of fascination and is among the oldest forms of boat construction.

A great amount of seafaring history has been made in clinker boats. Clinker built ships' boats ran their keels of the western world on to the beaches of remote continents and islands worldwide. With the colonisation of Australia, North America, the Cape, New Zealand and to many other places where the white man settled, clinker boatbuilding went with them. All these far-flung places

had their own form of clinker boat, and all built with local timbers and more importantly to be compatible with the local waters. This fact is very evident with the Cornish Pilot Gig.

The Peters family of Polvarth, St Mawes, Cornwall, is the name that is synonymous with the design of the Cornish Pilot Gig. Using timber from the local woods they built many Gigs in the 1700/1800s. Some of these Gigs survive today: Newquay 1812, Dove 1820, Bonnet 1830, Slippen 1830, Treffry 1838, to name a few. All these boats varied in length and beam in an attempt to build the finest sea boat.

Their clients who commissioned a Gig to be built were always looking for a faster boat to beat their rivals to the bounty of the pilotage. A case of 'winner takes all'. The Gig 'Treffry', held in trust at Newquay was deemed to be the ultimate in design and she is the Gig from which the lines were taken and all modern-day gigs are built to.

A traditional clinker-built boat, 32 feet in length and with a beam of four feet nine inches, Treffry is constructed from Elm planks over Oak Ribs (timbers). There are twelve strakes of 5/16" planking each side, fastened by Copper rivets to alternate ribs spaced at 6" centres. These ribs are of 5/8" x 5/8" Oak and hand notched to fit over each plank.



Construction of William Peters



Construction of William Peters - fitting a steamed rib



Anne Carnow Care Collection

The 200th CPGA registered Gig and the next build

The Cornish Pilot Gig Association (CPGA), formed in 1986, is now a registered Charity and has over 80 associated clubs spread throughout the UK and overseas including over 8,000 rowing members. The Association's Aims are 'To preserve our heritage for future generations to enjoy'.

In order to ensure that all new Gigs, or repairs, are constructed to the correct specifications, boat builders are registered with the CPGA and issued with a licence, complete with plans and specifications for each new build.

In order to maintain the heritage of the Gig, inspections are made at three stages during the construction, with unlimited access to the Standards Officer, until he/she is satisfied that, at each stage, the Gig is up to specification:

- 1 When the keel is laid with stem, sternpost, deadwood, transom and moulds are set up
- 2 When planked and timbered, but before paint is applied
- 3 When completed and before it leaves the builder's yard

These inspections are undertaken by the Standards Inspectors on behalf of the CPGA. On completion of a build, provided it passes at all stages of inspection,



Anne Carnow Care Collection

Construction – the bow of a new build

Ralph Bird Collection



Logs seasoning in the creek

a unique CPGA Registration Number and disc are allocated and the Gig is 'tagged' in the stern to show its authenticity. As 2019 comes to an end the registered number of Gigs stands at 213, with an average of six new builds per year. The build time of one of these beautiful craft, from laying the keel to a painted or varnished finish, is in the region of four to five months. This obviously varies if more than one craftsman is involved in the build.

The timber required for the hull of the Gigs is Elm. Originally it would have been Cornish Narrow Leaf Elm, a timber that was ideal due to its 'wild' grain and therefore not very prone to splitting in its length on impact. It is noted that the builders used to season their logs in the river mud.

The effect of Dutch Elm disease has had some impact on the supply. The Elm required needs to be a minimum length of 12 foot but the longer the better. The logs need to be mature so they have good width. Obviously as the use is for boat building the quality of the timber needs to be good with no serious blemishes. The finished plank thickness for the gigs is 5/16" so they need to be milled finely. This will deep cut to supply two planks. Although Elm is available it is quality and size that is paramount.

Gibson Collection



Scillies mass start

Ralph Bird Collection



Maurice Hunkin (retired boat builder) at timber yard

The stem of the Gig is specified as grown Oak. It is of a hockey stick shape (turn). Although there are plenty of turns in an Oak it's generally these parts of the tree that get cut up for logs first. The only answer to this is to arm your tame tree surgeon with a template!

While the availability of these quality timbers continues, then so will the journey of the Cornish Pilot Gig, and the heritage of these beautiful craft will be maintained for those who love to row them for the future

For more information please contact secretary@cpga.co.uk or refer to the following websites:

CPGA	cpga.co.uk
Gig Rower	gigrower.co.uk
Twitter	@cpgagigs
Instagram	cpgagigs

Anne Carnow Care Collection



Treffry

There IS veneer in here!

by Guy Corbett-Marshall

With the phrase ‘no veneer in here’ resolutely stuck in my brain, the latter having a knowledge of a product that was about as thin as its standard 0.6 mm, it was with a ‘blank sheet of paper’ but a keenness to learn more that I headed in January for the premises of Woodland Heritage Premium Corporate member, Mundy Veneer.

Conveniently situated close to J26 of the M5 on the edge of Wellington, Mundy Veneer is due to celebrate two milestones in 2022: twenty years at their Somerset base and a total of a quarter century in business.

Established initially in London, where Simon Mundy had worked for almost two decades in the veneer trade and Alison Mundy had been a city lawyer, the couple combine strong technical knowledge with excellent business management. But what shines through so often in the timber industry as an essential additional ingredient to a successful operation is passion, reinforced with pride in a product, both exemplified at Mundy Veneer.

Woodland Heritage has had the loyal support of several companies in the veneer industry since the charity started, Mundy joining those ranks in 2019. Its products also caught the eye at the Celebration of Craftsmanship & Design exhibition in August, including a piece made by Best Use of British Timber winner in 2018, Daniel Harrison.



Simon Mundy (top) and Guy Peskin with veneers

Talking to Alison and Simon, other connections soon emerged: Simon had attended the same school as Woodland Heritage’s Co-Founder, Peter Goodwin, and had trained at C B Veneers in the mid-80s where he met Whitney Sawmills’ manager, Dermot Doyne who was working at Windmill Furniture.

At Whitney, one of the many challenges is buying well, all the more difficult in the veneer industry where perhaps 3% of trees are of veneer quality and for Mundy less than 1%. But then the stakes are high: one cubic metre of lumber quality wood might yield 40 m² of lumber at 1”, whilst one cubic metre of veneer quality is likely to yield only 900 m² of veneer.

Log buying for high-quality veneers is a tight specialism that requires at least some reliance on probability; there are occasions when single trees can be visited, but if



A curled bundle of 32 leaves

buying a parcel of logs, the aim is to get at least one that will provide the necessary yield. An added advantage of inspecting first-hand is that if bought, any log can have its coordinates recorded to ensure its resulting veneers can have a precise provenance associated with them, often a very useful sales tool.

As with buying for a sawmill, logs that will produce wider veneers are more popular, ideally with a straight crown grain. The assessment is also influenced by how the smell, feel and apparently ‘thwack’ of the final product might result; greater width of course then also reduces reliance upon the otherwise necessary element of bookmatching with veneers, so vital to creating a matching finish whether in furniture or in construction where the thicknesses can be 3 mm or even 7 mm.

As well as concerns about future supplies of high enough quality logs, increasingly rare, increasingly expensive and sadly not often enough from the UK, Mundy Veneer worry about the retention of veneer specialism in UK furniture making (which they can do little to influence) and indeed within their own business which they can and are influencing, now into a second year of their own Training Academy. There is still time to pass on the decades of knowledge that Simon Mundy and fellow expert, Guy Peskin, have within the business, but the clock is ticking.

Although assessed by their bank manager as well-prepared for the new world of international trade post-Brexit, there is still uncertainty that is unwelcome, as all slicing is done outside the UK, with Mundy Veneer also the sole agent for the diverse range of dyed veneers created by the Italian firm, Tabu.

Selling almost exclusively to the trade and with a manageable 400 or so, often high-end customers, designers are a key audience for Mundy, always keen on high quality



Bundles of veneer in log form

veneers that can be flexible for a variety of uses. Yet with 120 species on offer, and a rich choice of colour to match changing trends in fashion, demand is often conservative but could be open to educating, with Oak and Walnut still the top sellers, the Walnut generally being American.

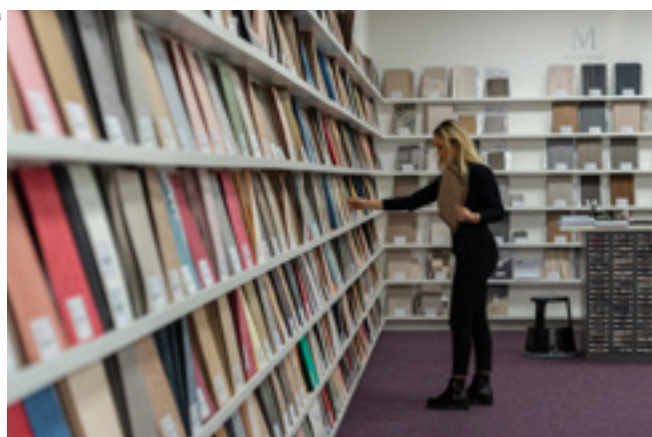
A well-regulated forestry industry in North America ensures that Mundy Veneer can rely upon sustainably sourced raw materials from across the Atlantic, and the European suppliers all meet similar standards. Ghana is the main supplier from West Africa, the Government’s own forests offering concessions only on a 40-year rotation and from which only marked species of proportionate size can be harvested. Certification (such as FSC and PEFC) is key to a business that has established its own planting scheme, with ten native trees planted for every 10,000 m² of veneer sold.

Relationships are key to Simon and Alison’s success with Mundy Veneer, whether that be with suppliers and customers, or within the tightly knit staff-team of fifteen. When buying, Simon often has particular customers in mind as he develops close ties both up and down the supply chain. For the customer, risks are managed because A4 samples can be mailed out at any time and then an order can be as little as a bundle of two dozen leaves, with Mundy’s pledge that they will take the product back if it is wrong.

Challenges and ‘no veneers in here’ aside, opportunities abound for Mundy Veneer and the industry overall. The move towards natural, sustainable products, veneer’s ability when applied to strong base materials such as mdf and plywood that enable it to thrive in centrally heated homes that can be a major shortfall with solid wood, plus a growing desire for good design that is at the heart of Alison’s and Simon’s business philosophy, all point to exciting times ahead which is encouraging for our woodland heritage.

mundyveneer.com

Photos © Matt Sweeney



Sample racks

The First World War Commemorative Woodland at Queenswood, Herefordshire

by Rose Farrington, Queenswood Heritage Gateway Project Officer

The Heritage Gateway project at Queenswood Country Park and Arboretum is complete and has been a great success.

The project, funded by the National Lottery Heritage Fund and the European Agricultural Fund for Rural Development, explored the rich natural and social heritage of the woodland that sits atop the lofty Dinmore Hill, Herefordshire. There were several ambitious strands to the project each of which contributed to the safeguarding of this important heritage asset for the Herefordshire community.

The development of the First World War (FWW) commemorative woodland was featured in last year's Woodland Heritage Journal. Working with internationally renowned artist, Des Hughes, an artwork that recognises the layered history of Queenswood and the historical mark made by the First World War on the landscape has been created.

Hughes recognised that the clear-felling of the woodland at Queenswood for the First World War should not now be seen as a negative. He sees it more as a series of ripples moving outwards with local small actions having a positive effect on the larger war effort and the long-term effect as the birth of Queenswood as we know it today. To reflect this, the artwork is formed of a series of concentric circles of trees to reference the growth circles inside a tree.

Having been completed and dedicated as a memorial to the First World War, the commemorative woodland and artwork is open to the public as a space for contemplation and remembrance. It sits at the heart of the Arboretum, enclosed in a beautifully crafted Chestnut fence. Within is a winding path that leads through three concentric circles of young Red Oak (*Quercus rubra*); at the centre is an English Oak (*Quercus robur*) stump, left tall with a memorial plaque on top.

Seating, created using Oak felled within the FWW woodland and milled at Whitney Sawmills, encircles



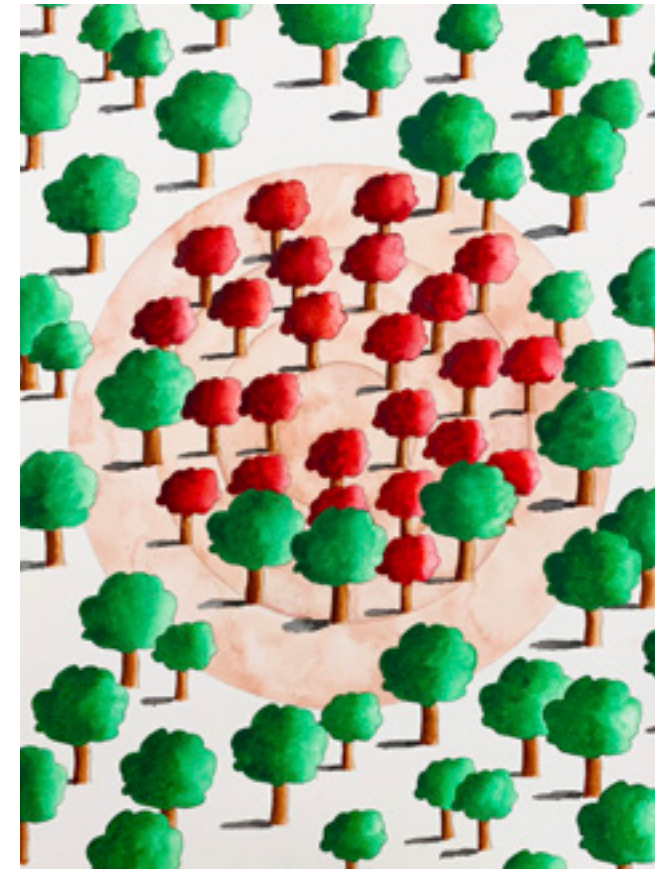
Oak benches in the commemorative woodland, milled by Whitney Sawmills using timber that was re-planted after the clearing, for the First World War at Queenswood



*The Red Oak (*Quercus rubra*) planted in concentric circles was chosen for its vibrant red colour in the autumn, to coincide with Remembrance Day*

this central stump and allows visitors to linger and contemplate in this quiet corner of the woods. The woodland and artwork have evoked much consideration and feeling and now provide a shared space for a personal act; that of remembrance.

During the national remembrance period of 2019 the newly opened area provided the setting for a poignant memorial and service organised by the Royal British Legion to honour and remember the sacrifices made by



'A planting scheme for Queenswood', a watercolour by Des Hughes. © Des Hughes 2019

the Armed Forces community, those who lost their lives on active service in all conflicts; from the beginning of the First World War right up to the present day.

Also, as part of the Heritage Gateway project, much-needed upgrades to site interpretation and signage have taken place. Within the Visitor Centre, there is now a Wildlife Watching monitor, displaying live footage from nearby nature reserve Bodenham Lake, from which we hope future visitors will have the opportunity to view live footage of nesting Osprey.

Thousands of visitors have already tried out the hugely popular 'Lyrics, Leaves and Lives' audio trail that now runs throughout the Arboretum. Project volunteers spoke to many individuals and recorded hours of heartfelt memories for the trail. Along with personal memories, users of the trail will find historical information, poetry (recorded in partnership with Ledbury Poetry Festival), bird song and a children's trail. The hand-powered audio units sit encased within huge Oak 'monoliths' that blend perfectly into their woodland surroundings.

Although the project at Queenswood has come to an end the legacy of the project will continue: the audio



The commemorative woodland and artwork were dedicated as a memorial to the First World War on Armed Forces Day 2019, 100 years on from the signing of the Treaty of Versailles in June 1919

trail will be there for years to come, the FWW woodland will continue to grow and change, and primary school children will be able to visit with the help of a seasonal teacher-led educational pack, full of activities to help them explore and learn about the fascinating history of the country park. Furthermore, the newly published booklet, 'Queenswood personal: Our Wood on the Hill', explores the long history of the woods and is a treasure trove of archive documents, images, and memories; it is available in the shop at Queenswood and online.

When I began this role at Queenswood I didn't know how special Queenswood was to so many people. It's been an absolute privilege to meet some of those individuals and share the history of this precious woodland, showcasing and celebrating its long and important role as a source of income, for its contribution to the First World War, and now as a country park open to the people of Herefordshire to enjoy.

More information on the project and the country park and arboretum can be found on the Queenswood website: queenswoodandbodenhamlake.org



Visitors enjoy listening to personal memories, historical information, poetry and birdsong on the 'Lyrics, Leaves and Lives' audio trail at Queenswood

Elwy Working Woods – a view from North Wales

by Adrian Farey

Sometimes I feel a bit frustrated at the slow progress we seem to be making towards our perhaps unrealistic vision of a smooth running, well-equipped community workshop and timber yard, so it's good to take some time to consider what we have achieved in the two years since Woodland Heritage gave us a grant towards our power supply.

It's an obvious thing, but I'm always taken aback by the way every improvement or addition brings with it more challenges, some foreseen others not: such as the deluge of water from our new roof overwhelming our inadequate drainage and swamping the yard; the sudden requirement for better dust extraction and a system for bagging and selling the shavings; and the one we feel requires more planning and expense: bigger and better facilities for the stacking, air-drying and kilning of timber.

The gradual increase in the use of the machines, particularly the big Wadkin four-side, planer-moulder has meant a big increase in the demand for well-seasoned boards for processing; a few orders for floorboards quickly used up all our suitable Douglas Fir and we have not so far been able to ensure a regular stock.

Installing our own boards also brought into question the moisture content and reliability of the product. Luckily, our first job was a replacement floor for an old house with a suspended floor and floor joists with a moisture content of 14% which conveniently matched the boards, but this depended on a hot summer!

Projects

In spring 2018 we embarked on our biggest timber frame so far: a four-bed, two-storey house for a client near Preston. This coincided nicely with a contract for NRW (Natural Resources Wales) to fell and extract 300 cubic metres of Douglas Fir and Corsican Pine from a PAWS site



Timber frame for a four-bed, two-storey house in Preston



Gronant Dunes boardwalk

(Plantation on Ancient Woodland Site) just six miles from the yard; this was a perfect example of the co-operative working as it should.

Members were involved in all stages of the operation from felling, extraction and delivery of 65 cubic metres of sawlogs to the yard, marketing and delivery of the rest of



the timber to sites around North Wales, sawing the timber and the manufacture and delivery of the finished frame.

This project also demonstrated the advantages of post and beam construction using local timber. Much of the timber was slope-grown and not best quality, but was suitable for the large section posts, tie beams and wall plates for this structure; sawing into 2" or 3" stock, given the stress in the timber, would have resulted in a huge amount of bent and unusable wood.

Gronant Dunes board walk

Early in 2019 we won a contract to build a new boardwalk, shelter and viewing platform for Denbighshire County Council on their coastal SSSI (Site of Special Scientific Interest) near Prestatyn. Amongst other challenges this involved carrying some ten tons of prepared timber, all European Larch, over the dunes and along the beach through shallow seawater to the site, with removal of the old construction back the same way. Luckily, we were again able to keep the whole operation within the co-op, and the timber was duly carefully stacked and delivered by tractor and trailer.

Woodland management

The keen involvement of a new member, chainsaw operator and arborist, has resulted in a dramatic increase in thinning and management of our three sites. Together with our newly qualified team of women chainsaw operators he is gradually working his way through the woodland. We are lucky, in some respects, to have a couple of biomass boilers in the valley which take all our poor-quality softwood thinnings, while we reserve hardwood thinnings for our own firewood business. This has justified the purchase of an alpine tractor and small forwarding trailer to do the extraction and increased the need for staff.

Small woodlands like ours (28 acres) require quite delicate and thoughtful management. It is likely that most of our local stands of suitable hard and softwood will be clear-felled within the next few years and the lack of foresight, imagination, planning, competence, call it what you like, by NRW/Welsh Government will inevitably result in a shortage of good sawlogs. Small pockets of Larch, even those clear of disease, are being cleared for biomass just a few years shy of making quality timber.

It's obvious that under these conditions, timber should not be considered a renewable resource like wind, sun and water. So, we need to micro-manage our own resource, identifying and favouring every timber tree showing promise, fearing that one day that's all we'll have access to.

While we have understood the interest and research in growing good Oak fast and are managing our Oak accordingly, our experience over twenty years of sawing local Oak tells us that the finest looking trees produce depressingly poor quality timber and that slow growing Larch, Douglas Fir and Western Red Cedar are actually more important to small enterprises like ours. We have sawn Douglas Fir from Snowdonia which was comparable in quality to imported Canadian stuff and European Larch as good as Pitch Pine and, if given the choice between a good looking Oak or a fine young Douglas Fir in our mixed woodland, I would take out the Oak.

What really concerns us is the lack of awareness of the importance of timber to the local economy and the unique part timber could play in our efforts to find a truly sustainable industry which provides jobs, biodiversity, wellbeing and material for almost everything.

Branching Out – A collaboration with John Makepeace and the RSA

by Guy Corbett-Marshall

Last autumn, internationally respected British designer and furniture maker, John Makepeace OBE, working with Woodland Heritage of which he is a longstanding member, launched a Brief via the Royal Society of Arts (RSA) aimed at harnessing broad-leaved woodlands and their resources to increase their economic, social and environmental value.

One of nine challenges set within the RSA's Student Design Awards for 2019-20, a scheme now in its 96th year, 'Branching Out' aims to encourage higher education students and recent graduates to explore innovative ways to utilise locally grown hardwoods, woodlands and their resources for the benefit of people, place, environment, and the economy.

The challenge looks for surprising and sustainable design proposals (of products or buildings, as well as organisational and societal structures) to increase the value of woodlands and/or make clever use of the materials produced. The relative isolation of forestry from general education, manufacturing, architecture, engineering, building, farming and public engagement has contributed to the low value and wastage of thinnings which can amount to half the total crop; Branching Out seeks to narrow that gulf as students from a variety of disciplines are invited to enter.

The successful entrant would be a person or team which consider how their plans benefit the woodland, the ecosystem and the local economy; they would have considered the economic viability of the idea and potential routes to market, particularly if the proposal is a product. When the Brief was published in September, all entrants were encouraged to consider a specific young woodland (probably one aged between 10-30 years old and of at least 5 acres), or a specific type of hardwood to contextualise the solution.

The Brief is set against a backdrop of over 40% of UK woodlands being under or unmanaged with the prospect



John Makepeace OBE

that the 'Net-Zero' proposal could see billions more trees being planted over just a few decades, all of which will add to the management burden, unless more economically viable products can come from this management and especially the thinnings that will result.

Proper management of woodlands is vital to nurture the best trees and remove others to give space for them to develop. This process of removing trees from woodland as it matures generates thinnings, the Brief being particularly interested in those 5-20 cms in diameter. Currently, the increasing supply of hardwood thinnings, which can be processed with low capital equipment, has limited value and is mostly burned as fuel. The Brief seeks solutions other than burning, possibly in higher value products, making woodland management more viable.

Creative design and technology, such as robotics and AI, are uncovering new opportunities to accommodate variations in natural materials including wood. Material science advanced substantially through the twentieth century, and this has enabled us to use more of timber's extraordinary properties, creating new and more efficient possibilities. There are other materials and techniques being developed that, alongside wood, can help to unleash its potential.

With most students coming from non-forestry backgrounds, getting to see a local woodland being managed and understanding how products can be used was for many a vital first step in preparing for the challenge. So, it was perhaps not surprising that the most frequent enquiry sent by potential design award applicants to Woodland Heritage was: "where can I find a local woodland?"

With enquiries coming from Bournemouth to Northumberland via the South East and East Midlands, Woodland Heritage was grateful for having a good network of members and contacts across England, who could suggest suitable locations for the interested students to visit and to experience first-hand what woodland management is about, and in particular the challenge posed by thinnings when they have such low value.

One enterprising student from London went a step further and asked to be supplied with examples of thinnings, so that she could better understand the qualities of a primary hardwood product. Thanks again to Woodland Heritage's diverse and generous membership and a very happy coincidence of needs, some small diameter roundwood made its way from Kit Vaughan's Prime Coppice in deepest West Dorset to Richmond in Surrey in November, to be received most gratefully by the student concerned; we await Jeonghwa's entry with great expectation!

Most enquiries came from individuals, but it was a whole group of students from Brunel University London, who had their first introduction to woodland management in October courtesy of Oxfordshire Woodland Group. A truly international cohort, the Brief has introduced them all to challenges that are being faced and have the potential to be addressed around the world.



Kit Vaughan donating small roundwood Ash to Jeonghwa

The students were able to see small diameter wood used as rafters in a cruck barn made entirely of timber sourced from the wood in which it stands. This is the first cruck framed structure of its kind to be raised in Oxfordshire in over 500 years, the progress of which has been reported in the Journal over recent years by Ken Hume.

It is yet to be seen what creative and entrepreneurial ideas come from the students which could include new, manufactured products, perhaps ones that are currently made from non-sustainable materials. Alternatively, they could focus on architecture, as John Makepeace did in 1983 when he created the new campus at Hooke Park using only the by-products of woodland management for all the structural components for the buildings, particularly thinnings from 5-10 cms in diameter.

John's incredible achievements at Hooke Park will be available for WH members to see on June 11 during the 2020 Field Weekend, the Park's model being further developed and used since at the Weald and Downland Museum and at the Savill Gardens building at Windsor.

John Makepeace is currently planning several other initiatives to encourage design and architectural students and practitioners to be more entrepreneurial in developing businesses that make better use of indigenous forest produce, especially hardwoods. The aim is to use land more sustainably and for multiple purposes – intelligent forestry.

Shortlisting of entries for 'Branching Out' is scheduled for April, interviews with those who pass that hurdle in May and with the results due to be announced in June.

More information on 'Branching Out' can be found at thersa.org/globalassets/projects/design/sda/briefs-201920/5_sda1920_branchingout.pdf



Brunel University London group visits the Cruck Barn

Woodland to Workshop Course

September 2019

by participants Anita Stone and Mike Milne Home

Woodland Heritage was proud to stage its Woodland to Workshop course for a 22nd time in September, taking the total number of participants well over 250 since 2008.

Keen to help early-career or student attendance on the course, Woodland Heritage is delighted to be able to offer competitive grant schemes to help with the cost of the course fees.

Two grant winners explain what they learned from 'Woodland to Workshop 22' and how it will help their different careers in forestry. In Mike Milne Home's case, support towards his course fees came via a fund established in memory of Roger Venables, a past tutor on the course and former Trustee of the charity; Woodland Heritage is indebted to Roger's widow, Ruth, for creating this fund.

This is how Anita Stone saw 'W2W22'...

I was lucky to have been able to attend Woodland Heritage's Woodland to Workshop course in September 2019. I am a self-employed woodland management consultant working in predominantly ancient semi-natural woodlands with a high proportion of coppice with standards structure. All areas are managed to increase conservation value and where timber quality standards are present, it is essential to maximise the financial value of stems to be felled to offset the costs of cutting no/low value coppice.

I wanted to increase my knowledge of timber selection and valuation for the benefit of the woodland owners I work for and to ensure that coppice management remains viable, with all the benefits it brings to these beautiful woodland habitats.

The Woodland to Workshop course provided exactly what I was looking for and more. It was immediately clear that we had the privilege of a wealth of experience to benefit from over the three-day course.



Timber measurement in the round

After a fascinating introduction to the sawmill and timber industry from Will Bullough, we were quickly submerged into Gavin Munro's introduction to the grading of hardwoods, which summarised a huge amount of information succinctly and with humour. Will and Gavin then took us through timber defects before taking us out into Will's woodland behind the sawmill to assess standing stems. I found this onsite discussion and assessment invaluable. During the day we also benefited from a tour of the workshop with Ben Asson and a talk through many of the timber species and their qualities.

Despite torrential rain on Day 2 we enjoyed a visit to several Duchy Woodlands with Geraint Richards and Graham Taylor to discuss woodland management from planting to felling. We had many interesting discussions from species selection, squirrel damage and valuing stems. This was all topped off with time in the beautifully crafted Shenmore Lodge to appreciate the value of timber in architecture.



Measuring boards

Day 3 started with a light session on timber measurement, which Will expertly made as simple as the subject can be! Another invaluable practical session of log volume measurement, valuation and sawn volume measurement and valuation followed, including practical experience using a mobile sawmill.

Further hands on experience of putting our cut boards carefully in 'stick' for drying and a tour of the drying sheds and kiln with further discussion completed the course.

I use the knowledge I gained on the course on a daily basis and I am enormously grateful to Woodland Heritage for the grant towards attending the course, as well as to Will, Gavin, Dermot and Ben for sharing their experience over the three days and to Kelly for her excellent organisation.

Mike Milne Home now shares his take on the course:

On a very wet Monday morning, Woodland to Workshop Course 22 gathered at Witney Sawmills with high levels of anticipation for the following three days. As many readers will be aware, the aim of the course is to link tree growers with wood users by educating participants about the forest through to the workshop and beyond. Initial discussions with other attendees, from across the UK and all parts of the timber "custody chain", promised an interesting few days.

I have a forestry contracting business at the smaller end of the scale. Operating in farm/small estate woodlands I use low impact equipment for thinning/regeneration felling/ride-widening type work, with most of the product going to biomass or firewood. I had been wanting to attend the course for a number of years, with the aims of gaining a better understanding of what product the end user is looking for, how to identify likely timber and where to market it. The objective of all of this is to maximise the return/minimise the cost to the woodland owner, which will then hopefully encourage more woodland owners to bring parcels back into a managed state.

This course is difficult to summarise in a short space, there is so much knowledge shared willingly and enthusiastically by the tutors. It gives a fantastic overview of how a sawmill works and what a buyer is looking for when purchasing timber. For me this was the key thing: I now go into a woodland compartment and look how to get planks and beams from trees rather than the default of cutting to 3m for firewood and chip. It gave me the opportunity to meet a hugely diverse group of people and discover what they are doing, what a timber buyer is looking for, and how to identify these trees and potentially add the value myself.

Someday I would like to have my own sawmill, whether mobile or fixed remains to be seen, but I now have a degree of confidence that certainly wasn't present before in gauging timber value. This will allow me to source quality timber from woods I would normally just cut for low value produce, pay a fair price for it, cut it, mill it and add value to it, then either use it myself or sell it for more than I would currently achieve. I also know that there will always be a helpful voice at the other end of the phone should I have yet another daft question or "would this be a sensible price?".

I would highly recommend this course to anyone involved in timber – at whatever stage of the process they are – it gives a phenomenal depth and breadth of knowledge in a short space of time, as demonstrated by the demand for places; it's a great course and I'm already putting the knowledge gained to good use.

My thanks go to Woodland Heritage for the grant which allowed me to attend, to all the tutors for an informative, engaging and enthusiastic three days, and finally to my fellow students who helped make the course so interesting and enjoyable.

A year in the woods – Take 1

by Rachel Johnson, a Ben Law apprentice 2018/19
and Prince of Wales Award winner 2019

In November 2018, I arrived at Prickly Nut Wood, West Sussex, to start a woodland apprenticeship with Ben Law in Coppice Management and Natural Building (Roundwood Timber Framing).

I lived simply in a log cabin, equipped with a bed and log burner and had the use of an outdoor kitchen, cooking over a firepit, in Ben's sustainably managed off-grid woodland. I started just before the onset of winter getting ready to learn how to coppice. I had not previously used a chainsaw. Some may view this as being "thrown in at the deep end", however I found this to be a thoroughly enjoyable learning experience.

Nature, trees and wood crafting have held a special place in my heart making an early start on my 5th birthday, when I received my first real toolkit. Throughout my following life, I have made small wooden projects.

I worked for over eight years in factories. In 2017 I made the decision to change the direction of my life by volunteering on a number of natural, sustainable, eco-build projects that employed traditional building methods.

I spent nine weeks at Henbant, a smallholding in North Wales, where I gained varied experience including timber cladding. This was just before my three-day selection interview with Ben, which included fitting waney edge cladding, slab wood cladding and decking, working with other participants.

My time at Ben's was a unique experience. Ben is an excellent teacher with an obvious true love for the woodland. I learnt so much about the woodland, biodiversity, sustainability and coppicing. There is something quite rewarding about felling trees, bucking, extracting and then building with the timber.

I loved using all the specialist tools and gained experience with the use and the sharpening of a good variety. My favourites were the billhook, axe, froe, draw knife, framing



Peeling in the workshop on a snowy day

chisels, gouge and slick. I particularly enjoyed coppicing, charcoal burning, building an Oak frame Hazel woven fence and learning roundwood timber framing, including the butter pat joint and using the bubble scribe. It has now led me to produce a very long wish list of the tools that I need to buy. I am now seeking funding to purchase a van that I can convert into a mobile workshop and seasonal woodland worker accommodation.

My next objective is to work with Ken Hume and Herbert Russell of The Oxfordshire Woodland Group helping them to manage small woodlands, producing timbers for conversion and use to build timber-framed structures. This will hopefully provide me with the opportunity to further develop my woodland-based skills.

As a graduate of Woodland Heritage's Woodland to Workshop (W2W) course I am indebted to Guy, Belinda and Kelly together with the W2W teachers. With the financial support I received from Woodland Heritage (including a Wood-Mizer UK grant towards my W2W course), as well as their kindness and support, I was pleased to discover that this organisation very much lives up to its motto of "Action not Words".

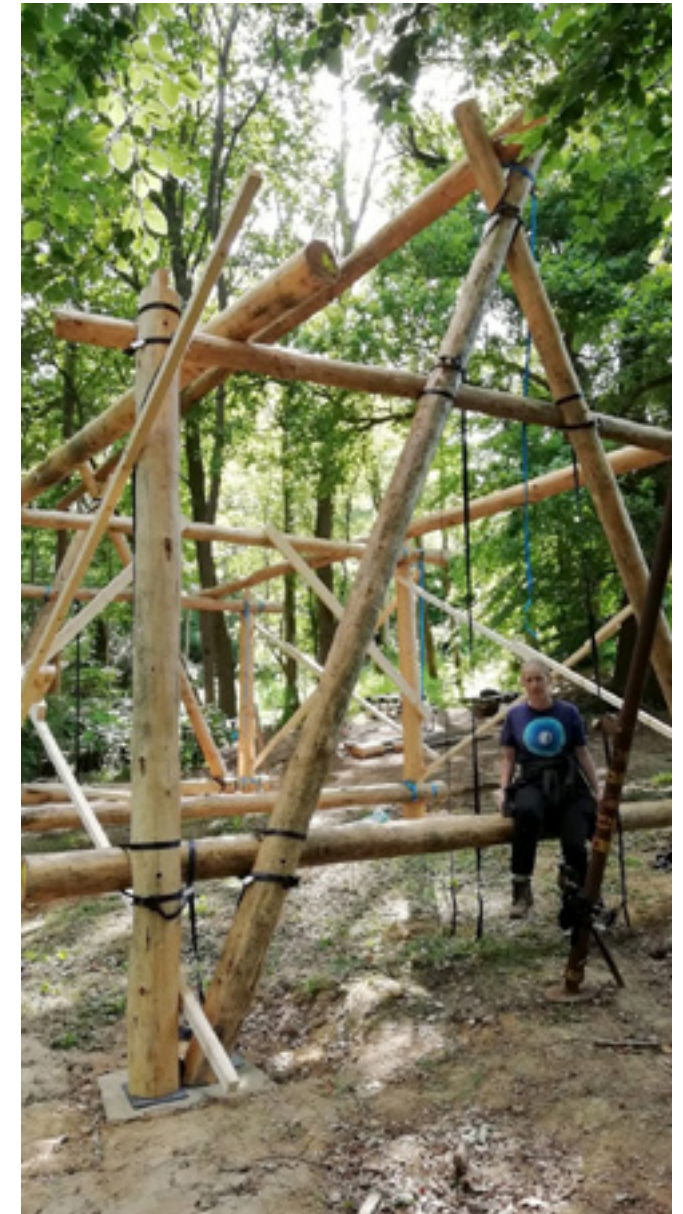
A truly fantastic charity doing an amazing job.



Butter pat joint, Larch



Deer patten piling, post and rail fencing



Raising a frame built on another course and added to by previous apprentices, used as a forest school

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 2019 is Rachel Johnson

Both during the course and subsequently, Rachel has shown a great passion for learning about wood. Grounded, very practical and always with good humour, Rachel has great potential that we hope that with good fortune she can meet.

On behalf of the course tutors, congratulations Rachel!
Geraint Richards, Trustee



A year in the woods – Take 2

by Ryan O'Sullivan Keating, a Ben Law apprentice 2018/19

To move from the distractions and novelties of a suburban life to the simple pleasures of Prickly Nut Wood was quite an adjustment!

It wasn't just a matter of adapting to not having electricity on demand, or having to do all our cooking over an open fire; there was also the fact that I was starting the apprenticeship in the depths of winter – the time of hardest graft in a woodsman's work.

However, when viewed in the context of a full woodland year, the winter was the most fitting season for us (Rachel, the other apprentice, and I) to start. We were gaining an understanding and an appreciation for the processes that lead to the finished woodland product. Our work during the winter very much mirrored the rhythms of the natural world. Tasks included stocking up on firewood, mending deer fences, coppicing, planning and gathering materials (timber, poles etc.) for the coming year. Gaining my chainsaw license was a major step in allowing me to get coppicing underway. I'm very grateful to Woodland Heritage and to Ben for enabling me to do the course.

The elation I felt as the sun set below the hills on the Winter Solstice was unmatched. For me, it marked the promise of light, growth and renewal. In this moment, I came to the realisation, though many had already told me, that the significance of the cycles of the natural world can only be fully grasped when one's life is lived in accordance with them.

As the seasons changed, so did our work. From March onwards, we manually extracted much of the material we had cut and began processing it. Processes such as debarking, cleaving and converting it to added-value products. These products included fencing, gates, woven panels, trellises, roundwood timber frames, charcoal and more.

Our education encompassed much more than woodwork skills. There were times when Ben might interrupt our work to point out the arrival of the brimstone butterfly, for instance, or the eccentric call of the nightjar – both of which are important indicators of seasonal change. These are the moments I will remember and cherish most of all. Ben shared his way of life so openly and ensured that each day of the apprenticeship was steeped in learning.



Ryan working at a shavehorse

In the autumn, I was able to attend the Woodland to Workshop course, thanks to Woodland Heritage's generous funding. I found the standard of teaching, from all tutors, and the content, extremely helpful. The learning I received has greatly enhanced my understanding of timber and the whole wood supply chain.

Overall, it was a transformative ten months for me, and I feel that the skills and life experiences I gained have really helped and are taking me to places I couldn't have imagined previously. I have since found ways of putting them to good use in the French Alps, where I was involved in a project in which we had to source, process and apply timber framing joints to local European Larch on a small roundwood timber frame build; in Co Clare, where I was involved in the felling of conifers and the establishment of a mixed native woodland; on an estate in the Hebrides, where I increased light levels and made space for potentially valuable stems of Oak, by selectively felling competing species.

Currently, I'm working with a team of ecologists and I'm using my chainsaw skills to help clear a 23 km disused railway in East Cork. We work consciously to avoid damaging specimen trees and valuable habitats and hope to do some compensatory tree planting elsewhere. The Youghal to Middleton Greenway will be one of many old railways converted to walk/cycle paths in Ireland.

Book Review Lumberjills, Britain's forgotten army

Review by Kelly Morss

“We have been forgotten”

British forestry faced a serious problem when war was declared in 1939. With timber stocks at an all-time low and relying heavily on imports, Britain went to war with a shortfall in timber and the manpower required for a wide range of industries from communications, to ship and aeroplane building. With an urgent need for both timber and labour, the government had to look to alternatives and so they signed up women who were recruited from the Land Army on the urgent request from the Timber Production Department in 1939. The Women's Timber Corps (WTC) officially became its own organisation in 1942 having an estimated 12,000 members at its peak with even more undocumented workers.

Despite their efforts to fulfil the timber needs of war, they had become nearly invisible over the following years. The women of the WTC did not take part in Remembrance Day until 2000, and it would take until 2008 for them to receive official government recognition for their service during World War II albeit with a badge using the Women's Land Army logo. Foat herself tells of the sparsity of information about them as recently as 2010 when she started her research.

The women were often from backgrounds unrelated to farming or forestry such as hairdressers, shop assistants and domestic servants. Considering 75 years ago for women to wear trousers was regarded as an assault on common decency, then we can indeed see how extraordinary the circumstances must have been for them to leave their families, head to unfamiliar places, work through gruelling conditions and be repaid with prejudice, hostility or ambivalence for their service.

In *Lumberjills*, Joanna Foat presents their stories in their own words having collected testimonies from over 60 lumberjills who worked during the war years. They recount the highs, lows and everything in between. They built lifelong friendships (and muscles), gained new



confidence and skills, fell in love and had fun. They also speak of being forgotten, dismissed, kitted out poorly, cold, wet and hungry but the overwhelming feeling seems to be that they were a family and gained as much from their experiences as the country received from their efforts.

As Mary Collins, daughter of a lumberjill, says in her foreword, the book 'represents a love letter to all those who served working in the forests' and will hopefully go some way to keep the memory of these women and their contribution to British forestry alive.

thelumberjills.uk

We want to share two signed copies (courtesy of Tabitha Binding who met Joanna at a Timber Trade Federation event) so if you would like a chance of winning please send an email to office@woodlandheritage.org with the subject Lumberjills Book Competition and your contact details. Or write to Woodland Heritage, PO Box 1331, Cheltenham, GL50 9AP.

The winner will be picked at random on Friday 12 June 2020.

You can't see the Trees for the Woods

– An Artist's Residency in Epping Forest

Text and photographs by Marion Sidebottom

Epping Forest is an ancient woodland that stretches 20 km from rural Essex down to the North East urban outskirts of London. It covers an area of approximately 2,500 hectares and is 4 km across at its widest point. Formerly a Royal Forest, it is now managed by the City of London Corporation. Due to its ancient age and wide range of habitats much of it is a Site of Special Scientific Interest and a Special Area of Conservation.



I was the forest's first ever Artist-in-Residence and was funded for a one-year photographic project by Arts Council England. The City of London Corporation provided me with access to resources, staff time and knowledge and media contacts in return for two funded exhibitions, high profile media content and public engagement during the project.



View from the top of the MEWP (motorised elevating working platform), Pole Hill, Epping Forest

Prior to the Epping Forest Act of 1878 the forest was managed as wood pasture, but many of the pollards have not been cut since. This gives the trees in the forest a unique look with their ancient girthy trunks which appear to have multiple full-size trees growing out of their massive gnarly boles. Their weight is often unsustainable, and they are prone to collapse. I wanted to capture characterful portraits of these trees at a point in time before they undergo more environment induced change.



Self-portrait inside the Pulpit Oak at Lords Bushes, Epping Forest

I spent time with the Dr Jeremy Dagley, the Head of Conservation, who introduced me to the complex management, geography and conservation issues of the forest. His job is a delicate balancing act between nature conservation, public access and organisational needs whilst under financial pressure. He coined the term 'You can't see the Trees for the Woods' as we agreed there are so many beautiful ancient trees in Epping Forest that forest users fail to notice the individual characteristics of each one.



Lapsed Beech pollard near Ambresbury Banks from the series 'Epping Forest Seasons'



Images from the series Ancient Tree Portraits of Epping Forest



Dr. Jeremy Dagley, Head of Conservation, next to an ancient Oak at Barn Hoppitt, near Chingford



The Lost Pond Coppard from the series 'Beech Trees in Spring' and the 'Diversity of Beech Trees'

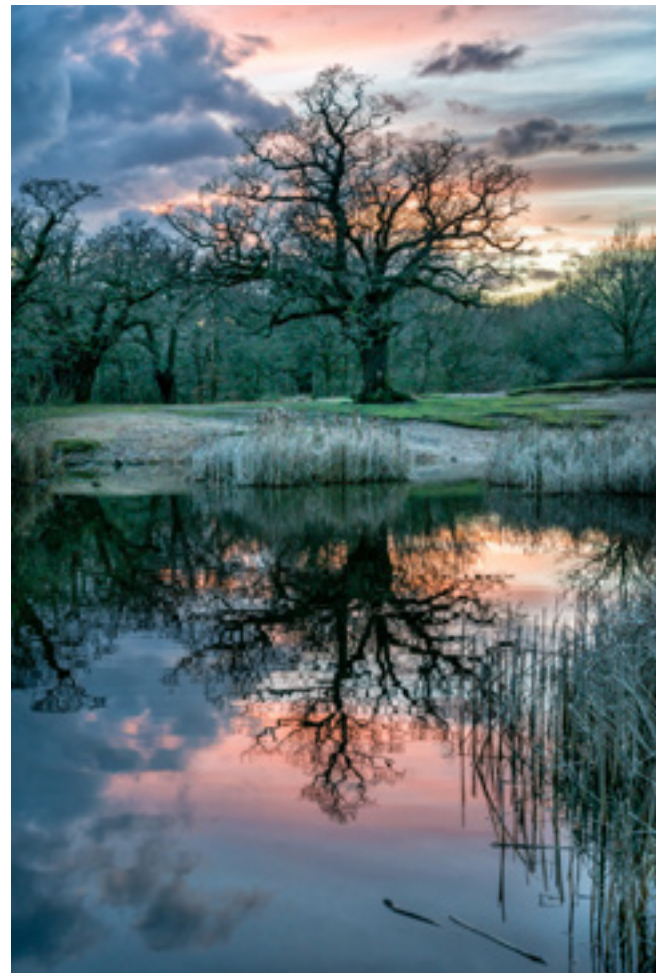


Inside the Coppard from the series 'Beech Trees in Spring' and the 'Diversity of Beech Trees'

Whilst there I encountered coppards. These are multi-stemmed lapsed coppice stools which have later been pollarded and are believed to be hundreds of years old. Interestingly these small groups of trees are genetically identical, and all come into leaf at the same time. Does this make them one big tree? The series Diversity of Beech Trees won me an RHS Silver Gilt medal at the 2019 Botanical Art & Photography Show.

I took the picture on the right in the early evening and there was a wintry chill in the air. It was one of those fleeting moments when all the elements come together; a spectacular sky and an ancient Oak reflected in the still waters of a forest pond with a solitary crow resting in the upper branches. I entered this in the 'Celebrating Our Oaks' category of International Garden Photographer of the Year for Action Oak of which Woodland Heritage is one of the partner organisations. I'm very proud that this image is in the Celebrating Our Oaks book and touring exhibition and may be helping in a small way to protect our Oak trees.

The second part of the project 'Ancient Trees & the People of Epping Forest', tells the story of some of the people who live, work, study and visit Epping Forest. I interviewed and recorded people, photographed their work, and took part in activities in the forest. This included going 100 feet up in the forest canopy with the Conservation Arborists whilst they undertook crown reductions, studying woodland ecology with the Field Studies Council, tagging along with walking groups, conservation volunteers and spending time with a mycologist and a naturalist. Nine of these stories were created into large multi-layered photomontage artworks. I hope you will want to see more about the project, which is featured on my website.

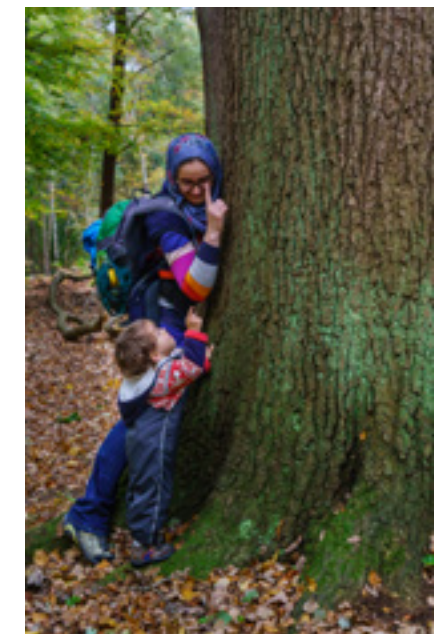
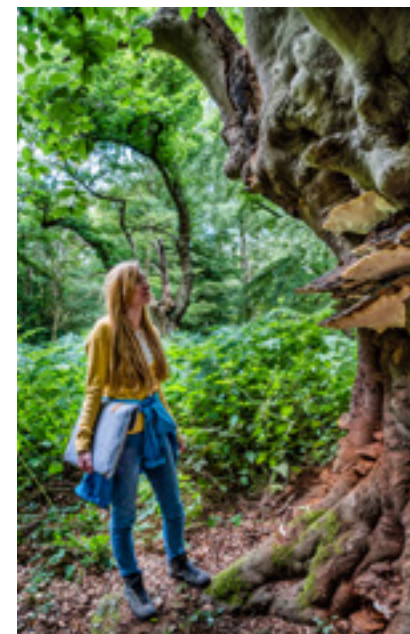


Ancient Oak Reflection, Epping Forest, 2nd Place, Celebrating Our Oaks, International Garden Photographer of the Year

Marion was the Artist-in-Residence in Epping Forest from April 2017 to March 2018. She is an award-winning photographer, educated with an unusual mix of a science degree and Master of Art. She is also an Associate of the Royal Photographic Society. Marion teaches photography workshops and is available for commercial shoots and any interesting project proposals.



Clockwise from top left: Conservation Arborist at work, Epping Forest Conservation Volunteers, Woodland Ecology Course with the Field Studies Council, one of many forest walking groups



Emma Gilmartin, Mycologist and PhD Student, Dog Walker Jules and Family Walk with the Field Studies Council

To find out more, please visit:
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The Wild Service world

by Nick Marsh MSc

Wild Service (*Sorbus torminalis*) is an enigma. In the UK, it is probably regarded as one of our most obscure minor trees, a natural treasure to be discovered. In contrast, on the continent, Wild Service is a highly regarded and valued species, possessing both commercial and cultural importance. It is a multi-purpose tree for for the 21st century.

A member of the Rosaceae family, Wild Service is related to the rarer, True Service (*Sorbus domestica*). It is found predominantly across the southern half of the UK and then mainly confined to deep nutrient-rich soils such as Oxford, London or overlying boulder clays. The tree may never have been common but, with a decline in woodland management it could now become threatened. It is thermophilic, preferring warmer climates, with a natural geographic range extending as far south as the sub-Mediterranean. To the north, it has reached Scandinavia and, with predicted climate change, could migrate even further.

The Wild Service is a veritable celebrity across parts of Europe. Close to Vienna, it thrives in verdant forests and is planted as part of silvo-pasture management systems. The berries are valued for making a variety of culinary products from jams to eau-de-vie and are used to flavour honey and chocolate. A purpose-built visitor centre has been erected called Haus der Elsbeere (Wild Service House) to promote its importance within the community. It isn't often that a tree species commands such attention. In Italy, Wild Service is being used in a variety of agroforestry applications as it can regulate hydrology and improve soil retention due to its deep rooting system.

Wild Service is nurtured in the forests of Bavaria and Franconia for its fine-grained timber which is used to create top grade veneer and high-quality furniture. Here it survives in former coppice and standards mixed Oak, Hornbeam and Field Maple woodlands and is managed using a target tree system. This method aims to grow



Haus der Elsbeere (Wild Service House) visitor centre



Wild Service timber table



Wild Service tree, Germany



Wild Service and assart UK hedgerow

gun-barrel stems which often achieve a 20 m height and 60 cm girth. The production of superior quality timber is achieved through an intensive selection, thinning and pruning regime. I had the opportunity to visit several sites in Germany and France as part of a Woodland Heritage funded study tour and observed possibly some of the best Wild Service in the world.

An ancient UK species

Wild Service is a post-pioneering, non-gregarious species which appears in the UK to have lost its natural regeneration capability. Pollen counts suggest it was one of the final tree species to colonise woodland after the last ice age. It frequently occupies woodland margins or glade edges where there are light fluxes, which allow it to push through the canopy to flower and where it has often been protected from thinning work. Because of its localised nature, it is often confined to ancient woodland and occurs within remnant or 'assart' hedgerows, once themselves derived from forest clearings (see top right photo). Research has found that Wild Service seed is parasitised by *Torymus druparum*, a Chalcid wasp. Wild Service can be apomictic (asexual in reproduction), affecting its seed fertility, but it can sucker extensively (like Elm). Such clonal reproduction combined with limited distribution has undoubtedly placed limits on its genetic

variability, rendering it vulnerable to pests, pathogens and disease. Under controlled stratification, the process of treating seeds to simulate natural conditions that the seeds must experience before germination can occur, Wild Service will propagate and grow successfully given the right soil and environmental conditions. The tree can achieve a reasonable age and some magnificent examples are still found in ancient managed woodland. The owner of an old Hornbeam coppice woodland in Kent recently found an 82 cm girth Wild Service, probably around 200 years old, having survived despite stopping coppicing in the 1930s, coniferisation of the compartment in the 1960s and the storms of 1987 which split the trunk. It is still flowering and producing seed and the aim is to propagate from it before the tree finally succumbs to the elements.

As with many native trees, the Wild Service is linked to ancient traditions. Prior to the wider use of hops, the berries were used for flavouring ale. Left to blight (soften), the berries are more edible and have a sharp, almond flavour with a pear-like texture. The Wild Service has been referred to as the 'Chequer Tree' although the exact reason for this name is not known, but it could refer either to the pattern of its berry or the square-plated bark found on mature trees. The etymology of Wild Service, as is its taxonomy, has an interesting history. 'Service' may



In flower



Berries



In autumn



An old tree curving to reach canopy release

be a derivative of 'Cerevisia', a drink from Roman times, but again there is some speculation as to its true origins. The berries were an early medicinal remedy for colic (*torminalis* derives from the Latin *tormina*, a stomach condition). 18th century botanists, busy developing taxonomic indices, initially considered it to be a relation of Pear or Hawthorn. Finally, in 1763 an Austrian scientist, Heinrich Crantz named the species *Sorbus torminalis* (*Sorbus* is the latin for Rowan).

Characteristics

The Wild Service is often difficult to identify, partly due to its relative scarcity and then because it has a lobed leaf which could be mistaken for a Field Maple. It has long petioles (stalks joining leaves to stems) which gives the canopy a characteristic spread. However, it has distinguishing features that sets it apart. Its bark is shiny in young trees (similar to Rowan) and has horizontal, rounded lenticels (raised pores), eventually turning into small swirls and curls of plated bark resembling that of a mature Pear or Crab Apple tree. Finally, masses of white flowers appear at the end of May. In October these transform into brown berries, favoured by many birds especially the mistle thrush. The leaves provide a yellow, red and auburn richness to the autumn woodland scene. It has an interesting morphology with a particularly horizontal branching structure. The tree generally fits into the NVC W8-W10 classification (*Quercus robur- Pteridium aquilinum-Rubus fruticosus*). It also favours Hornbeam and Small-Leaved Lime woodlands, particularly across the Suffolk claylands. I find it generally co-exists with Field Maple and Crab Apple (equally non-gregarious), and it frequently occurs as clonal clusters often sparsely positioned along old wood banks, margins

or ride edges. It is not usually seen in Ash-dominated stands and is of naturally sparse distribution. As a post-colonisation species, it will survive shade, but prefers lighter woodland conditions and will not flower without an open canopy. Lack of woodland management has often led to Wild Service becoming a suppressed understorey species where its contorted growth is testament to its constant search for canopy release.

Wild research

My research of Wild Service focussed on the species as a future timber tree, albeit as a more niche product such as Black Walnut. The main drivers for this were:

- The need to consider more diverse and minor species in future native woodland creation and enrichment planting programmes (for habitat and production), and also other applications such as trees outside woodlands, hedgerow standards and agroforestry
- To provide options for managing broadleaved woodlands in a way that produces a superior quality timber given current and future demand for fine furniture and hand-crafted goods
- To protect important native species from decline and potential extinction in the UK
- To promote tree species that could adapt to suit climatic changes, with more disease resilience and tolerance
- To appreciate that as an ancient woodland indicator species, Wild Service exists because of formerly managed woodlands that were systematically extricated of both sawlog and small wood products and which remain because of its intrinsic value

The programme of research reviewed the early stages of a trial plantation programme for Wild Service tree, examined silvicultural procedures for growing and tending Wild Service, and evaluated forestry industry knowledge and thoughts on the potential of the tree.

Trial plantations

The plantation of Wild Service, the first of its kind in the UK, was developed around a basic design of intimate mixes with Oak and pure stands of Wild Service (alternate rows of 1 x 1.5 m). Established as an experimental programme, the Wild Service used were of Italian provenance, mainly due to the difficulty in obtaining even 40/60 UK sourced and grown whips.

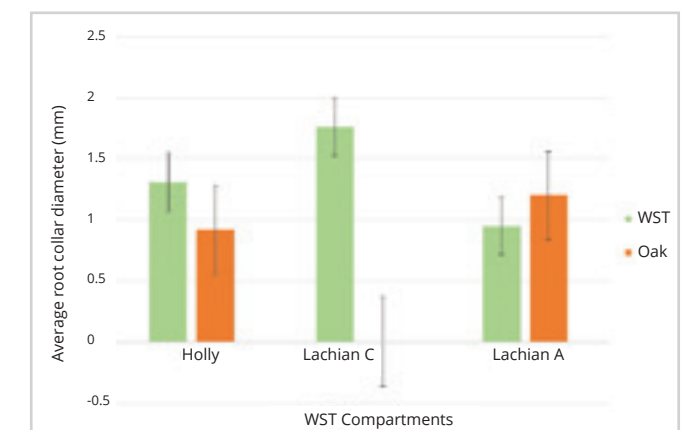
Oak and Wild Service do occur in natural mixes within W10 slightly acid clay soils. Wild Service can readily out-compete Oak (which is more light demanding) within the first 10-20 years. However, the trials suggested that



Plantation trials in Suffolk

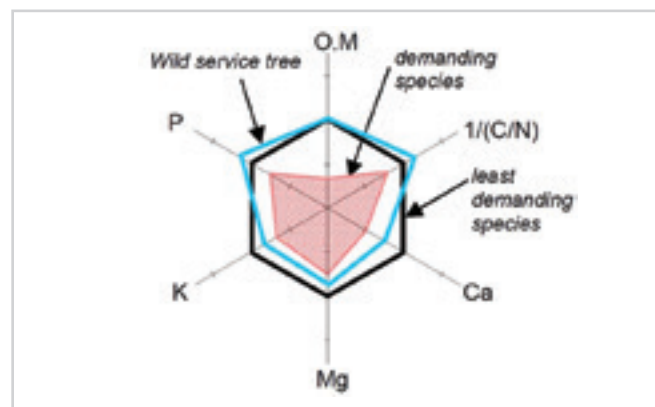
Wild Service did not perform well when grown in close proximity to Oak, both in terms of height and root collar diameter increment, but grew significantly better in monoculture (albeit this arrangement would not be found in a naturally regenerating woodland). There have been indications from other research that Oak can exhibit allelopathic effects on competing vegetation (as with Walnut species).

Within the UK trial, this was demonstrated very clearly (as these graphs show):



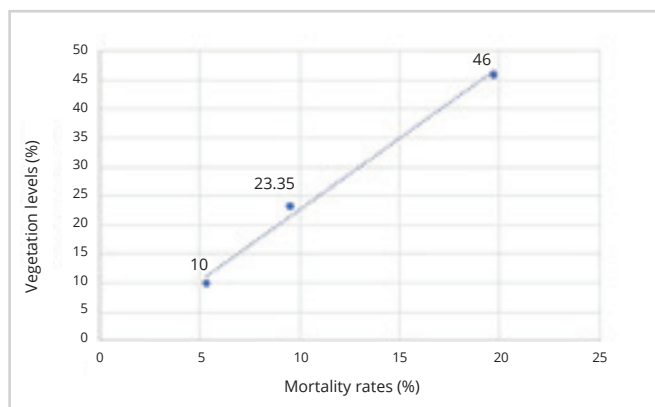
Compartment root collar diameter and height measurements at year 3 (Marsh, 2017)

The results had to be considered in context, both as a young plantation and with the presence of highly variable site soil conditions. (Soilscape data suggested low to moderate inherent fertility.) Wild Service is known to possess high nutrient requirements, particularly elevated P and N (see below). The most substantial growth rates were achieved on base-rich, clay-loam mesotrophic soils as opposed to lighter, sandy soils (irrespective of pH). These results were also confirmed by other research.



Mineral nutrition of Wild Service (Larrieu et al, 2013)

Other aspects of the trial planting programme were analysed including form, but were found to be inconclusive at this early stage as morphological characteristics were as yet undeveloped. Mortality rates broadly correlated to concentrations of weed competition, which supported Wild Service silviculture guidelines from the continent. As such, weed control would form a key part of early and formative management of Wild Service (Sorbus are significantly prone to weed competition for the first 5-10 years).



Vegetation and mortality rates from Wild Service in trial plantations (Marsh, 2017)

Part of the UK research focussed on interviews with key forestry and woodland management personnel to gauge existing knowledge, understanding and thoughts

on Wild Service as a current and future tree species in the UK. It was considered that this would form the basis for taking forward any future research, in particular extending the trial plantation programme and developing more silvicultural guidelines for woodland creation or enrichment planting for woodland restocking.

Various sub-thematic topics emerged from discussions with forestry and woodland professionals which revealed that Wild Service is unknown for its non-timber use and associated historical socio-economic and cultural applications in the UK. However, respondents tended to be aware of the timber use and value on the continent, although its precise silvicultural requirements were unknown. Critically, there was a resounding degree of support for the expansion of Wild Service plantation trials (and of investment in minor tree research) in the UK as an alternative climate change and potential forestry species. (See 'More information' below to obtain further detail of these discussions.)

The research tour of plantations and old forests in Germany and France in 2017 found that trials used both Hornbeam and Field Maple in line plantations (2 to 3 rows of Wild Service to one row of Hornbeam/Field Maple, at 2 m row spacing x 1 m line spacing). Wild Service naturally occurs in W8 woodlands with both of these species in the UK, although Hornbeam tends to be quite gregarious and can eventually dominate broadleaved stands. The plantation design provided for intimate mixture species which would act as nurse trees. Management practice for timber trees includes:

- Formative pruning at 2-3 m and removal of forks
- Cleaning and respacing initially 10-15 years, then every 6-10 years to achieve a 25% final height clear bole
- Competition thinning to start at around 10-12 m high (5-6 m clear bole), to remove crown competing trees and ensure full halo, releasing every 4-7 years to maintain crown clearance
- Trees selected for growth and form and health, around 40-50/ha with distance of 10-12 m between final target trees (to reduce risks of fireblight contamination or other vectors)

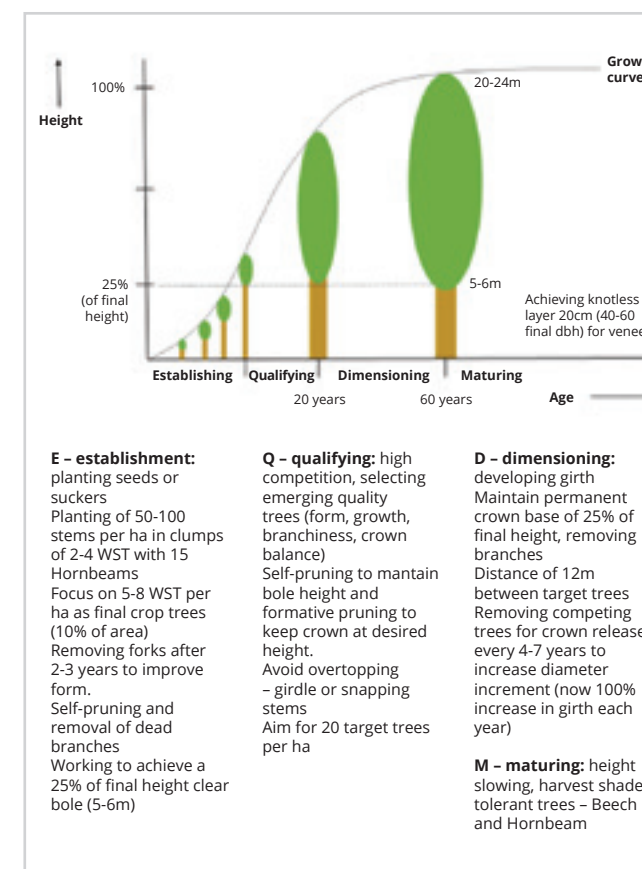
Established Wild Service are managed using a target tree (or tree-oriented) silviculture approach called Qualification-Dimensioning. This system controls form and growth through strict and timely intervention for valuable hardwood species.

The future

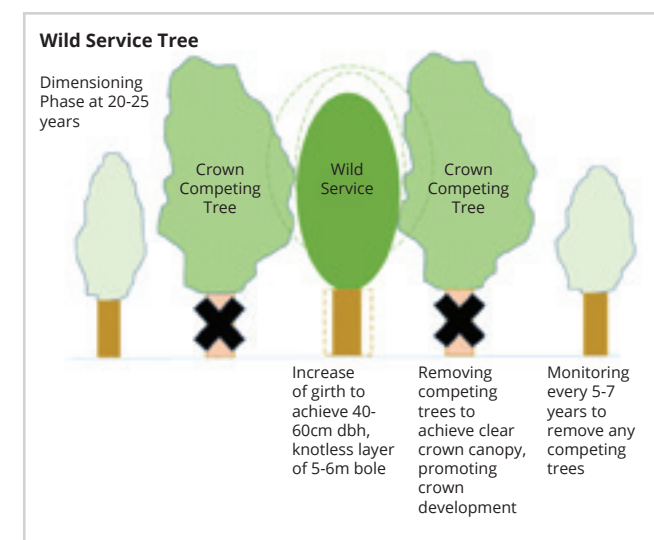
Many of our native trees are now challenged with disease and other environmental factors which seem almost unprecedented in modern times. Wild Service is a tree with a potentially bright future which we could lose altogether from our ancient woodlands. It is a survivor, but only just. I am encouraging woodland owners and countryside teams to plant UK provenance Wild Service within their restocking mix where site conditions prove favourable. Plantation trials are now being extended in some areas of the UK as interest increases. Wild Service seed can be collected and propagated effectively and establishing seed orchards will increase the gene pool, ultimately improving disease resistance of the species and its long-term viability. Historical accounts have recognised the Wild Service as being an important woodland tree. Many proponents including Gerard (1597), Johnson (1629) and Boulger (1906), hailed the virtues of the tree for its ability to survive. It possesses habitat and commercial value, aesthetic appeal and potential resilience. Hopefully, one day, the enigmatic Wild Service will be found growing in many more of our woodlands and hedgerows and become a more common sight across our landscape.



Qualification-Dimensioning of Wild Service (clear crown)



Qualification-Dimensioning system for veneer quality Wild Service (Marsh, 2017)



Qualification-Dimensioning system (Marsh, 2019)

More information

Nick Marsh MSc (For) is a woodland restoration project manager for the National Trust. He is responsible for developing woodland management and habitat plans and overseeing contract forestry work. He has written extensively about Wild Service and given talks about it.

More detail of his discussions with industry professionals can be obtained from office@woodlandheritage.org

Continuous Cover Forestry Group Events Programme 2020

CCFG England: Field Visit to Kylee, Northumberland

Wednesday May 20

Kylee is a private estate in Northumberland with the forestry managed by Scottish Woodlands. We will be hosted by Arran Smith the local manager. The estate was last visited by CCFG in 2006. The woods are managed under CCF with regular interventions, natural regeneration and under-planting.

CCFG Scotland: Field Visit TBC

Date in September tbc

We have not yet confirmed the location or date for this field visit. We will provide more details in due course via our membership emails and within our Summer Newsletter.

CCFG England: Field Visit to East Dorset

Thursday September 24

Growth responses to interventions during the transition of Douglas Fir and Oak plantations to irregular structures.

A major gap in our knowledge relating to the transition of even-aged stands to permanently irregular structures is the lack of stand /yield models. This meeting will consider this issue in the light of increment and growing stock information in a number of Douglas Fir stands in various stages of transformation and will also consider the growth response of Oak plantations subject to innovative thinning regimes.

CCFG Wales: Field Visit TBC

Date in October tbc

We have not yet confirmed the location or date for this field visit. We will provide more details in due course via our membership emails and in our Summer Newsletter.

For further details of our 2020 events please visit our website: ccfg.org.uk

CCFG Field Visits will be opened up to non-members after a short period. To be sure of your place please book early.

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

CCFG & Forest Engineering Group (FEG) Joint Meeting, Penrith

September 10

There will be a joint meeting with the Forest Engineering Group in Penrith on September 10 to discuss Operational Aspects of Managing Continuous Cover Forests.

Confirmed speakers include: Charlie Taylor of Forestry and Land Scotland who has overseen the introduction of CCF into forests in Tay Forest District over the last 25 years; Phil Morgan of SelectFor, ex-President of ProSilva and a leading consultant involved in the introduction of CCF into private forests in Wales; Sauli Valkonen, a senior researcher at the Natural Resources Institute of Finland (Luke) who has been investigating the application of CCF in boreal forests for 20 years.

ProSilva Europe Annual General Meeting, Luxembourg

October 6 - 10

Forest in Luxembourg – future challenges for ecosystem services

Luxembourg will host the annual meeting and will have an official part in Luxembourg's Ministry of Environment, Climate and Sustainable Development. The excursion days will be in forests around the city of Luxembourg focusing on the themes of:

- Urban forestry – Luxembourg City forest “Baambësch”
- Forestry and water protection – North of Luxembourg “Burfelt”
- Forestry and tourism – east of Luxembourg “Mellerdall”
- Forestry and nature conservation – south of Luxembourg, the natural reserve “Prënzeberg Giele Botter”
- Climate change and risk management – west of Luxembourg “Härebësch” SES Koerich

Course - Continuous Cover Forestry delivered by Jens Haufe

Locations and dates tbc

We are currently in the process of planning some dates and venues for CCF courses with Jens Haufe. Watch for further information via our membership emails and website. Spaces are limited so please book early. To register your interest, please email Mandy administrator@ccfg.org.uk

Winning the Best Use of British Timber award – What it means for my career

by Daniel Harrison

I decided to enter 'Grace' my circular dining table in the Best Use of British Timber award at the 2018 Celebration of Craftsmanship and Design Exhibition, Cheltenham.

I had trained at the Rycotewood Furniture Centre on the furniture making and design course, before working as a furniture maker in Oxfordshire. I was at a pivotal stage in my career – should I go on to gain more work experience or possibly take the step into self-employment?

Winning the 'Best Use of British Timber Award' simply kick started my career. It was the catalyst I needed and gave me the confidence to set up on my own as a bespoke furniture maker.

I initially used my garage to set up my workshop, which I had slowly developed since 2008 when I started a traditional apprenticeship in bench joinery. By the end of September 2019, I felt ready to spread my wings and I was fortunate to have found a unit on an ex-colliery site, a short commute from my home in South Wales.

This privately owned site is situated in a lovely rural valley. It is shared with other craftspeople – Corballus create hand carved carousel rocking horses, the Goodhand glass studio designs and makes bespoke glassware, Hour Glass Wales are another specialist glass firm, along with Callum Scissorhands - a men's barbers, and the Caribbean Kitchen producing delicious West Indian cuisine.

Alongside finding this perfect site, is a fantastic local sawmill only a short drive away from my workshop. AW Hardwoods Ltd has been operating the mill next to the Lougher estuary since 1996. They stock locally sourced air-dried and kiln dried quality timbers and specialise in large section slabs and burrs. To access local Welsh wood that has once stood within a 20 mile radius of my workshop is a wonderful thought and the award has inspired me to use more of the amazing timbers we have right here on our doorstep.

The new workshop is very nearly finished. With the basic staircase and design studio in place, the next jobs include



'Grace' circular dining table



New workshop in South Wales

finalising task lighting, installing additional sockets and painting the show room area underneath the design studio. I'm excited to have a space to showcase finished work within the workshop whilst promoting other complementary crafts alongside my furniture.

2020 will be an exciting year for me with interesting commissions and projects on the horizon. I plan to take part in a number of events throughout the year, including open studios, where I look forward to welcoming the public into my new space and discussing all things 'trees and timber'.

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Instagram @d.p.harrison
AW Hardwoods Ltd. awhardwoodsltd.co.uk
Instagram @a.w.hardwoods.ltd

Oak: fine timber in 100 years

by Jean Lemaire. Translated by Bede Howell OBE MICFor

This book which was translated by Bede Howell from the original French publication, continues to arouse much enthusiasm and interest.

It is the outcome of over 30 years research which has demonstrated that Oak can be grown on a much shorter rotation than was previously practised.



176 illustrated full colour pages
Paperback. ISBN 992934508
£30 plus postage
Copies are available from:
Tim Rowland, Future Trees Trust
07896 834518
tim.rowland@futuretrees.org



“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:

4 - 6 May and 28 - 30 September 2020

at Whitney Sawmill & Joinery Workshop, 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
01242 467356 | office@woodlandheritage.org | woodlandheritage.org



Applying ‘Woodland to Workshop’ in Prime Coppice

Kit Vaughan, Owner, Prime Coppice

Making the most of every woodland resource that you have available, especially timber is critical to the success of any woodland business.

With complex and fickle markets, long supply chains and margins on woodland timber being tight, together with a lack of skilled timber millers, it’s a difficult thing to achieve. Thanks to support from Wood-Mizer UK and Woodland Heritage I was able to attend a Woodland to Workshop course to learn from some of Britain’s most experienced foresters and fine Oak timber producers, and prepare myself for the purchase of a sawmill.

Identifying the value in the standing timber, how best to select, fell, process and grow better timber, its multiple uses, grading, measuring and quantifying the potential quality of the timber and then milling, stacking and storing, are all key requirements to make the best return from your woodland resources.

Yet many of these skills are an almost lost art. As one elderly forester said to me: “I’ve met a lot of people with sawmills of all different types, but I have met very few skilled millers”. Our broadleaf woodlands and also our wood culture have suffered a massive decline over the years, which Woodland Heritage is reversing through its Woodland to Workshop courses.

Prime Coppice in Dorset (primecoppice.com) is one such neglected woodland with active management ceasing in the 1970s. We purchased the wood eight years ago and as well as building our home on site we have been working hard to bring the woodland back into production, opening up the rides and extracting and making quality firewood and coppice products. We still have some large Oak trees ready to be thinned but we have not felled them, because we wanted to be ready to select the right trees and convert them onsite to the most saleable timber and for construction of our own barns in the wood.

Recognising my own skills gap and a lack of technical expertise both for Oak selection and milling locally, I was



Kit Vaughan (L) and Kelly Morss learning to use a Wood-Mizer from Martin Frazer

fortunate to discover Woodland to Workshop. I had already identified that whilst I needed training in theory and science, what I really needed was a big dose of practicality and that’s exactly what it provided. It demystified the selection and grading of timber and issues around extraction and felling. Working with knowledgeable and passionate mentors meant my sometimes-endless stream of questions were patiently answered.

Our visit to the Duchy woodlands set a high bar for what quality standing Oak timber could look like if we took a long-term view, but it also addressed practical questions around timber value, markets, and return on investment from thinning operations and restocking.

Working at Witney Sawmills with the staff and other participants honed my skills in timber measurement and value. The course really prepared me to be able to make the best decisions on the Oaks that we are ready to select, fell, and convert, and then to replant. After all, when you’re making decisions on a timescale of 120 years or more, you want to be sure you have the right plan for such a wondrous tree!

This season we have started to clear the area around the Oaks to fell early next season and we are now finalising the purchase and installation of our barn and sawmill on site. By incentivising the best returns on our timber, we can help get our woodlands and other local woodlands back into work, producing quality locally milled timber for current and future needs. Our work at Prime Coppice aims to epitomise adding value to a working woodland, while also acting as a demonstration site.

Applying 'Irregular Silviculture in the Lowlands: Transformation in Practice'

by Joe Weaver, 2018 participant supported by Woodland Heritage

Introduction

Several of my colleagues had undertaken this course and all had recommended it to me. Back in April 2018 I was managing a number of woodlands on the outskirts of Bristol that had been undermanaged or suffered from complete lack of management for many years. Having undertaken a Distance Learning MSc in Forestry at Bangor while working on the ground as a forestry practitioner, my career was progressing fast and I was starting to advise landowners on how to plan their woodland management activities for the future.

With an increasing client base representing varying woodland types, I was hoping to find out more about how both broadleaf and conifer forestry could prosper in the future. In particular, considering the range of tree diseases looming, diverse effects of climate change and unknown future timber needs on the horizon, I felt it important to understand how woodland management techniques can help to mitigate these threats.

The Course

Much information was crammed into the two-day course with early starts and late finishes. Delivered by Andy Poore and David Pengelly, the course content, although technical, was understandable and basic principles seemed to make sense.

This course really highlights the importance of inventory, understanding your woodland and the value of the crop within. To reach optimum economic potential, individual trees are evaluated and felled at appropriate times. Those that may have passed their economic peak may be left as seed trees; those that have not reached their full potential may be grown on. This was highlighted with a practical exercise that enabled teams to compete with each other and test their understanding of the theory.

What did I take from it?

The three main points that I took from the course were: Observation, Recording, Planning.

Understanding what is happening in the woodland and how the environment may be affected by change, is a key



Andy Poore talks

part of planning any future works and operations. I felt it important to start regular monitoring in the form of surveys and inventory checks to gain a full understanding of woodland health. Once this baseline information has been gathered, growth and thus economic predictions can be made which in turn aid planning. Continuation of these monitoring surveys ensures regular checks on tree and woodland health thus enabling plan changes if required.

What have I done with it?

Through my consultation work I have persuaded all my new clients to create management plans and existing clients to renew their plans. Many of the sites I work on are relatively small compared to the large estates with which the course facilitators are involved, but the principles are the same. Increasing biodiversity is key to many of the projects that I am involved with and the Irregular Silviculture model is perfect to enhance biodiversity.

A number of my clients are new landowners and therefore have little or no understanding of woodland management. All of the information I have acquired in my MSc, through practical experience and in this SelectFor course has enabled me to educate and guide landowners in a clear and positive manner, to ensure that our woodlands are managed to the best of their potential.

I would and have recommended this course to anyone who is involved in the management of woodlands.

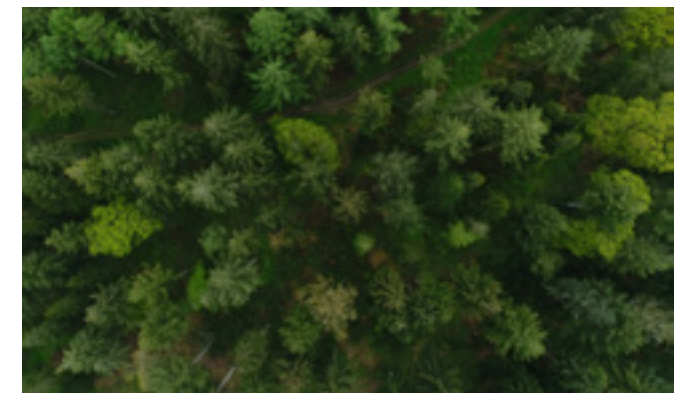
A great course. Thank you, Woodland Heritage, for your grant and for giving me the opportunity to reap the benefits.

Integrating 'Irregular Silviculture in the Lowlands: Transformation in Practice' into remote sensing inventory research

by Guy Bennett, 2019 participant supported by Woodland Heritage



Drone images taken at Dropping Gutter, on the Stourhead (Western) Estate



The reason this course, provided by SelectFor, stood out for me was that it was able to offer an insight into transformation which I wouldn't necessarily have had a chance to get from other experiences.

I am currently a PhD student at Aberystwyth University, looking at monitoring Continuous Cover Forestry using remote sensing techniques. Having been in this position for over a year, and not coming from a strict forestry background, this course offered the opportunity to gain a holistic view of the entire transformation process, from the theory of transformation to the practical aspects of planning interventions and marketing the wood products. These topics are being delivered by two extremely knowledgeable silviculturalists who are combining their research and practical management experience of irregular stands. This ensures the information being delivered is at the forefront of thought and theory with regard to transformation and makes the course highly desirable.

As the focus of my PhD is on inventorying, I was particularly interested in learning which key pieces of information are needed to direct management interventions, the regularity of measurements and the biological thresholds needed to discern transformation stages. Integrating this practical knowledge with the more theoretical aspects I had gained through reading, was seen as vital in order to produce research which had practical use and crossed the "Scholar-practitioners" boundary. From a personal perspective I was also very excited to gain

experience in tree marking through the Marteloscope exercise on the course. Having previously read about this and spoken to people, it was apparent that Marteloscopes are some of the best tools to learn tree marking skills, which was made additionally exciting by the very few sites in the UK offering this exercise. From this exercise I learnt how to select trees using a criterium to fit a management objective.

The course was instrumental in helping me understand the practical aspect of transformation. Considering why and what information management decisions were made upon has been vital in understanding where remote sensing can fit into the larger picture of transformation. Throughout the course Andy and David taught us about biological thresholds of transformation stages, the economics of thinnings in these stages and the breakdown of basal area in different tree size classes through transformation. Integrating information gained on the course and using a UAV (a drone) single tree detection approach, I hope to derive a remote sensing inventory method which considers the key variables discussed on the course and uses the biological threshold to derive a transformation stage classification.

I hope the knowledge and experience I gained from this course will help me progress forwards in my career. I am exceptionally thankful to Woodland Heritage for giving me the opportunity to integrate the new knowledge I gained on the course with my work on remote sensing.

Tomorrow's timber talent discovered

Winners of the TRADA University Challenge 2020

by Elissa Field, PR Assistant, TRADA

Six talented students won the first prize for their timber-based housing scheme design at the TRADA University Challenge 2020.

Kyle Crossley from Leeds Beckett University, Ryan Jessop from the University of Hertfordshire, Aslinn Aijian Zha from Cardiff University, Kai Yusaf Chelliah from the University of Bristol, Kat Cookes from the University of Gloucestershire and Aaron Shaw from Sheffield Hallam University beat nine rival teams to win a cash prize and to walk away as the winners.

The competition, which took place from February 17 to 19 saw 58 students from universities across the UK gather at Cardiff University and compete to design, cost and engineer the best low-carbon, energy and water efficient timber community housing all in less than 48 hours.

A brief given by Wales & West Housing Association for a large rural site at Adams Drive, Narbeth, laid out real-life constraints for the students to address and design to. The brief, which included a combination of homes for social rent, low-cost home ownership and open market, required low or zero carbon buildings with a fabric-first approach, sensitive place-making and a hub around which a community could be created.

Judge Rob Wheaton of Stride Treglown commented that competitors were tested by interpreting a really challenging technical brief in such a short space of time. He stressed the difficulties of both finding innovative ways of using timber and incorporating Passivhaus principles, all while meeting the client's definitive requirements and working within the constraints of the site.

Each team consisted of student engineers, architects, architectural technologists, quantity surveyors and landscape architects, and received hands-on support from pioneering design professionals and industry members,



including judges from Mikhail Riches, Cullinan Studio, Stride Treglown, Ramboll, BuroHappold, Entuitive, Gardiner & Theobald and PLAN:design.

All six members of the team attributed their win to an excellent team dynamic in which the four disciplines harmonised towards a common vision, resulting in a finished design which emphasised community, green space, and minimalist design.

Ryan Jessop, one of two architects in the winning team, confessed: 'This is the first design competition I've done, so to come first is just astonishing. If we didn't have the quantity surveyor and the engineers giving their justifications, we would probably have done something a bit madder – but [based on their input] we designed something realistic, which is why we very quickly established a building thumbprint we could hand to the engineers. Once they made it work, we then worked on the room layouts.'

The panel of judges was unanimous in its decision to award the team top prize. Several commented on the team's brilliant model which it used to demonstrate a great lighting strategy during the 10-minute presentation; the in-depth, landscape-first approach which integrated allotments and swales; and the team's strong technical analysis that revealed an excellent understanding of the client's brief.

Tabitha Binding, Manager of the University Engagement Programme at TRADA, said: "It is always an honour to organise the annual TRADA University Challenge. Each year I am delighted to witness first-hand the dedication and passion of everyone involved. The judges were amazed at how individuals from different universities and disciplines came together to form cohesive design teams in such a short space of time. Congratulations go to the winners and runners-up – their hard work and vision resulted in thoughtful and environmentally friendly timber-based designs, which we so strongly need now. Thanks to our sponsors, supporters, and Cardiff hosts for helping make the TRADA University Challenge 2020 such a huge success."



Team 10 with its model

The 2020 competition could not have taken place without the kind support of major sponsors STEICO and Arnold Laver, Stora Enso, and supporters PEFC UK, Passivhaus Trust, WTTA and Wood for Good.

The winners and runners-up were:

Winners: Team 10

Kai Yusaf Chelliah, University of Bristol
 Kat Cookes, University of Gloucestershire
 Kyle Crossley, Leeds Beckett
 Ryan Jessop, University of Hertfordshire
 Aaron Shaw, Sheffield Hallam
 Aslinn Aijian Zha, Cardiff University

2nd: Team 9

Veniamin Bampilis, De Montfort University
 Amy Barley, University of Gloucestershire
 Christian Elizalde-Rivas, University of Bath
 Scott Thompson, Northumbria University
 Sophie Whinney, University of Bristol
 Daniel Williams, University of Derby

3rd: Team 4

Frank Brandon, Cardiff University
 Frances James, University of Bristol
 Ralf Modolell, University of Bath
 Valery Shchukin, Cardiff University
 Mark Van Ek, University of South Wales
 Shudan Yu, University of Gloucestershire

4th: Team 6

Alex Crossley, University of Gloucestershire
 Judith Deak, Cardiff University
 Daniel Hallam, University of Sheffield
 Elaine Huskinson, University of Salford
 James Mosses, Cardiff Metropolitan University
 Jake Wydrzynski, University of Salford



Team 10's winning building design

Special mention: Team 5

Jonny Chapi, University of East London
 Melissa Nanang, University of Gloucestershire
 John O'Neill, Sheffield Hallam
 Raiesha Sardar, University of Bath

TRADA (Timber Research and Development Association) is an international membership organisation dedicated to inspiring and informing best practice in the design, specification and use of wood in the built environment and related fields. We pride ourselves on providing independent, authoritative design and technical guidance through our website, online software, printed publications, e-books, and our telephone helpline.

Bangor University, Forestry, Ghana, Woodland Heritage and the Commonwealth. More in common than you might imagine.

by James Walmsley, Senior Lecturer in Forestry, Bangor University and Woodland Heritage Trustee

What do forestry programmes run by a university in North Wales, a former global empire, a small UK-based woodland charity and a small country in West Africa have in common? Very little, you might imagine...

Every other year, groups of 25 to 30 students and 5 or 6 staff gather for two weeks in Ghana for Bangor University's bi-annual MSc Tropical Forestry study tour. But this is no ordinary study tour. The students attending have never met before; they are all part-time distance learning students, typically coming from up to 18 different countries.

Alongside their studies, these are professionals, typically working full-time in varied roles such as plantation forest management in Zambia; forest reserve management in Rwanda; afforestation in Malawi, reforestation in Lesotho, forest research in Kenya, agroforestry in India, forest monitoring in Guyana. These students are exceptional – many of them are in receipt of prestigious Commonwealth Scholarship Commission scholarships. The staff team members are equally diverse, including Professor Phillip Nyeko from Makerere University, a Bangor alumnus from 2001, and staff from Bangor with experience in the Americas, Africa, Australia and Europe.

Gathering such a group together for two weeks leads to the most enriching learning experience. The typical itinerary for the study tour includes a week of 'traditional' study tour activities – guided forest visits, plantations, cocoa agroforests, sawmills, private farms and markets selling diverse non-timber forest products (NTFPs). Yet it combines these visits with many student-focused activities, including several research projects, which culminate in a student-led research symposium at the Forestry Research Institute of Ghana headquarters in Kumasi.

Having led this study tour on three occasions, I've been surprised at the number of connections between Bangor University, Ghana, Woodland Heritage and the Commonwealth, prompting me to write this article.



Ghana study tour group

By coincidence, since 2014, several Bangor alumni have been in touch, unprompted, reporting their links with Ghana. For example, Martyn Baguley (BSc Forestry, 1960) told me of a project he had worked on in Ghana in 1994 on the economics of Mahogany plantations and their potential to supply national electrification projects – ideal historical context given renewed interest in plantation forestry as part of reforestation efforts. Martyn also shared information about a fellow Bangor graduate of 1960, Elias Afanyedi, who rose to number three in the Ghana Forestry Commission.

Meanwhile, James Sandom (BSc Forestry, 1973) contacted the university, reporting that he had worked on several forestry projects in Ghana – he was able to provide current updates on Rosewood harvesting in northern Ghana. There are many similar stories. On every study tour to Ghana we encounter more alumni, highlighting the long tradition in Bangor University of educating people who go on to make substantial contributions to forest research, management and conservation across the world, including West Africa.

The tour's first stop is at the excellent Aburi Botanic Gardens in the hills overlooking Accra. The Gardens gently introduce the immense task of 'tree spotting' in a country where a single hectare of natural forest may host far more species than the whole United Kingdom!



Visiting the *Grevillea robusta* planted by Prince Charles

The Botanic Gardens have also hosted numerous visits by royalty and other dignitaries with several trees planted in their honour; the links in this article's title emerge again.

One of the ceremonial tree plantings is a *Khaya senegalensis* (Mahogany) planted by Queen Elizabeth II in 1961. Queen Elizabeth II is the Head of the Commonwealth. The Commonwealth Scholarship Commission, which generously supports so many of the MSc Tropical Forestry students at Bangor University, is a direct consequence of the Commonwealth: eligibility is confined to applicants from developing Commonwealth countries only. It was established in 1959 to provide educational opportunities and exchanges amongst member countries: since 2011 it has generously supported over 100 scholars with their MSc Tropical Forestry studies at Bangor University.

The study tour provides a unique learning experience for forestry professionals from many different corners of the Commonwealth, who come together and share their expertise, knowledge, ideas and cultural insights, and form many life-long friendships in the process. Such intercultural experiences are a vital part of attempts to improve the management of forested habitats across the planet.

The other ceremonial tree planting relevant to this article is a *Grevillea robusta* (Silver Oak or Silky Oak) which was planted at Aburi Botanic Gardens by HRH Prince Charles in 1977. (Prince Charles has been the Patron of Woodland Heritage since 2005.)

This is where this story comes full circle: Woodland Heritage has been an unstinting supporter of forestry education and research at Bangor University since before I arrived as a PhD student in 2004. This longstanding and significant support has included numerous Garthwaite

Bursaries which have enabled students (and staff!) to attend international symposia, as well as subsidised places on the excellent 'Woodland to Workshop' and 'Irregular Silviculture' courses, plus several substantial research grants relating to vital Acute Oak Decline research. Most recently, Woodland Heritage provided invaluable advice and support to the Bangor Forestry Students' Association (BFSA), who hosted a European meeting of forestry students in North Wales in April 2019.

On a personal note, had it not been for my work with Woodland Heritage, I would not have had the privilege of attending a Garden Party last May at Buckingham Palace. The former BFSA president, Sarah Ellis, was also privileged to be there.

Take from this story what you wish. What I have taken from these experiences is that the world is full of surprises. Organisations, institutions and indeed nations that at first appear to have little in common may actually have many shared interests and overlapping histories. Recognising these, and building on them, is a rewarding and productive endeavour that can yield unexpected outcomes. At a time of great political change and environmental concern, these are surely more important than ever.

Further reading:

Various articles on this webpage: bangor.ac.uk/natural-sciences/courses/distancelearning/articles.php.en
Commonwealth Scholarship Commission
scuk.dfid.gov.uk
Forestry Research Institute of Ghana
csir-forig.org.gh



James Walmsley and Sarah Ellis at Buckingham Palace

Growing effective partnerships

How to support schools and groups visiting your woods

by *Becky Wilkinson, Royal Forestry Society Teaching Trees Programme Officer*

On a crisp winter's day high up in the Peak District, children from Pilsley Primary School, Bakewell, are taking part in an Outdoor Learning session led by one of the Royal Forestry Society's Teaching Trees Education Officers.

Not a single child comments on the cold as they scamper about the forest looking for information cards about grey squirrels and the damage they can cause to our woodlands before building their red squirrel toys' dreys out of sticks and leaves.

Pilsley Woods is only a five- minute walk from the school even for very young children and a recent agreement between the school and Chatsworth Forestry has led to Pilsley being developed into a site suitable for use by the school. It is now one of a growing number of sites that have been made available by the Chatsworth Estate for local schools to visit woodlands on a regular basis.

Speaking with John Everitt, Forestry Manager, Chatsworth and Bolton Abbey Estates, about the arrangement, he says: "Chatsworth Estate has had a long history of working alongside the school to encourage pupils to learn about the natural world and country careers. Forestry and woodland management is a growing career option for young people but is not very well known about. I am extremely keen to plant the seed of forestry and woodland management in young people's heads at an early age so this was an obvious choice for us.

"To make the site suitable for the school to use we felled two small young Sycamores to create a small area where the children can congregate. We also include the outdoor classroom area in our annual tree safety inspections"

There are a growing number of studies showing the benefits to children of learning outdoors but if you have woodland that you want to offer to local schools and groups how should you go about it?



Becky Wilkinson



Investigating biodiversity

Check that you have appropriate public liability insurance in place. If your land is already visited by the public in other ways then this may already cover you but check the details with your insurers.

Consider access. How will the children get safely into your woods? Will they walk there from their school, or will



Mathematical cogs



Investigating woodland habitats

you need to provide somewhere that a minibus can safely offload children away from other traffic or farm vehicles. If they will need to use a stile, is this safe and suitable for very young children or will they need an access gate? If you have cattle grids on your land have you got alternative routes or boards that can be put down for them to cross?

Think about when it would be convenient for you to offer access to your woodland. The Royal Forestry Society's Teaching Trees programme brought children to over 50 woodlands across England and Wales last year for Outdoor Learning and each woodland has its own management timetable. A woodland which needs to remain closed between September and March due to forestry operations or shooting will still be very much appreciated by local schools looking for somewhere to visit with their children during the summer term.

Think about whether there are any activities that you definitely do or do not want to take place in your woodland. There is a huge diversity of activity that takes place in forests; it's not all den building, tree climbing and fire lighting. These may be things that you want to encourage but if they aren't then there will be many

organisations who would still value the opportunity to visit your woodland for outdoor learning. Have an initial think about what you might consider but then talk to an organisation before it starts using your woodland about the type of activities that it would like, the ecological impact and its risk assessments for them.

What facilities can you offer? A toilet is a huge bonus but not essential. All that most groups will need are pathways into the forest and somewhere to sit. Pathways enable the youngest children to move around the site without having to climb through undergrowth or through deep puddles and a simple log seating area, preferably enough for 30 children, will give them somewhere to gather to talk about their learning and to rest, off the ground which may be cold and damp.

Speak to your local schools and voluntary organisations and see if it is something they would be interested in. The rapid growth in Forest School and Outdoor Learning in schools in the past five years means that many schools have trained staff who would love to build a relationship with a local landowner but aren't sure who to ask or how such a request would be received by the landowner. Local Forest Education Network (FEN) groups may also be a good way to find out who is working in your area and may be looking for additional sites for children to visit. lotc.org.uk/fen/local-groups-and-networks/find-a-local-group

Becky Wilkinson is in charge of the Royal Forestry Society's Teaching Trees Programme, a programme which celebrates its 20th Anniversary in 2020 and which enabled over 7,000 children to experience woodlands in their local communities or further afield last year.

To find out more about the Teaching Trees programme visit rfs.org.uk/learning/teaching-trees

Future Trees Trust in 2019

by Tim Rowland – Chief Executive Officer, FTT

2019 was another busy and transformative year for Future Trees Trust. The Patsy Wood Trust grant received in 2018 has enabled us to create two new full-time roles – a Head of Research, Jo Clark, and a Research Technician, Joe Beesley. Also we now operate from an office in the Harwell Innovation Centre in Oxfordshire and no longer from my spare bedroom!

Working with the Royal Forestry Society, the Patsy Wood Trust grant has also enabled us to create a student placement role with the Dartington Hall Estate. Jonas Brandl has just become our first Patsy Wood Trust Scholar at Dartington Hall, where he will be undertaking a wide range of forestry duties while learning more about tree improvement and our work. The Patsy Wood Trust grant has also helped us to create a PhD role for a student at Reading University, researching Oak flowering and acorn production. Jessie Foest has also started her four-year PhD study, with supervision provided by staff from Forest Research and Reading University. We are extremely grateful to Action Oak for their generous additional support for Jessie's PhD.

Annual Supporters' Day 2019

We held our 2019 Annual Supporters' Day at the Millennium Seed Bank, Wakehurst Place, as guests of the Royal Botanic Gardens.

Keynote speaker Lord Gardiner, Minister for Rural Affairs and Biosecurity, said: "Trees are vital natural assets contributing to our food supply, the rural economy (including timber) and habitats vital for wildlife and biodiversity. They help absorb air pollution, sequester carbon, cool our environment, reduce flooding, provide enhanced landscapes and are crucial for recreation and wellbeing. Trees have shaped our landscape and our history. We need trees!"

Also attending was the government's National Tree Champion, Sir William Worsley. He said: "Words of wisdom have been spoken. Thank you to Kew for hosting and for



Lord Gardiner's keynote speech

their work and that of the co-authors and supporters in developing this pioneering 'Strategy for UK Forest Genetic Resources'. Thanks to the speakers for their insightful talks highlighting a future direction for our trees."

"Lord Gardiner mentioned our aspirations. I am impressed with the work I have seen around plant imports. More must be done right across the rural sector on the issue of biosecurity and we must manage it realistically."

"To finish, I like Lord Gardiner's planting army. Partnerships working together - Government, the Forestry Commission, the private sector and the third sector – all planting trees with improved provenance to grow trees of economic value made into products which lock up carbon. Great work. Please carry on." Sir William Worsley subsequently invited Future Trees Trust to help him create the emerging English Tree Strategy. We are proud and honoured to lend our expertise and support to such an initiative.

Hope for Elms!

In December, we published 'Where we are with Elm' report. This important report was undertaken by Karen Russell, who gathered the information relating to the use of Elm, plant collections, trials, breeding work, mature trees and population locations plus research from a wide range of individuals and organisations.

The report received much media attention, with Karen interviewed across the BBC and featured in print media around the world. We now need to work together with all the other stakeholders to ensure the brightest possible hope for the return of this iconic species to our countryside.

The report is available on Future Trees Trust's website: futuretrees.org/blog/2019/12/04/where-we-are-with-Elm-review-released

Our work on improving broadleaved trees has gathered pace this year with the appointment of Jo Clark as full-time Head of Research. A brief summary of our achievements this year is:

Oak Clonal Seed Orchards

In January 2019 we started planting three Oak Clonal Seed Orchards. We climbed 25 previously unsecured 'plus trees' from Norfolk and Suffolk to secure the finest quality cuttings and grafted 650 new trees from these trees and those already in archives. By the time you read this, we will have again climbed and taken cuttings from another 25 trees (from Hampshire, Berkshire and Oxfordshire), which will make very good progress on completing these orchards.

Birch progeny trials

Over the summer of 2019, approximately 50 Birch 'plus trees' were relocated. Trees were climbed for seed collection in September and the seed is currently being stored at Forest Research's Northern Research Station. We will climb another 50 trees this September with the aim of establishing robust progeny trials, probably in 2022.

Sycamore progeny trials

The Sycamore group already have robust clonal seed orchards, which comprise nearly all selected 'plus trees' at ABFI Loughgall, and Falgunzeon in Dumfries and Galloway. Seed was collected from 50 'plus trees' across multiple ramets and seed bulked by clone. This is being stored at Forest Research's Northern Research Station. Seed will again be collected in 2020, so that we have a minimum of 80 clones to enter progeny testing.

Partnership working

We are now working with many of the principal stakeholders in the forestry sector on a significantly important number of projects. In addition to our long-term partnerships with Forestry Commission and Forest Research, we have formed working partnerships with:

- **Royal Forestry Society** – we are jointly creating a co-branded student placement opportunity using funding provided by the Patsy Wood Trust and the RFS's experience to create an exciting opportunity for a young forester to become engaged in our work.
- **DEFRA** – funding our input to the Living Ash Project, a five-year project to find Ash trees resilient to Ash Die-Back disease with which to create a breeding population. A number of awareness workshops have been held across the UK
- **Woodland Trust** – an ongoing project to identify excellent and sustainable sources of seed for tree species deemed to be of future importance, but for which no identified sources of seed currently exist.
- **Millennium Seed Bank** – partner in our Sustainable Seed Source project, funded by Woodland Trust
- **European Squirrel Initiative** – fundraising advice to a charity that shares many of our objectives
- **National Forest and Earth Trust** – hosting a number of our trials and orchards
- **Confederation of Forest Industries** – partner in the National Tree Improvement Strategy

The scale and range of the projects we are now undertaking has grown significantly this year – we have committed more funds than ever before to tree-breeding and ongoing research for the year ahead.

futuretrees.org



Jessie Foest – FTT PhD student

25 years of Forestry Journal

by John McNee, Managing Editor of 'Forestry Journal' and 'essential ARB'

Look back across the archive of any long-running magazine and you're bound to notice some big changes. That's certainly true of Forestry Journal. While 25 years may not seem long from a forester's perspective, this humble publication has still seen quite an evolution.

Forest Machine Journal (as it was originally known) launched in the autumn of 1994, with a special feature on that year's APF show and a look at new forwarders (that take logs to roadside) available in the UK.

Originating as a passion project for founder and original editor Mark Andrews, it's possible Forest Machine Journal would have continued for some time even if it never found a significant audience. However, find an audience it did, with readers eagerly subscribing to catch up with monthly updates on the latest machinery news, interviews with key industry figures, charged opinion pieces on the issues of the day and the latest exploits of Lumbering Jack, the magazine's popular – if occasionally controversial – cartoon hero.

In January 2008, FMJ underwent a major transformation, taking over the industry's other big publication, Forestry & British Timber, and combining both magazines under the title Forestry Journal.

This meant the team of contributors grew significantly, bringing in a variety of writers with expertise beyond forestry machines. Naturally, this meant Forestry Journal would have a much broader scope than Forest Machine Journal, covering a range of subjects from investment, planting and land management to biodiversity and agro-forestry, with just about everything in between, providing a much more comprehensive picture of the modern forestry sector.

Over the following decade, the magazine was able to offer a complex and colourful overview of the industry as it continued its slow evolution through increased mechanisation and reluctant modernisation. Forestry



John McNee

Journal's back issues chart the emergence and growth of the biomass industry, the harrowing spread of various pests and diseases, confusion over an onslaught of new regulations and qualifications, and the drive for more sustainable practices, all interspersed with the stories of ordinary people at work in the sector.

And, time after time, the same concerns were voiced about a lack of tree planting to meet rising demand for timber, the counter-productive relationship between industry and environmentalism and a sense of frustration that forestry's importance was continually undervalued by governments and the general public.

It would be foolish of me to try to predict how the next 25 years will play out, but I will argue that the days of forestry being ignored by the world at large are quickly coming to an end.

Forestry is the industry of the moment. From the push to increase tree planting to combat climate change to the horrors of continued environmental destruction around the world, to the recognition of the need for a sustainable timber industry, 2019 saw the sector attracting global attention on an unprecedented scale.

For foresters, all this attention will have consequences good and bad. Forestry has been such an insular sector for

so long that the public has been allowed to develop some very unfortunate ideas about it. Many believe foresters are the ones killing the planet, that there is never a good reason to fell a tree, that deer-culling is unquestionably wrong and the planting of non-native species should not be permitted.

In the past, while such misguided ideas might have been grumpily tolerated, it's becoming dangerous to allow them to go unchallenged. Now inextricably tied up with the climate change debate, forestry is becoming a political football (consider the weaponised tree-planting targets wielded during the general election campaign) and seemingly everyone has an opinion to share – from politicians to newspaper columnists to celebrities – regardless of whether they have any understanding of the subject or not.

It is important that forestry now shows the rest of the world what it's really about.

As the UK's leading trade title dedicated to the trade, Forestry Journal is ideally positioned to inform, enhance, assist and promote the forestry industry, and this ambition has been of critical importance to our team as we have considered our strategy for the future.

2019 marked Forestry Journal's 25th year in business – a remarkable achievement for any publication, but a particularly important one for this magazine.

Within the last 12 months, it completed an overhaul of its design and editorial practices that began two years earlier. The office relocated from Dumfries to Glasgow and a new managing editor, assistant editor and sales manager all came on board.

The result for readers has been increased pagination and a renewed focus on the issues that matter most to them, with special reports on forestry crime, industry training and the alarming spread of tree pests and diseases.

Forestry Journal's website has been relaunched with a completely new design, a dramatic increase in activity and a focus on content, with online exclusives including breaking news, pictures and videos.

While the printed magazine will continue to be a trade-focused title, it is my hope that our website, with its more wide-ranging mix of forestry stories, will ensure our content reaches a broader audience outside the industry and help to



The first ever issue of Forest Machine Journal in 1994 and Forestry Journal today

put an end to harmful misconceptions. This is one way we are aiming to do more for the benefit of the sector.

Another is Forestry Expo, a unique harvesting demo and trade event, which Forestry Journal helped to launch in August last year. Organised in a partnership with John Deere, Komatsu, Ponsse, Tigercat, Clark Engineering and Rural Projects, its inaugural show saw over 3,000 visitors from across the UK, Europe and beyond journey to the hills of South Lanarkshire to witness the world's top machines at work.

My hope is that with 25 years under its belt and a positive plan for the future, Forestry Journal is ideally placed to serve and support this rapidly evolving industry and help spread the message of its importance to those who have yet to grasp it.

Discover more about Forestry Journal (including subscription information) at forestryjournal.co.uk

To get in touch with the team, email editor@forestryjournal.co.uk

Centre to boost timber education

by Debbie Mackay, Head of Communications, Marketing and Student Recruitment, NMITE



Proposed Centre for Advanced Timber Technology (CATT)

New Model Institute for Technology and Engineering (NMITE) is an unprecedented opportunity to inspire a new generation of engineering talent and to transform the UK's higher education sector. Based in Hereford, NMITE is backed by industry, academic partners and the UK Government, which awarded up to £23million in initial funding.

Our proposed revolutionary model seeks to break the mould in engineering education with our innovative, learner-centric and industry-based approach to ensure that future students are “work-ready” when they complete their courses. We aim to champion a ‘learning by doing’ methodology, developed to meet the engineering demands of the 21st century and working with industry partners from day one of the programme. We will be seeking bright individuals with problem-solving potential, creativity, curiosity and imagination, without compromising on academic rigour.

NMITE's vision from the start has been to help solve the problem of Britain's estimated annual shortfall of at least 22,000 engineering graduates with a radical new approach and a proposed curriculum that will combine the best innovations from leading universities around the world. We intend to deliver the world's most distinctive and innovative engineering curriculum with a focus on learning by doing.

We have exciting plans to develop outstanding facilities, including a Centre for Advanced Timber Technology (CATT). Answering the timber industry's call for an improvement in timber education, as highlighted at the BM TRADA inaugural Timber Talks in July 2019, this world-class centre will showcase the practical uses of timber as a construction material, production methodology and design. In doing so it will become a beacon of sustainability, supporting established local, national and international timber-based construction

industries, and providing opportunities for NMITE's future graduates.

A training hub of national and international significance, the CATT will provide opportunities for continuing professional development courses and, looking ahead and subject to validation, timber engineering Degree Apprenticeships to respond to existing sector demands for a highly trained workforce.

Located at the heart of Hereford's Enterprise Zone, the CATT is part of a significant £16M Skylon Park campus – a development of three buildings partly funded by a £5.6M grant from the Marches LEP (Local Enterprise Partnership). The CATT is currently in its design phase with Hereford-based Oak-framed building specialists, Oakwrights, who, at the start of 2020, were announced as the winners of NMITE's competition to help create the designs for three new buildings on the Skylon site.

“We were blown away by the high standard of the entry submissions we received and were delighted that these came not only from local firms, but architects and

designers nationwide. Oakwrights' expertise in marrying timber-frame craftsmanship and design with cutting edge technology, convinced the judging panel that they were the most deserving firm. Their innovative energy efficient design for building in particular is very exciting, and we cannot wait to start working together and progressing the designs,” says Toby Kinnaird, Head of Partnerships at NMITE.

“Winning this competition to work with NMITE to design three new buildings which will host many future learners is a fantastic way to kick off the new year and new decade. It's an honour to be involved in the design of what is set to be such a pivotal part of Herefordshire and the future of the British engineering industry for decades to come,” said Tim Crump, Managing Director at Oakwrights.

Completion of the CATT is scheduled for March 2021. We are seeking to work with industry partners and funders to help us to develop this state-of-the-art facility. If you would like to find out more, please contact partnerships@nmite.ac.uk

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Celebrating Our Oaks

This wonderful book features ‘tree-mendous’ photographs from the ‘Celebrating Our Oaks’ category in International Garden Photographer of the Year (IGPOTY) competition, including ‘Oak Sunrise’ by Alan Price. Plus exclusive contributions from celebrities such as Joanna Lumley, Jon Snow and Alan Titchmarsh.

Priced at £20, proceeds from the sale of the book will go directly to Action Oak to fund research and monitoring, helping to protect our Oaks and to ensure their place in the British landscape for future generations.

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

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. Countries visited have included 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 to be 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 its 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 1331, Cheltenham, GL50 9AP
01242 467356 | office@woodlandheritage.org | woodlandheritage.org



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 them selves 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 put into a spreadsheet which provides a detailed summary of the silvicultural and economic

consequences of 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
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Woodland Heritage continues 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

The 2019 Bodgers' Ball competition winners

by Paul Stead, Secretary, Association of Pole Lathe Turners and Green Woodworkers

The 2019 Bodgers' Ball was held at the National Trust Wimpole Hall, near Cambridge over the weekend of May 11 and 12. In addition to the main weekend event, courses in a variety of green woodworking and related skills took place at Wimpole over the preceding two days.

This year's Ball was attended by over 500 people which, when set against the membership of just over 1,000 for the Association of Pole Lathe Turners and Green Woodworkers (or Bodgers for short) was another wonderful turnout.

The event was bathed in sunshine and in addition to the usual trade stands, competitions and green woodworking displays, this year the attendees could also watch displays of bronze smelting and axe forging. A 'log to bowl' race ran for the first time at this Ball, in which participants raced to finish a turned bowl, starting from a freshly felled log. The winner finishing in under half an hour!

Once again Woodland Heritage kindly put up prize monies for the 'Best in Show' and 'Best Newcomer' categories at the Ball. This year both prizes were awarded to two truly distinctive competitors. Whilst some members produce tried and tested designs that Bodgers from a hundred years ago would easily recognise, some apply artistic talents to create stunning new designs. This year the two Woodland



Sam Cooper - winner of the 'Best Newcomer' award

Heritage awards went to such very different individuals with distinctive and contrasting styles.

Jason Parr won the prestigious 'Best in Show' award with £100 from Woodland Heritage for his 'joined chairs with a nibbles table in between'. Jason is a very artistic carver whose works can be seen at pasonjarr.co.uk.

Sam Cooper won the 'Best Newcomer' award of £200. Sam is currently a full-time apprentice to Lawrence Neal, making rush seated ladder-back chairs in the styles of Philip Clissett and Ernest Gimson. Sam and Lawrence source all their green Ash and Oak locally and harvest rushes from the Avon each summer. Sam's chairs are turned and carved from green wood and assembled using traditional mortise and tenon joints. Sam's apprenticeship ends in 2020 when Lawrence retires, at which point he plans to open his own workshop in the Scottish Borders with fellow apprentice Richard Platt.

Sam says: "I first started by teaching myself to carve spoons in my final year at university and it quickly took over my life. A couple of years later I met a previous winner of this award, Yoav Elkayam (2018 winner of the Best Newcomer award) and learned to turn bowls on the pole lathe under his instruction. The money from this award has gone towards classes on turning end grain vessels on the pole lathe and forging tools for such purposes."

The 2020 Bodgers' Ball will be held at Eyarth House, Ruthin, Denbighshire, LL152EG over the Bank Holiday weekend of May 8-10. The theme of this year's Ball is the Shepherd's Ball and to commemorate the VE Day celebrations a special competition will be run to mark the occasion. For more information go to bodgers.org.uk/news.



Jason Parr - winner of the Woodland Heritage 'Best in Show' award with 'Joined chairs with a nibbles table in between'

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Letters to the Editor...

Dear Geraint, Kelly, Lewis and everyone else at WH,

Just a short note now that we are back in Australia. It seems so long ago now that we started our world agroforestry tour. It began with the World Agroforestry Congress in France then up to Perth to join in a Farm Woodland Forum meeting.

Then we joined you at the Woodland Heritage Field Weekend in the Cotswolds. It was certainly a highlight: being with landholders (rather than government officers) makes such a difference to forestry.

Then there was the Action Oak meeting at Kew and the Royal Forestry Society conference in Devon. I then flew over to Oregon for the North American Agroforestry Conference. Finally I met up with Claire again in London for a few days before we flew home. We really enjoyed the whole trip but it is great to be home amongst our own trees.

I learnt a lot about UK forestry and understand how Brexit has farmers reluctant to do anything. I also saw some problems: such as the shortage of farm tree nurseries growing trees for landholders and the concerns about the softwood plantations. Maybe I'll write up some of my observations.

So, thanks so much for allowing us to join you. I hope my contribution was useful. I certainly learnt a lot.

Hope to see you in Australia some time.

Best wishes
Rowan and Claire Reid

Dear Lewis,

For some years there have been reports from Ireland that the natural spread of pine martens into counties hosting grey squirrel populations has been followed by the disappearance of grey squirrels and the return of red squirrels. This same replacement process has occurred in parts of Scotland.

In 2018 the Royal Society published a paper by Emma Sheehy and others reporting on their research into this phenomenon. The title says it all:

The enemy of my enemy is my friend: pine marten recovery reverses the decline of the red squirrel by suppressing grey squirrel populations.

This is hugely important for those of us on the treadmill of grey squirrel control to protect our growing stock of broadleaved trees.

The Vincent Wildlife Trust has recently released pine martens in the Forest of Dean from which over time this native species will spread across neighbouring districts. Discussion with the Trust should explore the practicality of releasing pine martens in strategically located woodland across England and Wales as soon as captive breeding programmes can produce sufficient stock. In view of the government's ambitious plan for the rapid increase in the nation's woodland cover, public funding should be made available to allow an expansion of the current pine marten breeding programme.

This holds out the prospect of pine martens reclaiming their ancient territories, the disappearance of grey squirrels and the reintroduction of our native red squirrel which over thousands of years has learned to coexist with pine martens.

Hugely expensive research into fertility control and other hi tech methods of grey squirrel control would no longer be required if the spread of pine martens across the country can do the job for us.

Emma Sheehy's paper may be viewed at royalsocietypublishing.org/doi/full/10.1098/rspb.2017.2603

Yours sincerely
Miles Barne

Dear Miles,

The latest research by Joshua Twining certainly indicates that grey squirrels fall prey to pine martens more than our native reds. Twining and his team filmed 8,000 minutes of squirrel footage in twenty different locations in N. Ireland. It was observed that reds showed a clear fear response to pine marten scent, while greys didn't. Failing to recognise the scent of a predator leaves the greys vulnerable. Pine martens and red squirrels have evolved together over millennia and so we would expect them to be aware of each other. Research seems to suggest that the imported greys are not sensitive to the threat and thus have effectively no early warning system.

Miles, I share your view that pine martens have a real role to play in "naturally" controlling the number of greys and thus reducing the devastation they bring to our trees and woodlands.

Joshua Twining is a PhD researcher in ecology at Queens University Belfast. You can read his full article at TheConversation.com

Best wishes,
Lewis

Notes from Down Under

A Fire Season like no other?

by Andrew Hurford, Hurford Hardwood, NSW, Australia

As featured in 'Notes from ... Down Under' (Woodland Heritage 2018, pp92-94) Hurford Hardwood is a family owned and run, vertically integrated business growing Australian native hardwood, sawmilling, manufacturing and distributing timber products throughout Australia and internationally.

Over the last ten years we have actively sought forested properties and prime forest growing country to increase our holdings of owned and intimately managed hardwood. At present we have 10,000 acres spread over 10 properties in Northern NSW, Australia.

The recent wildfire events in Australia have pushed all resources to their limits with the confluence of drought and high fuel loads, as a result of decreased hazard reduction burns across much of Australia's forested land.

Fire and fire management have always been integral components of Australian forest management. The original Australians, the Indigenous People, used the firestick to manage Australia's ecology for tens of thousands of years to the extent that many of our species and ecosystems require fire to remain healthy. For many of our Eucalypt varieties, fire is required for germination. Australia has wet periods which generate lush growth in our warm climate, followed by dry periods when that vegetation dries out and provides ready fuel for fire – all that is required is a lightning strike or a careless human and fires can quickly take on a life of their own.

Climate change, as predicted, is making conditions even more challenging with prevailing hotter and dryer extremes. In response, as forest managers, apart from planting more trees and supporting initiatives to reduce carbon emissions, we must manage our land and forests in preparation for fire.

This means reducing the fuel loads in and around our forests, also known as Hazard Reduction (HR). HR can

be performed mechanically by the removal of selected vegetation with equipment such as mulchers, bobcats, excavators, timber harvesters, etc. This can be slow and expensive so is usually confined to strategic asset protection around houses and urban areas. Where appropriate, grazing of cattle or sheep can also assist in keeping fuel loads lower in forests and woodlands.

At the landscape level, 'cool' burning in the late autumn or winter is the most effective HR method. This process imitates the firestick burning of the Indigenous People. Cool burns are also good for the local ecology and soil health and they help to clean up imported weeds like lantana which have taken hold in many of our forests. These weeds provide ladder fuels which in extreme conditions can assist a wildfire to climb to the canopy, leading to extremely destructive fires killing even mature trees and wreaking havoc across large swathes of property, threatening communities and lives.

By reducing the volume of fuel on the forest floor and in the mid layer vegetation, we won't eliminate the occurrence of wildfires but we will make them more manageable, reduce their impact on our flora and fauna, and give our fire fighters a better chance of holding fires on containment lines when weather windows allow them to do so.



Our daughter Sophie filling the 'slip on' fire tank in December



Spot fires ahead of the fire front at our Bungawalbyn property, November 13

Phillips Swamp – Busby's Flat Fire

Our first direct contact with wildfires in 2019 began in early October. We had been monitoring a bushfire running through forested country to the west of our Phillips Swamp plantation for around a week. We have five properties in this vicinity, but Phillips Swamp was one of the newest and had a long history of neglect prior to our purchase. Over the 18 months since purchase, we had upgraded road and fire infrastructure throughout the property and commenced fencing upgrades. However, throughout the Dunn's White Gum (*E. dunnii*) plantation, we had not yet had the opportunity to treat the lantana infestation which had in places grown three metres high.

State Forests and NSW Rural Fire Service (RFS) were monitoring the fire but attempts to get it under control failed and the fire was headed toward our property. We met at the property on Monday evening, October 7 – our Labour Day long weekend. In co-operation with the RFS we had successfully defended the property from a wildfire to the east of our property in August 2018, so we were reasonably hopeful we could do so again.

Our head forester, Jim Rankin, a man with more than 40 years of experience with forest fire management, had arrived earlier in the day and was using the blade of our D4 dozer to 'bare earth' along our fire breaks on the south-western boundaries, to provide a line from which we could defend the property. As we approached, the situation looked ominous with the fire front and associated smoke visible from many kilometres away.

On closer inspection the fire was around two kilometres from our back boundary and moving towards us. As the cool of the evening settled in, the flame height dropped and progress slowed. It soon became too dark to continue



RFS tankers operated by volunteer crews, both local and from across the state, November 13

so we headed to the RFS control centre to see what plans they had in place for the following day. The predictions were dire, with strong westerly winds, accompanying low humidity and very high temperatures. We requested assistance with a fire tanker (3000L) and crew to add to our own two 'slip-on' fire-fighting units (400L) on the back of 4WD utes.

We returned to the property pre-dawn to find that the fire had moved significantly through the night and was now close to our back boundary. All tankers were being utilised elsewhere - things were looking grim. Another of our Hurford Forest team members, Jason Bruessow, also with many years of RFS bush fire experience, was operating our D4 dozer and continuing to 'bare-earth' the fire breaks.

As the sun rose the fire picked up energy. After assessing the flame height and rate of spread, the decision was made that we would not be able to defend the boundary line and to fall back to an internal break with a large cleared area and swampy wetland. From here, we hoped to hold the fire. Unfortunately, after more than two years of drought, even this wetland was dry enough to burn. The fire was now throwing embers ahead of itself into the plantation and creating multiple fires. We continued to retreat back through the property and ultimately out to the front gate to avoid being trapped with the fire getting between us and the exit.

As we waited the fire continued spotting ahead of its own front.

Here we met up with a Forestry fire crew, looking for a contractor, Simon Richens, who was still in a neighbouring property in a D7 Dozer. He had been opening up old harvesting trails in an attempt to cut off the fire. We

managed to raise him on the UHF and drove back through our now burnt property to search for Simon and guide him out.

Driving back through we found spot fires still burning. The larger trees and stumps would continue to burn for days to come. Initially, the damage did not look too bad. Where the fire had passed through, it had almost completely removed the 2-3 metre understory of lantana and any grasses to bare earth.

The Dunn's White Gum (*E. Dunnii*) has a rough bark 'sock' which extends up from the ground by 2-3 metres and from there the bark is smooth and white. The sock at the base of the trees was charred, but the trees themselves did not appear excessively damaged, with no evidence of charring higher up on the smooth bark section of the trees. At just 12 years old, these trees stand 25-30 metres tall. There had been no canopy fire and the trees had retained all their branches and leaves. It certainly appeared at this early stage that we had indeed been fortunate that the fire had come through earlier in the day when conditions were relatively cooler.

We were relieved to find Simon just outside our boundary. Despite the heat in the cabin as the fire passed, he had survived by creating a bare earth pad and parking his dozer in the middle.

His D7 dozer led the way back out pushing aside a number of old large habitat trees which sadly had burnt and fallen across the track. These old senescent trees are important for native birds and animals for nesting and habitat and are retained within plantations for that purpose, but their hollow and dry character makes them particularly susceptible to fire.



Ominous – the third and final fire which eventually entered our Reids plantation, December 7

We returned to the property entry and began hosing down the gateway, an adjacent wooden bridge and cattle yards which were surrounded by burning vegetation – we weren't going to lose the brand-new gate! We heard a great roar from the fire in the native forest on the ridgeline above us and within moments, fire exploded out of the forest in a great wall towards us sending a huge mushroom cloud into the sky. We leapt into our vehicles and headed for the safety of the main road.

We had to leave the track and drive cross-country flat-out as smoke was billowing across the road and flame height in the trees reached the 12-metre canopy. We were driving as fast as we could taking care to avoid any stumps, rocks or major holes which would have been disastrous. We made it back to our bulldozer ahead of the fire front and started preparing a bare earth pad for it to sit on to hopefully keep it safe yet again from the approaching fire. After only a few minutes, with not enough time to complete the task, the fire caught up to us. All we could do was drive the D4 dozer into a dry gully in the hope that it would help to protect it. We jumped in our utes and resumed the drive out, a drive that takes about twenty minutes via a narrow winding track through an overhanging dry Eucalypt forest. Before we got to the edge of the forest, embers were spotting ahead of us, starting more fires. On the way out, we caught up with Simon in the dozer and thankfully we all reached the main road.

Simon and the forestry crew stopped to push a fire break around a neighbour's house that was in the path of the fire. Jim raced up the road to warn a nearby sawmill about the approaching fire and to do what they could to prepare. Jim and Jason helped a timber harvesting contractor to complete moving their equipment out of the forest.



Grateful owners after their home survived the Busbys Flat fire

Image © Forestry Corp



Mechanical Hazard Reduction pre-fire saved these old habitat trees within our plantation

We subsequently learned that the house was saved from the fire, in no small part due to the work put in by the forestry crew and Simon. Sadly, the mill was completely destroyed by the fire. In the local village, Rappville, 47 houses were destroyed that day. The local people survived the fire by sheltering in the brick school buildings.

After what we had experienced and with the approaching fire, we made the decision that it was too dangerous to remain in the area. Instead, we went east to our Ellangowan property, known as Reid's, predominantly a 17-year-old Spotted Gum (*Corymbia variegata*) plantation, but with critical new plantations just 12 months old. Here we finished marking trees for contractors performing a thinning harvest.

Reid's at Ellangowan

By late afternoon with the wind strengthening from the west and the heat continuing to build, it became quite unsafe to remain working in the forest as the trees were under extreme pressure. We could see the massive smoke plume from the Busby's Flat fire which had by now formed a huge pyrocumuluous cloud and was moving fast towards us. The weather app was predicting a southerly change

during the evening, which would lead the fire to our second property within 24 hours. The view from the neighbour's hill revealed that the front was only about three kilometres from our gate.

Although the southerly change came, it brought with it a cooler more humid air, slowing the fire. Around midnight I decided it was safe to go home.

It was important to get back early the next morning while conditions were still cool and calm. We arrived on site at 5am, to find fire had broken out on the roadside near a third property at Ellangowan known as Rocky. We started putting this out with the help of two farmers using their tractors to cut fire breaks. This worked well enough for us to leave it to burn itself out, while we went back to Reid's. To slow the fire advancing from the south we needed to create a burnt buffer. A large triangle of State Forest was identified as a containable site, bounded by two roads and an old fire trail which lay between a large National Park to the south and a grass paddock which ran uphill to our property. Jason brought our bulldozer down to clear and widen the fire trail while we back burnt and patrolled the perimeter to keep it maintained.



First fire of three to threaten freshly pruned trees at Reids, Ellangowan on October 7

As it turned out, these few days were just the start of a hellish three months over which time we fought numerous fires for days and weeks at a time in our attempts to defend a number of properties.

Over that time, we received help and support from many of our contractors, neighbours, RFS, State Forests and National Parks crews. We would like to thank them all for their help and support. With a special mention to Rex Spencer who made his equipment available at all hours of the day and night and to Peter Rutherford who drove 1200 km through the night to help and reinvigorated us with his added expertise and camaraderie.

The fires came to an end in our region following some gratefully received rain showers on Christmas Eve. It wasn't drought-breaking rain, but it was the beginning of change for our area. The weather patterns shifted from dry north westerly winds to moist, humid, north easterlies which blow off the ocean. Just as it was over for us, the fires shifted to Southern NSW and Victoria with terrible fires there continuing even as we write this.

Given the widespread and catastrophic nature of the fires in our region, we were extremely fortunate to have only 20% of our total estate fire affected.

Lessons learned

Fighting a fire in cooler, more controlled conditions, often night-time, is far preferable than waiting for the fire to build momentum, with strengthening wind during the day, bearing down on your property. Be prepared to communicate and help your neighbours fight fires on their properties even several kilometres away – better than waiting for the fire to reach you.



Approaching fire front via Bungawalbyn State Conservation Area

Adequate water availability on all properties is valuable – plastic water tanks melt, low fuel loads, clear fire trails, monitor neighbours' fuel loads and fence lines and continue to carry out cool burning / hazard reduction. It is never a set and forget scenario; it is a constant and important part of our land management system even if we have to fight to get permission to burn at appropriate times.

Addendum February 2020: Further rain has commenced falling in the last two weeks and many of our trees are showing good signs of recovery with new leaves and epicormic growth. At this early stage we are hopeful that the majority of trees will make a full recovery.

hardwood.com.au

Suggested reading on the history and management of fire and its importance to Australian ecology:

The Biggest Estate on Earth, How Aborigines made Australia
- Bill Gammage

Dark Emu, Black Seeds: Agriculture or Accident?
- Bruce Pascoe

Firestick Ecology: Fairdinkum Science in Plain English
- Vic Jurskis

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