

# Woodland Heritage 2009



84 pages of topical articles about silviculture, research and education

## Leading the way

**T**he enthusiasm and sheer passion of Gavin, Will, Geraint and Grabam was fantastic. "Hands-on, Brilliant!" And... "This was a fantastic learning opportunity and I thoroughly enjoyed it!" These were just some of the comments received about our new groundbreaking course and you can read more in the enclosed leaflet.

One of our primary objectives at Woodland Heritage has always been to unite the 'tree grower' with the 'wood user' and it is for this reason that we have designed and put together a unique three-day 'from Woodland to Workshop' training course. Our third course will take place in May and I have no doubt that we will once again attract participants from all over the UK and from all parts of the woodland – wood chain. So, if we've managed to put together a learning opportunity that begins to achieve this, then we have real value!



We are delighted and honoured to have the continued support from our Patron, his words of encouragement about our innovative new course and more broadly for our work in general continue to inspire us. His recent patronage for the 'British Horse Loggers Charitable Trust' also serves to reinforce the links in the wood chain. Preserving and using traditional skills with concern for the environment and responsible use of a *renewable natural resource* are essential in the long term, if woodlands are to be managed properly and benefit future generations.



Our Patron meets Peter Goodwin at the British Horse Loggers demonstration in the Duchy's woods in Cornwall.



DUCHY OF CORNWALL

As Patron of Woodland Heritage, I am immensely proud of the 'From Woodland To Workshop' course which was successfully run for the first time in May 2008. This course is a most timely development for although Britain does indeed enjoy a rich woodland heritage it lacks, today, a woodland culture. Therefore, as a nation, we need to realize the multiple benefits of growing and using our own timber and ensure that the associated skills are passed on from one generation to another; this is what Woodland Heritage's new course is designed to do.

I am familiar with the venues used to run the course, having walked through the Duchy of Cornwall's Aconbury Wood on a number of occasions and having greatly enjoyed a tour of Whitney Sawmill and Workshop some years ago; both are truly superb sites for teaching the contents of the course.

It is wonderful to learn of further 'From Woodland To Workshop' courses being planned for 2009 and I wish everyone involved, all those attending the courses and those running them, every possible success.

I would also like to take this opportunity to congratulate Woodland Heritage on its many other achievements and am confident that it will continue to play a key role in promoting the proper management of Britain's woodlands and the use of British timber.

His Royal Highness The Prince of Wales  
Patron of Woodland Heritage

### Field Weekends:

*"Cheerful, humorous, knowledgeable, inquisitive, questioning, outspoken and at times, out-rightly combative woodland owners, foresters, ecologists, timber merchants, furniture makers, saw millers and just plain good guys that constitute the membership of Woodland Heritage, together with partners and guests".* This was David Taylor's description of those that supported our Field Weekend in Herefordshire last June. Although he did omit mentioning students, scientists and a few others too! I hope you enjoy reading about our last Field Weekend on page 39 and this year's planned visit to The National Forest in June on page 2.

**Come and join us !**

Lewis J Scott



THE NATIONAL  
FOREST

# Our 2009 Field Weekend NATIONAL FOREST

Friday 12th, Saturday 13th & Sunday 14th June



*Our proposed Field Weekend this year will be a wholly different experience as we visit the nation's newest multipurpose forest covering over 200 square miles of the Midlands. Linking the ancient, much depleted forests of Charnwood on the western edge of Leicester and Needwood, to the west of Burton-on-Trent, The National Forest is transforming both the landscape and the local economy.*

## Friday

We will learn more from the Chief Executive of the National Forest Company about this ambitious and successful forestry venture at the *Staunton Estate, kindly hosted by John Blunt*. As well as seeing the mature woods here, we will visit the country's largest *Walnut plantation* (sponsored by Jaguar Cars), and the Royal Forestry Society's *Battram Wood*, planted to demonstrate commercial woodland fulfilling multiple purposes. We can also enjoy one of the six iconic *timber sculptures* fashioned by David Nash RA celebrating each of the landscape zones in the Forest.

## Saturday

We will visit a substantial privately owned woodland created as a farm diversification project; the Forest's first visitor centre – award winning *Rosliston Forestry Centre* (where our AGM will be held); and an afternoon on *Catton Hall Estate, home of Katie and Robin Neilson*, steadfast enthusiasts in The National Forest venture.

## Sunday

There is the outstanding opportunity to visit the 150 acre *National Memorial Arboretum*. Amongst the many moving memorials to those who have served their country is the impressive Armed Forces Memorial dedicated to those who have sacrificed their lives since the end of the 2nd World War and, tragically, continue to do so.

**Members as well as their guests will be very welcome**

*To book, please contact Woodland Heritage on 01428 652159  
or enquiries@woodlandheritage.org.uk  
www.woodlandheritage.org.uk*

## Trustees

**Peter Goodwin (Chairman of Trustees and Co-Founder)**

Susan Bell      Nick Goodwin      Dr Gabriel Hemery

David Rice      Geraint Richards      Roger Richardson      Dr Peter Savill      Roger Venables

**Lewis J. Scott – Director (voluntary) and Co-Founder**

Woodland Heritage, PO Box 168, Haslemere, Surrey GU27 1XQ

Woodland Heritage is a Registered Charity (No. 1041611) and a non-profit making organisation (Company Limited by Guarantee)

Woodland Heritage does not, as a body, hold itself responsible for statements made or opinions expressed in this Journal; nor does the editorial necessarily express the official opinion of Woodland Heritage.

All rights reserved. No part of this publication may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying, recording or any other information storage and retrieval system, without prior written permission from Woodland Heritage.

# The Peter Savill Award

## For a Significant Contribution to the British Forest Industry

### The Prize

Each year Woodland Heritage awards a cash prize to recognise the contribution of an individual who has significantly benefitted 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; marketing; wood processing; education.

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

## The 2009 Winner – John McHardy

It was early on in my forestry career with the Duchy of Cornwall that I, along with some colleagues, first visited the woodlands on the Longleat Estate, to learn about continuous cover forestry. The visit proved to be extremely inspiring, not simply because of the superb quality of the woodlands (Douglas Fir that almost made me turn green) but also because of the man who managed those woodlands and was our host for the day, namely one John McHardy.

I don't use the word "inspiring" lightly: I know I am right when I say that John has inspired a whole host of younger foresters, myself included. His silvicultural skills (practising continuous cover forestry when most people had not even heard of it) and his marketing shrewdness make him something of a living legend to many of us.

*'When will you fell that tree?'* I asked him, pointing at a magnificent Douglas Fir. *'When someone pays me enough money for it'* he replied with a grin and a twinkle in his eye. *'How do you sell Grand Fir?'* I later asked. *'Call it something different'*, he joked (although I'm not sure he was joking).

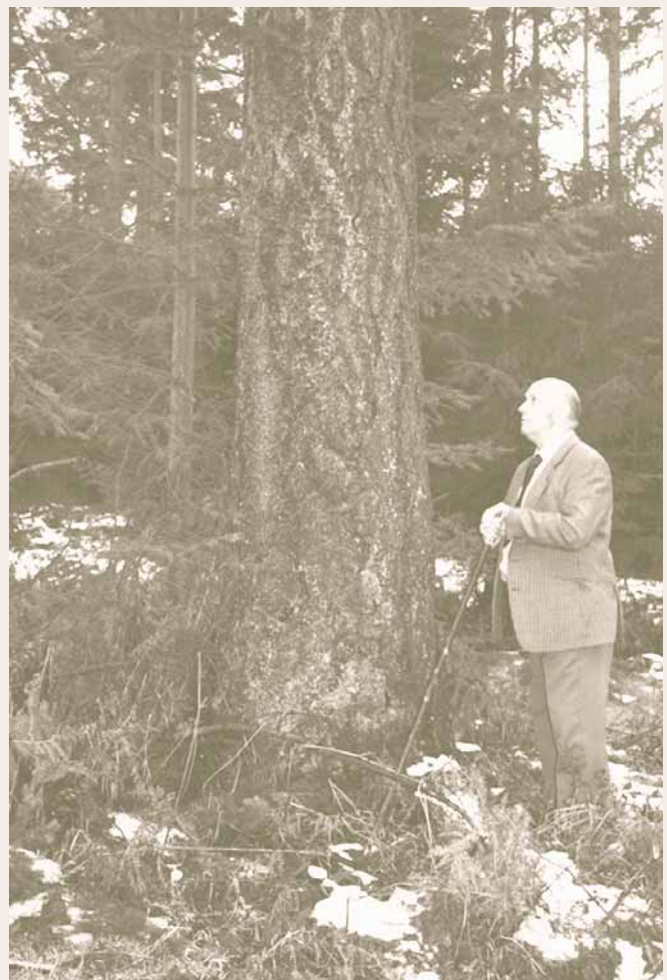
Later, during our visit, the hard forest road we were travelling on abruptly ended:

*'What happened here?'* I inquired. He then told me that at that point the materials he had 'kindly' been accepting as a result of nearby road repairs had come to an end... *'but I'll carry on when they do the next batch of repairs'* he told me.

Yet one of the remarkable things about John is that, despite being a true timber man, he has embraced the opportunities offered by the public's desire to visit woodlands and, with the wider Estate, made that financially advantageous.

I have yet to meet anyone in the forestry sector who has anything but good words to say about John. It's always a pleasure to meet him and a privilege to learn from him. Personally speaking, I can think of no more worthy winner of the Peter Savill Award and I congratulate John on his success.

**Geraint Richards**  
Head Forester  
Duchy of Cornwall





# What is happening to our Forestry Education ?

By Dr Martin Price

***As Woodland Heritage boldly states, forestry – the growing of trees for timber – is a long-term business requiring vision and commitment. Solid establishment and dedicated tending and thinning must occur if a quality crop is to be grown.***

The growing of a crop is not dissimilar to the education of upcoming generations of foresters.

Forest management has never been more complicated. To be effective and competent our young foresters must have all the knowledge and skills taught to previous generations as well as an ever-growing raft of new capabilities dictated by increasing technology and demands from society and the changing world.

There is unfortunately an opinion commonly voiced that satisfactory forest management can be achieved through application of standard prescriptions and the following of the relevant practice guides, and as such can be accomplished by anyone.

If future management is to be limited to the simple clearfelling of monocultures this might hold weight, but it is becoming increasingly obvious that forestry will not, and must not, go down that route.

There is increasing demand for the implementation of continuous cover forestry for a number of reasons. Climate change in particular is of huge concern as uncertain future conditions will require the use of intimate mixtures, new provenances, species and informed and thoughtful management if tomorrow's forests are to be viable and to provide us with the ongoing outcome we want. *In short, skimping on forest management now could lead to disaster tomorrow and to provide this management we need capable, skilled and informed foresters.*

Our forestry departments have been fortunate to have active, enthusiastic, knowledgeable and inspiring staff, many of whom have given and continue to give so much of themselves to their work. Their dedication is not missed by their students; it is well known who will and will not, who can and cannot provide help and guidance.

*There is however, a slow and continuing degeneration of this country's educating capacity.*

Forestry has been lost at both Edinburgh and Oxford, leaving Bangor, Aberdeen and Newton Rigg. Of these remaining departments, staff numbers, and hence the available capability continues a slow decline.

Faculty members are moving-on or retiring and replacement, if it occurs at all, is unlikely to be

with anything so academically unglamorous as a forester!

To use another tree-ish metaphor, our stand is senescing and there is no developing understorey present with which to replace it.

*Woodland Heritage* does a fantastic job of providing students with ability to attend field days, study tours and courses at which much is learnt. All credit must be given for providing this service and long may it continue. This should be the final honing of our upcoming forester's abilities however, the fundamentals should be covered as part of their degrees.

*This discussion seeks neither to provide an in-depth analysis of the reasons for these problems, nor to suggest their solution, others are better placed to provide these. It is presented to an audience who care about forestry and have some influence within its sphere as a warning that all is not well in our education system and that action, not words, will be required to provide the solution.*



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



from  
**woodland**  
to **workshop**

*Woodland Heritage is proud to announce this unique three-day training 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...*

*The next course in this groundbreaking series will take place in May 2009 in Herefordshire*

*Based in the woodland, sawmill, timber yard and joinery workshop*

*Numbers will be restricted to enable a 'hands on' and highly interactive approach, ensuring a learning opportunity of enduring quality*

*For further information please contact  
Woodland Heritage  
on 01428 652159  
[enquiries@woodlandheritage.org.uk](mailto:enquiries@woodlandheritage.org.uk)*



# New Woodland Heritage Trustee

## *Geraint Richards*

**G**eraint Richards grew up in the Chiltern Hills, very near to the Forestry Commission's District Office. His love for woodlands and forests was inspired, surrounded as he was, by the famous Chiltern Beechwoods.

In 1988 he went to study at university in Bangor, North Wales and after four years (which included a year-out with the Forestry Commission in Thetford) he graduated with a First Class Honours Degree in Forestry.

He immediately went to work in Kent and East Sussex for the Forestry Commission, but in 1995 applied for the job of Head Forester with the Duchy of Cornwall. (The interviews happened to take place whilst he was on honeymoon in Cornwall – which his wife will not let him forget!)

In 1996 he started work with the Duchy and now has overall responsibility for the management of the Duchy's woodlands, which extend from the Isles of Scilly to Herefordshire, and amount to some 4,500 acres (1,825 hectares).

Early on, and before everyone else, he took the Duchy's woods into FSC certification and adopted a continuous cover/close-to-nature approach to management. He has been involved with all sorts of organisations and initiatives to do with trees, woodlands and forests and more especially, issues close to His Royal Highness' heart – such as high-quality silviculture, utilising and 'adding-value' to home-grown timber, and education/training. All of which is fully in line with the aims and objectives of Woodland Heritage.



*“We are indeed fortunate to be able to call upon his expertise and experience, which has been most evident in his involvement with our ‘From Woodland to Workshop’ Courses, along with our other dedicated Tutors.*

*Geraint is a valuable addition to our committed team and we are delighted to welcome him as a Trustee.*

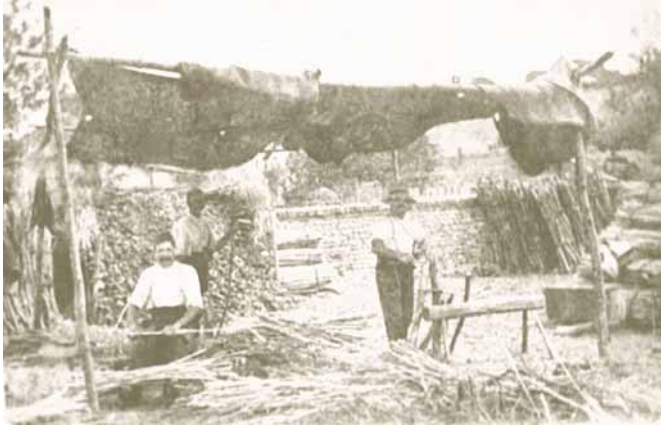
*Coming from a Welsh mother, Cornish father and supporting the Welsh boys in red in rugby, Geraint would not forgive me if I did not mention his Celtic loyalties too, which are reflected in the names of his five children.”*

**Peter Goodwin**  
Chairman of Trustees



# The West's of East Dean celebrate 200 years of working with wood

**T**he West Family can trace their roots in East Dean back to the 17th century and they have been actively working with timber since 1809 producing such items as sheep hurdles, bean sticks, thatching spars, faggots and posts.



*Henry West, in the hat, cleaving spars.*

In 1931 Henry West decided that his son Leslie would benefit from becoming a carpenter and joiner and sent him as an apprentice to Lancing for the princely sum of £50, which was returned to him on the completion of his apprenticeship five years later. From this the West family business of Carpentry and Joinery began.

However Peter (Leslie's son) decided he wanted to become a Woodturner and on leaving school at 16 and with help from his father and brother he taught himself the art of turning. He started his own company and worked from a shed at the family home until 1985 when Peter and his brother Gilbert (who runs the carpentry and joinery company L. West & Son) purchased a barn and some derelict farm buildings in Newhouse Lane, East Dean, from the Goodwood Estate, which they rebuilt to become their workshops.



*Peter West wood turning.*

Peter continued producing bespoke turnings for private commissions, antique restorers, furniture makers and builders. During this time he developed an interest in furniture making and took on an experienced cabinetmaker to further this side of his business. He later employed his nephew Matthew, when he left school, as an apprentice cabinetmaker. In 2001 Matthew won the wood working section of the Young Craftsman of the Year at Ardingly and on the retirement of his mentor he took over the job making the bespoke fine furniture that is associated with the name of West's. December 2000 saw the opening of Peter's Showroom in East Dean to display examples of his furniture and turning.



*Prize winning table in Sycamore and Ebony.*

On 25th September 2004 Peter and his brother saw the barn and workshops destroyed by fire. The showroom was saved but they lost all the machinery, hand tools and stocks of timber as well as the buildings.



*Walnut longcase clock hood detail.*





*Carved Oak four poster bed.*

Since the fire both companies have been working from one workshop below the showroom, but like a phoenix, the barn is rising from the ashes and they hope to be up and running very soon. It has taken a long time to rebuild the barn and workshops as the work is being done mainly by Peter and Gil themselves in the evenings and weekends.

*2009 is the 200th Anniversary of the family working with wood and to celebrate this Peter is organising a Wood Fair to be held in the field adjacent to the workshops and yard from the 20th to the 21st June 2009. The aim of the Wood Fair is to show the natural beauty and versatility of wood through displays and demonstrations of its use from the past to the present day, these will include steam powered sawing, timber hauling using horses, hurdlemaking, pole lathe turning, carving by hand and chainsaw, hedgelaying, timber framing, longbow making and examples of fine furniture and joinery on display in the Showroom and Workshops, plus much more.*



**Peter West**

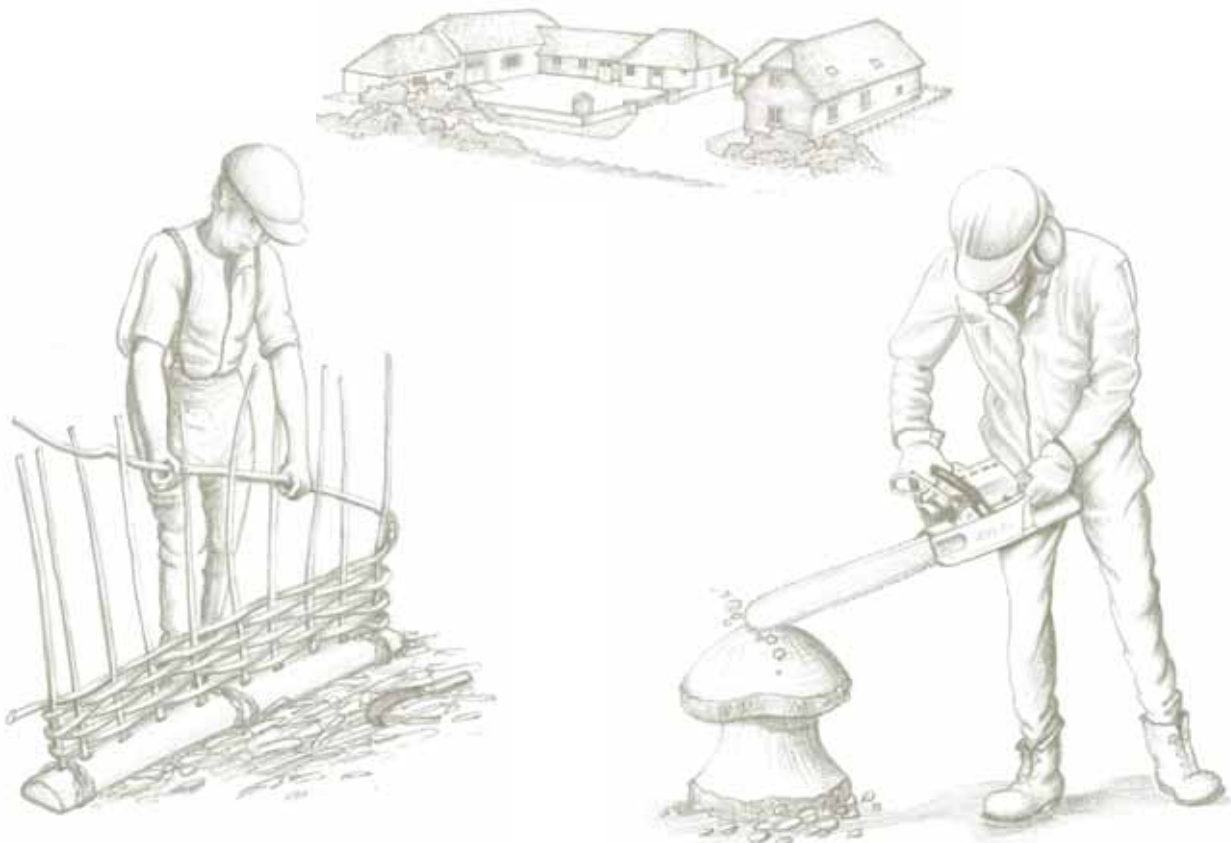
**West's of East Dean , New Barn , Newhouse Lane,  
East Dean, Nr. Chichester PO18 0NJ**

**Tel: 01243 811697**

**Email: [info@westsofeastdean.co.uk](mailto:info@westsofeastdean.co.uk)**

**[www.westsofeastdean.co.uk](http://www.westsofeastdean.co.uk)**

*If you would like to join West's of East Dean as an exhibitor, or as a visitor in celebrating their anniversary at East Dean, please contact Peter West*



*"Celebrating the craftsmanship of those working with timber, its versatility and natural beauty - from the past to the present day."*



# HULLS MILL FARM

## Expert advice for the Essex woodlands

by Laurence Gagen

**O**n a cold and windy afternoon in February we were privileged to entertain Andrew Falcon, Chairman of the East Anglian Division of the RFS to a perusal of our woodlands. At Peter Goodwin's behest Andrew had come to cast a knowledgeable eye over our trees and to advise us on what was right, what was wrong and where to go from this point on.

On high pruning we come from the top downwards, not just lifting the crown as high as possible. *Thus it is important to check the top of the crown (of the Oaks) and to cut out any branches that may be starting to take the leader off course.*

The Ash in one part of our plantation in particular are not growing very vigorously and have poor leaders. I was of the opinion that this was frost damage to delicate buds, but Andrew thought that pigeons may be the cause.

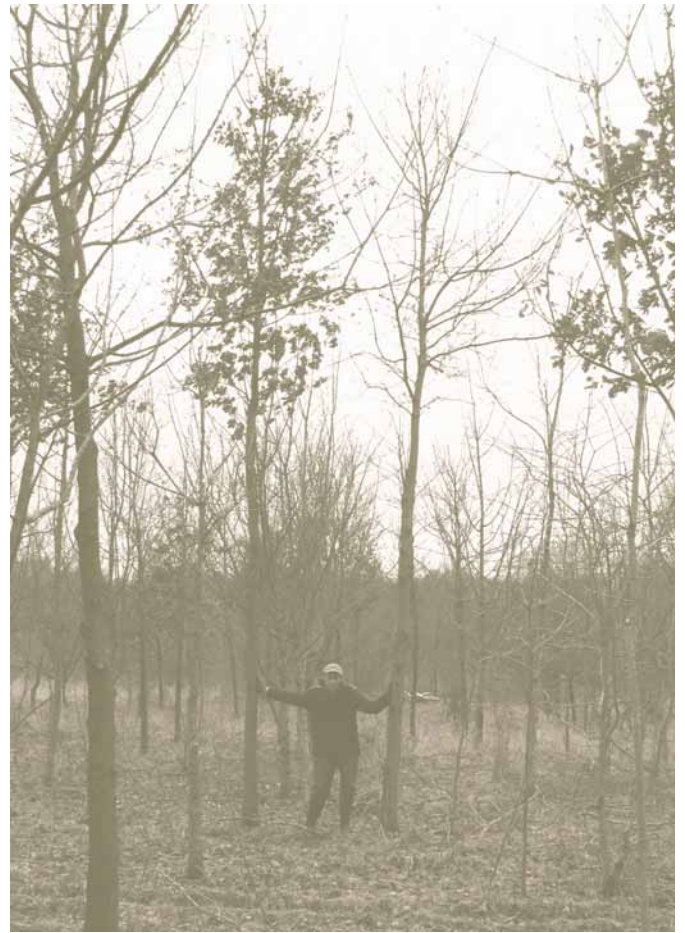
With the Walnuts – where pruning is done in July/August – Andrew liked our method whereby we cut branches 6 to 8 inches away from the trunk which seems to help prevent rot-back into the bole. These “coat-hooks” are cut off in the following summer.

It is very important if you want quality timber to make sure that both the provenance of the parent trees and the locale is good. It is very evident in some areas of our woodland where infilling or “thickening up” has occurred that the original supplies of trees – particularly Oak – are inferior in both shape and vigour (*see below*). *The poorer specimens have no use except as firewood.*



*A classic example of inferior provenance planting stock.*

The replacement plants from Woodland Heritage's tree nursery, were introduced in 1995 and were featured at length in our 2008 journal. Their contribution will enable our woodland to produce quality trees and quality timber for the future.



*Oaks of good form thanks to WH's plants.*

*In the most advanced part of the woodland it is now fairly evident which trees should be nurtured to become the final crop. To this end we will identify these with tape and either fell or trim back any adjacent trees accordingly so that they do not crowd, but still provide protection from wind-blow.*

The recent cold weather has given us a more severe problem with rabbits grazing the bark around the bases of the Ash trees (*see photo, right*), and also to a lesser extent the Hornbeam. Hopefully this will not cause too many tree losses.

On the far side of the Grove Plantation there are about three acres of Sweet Chestnut interspersed with

Oak. The original plan for this area was to coppice this Chestnut at 20 to 25 years for stakes and rails, leaving the stools to regenerate and the Oaks to grow on. We omitted to prune to a single stem until too late and about 75% of the timber now growing is not straight enough for our purpose. Andrew Falcon suggested to us that as the firewood trade is so strong at present we would make more money with less effort selling it for this, rather than trying to make any amount of stakes and rails.

An area about an acre in size in the middle of the Chestnut plot is dying off and it was suggested that this was because of water-logged ground, whereas Sweet Chestnut likes a well drained soil structure. The new plan for this area is Common Alder for firewood.

An enjoyable and informative afternoon was spent with a man who knows a lot more about trees than I do, although I'm learning.

***Thank you, Andrew Falcon!***



*Rabbit damage on Ash.*

## A summary from Andrew Falcon

I enjoyed meeting all three generations of the Gagen family when I visited Hull's Mill Farm, at *Woodland Heritage's* request, last week.

It was very refreshing to visit woods where the primary objective is clearly the production of the highest possible volume of top grade timber that the site will offer. ***There are some fine stems in the making.***

Two advances since I last visited are: the initiation of a bagged firewood business, and a Christmas tree enterprise.

***The firewood enterprise*** arose out of the necessity to fell the fast growing *Alnus rubra* (planted as nurse infill on WH advice) some of which was beginning to swamp the Oak, and some of this was dying.

The Gagens have a deal with a local farm shop and supplied them with 1,000 bags of firewood this winter. As a result, a new area of woodland is to be planted with Ash and Sycamore this year, solely for firewood production. The self-sown Silver Birch on the site shows excellent form and vigour, I thought they could form an important component of the woodland.

***The Christmas trees, Picea abies,*** appeared to have suffered an attack from the green spruce aphid.

The woods are a living advertisement for the employment of fences rather than tubes. When WH visited the woods three years after planting, the

Gagens were advised that the stocking density of 1100 stems/ha was inadequate to ensure a final crop of valuable timber due to a lack of competition for light and limited selection.

The stocking density was doubled to 2250/ha at 3m x 1.5m spacing at a cost of around 50p per tree. (With no fence, the cost of £2.50 per tree, individually protected, would have been prohibitively expensive.)

***What really bowled me over was how blatant the difference is in quality between the original Oak and the more carefully selected infill Oak trees. It would be quite correct to surmise that a) had the site not been fenced, and b) had WH not advised the doubling up, most of the wood could already be written off in terms of producing anything of value.***

Three other minor comments:

**1.** Though the Ash and Hornbeam had been severely damaged by rabbits, the Silver Birch remains unscathed. Possibly a better choice for firewood production?

**2.** The Sweet Chestnut firewood is sold as 'spitting' grade for wood burner stoves.

***Thanks WH for directing me to Hulls Mill Farm. I have very rarely encountered such a variety of points of interest in one young plantation or, such an acute level of interest from the owners.***



# The Red Squirrel Survival Trust

## *A new national charity*

*Charity No 1116947*

**The Red Squirrel Survival Trust is a new national charity dedicated to the preservation of Red Squirrels in Britain.**

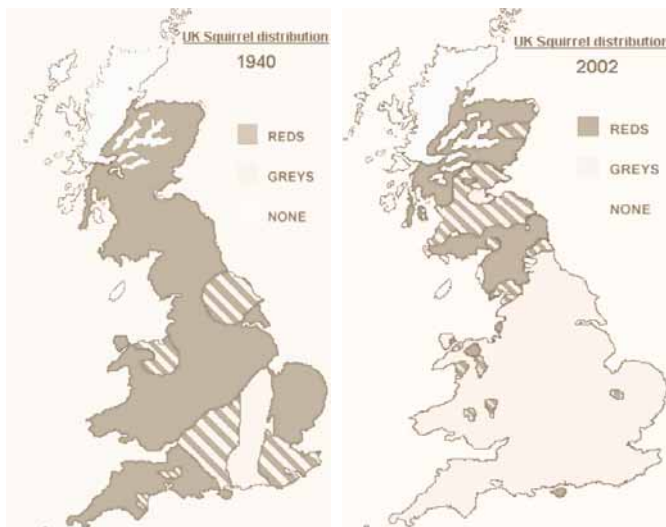
Its primary function is to raise money and channel this to the men and women fighting to protect our vanishing red squirrels.

The principal cause of the decline of red squirrels in Britain is the American grey squirrel. First introduced to Britain in 1876, grey squirrels have since spread across most of England and Wales south of the Lake District. As they have advanced, the red squirrel has disappeared, out-competed for food and nest sites and decimated by squirrelpox, a virus carried by the greys

*Photo Sarah McNeil*



and passed on to our native reds. The bulk of England's remaining reds are to be found in Cumbria and Northumberland. Even in Scotland which now holds some 75% of Britain's vanishing reds, grey squirrels are present in much of the country.



*Maps courtesy of Red Alert.*



*Photo Gareth Pritchard*

There is only one way to save red squirrels: the grey squirrel must be removed.

Many thought that red squirrels were a lost cause but in the past twelve months the mood has swung from defeatism and apathy to one of hope. Four events have caused this remarkable turnaround.

Firstly, Lord Redesdale formed the Red Squirrel Protection Partnership in his native Northumberland and without fuss, started to cull grey squirrels on a landscape scale. In receipt of a Defra grant, he made great strides in clearing greys from much of the county. His chief trapper, Paul Parker, persuaded urban grannies and woodland owners to allow traps to be set on their land, a practice known as hosting. Once a squirrel is caught, Paul is called to deal with the squirrel and re-set the trap. This pioneering epic caught the imagination of red squirrel groups across the North. It gave them hope.

Secondly, volunteer red squirrel groups. Some of these groups have been in existence for years. But encouraged by the spectacular advance of the Redesdale initiative, additional groups sprang up until today there are forty-five operating in northern England.

They comprise ordinary people enraged by the prospect of losing their red squirrels, men and women, volunteers all, going out in all weathers trapping greys. Already red squirrels are seen where greys formerly ruled. If you remove grey squirrels near the red/grey interface, the reds recover their former territory. It works! The volunteer groups for the most part raise their own funds locally. With no wages to pay, their costs comprise traps, disinfectant and fuel. They are not dependent on government funding which cuts out after three years. Whatever happens, the volunteers will keep culling greys as



long as there are greys to cull. They have a deep affection for their red squirrels and are determined to keep them. Let no one underestimate the strength of this grass roots movement.

The third great event was the decision by Michael Russell MSP, Environment Minister, to form a public/private partnership to save Scotland's endangered red squirrels by eradicating greys in key areas of the country. English greys pushing into south Scotland have carried the dreaded squirrelpox with them. Scottish reds have started to die. Consequently, a campaign to eradicate grey squirrels in a band along the English border from coast to coast has commenced. The aim is to insulate Scotland from English greys by establishing a fifteen mile wide grey-free *cordon-sanitaire*.

Finally, the fourth significant event is the public involvement of HRH The Prince of Wales. The Prince is enchanted by the red squirrels in his Deeside garden. They come into his house in search of the hazel nuts he keeps for them. Greys moving up the Dee threaten this idyll and a meeting of government and landowners was called at which the decision was made to eradicate grey squirrels in both rural and urban Aberdeenshire. The county is to become a reds only reserve.



Prince Charles, already Patron of *Woodland Heritage*, has become the Patron of the Red Squirrel Survival Trust.

The new charity has opened a small office in London and engaged the services of an inspirational director, Joshua Perry and his assistant Elaine Karmy.

The charity has already attracted substantial donations and has made grants to red squirrel defenders in Scotland and northern England. An important role is to raise public awareness of the plight of our native squirrel.

The gallant volunteers battling to save red squirrels



Photo Dr Craig Shuttleworth



Photo Jim Wilson

in Scotland and northern England deserve our support. Readers wishing to help them can become Friends of the Red Squirrel by logging on to [www.rsst.org.uk](http://www.rsst.org.uk) or calling 020 7554 8579

***The Red Squirrel Survival Trust, Hamilton House, Mabelton Place, London, WC1H 9BB.***



***Miles Barne  
Chairman***



Photo Jo Travis

# From Forest to Furniture:

## A Fifty-Year Journey for the Wardles

**F**ifty years ago we purchased some Yew logs from the Forest of Dean in Gloucestershire. These were sawn into planks and then stored for use over the years. In 2008 we finally turned the last of our planks into furniture.

Yew in the Forest of Dean is found on the carboniferous limestone formations which surround the main basin of the coalfield and most characteristically around the ancient iron workings locally known as the "scowles".

Some land north of Ruardean had been acquired as an addition to the forest. In 1958-9 some old Yew trees in the north were cut on open ground to make way for new planting. These felled trees were just being burnt.



*Desk and stool in Yew. The design is based on soft flowing curves. The two seater bench enables Philip to instruct Janet in computer skills. The furniture was made by James Willis.*



*Desk, stool and shelves.*



*Chest of drawers from the Wardles' Yew. A combination of slim drawers for stationery and two suspension filing drawers. Made by Steve Salt.*

With our friend, Peter Lambert, we bought a couple of trees and persuaded a small local saw miller to collect and saw them for us. The logs were sawn, through and through, mainly into planks ranging from a half inch to two inches in thickness. The largest planks were up to eight feet long and three feet wide. So now we had two or three tons of sawn wood stacked on sticks in Peter's shed at Lining Wood on Wigpool Common.

The agreement was that either of us could draw on the stack as and when required. Peter had the skills, the tools and the project, working on the construction of a chamber organ over the next 30 years. During that time he completed three ranks of pipes and created a beautiful instrument both to see and to hear. It was the 'musical heart' of his sitting room!

Sadly, Peter has now passed on but his masterpiece has been donated by his family to the Museum of Musical Instruments in Wells.

The remainder of the wood was finally moved





*A bedhead.*

to our home at Elstead in Surrey and for ten years we contemplated what to do with it. We had long since realised that it was beyond our skills to convert it and we wanted a craftsman who would work with Yew and who possessed a true empathy with this beautiful wood. The search was on and eventually through Woodland Heritage we found Philip Koomen, a bespoke furniture designer and a true craftsman in wood.

***Philip and Janet Wardle  
June 2008***




*The organ*

## The story continues with Philip Koomen

**Y**ew wood is stunningly beautiful but it can also be a furniture maker's nightmare! Incipient cracks may appear after just a few hours of craft work. As a result, one's bench work may be destined for the waste bin.

When Philip and Janet Wardle contacted me through **Woodland Heritage** I had no hesitation in embracing the idea of designing and making furniture from their mature Yew. It was a delightful privilege to fulfil their lifelong dream of creating furniture made from their own timber.

The final pieces of furniture evolved through conversations with the clients and the wood itself. The furniture was destined for a working study so practical considerations had to be met. Yet the furniture designs were also shaped by the limited and variegated character of this beautiful timber.

After the designs were confirmed, my craftsmen colleagues, James Willis and Steven Salt, had the challenge of translating them into reality. They negotiated their way through timber that had suffered the ravages of woodworm and fungal attacks. Making furniture out of Yew is like mining gold; it requires tenacity and perseverance but the results justify the effort. Those cracks and irregularities became part of the furniture's unique character. Perfection is indeed in the eyes of the beholder. 

***Philip Koomen, PhD, FRSA  
Philip Koomen Furniture LLP  
Wheelers Barn, Checkendon***

***Nr Henley-on-Thames, Oxfordshire RG8 0NJ***

***Tel: 01491 681122***

***furniture@koomen.demon.co.uk***

***www.philipkoomen.co.uk***



*Philip Koomen and Philip Wardle with one of the original pieces of Yew felled in 1958 from the Forest of Dean. Philip Koomen was then five years old!*



# Musical Wood

By Arwyn Morgan

Man­kind's search for timbers to make musical instruments has led him to the remotest parts of the world. From South America, deepest Africa, to the Far East. Some timbers although popular in the past are no longer commercially available, nevertheless, some of the most beautiful music timbers do not come from far exotic locations, but rather in the countryside around us.

***Sycamore is classed by some as a weed tree, but by others it is potentially the most valuable tree to be grown, with an unusual grain figuring called ripple or fiddleback grain. From this tree, we get the beautifully grained woods used for the highly figured backs of violins, violas, cellos and other stringed instruments.***

Usually any well rippled logs of musical instrument quality are sold overseas, mostly to Germany, where they are processed and exported all over the world to luthiers etc, as part made components. To harvest and process Sycamore is not a straight foreword exercise.

***Firstly Sycamore needs to be harvested during the dormant season, when the sap is down, thus normally from November to March.*** With ever milder winters this season seems to be getting ever shorter.

The main reason to harvest when the sap is down is so that when the logs are sawn, they are less likely to stain – thus keeping their clean creamy colour. Indeed some tree cutters follow the old tradition of following the cycles of the moon to ensure even less sap.

As it happened this particular log was felled just outside the season, in late April. In such instances the log would need to be milled within a day or two of

felling. As it would not have been feasible to transport this one log to Germany, we were able to rescue it. The log measured just short of 50 hoppus feet. (One hoppus foot is equal to 0.036 cubic metres)



Due to a slight bend in its 12 ft length, we cross cut it to make two lengths about 4 and 8 ft long. These we milled into 2.25in boards, with some 3in boards. The log produced a variety of timbers. As much as possible was quarter sawn to produce parallel ripple figuring. The planks which were rift sawn still showed the ripple figuring, but of a different type, alternately wide and narrowing down to a point, whereas the tangential sawn boards had a variety of ripple and quilted figuring.

After milling, each board was numbered and ***stacked upright*** ensuring that an adequate supply of air circulates each surface. Many of the boards will be further sawn into two, to produce matching grain boards. Most of the boards have been sawn with square edges up to 10in wide. These boards will be allowed to air dry naturally and can be kiln dried if needed.

It will be interesting to see if homegrown wood can be processed here, to be used in quality musical instruments, or does it have to go to Germany first, before being imported back to the UK? In Britain we have many beautiful timbers, and especially here in Wales we have a good supply of Ash. Currently in our yard we have some large Olive Ash with considerable ripple and blister figure awaiting milling, also various burrs, Tiger Oak, Lacewood and others.

Perhaps it would serve us well to use more locally grown wood rather than that which has accrued many sea miles unnecessarily?



**Arwyn Morgan**



*The tree felled, it is possible to see the slight bend in the wood from this view. Pictures courtesy of Arwyn Morgan.*

*First printed in issue 50 (summer 2008) of the 'Intrepid Repairer', the magazine of the National Association of Musical Instrument Repairers. [www.namir.org.uk](http://www.namir.org.uk)*

# The British Horse Loggers

by Doug Joiner

**I**t was in 2004, just after we had reformed the *British Horse Loggers* into its present incarnation, that we were honoured to receive the patronage of HRH The Prince of Wales.

It became clear quite quickly that this was a 'hands on' patronage and we became very busily engaged in work with staff in Clarence House and the Duchy of Cornwall. One of the key outcomes was the creation of a limited company with charitable status, *The British Horse Loggers Charitable Trust*. The objects are: *"To promote and maintain the standards of the craft of Horse Logging for the public benefit, and to advance education and training in the craft of Horse Logging and associated skills."* Our priority was to create a 'proper' apprenticeship scheme to encourage, train and support new entrants to the profession.

To cut a very long story short, the company was set up and Trustees appointed. Charitable status was granted. Funds were raised and the apprenticeship scheme was accredited to Level III by OCNW.

The two founding trustees are myself and Julian Philipson. Two more were then appointed from the BHL membership, Stephen West and Nic De Brauwere. Finally, Bertie Ross from the Duchy of Cornwall was appointed. There remain two vacancies for external appointees and we are actively trying to fill these with suitable candidates. Suggestions and applications welcome.

Fund raising continues apace. It is a relatively expensive scheme to run costing around £9,000 per year for each apprentice. It is, however, the right scheme. Modelled on the Coppice Workers Apprentices Scheme devised by Bill Hogarth Memorial Apprentices Trust and assisted by them, it allows for a full three years of training. Following a




*Hydraulic gear and modern logging arches enable a traditional craft to move with the times.*

Training Needs Assessment, much of the time is spent 'on the job' with the apprentices on placement to a main sponsor and to others, even travelling overseas. There are the usual statutory and short courses such as chain saw and first aid and other longer courses such as woodland management.

The aim is to have a fully operating horse logging contractor or 'forestry entrepreneur' at the end of three years who is sufficiently developed and practised to be accepted on to the British Horse Loggers' Professional Register.

We have recruited our first apprentice, Michael Paddock aged 19 from near Monmouth. He joined the scheme in October 2008. We are now recruiting for two more to start during spring or early summer 2009. Our target is to have the funds and the placements to recruit two each year.

Michael is placed with me as main sponsor, but has already spent time with other contractors and will continue to do so to widen his experience and knowledge. We are currently negotiating a reciprocal placement with Josef Svoboda, a renowned horse logger in the Czech Republic. And he gets paid!

Applications are invited. The BHL Charitable Trust has an equal opportunities policy and welcomes applications from all ages and both genders. It is the quality, energy and commitment of the applicant that will count, not age or experience alone. 



*Michael Paddock training his own horse, a young Brabant stallion, in Childer Wood. Photo: Doug Joiner.*

**For more details contact**  
[www.britishhorseloggerscharitabletrust.org](http://www.britishhorseloggerscharitabletrust.org)  
 email: [doug@heavyhorses.net](mailto:doug@heavyhorses.net)  
 Tel: 07773 900751



# A Fine Scottish Woodland

## Newbyth Oakwood

by Colin MacBrayne

### Location

Newbyth woodlands are situated 3 km north of East Linton in the rolling countryside of East Lothian. The OS grid reference of the main access point into the oakwood is NT595798.

### Owner

The owner of Newbyth is Dr James Bryce who has owned the woodlands since the late 1980s.

### Site Factors

The ground is basically flat and of general aspect, with elevation ranging from 10 to 20m amsl. The underlying bedrock is metamorphic in nature, comprising Devonian basalt and spillite and this is overlain by a variable depth of boulder clay and morainic drift, with occasional marine deposits. This lithology, together with the flat topography, has given rise to generally gleyed mineral soils which are prone to seasonal waterlogging, especially in hollows. However, fertility and base status are high, allowing the site to support a wide range of tree species, including commercial broadleaves such as Pedunculate Oak and Ash.



### Management

*Following a change of management in 2002 the whole woodland was re-appraised and it was decided to gradually convert the majority of the woodland to the production of quality hardwood timber on a continuous cover system, since it was considered that conifers were not fully realising the productive capacity of the site. Oak, Ash and Sycamore represent a better species match of species to site and they also fit in well with the owner's multiple objectives for the property. The oakwood illustrates what can be achieved at Newbyth and will be used as a guide for future management.*

### The Oakwood

Newbyth oakwood extends to over 10ha, was planted in 1933 and has been assessed as yield class 4. It is predominantly Pedunculate Oak but there are also a few Sessile and Turkey Oaks. It was almost certainly planted as a commercial timber crop and while there are no records of tending and maintenance, the appearance of the crop would indicate that early thinnings were carried out timeously. At the time of the management change in 2002 the oakwood was in a reasonable condition but there did not appear to be clear plans in place for optimising the value of the crop. Thinnings appear to have been carried out on the same basis as a conifer crop and little attempt had been made to favour the best stems; as a consequence spacing and mean tree diameter was quite uniform but in places stem increment of the better trees was being restricted by competition from neighbours. Past thinning had certainly been much heavier than FC Yield Tables with a stocking of only 147 trees/ha in 2004 (compared to 428/ha) and with a light demanding species like Oak this has been important in maintaining a reasonable depth of live crown. Some pruning of epicormics had been done but this seemed to have been a little haphazard and was not targeted on the best stems.

### Silvicultural Rationale

It is not known whether previous management had the aim of following the "free growth" principle as described in FC Bulletin 62 but in 2004 conditions were at least favourable for adopting this regime with the aim of producing the most valuable logs in the shortest possible time. The crop was surveyed in detail and a total of 889 "final crop trees" were



identified and marked. The criteria used for choosing these trees were stem straightness, branch frequency/size, obvious stem defects, crown depth / health and finally spatial distribution. Thinnings were then marked around the final crop trees and were of sufficient intensity to free up the crowns, especially on the south and west aspects.

### Thinning Operation

Thinning was carried out from February 2005 to March 2006. A total of 668 trees were removed, producing a total yield of 549m<sup>3</sup> (average volume 0.82m<sup>3</sup>); this represented 43% of the stems and 41% of the standing volume. Some 33% of the produce was sold as logs with the remainder going as firewood; overall an average sale price of £26.40 was achieved and this created a small but valuable return for the owner.

### Post Thinning Crop Data

The crop was re-assessed after thinning and this revealed a total standing volume of 85m<sup>3</sup>/ha or 750m<sup>3</sup> in total. It is now anticipated that little or no thinning will be carried out until a programme of select felling begins in around 25 years' time.

As the rationale behind the free growth regime is to maximise diameter increment, it was decided to monitor this by periodically measuring breast height of 30 selected trees scattered evenly throughout the crop. These trees are numbered and will be checked every two years; at this stage it is already evident that diameter growth has responded to the reduction in crown competition.

### High Pruning

In order to further optimise the value of the selected crop trees it was considered essential to high prune every tree up to a height of 8m. *However, in addition the very best 100 trees were climbed to allow pruning right up to nearly 15m! (see right)* Some

epicormic growth has resulted from the thinning but in general this has been less than expected; this will be pruned off periodically to maintain clean stems.



*The Estate is managed by Colin MacBrayne of Woodland Consulting. Tel: 0131 3328989. Email: admin@woodlandconsulting.co.uk*

*In 2007 the Newbyth Oakwood won the Hunter Blair Trophy for Silvicultural Excellence. This means the growing of trees for economic timber production, and can cover either a stand or compartment of best quality timber. The quality of the stand is confirmed by having been selected by the Forestry Commission as a demonstration site of best practice for the growing of quality hardwood timber.*

*The owner's enthusiasm has played an important part in establishing this stand and the woodland itself is part of a larger management plan for the estate. A new woodland business set up by the estate will allow the first thinnings in the stand (see above left) to be utilised economically.*

*The intention is to manage the site on a continuous cover basis once final crop stage has been reached.*







# The Woodland Year

by Ben Law (2008)

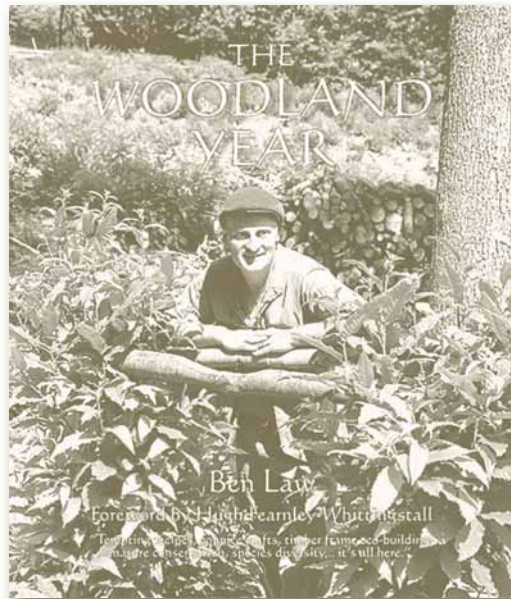
Book review by Peter Savill

Like the courses Ben Law runs, his book follows a philosophy of providing a “lifestyle training for the next generation...in a post oil world”. It is a month by month account of his wood, a Site of Special Scientific Interest, in Sussex. It covers many aspects of woodland management and uses of timber as well as descriptions of the cycles of nature, wild food gathering, wine making and attractive recipes. “These woodlands are part of our heritage...their time has come again to be valued, worked and appreciated” writes the author, though one wonders whether this is yet true, especially in the light of comments by guest authors such as “craft demonstration pays at least twice as well as real work” and the dreadful logistical problems outlined in making hurdles and other products by Geoff Norton and Angela Cole. In spite of the author’s assertion that “coppice can sustain more people per acre than any of the modern forestry alternatives”, the demand for its produce is very small today.

*Yet, the book is not an account of past, obsolete practices. A great deal of innovation is also revealed both in techniques such as the use of horse drawn trailers with mechanical Hiab hoists, and portable sawmills.* There is much concentration on making products with high added value, including yurts (large, wood-framed circular tents) that originated on the plains of central Asia. Much of the text is devoted to managing and working coppice.

*The book is commendably concise and never tedious to read. Guest contributors from different parts of Britain, who make their livings from woodland work, write 3 to 5 pages for each month. These accounts display an enthusiasm and love of woodlands that makes them truly inspiring.*

A great deal of intriguing information is presented about broadleaved woods and their products ranging from how to make shingles to using the inner bark of Wych Elm for weaving, tan bark production, drying firewood and “brutting”. Some mouth watering recipes are provided within the text, *including preparing and cooking grey squirrels (“flightless partridge”), chicken tostado (a woodland fungus), a woodland salad of*



Lime, Hawthorn and Hazel and other leaves, and more conventionally, wood pigeon breast. However, not everyone would agree that the wild Service Tree produces a “delicious fruit”. In 1829 William Cobbett described it as “a thing between a sloe and a haw, totally unfit to be eaten”.

This is not a book to read at one go, but rather something to keep by you and dip into regularly. It describes a way of life and a connection with the land that has all but vanished. The text is copiously and beautifully illustrated. It is fascinating and enjoyable to

read about practices that, to many, are evocative of a bygone age, but, one cannot help thinking, they could also be those of the future.



## Be More Self Reliant

### Be more secure & save money



From the publisher (Permanent Publications) of Ben Law - Ben writes for the magazine.

As we move into an age of unstable climate and rising oil, food and utility prices, you could be forgiven for feeling hopeless. But don't despair! There are many practical actions that can be taken!

*Permaculture Magazine – Solutions For Sustainable Living* features practical, real life stories from real people around the world who are creating a more sustainable, life-enhancing human society. Their inspiring solutions show you how to grow your organic food, eco-build and renovate, how to live an environmentally friendly life and much, much more. It is full of news, views, reviews, courses, contacts and clever ideas. So don't delay, join the sustainable revolution and become a life changer!

*Permaculture Magazine* is published quarterly in full colour, 68 pages.

Subscribe and **SAVE** on the cover price:

UK: 1 year £12.95 / 2 years £24.95 EUROPE: 1 year £19.00 / 2 years £34.00 ROW: 1 year £22.00 / 2 years £40.00



*Permaculture Magazine* is also available online at: [www.exacteditions.com/exact/magazine/409/460](http://www.exacteditions.com/exact/magazine/409/460)

Permanent Publications PA, The Sustainability Centre, East Meon, Hampshire GU32 1HR, UK  
Tel: 01730 823 311 Email: [info@permaculture.co.uk](mailto:info@permaculture.co.uk)  
[www.permaculture.co.uk](http://www.permaculture.co.uk)

# Six Months in the Woods

by Tom Ball

**H**aving lived in London for the better part of a decade and no longer able to ignore the nagging feeling that there was a rural side to life I was missing out on, I was thrilled when Mike Abbott accepted me as his assistant for the summer.

Mike's green woodwork courses, at his outdoor workshop tucked away in Brookhouse Wood near Bromyard in Herefordshire, are in great demand.

([www.living-wood.co.uk](http://www.living-wood.co.uk))

Arriving for the first of two development weeks in a chilly spell right at the end of March 2008, I settled in to my woody home for the next half year. Much of the first week was spent shaping and erecting the timber frame for a sleeping cabin in the woods; the second was taken up mostly with the roof and wattle and daub for the walls, mixed on site just before application to the Hazel wall panels. I never would have dreamed you could have so much fun stomping around in a tub full of cow shit!

A handful of courses in April introduced me to making hay rakes, spoon carving and bowl-turning. Residential courses didn't start until early May, so I spent much of April alone up at the workshop, trying to figure out what all the strange tools were for.



Anyone who's spent time up at Mike's workshop will know that it can take a whole month just to uncover a workbench.

My first project was a Sweet Chestnut folding barrier for the much-admired timber-framed compost toilet. Aside from a short course with Mike the previous spring, the sum of my woodwork experience was putting up shelves in my London flat. As I didn't really know what I was doing, I just made it up as I went along and soon discovered this was a productive way to go about things. 'Bodging', now often used in a pejorative sense, is a mark of pride amongst green wood chairmakers. Somehow I bumbled through the first week-long chair course, where many of the students knew more than I did. But after I'd got a few courses under my belt I began to grow in confidence - I found myself learning by teaching. If you explain "*oval joint technology*" and "*differential drying*" three times a day all summer, it really starts to stick in your mind (if you want to know too, drop me an email).

Teaching and working began after breakfast and went right on through towards dinner time, pausing for tea breaks and lunch. With no electricity at the workshop, keeping the fires burning and kettles boiling was one of the jobs for which myself and the other short-term assistants were responsible. This was no easy task on days when numerous sets of chair legs and back slats were fed into a medieval (I mean in looks, but it's probably not far from being that old) steam-bending contraption. Keeping up with Mike's ever-evolving methods kept us on our toes. No sooner had you learnt one way to do something, then out of the window it went and you had to grapple with another. This certainly gave me a thorough education in a short space of time.

Courses could be hectic and tiring, but such was





the laid-back and jovial workshop atmosphere that it never really felt like work. And if things got on top of you, a soothing wander amongst the trees would put things right, and an evening of music around the fire was balm for anything. I was lucky to share my time with three fantastic folk: mandolin-playing James; another James, a blacksmith who lived nearby, and Barnaby, whose presence ensured the workshop rocked with laughter. Barnaby is returning to Brookhouse Wood in April 2009 to be Mike's main assistant and *Woodland Heritage* apprentice.

***Having many years' experience making chairs and playing a major part in the green woodwork revival, Mike must watch with bemusement as the rest of the world slowly catches up with him. He likes to joke that he bypassed the twentieth century and went straight to the twenty-first from the nineteenth. Particularly pleasing for him must be the significant numbers of professional woodworkers and cabinet makers who come on courses to learn, or perhaps unlearn, how to work with their chosen raw material in its fundamental form, free from machines, dust and deadlines.***

Like all recent converts, perhaps I'm overzealous, but I think I'm in a good position to shout about the plus points of green woodwork. Firstly, it's healthy. You're outdoors in the fresh air, favouring muscle power over electricity, it soon gets you into shape. Treadling on the pole lathe, cleaving, using a shaving horse or generally lugging logs about are all great ways to exercise. But that's not to suggest that it's a macho pursuit. You develop a feel for the wood, taking advantage of its natural strengths, and soon learn to 'do what the wood wants'. In our passive and sedentary culture, creative and practical use of the hands is often neglected, which is a real pity.

Given current environmental concerns, green woodwork commends itself for many reasons. The lack of machinery keeps fossil fuel use down, waste can simply be thrown on the fire for heating and cooking, and there are no harmful bi-products or

pollution. Woodland workshops and camps, easily dismantled, are low-impact and mobile. Using native wood is good for conservation. There's no need for imported tropical timber with Oak and Ash in abundance. Not one to have spent much time in hardware stores previously, I was dismayed to find expensive bits of wood on sale, ready-shaped for mounting on lathes. Surely it grows on trees? Green wood crafts recognise and enhance the uniqueness of the area in which they are practised, for instance in the way different styles of chair are determined by the dominant local tree species: Beech chairs from the Chilterns, Ash from Herefordshire and so on. Bodging can also be seen as part of the trend towards self-sufficiency: don't go to Ikea, make it yourself.

***Working with an elemental material like wood, in the raw, outdoors in vibrant green woods filled with birdsong, with like-minded people simply makes you happy. The therapeutic and meditative benefits shouldn't be underestimated, and making chairs from trees cultivates an appreciation of design and beauty. A respect for the past is inherent in using old techniques, and not just a past preserved in aspic or museum reconstruction. Rather, it's a living continuation and in some cases improvement of the folk practices of the past.***

The second chair I made was a copy of a battered century-old chair, which kept watch on course students from high on a workshop post, as they sat



*Mike Abbott (left).*

on their shaving horses and went about Ash blanks with drawknives. Made by local chairmaker Philip Clisset, Mike used it to demonstrate his own techniques, based on those of the original bodgers.

For all these reasons – health and well-being, environmental, educational, social – I think green woodwork has a rosy future. It's perhaps not too fanciful to see its increasing popularity as part of the early twenty-first century search in industrialised countries for simplicity; the growing feeling that technological advances and conveniences, while improving lives in many ways, often throw the baby out with the bath water. As society gets ever faster and ever more throwaway, so a growing minority are nudging in the opposite direction. I didn't expect to learn so much from members of this group, but when you consider the mix of folk that came tramping into the workshop – journalists, housewives and househusbands, teenagers, pensioners, teachers, vets, conservationists, accountants, authors, coppice workers, lecturers, hedgelayers, bushcraft teachers, cabinet makers, tree surgeons, students, basket makers – it's perhaps not surprising, and I'm grateful to all the people who came on courses.

*I'd like to say a big thank you also to Woodland Heritage, who generously supported my time at Brookhouse Wood, and provided invaluable advice.*

And thanks above all to Mike, his wife Tamsin and their family, who went out of their way to make me feel welcome on their patch. Mike is eager to send as



many fresh greenwood recruits out into the world as he can and I'm immensely grateful to him for sharing his vast experience, and setting me on a path of exploration in the craft of chair-making.

After the courses finished in September, Barnaby and myself stayed on for a few weeks, and I resolved to conclude my spell at Brookhouse Wood with a major project, making a set of six chairs with variations in design. It was more work than I'd anticipated, but it consolidated all I'd learned that summer and taught me a great deal more about chair design. At the time of writing, these chairs are still awaiting woven seats, but I'm confident they'll find a good home. With a couple more commissions in the pipeline, I've got enough to keep me busy.

Near the end of my time in Herefordshire I visited the Wye Wood Project, an inspiring and successful attempt to tackle social issues through woodland crafts. Some timber was stacked up by the workshop there, and one piece bore the corkscrew imprint of a long-gone piece of honeysuckle. It looked for all the world like a unicorn's horn leaning up against a tree. I turned to one of the helpers and said, "So you get unicorns in these woods then Dennis?" Quick as a flash, he shot back with a glint in his eye, "You'll find anything you want in the woods if you look long enough".



[mugginsear@yahoo.co.uk](mailto:mugginsear@yahoo.co.uk)  
[www.tomschairs.com](http://www.tomschairs.com)





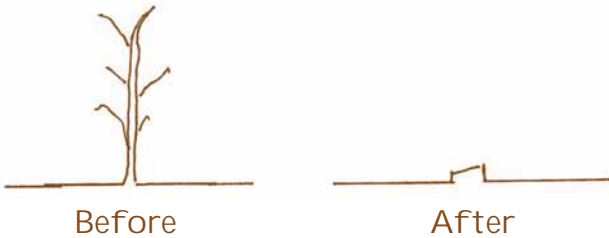
# Early management of Sweet Chestnut

## – for growing as timber, not coppice

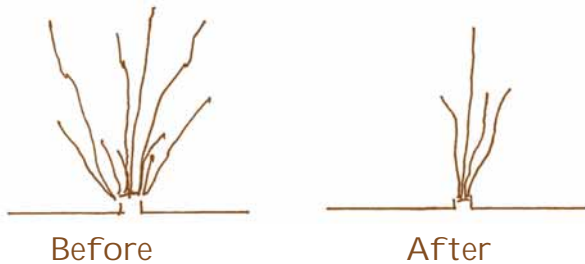
Richard Meynell FCA

**The object of the exercise is to achieve good straight growth (rather than the all too common candelabra effect) and to get the growing tip above the spring ground frost danger zone as soon as possible.**

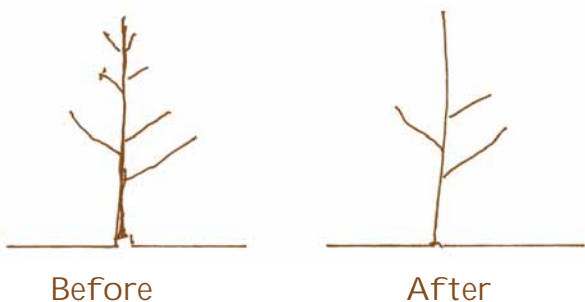
1. When well established, usually after two, or perhaps three, seasons' growth, cut down to ground level (with a sloping cut). Best done in March.



2. With any luck, a number of straight shoots will appear to grow vigorously. In July of this (usually the third) growing season, reduce the number to four or five at the most (there may be fewer) by cutting off the weakest shoots at ground level. Select the best one of the retained shoots, and cut off the top quarter or so of all the others.



3. The following July (i.e. usually in the fourth growing season), cut off at ground level all or most of the shoots other than the selected best shoot. The selected shoot itself may be pruned by reducing the upper branchlets to leave a clear leader. Do not remove any lower branches from the selected stem.



4. Repeat the procedure outlined in 3 above in the following July (usually the fifth growing season). Perhaps also remove one or two lower branches.

5. In the following years, normal formative pruning (which, incidentally, does not mean merely removing the lowest branches!)

### Notes

- (i) *The objective is to get the optimum (not the maximum) amount of vigour into the selected stem. If too many resources are pumped into the one selected stem, it will grow magnificently, and then, towards the end of the summer, curve down into the shape of an elegant but useless bow. If this was not the case, it would only be necessary in step 2 to select the best stem, cut down the others, and go home. Conversely, if too much competition is left, the selected stem may get pushed over. The art is to get the balance right.*
- (ii) *There are two reasons why lower branches should not be removed too early: in the first place as for note (i) above, and in the second place because the shoot becomes top heavy before it has had time to develop strength to support itself.*
- (iii) *With mighty cutters in hand, and silky pruning saw and pair of secateurs in one's belt, this does not take as long to do as it does to write it down.*



Anthony Meynell (left), Richard Meynell (right).

**The stunning woodlands at Berry Hall in Norfolk are intensively managed by succeeding generations of the Meynell family. Their forestry knowledge is immense.**

**Editor**

# From Pasture to Woodland

## A successful planting in Yorkshire

**T**en years ago Low Bank Wood was planted on land at Woodbottom Farm, Stainburn, North Yorkshire, this being part of the estate belonging to the Arnold family. Mr Justin Arnold has overseen the development, which is a new addition to the estate woodlands. This has run alongside a Countryside Stewardship Scheme which has enabled new hedgerows to be planted. Both have been beneficial to the landscape and wildlife, as well as providing shelter for stock. This article is to explain the operations carried out to establish the woodland to date, which hopefully will encourage other landowners to do the same.

Previously pasture meadowland, this woodland was established with the aid of a Woodland Grant Scheme and a Farm Woodland Premium Scheme. The species planted were native broadleaves in a group mix across the site. The objectives being to enhance the landscape, enlarge the treescape and provide a much needed addition to the conservation and ecological aspects of the area. *Alongside this the woodland will be managed so as to produce high class stems of Oak and Ash from selected trees.* However, a multi-purpose role, along with a future uneven aged system, is envisaged and this will be sustained as the woodland develops.

*The site was subsoiled (see below) prior to planting at 2m spacing in the direction of the prevailing SW wind as there is less wind throw by the wind blowing down the rows rather than across them. This breaks up the compaction of grass land and helps tree roots and drainage.* It was then fenced with a combination of deer and rabbit fencing, including two gateways at each end of a continual ride.

Three areas, 0.3 ha, were left to remain open grass and wild flower sites for the benefit of wildlife, hopefully to include nesting, food and habitat sources.



*The young plantation showing excellent form today.*

The species percentage is 60% Oak – *Quercus robur*, 15% Ash – *Fraxinus excelsior*, 10% Small Leaf Lime – *Tilia cordata*, 5% Native Broadleaf, 10% Woody Shrubs – Hazel, Hawthorn, Guelder Rose, Buckthorn, Holly. These were planted at 1.5m, the rest at 2m spacing – group sizes from 9 to 15.

There was a 96% take in the first year, some trouble for the first three years with voles. Beating up was carried out with the addition of vole tubes.

By year five we did some stumping back on some poorly formed Oak, with good results from the regrowth. Then by year six we began formative pruning on the Oak and Ash up to 50% of the stem where achievable, but always leaving 50%+ of crown size.

Year eight saw some coppicing of Hazel and some other species to encourage denser growth. The stems coppiced were left in piles to encourage nesting.

*Pruning will continue on the better formed stems to achieve 5 to 8 metre first lengths.* To date the management is to a degree which has ensured a well-established plantation on a sound silvicultural basis. The keeping of records stating what operations have been done, why and when, is important, especially relating to the high pruning which will be of benefit at the time of sale. To do no pruning will not affect the volume of the stems but it will put the trees down into a different class.

The multi-purpose management does not affect the quality of the timber and all aspects blend together rather than concentrating on one at the expense of the others. *We have the best climate in Europe for growing quality broadleaves. We should take advantage of this.*



**K.L. Rawling**  
(Retired Forestry Consultant)

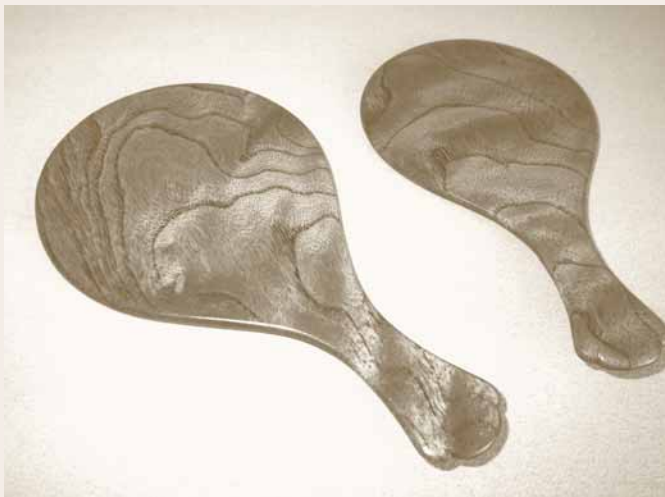




## A rare Japanese Mulberry wood called Shimakuwa

Dr Stephen Bowe

There has been significant interest in this publication recently regarding the use of Mulberry wood in furniture of British origin. There appears to be some dispute about the frequency with which Mulberry is used in antique furniture. Conclusions seem to have been reached which indicate that its usage is limited and found in very few pieces. It also appears infrequently in twentieth century furniture with a cabinet by Gordon Russell featuring Mulberry wood blocks (V&A museum collection) being a rare example. By contrast the situation is very different in Japan where Mulberry wood has been commonly used in a number of utilitarian furniture pieces including tea ceremony and vanity items. However, the story becomes slightly more complicated when the wood from specific species is considered. The nomenclature of *Morus* species is complex and unresolved with *Morus nigra*, *Morus alba* and *Morus rubra* being the most recognised species (being identified in lay terms as Black Mulberry, White Mulberry and Red Mulberry).



Two hand mirrors of different sizes made by Tadashi Kimura.

While White Mulberry is common in Japan because of its associations with silk production there is one species which is associated with specific islands off the coast of Tokyo. *Morus kagayamae* is found in three of the Izu islands including Miyakejima, Mikurajima and Hachijojima. These islands are volcanic and relatively small – they all have a specific microclimate which is suited to growing the trees. The trees are in certain cases tended by human intervention but in a number of cases exist naturally



A kabuki seat made by Tadashi Kimura.

within the ecosystem. Some of the trees are thought to be of a considerable age with estimates of 500 to 1000 years old being reported. Because of the nature of the islands they are being protected by the Japanese government which regards them as areas of outstanding natural beauty. They have become tourist destinations but have limited accessibility. This has become more evident in recent years at Miyakejima because of very serious volcanic activity. This in effect has meant human habitation on the island is very limited because of the noxious gases which have resulted. Remarkably this island has its fictional blueprint in the James Bond movie *You Only Live Twice!*

There has been very serious concern recently because of the condition of the Mulberry trees on the islands. Miyakejima has in the past been a reasonable supplier of Mulberry wood to Japanese artisan



Detail of surface of Kabuki seat showing typical Shimakuwa character.



*A box for leaf tea (with outer and inner lids) made by Shouji Furukawa.*

craftsmen. Furniture and small objects were made of Miyakejima/Mikurajima Mulberry (known by the specific term Shimakuwa) from the Edo period to the present day. It is true to say that it is the most highly regarded wood of all those used in Sashimono furniture or craft objects. The quality of the wood comes from both its workability and also its colour and grain. **Like most Mulberry wood samples it starts life after felling and cutting as a very yellow wood which fades to a glorious golden mid-brown over time.** It is the shimmering golden hue which makes it slightly different from *Morus nigra* for example. The nature of the wood means that it is very reflective and often has complex knots and accretions. The wood is graded in terms of these patterns which are often independent of the actual



*An octagonal box for powdered green tea made by Toshio Shimazaki.*



*An oval writing box made by Toshio Shimazaki.*

grain. The grain of Shimakuwa is very graphic and reminds the Japanese of ripples of water over sand. The wood has a very fine finish which is usually protected with a clear Urushi lacquer.

The trees on Miyakejima and Mikurajima appear to be dying and the supply chain to contemporary makers in Japan is becoming spasmodic and limited. An already rare wood has become ever rarer. Sashimono furniture makers such as Tadashi Kimura (now 80) who in the later part of the twentieth century used Shimakuwa wood in both very large storage pieces and solid in smaller items now find they have to replace this with Yellow Birch (this has a similar but slightly less beautiful appearance). Tadashi makes all his commercial pieces in Yellow Birch and keeps Shimakuwa for special one-off pieces of exhibition quality. It is far less common for the wood to be used in its solid form and now tends to be veneered to cover less expensive woods such as Paulownia. This is certainly the case with the furniture company Kichizo. This company continues the Edo tradition of fine furniture production and produces Sashimono furniture with a Shimakuwa finish. Its range includes tea ceremony shelves, vanity cases, sewing boxes and small chests (with and without mirrors). The company also produces high end Shimakuwa furniture for religious purposes including Zen altars. This furniture features solid Mulberry construction and is consequently very expensive when compared with its veneered pieces. It appears that as the craft traditions and wood supply diminish, items made of Shimakuwa will become difficult to find and are likely to be able to be viewed only in museums. 🌱

***I am researching Mulberry wood and if any readers have any interesting information/facts on Mulberry in the UK I would like to receive it via email: [s.bowe@ljmu.ac.uk](mailto:s.bowe@ljmu.ac.uk)***



# Another Woodland Heritage Study Tour to Poland

By Ed Clark

BSc Forestry Student at Bangor University



*The author beside a fantastic quality 70m<sup>3</sup> Pedunculate Oak*

**In September 2008 I went on an ICF Wales study tour to Poland. The tour was hosted by the Polish State Forest Service, with visits to their headquarters in Warsaw, as well as several forest districts, and also to the Białowieża National Park.** The aim of the tour was to acquire an insight into Polish forestry in practice, with reference to the silvicultural methods used, particularly for the maximisation of good quality timber production and in terms of maximising conservation benefit alongside other objectives.

## **Headquarters of the Polish State Forests National Forest Holding (Forest Service)**

Poland has 9 million ha of forest, which equates to 29% of the land area. Of this area, 78% is publicly owned and managed by the Forest Service, which employs approximately 26,000 people and harvests around 31.5 million m<sup>3</sup> per year (CILP, 2007).

*Interestingly, the State Forests are almost entirely self-financing, with approximately 86% of the annual budget coming from timber sales, and the majority of the remainder being generated by the leasing of property, tourism and recreation.* Only around 1% comes from funding from the state administration. This is primarily possible because there is no grant support offered to the private sector, however professional assistance is provided with regard to the production of management plans.

General objectives for forestry in a national context include increasing the amount of forest cover, with targets to reach 30% of the land area by 2020, and 33% by 2050. Also, it is the intention that those areas

which are currently forested will be converted to a more native mixture of species. Preferred coniferous species are Scots Pine and European Larch, and Norway Spruce around the Carpathian Mountains. Broadleaved species which are used are generally Oak (mostly Pedunculate, but some Sessile), Beech and Birch, with elements of Alder, Hornbeam and Lime comprising the majority of the remainder.

## **Wyszków Forest District**

The Wyszków forest district is situated to the northeast of Warsaw, mostly on sandy soil and receives between 600 and 700mm of rain annually. During our visit we were guided by *Mr. Bistula (Head of District)* and *Mr. Ruczinski (local beat forester)*.

The first site we visited was a 76 year old stand of 80% Scots Pine, 10% Norway Spruce and 10% Pedunculate Oak, which was growing at a stand average of approximately YC7. The stand had recently been thinned at an intensity of 17.5m<sup>3</sup>/ha, and the final felling was scheduled to take place once the stand reached 90 years of age. *Initial impressions were that the stand was overstocked by UK standards, but this approach seemed to have been paid off, since all of the stems were of exceptional straightness, and very clean along their whole length.*

The second site was slightly older, with the trees estimated at being 115 years old and was presently undergoing its final felling. Species composition was 90% Scots Pine and 10% Hornbeam, and the stand was being managed using similar techniques to the first stand. *Interestingly, two years before the final intervention, 40% of the area had been cut and replanted with Pedunculate Oak in order to initiate the regeneration of a stand and incorporate a greater broadleaved component.* These areas had been carefully mapped, and were all 1.5 tree lengths across, and at least 1.5 tree lengths apart, to ensure that the regeneration would not be damaged during the final harvesting operation. The final felling was by chainsaw and extraction using a skidding tractor. It seemed that despite a very even and accessible site, the purpose built harvester can still not compete with motor-manual felling due to reduced labour costs in Poland. Furthermore, timber prices were rather different, with prices being quoted as in the region of €100/m<sup>3</sup> for the pole length Scots Pine, which no doubt allows a larger margin for error than we are graced with in the UK when budgeting an intensive programme of operations.

The third stop showed two similar stands which

had undergone a similar style of harvesting recently, and were now being re-established. It is the policy of the Forest Service to maintain long term retentions of at least 5% of the stand area within each compartment, and for this reason there were three groups of trees which had been left unharvested. We were told that these would be left to die and decay naturally. This approach was rather interesting, because from my own experience long term retentions or unharvested reserves are usually the more restricted or unproductive parts of a district or estate, whereas in Poland these areas are incorporated into every stand and coupe, which gives a greater patchwork of age structures and also satisfies the requirement for deadwood habitat across the whole forest.

*The regenerating areas had been scarified in order to encourage natural regeneration, particularly beneath seed trees*, and then any areas showing a low stocking density were supplemented with Scots Pine, which was planted by hand. A target stocking density was approximately 5 seedlings/m<sup>2</sup>, which seemed incredibly high; *however Polish silviculture seems to have a tendency to grow stands at a much higher density and on a longer rotation than would be standard in the UK*. Comment was made by several members of the group that many of the younger stands appeared drawn and unhealthy looking, but the final product was undoubtedly of a very high quality.

## Białowieża Forest District

The day began with an introductory presentation at the Białowieża Forest Educational Centre, which was a redundant barracks for border guards who patrolled the area of forest which adjoins Belarus. Our guide for the day was *Mr Antczak (Head of District)*, and he was accompanied by *Mr Rzewuski (from the Forest Service HQ in Warsaw)*.

The area around the National Park which is managed by the Forest Service is divided into two

banded zones. The innermost of these zones, which is closest to the strict reserve, is managed relatively sensitively, with no clearfells greater than 4ha, and a minimum of 10% of each coupe being left as long term retention. The outer area is managed in broadly the same way; however the clearfell size is not restricted and the area retained at felling is reduced to 5%. ***General management objectives for the whole forest include a gradual transformation to native species, particularly Lime, Hornbeam, Oak, Scots Pine and some Norway Spruce, also protection of the European bison, protection of the remaining areas of natural forest and the production of quality timber by long rotations of the range of native species.***

The first area that was visited was “Gierkowka”, which was a part of the forest which had been badly damaged by wind in recent years. We were shown three different methods of establishing a new crop, firstly a coupe which had been fenced to prevent bison entering, secondly a coupe in which the edge plants had been cut and lain around the crop to form a barrier and thirdly a coupe where no protection measures had been utilised. The fenced area showed a very dense level of stocking, probably in excess of 5,000 stems per hectare, the area protected by a thicket of cut vegetation showed good stocking, with 2,500-3,000 stems per hectare, and the unprotected area showed the least stocking, with approximately 1,000 stems per hectare established. ***Therefore, the effectiveness of fencing for the prevention of damage by bison was made clear***; however cutting vegetation around a coupe proved a good alternative for ensuring adequate establishment, particularly due to the reduced cost.

The group then moved to a forest nursery which provides local provenance seedlings for both the Białowieża district and the neighbouring Hajnówka district, as well as the open market. The nursery collects seed from 465 locally selected trees and



*Skidding tractor extracting pole length Scots Pine, with advanced Oak regeneration in background.*



*A dense young stand of Scots Pine, following a recent respacing operation.*

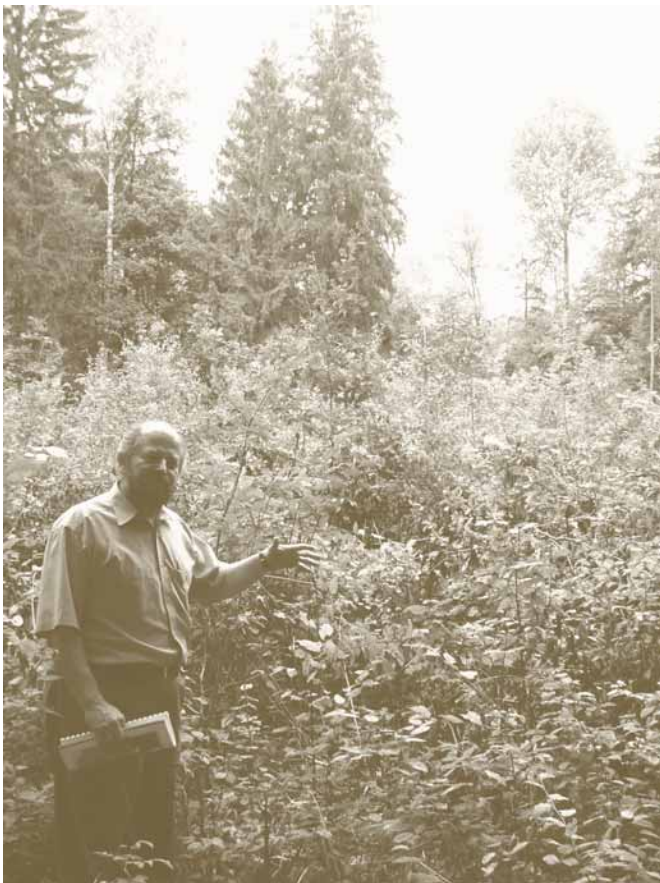




*Bison-proof fencing*



*2u1 Pedunculate Oak seedlings*



*Mr. Antczak discussing regeneration at the second coupe*

grows them on, the most common species being pedunculate Oak, Scots Pine and Norway Spruce. Approximately 25 staff are employed, **and the vast majority of operations are conducted by hand; seed collection, weeding, grading etc, and no chemical fertilisers or herbicides are used. The only exception is that a tractor is used to undercut the seedlings once they are two years old. The nursery was certainly very impressive, with excellent quality seedlings being produced and not a weed in sight.**

Other highlights of the day included a trip on a narrow gauge railway, which had originally been used for timber extraction, but now was mainly used as a tourist attraction. This allowed us to see a great number of stands where coniferous plantations were at different stages of conversion to the more diverse mix of Lime-Oak-Hornbeam woodland. Also, we were extremely lucky to see wild European bison at the Worobiowa meadow, which is an area of open ground which is being managed to encourage their continued presence within the forest. We finished the day with a visit to an educational trail around a number of veteran Oak trees, around which a boardwalk had been constructed to allow access by disabled users. These stops emphasised the drive within Poland to make forestry more of a multipurpose enterprise, with other objectives catered for alongside high quality timber production.

### **Białowieża National Park**

The final area which was visited during the tour was the Białowieża National Park, around which we were accompanied by Mr. Czemura, who was a trained forester working for the National Park Authority.

He explained that the survival of the forest within the National Park was closely linked to the European bison, since the area was retained as a hunting forest, originally by the Polish Kings, then the Russian Tsars and then most recently the Polish President. The area which is currently administered by the National Park is divided into two zones in a similar manner to the banded regions used by the Forest Service. The inner area is classed as a “strict protection reserve”, which is only accessible if accompanied by a licensed guide and no operations take place. The outer area, which borders the Forest Service holding, is classed as an “active protection zone”, which does not have such strict controls on access, and 500m<sup>3</sup> of timber is cut from the 5000ha area each year.

The appearance of the stands within the protected



areas was visibly different to those within the remit of the Forest Service. It was mentioned that there are some differences of opinion regarding the way that the stands are managed on either side of the boundary. The Forest Service's focus is actively to revert to the previous landscape by transforming the stands through their operations, whereas the National Park and their supporting *NGOs would prefer to protect the natural processes involved and allow the stand to revert to a more natural state over a much longer period of time, primarily because they are not concerned with productivity.*

There is a further difference of opinion with regard to methods for control of *Ips typographus*, which is commonly known as the Spruce bark beetle. The Forest Service maintains a programme of strict monitoring, and any infected trees or stands are felled and removed immediately, thus preventing the emergence of the next generation of bark beetles from the moribund or dead trees. ***Within the National Park however, any infected trees are left standing as deadwood habitat, which many foresters feel serves to exacerbate and propagate the problem.***

The National Park did provide an interesting contrast to the more intensively managed forests which we had seen up to this point. The age class structure and diversity of species in close proximity to one another was certainly more varied within the non-intervention area, which is as one would tend to expect. One member of the group commented that it had "the feel of a neglected estate woodland" in



*A mixed stand within the non-intervention area of the National Park*

comparison to the State Forests, which is probably not an unfair description, as officially it has been maintained as a non-intervention area since 1947 (although some areas are undoubtedly much older). ***Another visible contrast was the volume of deadwood, which the National Park aims to maintain at around 120m<sup>3</sup>/ha and is considerably higher than the volume observed in the managed forests.***

The differences between the management techniques employed within and outside the National Park have been the subject of much debate. However, the National Park provides an area totally committed to conservation, where the forest is managed under a totally different range of objectives. It is undoubtedly the case that conservation benefit could be obtained from the site alongside the production of timber, and the Forest Service is definitely making a concerted effort to ensure that measures to promote conservation are implemented alongside timber production within their forests. However, it is important to consider the conservation area in a national context, since the park represents a relatively small area of 5000ha. Taking an area of this size out of production when considering the size of the whole State Forest Holding in Poland is not a major concern, and therefore I view it as an interesting site for educational, tourism and conservation purposes, which fits well alongside the portfolio of efficient, production-orientated State Forests.



*Stand of dead and dying Norway spruce, destroyed by Ips typographus*



**Conclusions**

*The future for Polish forestry is definitely very bright. The forest industries seemed to be well supported by economic investment, funded by the drive for development which is taking place across Poland. The foresters who we had the pleasure of meeting were very professional and knowledgeable, and were keen to show us their forests, of which they were right to be extremely proud. High quality timber production is still one of the main objectives throughout Polish forestry; however there was a definite willingness to incorporate other worthy objectives alongside this main focus.*

It was certainly the case that silvicultural methods are somewhat different to standard practice in the UK. Crops are generally grown at significantly higher stocking densities and for much longer periods of time, with a greater frequency of lower intensity

operations taking place throughout the rotation.

It was extremely interesting to see these methods, and the knowledge that I have gained will undoubtedly be of great value to me throughout my career. I hope also that this insight into Polish forests will inspire *Woodland Heritage's readers*, in the same way that it has inspired me.

**Acknowledgements**

*It is with the sincerest gratitude that I thank Woodland Heritage for their generous support and assistance, which made it possible for me to take part in the tour.* I would also like to thank the members of ICF Wales who attended, particularly Bill McDonald and Hugh Wheeldon, for organising such an excellent week as well as providing stimulating discussion throughout. Furthermore, our Polish hosts for their enthusiasm and making us so welcome in their wonderful forests.



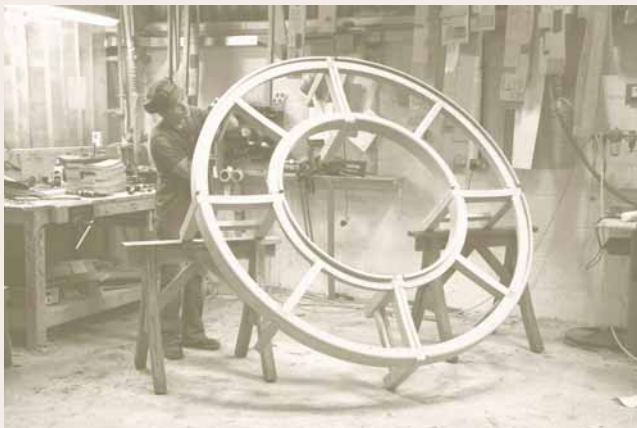
# GAZE BURVILL

Tel: +44 (0)20 7471 8500

Email: [info@gazeburvill.com](mailto:info@gazeburvill.com)

[www.gazeburvil.com](http://www.gazeburvil.com)

The Oak piece being made in the picture below is a 'Broadwalk' Treeseat. Like all Gaze Burvill Oak furniture these treeseats are hand-crafted from timber which comes from certified, managed forests.



Gaze Burvill use traditional methods like steam-bending to create soft, yet strong, curves. The steam-bending process alone on either of these two pieces takes about six weeks from start to finish, and the whole seat itself takes two to three months to build. Treeseats are usually supplied to fit all the way around a tree, but can also be made as a section, like a half or three-quarters treeseat.

The picture (right) features a custom wave-shaped Broadwalk Seat in the making at the workshop. These adaptable seats can be made to fit almost any space, and are a dramatic yet gentle focus for a garden or landscape design.

Gaze Burvill have been making furniture from Oak for 16 years. Simon Burvill trained at Hooke Park College in



Dorset, an innovative environmental project, which connected woodland management to furniture design and manufacture. The company designs and builds commissions for private gardens, parks, botanical gardens and arboretums, as well having a range of Oak outdoor furniture which it produces throughout the year. All the Oak furniture is craftsman-made at the Hampshire workshop.

*Simon Burvill is a founder member of Woodland Heritage.*

## Letters to the Editor...

Georgia

Dear Lewis and Peter,

Thank you so much for your supporting message!

I am ok and so is my family. However, Georgia went through very hard times. The Russian army has destroyed large parts of our infrastructure and not only military facilities. And what is most disgraceful, they have burnt nearly 1,000 hectares of forests (by throwing incinerating bombs from helicopters) in and near Borjomi-Kharagauli National Park. The forests located in those areas are virgin forests consisting mainly of Oriental (Caucasian) Spruce – *Picea orientalis*.

There is no justification at all for these barbaric actions, as the park is located hundreds of kilometers from the conflict area. I think they just wanted to cause as much economic and ecological damage (the word ecocide comes to mind...) and destroy our spirit. But they did not succeed.

Now the situation is much more calm, the Russian occupants are slowly leaving the country but some of them are still here despite protests from the rest of the world. Our economy will also hopefully recover very soon thanks to the help coming from all over the world, including the UK.

But as foresters say it will take at least 200 years for the burnt forest to fully recover.

Thank you once again for your message! Hopefully our next correspondence will occur in much more peaceful times.

Best regards,

Ilia Osepashvili

Forest Officer

WWF Caucasus Programme Office

Georgia

Inverness

It was a great pleasure to be with the *Woodland Heritage* group at Hay-on Wye. I enjoyed the myriad of information and knowledge learned. You are to be congratulated on a very well-run course and the most excellent tutors. I hope you will convey to them my thanks in due course. Thank you also for providing excellent lunches and the evening tutorials and dinners. Hope to keep in touch with Woodland Heritage in the future. Thanks again,

Sincerely,

David Rose



Peebles

Dear Peter,

I visited the Hunterston Estate, near Largs, West Scotland, recently to give some advice on hardwoods, and was able to obtain an authentic copy of trees purchased by the 25th Laird for planting in 1832-37.

Noticeable that Beech was almost twice the price of Oak...

Regards,

Gavin Munro

### TREES PURCHASED 1832-1837

BY

#### ROBERT CALDWELL HUNTER 25<sup>TH</sup> LAIRD

Roberts Hunter was responsible for draining large areas of marshland on the estate and also planted 30,137 trees between 1832-1837

Date	Trees	Rate/1000	Cost	Total	
10.2.32	500 Larch Fir	8/-	£0.4.0		
	400 Scotch Fir	8/-	0.3.2		
	500 Thorns	10/-	0.5.0		
	25 Oak	10/-	0.2.6		
	25 Ash	8/-	0.2.0	£0.16.8	
28.2.32	2000 Thorns	10/-	1.0.0	1.0.0	
16.12.32	1500 Larch Fir	10/-	0.15.0		
	700 Spruce Fir	10/-	0.7.0		
27.1.37	800 Scotch Fir	8/-	0.6.8	1.8.8	
	5000 Larch	10/-	2.10.0		
	1000 Ash	7/-	0.7.0		
	2700 Thorns	12/-	1.12.2		
7.12.37	24 Portugal Laurels		0.12.0	5.1.2	
	2000 Oak	15/-	1.10.0		
	3000 Larch	10/-	1.10.0		
	1000 Thorns	12/-	12.0		
	400 Beech		6.0		
	200 Poplars		14.0		
	3 Cedars		2.0		
	2 doz. Currants		4.0		
2 doz. Goosberries		6.0	5.4.0		
17.12.37	6000 Larch	6/-	2.8.0		
	1000 Oak	12/9	12.9		
	500 Spruce	12/6	6.3		
	500 Beech	20/-	10.0		
	300 Evergreen Privets	20/-	6.0		
	3 doz. Currant Bushes		6.0	4.9.0	
				Total	£17.19.6

All from Martin &amp; Bond Nurseryman Largs

Total		
	Larch	16.000
	Scotch Fir	1.200
	Spruce	1.200
	Beech	900
	Oak	3,025
	Ash	1.025
	Thorns	6.200
	Portugal Laurels	24
	Poplars	200
	Cedars	3
	Privet	300
	Fruit Bushes	84





## Dumfriesshire

Dear Lewis,

To update you quickly on my activities since we last spoke...

I have now built and installed a 6 x 4 m log cabin for the Forestry Commission, which is part of the new redevelopment at Grizedale Forest Visitor Centre. I constructed it in Garstang from Leyland Cypress logs, which were sourced from FC land on Dalton Craggs near Burton-in-Kendal, Carnforth. It was then labelled, dismantled and re-erected on wooden piers at the edge of the new car park at Grizedale.

A Logosol portable sawmill was used to mill the same Leyland Cypress on site for the rafters, windows, door and all internal joinery (apart from the tongue and groove ceiling boards). The only imported timber used was Western Red Cedar shingles from British Columbia and the cabin was finished with the help of various craftsmen and recreational rangers from Grizedale. It has also been fully insulated with sheep's wool.

I am very pleased with the result and have to admit that it does look rather good!

I have also just finished a Green Oak jointed cruck framed roof structure for my new house here in the Borders, using three-year old windblown Oak trees from Grizedale Forest, so it's been a very busy time.

If you, or any other Members would like to know more, then please feel free to contact me.

I continue to thoroughly enjoy reading the Journal.

*Very best wishes,*

Mick Read,

Tel. 01387 371354

email: mickread380@yahoo.co.nz

## Kent

Dear Lewis Scott

What a difference between Vol. 1 Spring 1995 and Spring 2008 – 80 pages. Great membership list.

You and Peter have achieved an immense amount of good and I hope you are commensurately proud and delighted.

Prodigious energies and the right concepts from day one. Putting back value and stuff that will be demanded instead of natural rubbish unmanaged with little prospects.

Frightful politicians, all Chiefs and no Indians.

Sincerest congratulations to you both.

*Yours sincerely*

Patrick Hills

Dear Mr Hills

Thank you for your kind letter.

I think Peter and I should feel rather proud of what we have achieved, but credit should really go to our Trustees and Members. Many of them, like you, not only support us financially, but also promote Woodland Heritage and the way in which we believe that *"things should be done"*.

The fact that we also get pleasure and enjoyment out of what we do and achieve through Woodland Heritage in our spare time is an added bonus.

In 2008 I believe we will see a 'step-change' and, with our new Woodland to Workshop Course in May, I believe that we will be able to reach out to yet more people in the wood chain and show them that properly managed and sustainable woodlands can and will produce quality timber. It's all very simple really.

Thank you for your continued support.

*Yours sincerely,*

Lewis J Scott

Director and Co-Founder

Dear Lewis & Peter,

Cumbria

I thought that you would like to know that after spending almost five months commuting at weekends to Coed y Gororau Forest District to work as a Forest Design Planner with FC Wales following my graduation from the University of Cumbria, I am now back in the Lake District. While the time spent in Wales has been brilliant in terms of gaining experience and I have been fortunate enough to work with a great team, it is very nice to be back with my family full time (although it is

debateable whether they feel the same). I shall be spending the next six months working with FC NW England in the Northern Lakes, again as a Forest Design Planner.

Putting my degree to work!

Many thanks for your support and interest in my progress through university and beyond.

*Best wishes,*

Sharon Rodhouse

BSc (Hons) Forestry & Woodland Management

# BREAKING THE RULES OF THINNING

As he enters the dark world of his unthinned Irish plantation, JACK TENISON fears that he may have been talking nonsense all along

It was always my trophy wood. At every Timber Growers or Royal Forestry Society visit I would lecture people on the success of my working-with-nature methods. Even wise *Jan Alexander* nodded sagely as I explained how weed control need not be invasive. Snap a few Ash or Willow leaders; hook out the occasional bramble; but nothing too much. Time and money spent on weeding was probably wasted, and a judicious balance of vegetation was best to nurture the main crop.

***I never actually went into that wood. Young Sitka are prickly, and it looked uninviting. But the trees are now 14-years-old and it is imperative to start thinning. Brushing past the curtain of green-blue needles, I entered the dark, damp, wonderful world of an unthinned plantation. And I fear that, all along, I may have been talking nonsense.***

The floor is a mass of pale green moss, creeping up the sides of the trees. Some Sitka have failed completely, their brittle leafless contours starkly etched against the soft light. Others have surged ahead, already eight inches or more in dbh (diameter at breast height, the standard point of measurement for all trees, hard or soft, which avoids the taper

effect of the base), bigger than many veterans waiting for clearfell on some Leitrim hillside.

But most are locked in a natural struggle for survival. Brambles, Ash, Birch and Sally all sprouted from the broken ground as the previous crop of Sitka was felled, and have forced their way upwards, their taut stems reaching for the light in the dense canopy overhead. Nature, of course, is the enemy of biodiversity; we did not need Darwin to note that, left unchecked by man or fire or browsing animals, dominant species slowly gain mastery.

In this wood, that struggle is vividly alive. I hope I am still in time to allow my preferred crop, Sitka Spruce (the only profitable species in Ireland and the one without which I would have been forced to sell up long ago), to dominate and yield to maturity.

Not all species are the same. Ash, Sally and Sycamore are hugely greedy, spreading their shoots in all directions, lateral branches in parabolic curves physically forcing down and denying light to adjacent trees. But Birch grows up straight, its elegant wispy form generally vertical, politely occupying its space allotted by nature, and deferring to adjacent species, offsetting the dark leaves and bark of the conifers with its pale orange and white flaking skin. I take



*The only thing that matters is the final crop, says Jack Tenison, and how to get there as quickly and cheaply as possible.*





*Time and money spent on weeding was probably wasted, Jack used to preach.*

such pleasure in treating the Birch with respect, shaping and singling the stems so that they stand proud and equal with the Sitka.

Have I left it too long? Should I have weeded earlier and better? Should I have sprayed and banged up (replanted the spaces of those early-dying trees)? This is good forestry practice, recommended by advisers and the Forest Service. The rule is to plant more trees than are needed for the final crop, perhaps three or five numbers the density for softwood and up to thirty times the density for hardwoods. This tight stocking forces the trees upwards, chasing the light, the continually dark canopy kills off epicormic or lateral growth, while the superfluity of saplings allows selection of the best stems to grow on.

***The disadvantage is the by-product of selection: the thinnings themselves. They cost time and money. The days are gone when first thinnings of hard or softwood had any value at all.*** Only **Joe Barry**, the indefatigable chairman of Crann, seems to render profitable and fun the most mundane of exercises. First thinning is hard work; it is bad enough for conifers and even worse for hardwoods. So I try to do as little of it as possible.



*Nobody will care for your wood like you.*

***What I cannot avoid, in hardwoods only, is that first shaping in years five to ten, selecting the lead shoot (the leader) and taking off the lower lateral branches. Otherwise the brambles will swarm up the stem, split the branches and smother the tree. But that early shaping gives the tree its chance to work through the ground weeds and compete with the other species for the canopy light.***

Then at years 15 to 20, every tree – hardwood or softwood – must be brashed whether it will be thinned or not. This means, preferably with a small chainsaw, taking off the side branches; for softwood, as far as you can; for hardwoods, as far as the first major fork; with both, taking care to cut the branch as close as possible to the lip joining the branch to the main stem, but not actually cutting the lip.

There are two reasons for brashing every tree. First, unless the entire plantation is brashed, you simply cannot see the wood properly. Secondly, even if the tree will be thinned, whether to waste (i.e. chopped up and left to rot on the ground) or extracted, the side branches take up space and reduce mobility and therefore can be dangerous.

Once you can see the plantation, it is an easy matter; surely you just cut out all the crooked, stunted and forked stems? But no, the dictates of canonical forestry ring again. Of course you can thin selectively (that is, take out only those trees you want). But it normally means you will only take out the worst trees, so you will have to do the work yourself or pay somebody; and nobody will want to buy your thinnings. Also, because the trees are here and there, it is difficult to get any machine, other than a quad bike or the most modest vintage tractor, into the wood without causing irreparable damage scraping bark off the base of the standing trees. And nobody will care for your wood like you.

***The only way to be paid for a first thinning is to rack (take out entire rows of trees, good and bad). The advantage is that this creates a wide-enough track for a proper tractor and can therefore be a mechanised operation. The disadvantage to the owner is that a one-in-three or a one-in-seven rack takes out one-third or one-seventh of the best stems (which is why you might be paid) while still leaving you with one-third or one-seventh of the rubbish in the other rows.***

Finally (and you must go on one of those excellent Timber Growers' days to savour the full intensity of the debate) you must decide whether spacing is important. Should you leave a dismal stag-headed runt simply because it is there, or should you clear out all the losers, irrespective of any gaps that may appear between the master race of trees? I was given a firm ticking-off recently by the person we all now



*You must go on one of those excellent Timber Growers' days to savour the full intensity of the debate about spacing.*

have to employ to complete grant forms (the Forest Service being evidently incapable of reading your writing or mine). Far too many young Oak taken out, he said, you will be ruined by epicormics.

But with an old forest I receive no grants and, being an avid visit-goer, I get my advice for free. ***I am also free from the distortions of a grant-driven economy, and free to make my own decisions. I believe the only thing that matters is the final crop, and how to get there as quickly and cheaply as possible.*** There is no point in



Crann brings together people with a love of trees. We aim to increase tree cover in Ireland by encouraging tree planting, promoting tree care and raising awareness through environmental education.

Join Crann and you can help us stand up for trees.

Contact:  
**Marguerite Arbuthnot-O'Brien**  
 Crann  
 P.O. Box 860  
 Celbridge  
 Co. Kildare  
 Telephone: 01-627 5075  
 Website: [www.crann.ie](http://www.crann.ie)  
 Email: [info@crann.ie](mailto:info@crann.ie)




*Has he made a mistake, Jack wonders, and sacrificed the establishment of a good crop by insufficient weeding at an early stage?*

growing-on a tree that is going nowhere. Redundant trees are expensive to take out, and the bigger they are the harder it is. So, better to thin early rather than late.

It is easier to prune epicormics than to cut out surrounding trees. Even leaving only the good trees and not minding the gaps, the canopy still closes over after a few years. ***Pruning trees with a Silky or hand-saw is a civilised way to enjoy your trees and even the most hard-headed of us must leave jobs to do when you have a bad back.***

As for weeds, brambles between the trees is perfect for woodcock, and not all competition is malevolent. Ash, Sycamore and Sally will take over, given the slightest chance. But Birch or Mountain Ssh are generally benevolent and act the perfect nurse, sheltering the other trees from frost and light. Best of all, unlike expensive planted nurse crops which then must be removed, a natural nurse like Birch can be kept in check and will slowly fade away as the stronger trees take over.

So, back to my Sitka plantation. Have I made a mistake, and sacrificed the establishment of a good crop by insufficient weeding at an early stage? Or am I halfway to a final crop, with the losses only that which would have died anyway? Please come and have a look. I would welcome your comments – and who knows who is right? ***(Crann 2008)*** 

***Jack Tenison***

Jack Tenison is very much a “hands on” forester and woodland owner in South Wales and Lough Bawn, Co. Monahan, Ireland. He writes regular articles for ***Crann Magazine*** and has helped Irish timber growers by hosting visits and demonstrating his successes and failures on his wooded estate.

Jack was an early member of Woodland Heritage and is a great supporter of the European Squirrel Initiative.



# Growing Walnuts in mixtures – early results

Jo Clark and Gabriel Hemery report on early results from Walnut silviculture trials established in 2000 with support from Woodland Heritage

**R**esearch was initiated in 2000 to investigate planting mixtures that promote the growth of Common Walnut (*Juglans regia*) in England for timber production. The aim was to investigate compatible mixtures of companion trees that would improve Walnut survival and growth in terms of stem quality and vigour, ultimately leading to a reduction in rotation time for Walnut timber production.

## Background

Walnut is a light-demanding species and has the largest crown diameter, in relation to any given stem diameter of the main timber-producing species used in British forestry (Hemery, 2005). Therefore, traditionally, it has been recommended that Walnut is planted as a pure crop and at very wide spacings, due to its intolerance to shading. Walnut is regarded as a difficult species to grow as it has a high demand for nitrogen and is very susceptible to late spring frosts. In combination these factors often lead to trees with very poor form. Novel approaches to Walnut silviculture, particularly in Italy and the USA, have shown that Walnut benefits from being planted with tree and shrub nurses. Benefits for Walnuts grown this way include increased height, improved stem straightness, less branching and reduced nitrogen deficiency. Mixtures including Black Locust (*Robinia pseudoacacia*), Autumn Olive (*Elaeagnus umbellata*) and Alder (*Alnus glutinosa*) have proven to be particularly beneficial due to their nitrogen fixing (N-fixing) capabilities.

## Field Trials

Three field trials were established in southern England during spring 2000 in Devon, Oxfordshire and Sussex (Hemery 2001). The planting design used in the trials is based on similar schemes used in Italy and the USA but adapted by using a closer spacing and alternative species, more suited to the British climate. The Walnuts were planted at roughly  $5 \times 5$  m spacing with combinations of tree and shrub mixtures (Figure 1). Tree nurses planted were Italian Alder, Silver Birch, Wild Cherry and Western Red Cedar, and shrub nurses were Autumn Olive, Elder and Hazel. Plant density was 2000 plants per hectare ( $2.5 \times 2.0$  m spacing) comprising 400 Walnuts, 400 tree nurses and 1,200 shrub nurses.

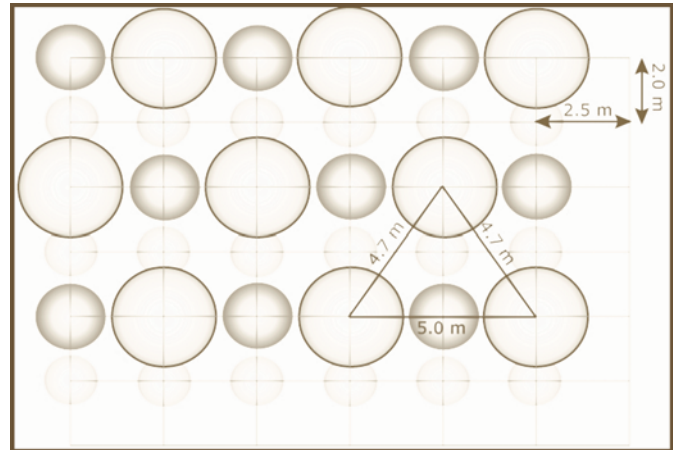


Figure 1. The stand design adopted in the Walnut field trials. An approximate spacing of  $5 \times 5$  m for the Walnut trees (large circles) was achieved within a rectangular layout grid of  $2.5 \times 2.0$  m. Tree nurses (medium) were planted in an alternative pattern at the same spacing as for the Walnuts. Shrub nurses (small circles) were planted between rows at  $4.0 \times 2.5$  m.

## Results

### Survival

Walnut survival was very high (99%) across all sites after six years.

### Walnut height

Walnut height, averaged across all nurse combinations, were significantly different at each site: 91cm at the Devon site, 134 cm in Oxfordshire and 159 cm in Sussex.

The effects of growing Walnuts with nurse species were extremely interesting. There were differences between Walnuts grown with various tree nurses, but statistics revealed that these results were not significant. However, the height of the Walnut when grown with Autumn Olive was significantly greater than with any other combination of nurses after six years (Figure 2). These results surprised us, so we measured one site (Oxon) for another year to try to determine why.

During this seventh growing season, we found that the beneficial effects of Autumn Olive became even stronger. The vast majority (90%) of the tallest Walnuts, (taller than 200 cm), were those planted with Autumn Olive. Average Walnut height with Autumn Olive was 289 cm and only 131 cm with

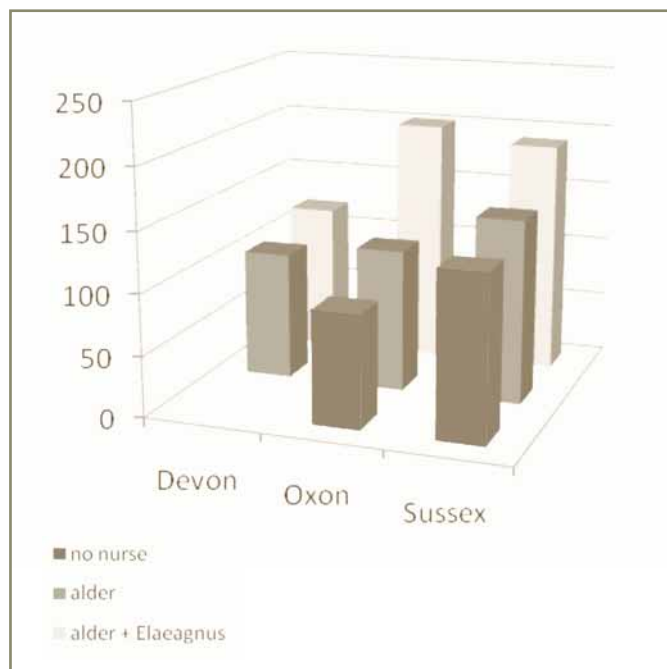


Figure 2 Height of Walnuts (cm), grown with various tree and shrub nurses, six years after planting

Hazel, i.e. more than 100% greater. The volume (width × height) of the Autumn Olive was four times greater than for Hazel, the next biggest shrub. Walnuts kept pace with the shrub nurses and were never swamped.

### Nitrogen Fixing

Nitrogen levels in the Walnut leaves were assessed at the Oxfordshire site and found to be very low, as would be expected on an ex-arable site. However, those Walnuts accompanied by nitrogen fixing nurses had optimal levels of nitrogen.

### Walnut Form

The effect of nurse trees on Walnut stem form was significantly different between those planted with any nurse and those without a nurse. On average, Walnuts without a nurse had very heavy branches which were on average greater in diameter than the stem. Walnuts grown with a nurse also had fewer multiple stems or forks.

## Conclusions and future work

Walnut trees were completely enclosed by Autumn Olives as their average width (3.2m) exceeded the initial Walnut spacing (2.5m) after six years. The positive effect of Autumn Olive on Walnut height can be explained by four factors:

1. improved shelter (micro climate)
2. a forcing effect (drawing up) due to reduced side light
3. increased nitrogen availability
4. suppressed weeds

In summary, the results show that there are significant early benefits from establishing Walnut with a shrub nurse, particularly Autumn Olive. It is too early to be certain of the benefits of using a tree nurse in Walnut silviculture. However, we anticipate that the tree nurse will impact Walnut growth between 10 and 20 years after establishment. It is also likely that some thinning or even coppicing of the Italian Alder may be necessary given the rapid height growth of this species. Of course, this provides an opportunity for income generation, particularly in the light of bioenergy.

We realise that the use of Autumn Olive in British forestry has been limited and not without some debate (Clark and Hemery 2006) due to its invasive tendencies in several US states. However, it was introduced to the UK nearly 200 years ago, and has been used in four field trials across England over the last eight years, with no evidence of this invasive habit, despite prolific fruiting each year.

A peer-reviewed paper (Clark *et al.* 2008) has been published recently that presents these results in detail. The abstract can be read free of charge by visiting <http://forestry.oxfordjournals.org> and typing in the keywords 'Walnut form'.



## Acknowledgements

*Woodland Heritage* are gratefully acknowledged for their financial support of this research programme. We are indebted to the trial hosts: Alan and Ann Olley (E. Sussex), Matthew and Suzanne Knight (Devon) and the trustees and patrons of the Northmoor Trust (Oxfordshire).

## References

- Clark, J.R. and Hemery, G.E. (2006). The use of Autumn Olive in British forestry. *Quarterly Journal of Forestry*, 4, 285-288.
- Clark, J., Hemery, G. and Savill, P. (2008) Early growth and form of Common Walnut (*Juglans regia L.*) in mixture with tree and shrub nurse species. *Forestry*. DOI 10.1093/forestry/cpn036.
- Hemery, G.E. 2001 Growing Walnut in mixed stands. *Quarterly Journal of Forestry* 95, 31-36.
- Hemery, G.E., Savill, P. and Pryor, S.N. 2005 Applications of the crown diameter - stem diameter relationship for different species of broadleaved trees. *Forest Ecology and Management* 215, 285-294.

*Jo Clark is Forestry Research Manager for the Northmoor Trust, [www.NorthmoorTrust.co.uk](http://www.NorthmoorTrust.co.uk) Gabriel Hemery is Director of Forestry Horizons [www.ForestryHorizons.eu](http://www.ForestryHorizons.eu) and a Trustee of Woodland Heritage.*



# Past Field Days and Weekends

The First Woodland Heritage Journal was published in 1995, but it was not until 1997 that we held our first Field Weekend.

## Single Days

- 1997 – Weasenham Woods – *Norfolk*
- 1998 – Longleat Estate – *Wiltshire*
- 1999 – Hovingham Estate – *Yorkshire*
- 2000 – Foxley Estate – *Herefordshire*
- 2001 – Visit to Sotterley Estate postponed due to Foot & Mouth Disease
- October 2001 – official opening and dedication of The Garthwaite Shelter at Castle Howard Arboretum – *Yorkshire*
- 2002 – Farnley Hall Estate – *Yorkshire*

## Three Days

- 2003 – Leconfield Estate, 'The Wood Show' at Weald and Downland Museum – *W. Sussex*
- 2004 – Miserden Estate, Ebworth Estate and Westonbirt Arboretum – *Gloucestershire*
- 2005 – Powis Castle Estate, Trawscoed Hall, Leighton Estate, RFS Leighton Redwood Grove – *Wales*
- 2006 – Bowhill Estate, Woodschool, The Hirsell, workshops of the late Tim Stead – *Scottish Borders*
- 2007 – Melbury Estate, Deer Park and Gardens, Stourhead (Western) Estate, Stourhead Gardens (National Trust) – *Wiltshire and Dorset*
- 2008 – Aconbury Woodlands, Whitfield Estate, Whitney Sawmill and Workshops, Moccas Park – *Herefordshire*





# OUR FIELD WEEKEND 2008

by David Taylor

**With numbers swollen to over a hundred, the usual cheerful, humorous, knowledgeable, inquisitive, questioning, outspoken and at times out rightly combative party of woodland owners, foresters, ecologists, timber merchants, furniture makers, sawmillers and just plain good guys that constitute the membership of Woodland Heritage, together with wives, partners and guests gathered once more, this time in Herefordshire, for the annual Field Weekend.**

And where better in all of the UK to see the kind of quality of plantation, both hardwood and softwood, that so enthuses Woodland Heritage members; indeed where better than the first venue, *the Aconbury Woods, considered the Jewel in the Crown of the Duchy of Cornwall Estate, to start the tour?* Head Forester *Geraint Richards* led the party around the 300 acre woods, ably aided and abetted by *Graham Taylor*, of Pryor and Rickett Silviculture, but first the



*Geraint Richards, left, Graham Taylor, right.*

usual inimitable introduction from the inimitable Peter Goodwin, and the traditional presentation of a bottle of bubbly to the member who had travelled furthest to be there. *Robert Scott, from Northern Ireland* was adjudged the winner by a close head.

Aconbury Woods have a long and varied history, starting in 1337, when they formed part of the lands of the Black Prince. Over the centuries, they were in turn granted to various families who had been useful to the Crown, then snatched back as the wheel of politics and history made another turn, eventually lodging with Guy's Hospital, then the Prudential, from whom our Patron, the Prince of Wales in his Duchy of Cornwall persona, broke with royal tradition and actually bought them, in the year 2000, along with the agricultural estate which adjoins.

We first considered the problems of natural regeneration of Oak. Infrequent mast years make the achievement of an adequate stock of seedlings a slightly hit or miss business, and the inevitable discussion of coupe size, bramble growth, deer, squirrels and all the other hazards to which the innocent acorns, if there are any, are subject duly ensued. From here we progressed to Sweet Chestnut, a species about which almost all all enthused, both in the form of coppice and as a fine timber, of which more anon. The less well-versed members were introduced to shake, a subject on whom they were to become well versed over the course of the tour.

There followed a couple of rural vignettes. First, a bit of wood jiggling, with the Estate staff demonstrating their wet weather skills in making hurdles, gates and all manner of hand crafted cleft wood stuff, mainly for the Duchy houses, cottages and farms. Then horses. Extracting timber (*see below*). We became familiar with Percherons and ponies, and with the associated hardware, which seemed to demand more attention from the blacksmith than did the horses. Some liked the lack of site damage and the favourable effects of manuring





the soil resulting from a return to gentler days, so we passed through a woodland camp of volunteer coppice workers some of whom seemed to owe more to the Pirates of the Caribbean than to rural Herefordshire, and there in a wood a small marquee stood, with Duchy Original biscuits and elderflower cordial for the grateful, and thirsty members.

***After lunch we walked casually through woods of staggering quality including some very fine Larch, which went unremarked apart from almost all apart from your scribe, to a viewpoint which showed so well why this part of the Border Counties is so rightly prized by them as knows. Wonderful, marvellous, harmonious scenery of hills, valleys, woods, farms and houses.***

The richness and fertility of the red soils at Aconbury produce super crops of all ages, and we considered next younger mixed woods. There are, of course, three classes of optimists. There are ordinary optimists, there are super optimists and there are those who think they have eradicated grey squirrels from their woods. We saw once again just what a menace these invasive mammals can be, in a fine promising twelve-year-old mixed hardwood stand. At times the jargon can get a bit much for the less specialised attendees, and I spent a little while convincing Ree that lime stools are not an unpleasant medical condition, but an Ancient Woodland indicator.

We ended up under a tree and what a tree. Here thanks were said, presents handed out and the first day drew to a close, leaving us with a lasting impression of woods devoted to long-term objectives of quality and stewardship.

The next day dawned fine and warm, and we reassembled at *Whitfield Estate, home of the Clive family*, who greeted us with coffee and biscuits in the stable yard, which was whirling with swallows and alert with black redstarts. Working in the Whitfield forestry department is evidently a healthy occupation, as a mere 30 years service seems to be routine.

*Chris Jarvis*, recently retired Head Forester, joined *Graham Taylor* in leading us first to a P1775 beech avenue which was well past its sell-by date, and whose renewal was full of problems because it is no longer permitted to remove veteran trees, which are both derelict and unsafe in the context of an avenue. A major part of this dilemma is, it seems, the famous European Directive, which gives unprecedented cover to newts and bats. There are two million pipistrelles in the UK, and only about a thousand foresters. Further comment is superfluous.

***We then progressed to an arboreteum dominated by some magnificent coastal redwoods. These were raised from a packet of seed collected by a Clive ancestor not from some***

***lofty Californian grove, but in a shop in New York in 1851. Arwyn Morgan (see page 56) gave us a fascinating talk on the varying durability of redwood timber, based on a genetic characteristic which not all redwoods possess, and Peter Savill told us of woody subterranean growths called lignotubers, no doubt a rich potential source of wood chips.*** And we walked on, to see the hulk of what was once the tallest Oak in Britain, sadly struck down by lightning. An almost equal charge of electricity was unleashed by the revelation that the estate did not reckon much to pruning. But more of this anon.

In massive juxtaposition to the Duchy's horses at Aconbury the previous day, a hugely powerful and impressive machine now demonstrated how to handle the very large hardwood logs which appear routine in Herefordshire. The subject was a 690 Hoppus ft, 30 tonne Oak that had keeled over in a gale (*see below*). Away it went without so much as a hiccup from the vast tractor in charge, and we headed for a little pavilion by a pretty lake for lunch.

A distinguished visitor to Whitfield in the nineteenth century, I confess I have forgotten who, and when, remarked on the local Oak as, "*as useful as it is beautiful, it hangs on every hill, and invades even the pleasure garden*", and the newly introduced Douglas Fir as, "*graceful, fast growing, yielding valuable timber, both useful and ornamental.*" There. Got the important bits. And we walked



through wonderful oakwoods, again, such a seemingly casual way to treat trees of such unbelievable and powerful presence. Then we arrived amongst younger 50 year old oakwoods and here the stored energy within Peter Goodwin and Gavin Munro was finally unleashed in a passionate demonstration of pruning with a Silky Saw, lovingly carried into these woody depths by Lewis Scott. The vision of Peter standing on the roof of his Land Rover with a saw of maximum reach, nailing side branches 29 ft off the ground will remain with me, at least, for a very long time.

The efficacy of various nurse crops for Oak on these rich deep fertile sites was the next topic, and we were enlightened and informed by Tony Spencer and Esmond Harris, both of whom remember the Royal Forestry Society visit to the same spot in 1976. Tough on today's incumbents, that sort of thing. Then a long and very pleasant walk through the woods and the park brought us back to the stable yard where thanks were said, gifts exchanged and farewell bid to Edward Clive and his charming family. What a magnificent estate, and what a quite excellent visit.

***We met on Sunday morning at Whitney sawmills, just across the Wye from Hay, where we met ebullient proprietor Will Bullough and heard of the history of the mill,*** Whitney Railway Station, Kilvert and the Reverend Mr Venables, and the short but entertaining modern history of the adjoining woods. We were introduced to the resourceful and ubiquitous *Platypus cylindrus*, a beetle that invades felled Oak and demands that logs be sawn and not left on the yard to mellow and mature. We looked at some very fine timber, and a chunky little log was opened up on the spot to demonstrate the effect of ring shake and star shake. No great shakes indeed. The virtues of Sweet Chestnut were sung long and loud, as were the difficulties of getting decent logs in the UK. We progressed to the super new drying shed, which enabled the mill to cut and hold stocks of planked material for their owners, which included the Duchy, and added value to the better quality timber at the same time. We lunched among the square-edged stock, which made good picnic tables and seats for the Woodland Heritage membership. And we competed in a timber recognition competition won by Stephen Bedford with an unbelievable score of eleven out of ten, or something similar.

***After lunch we crossed the Wye at Bredwardine, and entered the lost world that is Moccas Park, an English Nature reserve of such antiquity that one expected wolves and bears, if not velociraptors, to harass the visiting party.*** *Natural England's Tim Dixon* introduced us to the post-glacial history of the park as told through pollen grains dredged from the Lawne Ponds which were

formed beneath the glaciers of the last Ice Age, to the post Mediaeval story of unruly Welsh kinglets and Normans and nobles which in turn left their mark on the palimpsest of Moccas.

Whether the party was stunned or impressed by Tim's disrespect for Capability Brown and "Wrecker" Repton we will never know, but both added their thumbprint to the present state of the park, which contained a slightly odd mix of extraordinary ancient Oaks, some up to 1300 years old, and some rather bizarre modern plantings. We heard of specialised beetles, which had a life-style of immeasurable boredom, and the short but hedonistic free-flying antics of Stag beetles. And we heard how Oak trees manage their declining centuries.

We attempted to solve one of forestry's deepest



conundrums; how many Bangor Students can you get into an old and hollow Ash? And we thanked Tim Dixon for an entertaining and thought-provoking afternoon, said our goodbyes, and went our various ways.

***Every year we marvel at how Peter Goodwin and his team succeed in getting Woodland Heritage members to such amazing and relevant estates and venues, and this year's trip will be a hard act to follow. The combination of fascinating and unique places, with the very eclectic mix that is Woodland Heritage membership is a potent combination; next year we head for the National Forest. Make sure you book early!***





# Field Day

◀ Starting off at Whitfield.



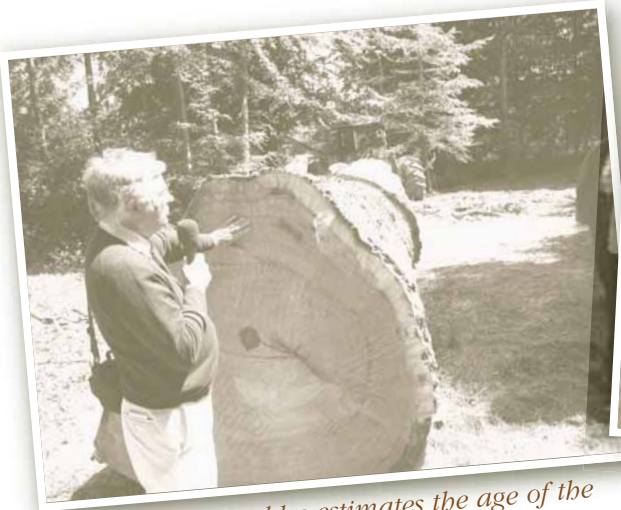
▲ The group gathered round



▲ Geraint Richards and Doug Joiner



▲ Mike Abbott.



▲ Roger Venables estimates the age of the massive Oak.



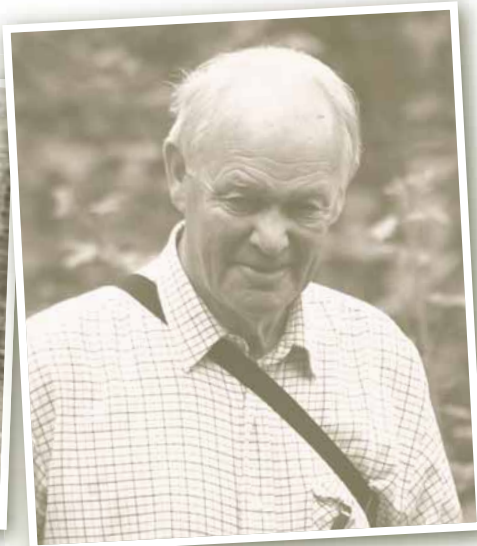
▲ Andy Poore receives the Peter Savill Award.



▲ The timber identity



▲ Presentation to Edward Clive.



▲ The venerable Bede.



▲ An emerging



# Snapshots

Listening and learning. ▶



...d the massive Whitfield Oak.



▲ Arwyn Morgan.



▲ Left to right: Ken Hume, Graham Taylor, Geraint Richards and Des Needham argue over a Pine cone.



...fication competition.



▲ Sally Goodwin and her exhausted chairman.



▲ Under an ancient Oak at Moccas Park.



Bangor student.



▲ Esmond Harris



▲ Gavin Munro holds forth.



# Reflections after the 2008 Field Weekend

A letter to Peter Goodwin (furniture maker) from Esmond Harris

Dear Lewis

Calstock, Cornwall

*I wonder if the enclosed might interest you for the next issue of Woodland Heritage. It amused me to write it after that very good day at Aconbury last month and I have now had an opportunity to check a few facts with Geraint Richards (though he has not seen the whole piece) and so I am sending it on to you for your consideration.*

*If you reject the whole thing I won't mind at all as I enjoyed writing it on a theme which is close to my heart.*  
Yours sincerely, Esmond Harris

Dear Peter

Thank you for a most enjoyable and informative Field Weekend in Herefordshire last June. Sharing your enthusiasm for fine Oak timber, I want to tell you how I will sell you some top quality Oak veneer butts in 80 years time!

Our first discussion of the weekend in the Prince of Wales' Aconbury Wood set me thinking and I have been thinking ever since about the enormous potential for Oak on that wonderful red Devonian soil and the long history of growing Oak there, confirmed by the magnificent tree we saw where the day's meeting closed. All that I am suggesting has been successful elsewhere.

At the first stop a large Oak about 130 years old plus five or six smaller trees had been felled leaving a small clearing of about a third of an acre (1/10th hectare) where our attention was drawn to some encouraging looking Oak seedlings but were there enough of them and was there enough light? I thought not as in such situations many Oak seedlings just fade away due to predation, drying winds and exposed situations or competition from vigorous vegetation responding to the sudden availability of more light. Waiting hopefully for more Oak seedlings to germinate would merely give further opportunity for the other vegetation to develop.



1. This coupe at Aconbury of no more than 20 metres by 20 metres will not have sufficient light for the growth of good Oak.

***Peter, I want to grow you some large, clean, Oak butts in a reasonably short time – 80 years rather than 130 years – which you can look forward to for your furniture making and this is how I will do it.***

Firstly, enlarge the cleared coupe (in forestry terms a regeneration clearing) to three to four times its present size, i.e. at least an acre (1/10 hectare); something between one and two acres at least (about half a hectare). Establish the route of the eventual extraction of the large trees that I confidently anticipate, through the middle of the coupe and leave this unplanted as an inspection and access track. Plant straight away before the competing vegetation gets a hold with 25% Pedunculate Oak (*Quercus robur*) and 75% Western Red Cedar (*Thuja plicata*) at two metre spacing in lines and between the lines running off from the track on either side at a suitable angle and direction for extraction of thinnings i.e. not at right angles but 'herringbone fashion'. The plants, probably 1+1 transplants i.e. one year in the seedbed and one year transplanted to encourage fibrous rather than tap root development. Before accepting them from the nursery I will inspect a sample to ensure that there is a good bundle of these all important fibrous roots and no large 'carrot' tap roots that get damaged during planting.

***Pedunculate Oak will be chosen rather than the Sessile Oak (*Q. petraea*) which was the previous crop on the site as it can be expected to grow outstandingly well on that high quality soil and produce the magnificent tree we saw at the conclusion of the day (see figure 2).***

Western Red Cedar will be chosen to 'nurse' the Oak for the first 20 years due to its very narrow evergreen crown with light branching which will not shade the Oak in the early years but encourage upward growth, rather than the 'shrubby' early growth, typical of Oak when grown without side shade. The one row, three row line mixture will be planted in pure lines of each species so that the pure lines of Oak will have three pure lines of Cedar either side of them, the eventual Oak lines will then be eight metres apart with the trees two metres apart in them.



2. Fine Pedunculate Oak admired at the end of the day.

For the Oak the expense of 1.2 metre tree shelters (perhaps 1.5 metre as fallow deer are present) will be justified as Oak above all other species benefits from the micro-climate created inside the shelters due to the concentration of CO<sub>2</sub> (from their own photosynthesis), moisture from condensation, warmth and protection from drying winds, under which circumstances Oak produces a second flush of growth late in the growing season and thus additional height growth. It is so important with Oak to get height growth in the first few years otherwise merely scrub results as so often occurs with pure Oak planting.

Planted in this way and from my own experience, I only expect to have to hand weed the Western Red



3. Three year old Sessile Oak nursed by three lines either side of Western Red Cedar (*Thuja plicata*). The Cedar is already above the dense bramble growth and only the Oak required weeding last season.

Cedar once just to keep the leaders free, probably in the second growing season, after which it will be able to compete with the vigorous weed growth that will occur even if it is bramble. I hope there will be a lot of bramble because that will keep off the deer so that they do not nibble the Oak which I am confident will be well out of the tree shelters by the end of the second year (much of it even in the first year) and will not require weeding unless there is a Hazel coppice re-growth to be 'cleaned' off.

There will of course be no Forestry Commission regeneration grant due to the high proportion of conifer but the saving on weeding costs over that on a pure broadleaf crop will more than offset the forgoing of the grant.

***After that, Peter, you can enjoy an annual visit of inspection, no, of admiration of the thriving young Oaks, all of which will have survived so no 'beating up' (replacing failures) will be needed due to the excellent site conditions, the quality of the root systems of the plants and the tree shelters, all this again saving money, until the fifteenth year from planting, when thinning will start.***

The thinning will be straight forward and require little supervision and no cost of marking the trees to be removed because a contractor will carry out the simple job of felling and extracting the Western Red Cedar rows either side of the Oak rows, i.e. two thirds of the evergreen trees. A good price can be anticipated for the trees extracted because the cost will be low, pole sized Cedar is saleable and there may be a good market for the foliage to florists for wreaths too. However, the silvicultural purpose of thinning will be to allow light to the crowns of the young Oak trees which will now be 30 feet (9 metres) tall with nice, straight stems.

Access to the Oak will now be easy along the cleared lines and the time has come to select one in three as the final crop trees (200 to the hectare), quite enough for the final crop at 80 years. I will do this



4. Pure Oak of same age as photo 3 and on the same site but it has already needed more weeding than photo 3. Without evergreen nurses the already rounded crowns will not easily develop a good stem.





5. Ten-year old Oak growing successfully with Western Red Cedar nurses providing side shade and adequate overhead light, the latter to encourage upward growth. Having achieved early height growth, excellent girth growth will follow when the Cedar is removed. Photo Ted Horgan.

for you free of charge as it is so enjoyable choosing the best trees and ensuring that they are well spaced, for the final crop. From experience elsewhere I am confident that there will be adequate choice and the thing to aim at is a spacing of eight metres (nine yards – it is easier to pace yards than metres) between the trees. They will be paint marked for you, Peter, so that you can have the enjoyment of pruning them to about 12 feet (4 metres) with your Silky Fox as you demonstrated so professionally at Whitfield on the Sunday of that enjoyable weekend!

In a further five years, the trees are now 20 years old, the remaining Cedar i.e. the original middle rows of three, will be removed and soon afterwards the pruning will be lifted another 5 feet.

On such a fertile site where we were told there had been a Hazel understorey in the past, the Hazel will grow up naturally again now that all the evergreen conifer has been removed and this will be welcome to keep the Oak stems shaded and thereby clean but I do not anticipate much epicormic growth because the Oak will have been growing so vigorously for the first quarter of its anticipated life – it is when Oak is suddenly released that epicormic shoots develop.



6. Fifty year old Oak at Crichel Estate, Dorset. Originally planted with Norway Spruce (*Picea abies*) nurses which were removed when sufficient height growth and clean stems had been achieved. The Oak was then high pruned and widely spaced. An understorey of Hazel has now come up and will keep the stems clean by suppressing the development of epicormic shoots. The owners' original intention of producing veneer butts at 80 years is well on the way to being achieved.

At this distance in time it is hard to say when the unwanted Oak, two thirds of the Oak planted, will need to be cut but this must be done when they start to interfere with the chosen, pruned Oak but little or no revenue can be expected from these thinnings as small diameter Oak is seldom sold for more than firewood. An attractive alternative is merely to cut them and leave them on the ground for the bugs and beetles to enjoy.

We have now reached 40 years in the life of your growing crop of veneer Oak and you can look forward to admiring it for the next 40 years and anticipating the wonderful timber that you are going to harvest from it.

***I look forward with keen anticipation Peter to meeting you in 2089 on site with the money bags wide open to receive your gold ducats for the wonderful veneer butts that you are going to buy and there will be some over for Woodland Heritage too!***

*Yours sincerely*  
Esmond Harris



***Dear Esmond,***

I appreciate your kind offer, but before accepting, I thought you should know that I will be 146 years old at the proposed meeting – and with the greatest will in the world I consider that my log buying skills may be somewhat impaired.

What sort of pills will you be on?

***Peter***

# Our members' views on growing Oak

Here are my comments about Esmond's letter. It's not for a young man like me to pass comment on his elders – he has a lifetime of experience to my decade – but here goes!

I believe it is perfectly possible to grow fat Oak in 80 years and the FC have done some interesting experiments which I seem to recall seeing at Alice Holt. The theory is that the most valuable part of the tree is the bottom 12 or 15 feet – so why waste an additional 50 years producing a stem twice the height? Better to bank the money and start again. You may recall that Jean Marie Allouard at Sotterley a few years ago propounded a similar theory to a sceptical audience.

His French predecessors of course went to the other extreme – producing a staggeringly tall stem in 300 years. It takes time to get height.

I have never seen young Oak nursed by Thuja (my father underplanted Oak with Thuja to keep their stems clean). Esmond's idea of removing the Thuja rows either side of the Oak rows at 15 years – *or when it becomes necessary* – sounds sensible. The tubes cost money but it is true what he says about Oak in tubes – also the importance of getting Oak away quickly.

His Oak spacing at 2 x 8 metres only gives 625

trees per Ha *at the start* which I regard as woefully inadequate even with the very best provenances. His chance of growing the quality of Oak he is promising is to be doubted – even with careful pruning. You can spend a lot of money pruning a rough tree which will remain rough whatever you do to it. You need the choice and I *think* Peter Savill writing about Oak spacing thought that about 5,000 per Ha was the optimum (cost benefit) to ensure sufficient choice after mortality and other misadventures.

If his final crop is at 8 x 8 metres, then in theory he will have about 150 trees per Ha at felling aged 80 – about twice the number we reckon on at felling at 130 years. I wonder if this would give the crowns sufficient space to develop the fat stems he is after.

The site does sound ideal and maybe he can achieve his growth rates there.

All the above is off the top of my head – possibly through my hat – and there is published research available on free grown Oak which may appear in back numbers of the QJF or Forest Research papers.

Anyway, mark your diary to invite me to join the meeting in 2089. I wouldn't miss it for all the tea in China.

**Miles Barne, Sotterley Estate, Suffolk**

*(Editor: where they grow fantastic Oak)*



Esmond's excellent letter on Oak growing where the soil is rich and the climate mild is much to be recommended – assuming that the owner at Aconbury has that Object of Management. May I “top and tail” with the following comments?

1. Oak/Thuja – excellent
2. Probably good Sessile (seek BIHIP advice) would do as well as Pedunculate
3. Tubex for the Oaks, yes, but plantation maintenance will be heavy on rich Herefordshire Old Red soil. Bionic brambles plus Sally Willow and Birch seeding in – but do keep some for biodiversity
4. Note that grey squirrels in Herefordshire start ruining Oaks at 6 years
5. Timings and spacings – I would use different ones, based on a judgement of crown diameter needed for the Oaks' final crop trees
6. Thinnings, keep more Thuja for longer. Late thinnings of Oak in Oak can cause crown damage, but periodic removal of soft-foliaged Thuja, to let the Oak crowns expand, will cause little damage
7. Old Red locally can produce butts of veneer size in 75 years and I have measured one, but remember that in Oak the last 25 years are sapwood. Therefore the quantity of valuable heartwood in one of these “broiler” (forced) Oaks would be severely reduced because the last 25 years would account for about one quarter of the total diameter (juvenile ring-

width is greater than older ones). This reduces the heartwood to 55 – 60% of the total volume.

8. Would the timber be of veneer quality? The late Henry Venables, emphasised that fast growth is acceptable as long as the rate of growth is even. The best sliced quartered veneers, however, come from trees with regular, straight and radial medullary rays. Oaks which reach comfortable rotundity in their 75 – 80 year span are likely to have considerable “wild grain”, more admired in Britain than on the Continent.
9. Finally, in windy Britain (possibly windier in the Climate Changed future) there is a tendency for vigorous Oaks to lose branches from the crown in gales, with the risks of stem rot (much of the stem will be sapwood) and reduction of crown volume. It is rare in Britain for a woodland owner or organisation to state WETIA (What Exactly Are We Trying To Achieve) sufficiently clearly. It is even rarer for a succession of owners and forest managers to follow the original instructions. Ideally there would be finance put into bond so that, even in poor market conditions, necessary management would take place.

Oh, and Esmond, may we also “be of that number” – among the Saints who go marching into Aconbury to look at wonderful Oaks with you and Peter in 2089?

**Bede Howell (and Elizabeth)**





## Letters to the Editor ... about our Field Weekend

Bangor

Dear Belinda

We would all like to thank Woodland Heritage and yourself for the excellent Woodland Heritage Field Weekend in Hereford in June. We all had a thoroughly enjoyable three days and as environmental students, experiences such as this are invaluable; there is only so much you can learn from PowerPoint presentations in lecture theatres.

The wealth of experience and wise words from seasoned foresters is something we will all remember for a long time to come, especially Bede Howell's advice to "never do your forestry from the ride".

*Yours sincerely*



Laura Crook, Rob Parkin, Anthony Pigott,  
Deborah and Pete Wieland  
Bangor University Forestry Society

Norfolk

Dear Peter and Lewis

I regret to tell you, that perfection having been reached, it is from now on (like "Peak Oil") downhill all the way. Perfection was truly reached on our visiting the Whitfield Estate. Last year when we trod the sacred lawns of Melbury I thought you had achieved the summit – but, no, more was to come!

Would be foresters can always find something to criticise (even the Meynells cannot grow Walnuts). Melbury had its weaknesses, as did the Duchy woods, but Whitfield seemed to have none at all.

Besides the diplomacy and planning involved for the annual weekend the sheer volume of detailed work involved for all of you must be simply colossal. We, the foot soldiers, do so value it and thank you for all you have done. Learning and sheer enjoyment do not usually go together but two days with Woodland Heritage maximised the happy mix.

So once again Rose and I send our most grateful thanks for the most successful weekend visitation ever.

*Yours*

Robin Carver

Bangor

Dear Belinda

Personally and as a group we found the weekend an excellent and enjoyable experience. It was really good to see broadleaf forestry in action and gain the views of the other participants. I felt that it really helped to fill a gap in my taught courses and experience.

*Regards*

Rob Parkin BIFSA

Student

University of Wales, Bangor

Alice Holt, Surrey

Dear Lewis

Thank you very much for your help in getting to and meeting people at the Woodland Heritage event. A really good day and I hope that the other days had equally good weather and enthusiasm.

*Regards*

Dr Hugh Williams

Forest Research (Liaison Officer England)

Norfolk

Dear Lewis and Belinda,

The entire event was an outstanding success, and I have to thank you for making it possible for me to attend all the venues. Also the B&B was exceptional, which enhanced the whole experience.

I have been 'working' on my pictures, and as soon as I have completed this process I will forward copies.

Thank you again for your considerable assistance.

*Kind regards,*

Chris Sharples

Warwickshire

Peter,

Many thanks for choosing and organising those two days in Herefordshire. They were exceptionally enjoyable combining information with a wonderfully scenic backdrop at Whitfield. Thanks to your efficiency and stage management both days ran without a hitch and I enjoyed the walking!

Thank you for all the trouble you take.

George West



Hereford

Dear Peter

#### WOODLAND HERITAGE FIELD WEEKEND

Thank you for your kind letter. It was a pleasure spending the two days with the visiting members of Woodland Heritage. Like us all, I sometimes take for granted what I do, with both the woodlands and the trees that I am responsible for. On both days the weather and the company showed them off in good light. With regards to the tie, I have spent many a time jumping from dealing with the salt of the earth woodsmen to bureaucrats and a wide variety of landowners, and have learned that it pays to remain smart, but not turn up in a flash vehicle!

I enjoy being able to convey something of what we do in forestry to any audience, particularly those keen and eager to learn. To that end, I am very happy to be involved with the Woodland to Workshop Course in the autumn once again. We all felt that it went very well, and that the atmosphere, particularly amongst the students, was good.

With best wishes.

*Yours sincerely*

Graham Taylor

Pryor & Rickett Silviculture

Woodland Managers & Forestry Consultants

Hereford

Dear Belinda

I write to offer profuse apologies for not having written before and to say a big thank you for my participation in the Woodland Heritage Field Trip of 2008.

It was a splendid weekend and served as a wonderful reminder of the wider silvicultural world that was, for the most part, a revelation to me and served to remind me of things I hadn't thought much about for years. As a tree surgeon working on my own in Hereford, I have spent many years in my own little world of garden, suburban arboriculture, so the tour around the woodlands at Whitfield was a real treat.

Will Bullough's talk on the timber side of the subject was also very interesting, just breathing in the scent of all that seasoning Oak was a joy in itself. I'm sure someone could do very well from turning it into an aftershave for men.

It was a real shame that you had to miss the tour of Moccas Park. It is such a unique place with so many superb specimen trees.

Once again, thank you very much indeed for being able to have such a fine weekend.

*Yours sincerely*

Stephen Dennis

Dumfries

Dear Lewis and Peter

Alan and I thank you with such gusto for providing us with another super weekend of fun, a splendid companionship and very meaningful insights into best practice woodland management; also some most enjoyable weather – we do hope that we can join up with you when it comes to our time to enter the Heavenly Gates!

We very much appreciate the amount of time and talent you put into selecting, arranging and organising with the owners the venues and itineraries which you fashion; perhaps you should be put in charge of the forthcoming Olympic Games!

Every annual event is a memorable one and we hope there will be many more to come.

With very best wishes for the future

*Yours sincerely*

Sydney A Draper

Dear Stephen

Thank you for your letter and we are delighted that you enjoyed our Field Weekend in Herefordshire.

I must admit to feeling a little proud of what Woodland Heritage, as a small but effective charity, manages to achieve. I think you will agree that the dedication and knowledge base of our Trustees and Members is quite unique and never ceases to amaze.

Having now seen some of the lovely photographs that have been sent to us of our weekend I am even more disappointed to have missed the Moccas Park visit, so I have now added Moccas to my 'wish list'.

Thank you for joining us and contributing to our weekend.

*Yours sincerely,*

Belinda @ Woodland Heritage



# Helsinki Wood Studio

By Jez Ralph

**A**t *The Silvanus Trust* we are increasingly asked to give advice to architects, engineers and builders about what timber may be applicable to their designs and where they may be able to get it from. As foresters we know much about how timber is grown and processed but do not always fully understand how it is used, or indeed how designers and builders view timber.

With help from *Woodland Heritage*, the Institute of Chartered Foresters and the Silvanus Trust, I spent the summer at an innovative project at the Helsinki School of Architecture learning from the experts about timber.

The month long workshop is designed primarily for architects and engineers to increase their understanding of timber, its properties and the engineering principles behind its use.

The first part of the course is spent in the forest and sawmill at Evo, the Finnish school of Forestry. The forest industry in Finland is very different from the UK. Only having a small number of main species and slow growing conditions, silvicultural systems are unlike ours, the predominantly flat countryside has few harvesting and extraction problems and, being almost 70% wooded, forestry is a large part of the economy and culture. For all fourteen architects on the course it was the first time they had studied forestry and the first visit to a sawmill. A real eye-opener for most to learn that timber, unlike concrete and steel, is a natural product that gives structural, durable and aesthetic properties in one neat package. ***As the only non-architect it was a revelation how little exposure to timber architects from across Europe, including the UK, had in their training or professional experience.***



*Amazement as the tension bars hold, the four person works and the roof hasn't ripped off!*



*Building home-made glulam beams for the cantilever roof.*

At this point, discussing what makes good and bad timber trees I felt comfortable. Things soon changed, however, as we transferred to the design studio and were tasked with the design and build of a sauna commissioned by an art gallery. The brief was to use a green-timber main frame and construct around it the interior, roof and exterior bearing in mind the strong traditions associated with a Finnish sauna. Because the frame was green-timber we had to account for movement as it dried and because it had to be transported it was to be designed in elements that could be dismantled and lifted easily.

The first week was spent in a design competition between three groups, we sketched, built models, undertook CAD design – bread and butter work for the architects and a whole new experience for me. A critical analysis was given each day by architect, engineer and joiner who ran the course and suggested ways to take the concepts forward. The winning design of a seemingly simple cantilever roof with a glass cover and hanging seat left us pleased that the final couple of weeks should be relatively simple.

Simple designs often require complex solutions and in fact, like the first weeks, the last weeks were characterised by early mornings and late nights.



To keep the lines simple we elected to use glue-laminated beams, which we manufactured ourselves as a sloping surface was required for the glass roof to shed rain and snow. The seat and its users would weigh up to 400 kilos and hung off the end of the beams so the beams would have to be anchored at the rear of the building. This would have been simple were it not for the fact that the green-timber structure would shrink with age and the attachments would therefore have to be adjustable. And of course the door and the interior attachments would also have to cope with the green-timber with the additional issue of the interior being subject to dramatic variations in heat and humidity at regular intervals. All the joints were modelled 1:1 and each construction method trialled before being used. After training we had free use of the timber and metal workshops.

It was a matter of hours before the transport lorry arrived that the structure went together. The biggest relief was reserved for the adjustable tension bars designed to hold the roof and the swing in place. It

was not only the design of which we were proud but also having used timber in areas of high tension when timber is most commonly used in elements subject to compression.

Each day we had lectures covering design, structural engineering and properties of timber from an array of experts from the university and also visitors. We also had a number of site visits to see both public and private housing and iconic timber structures in Finland.

*The workshop was hard work and incredibly intensive. All of us, architects and forester, took our knowledge of timber in construction to new levels in both practical and academic ways.* Having spent days in the workshop I doubt if either of the UK architects will ever be moaning about the cost of timber planed-all-sides yet they will also now have the confidence to design with timber in mind, not only in concept drawings but also down to the details of joints and fixings. For me I was able to get an insight into how the architectural process works and to understand better the needs of the construction industry as well as understanding why users view timber very differently from growers.

In the future, as more structures are designed in timber, we will need to be able to bridge the gap between growers and users. The Wood Studio provided a valuable insight for all of us and we hope we will reap rewards in the UK to help more architects use timber and help more foresters understand the needs of the users.

*For more information on the workshop, my trip to Finland, or the work of the Silvanus Trust, please get in touch with me at [jez.ralph@silvanus.org.uk](mailto:jez.ralph@silvanus.org.uk) [www.silvanus.org.uk](http://www.silvanus.org.uk)*



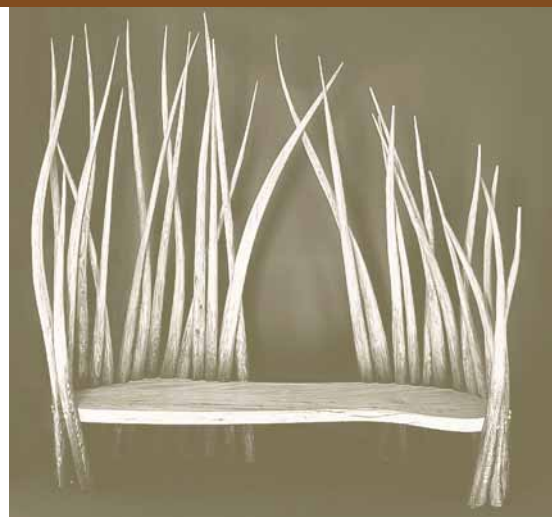
## PHILIP KOOMEN FURNITURE

DESIGNERS & CRAFTSMEN IN WOOD

*Annual workshop exhibition*  
*Opening times 2009:*

Sunday	17 May	2 – 5 PM
Saturday	23 May	2 – 5 PM
Sunday	24 May	2 – 5 PM

**Tel. for info 01491 681122**  
**[www.philipkoomen.co.uk](http://www.philipkoomen.co.uk)**





# BRITISH & IRISH HARDWOODS IMPROVEMENT PROGRAMME

## Developments in BIHIP during 2008

**T**he first fruits of BIHIP's work are about to become available for those who want to grow trees from improved seed which should be available in 2009.

### Ash

Two of the four Ash 'breeding seedling orchards', (at Little Wittenham in Oxfordshire and Scarr Hill in Gloucestershire) that were planted in 1993 are now producing small quantities of seed. An unusual complication with Ash is that it is a largely dioecious species – there are separate male and female trees, as well as hermaphrodites. It was necessary to await the first flowering so that the gender could be determined in most of the trees before any thinning could be carried out. This ensured that sufficient male and female trees could be left. Final assessments of growth form and gender were made in 2008 and the stands will shortly be thinned, leaving all the trees of the best families (i.e. the best parents) to breed with each other, and removing the less desirable. By this



*The Ash Breeding Seedling Orchard at Scarr Hill, Gloucestershire in May 2008 before thinning with Yann Vitasse, a French research student.*

means it should be possible to obtain significantly straighter, more finely branched and faster growing trees that will produce greater volumes of recoverable timber.

### Birch

Birch is probably the most satisfying tree for British tree breeders because much more rapid progress can be made with it than with other species. Birch produces seed in great quantities at a much earlier age than most trees. The approach taken with this species by the BIHIP Birch Group in Scotland has been to select outstanding trees and to propagate them by grafting onto rootstocks in a poly tunnel at the Forestry Commission's Northern Research Station at Roslin. The selected clonal material breeds together, and seed is produced within about three years. Enough Birch seed to supply all the nursery requirements in Scotland is already being produced. While research with many other species has shown that selecting clonal material and breeding from it results in measurable improvements in productivity, plants grown from the seed produced will have to be tested to establish this in order to achieve the highest classification of genetically improved stock.

### Sweet Chestnut

The Sweet Chestnut Group has been particularly active both in Great Britain and Ireland: a total of



*The Birch clonal seed orchard at the Forestry Commission's Northern Research Station in October 2008 with John Fennessy, Chairman of the BIHIP Oak Group.*

181 plus-trees have now been selected. In the course of doing this work, a number of potential new seed stands have also been identified. The plus-tree collection includes 56 Irish trees which were propagated last winter by grafting on to seedling rootstocks and 125 British trees. Around half the British trees will be visited before the end of March 2009 to collect the dormant graftwood which is needed to enable their propagation and to complete the Chestnut clonal collection. Data for all trees has now been entered into a database for future reference. The Group is grateful for all the support and interest from woodland owners and managers, and to DECC for the provision of funding to complete the British collection.

Once the plus trees have been propagated further, several clonal orchards will be established in Great Britain and Ireland. The Breeding Seedling Orchard in Somerset which comprises 19 progenies has begun limited seed production and has been assessed for form and vigour. The most promising 29 seedlings from these were propagated last winter for further studies.

## Sycamore

Work on the identification of plus-trees and scion collection of Sycamore continues and is approaching completion in both Britain and Ireland.

## Oak

The Oak breeding seedling orchards, established in 2003, were assessed during 2008, and a report on one aspect of this by Nick Evans is given on page 78 in this Journal. The full five year report can be downloaded from the BIHIP website: [www.bihip.org](http://www.bihip.org).



*Galls on an Oak in the breeding seedling orchard at Dalkeith. These result in severe deformations of the trees.*

A problem encountered at two of the Oak sites has been that most of the trees have lost their apical dominance and have become very bushy. It is believed that this might have been caused by the larvae of a gall fly *Arnoldiola quercus*. Means are being sought to introduce some form of biological control that will overcome the problem.

## East Malling Research (EMR)

From the late 1980s through to 2007, EMR assembled a collection of some 1000 plus-trees of Ash, Cherry, Chestnut, Oak and Walnut, and in the case of Cherry, over 6000 seedlings. With the closure of the programme, much of this material has been propagated with support from the Forestry Commission and BIHIP, and is being distributed to secure sites in Ireland and Britain. A very substantial number of plus-trees of all species was planted in 2007-08 as a new conservation woodland by the East Malling Trust for Horticulture Research. An article on assessing timber quality in Cherry is given on page 64 in this Journal. Karen Russell who led the improvement and biodiversity research programmes at EMR has joined Lockhart Garratt Ltd in Northamptonshire, and will continue to be involved with BIHIP, especially the Chestnut and Cherry Groups.

## Breeding Strategies

Through the generosity of *Woodland Heritage*, the Forestry Commission and other benefactors, BIHIP was able to employ Dr David Boshier of Oxford University on a part time basis for two years from April 2008 to produce written breeding strategies for each of the seven BIHIP Species Groups (Ash, Birch, Cherry, Oak, Sweet Chestnut, Sycamore and Walnut), starting with Ash. This will provide a solid scientific basis for future breeding work.

The overall objective of the breeding strategies will be to analyse the relative benefits and costs of a range of low cost strategies to maximize gain over time. Criteria for the evaluation of breeding strategies will not be limited to genetic gain alone, but will most likely include limits for reduction of genetic variance, accumulation of inbreeding, effective population size, and ultimately cost. Development of the breeding strategies will involve the analysis of existing data from BIHIP trials. Breeding strategies will include detailed recommendations on roguing of existing trials/orchards and the design of future trials/orchards. Recommendations for associated research will also be made (e.g. to study the potential contamination of seed orchards by outside pollen).



**Dr Peter Savill**





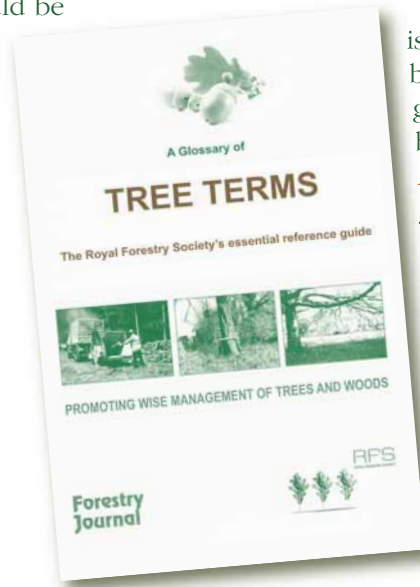
## BOOK REVIEW

# A glossary of tree terms

Jackson, J (2008). Royal Forestry Society, Tring. Pp. 54. £3.00

This pocket-sized booklet aims to put 'tree-speak' into plain English for non-professionals. It succeeds remarkably well and could be invaluable to anyone unfamiliar with forestry jargon. It explains the meanings of over 300 terms that are commonly used in British forestry. Coverage ranges from words that are centuries old to modern terms and concepts like the *greenhouse effect*, *certification*, *rewilding* and *environmental assessment*, though strangely, social forestry and urban forestry are not included. At the end, there is a useful list of acronyms, with their meanings. Even those familiar with forestry vocabulary will find discussions and meetings increasingly interspersed with unfamiliar TLAs (Three Letter Acronyms) apparently designed to demonstrate the superior knowledge of the speaker

and confuse the audience. This list helps to overcome the problem!



There is no claim that the booklet is comprehensive, and other web-based sources of information are given at the start. Unfortunately the best source of all is omitted: *The Dictionary of Forestry* edited by J.A. Helms, and published by the Society of American Foresters and CABI Publishing, Wallingford, Oxon. 1998.

*A glossary of tree terms* is well worth £3 to the interested non-specialist.



RFS  
ROYAL FORESTRY SOCIETY



## Improve your skills & knowledge in an inspiring woodland environment

# WoodNet Training



### Courses offered include:

- Discover the Hidden Archaeology of Woodlands
- Basic Tree ID & Standing Timber Assessment
- Forestry First Aid: 1 day Appointed Person
- Assessing and Mapping Woodland
- Continuous Cover Forestry for the South East
- Introduction to Producing Heating Grade Woodchip
- Using Wood in the Allotment and Smallholding
- Managing Woodlands for Biodiversity
- Using Timber in Construction
- Growing Edible Woodland Fungi

Please contact us for further details

01580 879552 [training@woodnet.org.uk](mailto:training@woodnet.org.uk)  
[www.woodnet.org.uk](http://www.woodnet.org.uk)

Woodland Enterprise Centre, Hastings Rd, Firnwell, East Sussex, TN5 7PR

# woodentops

NATURAL WORK SURFACES



Committed to sustainable and well managed forest management initiatives

Western Road, Exeter, Devon EX4 1EQ • Tel: 01392 421111  
E-mail: [sales@woodentops.co.uk](mailto:sales@woodentops.co.uk)  
Website: [www.woodentops.co.uk](http://www.woodentops.co.uk)

# The Association of Pole Lathe Turners

## AGM and Bodgers' Ball 2008

**The Association of Pole Lathe Turners (APT) held their annual event in the picturesque village of Horton-cum-Studley, Oxfordshire, over the weekend of 10th and 11th May 2008.**

After the appalling weather of previous years they were finally blessed with glorious sunshine and a record turnout of some 230 members, who had travelled from all parts of the UK to participate in what turned out to be one of the best weekends of the year.

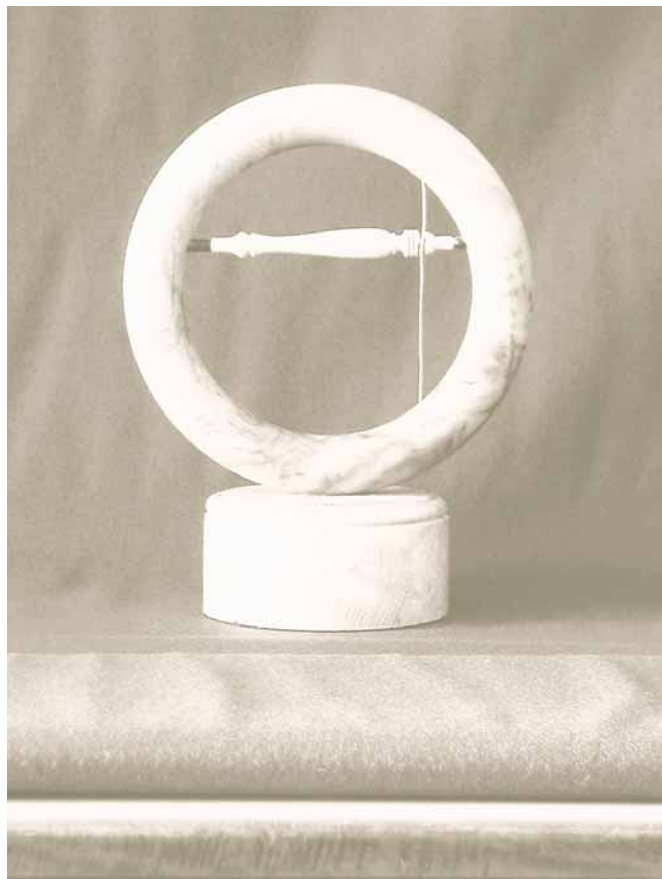
There was a vast array of demonstrations and displays, along with competitions in chair making, turning and rustic work. The Saturday saw a new competition in which a chair had to be built within six hours from a pile of various sized pieces of timber. David Saltmarsh (*below*) won the 'Woodland Heritage Trophy (*right*)' for Best in Show' for a second successive year for his stunning carver in Oak. David lives near Lyme Regis, Dorset and makes chairs from locally sourced timber in his evenings and odd spare hours, whilst running a small holding during the day. True to tradition, he uses no power tools and as a result one can genuinely call his work 'hand made' in the real sense.



The 21st anniversary of the APT will be celebrated in 2011 commemorating when a few individuals got together to try to prevent the craft of pole lathe turning and greenwood working from disappearing into history.

The APT has now well over 500 members, including a few from Canada, the United States, France, Germany and Scandinavia. And now, all these years later, it is encouraging to see the strong interest that has grown in this craft and the variety of skills displayed by individuals at the annual gathering. It is indeed most rewarding to know that this craft is thriving through these dedicated and talented individuals.

*Chiltern chair maker Stewart Linford (a Woodland Heritage founder member), who runs a successful chair making company turning out top-end bespoke and limited edition chairs, judged the results.*



*In 2009 the APT annual gathering will be held in Yorkshire at Cusworth Hall Museum and Park, near Doncaster over the weekend of 9th and 10th May. For further information see [www.bodgers.org.uk](http://www.bodgers.org.uk)*



**Wade Muggleton**



# The Growth and Use of Redwoods

by Arwyn Morgan

*Since I can remember the Redwoods of California have had an elusive lure for me, perhaps it's their grandeur and majesty. Therefore having worked for a period in Asia I was fortunate to be able to visit the redwood region on my return home in February 2001.*

*Fortunately I was blissfully unaware of the politics of the Redwood industry and region, with its multitude of opposing factions, and sometimes violent outbursts. During my visit I was able to question a whole array of people involved with Redwood forest management, harvesting and processing. Since this time I have become far more aware of the opposing factions, and environmental concerns expressed by some.*

Much of the forest industry in the UK is inclined towards the use of Spruce, yet we import ever increasing amounts of timber from abroad, especially specialist or durable woods. Considering that chemical treatments to increase the durability of wood seem to be getting ever weaker due to increased legislation, these questions arise: *Why can't we grow more durable timber? Why can't we grow timber of a higher value? What species of tree could we encourage to grow? What management systems would be of use here in the UK?*

It seems that from time to time there have been various articles written about Sequoia Sempervirens; unfortunately some have contradicted each other in their advice. Perhaps the greatest resource of information with regard to growing Redwoods in the UK is the Quarterly Journals issued by the Royal Forestry Society, and those published during the 50s and 60s provide some real gems.

Mention Redwoods, and there seems to be considerable confusion between the Coast Redwood [*Sequoia Sempervirens*] and the Giant Sequoia [*Sequoiadendron Gigantium*] especially here in the UK. In fact this confusion among landowners has often led me on some long wild goose chases. Although there are certain similarities with their timbers, both species have considerable differences in their silvicultural characteristics. Therefore only little mention will be given to the Giant Sequoia, **this article concentrates on the coast redwood.**

Over the past 25 years there have been radical changes within the Redwood industry in the United States of America. Prior to this time much of the timber harvested was old growth Redwood, which produced vast volumes of large section clear heartwood of often very high durability. Only limited

old growth timber now reaches the market and specialist millers. Very little, if any old growth remains on the commercial timberlands. The old growth of any significance is that which remains in national parks and limited private property. Thus the industry has had to change from old growth utilization to 2nd and 3rd growth utilisation.

The 2nd growth is easier to harvest, has less breakage on felling and draws less adverse publicity; it has become just another farmed crop. That is no reason to look down at 2nd growth Redwoods; in many regions they have already attained fine forest form, with 100ft+ clear stems. **The main problem with 2nd growth wood is that it often contains far greater amounts of knots,** and does not produce as much of the high valued clear heartwood grades.

Yet the industry has adapted, in that it has introduced through its marketing arm, the California Redwood Association, various new grades which include a higher percentage of knots, and other oddities. **Funny really, what was considered a defect in the past has due to new grading been changed from a defect to a feature, perhaps it's a lesson we can all learn from.**

The bottom line is that much of the 2nd and 3rd growth trees are coarser grained and not as durable as the old growth, but the new product has been accepted by a receptive market in the US. **Much of the timber grown in the UK is of a similar quality to the 2nd and 3rd growth timber in the US. Thus potentially UK grown timber could be used for similar end uses as US grown wood.**

## So how well does the species grow?

In its native habitat the species grows in an irregular strip about 450 miles long. It has a traverse



*Second growth Redwoods of fine forest form at Laguna Flats.*

break along the headwaters of the Mattole River, in the southern end of Humboldt County. South of Sonoma county Redwoods grow in detached and irregular areas. One of the reasons given for the traverse break along the headwaters of the Mattole River is that salt laden prevailing winds blow from the sea into the area.

In their home Redwoods grow in a variety of ecological settings, and can occur in pure stands or with a variable number of tree species. Of interest to UK growers are its conifer associates, such as Douglas Fir, Western Hemlock, Grand Fir, Monterey Pine, Lawson Cypress, Sitka Spruce and Western Red Cedar. The Redwoods often grow in various settings with pacific coast native hardwoods. Thus Redwoods are found in five different forest types, but these Redwood forests are further divided into Northern, Central, and Southern Redwood forests. [This must all be born in mind during seed collection].

We can therefore see that Redwood trees are highly adaptable and suitable for a wide variety of tree planting possibilities. The climate of the region tends to be mild, with annual rainfall varying between 0.62-3.05m, and falls mostly as winter rain, although snow sometimes covers the high ridges. In the summer, fog commonly covers the region, thus decreases water loss due to evaporation and transpiration. This raises the misconception by some that fog is essential for the success of Redwoods.

In its home region Redwood blooms between late November and early March. Weather conditions during the flowering may directly affect seed quality. If flowers open during a continuously rainy period, pollen is washed from the pollen strobii, and little pollen may reach the conelets. Dry periods during flowering permits optimum dispersal of pollen and help produce seed crops of high viability. The cones mature in the autumn after flowering, and generally open and shed soon after ripening. There have been references that mention that Redwood generally produce abundant seed each year. Yet the seed crop has been poor for a few years, with companies having very limited seed in stock. Seed viability for Redwood is considered low and variable among locations, but these results may reflect on the collection techniques.

***Seed collection from tree tops by helicopter shows more than 90% viability. Many ground collected seeds on the other hand are empty, filled with tannin or damaged by fungi. Sound seed estimates are low [1-32%] based on x-ray examinations.*** Seed viability is also fleeting, as seeds are susceptible to ultraviolet light. It has been stated that seed becomes non-viable in five or fewer years. Yet this is not quite so; currently in California, seeds are being used which have already been in storage for over seven years. As a rule the seeds do not require pre-treatment for germination.



*Faller checking the intended lay of the tree with a gunning stick, prior to putting in the backcut. Hydraulic jacks already set in back, ready to tip the tree over once the backcut is completed.*

Occasionally germination has been improved by stratification, indicating slight and variable seed dormancy. Mineral soil provides the best seedbed, but seed germinate and seedlings establish themselves in duff, on logs, in debris and under plants as long as adequate soil and water is available. It should be noted that seedlings are extremely susceptible to infection by damping off fungi in leaf litter. It is reckoned that for optimum seedling growth a temperature of 19 degrees centigrade is required.



*Putting in a back cut in an old growth Redwood.*





*Ripping the union between a double stemmed Redwood prior to felling.*

I have observed seedlings growing in many Redwood woodlands in Britain, from the Southwest to Kent and up to the Midlands.

## Propagation

Redwoods can be propagated by cuttings. In one study 40% of the cuttings from the tops of fast growing seedlings pushed into forest nursery soil with no special treatment developed new root systems. Cuttings from older trees are more difficult to root. Increasingly tissue culture techniques are being used to grow nursery stock. Basal sprouts or sprouts from cut stumps root fairly easily, whereas upper crown twigs are more difficult to root. Those taken from the crown tend to grow like branches for a while, but soon correct themselves to a proper upright tree form.

## Coppice

*The ability of Redwoods to coppice* is a rather unusual characteristic for a conifer. On old growth sites it often seems that more of the smaller stumps re-sprout. In other instances on large diameter old growth, where there has been considerable soil

disturbance, and burning of the stumps with the slash, a higher percentage of the stumps sprouted. Sprouts grow more rapidly than seedlings and the initial impetus lasts many years, similar to many other species coppice growth.

*Redwoods have no taproot, but lateral roots are large and wide spreading. Small trees have better than average wind firmness, and larger Redwoods are wind firm under most conditions. In partial cuttings the smaller co-dominants and intermediate trees are most frequently blown down.*

## Provenance

Provenance is of great importance to those that wish to plant redwoods, as there are distinct differences in seed zones.

The more northerly seed zones are more cold hardy, tend to grow taller more easily as seedlings, and do better on better sites. The middle band seems to be better adapted to warmer conditions and grow a bit stouter as seedlings. The southern end seems to produce seedlings with thicker leaves and require a bit more fertilization to grow to an equal size tree. Additional observations indicate central populations with the best branch architecture, i.e. narrow crowns, small branch diameters, and even distribution of size and spacing. The northern populations have the best lower bole form. The interior populations have higher frequencies of forks and ramicorne [large high angle] branches.

## Burls

*A prominent special feature of the Redwood is its production of burls, which when cut have figuring inside, sometimes called Redwood Lace Burl, or Redwood Birdseye Burl depending on characteristics. These burls are found in any part of the trunk, in sizes varying from a few inches to many feet in diameter.*

*Some Redwoods have a large burl around the*



*Multiple stemmed root burl.*

**root collar and under the soil surface. As the buds which form the burl are situated around the root collar, on being dug up it resembles a large onion in shape. I have observed a few of such potential burrs in the UK. I say potential, as I have never dug one up to find out for sure.**

Redwood cuttings that are rooted to produce clonal seedlings apparently have a higher percentage of dormant buds higher on the stem, since they do not have a burl at their base. It is also noted that when a batch of seedlings is received from a nursery, quantities have a swelling or bud nodules at the root collar. Several questions come to mind. Firstly, is this a root burl in its infancy, and are such trees more successful in coppicing?

Other burls that I have seen in the UK are what I call Lava Flow Burr, where the bark looks just like a piece of newly cooled lava, and hence has different grain figuring to those mentioned earlier. A final type that I have seen in the UK, although rarely, is what I would call a Cigar Burr, which the tree stem has taken on the outer form of a hairy cigar, and eventually will develop into the pineapple shape so liked by veneer cutters. I guess I will need to go back there in 40-50 years time. Other unusual features can include birds eye figure in logs. Curly or ripple grain, although common in stumps, it is at times throughout the whole log. We have often come across this feature, especially partway through the log.

## American Usage

The Redwoods of California were probably used for everything. They were used for railway cars, sleepers, casks, water pipes, fencing stakes, shingles, vats, water tanks, flood gates, trestles, wharf pilings, bridges, furniture, coffins and insulation. Few if any other building materials could match Redwood's versatility, popularity or abundance. Before the development of wood preservatives, Redwood was used wherever wood came into contact with the ground. Since the heartwood imparts no flavour to liquids it was particularly valuable in early water systems. Redwood has little or no volatile resins and oils. As a result it burns slowly and does not ignite easily; it is more resistant to fire than any other softwood such as Douglas Fir or Pine. The wood developed a reputation for being almost fireproof, after so many Redwood buildings were left standing in the wake of fires that ravaged San Francisco following the 1906 earthquake.

## Detractors

Having noted the above it is clear that Redwoods have many admirable qualities, yet there are those who dislike the species. Redwood was classed as



*Shattered old growth tree showing the species' brittleness.*

'Rubbish' by some, and it's interesting to note the various correspondence between Charles Ackers and Redwood detractors in the 50s and 60s. Even recently a harvesting manager from a large timber company told me that only an idiot would plant Redwoods. Personally I would disagree, but I will let the readers come to their own conclusions.

The Redwood industry has come under considerable flak over the years, especially with certain companies creating large clear fells, and of course their conversion of old growth forest into 2nd growth forest. Although in the past, clear cut management systems were the most popular, selective systems were also used where the terrain and local weather conditions allowed it. There has been a shift to more multi-aged management, including seed tree, shelterwood, variable retention, residual tree selection and group selection. Interestingly one of the main pressures on the overall area of Redwood forests is no longer the logging industry, but rather the popularity of the Pinot Noir grape. Areas of forest are being converted to vineyards, and increasingly the forest areas are being invaded by lifestyle developments.

Having dealt with much concerning Redwoods in the US, perhaps it would be good to look at the rest of the world.

## Rest of the World

Redwoods grow in many parts of Western Europe, in the Crimea, Turkey, Japan, New Zealand, Chile, South Africa, Tasmania and in the tropics at high enough elevations to provide temperate climate.

One of the better examples is New Zealand, but in the past most of the plantings were unsuccessful. Poor site selection, poor seed provenance and inadequate tending have been put forward as reasons. Foreign companies are showing considerable interest in growing redwoods in New Zealand, especially as increased laws and restrictions restrict their ability to manage their forestlands in the US.



## The UK

*Initially I had letters published in the journals of the Royal Forestry Society, Scottish Royal Forestry Society and Woodland Heritage, informing the readers of my research, and how I wanted to visit as many Redwood sites as possible, spread around the British mainland. The response was very positive with woodland owners, foresters and agents inviting me on to their Redwood groves, and answering the myriad questions I had to ask.* The considerable library at Forest Research was greatly used, but my research was to be different from that done by Elwes and Henry, and later by Alan Mitchell. Where these individuals had tried to concentrate on individual specimens, *I reasoned that it was more important to visit larger groves or woodland areas, covering a whole array of environments and forestry practices.*

There seems to be a whole array of misconceptions, with regard to Redwoods here in the UK. One which we have dealt with earlier is the confusion between it and Sequoiadendron. *It needs fog to survive. It doesn't produce timber of any use. It doesn't grow on the eastern side of the country, and there are no markets for it.* During my visits to many Redwood groves, it is clear that Redwoods have been planted to a greater or lesser degree of success on a whole variety of sites. I have seen them grow as well as any other species on poor upland bolder soils, but it is on the more sheltered deeper soils that the species excels. Their tenacity to grow is remarkable.

As mentioned in the RFS Quarterly journal of 1964, 'Some of the best sites will prove to be on old red sandstone, the soil over which in many places is three or four feet deep and very fertile. It also has high natural moisture content, which is beneficial in hot dry summers. The ideal location for optimum growth will be in well watered valley bottoms, and the lower slopes of valleys in Southwest England and South Wales', but perhaps best for those outside these regions are the following from the 1912 edition 'Notes on trees suitable for experimental forestry' by W.Dallimore, Royal Botanical Garden:

***'Moisture available for the roots is the first need of the Redwood, as any billy tract of forest will show, whenever a small gully, or bench, or basin is so placed as to receive an uncommon amount of seepage, or wherever a creek flows by, there the trees are sure to be largest. Even if the soil be not rich, but merely gravel, and it contains much moisture, the Redwood will grow more abundantly there than on richer but drier ground'. This paragraph just about sums it up, time and time again in parts of the UK where there is limited rainfall, if the redwoods grow***

***well, it generally is a sign of abundant ground moisture, but alas too much ground moisture in the form of water-logging is not tolerated by Redwoods.***

## Planting

Redwoods do not like exposure, and in places the foliage is browned, possibly by cold dry winds, in all but the mildest winters. This does not affect the health of the tree, which will still continue to grow naturally. Mention is also made of planting Redwood with a nurse species, such as Larch, old coppice growth, or even allowing bramble to provide shelter. But always ensure that all new Redwood plantings are thoroughly weeded until the trees start to grow rapidly. Once they have overcome this early sensitive period, Redwoods have the potential for very rapid growth.

Considerable mention was made earlier about the need for careful provenance selection, especially as there seem to be distinct differences in seed zones. Southern Californian seed are to be avoided at all cost. There is the potential for inbreeding depression to occur with competition, or other stressful conditions. Thus knowing the original seed provenance will help growers to decide whether to keep any naturally regenerating seedlings. The Forestry Commission has maintained records of its seed purchases over the years, but unfortunately, very little is known of the exact origin. Often only the vendor or state of origin is mentioned, and considering that Redwoods grow over several different seed zones, these records don't help much. Likewise many of the estates planted Redwood cuttings, sourced through the old estate network. Thus in reality we don't know the real provenance of the Redwoods in the UK.

It is clear that certain clones were planted at Bedbury, Westonbirt Arboretum and Derby City Parks. Those provided to the Royal Botanical Gardens, Kew, had not been planted due to the clearance work from the 1987 storm, and it is unclear whether the other two sites were ever planted. Many of these trials have grown well, but due to changes in staff, changes in priority, and the disappearance of identity tags, most of the trees on these trials are no longer individually identifiable. Further, although initially the Forestry Commission through Forest Research, had shown interest in these small trials, nevertheless by the early 1990s Forest Research had lost interest in Redwoods due to funding difficulties and changes in policy.

Most of the Redwoods in the UK tend to be planted as single age stands, although there is one estate which plants redwoods and other conifers in clumps throughout existing forest, to develop a different branch and leaf structure into existing woods.

Redwoods have been tried unsuccessfully with the Bradford Hutt system. **Generally Redwoods tolerate considerable shade, but need plenty of light to grow. Hence why a coppice shoot or sapling will remain quite small for many years, but once the wood is thinned, the shoot will literally grow like a rocket.**

## Our Experience

**Overall some 300m<sup>3</sup> of logs have been purchased by ourselves, with a large percentage milled and processed into value added products. Although in the greater scheme of things, 300m<sup>3</sup> isn't much wood, nevertheless for a small country mill to make such purchases with no established markets is a certain gamble.** The logs which varied from 0.25 – 1.8m diameter, were sourced from five different woodlands. Despite using a whole range of log types, from butt lengths, 2nd and 3rd lengths, some fast grown, others slow grown, some with even growth patterns, and it was interesting to see that there was very little tension present in any of the logs during milling.

Some of the logs were debarked, while the majority had their bark left on prior to milling. Various types of sawmill were used, and it was noted that bark easily built up on roller saw guides of band saws, leading to the need to stop the mill, to clean the guides. **Therefore it is essential to de-bark all logs prior to milling to avoid stoppages further down the line.**

One major deficiency of most Redwoods, is that they don't shed dead branches very well, with the end result that the dead branch stubs will remain in the stem for many years, and hence form a dead knot which will probably fall out upon the timber being seasoned and machined.

## Types

**I have divided Redwood logs into two distinct types of wood:**

- The pink/red/purple colored heartwood
- The white/yellow colored sapwood.

Both types can be used, but it is only the heartwood which is possibly durable. The sapwood has similar working qualities as the heartwood, so although not durable, it is ideal for interior woodwork, especially if it is to be painted, due to its non-resinous nature, and its high stability.

The central core of the log contains solid live knots which form sound lumber, yet as the trees grow and their lower branches die off, they rarely fall off, the trees expand in girth, yet instead of producing clear wood, rather we end up with sapwood which is of poor quality full of dead/loose knots. The sapwood is

thus often not of a sufficient quality to produce high quality interior lumber, and due to its lower strength it is a poor substitute for other species. There are various possible answers to this. Either to do as they do in New Zealand which is to **high prune**, thus reducing knots and produce higher value clear wood, suitable for interior joinery. Or **to grow in dense stands**, thus limiting branch size, and hopefully knocking off a large volume of the dead branches during thinning. Or possibly **plant at wide spacings**, thus encouraging the branches to remain alive, and accept the sound knotty timber.

## Milling

Many of the logs we milled were in the region of 45 years old, and the proportions of sawn products were as follows:

- 33% of the log was sapwood
- 33% of the log was heartwood with loose/dead knots.
- 33% of the log was clear heartwood and with sound knots, what we need to aim to produce.



*Sawing a UK redwood at our own mill.*

Although the most durable heartwood is situated just inside the sapwood, this is the very heartwood which is downgraded due to loose/dead knots, and hence loses considerable value. The central third of the log would tend to produce the soundest heartwood, but this would involve the juvenile core, which by its very nature is less durable and not as strong. The contrast between light sapwood and red heartwood can be very decorative especially where durability is not an issue. The limitations in using this combination are generally due to dead knot content within each log. **This combination of sapwood, heartwood, live knots and uneven grain, gives certain parts of the wood a very Yew like grain figure. The heartwood can range in colour from a light pink color to a dark purple color. As yet we don't know whether this is genetic or growth condition caused.**



## Drying

Initial air drying tends to be slow, especially in thicker sections, corresponding to the American and New Zealand experience. In a large commercial set up, 6 months would be needed to preliminary air dry prior to kilning. Yet certain boards which tend to be heavier need a longer period to air dry, perhaps up to one year prior to kilning.

Redwood logs tend to contain considerable water, and are thus heavy and even after two years are still heavy. The sawn boards are heavy, but after air drying they become considerably lighter. ***The fresh sawn lumber is easily bruised***, but hardens and strengthens as it dries. Thus the current drop sorter systems, used in many sawmills in the UK, would not be ideal, due to the damage caused to the freshly cut boards whilst being dropped into their sorting bins.

## Trials

***With regard to weathering and stability, we set up some trials over a period of two years comparing tangential sawn and quarter sawn, Redwood, Western Red Cedar, Oak, Grand Fir and Japanese Larch. It was interesting to note that the Larch and Oak are often referred to as good cladding material. Yet it was noticeable that these two species were the highest moving, shrinking and splitting samples. The Grand Fir although sometimes moving during milling, proved better during the trial. Overall it was the Redwood and Western Red Cedar which proved best. They both had similar characteristics, both had slight checking on tangentially sawn boards, but the quarter sawn boards maintained their full integrity.***

Redwood has the reputation for high durability. In fact the whole marketing of the species in the US is aimed at emphasising this quality. Yet, as already discussed, a certain percentage is non-durable: this compares with other species such as Western Red Cedar. ***Accelerated decay tests were conducted on Redwood and six other species. There was considerable variation in the durability of Redwood, with some being far more durable than the Oak samples tested. Thus we need to be able to discern between durable and non-durable Redwoods. This is a skill I'm working hard to develop and improve.***

## Markets


Many of the possible markets for Redwood are those currently utilizing Oak. Redwoods can grow to a considerably larger size than Oak of a similar age. Prices for Redwood in the US are around £140 per m<sup>3</sup>

for logs delivered to the mill. This compares with the price for Oak logs, for tree lengths at roadside, of between £110-160 per m<sup>3</sup>. Therefore in reality the cost of Redwood saw logs at mill in the US compares well with the price of Oak beam quality saw logs delivered to the mill here in the UK. But it is important to realise that there are major differences between the markets in California and those of the British Isles. In Britain, there is a receptive and well established market for Oak, but none exists for Redwoods. Therefore due to unknown markets, Redwood saw logs will sell for considerably less than Oak in the UK, under current British market conditions.

Although sounding negative, it should be borne in mind that the Redwoods would probably have gone through three rotations prior to the Oak being harvested, or if the Redwoods are left until the full rotation, the volume produced will be considerably more than the Oak, hence economies of scale. UK prices for Redwoods reflect an upward spiral depending on a combination of factors, from larger diameters to fewer dead branches, and also any evidence as to the possible durability of the wood.

Should the reputation and availability of Redwood grow, it would be very possible that the prices could grow further especially for quality saw logs. Such specialist conifers would be marketed more like quality hardwoods rather than a commodity conifer crop. The use of Redwood is more like the use of hardwood than the processing of softwoods. It needs to be milled carefully, sticked and air dried prior to kilning.

## Conclusion

To conclude, Redwood can possibly have a bright future in the UK, so long as sufficient consideration is given to its provenance, site selection, its early growth and long term management. The fact that it easily coppices means that its root structure can have a permanent soil stabilizing effect and re-establishment costs are minimal. It needs to be borne in mind that most of the existing Redwood crop is of unknown durability, and possibly a sizable percentage will not be durable. Its timber can be used in a whole array of products from interior to exterior woodwork, where its soft nature is of no concern. ***Its quality of stability and durability when grown in sufficient quality can far exceed any other species grown in the UK. As long as sufficient quantities are planted and that any difficulties with wood durability are overcome, Redwood could prove beneficial for the UK forest and wood industry.*** 

Arwyn Morgan

US photographs courtesy of Gerald F Beranek

[www.atreestory.com](http://www.atreestory.com)

# ASHS Association of Scottish Hardwood Sawmillers

ASHS was set up in 1999 as an association primarily for homegrown hardwood sawmillers in Scotland. Our 25 members are mainly small businesses, which provide a full range of services including sawmilling, kiln-drying, mobile sawing and timber machining. We also now have members who are furniture makers and contractors for building, joinery or fencing work. Most deal in hardwoods, plus high-quality softwoods such as Douglas Fir and Larch. Larch cladding is now widely accepted by building control and architects and has been increasingly and successfully used in Scotland.

ASHS is supported by the Forestry Commission and Scottish Enterprise to carry out a range of services for its members, including:

- Marketing (through leaflets, website and displays at shows and conferences)
- Training (improving members' skills and introducing timber growers and users to the particularities of homegrown hardwoods)
- Coordination (circulating news and information, arranging networking meetings and helping members to get advice and help from each other)
- Certification (arranging for members to obtain FSC certification and helping to run the 'Scottish Working Woods' label)
- Representation on government committees and responses to consultations

Scotland lost almost its entire homegrown hardwood sawmilling industry in the 1980s, but this gap is now being rapidly being filled by new small businesses, which have benefitted from the development of small-scale and mobile sawmilling technology. Even in the current difficult economic climate, we are seeing several new small sawmills established every year! With the increasing interest and demand for environmental values and 'quality' local products, current growth is set to continue into the future and ASHS is helping to create and sustain a market for 'high quality' homegrown timber and timber products in Scotland.



Tel: 07906 129627 (mobile) email: [coordinator@ashs.co.uk](mailto:coordinator@ashs.co.uk) website: [www.ashs.co.uk](http://www.ashs.co.uk)



# Assessing timber quality in Cherry

Karen Russell of Lockhart Garratt and David Jenkins of Coed Cymru

**Wild Cherry (*Prunus avium* L.) is one of our most attractive native trees and it is ecologically important for a wide range of insects, birds and mammals as well as being economically important as a timber tree. It can grow on a wide variety of soil types and is particularly well suited to fertile, lowland sites. It also has the notable advantage of being unattractive to grey squirrels.**

*Cherry is a fast growing tree capable of producing high quality hardwood timber in rotations of 40 to 70 years. The timber is in demand for furniture making and is able to substitute for imported Cherry timber and other hardwoods, though current volumes produced in the UK are very low. At present, it is thought that over 90% of Cherry timber used in the UK is imported, with the majority being Black Cherry (*Prunus serotina*) from North America.*

Sweet Cherry grown for its fruit is the domesticated form of Wild Cherry. Unfortunately in the past, many trees planted in the UK were raised from imported seed and were of unknown origin or quality; many were probably of Sweet Cherry type. As a result, the adaptability of these trees to British conditions was often very poor, with many dying as young trees. Trees which survived were frequently heavily branched, of poor form and not suitable for timber production. It should be noted that in genuine Wild Cherry, losses to bacterial canker attacks are very limited compared to Sweet Cherry and its form tends to be good.

## The Wild Cherry programme at East Malling Research

The programme at East Malling Research (EMR) in Kent (formerly Horticulture Research International) sought to provide genetically reliable material which was genuine Wild Cherry of known origin, to British nurseries. EMR used its extensive breeding and genetics experience of Sweet Cherry and other tree species (gained over many decades) to enable rapid progress with Wild Cherry. The programme started in the late 1980s and continued on until 2007 with funding throughout this period provided by Defra. This sustained funding resulted in one of the most advanced breeding programmes for any broadleaved forest tree in Europe.

A prerequisite for the British breeding programme was the identification of superior trees from other breeding programmes in continental Europe as well as from native woodlands in Great Britain. Once

these trees were clonally propagated by grafting onto rootstocks, they were used in a number of ways. This included the production of a number of clonal seed orchards which are now producing seed for industry as well as for the production of a small number of clones selected variously for improved resistance to bacterial canker, form and vigour – marketed under the name Wildstar.

However, the greatest effort was directed to the controlled improvement programme, where flowering trees with desirable traits (e.g. excellent vigour, good form, pest and disease resistance....) were cross pollinated by hand each spring. The majority of the crosses were Wild Cherry x Wild Cherry, though some were Wild Cherry x other Cherry species to introduce hybrid vigour and novel sources of pest and disease resistance, and Wild x Sweet Cherry for genetic studies.

The resulting seedlings were raised and planted into seedling plots at East Malling. As the seedlings grew, they were monitored for pest and disease resistance and assessed for form and vigour. By the end of the programme in 2007, some 6000 seedlings had been assessed by EMR staff and by an independent forester for overall form and performance, with nearly five percent selected for propagation and further work.

## Timber quality in Cherry

Because of its relative scarcity, homegrown Cherry tends to be used in high quality bespoke furniture and craft items. Developing wider markets is difficult while there is no continuity of supply. But Cherry is actually a versatile hardwood producing a strong,



*Sawn Cherry ready for testing.*

stable and moderately durable timber (in the same category as homegrown Western Red Cedar) from short rotations. Lesser grades produce excellent flooring and joinery and the thinnings and lop and top make good firewood and kindling. The contrast between the light coloured sapwood and darker heartwood can be a problem but this can be improved by heat treatment.

A joint study between EMR and Bangor University in 2000, looked at the physical wood properties of three Cherry progenies. The study revealed significant differences between them for basic wood density, fibre length and cell type percentages. However, no visual assessment of the timber quality was carried out.

The closure of the programme at EMR, offered a unique opportunity to determine the impact of tree branch architecture on timber quality and to evaluate the decorative value of the timber as both have substantial influence on timber value. Twenty seedling selections from the improvement programme were chosen for the pilot study described below. It is hoped that the information gained will help to inform the future selection criteria for seedlings and parental trees.

#### Selection of seedling for timber assessment

The 20 seedling selections were carefully chosen to encompass the following characteristics:

- stem diameters from 9.3 to 24.6cm
- tree heights from 5.9 to 11.3m
- branching habit ranging from upright to spreading, compact tight whorls to open whorls
- branch thickness from very light to heavy
- tree age from 6 to 14 years from planting

They were also selected to include trees with different parentages and backgrounds (Wild Cherry x Wild Cherry (12), Sweet x Wild Cherry (4 including one triploid) and Wild Cherry x other Cherry species (4). Each tree was given a unique number (1 to 20),



*Selected Cherry logs on a trailer.*



*Cherry Tree 10 1995-62-20.*

photographed and recorded immediately before felling.

#### Felling and preparation of seedling selections

The felling of each of the trees in the seedling selection was carried out under supervision. Using a chainsaw, the felling cuts were made 20cms from the ground. Once felled, the side branches were removed flush with the main stem. A log section of at least 120cm in length was then cut from the base end. For two trees, a second log length was taken. The logs were clearly labelled then moved to an unheated agricultural building where they were stored until transported some three weeks later to the sawmill.

The log samples were converted to 110mm x 33mm x 1,200mm boards by David Manuel at Heartwood Sawmill, Caersws, using a double slabbing circular saw and a band resaw. The logs were very easy on the mill with no great tension in the grain. Wood from individual plants was numbered as it left the saw to retain its identity and carefully stickered and banded prior to a six month period of air drying. Drying was completed using a simple heat and vent kiln at the Coed Cymru workshops at Tregynon. The timber dried very well with only minor losses. A small sample from a single tree (9) with a high proportion of sapwood was heat treated at 190°C for comparison.



Three boards were cut per log except for the six year old samples where only two boards were possible. It was apparent on the cutting of the logs, that heartwood colour varied markedly from selection to selection, with some having much darker coloration than others.

All the samples were planed-all-round to reveal the colour, grain and machining characteristics of the different clones. As expected with Cherry, some samples “picked up” in the planing process. These would require more sanding than others.

## Assessments

A simple scoring system has been devised and craftsmen and architects have been asked to score each sample and comment on its quality. At present, eight individuals have completed the assessment of the log samples. The results will be analysed when a total of ten assessments have been made, though the samples will be available for others to look at.

## Results

### Heartwood formation

Before sawing, the proportion of heartwood to sapwood was measured (mm) at the base of each log. There was no heartwood in logs from trees of 6 years old. In logs taken from trees of 7 to 14 years of age, the proportion of heartwood varied considerably and did not necessarily increase with the increasing age of the log – the greatest proportion of heartwood was 70% in the log from a 7 year old tree, the least was 14% from an 8 year old tree.

### Survey

As mentioned above, the survey is not complete but the interim observations generally seem to confirm that “beauty is in the eye of the beholder” with a wide range of preference. ***The exception is the heat treated sample which scored highly with all of those canvassed.*** Once the assessments are completed, it is hoped that this pilot study may provide useful information which the other BIHIP species groups could benefit from in the future, when timber assessment in their seedling selections becomes possible.

## Conclusions

The log samples were from young trees with the oldest being only 14 years of age. Despite this, there were clear differences between the log samples, both in terms of the proportion of heartwood and sapwood, and the visual attractiveness of the timber. These differences, if under high levels of genetic control (i.e. likely to be heritable), could be selected

for in other Cherries (seedlings and parents) arising from the EMR programme. However further work will be required to determine this. The ease with which Cherry can be clonally propagated would aid such studies considerably as would their early expression of the timber characters studied here.

With time, the colour and proportion of heartwood will improve as the trees age but this trial has demonstrated the potential usefulness of young Cherry plantings for a variety of products. By the use of high temperature kilns it will be possible to access wider markets for a variety of hardwood and softwood species which produce a preponderance of sapwood in their early stages.

## Acknowledgements

The BIHIP Cherry group is grateful to *Woodland Heritage* for funding the pilot study and to David Manuel at Heartwood sawmill for the initial preparation of the Cherry logs.



*For more information,  
please contact Karen Russell at  
karen.russell@lockhart-garratt.co.uk  
or David Jenkins at davidj@coedcymru.org.uk*

**SPECIALIST INDEPENDENT ADVICE**

**LOWLAND FARM AND TRADITIONAL ESTATE WOODLAND MANAGEMENT**

- Strategic advice & management planning
- Timber harvesting, sales & marketing
- Forest design & establishment
- Ancient woodland management
- Grants & licences
- UKWAS Certification
- Health & Safety
- Woodfuel & diversification
- Expert witness
- Forestry research

**ECOLOGY**

- European Protected Species (EPS) Landscape Assessment
- Ecological constraints surveys
- Protected species surveys & licensing
- Biodiversity audits

Tel: 01536 408840 Email: info@lockhart-garratt.co.uk  
Website: www.lockhart-garratt.co.uk

# Artificial regeneration of continuous cover forests in the Chilterns

by Rik Pakenham

## Summary

This article highlights the potential value of planting in gaps or in the understorey of continuous cover woodlands. Planting allows for the introduction of improved genotypes and a more diverse range of species. In monoculture Beechwoods, advantages of planting include greater flexibility in stand management, diversification for future timber markets and adaptation to climate change.

## Introduction

Over many years the Continuous Cover Forestry Group (CCFG) has promoted its objectives with great success and has pushed the cause way up the political ladder. However, at the grass roots level, there still seems to be a perception that 'natural regeneration' is continuous cover forestry (CCF), planting is plantation forestry, and 'never the twain shall meet'. The reality in many cases is that natural regeneration and planting have their place across the broad spectrum of silvicultural systems that constitute continuous cover forestry management.

Where large areas of mature even-aged stands of one species exist, such as Beech (*Fagus sylvatica*) in the Chilterns, and the management prescription is to transform them to multi-species uneven-aged structures, or to improve timber quality, there is often little choice but to adopt artificial regeneration techniques. This article reviews some of the factors to be taken into account when considering planting in CCF stands.

## History

The Chilterns are well known for their Beech woodlands. These have evolved since the late 19th century when the furniture industry began to develop in High Wycombe. Beech was favoured and/or planted to supply this industry. Prior to this many of the woodlands had a wider mix of broadleaved species.

Over the last 50 years the proportion of Beech has reduced due to coniferisation, and more recently mixed broadleaved planting. However, Beechwoods still account for about 35% of the woodland area, much of which is in the older age class categories, and on scheduled sites.

Although Beech is native to this part of England, pure Beech stands are still regarded as a plantation on an ancient woodland site (PAWS). The result of this is that there are large areas of even-aged monocultures, with generally only Beech as the seed

source, limited biodiversity due to dense shading and no diversity in stand structure (Figure 1). Where interventions have taken place there is usually dense bramble colonization that restricts any other regeneration (Figure 2).

Many of these Beech stands, on the shallower soils (usually rendzinas) are dying back and collapsing, so to some extent natural processes are happening. However, the Beech is generally being replaced by Ash, with the result that one even-aged monoculture is being replaced by another.



Figure 1. A Beechwood in the Chilterns, with no recent intervention. Note the uniform structure and lack of understorey vegetation.

## Rationale

Different criteria now drive modern forest management, and some of these are considered below. In each case there are strong arguments for a greater diversity of species and transformation to irregular or uneven-aged stand structures:

### Markets

Currently there is no market for quality Beech timber. In the 1990s first quality could fetch up to £130 per m<sup>3</sup>, but today the market is very limited and you may achieve £22 m<sup>3</sup>, with the second quality going for firewood.

The average age of much of the Beech is over 130 years old. Even at the lowest yield class of 4 this is 20 years over the age of maximum mean annual increment (mmai). With an average yield class of 6 it is 30 – 40 years over. Although mmai and rotation times are not necessarily such a major consideration





*Figure 2. A Beechwood following stand intervention. Note the uniform structure of the overstorey and mass of bramble dominating the understorey. Such “flooding” of the canopy gap represents a barrier to natural regeneration of tree seedlings.*

under selection systems, the management tables list the rotation length to 150 years. Observations show that except on the very best soils most Beech timber becomes stained between 140 - 180 years. This implies that, if markets were to re-emerge in the future, it is unlikely that a resource of high quality timber will be available to meet the exacting standards of the furniture industry.

A mix of timber-producing species able to respond to the fickle markets is a prudent and desirable way forward.

### Climate change

Climate change predictions identify Beech as one of the main species to regress in response to increasing temperature and changing rainfall patterns, especially the increased risk of drought in summer months across southern Britain. This suggests that to persevere with Beech monocultures would seem unwise, both from a silvicultural and ecological perspective.

### Silviculture

There is a desire to create more robust and stable stand structures utilizing a mix of species and age classes. The gales of 1987 and 1990 showed even-aged stands to be much more vulnerable to windthrow than uneven-aged stands.

Severe damage by the American grey squirrel (*Sciurus carolinensis*) is seriously compromising any future quality Beech production.

## Management prescriptions

Selection systems under CCF principles are an ideal way to convert these Beech stands to visually and biologically diverse structures with sustainable timber production underwriting the long term management.

However where the only seed source is Beech, artificial planting of other species has to be considered.

Large clear cuts and replant are now no longer acceptable, except in extreme cases such as catastrophe, disease or possibly a return to native site type; many managers now recognize this. The total desecration of the forest environment, reducing a forest structure to a savannah is no longer justifiable in landscape, environmental, ecological, social or timber production terms.

History tells us that the removal of a forest environment produces major problems for future generations.

The introduction of other species through planting, as opposed to seeding, is best achieved by adopting a group shelterwood system. The main reason for this is that Beech is the only ‘native’ shade tolerant timber producing species that could survive for any length of time in a uniform shelterwood system. Unless stands are regularly thinned (unlikely in the current market conditions), to release more light demanding species, they will not survive.

The major timber producing species, apart from Beech, suited to these site types and National Vegetation Classification (NVC) are Oak (*Quercus robur*), Ssh (*Fraxinus excelsior*), Cherry (*Prunus avium*). Sweet Chestnut (*Castanea sativa*) and Sycamore (*Acer pseudoplatanus*) are not regarded as ‘native’ but could also be considered where this is not seen as a negative factor. Sycamore’s prolific seed production and colonisation, sometimes to the exclusion of other species, plus its palatability to the American grey squirrel, would need to be seriously considered.

Establishment from seedling, to sapling, to young tree is attainable so long as suitable protection and or pest control procedures are adopted.



*Figure 3. Planting in a small coup. Some thought should be given to future thinning and harvesting operations to minimise potential damage to planted seedlings.*

Prior to planting the stand needs to be thinned and the replanting coups felled. Under CCF guidelines no coup would exceed 0.25 hectares. The thinning is aimed at increasing the amount of lateral light to the planting areas, which is as equally important as overhead light, especially in these small coup sizes. Plus the removal of any tree that is likely to have to be felled into the coup at the next intervention, this negates the need to have to winch trees away from the young plantings (Figure 3).

Planting a minimum of 2,500 trees per hectare should be considered. In reality it is generally 1100 per hectare to maximize the planting grant, but with the acceptance that pruning will be required to grow quality timber!


Often these plantings are supplemented by natural regeneration of tree and shrub species.

## Conclusions

It is accepted that starting transformation in this species at 130 years is far too late, and felling quality timber for firewood may well make an owner question the financial viability of this decision.

However something has to be done, and soon, before these stands regress more rapidly as age advances, climate changes and quality timber markets continue to diminish. *(CCFG News)*

*Rik Pakenham is a forestry consultant based in the Chilterns. He manages a number of estates and woodlands on continuous cover forestry principles. He is currently CCFG Co-ordinator for England. Rik is active in several forestry organisations, including the Cherry group of the British and Irish Hardwood Improvement Programme (BIHIP).*



## Continuous Cover Forestry Group

### Scientific Meeting

### Understanding daylight in the context of Continuous Cover Forestry

29th September 2009  
Location: Westonbirt, Gloucestershire

The highlight of the CCFG year will be a conference on 29th September 2009 at Westonbirt Arboretum – *Understanding daylight in the context of Continuous Cover Forestry*. The Group has taken an important step in organising this conference and has attracted some eminent speakers to address this fundamental topic. There will also be a field demonstration session in the afternoon to make the link from science to application. The CCFG hope to significantly advance understanding of light in the forest and how it interacts with other factors which affect growth, in order to obtain a better understanding of the methods which the manager can use to manipulate it.

<b>Time</b>	<b>Topic/Activity</b>	<b>Speaker/Chair/Provision</b>
09:30	Registration	Coffee/tea provided
10:00	Welcome and opening remarks	Phil Morgan, CCFG Chair
10:10	What are the main factors in determining the effectiveness of daylight in woodlands?	Rodney Helliwell (Consultant)
10:30	Variation in light intensity at different latitudes and seasons, effects of cloud cover, and the amounts of direct and diffused light	Paul Burgess (Cranfield University)
11:00	Break	Coffee/tea provided
11:30	Amounts of light required for photosynthesis, and interaction with moisture supply, atmospheric humidity, windspeed, and temperature	Maurizio Mencuccini (Edinburgh University)
12:00	Field assessment and estimation of light under various canopy conditions and in gaps	Mathias Disney (University College London)
12:30	Lunch	Buffet lunch provided
13:15	Field demonstrations	
15:00	Break	Coffee/tea provided
15:30	Open discussion	Chaired by Andy Poore (Consultant)
16:00	Summing up: review of need for further studies, publications or training	Graham Gill (Forest Enterprise, Kielder)
16:15	Close	

*CCFG, Plas Wenallt, Llanafan, Aberystwyth. SY23 4AX [www.ccfg.org.uk](http://www.ccfg.org.uk) email: [ccfg.admin@gmail.com](mailto:ccfg.admin@gmail.com)*





# The European Squirrel Initiative

Charity No 1105920

**The European Squirrel Initiative (ESI) resulted from a meeting called by Woodland Heritage Chairman Peter Goodwin in 2002. The Forestry Commission had just abandoned research to develop a system of fertility control for grey squirrels, so concerned foresters, conservationists and landowners gathered in London to decide on what to do. From this meeting sprang ESI with the principal objective of protecting biodiversity through the removal of the American grey squirrel from Britain, Ireland and northern Italy, the three European countries hosting this invasive pest.**

The World Conservation Union (IUCN) includes the grey squirrel on its list of the 100 most dangerous alien invasive species in the world.

Here is why.

Grey squirrels strip the bark from some forty species of trees in Britain. This often causes death or deformity to trees between the ages of ten and forty years. A stand of promising young Oak, Chestnut or Beech planted for timber can lose its timber potential



in one season unless grey squirrels are rigorously controlled. The cost of controlling grey squirrels to protect vulnerable timber trees is beyond the reach of many woodland owners. When these trees are ruined by greys, the tax payer's considerable investment in forestry through the grant system is wasted. In the longer term, grey squirrels are changing the landscape as they destroy the next generation of tall forest trees.

Grey squirrels have a devastating impact on biodiversity. The decline of some woodland bird species is caused by greys raiding nests and taking the eggs and chicks. Greys often nest in hollow trees, competing with other cavity nesters such as woodpeckers and bats. We probably do not yet understand the full impact of grey squirrels on our countryside.

The existence of grey squirrels in northern Italy threatens the great forests of Europe, the treasured alpine environment, the hazel nut industry and much else across the continent.

The case for eradication is compelling. But how?

ESI has approached its task by ensuring that the British media has frequently carried articles about the squirrel issue in order to increase public awareness of the damage done by grey squirrels and the plight of its most obvious victim, the red squirrel. This campaign has been successful and today, barely a day goes by when squirrels are not mentioned in a publication somewhere in Britain and Ireland. ESI commissions an independent annual survey of public opinion to monitor the level of "squirrel awareness" by the British public.



Photo Bede Howell.

The surveys show that nearly 70% of the British population is aware that grey squirrels are driving reds towards extinction, 70% approve of culling greys to save reds and 63% would approve of a national programme to eradicate greys using fertility control if it meant that red squirrels would return to their parks and gardens.

ESI's scientific consultants have designed a programme to develop two forms of immuno-contraception (IMC). IMC uses antigens to stimulate the body's own immune system to block reproduction. Work on the programme has commenced but it will be some years before the technology becomes available.

ESI campaigns tirelessly in Britain, Ireland and Italy. It raises the alarm in Switzerland and France, the two countries closest to the Italian grey squirrels. In Brussels it seeks to persuade politicians and civil servants that the threat to Europe posed by grey squirrels in Italy is so great that urgent action should be taken to commission an eradication programme in Italy before it is too late. An EU funded campaign to eradicate grey squirrels in Italy would set a useful precedent for the UK and Ireland.

Meanwhile in Britain, conventional methods of grey squirrel culling must continue if we are to protect our woodland wildlife and the nation's timber capital.

*ESI receives no state funding. It depends entirely on the generosity of private donors.*

*European Squirrel Initiative, Estate Office,  
Sotterley, Beccles, Suffolk NR34 7TY.*



*Photo Eddie Mullholland.  
Courtesy RSPP*

**Miles Barne**  
**Chairman**

**European Squirrel Initiative**

**[www.europeansquirrelinitiative.org](http://www.europeansquirrelinitiative.org)**



*All donations will be gratefully acknowledged*



*Photo Terry Andrewartha, Nature Picture Library*



# Japan study tour

by David Saunders

**In April 2008 David Saunders was invited to join a cultural visit to Japan. Woodland Heritage supported David's study tour to undertake some research into the management of forests in Japan, and investigate the utilisation of their home-grown timber. David describes his experience.**

## FORESTRY IN JAPAN

Reading about Japanese forestry before I embarked on the trip I was struck by the fact that while Japan is a heavily wooded country, it also has the reputation of being the world's largest importer of tropical timber and wood products. Even before landing in Tokyo, looking down on the mountains below, it became apparent that the inaccessibility and steepness of this volcanic landscape is a serious constraint to the exploitation of home-grown resources, but I suspected some other cultural factors would become apparent during the visit to explain this apparent mismatch.

The key forest indicators are quite striking. Over two thirds of the country, over 25 million hectares, are covered in trees, and whilst 80% of the forests are classified as "active", producing 33 million cubic metres of industrial round wood per annum, this represents only 18% of the nation's annual domestic timber and wood product requirement.

With a population of 127 million, the per capita consumption of timber in Japan is high in the international league table. Perhaps as a result of the voracious demand for timber and wood products, there is much criticism of Japanese industry's exploitation of SE Asian rainforest resources to feed domestic requirements. The increase in forest certification protocols in the developed world has not been actively followed in Japan, perhaps uncomfortably aware of its net importer status. With the more recent reluctance of Asian exporting countries to release round logs, this has led to a decline in adding-value by wood product manufacturing, such as plywood, and Japan is now having to consider greater utilisation of home-grown wood, despite the higher costs.

The Japanese government has designated a growing proportion of the forest area as protected, mainly the remaining "primary" forest which is reserved for biodiversity and other non-market values. In the remaining areas, there has been the widespread adoption of plantation management silviculture over the past few decades which has led to a concentration of more uniform stands of a limited

range of productive species. Moreover, as in the UK, the timber and thinnings from these young plantations cannot be produced economically in a competitive global marketplace, and there is much concern about neglect, at least from foresters.

## URBAN AND RURAL JAPAN

Most visitors to Japan arrive in the cities which provide the usual perspective of a modern industrialised nation, and arriving in Tokyo this is certainly brought home. However a third of the population is still classified as rural dwellers but, as in many societies, their average age is increasing, and the skills required to manage the land are in decline as young people leave to enjoy the urban life.

Yet amongst the high rise offices, concrete apartments, urban freeways and industrial zones nestle some of Japan's impressive heritage. Historic Buddhist and Shinto temples are preserved, sometimes prominently, and at other times hidden in amongst suburban sprawl. The specimen trees in their grounds are venerated and tended to the extreme of becoming contorted living sculptures.



*A temple in Kyushu*

The exquisite timber temple structures were my first introduction to the craft of Japanese carpentry and all, without exception, appeared to be well-detailed, and beautifully maintained.

While some of these buildings are truly historic structures, there is also a tradition of renewal. Many important temples are re-built on adjacent plots once every generation, thus retaining the timber construction skills in society. Whether this is in response to the perennial challenges of fires and termites, is not clear, but the sacred Shinto shrine and

wooden temple at Ise, have a 20 year programme of replacement with the next “incarnation” planned for 2013. The tree species used for the temple construction is Hinoki – the Japanese Cypress or, in Japanese, *Go-Shin-boku* which translates as the “*Tree where god stayed*”.

The use of timber in the shrines and temple buildings appears, to Western eyes, extravagant. The system of framing demands a large volume of timber, but the interlocking grid work that supports the heavy ceramic-tiled roofs is designed to be earthquake-resistant, another daily challenge faced by residents of this country.

It is not only in the temples that wood finds favour as a building material. The traditional Japanese house is built from wood, often in a lightweight frame which is flexible and easy to repair. It is only in recent decades that wood building has seen a decline, with the post-war restoration of damaged cities which has led to the development of earthquake-resistant engineered concrete structures. However, many Japanese people outside the cities retain the traditional structures, and this provides a continuing market for the small diameter timbers for construction. Rooms in buildings are defined by the number of tatami mats – a standard unit of area measurement, and commonly referred to in brochures for guest houses and hotels, even today.

## SAKURA

A feature of the tree-awareness in Japan is demonstrated by the Cherry Blossom festivals in March and April, where families meet in the spring evenings to celebrate the spectacle of the “sakura”. As the flower-front moves northwards throughout the month national television shows a blossom forecast, and the best trees become places of pilgrimage and frivolity, often associated with the consumption of much beer and saki! Our visit was at the tail end of the sakura, but in Tokyo the last remnants of the Cherry Blossom were still visible, in parks and petals floating in streams

My journey then took me south from Tokyo, along the coastal plains, and all the time the backdrop of steep hills cloaked with mixed broadleaved and conifer forests was visible.

## KYOTO AND SURROUNDING COUNTRYSIDE

In Kyoto I had arranged to meet Professor Komatsu a timber engineer at the University where he runs the Department of Wood Science in their “Research Institute for a Sustainable Humanosphere”.

As well as a laboratory which carries out structural testing of timber joints, there was a specialist area for the study of termites – a serious threat to timber construction throughout Asia and Australasia. The

research identifies the susceptibility of a variety of timbers, and confirms the resistance to termite damage of the heartwood of the two principle timber species used for construction in Japan. These species are the Japanese Cypress Hinoki (*Chamaecyparis obtusa*) and the Japanese Cedar – Sugi (*Cryptomeria japonica*). Both species were displayed in the Department's fascinating timber library, a reference collection of useful timber species grown in Japan,



*Timber library at RISH*

and the many traditional artefacts made from wood.

The campus also hosts a demonstration timber house, where students have constructed a modern variant of the traditional Japanese post and beam dwelling, but with environmental and structural “improvements” such as increased energy performance, and exploring use of natural materials. The structure still used local timber, and experiments included many ingenious ways of integrating small roundwood into both the frames and partitions.

We were invited to join the professor and his wife on a visit to a rural community north of Kyoto. Miyama is a showcase traditional village featuring



*Experimental timber house in Kyoto University*





*Miyama forest village*

over 300 timber-framed buildings with steep thatched Kiyabuki roofs set up to promote sustainable tourism. Like many agricultural communities in these mountainous regions, full use is made of the level ground in river valleys for food production, particularly rice and tea, but the remaining land area is so steep as to be only suited to forestry.

The production of specialist food is a key feature in his model rural development project. Regional produce is a subject of great importance in Japanese society which has remained, until recently at least, immune to the invasion of Western fast-food. At the local restaurant we were offered fresh spring bracken shoots as a side dish!

As with most of the settlements in Japan I visited there was a shrine – in this case a simple structure built around the base of an “ancient” sacred Horse Chestnut tree which was garlanded with paper ribbons.

## TOKOBASHIRA

The nearby township of Keihoku is a centre for the production of ornamental Migaki Maruta “polished



*Peeled Tokobashira poles*



*Tree binding for decorative poles*

logs” made from from Kitayama Cedar. These individually tended, high-pruned and pampered trees are peeled and polished to create the “Tokobashira” – a decorative alcove post which forms the focal point in many Sukiya-styled modern Japanese houses. The production of these characterful poles is organised through the “Magnificent Trees Co-operative” which organises the tending and marketing of these extremely high value-added products. After felling in the spring the bark is stripped and the timber surface polished, and a lengthwise stress-relief slot will often be cut to prevent any unsightly cracking of the timber as it dries.

A walk in the woods revealed the remarkable efforts that the local producers were prepared to go to achieve the ultimate decorative post. A cluster of pole-staged trees had been wrapped, with white vertical nylon filaments enclosed within a wire mesh case, a form of tree-binding that would, after several seasons growth, create the perfect rippled features that must command a high price, considering the effort that must be involved in undertaking this unusual silvicultural procedure, on such a steep slope.

## KYOTO TEMPLES

Kyoto is the home to some of the most important historic temples in Japan. As well as the beautiful serene gardens and revered bonsai and tended trees

surrounding the temples, the buildings themselves, always timber structures, were clearly well-maintained. At the Ginkakuji or Silver Temple in Kyoto the roof of one of the buildings was exposed, and the old shingles of Cedar were being replaced. The shingles were held in place with slim pointed wooden pegs, This process was well interpreted for the passing public, rather than being hidden under wraps.

## *Buddhist Temple - Higashi Hongan-ji - Restoration of the Founders Hall*

Reputed to be one of the largest timber structures in the world, this huge Buddhist temple needs repairs and a major project to remove the roof covering and undertake repairs to some damaged timber members had started. We were granted privileged access to the extensive scaffolding structure to see the replacement of the ceramic roof tiles at close quarters, then enter the roof void to see the staggering timber frames which support this enormous weight of tiles. The primary roof members are truly massive – derived from enormous Cedar trees, scarf-joined to create overlapping lengths which in turn support the lattice of secondary members that appear endless in the gloom. The roof structure was last restored in 1895, when huge ropes made from hair donated by Buddhist ladies around the world were used to lift these timbers into place.



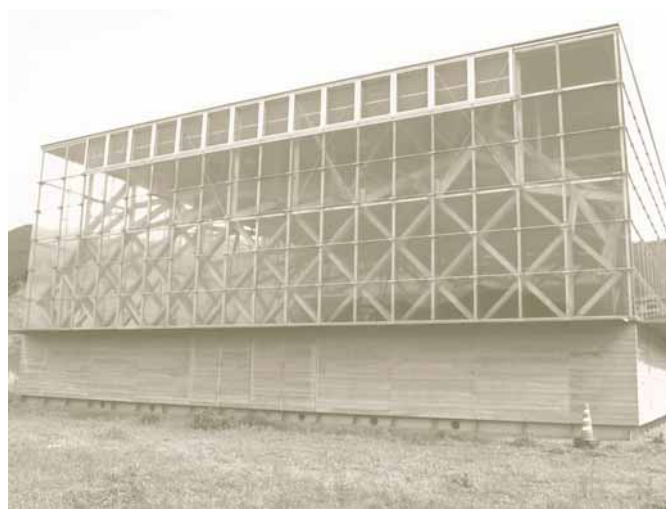
*Roof timbers in Kyoto temple*

The journey took us further west and south, by bullet train through Hiroshima onto the large southern island of Kyushu, famed for its active volcanoes.

## **TOMACHI COMMUNITY HALL**

Near Kumamoto, in the centre of the southern island of Kyushu, a rural community development project has demonstrated that Japanese timber construction is not just based on their historic timber-framing

tradition. This project was commissioned to support the forestry culture of this community, and used Japanese Cedar (*Cryptomeria japonica*), as well as employing local carpenters to build a spectacular community / sports hall. This stunning award-winning building demonstrates innovation in the design of a complex timber lattice grid, enclosed within a lightweight steel glazed screen. This building is a clear statement – set in beautiful forested landscape, this was an introduction to the active timber economy of Kyushu, evidenced by nearby roadside sawmills preparing square edge posts and timber components to supply a growing glue-lam industry.



*Tomachi community hall*

## **KIRISHIMA**

A trail in the hills took us to the Kirishima Volcano walk, an excursion through some natural woodland where familiar garden Azelias and Camellias grow wild as an understory.

Within the grounds of Kirishima Jingu, one of the sacred forests of Japan, is another Shinto temple in Kagoshima where we walked through some of the protected old growth in Kyushu. These ancient Sugi



*Kirishima sacred forest*





*Camphor tree in Dazaifu*

trees were carefully protected, and we observed both natural regeneration and planting used to replace trees that had fallen through old age or where volcano damage had destroyed areas of forest.

Nearby, in the more commercially managed plantations we saw evidence of Shitaki mushroom growing. Oak logs approximately one metre long were stacked semi-upright in rows under the forest canopy, presumably inoculated with mushroom spawn to create another edible crop as a forest product.

Back in the north of Kyushu we were invited to meet the priest and family at the historic temple at Dazaifu, famed for their veteran Camphor Trees (*Cinnamomum camphora*) dominating each temple courtyard. These enormous broad-spreading evergreen-leaved trees were about to flower, and provided a majestic sight and a fitting conclusion to the tour.



*Mushroom cultivation under forest canopy*

**CONCLUSION**

Clearly native trees and forests are respected and loved in Japan, to the extent that there has been a long tradition of exploiting the timber resources of

other countries to supply domestic industrial demand. With increasing tightening of control on exports of round wood from other Asian countries, and the competing growth of demand in China, Japan may have to turn back to its own forest resources to supply their needs.

From my own perspective from southern England there was some relevance to the challenge of how to manage the historic and cherished landscape whilst making sufficient income from adding-value to sustain a woodland economy into the future. The challenge being faced in both the UK and Japan is how to make best use of the extensive plantation forests to meet domestic timber needs, whilst remaining within the self-imposed sustainable parameters.

For economic reasons Japan is having to look more closely at making better use of its own forests, and government support to co-operatives of small forest owners appears to be addressing the problems of training, adding-value and marketing. Of particular relevance to our own situation in the UK are the difficulties faced by the Japanese foresters in achieving greater levels of forest certification. This adds a further financial burden to the already high forest management costs, especially amongst the small woodland owners that make up a significant proportion of the 14 million hectares of privately-owned forest in the country.



*Japanese carpentry joints.*

**ACKNOWLEDGEMENTS**

I thank *Woodland Heritage* for their generous support and Prof. Komatsu at Kyoto University who gave us his time and valuable insights into Japanese culture and forest management. Also, Jon Shanks, a timber engineer from Buro Happold, who provided some helpful introductions, and Mitsuhiro Kanada from Arup who helped me track down and interpret the Tomachi community building.



# Down but not out!

Stephen Owen

**I**n April 2008, with only one week left to finish the actual building, I received a call at 4.20am in the morning informing me that my Woodland Studio was on fire. The 'Chestnut pole studio' had become my life and in writing now, some six months after the devastating event, I feel as if I had never spent eighteen months on this project.



*The visual example of timber in use.*

During the first build I was pleased to have shown many people around and marvelled at how positively they responded to a timber frame of this nature. I wanted to demonstrate how simple it is to take a tree from the woods and with little effort to use it as a main structural element. The frame with over 100 Chestnut poles was an integral part of the building acting as a visual example of timber in use and its beauty.

The structural engineers had entered it into their industry's international award and I am proud to say that it was short listed in the sustainability section.

Amazingly the eight inch diameter poles, which were locally sourced were only charred to a depth of 6mm and all remained standing, working in the way they were designed to and still holding the building



*Still standing.*

up. On the other hand the floor viewing panel made of three 800mm by one metre, 8mm toughened sheets of glass and double glazed units amounted to a solidified molten lump just bigger than a small bowl!

Undeterred by the bureaucracy that comes with building and having now learnt that every detail must be resolved at an early stage – the preparation work has now commenced for the rebuild. It has been quite a task to source another 120 straight Chestnut poles (some almost ten metres long) with a top diameter under the bark of eight inches. However, this time around the trees are coming from three woods closer to home, one only four miles away, which just goes to show that often things are right there under your nose.

The first build took me 18 months with the help of one part time assistant. This time around it will not take so long as I am able to use contractors to erect and second fix the frame. Once again one of my aims of doing this project at a school is to influence the home owners of the future about the ways of using timber in a building that looks to sustainability and perhaps a way forward.

Cranleigh School and their insurers; the architects and engineers; other parties and individuals, including Woodland Heritage, have been most supportive in very many ways and for this I thank you all.



**Stephen Owen**  
[stephen@stephenowen.com](mailto:stephen@stephenowen.com)  
[www.stephenowen.com](http://www.stephenowen.com)

**O**ur member's dedication and drive in sourcing and building this Woodland Studio was inspirational first time around. However, to then be informed that his 18 month long project had gone up in smoke would have made most people *'throw in the towel'*.

Not so for Stephen – if anything the experience has fired his enthusiasm and given him the opportunity to question, improve and enhance the concept of this unique build yet further.

*'Phoenix is rising from ashes'* – a suitable road surface is already being laid to bring in the key structures – some 120 Chestnut poles, which have been sourced even closer to home this time around.

Many will watch his progress with interest and I am sure that this time next year we will be able to report that the Woodland Studio is back in use at Cranleigh School, Surrey and that it's even better than before!

**Editor**



# Assessing tree form

## A quick and reliable method

Nick Evans, Imperial College, London

**R**ecent years have seen a renewed interest in the production of Oak timber, and tree improvement programmes have become a key complement to good silvicultural management. The British and Irish Hardwoods Improvement Programme (BIHIP) has set up a series of breeding seedling orchards (BSOs) with the intention of producing seed sources of Oak with outstanding genetic potential.

A BSO is a progeny trial that is later converted into a seed orchard (described by Barnes 1995). Eight sites of around one hectare each were planted with up to 63 'families' of Pedunculate and Sessile Oak (*Quercus robur* and *Q. petraea*). Each 'family' is a group of individual trees that are directly related, having come from mother trees selected for their outstanding form (straightness and desirable branching characteristics), and wood qualities.

The trees were six years old in 2008 and fieldwork was carried out to assess the potential of the orchards and to identify how the families had performed. Thirteen of the families were common to all the sites and these were concentrated upon in the analysis described here.

### Form of the Trees

Assessments were carried out on four of the sites during the summer of 2008. They were located at Little Wittenham in Oxfordshire, Shakenhurst in

Worcestershire, Sotterley in Suffolk and Dalkeith in Midlothian. Each tree was assessed for 'wow' factor which is a subjective assessment of the trees' overall form (using a scale of 1-3, 1 being the best). It is a fast and effective means of assessing the potential of a tree to produce high quality timber. The number of potential timber defects including undesirable branches, forks and stem kinks were also recorded for each tree. Figure 1 illustrates trees that would fall within the best and worst wow factor classes. By looking at the average scores of trees at each site and within each family it is possible to assess which families exhibit good timber producing potential.



Figure 1: Left - A typical 'wow' factor 1 tree with good form and apical dominance. Right: A 'Wow' factor 3 tree with major forks, heavy branches and may lean.

Table 1: Mean 'wow' factor scores for 13 families common to each site that had at least 20 assessable trees, and across all sites. Mean scores are calculated from an average sample size of 56 trees per family at each site.

Family	Oak Species	Mean 'wow' Factor Class				Overall
		Dalkeith	Wittenham	Shakenhurst	Sotterley	
North Brabant 1, Netherlands	<i>Q. robur</i>	2.46	1.63	1.84	1.75	1.92
North Brabant 2, Netherlands	<i>Q. robur</i>	2.46	1.38	1.91	1.97	1.93
Sarthe, France	<i>Q. petraea</i>	2.55	1.50	1.99	1.80	1.96
Brabant, Netherlands	<i>Q. robur</i>	2.43	1.70	2.10	1.64	1.97
Gelderland, Netherlands	<i>Q. robur</i>	2.53	1.69	2.14	1.60	1.99
Normandy 1, France	<i>Q. petraea</i>	2.51	1.79	2.09	1.74	2.03
North Brabant 3, Netherlands	<i>Q. robur</i>	2.55	1.66	2.17	1.79	2.04
Somerset	<i>Q. petraea</i>	2.37	2.03	2.09	1.86	2.09
Normandy 2, France	<i>Q. petraea</i>	2.56	1.97	2.04	1.84	2.10
Co. Offaly, Ireland	<i>Q. robur</i>	2.64	1.82	2.24	1.83	2.13
Norfolk	<i>Q. robur</i>	2.63	2.08	2.31	1.71	2.19
Worcestershire	hybrid	2.70	1.84	2.27	1.96	2.19
Hampshire	<i>Q. robur</i>	2.75	1.92	2.29	2.23	2.29
Site Mean 'wow'		2.55	1.77	2.11	1.82	2.06
Site Mean Height (cm)		149	122	188	105	141

## Site and Family Performance

As would be expected there was considerable variation in the form of trees between different sites, with the trees at the Little Wittenham and Sotterley sites performing best (Table 1). This variation is probably a result of varied environmental conditions and differences in management at each site. Interestingly the sites with generally poorer tree form also appeared to be more vigorous, which is an unfortunate relationship that has been observed in the past with Sessile Oak (Harmer 1989).

At each site there are several families that generally have a more desirable phenotype than others. (*The way a tree actually grows is known as its phenotype. It is influenced by both its genotype and by the environment.*) More importantly there are consistencies between the sites. Two families performed well on at least three of the four sites and consequently performed well overall (Table 1). The superior form of these trees must, in part, be due to the genetic characteristics of the mother trees and so it would be desirable to keep these families within the breeding programme. Conversely there are two families that performed badly at three of the four sites and these would be candidates for removal. Even the worst families at the Little Wittenham site performed better than the best families at Dalkeith. *This demonstrates that even trees with superior genetic potential can be adversely affected by undesirable site factors (in this case the cause of the poor form at Dalkeith was possibly a fly, *Arnoldiola quercus*, which destroys buds).*

## Using 'wow' Factor

The accuracy of this simple subjective assessment of a tree's form in the field was debatable so additional tree form information was collected. Analysis showed that there was a strong relationship between the 'wow' factor scores and various measured timber defects in trees (see Figure 2). The best trees ('wow' factor class 1) tended to have fewer large / steep branches or stem kinks and very few forks or lean. On the other hand trees in the worst 'wow' factor class often had forks, especially major forks (i.e. wide angled and/or multiple stem forks), or were leaning over. As would be expected, less significant defects such as heavy or steep branching were found to have less of an effect on the 'wow' factor score than serious defects such as major forking.

Therefore it has been possible to justify the use of a 'wow' factor score as a means of assessing form of young Oak trees. This technique has the advantage that it is very quick and efficient to carry out and, provided the assessor is adequately experienced, it should provide a reliable indication of the potential of the tree to produce a high volume of good quality, recoverable timber.

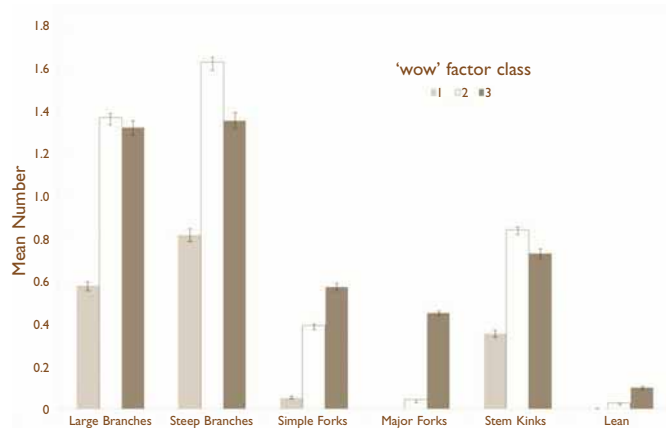


Figure 2: Average frequency of various measured timber defects on trees in each 'wow' factor class. Error bars indicate standard error of the mean and give an estimate of reliability.

## Conclusions

From these early assessments on four sites we can surmise that breeding gains in tree form can be made through the use of these orchards. By breeding between the families that perform consistently well on different sites, it should be possible to produce Oak seed that will grow into trees of improved form in a variety of locations. *It will be important that growers understand that good silviculture will still be required in order to get the best from improved seeds.*

Comparison of the 'wow' factor scores and frequency of various measured tree defects has shown that this subjective assessment of tree form is reliable and accurate. When carried out by an experienced assessor it provided a cost effective means of measuring tree form which should be a valuable tool for this programme and others.

## Acknowledgements

*Woodland Heritage*, the Dulverton Trust and the Leverhulme Trust contributed most of the funding necessary to start the BIHIP tree improvement programme with Oak. The Northmoor Trust has invested a huge effort in the co-ordination and planting of the trials as well as in measuring them. The staff at Silwood Park, Imperial College as well as Peter Savill and Jo Clark are thanked for constructive help in supervising the thesis of which the information presented here is part.

## References

- Barnes R.D. (1995). The breeding seedling orchard in the multiple population breeding strategy. *Silvae Genetica* 44(2-3), pp 81-88.
- Harmer R. (1989). The Effect of Mineral Nutrients on Growth, Flushing, Apical Dominance and Branching in *Quercus Petraea* (Matt.) Liebl. *Forestry*, 62(4), pp 383-395.





# What's Up With Our Oak?

by David Taylor

**The health of Oaks in the UK has been the subject of high-profile National Press coverage lately, and even allowing for the alarmist techniques so beloved by Fleet Street, it has become clear that there is some disturbing evidence of a malaise of an unexplained nature and virulence.**

So Forest Research's seminar (*What's up with Oak?*) held in the Dean Management Training Centre attracted a full house of tree experts, arborists, woodland owners, foresters and consultants. All started out "in the dark" both literally and metaphorically, as a power cut threatened the morning's session, but with admirable adaptability, organiser **Dr Hugh Williams** reversed the order of proceedings, and took the party out into a damp forest to see for themselves.

Any meeting run by Forest Research can be depended on to produce speakers who are not just intensely knowledgeable but extremely lucid as well, and this event was no exception. FR's two leading mycologists, **Dr Sandra Denman** and **Dr Joan Webber** dealt with the current state of knowledge of fungi and bacteria which are associated with Oak decline, and entomologist **Nigel Straw** brought the meeting right up to date with resurgent and invasive insect pests.



Dr Webber dealt with the two species of Phytophthora, *P. ramorum* and *P. kernoviae*. *P. ramorum* is the cause of the very dramatic death of Oaks and related tree species in the USA, which resulted in the name Sudden Oak Death being adopted, perhaps a little too freely, but the epidemic in California and South Oregon was certainly very destructive and virulent. The fungus has two stages, the first causing a relatively mild leaf necrosis on Bay Laurel, which occurs widely in Oakwoods. Spores produced on the Laurel then invade the Oaks. A fungus relatively harmless on its foliar host has a devastating effect on Oak, which frustratingly is a "blind alley" for the fungus as it does not produce spores on the Oak.

*P. ramorum* showed up in France and Germany in 1990, at first infecting nursery stocks of Rhododendron and Viburnum. Since then, it appears to have killed forest trees only in Holland and the UK. Most outbreaks in this country have been in nurseries where they are relatively easy to control, but the combination of the warm wet western seaboard, stretching from Scotland to Wales to Cornwall, a widespread presence of the Rhododendron host and the ubiquitous Oak ring warning bells for the future.

In the course of investigating outbreaks of *P. ramorum* in Cornwall, it became clear that this species was not the sole danger. A second phytophthora, *P. kernoviae* was recognised. Both species are aerial pathogens and depend at the moment on the presence of Rhododendron, but worryingly *P. kernoviae* appears now to infect Vaccinium. Whereas it is difficult but possible to deal with outbreaks of both species by meticulous and sustained removal of Rhododendron, Vaccinium would be a very different proposition.

*P. kernoviae* infects not Oaks but Beech, on which it forms a massive lesion killing the bark and hence endangering the entire tree. Joan Webber stressed that as yet there had been very few attacks on forest trees, but our native Oaks, Beech, all species of American Red and White Oaks and Holm Oak are all susceptible. And we are not alone in experiencing damage from phytophthrae, for both have broken out in New Zealand and in native heathlands in Australia.

These fungi do seem linked to the syndrome of Oak Decline; one name, many factors, said Dr Sandra Denman. The traditional progressive decline in Oak seems due to changes in the balance between biotic and environmental ingredients, but the progressive

decline in the crown of affected trees, loss of twigs, yellowing of foliage, decline in leaf size, all leading to stag-heading followed by either death or partial recovery have been recognised and recorded for many years. The cause is usually enigmatic, but serious events have been linked to droughts followed by defoliation by Tortrix or Oak mildew. The weakened trees are then attacked by Armellaria or the slow moving but insidious root rot Collybia. Behind it all could well be cumulative damage to root systems over a much longer period by Phytophtheras.

Two main categories of decline exist. First, acute decline caused by one or two agents leading to a quick mortality. The second, chronic decline with crown debility followed by a low rate of mortality but slow recovery.

***A new cause of acute decline appears to be bacterial, with the cambial layer and the sapwood of affected trees attacked, leading to bleeding lesions all over the tree, cavitation in the bark, discolouration in the sapwood and relatively quick death, within three to five years.***

A feature of this progression is attack on the already weakened tree by bark beetles especially Agrillus which can be the ultimate cause of the death of the Oak by girdling the stem under the bark. Dead trees are then readily attacked by Platypus cylindrus, the Oak pinhole borer. The role of the bacterium, now given the tooth-grinding name of Serratia, is still less than clear. Bacteria are difficult to identify, but the presence of Serratia in affected trees from widely dispersed attacks is universal. The nature and biology of any causal agent remains enigmatic, but owners of infected trees are advised to take sanitary precautions by stripping affected bark and sapwood and burning on site, and by disinfecting any felling equipment after use.

As if all this were not enough, Nigel Straw went on



to describe the latest invasive insect pests, starting with the Oak Processionary Moth, which a mere twenty years ago was limited to a range South of a line through Central France and Switzerland. Since then it has rapidly migrated North, aided in no small part by the movement of infected nursery stock from Italy into France, Belgium and Holland, from where, and by the same method, it has now leap-frogged into West London. It causes heavy defoliation of our native Oaks and Turkey Oak. The eggs are laid on bark in a small plaque, which is itself difficult to spot. Defoliation in itself is not a serious threat to Oaks, but the caterpillars have other unpleasant and antisocial characteristics. They are covered with irritant hairs, which cause long lasting irritant rashes on human skin and when inhaled can cause asthma. The caterpillars move and feed "en masse", then form larval nests, which are difficult to deal with because of the hairs, which are windborne and persistent.

The Gypsy Moth, Lymnaria, has a much longer history in the UK and was resident in the early part of the twentieth century but died out in around 1920. It reappeared at first in Epping, but is now established in London, and is beyond control in the gardens of suburbia. This is another heavy defoliator of Oaks in its more native continental Europe. Although Oaks are reasonably well adapted to defoliation, and deal with it well, both moth species are an additional threat to tree health, especially if defoliation is repeated over several years.

Nigel had already pointed out the D-shaped exit holes of Agrillus from a moribund Oak visited by the party; one which showed evidence of attack by Serratia and looked pretty poorly. A nifty bit of chainsawing exposed the cavitation in the bark of this tree and the effects of attacks to the sapwood. A second apparently healthy tree had suddenly collapsed, and exposure of its severely damaged root system pointed to a long slow war of attrition with Collybia, a root rot with fruit bodies a lot like those of the more familiar Armellaria, but a lot more ginger in colour.

Should we be worried about all this, asked Dr Webber? Clearly there is a range of threats, individually and collectively acting on Oak and damaging its health to one degree or another; indeed one attendee bore alarming reports of more advanced damage to East Anglian Oaks. Some of these threats are new, some are old, but the relationship between new dangers and climatic change is sufficient to be a wake-up call, if not yet a cause of loss of sleep.

Thanks are due to both the Forest Research, for a truly first-class performance, and to the Forestry Commission, for their hospitality and access to their afflicted trees. Anyone getting the opportunity to attend these peripatetic Research roadshows should leap at it!





# B<sup>RITISH &</sup> I<sup>RISH</sup> H<sup>ARDWOODS</sup> I<sup>MPROVEMENT</sup> P<sup>ROGRAMME</sup>

## Clonal Ash Orchards

Jo Clark

**T**wo clonal seed orchards for Ash have been planted in the last two years in England, with a third in the pipeline for Scotland.

**Jo Clark describes the process of securing this material and its use under the Forest Reproductive Material regulations.**

At present, the only improved hardwood material available to the industry is *Wildstar™ Cherry*, a selection of ten clones, chosen for their vigour and resistance to bacterial canker. BIHIP (British and Irish Hardwood Improvement Programme) has been working with several of our hardwood species to provide superior material to the forest industry.

The starting point in any breeding programme is the selection of the very best parents. Initially, 400

*Plus Trees* were selected from across the UK following regions of provenance as set out by the Forestry Commission.

To maximise genetic gains, seed will be collected from these individuals and go through a rigorous breeding programme. However, this is very costly and takes many years.

A quicker approach to make smaller genetic gains is via a clonal seed orchard. This is established through grafting of parent material (the scion) on to generic rootstock, making an exact genetic copy of the parent. Scion material is shot from the crown of the parent tree in winter when the tree is dormant. Only material that is one or two years old is vigorous enough for grafting. The grafts are then grown on for a season before being planted out in seed orchards at 5 × 5 m spacing.

*Two such orchards have now been planted, the first on a private estate in Devon in 2006 comprising region 30 clones only and the second in 2007, on the Northmoor Trust's land at Little Wittenham near Oxford and comprising region 40 clones. A third orchard is planned for Scotland when funding has been secured.*

Ash is a dioecious species – males and females occur on separate trees, although many trees are actually hermaphrodite (male and female on the same tree). It is also wind pollinated so orchard design is critical to maximise the likelihood of females being pollinated by males from within the orchard.

*Dr Sam Samuel next to an Ash clone in the Region 30 orchard, one year after grafting.*



*Ash grafts in the glasshouse before planting out.*

Orchards are planted in replicated blocks with the seed bearing female trees surrounded by the male pollen bearers. Additional males are planted on the windward side, to ensure that the females are swamped by pollen from the orchard.

As the scion material has been obtained from the mature parent, this maturity is already within the graft. Therefore, seed production occurs within three to five years after grafting.

*Seed should be available to the industry around 2010 and fall in to the Qualified category under the FRM regulations.*

While genetic gains will be small compared to those achievable through a breeding programme, there are two levels of gain captured, first through the selection of superior parents, and secondly through allowing these parents to cross fertilise. The added benefit is that seed can be collected from the clonal orchards for testing, rather than having to collect seed from the parents in the wild.

#### Acknowledgements

This work was made possible by the generous contributions made by the British and Irish Hardwoods Improvement Programme (BIHIP), East Malling Research, Forest Research, National School of Forestry, Newton Rigg, Northmoor Trust, Scottish Forestry Trust, Woodland Improvement and Conservation Ltd. [www.bihip.org](http://www.bihip.org)



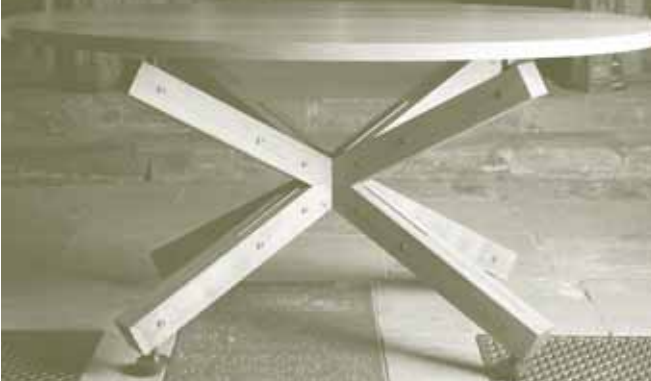
*One year clone with seed*

# Treske

SOLID HARDWOOD FURNITURE

Makers of beautiful church furniture  
Sanctuary, seating, entrance & vestry  
commissions undertaken





Pictured: Altar table St Andrew's, Corbridge



Treske, The Old Maltings, Station Works  
Thirsk, North Yorkshire YO7 4NY  
Tel: 01845 522770 E-mail: [info@treske.co.uk](mailto:info@treske.co.uk)  
[www.treske.co.uk](http://www.treske.co.uk)

Specialists  
in

# English Oak

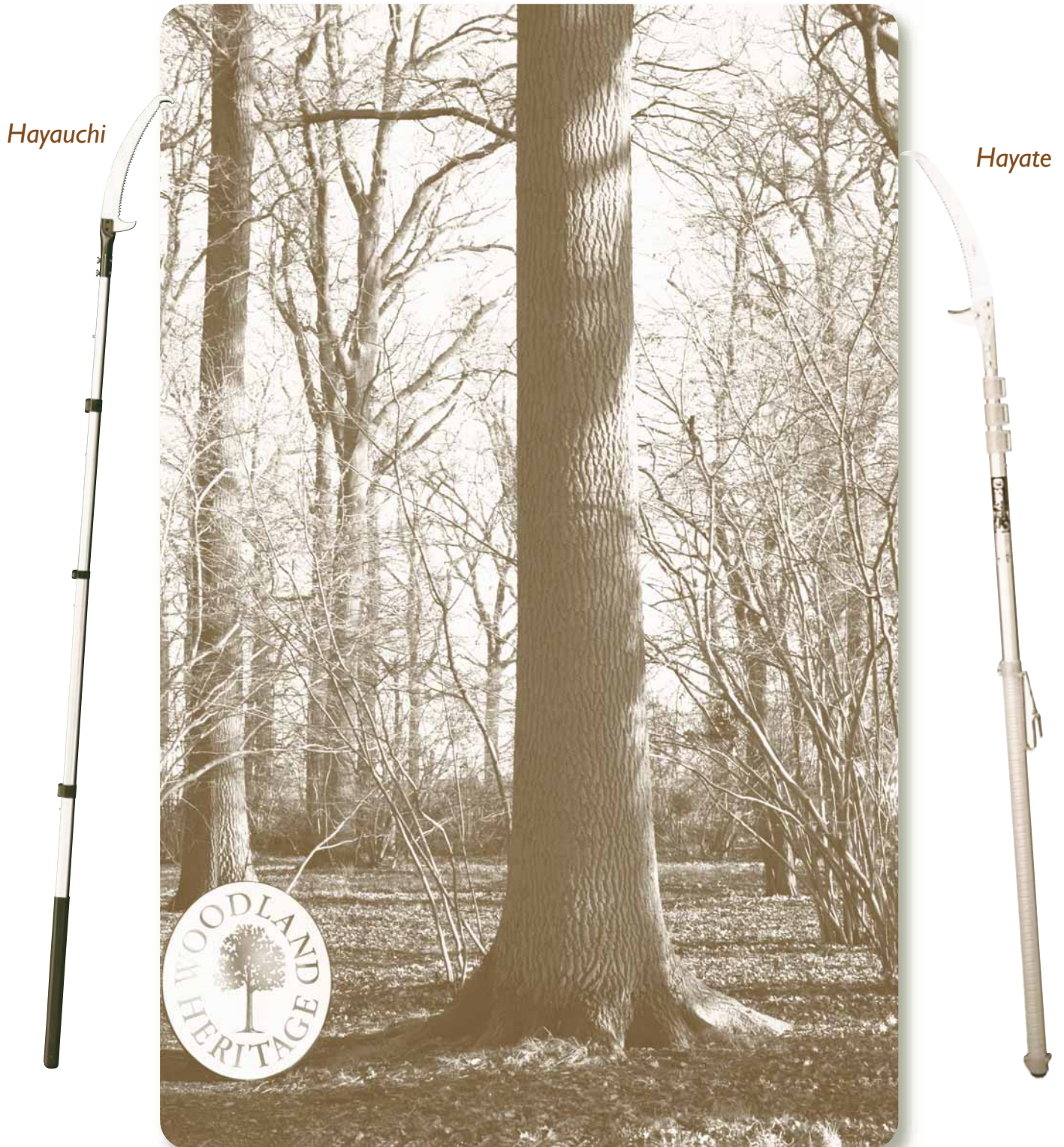
ECCLESIASTICAL FURNITURE : HAND CARVED WOODLAND BURIAL MARKERS  
ENGLISH OAK NOTICE BOARDS : MEMORIAL BENCHES : CRESCENCE TABLES  
COFFIN TRESTLES : LECTERNS : MEMORIAL BOOK DISPLAY CASE : CROSSES

## harry stebbing workshop

great hockham norfolk IP24 1PE 01953 498 766  
[noticeboards@googlemail.com](mailto:noticeboards@googlemail.com) [www.harrystebbing.com](http://www.harrystebbing.com)



*There is no way an Oak can grow as well as this  
without the help of Silky High Pruning Saws*



*The Foxley Estate use and sell the world's finest pruning saws  
to make pruning easy!*



**Silky Fox Saws**

**Foxley Estate Office, Mansel Lacy, Hereford HR4 7HQ**

**Tel: 01981 590224 Fax: 01981 590355 [www.silkyfox.co.uk](http://www.silkyfox.co.uk)**