

Breathing life back into Hertfordshire's hornbeam

HERTFORDSHIRE is classic hornbeam country, with semi-natural ancient woodland, traditionally oak standards over hornbeam coppice worse for wear after decades of neglect. Most have the required species mix, but any multi-storey structure has been lost as the hornbeam is long overstood. But help is at hand from a local company relatively new to forestry. Forestry Journal spent a day with Maydencroft Ltd, well established in arboriculture and landscaping but only adding forestry in October 2016 when it purchased Chiltern Forestry, a consultancy firm owned by Rik Pakenham and what was Falcon Forestry, a Welwyn (Hertfordshire)-based contracting company owned by Tony Jackson.

I spent a day learning about Maydencroft's work in Hertfordshire from senior forestry consultant Neil Chamberlain, who transferred across from Chiltern Forestry.

Neil has 25 years of experience, starting out as a forestry contractor working for the FC, British Coal and Celtic Energy in Wales, combined with academic study at Newton Rigg College in Cumbria and an honours degree in Global Forest Resources and Forest Products Technology. After graduation he worked for a forest nursery, the Woodland Trust and at Chilterns Forestry, specialising in continuous-cover forestry, before joining Maydencroft.

INSIDE BRICKET WOOD COMMON SSSI

The first port of call was Bricket Wood Common near St Albans in mid Hertfordshire, privately owned by Munden Estate. It

displays a range of habitats including semi-natural ancient woodlands most frequently oak standards over hornbeam coppice, and is now designated a Site of Special Scientific Interest (SSSI) by Natural England, the regulatory authority. Central to the management of the SSSI is re-establishment of the traditional oak standard/hornbeam coppice structure.

Mid Hertfordshire is my neck of the woods. What I saw that day in late March 2018 could have been inside dozens of woodlands across this part of the county. That is, an oak/hornbeam mix unmanaged for such a long time (in this instance 60+ years) that the overstood hornbeam is no longer under the oak but fast approaching the same height.

"This woodland has been growing in the dark for such a long time. We cannot suddenly go in and cut the lot to expose the stand to direct sunlight. These old coppice stools cannot cope with sudden sunlight and the change in microclimate without going into culture shock. Regrowth could be slow, if at all, while deer (mostly muntjac) hinder regeneration and blunt redevelopment of the wider woodland environment. Traditional

coppice often ends up with big open areas dominated by bracken and birch and the hornbeam or hazel struggles to survive. When the stools are this old we prefer a more sensitive approach which we call 'graduated thinning'," said Neil.

GRADUATED THINNING

"We take small coupes of around one acre and coppice the hornbeam stools, leaving sap risers and single-stemmed examples to grow up as maidens. We will thin out

a bit of the overstorey if there are too many standards, but leave nice examples of birch, field maple and crab apple. This provides much more light than before but with less wind, frost and sunlight than traditional coppicing. In between the coupes we thin the woodland by 20% or 30% in the traditional manner so that the finished result is a mixture of light and shade areas."

Neil explained how the uniformity of coupe size helps in the comparison of regrowth rates in different areas, even if the shapes of the coupes were highly irregular. Instead of a 'one-size-fits-all' classical coppice, each tree is individually assessed and treated in the most appropriate way, to the benefit of the tree and the wider woodland. This graduated thinning is preferred to straight coppicing as it reduces the death rates of the old hornbeam stools, whilst still bringing back a more diverse woodland structure.

Hornbeam coppice predominated with a fair spread of standards, mostly English oak and a sprinkling of silver birch, but other species were not well represented. I asked Neil about other priorities on a par with the hornbeam. "The remit from the regulatory authority is getting this SSSI back into a good condition as traditional oak standards over hornbeam coppice structure, which is the basis for its SSSI status." Pointing towards at least a dozen oak standards within sight, Neil said: "I need to maintain around one dozen oak standards per acre coupe, which corresponds almost exactly to the system in practice around 500 years ago."

Documents found at Hatfield House just ten miles away, relating to Tudor and Stuart England, show how the manor would lease a one-acre plot of woodland to each local family to cut the underwood, stipulating that the leaseholder would leave in place 12 of the straightest [oak] standards for the manor's own use. The underwood was used locally

as firewood and fodder and also sent further afield to fire the ovens of London and in the production of gunpowder.

Maydencroft appears to be aiming for essentially the same setup. "Any similarity to the medieval structure is purely accidental but, nevertheless, a reassuring link to long-past subsistence-based and early commercial forestry practice," said Neil.

TREES TREATED ON OWN MERITS

Graduated thinning is all about managing each tree on its own merits, although Neil was able to provide a 'system summary':

- Half-decent oak kept and maintained as standards
- Good birch standards, albeit few in number, left in situ
- Single-stemmed hornbeam with potential to produce a decent standard maintained as such
- Multi-stemmed hornbeam coppiced or pollarded depending on structure
- Any extra diversity such as field maple, crab apple, wild service tree and even individual conifer specimens are left to continue

Hornbeam is the 'meat' of this novel management system, so I asked Neil to pick out examples and expand on important points relating to hornbeam coppice regrowth. "Can you age the oldest stools?" I asked. "Some stems are close on 200 years old," said Neil, "and as second- or third-generation coppice the oldest stools may be 350 to 500 years old."

Neil's first example was a natural pollard created by the death of the growing point just below the 2 m mark. "Our intention is to repollard the tree just above the old pollard points." Next was a multi-stemmed hornbeam re-coppiced last year, although one massive stem representing countless years of growth was intriguingly left behind. "The single stem was left in situ as a sap riser, to

keep translocation going in this old stool," said Neil, pointing to the feathery regrowth achieved last season after coppicing in late winter/early spring 2017.

Pointing to another old, bulky stool with a single stem left behind, Neil said: "If all four stems had been taken off in one go, I do not think this specimen would have survived." But clearly it had, because feathery spring from last year was already breaking bud despite unseasonal low temperatures and would soon be out of reach of the deer.

"There is a big difference between hazel and hornbeam in coppice stool stability and this has a bearing on our cutting style," said Neil. "We cut hazel low but because



Far Left: Loaded up with overstood hornbeam coppice poles ready for roadside – Tony Jackson (left) and Neil Chamberlain.

Above: The Maydencroft forestry team – left to right – Dave Lee, Tom Drake, Stuart Grove, Kyle Grove.

Above: Tony Jackson on the foot-plate of the brand new Valtra N154E tractor – the first one in the UK to be fully forestry guarded.

Above: Decades of darkness and silvicultural neglect have left these woodlands with a paucity of straight, timber-quality trees.

WOODLAND MANAGEMENT

hornbeam is such a hard wood we can comfortably cut the stools at 18 to 24 inches from the ground which is really useful where muntjac pressure threatens the survival of anything coppiced at ground level," he said. This is clearly mitigating damage caused by low-browsing muntjac because we saw basal shoots browsed while higher-positioned spring on the same stool was getting away.

BIODIVERSITY AND FIREWOOD

"Look around: there is hardly a decent straight-stemmed tree in sight," said Neil. "Lots of Hertfordshire woodlands have the same management emphasis, with priority on shooting, but under-managed from a silvicultural perspective," he said. The paucity of straight trees immediately struck home – long views through the wood reminiscent of shots from the 1999 film *Sleepy Hollow*, featuring the 'Headless Horseman' and of course Johnny Depp.

"With firewood currently demanding such high prices, the lack of timber-quality trees poses no profit problems. We can work this woodland for £35 to £38/tonne and sell the firewood for £45 to £50/tonne, still giving the landowner a small profit and bringing the woodland back into management. If we keep on track, the proportion of straight trees will gradually increase with time through our selection process and the woodland asset will increase," said Neil.

"What does Natural England think about graduated thinning?" I asked. "Enthusiastic," said Neil, adding how he deals with Andrew Mills, an SSSI Officer for Natural England. "Andrew has embraced the concept of graduated thinning and now actively promotes it as a way of getting structural density back into these important habitats. We evaluate the best approach for each site given the length of management inactivity, the pressure from deer and the proximity to the urban fringe. We then agree a way forward and work together to improve the condition of the SSSI unit. Andrew and I come from different backgrounds but agree on how we should best manage these old pollards."

I enquired about the prospects for planting. "There is a natural presumption by Natural England against new planting in SSSIs. They prefer to work with natural regeneration by protecting any regenerating seedlings with a tree shelter. I would be keen to plant oak from the Loire region of France, on the basis that it might have more tolerance to climate change, but Natural England aren't keen, preferring British provenance. Natural England will allow planting in very special circumstances such as where soil profile or deer browsing prevents regeneration, but having to maintain the existing genetic base means the only practical way to improve the growing stock is by selection during management," he said.

Coppicing was traditionally driven by



commercial and specific market demands like hazel thatching spars, chestnut fencing, hornbeam charcoal and the requirement for livestock fodder. Now foresters must look elsewhere to underpin the practice. The buoyant fuelwood market provides that opportunity to restore the practice. Graduated thinning works out more expensive than traditional coppicing as it requires more judgement and provides slightly less product, but it is more worthwhile, offering a monetary return over the long term while returning sites to their 'original' structure and culture.

BROADER TREE SPECIES RANGE

Despite a general uniformity, these oak/hornbeam woodlands in Hertfordshire frequently throw up surprises – one of which is aspen, as suckers from long-gone standards. Sure enough, there was a sizeable patch in this woodland. Neil said he was not particularly happy about its presence but would leave the aspen in place as a bit of biodiversity. "If this was a classic commercial coppice crop I would take it out," he said.

Further on, we entered a distinct dip in the woodland with a fast-flowing stream, almost certainly a tributary of the nearby River Colne. This area supported a much wider range of trees, including hazel, ash and beech. There was also some holly understory. "I can't justify the expense of clearing this holly. Ideally I would, if the evergreen growth was very dense and solid, but this is patchy and therefore not a problem. In fact it adds diversity in its own right," said Neil.

The ash seedlings were free of Chalara, unlike trees we would see later in Knebworth Park. I asked Neil about Acute Oak Decline (AOD), widely reported across Hertfordshire and neighbouring Essex. "General oak decline is a feature in this area, but I have not seen that specific condition with

bleeding from between the bark plates and associated *Agilus biguttatus* beetle attack," said Neil. "Trees in peri-urban areas suffer from fluctuating water levels related to infrastructure development, with the M1 motorway and St Pancras-Midland mainline railway not far away from here, which I believe is contributory to their general poor condition," he said.

KNEBORTH PARK

The next stop was Knebworth Park, some 15 miles further north, featuring the same oak standard/hornbeam coppice structure, with more species diversity than Bricket Wood but likewise crying out for silvicultural management in several areas. Maydencroft is carrying out a Long Term Plan ratified by Natural England and the FC and executed under the Country Stewardship Scheme. The team is thinning some woodland unmanaged since World War II. "When we first started this particular wood it was in darkness, with no ground flora whatsoever and dying on its feet," said Neil.

We met team leader Tony Jackson coming out of the woodland with a Botex 11t Euro trailer fitted with a Botex 570B crane. The trailer was loaded up with hornbeam poles and Tony was carefully navigating the still-wet field margin with a brand new Valtra N154E tractor, which was the first one in the UK to be fully forestry guarded. After posing for pictures, Tony drove on to unload at roadside with a promise to talk later.

Maydencroft is using a more traditional thinning programme to get this woodland back to what it was – oak standards over hornbeam. The big difference, immediately apparent, was a wider range and frequency of other species compared to Bricket Wood.

The mature ash standards looked healthy but Chalara was rife on seedling ash and regrowth from the stump of a big standard ash felled last year. Neil is understandably



the margins of the wood. Neil hopes that, with increased light regimes, these veteran hornbeam stools will acquire sufficient energy to sustain the fast, feathery regrowth already evident on those coppiced last year.

HANDS-ON HORNBEAM COPPICING

Inside the wood we met the Maydencroft team. Tony Jackson (team leader) is a man who has clearly loved every minute of his working life in forestry. "I remember the exact day I started (Monday 29th July 1974)

he said, describing his time at Falcon Forestry as a 'timber traveller' working all over the country. "I studied at Newton Rigg, completing a City & Guilds in Forestry in the days when we came out regarding ourselves as 'forest craftsmen'," said Tony. I was intrigued why, born and bred in Hertfordshire, he went all the way to Cumbria to study forestry. "Essentially, there was nowhere else nearer unless you wanted to study arboriculture," said Tony.

He recalled felling and burning hundreds of huge English elms stricken with Dutch elm disease in the 1970s; dealing with rows of poplars brought down at Dobb's Weir on the River Lea in Hertfordshire after the Great Storm of October 1987; and, at Tyler's Sawmill in Broxbourne, Hertfordshire during the January 1990 Storm, witnessing 8' by 4' sheets of plywood flying around like kites. He even remembers G. Halsey & Sons sawmill in London Colney (St Albans district) where my grandfather had worked, now replaced by a superstore. But it was time to talk to the other team members who also came to Maydencroft from Falcon Forestry in 2016.

Stuart and Kyle Grove are a father-and-son team. Stuart (now 52) had spent much time working with Tony, having been at Falcon

Far Left: We entered a distinct dip in the woodland with a stream and supporting a much wider range of trees including ash, beech and hazel and holly understory.

Left: "Our intention is to re-pollard the tree just above the old pollard points," said Neil Chamberlain, pictured.

Left: Tom Drake felling overstood hornbeam coppice poles at Knebworth Park.

Below: Feathery regrowth from the previous year's coppicing was already breaking bud despite the distinctly delayed 2018 spring.

Forestry since he was 16. Kyle studied at Capel Manor College in Enfield, where he gained a National Diploma in Trees and Timber. Tom Drake, who spent 12 years with Tony at Falcon Forestry, studied Forestry and Land Management at the College of West Anglia (Cambridge Campus). Dave Lee, with 24 years in forestry, gained all his training and tickets on site, which he describes as 'the School of Hard Knocks'.

I asked these local guys about the woodland's history. Stuart Grove said the hornbeam was used to make gun stocks for Lee Enfield rifles and young hornbeam regrowth harvested during World War II for livestock fodder. When talking to teams of forestry contractors you soon pick out those who have worked together happily and constructively over a long period of time. They immediately present a cohesive and united expertise. The Maydencroft team was clearly in this category.

I always like to reflect on what I have seen and heard. It was a memorable day but with one slight disappointment. I had expected to see the first stirrings of spring-flowering plants, but not one primrose, sweet violet, wood anemone, wood sorrel or moschatel was there to be seen. Not even a lesser celandine which would not have pleased William Wordsworth because that was his favourite flower – clearly a consequence of the decades of darkness described by Neil Chamberlain.

Hornbeam is often considered only as coppice growth in the woodland understory, but *Carpinus betulus* is a versatile native tree. Just ten miles south, in ancient woodland once part of the Enfield Chase, are hornbeam standards several hundred years old, at the pinnacle of the woodland canopy with oak, ash and sweet chestnut. But, unlike these other trees, hornbeam is not immediately threatened by alien pests and pathogens, and as such is an increasingly valuable resource for UK forestry.

Dr Terry Mabbett

Maydencroft Ltd

Some interesting facts and figures

MAYDENCROFT HITS THE MARK FOR OAK SAWLOGS

EVERYTHING seen so far on this visit was going for firewood, so Neil Chamberlain showed Forestry Journal some oak sawlogs hand-felled in another wood at Knebworth Park, laid out in a fallow field for viewing.

I asked Neil how they would be sold and the price Maydencroft expected to get. Fully aware that the overall quality of these 150-year-old (*Quercus robur*) logs was not universally brilliant, Neil said he hoped to get £6/hoppus foot (£166/m³) for the nicer ones. "For the first time we are going to give online auctioning a shot," said Neil.



Oak sawlogs at Knebworth Park laid out for viewing.

I asked what the alternatives were. "Any one of three regular customers: a regular timber marketing company, a guy who does oak cleaving to make old-fashioned and rustic oak fencing and another who uses oak butts and logs to make novel designs for children's playgrounds. In each case I would

definitely expect to get £3/hoppus foot (£83/m³)," said Neil. While still prepared to give the online auction a go, he expressed doubts as to whether they would command much more than £3/hoppus foot.

In the event, they fetched £5.74/hoppus foot (£159/m³).

Inside Bunyan's Barn at Maydencroft Manor – an experience and a privilege. (Picture courtesy Tom Williams, Maydencroft Ltd.)

OAK AND ELM TIMBERS IN BUNYAN'S BARN

BUNYAN'S Barn at Maydencroft Manor at Gosmore near Hitchin in Hertfordshire is a true masterpiece of late 16th century design and construction – and subsequent restoration and upkeep.

The barn gets its name from the English writer and Puritan preacher John Bunyan (1628-88). Perhaps best remembered as the author of the Christian allegory *The Pilgrim's Progress*, Bunyan is reputed to have delivered sermons in this barn. From the woodsman's perspective the English oak and English elm timber construction is clearly the most interesting facet of the building.

According to the current owners, the Williams family, the English oak timber was cut from Wain Wood, which is still visible today from Maydencroft Manor at its hilltop location. The English elm would almost certainly have been sourced from mature trees in hedgerows surrounding the fields at Maydencroft Manor. Sadly, all English elm standards were destroyed during the 1970s by Dutch elm disease. However, proof that English elms once graced these hedgerows is seen in this amazing photograph, generously supplied by Tom Williams, owner and managing director of Maydencroft Ltd.

Thomson's field at Maydencroft Manor (circa 1930s) – shire horses, hand-harvesting of oats and hedgerow elms. (© Tom Williams)