

# Making woodland pay

The 84 acres comprising 'Sandhurst Copse' and 'Sheepwalk' in the Surrey Hills AONB, a few miles south of Guildford, are as interesting as its owner, as Dr Terry Mabbett discovered when he visited owner Patrick Mannix recently.

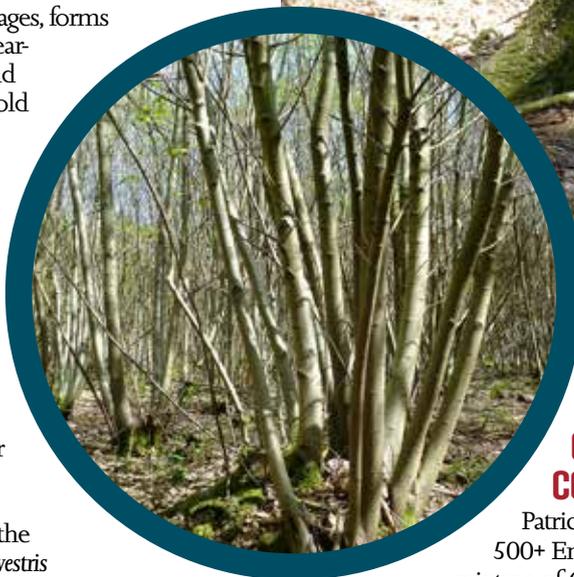
**P**ATRICK Mannix challenges conventional wisdom in current thinking. The designation of ancient woodland, the grant system, protection of ancient and veteran trees in ancient woodland, and the control of oak processionary moth (OPM) are all in Patrick's sights.

Sandhurst Copse and Sheepwalk are on classic poor, acidic, sandy soil. Strolling along the public bridleway bounding the southern perimeter is like walking on a beach. Soil and tree species selection is a 'horses for courses' situation. What's there is invariably the cumulative result of a 'suck it and see' methodology by a succession of landowners and foresters over the centuries. The clear favourite in this woodland is domiciled sweet chestnut in all ages, forms and sizes: circa 400-year-old coppice stools and standards, c.100-year-old stools with 20 years' growth, and others more recently cut. But sweet chestnut is not the only tree thriving.

I encountered some of the biggest and boldest specimens of *Pinus sylvestris* – a truly native English conifer – I have ever seen.

Patrick says many estates in this part of the country possess *P. sylvestris* of this stature, planted in the late Victorian era. He has established several small test-planted areas of fine-looking *P. sylvestris* using seedlings regenerating on site as the planting material.

English holly has regenerated fast, which Patrick attributes to more redwings during winter. With a long, happy history on sandy soils in Surrey, holly should come as no surprise because this native evergreen tree is at home on sandy sites throughout England.



### AN ENGLISH OAK CONUNDRUM

Patrick told how his 500+ English oaks, a mixture of *Quercus robur*, *Quercus petraea* and hybrids, are now in decline. The situation is aggravated by difficulties in establishing healthy and vigorous-growing replacement trees. We saw this on a new planting on an open, unshaded slope with sweet chestnut getting away nicely, while oak was clearly struggling.

Lower down the slope, beech and ash were doing well, albeit with some unidentified dieback on the latter. All planting material was sourced from

regenerated seedlings within the woodland. However, a recent experiment with oak seed sourced from other sites shows a similar pattern, with transplanted oak saplings hit by heavy mildew and leaf miner last autumn and destruction of bursting lead buds this spring by lepidopterous larvae.

"The current situation with English oak is a complete conundrum," said Patrick. "The dimensions and structure of mature trees show that 60 to 80 years ago this site was capable of growing reasonably good oak, but not any longer." Something has clearly happened in the intervening period and Patrick is determined to get to the root of the problem.

He took samples and sent them to Forest Research, but failed to raise any interest. "Unless directly related to something on their agenda, samples seem to drop to the floor," he said. His consulting forester, who

knows his way around these ‘corridors of power’ followed up with further samples related to beech bark disease and dieback of ash coppice regrowth, although he too got nowhere.

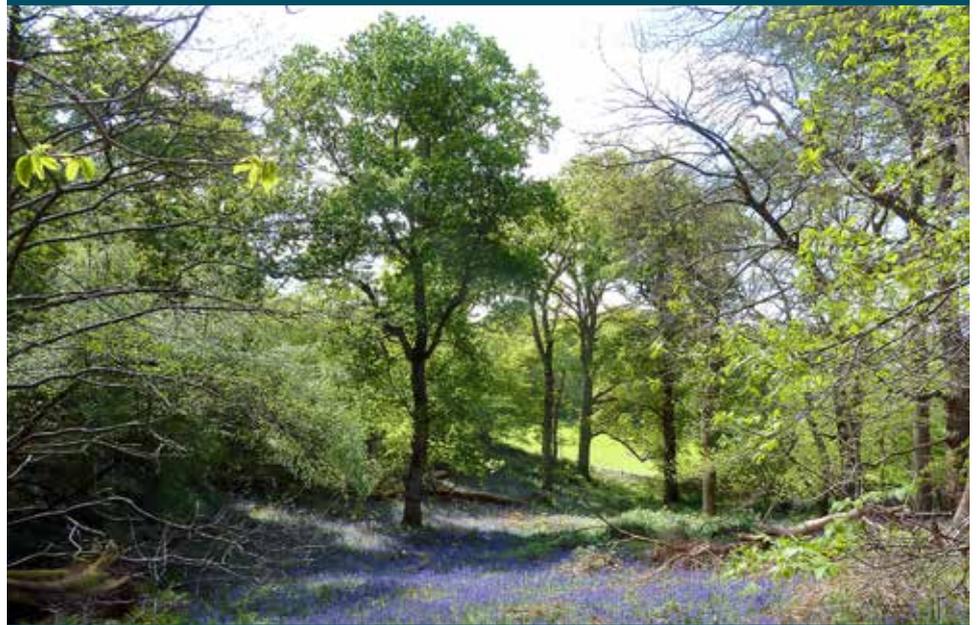
Given the level of interest in Acute Oak Decline (AOD) research, I was more than a little surprised. Patrick said he does not subscribe to the prevailing view about plant pathogenic bacteria working in tandem with oak jewel beetle (*Agilus biguttatus*), and the resulting destruction of the living bark and lateral meristem tissue (cambium), which is invariably accompanied by bleeding from between the bark plates. He believes the beetle is just one of a number of agents exploiting an already weakened tree rather than a primary cause. “There is an acute decline of oak in my woodland including death of lower limbs and substantial crown reduction but no bark bleeding,” says Patrick.

David Rose (formerly Head of Tree Health Diagnostic & Advisory Service at Forest Research) said he believed ‘something in the soil’ was affecting oak trees in this woodland and this is Patrick’s avenue of interest. He engaged Bartlett Tree Experts to take soil and plant samples for full nutrient analysis to determine whether deficiency in one or more essential plant nutrients is responsible. However, attempts to interpret the results showed that there is no sound data on the acceptable ranges for each nutrient in semi-natural woodland.

Later this year a PhD student working under the supervision of Dr Glyn Percival (F. A. Bartlett Tree Expert Company Ltd), will start research on *Armillaria mellea* (honey fungus) in Sandhurst Copse and Sheepwalk. Patrick has no illusions about the complexity of the task, due to the large number of interacting factors which operate in woodland, in comparison to the much simpler scenario for isolated trees in public parks.

Augmenting Patrick’s hunch about something ‘missing’ in the soil are his views on extraction of biomass for firewood with the haemorrhaging of essential plant nutrients. He regards firewood extraction as counterproductive to soil fertility. Offcuts and other waste from his sawmill are chipped and mulched for use on site. He is interested in nutritional and health benefits for trees from using species-specific plant mulches in forestry.

Patrick fought a prolonged (4- to 5-year) winter moth infestation with a two-pronged attack – application of glue bands around the bole circumference to stop the flightless female moths climbing oaks during the winter to lay their eggs at the tree tops, and the erection of 50 nesting boxes for blue tits throughout the wood. With 70% occupancy and 10+ nestlings per brood that was an awful lot of hungry mouths to fill with



winter moth larvae. The infestation declined but small oak saplings remain susceptible to mildew and leaf miner in the autumn, and leaf rollers in spring.

## SUSTAINABLE SWEET CHESTNUT

Sweet chestnut is what this wood is all about; this was clear as we walked around the site. All around were real old-timers – from the 350- to 400-year-old standards (maidens) and stools, now supporting the ultimate in what I would describe as over-stood sweet chestnut coppice.

Sweet chestnut pole growth has many potential uses (depending on age and dimensions) so who is to say that sweet chestnut coppice is over-stood. Four-year growth and seven-year growth are used for walking sticks and hop poles, respectively; 20-year growth is split for rail fencing, with virtually no restriction on 20-year+ poles

Opposite top: Sweet chestnut is what this woodland is about, says Patrick Mannix.

Opposite inset: Patrick has put his sweet chestnut on a 40-year coppice cycle to obtain ideal size logs for the Wood-Mizer mill and its main primary product – waymark posts.

Above top: Evidence seen all over the site clearly showed that some 60–80 years ago the woodland was capable of growing reasonably good oak, but not any more.

Above: Oak saplings were clearly struggling on this new planting, despite the open, unshaded aspect.

# WOODLAND MANAGEMENT

and logs for sawn fencing and beams.

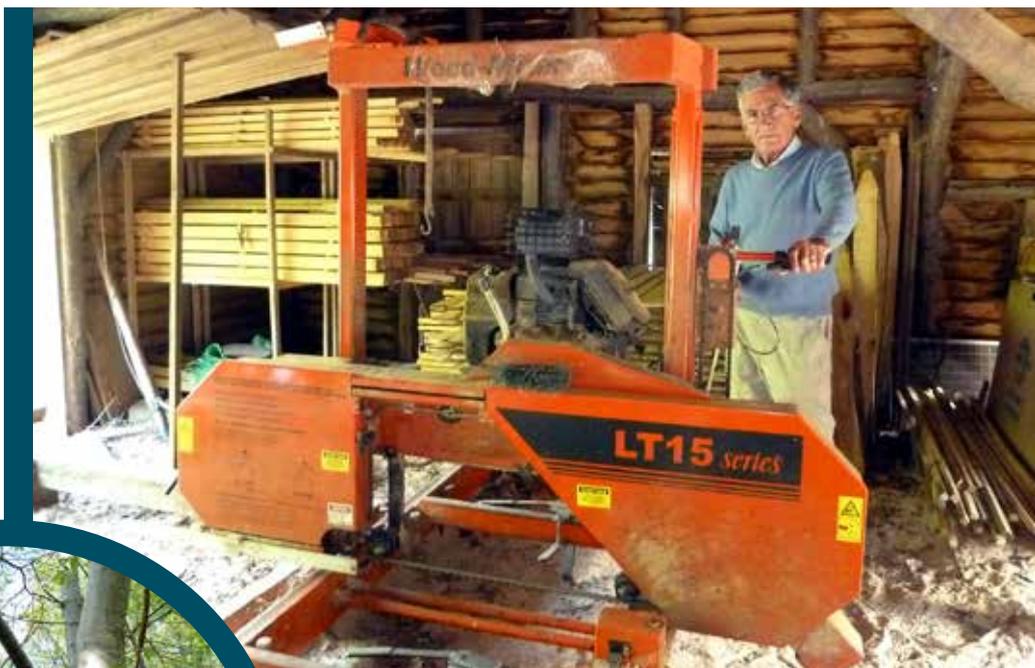
“Describing sweet chestnut coppice as over-stood is meaningless, especially in comparison with hazel,” says Patrick, which he describes as spreading out with age to self-destruct, deserving of the description. “Sweet chestnut pole growth stays straight, so you don’t get that problem,” he says.

The woodland provides a potted history of sweet chestnut – glaringly so since the Great Storm of October 1987. Across the floor are huge windthrows, some as dead and rotting hulks but others rooting and shooting where they fell, now transformed into big trees in their own right. Others which stayed upright but lost scaffold branches, responded with reactor growth currently huge and precariously positioned at the ends of the ruptured limbs. Patrick says this heavy weight bearing on the ends of branches will inevitably rupture and break off to start the cycle again. “Events like October 1987 demonstrate the evolutionary advantages of *Castanea sativa*. Through massive reactor growth they can dominate the regrowth of forest laid waste by a storm.”

Students from a local school that visits the site took discs from felled sweet chestnut trees of different ages and produced a graph showing that annual increases in circumference averaged between 1.6 and 1.9 cm/year. On the downside is persistent frost damage in the last six to eight years to lead buds, caused, says Patrick, by increasingly mild winters. Buds break dormancy early but are subsequently hit by more winter yet to come in April and May which classically happened in 2017. The timber no longer grows straight, which is a significant setback to sustainable, long-term production and revenue.

## BONES OF CONTENTION

Patrick questions the ease with which woodland is designated as ‘ancient’. He says frequent mistakes are down to sloppy field work and lack of intellectual rigour, and are encouraged by romantic notions about wildwood which are clearly fanciful given the timeline of British landscape history. He cites an 1846 map which shows part of Sandhurst Copse was actually a poor arable field. We walked through the area now covered with mature oaks and carpeted



Above: Installation of the LT15 Wood-Mizer was the turning point in Patrick’s efforts to make the woodland pay.

Left: Storm damage did not stop this sweet chestnut windblow, which rooted where it fell and now represents at least one new tree in its own right.

with bluebells, although ‘unbroken’ woodland has not been in place since 1600. He wants more recognition and appreciation of the range of wooded stands dating back to 1600, used to justify contemporary ancient woodland status. He points to the conical shape shown by a c.350-year-old chestnut. That tells us how part of this site was rough woodland or wood pasture, more open than the classical climax woodland that covers the entire site today.

Another bone of contention is the lack of an established process to protect ancient and veteran trees inside ancient woodland. Pointing to a 200-year-old sweet chestnut, Patrick said: “I want to know that this tree can be protected and will be standing [bar natural events] as an ancient tree in 300 years’ time.” If the tree was in an urban area, a Tree Preservation Order could be assigned, but there is no process to protect trees in woodland,” he says. Patrick wants to open up the debate on this subject and is in discussions with the Ancient Tree Forum.

He says the grants system should be used for the good of the woodland and not simply to secure a ‘handout’. He urges landowners not to make a grant the starting point. “One abuse was bringing hazel coppice back into rotation simply because a grant was available; pointless if there is no

sustainable market,” says Patrick, adding how this grant funding ceased in 2014. Patrick has hazel coppice stools which look good amongst the bluebells, but the hazel rods have nowhere to go. He would love to bring in a hurdle maker but there are none .

## WHAT PAYS THE WAY?

“The turning point for me was the installation of the Wood-Mizer LT15, tailored to sweet chestnut logs,” says Patrick, who cultivates coppice on a 40-year cycle to produce 12- to 15-inch sawlogs. In the ten years to 2015 he tested and demonstrated possible revenue streams from the wood. The primary product was waymark posts sold to Surrey County Council, with little wood wasted along the way.

Slices were cut from 12-inch logs to assess any tension in the timber and to maximise the secondary product. Half- to one-inch slices yield fence panels and 1.5-inch slices, put on their ends and cut again, provide tree stakes. “I have a 2-tonne Ifor Williams trailer hitched to a Land Rover and use scaffolding boards to make a ramp so that I can roll the logs on and off,” he said. Given the sandy nature of this site the first thing an observer might say is “what about shake?” “This has not proved to be a significant problem,” says Patrick, whose policy is not to use sweet chestnut logs exceeding 100 years old.

Patrick’s positive experience with sweet chestnut cements my view of this fast-growing and highly versatile hardwood tree as a saviour for small woodland owners and small forestry contractors in southern



Clockwise from left:  
Tree stakes are a secondary product taken off the mill on the way to 'waymark posts' which is the primary sawn timber product.

Sandhurst Copse and Sheepwalk contain some of the biggest and boldest *Pinus sylvestris* I have ever seen in southern England.

This building housing the sawmill was built using sweet chestnut coppice log resources that were harvested and sawn on site.

Large and heavy reactor growth at the ends of ruptured scaffold branches that will eventually break off and restart the cycle.

England, East Anglia and the Midlands. We can only hope that a trio of pests and diseases (chestnut blight, *P. ramorum* and oriental chestnut gall wasp) poised to 'gate crash' the party can be kept at bay.

Patrick said he had set out to prove that small woodlands can be made to pay. "Using my system, based almost entirely on a sweet chestnut coppice resource, I am confident that, provided nature lets you grow timber, you could live off the income generated. However, the key is not to sell the timber but to add value to it on site." Now, Patrick has called a temporary halt to production while he sorts out the English oak problem.

## OAK PROCESSIONARY MOTH (OPM) INVADES SURREY

While he ponders what might be affecting oaks from underground, there is something in the air not too far away that could compound problems in Sandhurst Copse and Sheepwalk. OPM has now broken out of its London bastion on several fronts, most seriously into Surrey where 6 out of 11 boroughs and districts have recorded a breeding population. The original south-west London outbreak spread into north Surrey some years ago but a separate outbreak, identified in August 2015 in the Guildford district, just 10 km north of this site, gives cause for concern.

Eradication remains FC/Defra policy but on current evidence appears impossible to achieve. Patrick says that while the current OPM management programme is denting insect numbers and slowing pest spread, it is not containing the pest problem.

It is his opinion that we need to learn to live with natural events, such as OPM. In the following pages, Patrick puts forward his thinking on the current situation.

