Thinning - Shaping the Future Forest (2013)

I still feel it's a weighty responsibility to authorise the felling of a tree, even after all these years and all my training. Sometimes I agonise, waver this way and that, then walk away unable to decide. Other times I mark trees for the chop with confidence and efficiency.

Today I am marking one of my favourite local woods for thinning. It will soon have bluebells and wild garlic in distinct swathes (why don't they mix?), but this early in the year there are small clumps of the delightful white wood anemone and a rare patch of townhall clock, not yet in flower, but with its clock-tower up and ready. Most of all this wood has distinctive topography – steep banks, precipitous slopes, hollows gathering water and small streams running out into the fields below. Most likely it is the wood's awkward landforms which have kept it wooded for centuries whilst easier land around was cleared for agriculture.

Once part of a mediaeval hunting forest, this wood was probably used for low-grade timber and coppice until the 1960s. At that time the Forestry Commission was on a mission to convert 'scrub woodland' to productive use by planting fast-growing conifer species from Europe and North America. The land would have been cheap at that time, we needed the timber, we were investing in our nation's future, so it looked like a good idea.

They planted different crops according to ground conditions – Douglas fir, the quality king of conifers in Britain, on the greensand slopes; Norway spruce on the wetter flushes, Scot's pine and beech on the drier tops.

Why do we so hate conifer plantations? Isn't tree planting supposed to be a good thing? Jay Griffiths gives us a clue in her book 'Wild' when she derives the word 'wild' as meaning 'willed' or 'self-willed'. Thus *"Self-willed land does what it likes, untilled, untold, while tilled land is told what to do".* Then talking about the Enclosure movement, "*Enclosed, land is no longer self-willed, and becomes listless, subject to the will of the owner, subdued in spirit"*. The land has its own will, its own destiny and in these parts it is likely to evolve into woodland with oak, ash, hazel and willow. Few if any woods in Britain have been allowed to determine their own destiny; they have all been subject to the will of successive owners over the centuries.

But owners can exercise their will alongside that of the wood, respecting the organic evolution of nature whilst tweaking some features and reaping a modest harvest. Felling an entire wood and planting something else is a completely different exercise of will, one bearing traits of an imperialist or colonial attitude.

The resulting forests are unmistakeably the work of a narrow and dominant intent imposed on the land – just one or two species of tree, all the same age, planted in rows, no variation, more like a military parade than a living landscape. This is industrial forestry, turning the landscape into a resource of raw materials for extraction and processing.

But these regimes can be difficult to sustain over the long decades. Perhaps there are pockets of resistance to the new order, now resurgent and overwhelming the colonists. These 'intruded broadleaves', as they are termed, used to be suppressed with 2,4,5,T herbicide (a.k.a. Agent Orange) with greater or lesser success. Some plantations bear no trace of the previous vegetation, so rigorous has been the suppression; other plantations bear little sign of the new owner's intended crops, so complete is their rejection by the natives.

Even a successful plantation crop will mellow with the decades as the will of nature re-asserts itself. The mature conifers have acquired character and stature over their now long lives and these old giants are opening up to natural intrusions of young growth like tolerant old grandparents.

In the wood I am visiting today the planters have been very scrupulous. There are lines of beech planted on the bank and down over the edge on ridiculous slopes too steep to walk, let alone harvest timber. What were they thinking? By the time this is cut we will all be travelling by jet-pack? These beech have been left standing to attention long after the war is over. At Ease! Stand Easy!

A patch of land will generate a roughly constant growth of woody materia1. Left to its own devices, trees in a natural forest will fight it out amongst themselves over decades and generations. Strong growers suppress weaker growers; spindly trees may blow down;slow steady trees happy to grow up in shade may emerge, tortoise-like, after the sprinters have had their day. We can reap a harvest from these natural forests and it will reflect the diversity of that forest in size, shape and species – a big oak log, some

crooked birch and lots of ash poles perhaps.

So we foresters tinker with what nature offers and shape it to the needs of our times. All that woody growth can be concentrated on the trees we most value – so we keep the straight oak and fell the crooked birch, and the oak's annual rings grow fat in response to the extra light and root-space we give them, making a more valuable log for next time.

The needs of the day are filtered through the minds of foresters and into the fabric of the forest, favouring this tree over that when thinning - and when planting for that matter. Up till the 20th century there was need of hazel for sheep hurdles and thatching spars, so acres of hazel were planted and grew like mustard and cress, with occasional oak standards. As the need for hazel lapsed, the oaks were allowed to grow up into high forest to provide logs; or perhaps the hazel and oak were swept away for conifer plantations like this wood.

So what do we make of these woods now, 50 years on? Do we still need this long-awaited crop? We are lucky here that the Norway spruce and Douglas fir have grown well and are sellable. But the beech and Scots pine are both poor quality and would only fetch a low price anyway.

This first stand to mark for thinning is a mixture of beech and Scots pine, planted in close rows, 3 of beech then 3 of pine. The idea was the pine would grow fast and shelter the slower beech; the pine would be thinned in the early decades to provide a financial return whilst favouring the beech, which would grow on for 100 years or more.

It is one of the elegant systems of classical forestry, but it relies heavily on future generations to carry on the work and, most importantly, to value the enterprise and its products.

Here, changing owners have not kept to the rigour of the plan, partly because changing markets have not valued pine and beech as highly as was expected and partly because the current owners are not focussed on timber. Lack of thinning left both beech and pine spindly and gasping for air. The beech has also proved to be of poor provenance, with repeated forks in the stem, so no grand columns of timber in this stand.

By chance another need has recently appeared – firewood for domestic stoves. Now these beech have soared in value as virtually any wood is good enough for the fiery furnace. But how long will that last?

I spray an orange paint spot on two sides of a crazily bent beech, swooping up into the sky amidst its more sober neighbours. They might just be fit for sawlogs in a few decades time, if there is a market. Further on I mark a pine with a fork at 10 foot – that tree will never get any better, but the one next to it might make good use of the extra space.

On the opposite side of the ride they planted just Norway spruce, now standing in straight bristly columns, the planting rows still clearly visible. It must have been quite a task to suppress the natives and establish this regime here, and not entirely successful. Alongside the spruce are growing numerous ash poles, their pale and slender stems weaving their way towards the light against the dark upright spruce. Where the spruce is dense and the shade unbroken, the ground is scorched of all vegetation. The dry earth bears only fallen needles and occasional moss.

Elsewhere in the wood where deciduous trees dominate, be they beech, ash or sycamore, there is still a mosaic of bluebells, garlic, wood sorrel, yellow archangel and pignut. They do their urgent reproductive work in spring before the leaves come out on the trees. In summer, they sit and ripen in the deep leafy shade, protected now from invasive sun-loving bramble, grass and bracken.

But here in the spruce plantation the young trees grow up and out, forming a closed canopy of uninterrupted shade for years until the first thin. If the thin is early enough, some woodland plants may hang on long enough, even as seed, to re-emerge. Or perhaps an intruded ash has kept open a shaft of light for a patch of wood sorrel to survive; or a relic oak tree has gathered a congregation of plants under its sheltering limbs, witnesses to the old order.

When I was 'on the saws' I did some first thins in spruce. The forester marked the end of every 7th row and us cutters each had a row to do. The first tree was a bugger because it always fell out into the ride, its side branches heavy from gorging on sunlight. That meant lots of work snedding off the branches, only to reveal a knotty log for your trouble. And then you had to clear all the brash off the ride. The next tree would fall into the gap left by the first and so on along the row. It was a joy to see these shafts of light penetrate the still gloom. We worked away in our parallel rows, like miners following seams. I was never very fast, but some cutters handled their saws

like plasterers' trowels, smoothing over the logs, removing branches and bumps to leave perfect cellulose cylinders.

What should we do with this stand now? We import 80% of our timber, so perhaps we should take some responsibility for our insatiable demand and produce some more of our own. We could grow some fine spruce logs here.

But this wood is on an ancient woodland site, meaning it has been wooded since 1600, or longer in this case. As such, it has retained its undisturbed forest soils, its characteristic woodland flora and who knows what other micro-organisms, something not found in more recent woods. Of the forests which once covered most of Britain, only 2% are left – these are our precious Ancient Woodlands. Where these were planted over, as has happened here, we have a Plantation on Ancient Woodland Site, or PAWS. These woods can retain many of the plants that thrive only in their long-stable soils, and sometimes harbour ancient trees, 'distressed' by centuries of events recorded in their grain.

So converting these woods to a more benign deciduous forest cover is a priority for conservation; restoring that seasonal rhythm of light and shade will let the vernal plant specialists in but keep the summer generalists out.

I am drawn to the spruce with my spray can. If we just felled them all now it would be simple and cost effective, but we would lose our protective canopy and leave our precious woodland flora at the mercy of invasive bramble, bracken and grass. So we must choose which to take and which to leave as our continuous tree cover.

This stand has had to sort out its own pecking order – some 'wolf' trees have grown big and sprawling, dominating and stunting those around. Others have lost the struggle for light and with it the will to live. Most are reaching up shoulder to shoulder with neighbours, their canopies interlocking. The question is, which trees have most to contribute to the stand from now on? The weedy ones will not recover their vigour and are best harvested now. Those wolf trees should have been culled years ago and should be removed now – except perhaps that one with a buzzard's nest in its storm-damaged crown.

Felling this rough tree and its stunted neighbours will leave a bit of a gap. Carving out this niche will provide an opportunity for a new generation of trees to grow up. Judging by the other gaps, it will most likely fill up with ash seedlings, some birch and willow and even a few spruce. Further on, another fine spruce has outstripped the others and

reached its optimum size for felling. Any bigger and the sawmills will not be able to process them, so they begin to lose value.

A spongy bed of golden saxifrage covers a wet flush where several spruce have blown over. It is always surprising to see these root plates tipped up vertically.. Not at all the mirror image of the aerial parts, the roots spread out wide and shallow like little model trees in a train set. Their roots cannot live in waterlogged soil and there is only sludge to grip onto. Leave them where they lie for the bugs...

This wet flush may grow up with willow and alder, trees whose roots can live in water. Back in the gung-ho days they might have drained areas like this, making the site fit their requirements. That wilfulness is less common now and you are more likely to find a forester suiting the trees to the land.

Further on into the stand is a little gap which must have been created during the last thin some twenty year ago. It has a bristle of little ash trees carpeting the ground. Their pale green stems the size of lollipop sticks are ankle-high and already multi-stemmed like crazy candelabras, tipped with tight black buds. Deer have repeatedly nibbled the growing tips over the years, causing them to branch out from the side again and again. Held in check, they are shaggy with gathered moss. With less deer browsing they would send up slender shoots of new growth and resume their journey up into the light.

This profuse regeneration of ash offers a vibrant new component to the stand – columns of broadleaf trees rising up in these pools of light. But we now have to ask what future these ash will have – will Ash Dieback blow in and blight them? And what of the relic ash and the intruded ash already here? If we thin the spruce to favour them now, will we be left with gaping holes when they too succumb to the fungus? Perhaps we should thin out the ash now and put our faith in the spruce? Or we could plant in the gaps, if there is enough light, with oak and impose our own little islands of intent. In fact, the notion of our controlling nature is often illusory. The landscape is littered with woods where our intentions have been gradually overwhelmed by nature's gentle might.

Half-way up the slope is a mixture of Douglas fir and Norway spruce. Maybe they were hedging their bets here when they planted. Douglas is more valuable, especially in large dimensions for structural timber, but spruce might do better in the wet soil. Both cast dense shade. In this stand they have both grown well and there are sawlogs to be harvested from both – that will improve the income from this thin.

Ten or fifteen years ago you would have lost money on a job like this – it would have cost more to harvest than you could sell it for. Lots of thinning was delayed or abandoned at this time and the effects of that neglect are showing now. Sales prices were low because imports from densely-wooded emerging nations such as Latvia were so cheap you could buy timber ready planked off the dock for less than we could harvest it here. Then they joined the EU, living standards rose, wages rose and prices went up. Also China has become a huge importer of timber, especially from Russia, so we have less flooding our markets. We used to have to pay to take our low-grade chipwood away; now the price is positive and rising as woodchip boilers hoover up available material. So a building boom in Beijing draws timber across Asia, triggers new patterns of supply in the Baltic and may affect whether this wood gets thinned this

year. It is still marginal on these steep slopes with poor access for road haulage and with a motley range of log sizes, but it is now possible to cover these high harvesting costs.

So I spend the day choosing between this tree and that, this spruce and that ash, this beech and that beech; my will, reflecting our current concerns, written in orange spots across the forest.

What governs this succession of choices? How do I know when to stop? Must every crooked tree go now? Classical forestry employs tables to measure increment and yield and thus arrive at the correct thinning intensity. Forests rarely conform to this ideal, so the forester's interpretation is crucial. This is particularly important where, as here, the original trajectory of the plantation is being diverted to new ends.

For me, thinning is creating a living structure is four dimensions. Keeping or removing a tree will affect the stand's overall structure and composition right now in 3D. Add to that the axis of time and you can imagine the whole forest evolving through the decades – the favoured trees swell to fill the canopy gaps you give them; the bigger gaps on the forest floor fill up with natural regen and new cohorts of trees surge upwards; the shading canopy is now permeable to light and the wood sorrel and bluebells can enjoy their brief months in the sun; the woody increment is accruing to the stems of greatest value; we are beginning to let go of our domination and let nature have a say in what happens next.

It is difficult to imagine and sustain complex structures over decades and centuries. It is more a case of setting the parameters and letting natural processes take over. For example, you may decide to have no more than one third of the natural regen as conifer, or none at all; or to introduce a new species like oak here, which has few parent trees to reproduce from; or to harvest at a certain size; or to let nature take over completely and walk away.

But time is not what it used to be.... When the forestry books were written they assumed the world would be the same in 50 or 100 years time; markets might come and go and fashions may change, but the world itself would stay the same over time.

Not so any longer. Trees pushing up through the ground now will find the world is significantly different when they mature. In these parts they will probably have to endure hot dry summers with occasional severe drought and wetter winters with more storms.

The new climate will favour some species over others. Beech and Norway spruce may find it too dry on shallow soils, but Douglas fir and others may benefit from the extra warmth. To meet these changes, we should consider planting at least some trees suited to the expected future climate – perhaps common oak or even downy oak from southern France – as an insurance. How would that fit with conserving native woodland?

International trade has brought many pests and diseases to our shores which would otherwise have remained confined to other continents. Now a changing climate may be creating favourable conditions for them to spread. Imagining and designing the

forests of the future has always been a forester's job, but now it is particularly complicated; which species will thrive, or even live? Will they be resiliant to future climate? What will they produce, if anything? What are they even for?

Could we not just walk away now and leave nature to sort it out? Might that work just as well as our tinkering? In some woods and for some objectives that would work fine, where the wood already has suitable species and there is no particular expectation of timber.

But here we have established dense shady stands over what would otherwise be a rich woodland flora and it would take several more decades to collapse of its own accord. We started it, so we should see it through.

If we want to make more use of natural materials in preference to concrete, steel and oil, it is important to retain some working woods and I am wary of just shutting the gate. I would be out of a job for a start! The story of human civilisation is largely the story of how we have enslaved the natural world for our benefit. As we reach the outer limits of that arena, there are movements to reverse this by 'rewilding' extensive tracts of land. But can we find a middle way between exploitation and abandonment, working with nature, reaping a modest harvest whilst leaving the wood's integrity intact? Living off the interest rather than gourging ourselves on the natural capital?

Now I am done with my spray can. Next the cutters will come to realise my imagined forest, wondering why I marked this instead of that, grumbling at how awkward I made it for them. The immediate aftermath can be sobering – too much cut or too little. Either way, the wood is one step forward in its evolution.

I am following a line of foresters, bringing my vision to the wood. I too will be followed by others, possibly wondering what on earth I was thinking, or hopefully seeing how they can work with what I have left them and guiding it onwards to meet the needs of that future day.

