WOODLAND TRUST

Wood Wise

Spring 2012

Woodland path with bluebells

WTPL-Steven Kind

Woodland Conservation News

Open space habitats in woodland

Open spaces

Common Lizard WTPL, Patrick Roper

Natural woods and forests can be seen not just as an expanse of densely packed trees, but a mosaic of areas with varying canopy cover, structure and tree species, interspersed with watercourses, standing water, glades and temporary clearings. Open spaces are therefore integral to naturally-functioning woodland. In primeval forests they would have occurred as a result of underlying disturbance and natural processes such as the death of mature trees, storm damage, and the effects of large herbivores, as well as underlying geology and landforms.

There is much debate as to the extent and form of open space in the original post-glacial woodland. Frans Vera (2000) argues that populations of large herbivores would have applied enough grazing pressure to maintain a fluctuating mosaic of grassland habitat; whereas George Peterken (2009) highlights the impact soil and site types can have on vegetation structure, and believes meadow-like grassland would have been a minority element of natural forests.

In modern UK woods, open space generally takes the form of permanent rides and glades, more temporary areas of coppice, or clear-fell. Open areas also occur around ponds and along streams and rivers, and where there are rocky outcrops or cliffs that only the most tenacious trees and shrubs can colonise.

These scatterings of light among the canopy shade diversify the woodland environment, offering a wealth of habitat niches for species to inhabit. Around 50 per cent of flora in a large wood can be found in the open-space habitats (Peterken, 2010). In fact, Peterken also argues that with so many traditional open ground habitats lost from the wider landscape through intensified land-use, open areas within woods can be important refugia for species that would once have thrived in non-woodland habitats. For this reason, appropriate management of open spaces within woods can make a vital contribution to wider conservation objectives.

Where woods have developed communities of species reliant on either temporary or permanent open space, changes in management practice can be a threat. For example, many woodland butterflies are now of conservation concern, and their decline is attributed in part to a reduction in traditional woodland management after markets declined early last century.

Silver-washed Fritillary WTPL, Patrick Roper

As rides and glades closed over and coppicing ceased, the food plants of some species have gradually been shaded out, with a negative effect on the insects that feed on them (Sparks et al., 1995).

Woodland, and green space generally, has proven health benefits. Trees and woods can have a restorative and therapeutic effect on the mind (Hartig et al., 2003). They can also enhance mood, lower blood pressure, and reduce mental fatigue and stress (Ulrich et al., 1991). Glades and lighter open areas can be more welcoming, especially to those people who find dense vegetation intimidating. They also provide places for people to picnic or sit and reap the benefits woodland can offer.

New woodland planting offers the opportunity to factor in open spaces from the beginning. Sown with grass and wildflower mixes, these areas can create a splash of colour in the early years of the developing wood, and benefit a range of species too.

Open-space habitats are recognised by forestry and funding bodies. For funding through the English Woodland Grant Scheme, an application *area can include integral woodland open space up to a limit of 20 per cent of the total area.* The Welsh Glastir Woodland Creation Scheme rules say open ground areas over 0.1 ha must be excluded from grant aid. But scattered open ground, under 0.1 ha, can be included *up to a total of 15 per cent of the gross area.* To be eligible for a Scottish native woodland creation grant *a minimum 10 per cent to maximum 25 per cent open ground is allowed.*

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Small Pearl-Bordered Fritillary WTPL, Richard Becker

Brede High Woods

Brede High Woods covers a total of 262 hectares (ha) across the East Sussex parishes of Brede, Ewhurst and Sedlescombe. It lies within the High Weald Area of Outstanding Natural Beauty and the High Weald Natural Character Area. The area is dominated by nutrient-poor acid sandstone which creates a range of soils, from free-draining through to wetter areas of marsh and mire.

Historically, the site was a mixture of ancient semi-natural woodland, small farmed fields (both arable and rough pasture), orchards and areas of heath. The heathland developed in southern England through traditional grazing activities, but much has been lost. The woods were once influenced by traditional Wealden coppice industries such as charcoal burning for the historic iron industry and sweet chestnut for hop poles and fencing. The farmed elements were pre-Second World War, so have no history of intensive chemical or fertiliser use.

In the 1930s farming was abandoned as a tributary of the Brede Valley was dammed to create the Powdermill Reservoir. Following this, much of the catchment area around the reservoir was given over to commercial forestry from the 1940s to 1960s.

Today Brede High Woods is a complex mosaic of habitats; ancient semi-natural woodland (mostly coppice), conifer plantations (both secondary woodland and plantations on ancient woodland sites), broadleaf plantations, and more open areas of heath, grass, mire, *Sphagnum* moss beds and scrub.

The Woodland Trust acquired the woods in December 2007. Surveys and assessments by Dr Patrick Roper and others identified a rich biodiversity in the open spaces and a need to manage these areas to retain important species. Two of the UK's heather species, common heather, *Calluna vulgaris*, and bell heather, *Erica cinerea*, were recorded on site. Along with the scarce heath dog-violet, *Viola canina*, and butterflies of conservation concern including dingy skipper, *Pyrgus malvae*, and pearl-bordered fritillary, *Boloria euphrosyne* (a UK BAP species).

The Trust has undertaken significant work to expand and improve open habitats. Trees have been removed from ride edges to widen them. But most importantly, two large open areas have been created, namely Sedlescombe Heath and Brede High Heath. Open space comprises up to 15 per cent of the wood's area, ideally the Trust would like to increase this to 20 per cent.

Brede Woods - 2009 Patrick Roper

Brede Woods - 2010 Patrick Roper

Brede Woods - 2009 Patrick Roper

Brede Woods - 2010 Patrick Roper

Sedlescombe Heath is a fenced 20 ha area, of which 75 per cent is open ground with 25 per cent tree cover. It was created by clearing a number of subcompartments (subcpts), which reflect historical boundaries such as old banks and hedgerows, and the past management of these distinct areas now appears to influence their individual floristic characters.

As the area to be cleared was over half a hectare it was necessary to complete an Environmental Impact Assessment. This and the cartographic evidence showed the proposed section was not ancient woodland; it was secondary woodland that had been actively planted or naturally regenerated. The cleared subcpts contained unthinned hybrid larch, *Larix x eurolepis,* Scots pine, *Pinus sylvestris*, and Norway spruce, *Picea abies,* plantations (closely planted, dense and very dark) and a young closed canopy oak, *Quercus robur,* plantation. There is also an area of open-canopied, mature Scots pine plantation within the fenced area of Sedlescombe Heath.

Whole tree harvesting was the chosen clearance method as it is quick and clean. Trees are felled and chipped; the resulting wood chip is then removed from the site. Due to this the seed bank was able to flourish immediately, as the soil was not swamped by excess woody debris. The leftover stumps were mulched; this created small piles of woodchip which wild boar, *Sus scrofa,* constantly root through, turning it over and increasing the rate of decomposition.

Some groves of birch, *Betula* sp., sallow, *Salix caprea*, and other species were retained, along with individual Scot's pine and oak trees – to become veteran and ancient trees of the future. Sedlescombe Heath is now an intimate mosaic of open ground regenerating with heather and some standards, wet birch/purple moor grass woodland, and open-canopied mature Scots pine with a hazel, *Corylus avellana,* oak and bramble, *Rubus* sp., understorey.

Since clearance cross-leaved heath, *Erica tetralix*, previously unrecorded on the site, has appeared along with many other heathland plants. However greater broomrape, *Orobanche rapum-genistae*, last recorded in the early 2000s, has not reappeared. Dodder, *Cuscuta epithymum*, parasitic on *Calluna vulgaris* heather and other plants have proliferated across the cleared areas of Sedlescombe Heath. Skylarks, *Alauda arvensis* (a UK BAP species), previously nesting in fields to the west of the site, were recorded in 2011 in the newly open areas. The area is a hotspot for adders, *Vipera berus,* a nationally declining reptile, and these too will benefit from the increased open space.

Cross-leaved Heath northeastwildlife.co.uk

Future management objectives for Sedlescombe Heath are to maintain the current mix of habitats. To achieve this, light conservation grazing has been introduced using cattle at low stocking levels. Natural grazing and browsing by rabbits, *Oryctolagus cuniculus*, and transient, controlled fallow deer, *Dama dama*, herds add to the development of the habitat.

In 2011, after consultation with Sussex Wildlife Trust, who have a number of woodland grazing projects, a local grazier was identified. A small herd of five Sussex cows, a Wealden breed descended from draught oxen, were kept on the heath over the summer and mild winter, until they began to lose condition during a period of cold weather. The cattle resumed grazing in the spring, as the weather warmed sufficiently and the new grass started to grow. The number of cattle is likely to increase to ten for the summer period.

The cattle use all areas of Sedlescombe Heath, grazing the open grassy areas and taking shelter in the open pine plantation. Cattle movements poach the ground in wetter areas, increasing habitat diversity and plant species richness. Their trampling should also control bracken, *Pteridium aquilinum*, growth, which can overtake and shade out heather species. The development of the area is being monitored annually by an external consultant and the site manager and will be adjusted according to the response of ground flora and scrub.

Additional mechanical management of bracken and scrub may be required periodically to prevent them becoming dominant. In 2012 both areas of heath were entered into an HLS agreement with Natural England. This 10-year grant will pay an annual area sum plus some additional capital payments for bracken and scrub control.

Credenhill Park Wood

Open spaces are vital: they are important to biodiversity and can benefit archaeology. Balancing the protection of archaeological remains with maintaining or improving biodiversity can be a challenge in woodland.

Credenhill Park Wood is a 91.3 hectare (ha) ancient woodland located in a major concentration of ancient woods in the Hereford Hills. A scheduled ancient monument crowns the top of the site, with oval shaped ramparts forming an Iron Age Hill Fort enclosure of around 20 ha in size.

The Woodland Trust acquired the site in 2005. Research, surveys and excavations of its archaeology and ecology (including fungi, butterflies and wet woodland species) were carried out. The Trust used this information and worked alongside Herefordshire Archaeology to devise an appropriate management plan.

The Trust inherited two plantations within the hill fort. The northern half had been planted with larch, *Larix decidua*, which had begun to blow over. Trees uprooting can cause serious damage to archaeological sites. It was believed thinning would exacerbate the problem and cause more trees to blow over. Therefore, the plantation was clear felled.

The southern half consists of beech, *Fagus sylvatica*, and Norway spruce, *Picea abies*. As this was stable and not causing immediate damage to the fort, a gradual thinning approach has been adopted.

Credenhill Park Wood Hill Fort Alan Johnson

This should help to protect species from the massive disturbance that clear felling can cause.

The overall vision for the fort is of an open wood pasture system. Strong individual trees will be more stable and will prevent further damage to the important archaeology. Pollarding will also be carried out. This traditional technique increases tree stability and longevity. The individual trees will hopefully mature into veteran and ancient trees of the future, supporting a huge range of specialist species.

Initial mowing of rides widened them and increased the volume of grasses present. After thinning/ clearing operations these species could then better expand into the resulting open spaces.

Native ash, *Fraxinus excelsior*, oak, *Quercus* sp., wych elm, *Ulmus glabra*, and birch, *Betula* sp., will be encouraged through natural regeneration in the northern half. Gradual thinning in the southern half will slowly open up the ground and further allow grasses to spread in. In time these methods will produce a healthy wood pasture habitat.

The site now supports increasing populations of species such as common figwort, *Scrophularia nodosa*, bugle, *Ajuga reptans*, bluebell, *Hyacinthoides non-scripta*, and sheep's fescue, *Festuca ovina*. Topping is carried out in autumn to reduce the grass sward and enable other species to come through in spring when the growing season starts anew.

The site is currently grazed by Highland cattle and Welsh mountain sheep from April through the remainder of the year. Their activities keep the ground vegetation low and increase its diversity. Short vegetation allows the forms of the underground archaeology to show through.

Wood pasture and grassland are open habitats that will maintain visibility of the archaeology, enabling visitors to enjoy it for many years.

Credenhill Park Wood Hill Fort Alan Johnson

Raveningham Estate

The Raveningham Estate covers 900 hectares (ha) of arable, pasture and woodland near Loddon, Norfolk. It is owned by Sir Nicholas Bacon Bt and is currently in a Higher Level Scheme. Sustainability is a prime driver for management, and the estate is keen to conserve its landscape, biological, historical and aesthetic aspects.

Raveningham's woodland covers over 140 ha, 15 per cent of which is permanent open space. It is split into separate blocks – the largest individual wood is 40 ha. There are a variety of woodland types on the estate: ancient semi-natural woodland, containing ash, *Fraxinus excelsior,* hazel, *Corylus avellana,* hornbeam, *Carpinus betulus*, and English oak, *Quercus robur*; softwood PAWS (plantations on ancient woodland sites); wood pasture; and wet woodland.

Woodland management can be separated into four categories:

- Non-intervention, including ancient and wet woodland;
- Coppice and standards;
- High forest, with rotational thinning;
- Wood pasture, with some parkland.

The majority of woodland on the estate is actively managed with the potential to offer a range of biodiversity benefits. Raveningham holds wild pheasant, *Phasianus colchicus*, and grey partridge, *Perdix perdix*, shoots. Management is targeted towards these game species and their food sources (such as seeds and invertebrates). In Norfolk, game shooting is a primary driver for management. Hardwood extracted from the estate is sold for timber, while softwood is processed on site and the resulting woodchip fuels the estate's three boilers (300kw, 60kw and 30kw).

Common Twayblade northeastwildlife.co.uk

The woods boast large rides spanning 25 metres (m) and smaller ones of just 1.2m across. The smaller are swiped through once a year to create space within the understorey. The management of bramble, *Rubus* sp., and other understorey plants is important for game cover, but it also benefits a variety of other species – such as the bullfinch, *Pyrrhula pyrrhula*, a UK BAP species. Although bramble is disliked by some, it benefits a range of wildlife including purple hairstreak butterflies, *Favonius quercus*.

The larger rides act as a network to allow active management of the woods, such as timber extraction and deer control – Chinese water deer, *Hydropotes inermis*, are the biggest problem in this area. The rides are also important areas for butterflies, birds and woodland plants. Game birds favour the woodland edge and increases in open space increase edge habitat.

Nightingale northeastwildlife.co.uk

Woodcock, currently amber listed as a bird of conservation concern in the UK, can also be found breeding on the estate. The Game & Wildlife Conservation Trust has shown that the chance of breeding woodcock increased as the number of gamekeepers within five kilometres increased. Raveningham manages habitats and controls predators for game birds; this is beneficial for ground-nesting woodcock.

A newly created ride will have its hazel and other natural tree regeneration cut every three years, but as the grass increases the need for this management will diminish. Once established the ride edges will be scalloped; this increases the length of the ride edge and the flora available to invertebrates, which in turn feed greater numbers of birds and bats. Scalloping also enhances habitat diversity, disrupts wind flow and provides shelter.

The estate manages areas of alder, *Alnus glutinosa*, coppice and ash/oak standards on a 25 year rotation. These units, which can be half a hectare in size, create temporary open spaces and a range of structural diversity and niches as they naturally regenerate. The new stools and regeneration are protected from grazing pressure using dead hedges. This traditional hedging technique uses unwanted small coppice to create a barrier surrounding the unit. It is tall to stop deer, dense at the bottom to exclude rabbits, *Oryctolagus cuniculus*, and hares, *Lepus europaeus*, and makes great wildlife habitat.

Within the coppiced areas the numbers of twayblade, *Listera ovate*, and early purple orchid, *Orchis mascula,* treble in the flowering period directly after coppicing. Nightingales, *Luscinia megarhynchos*, and grey partridges also favour new coppice, and use the dead hedging to nest in. A range of invertebrates also utilise the various stages of coppice.

The estate has seen significant increases in its butterfly populations. Most notably, white admiral, *Limenitis camilla*, and silver washed fritillary, *Argynnis paphia* – both of conservation concern. The white admiral butterfly has benefitted from the range of rides and coppicing, but also from targeted conservation of its primary larval foodplant – honeysuckle, *Lonicera periclymenum*. Silver-washed fritillary butterflies also benefit from ride management and coppicing.

Of course, one person's open space can be another's fragmentation. But on a joined-up estate like Raveningham, this variety of habitat and woodland structure helps boost biodiversity while simultaneously supporting the estate's activities.

Raveningham Estate, recently created ride John Ebbage

Wareham Forest

Wareham Forest is a 1,500 hectare woodland and heathland mosaic. Situated midway between Wareham and Bere Regis, it is part of the Dorset Woodlands. The Forestry Commission (FC) leases the majority of it from three different estates, with some freehold. FC manages Wareham Forest for three main objectives; conservation (wildlife, habitats and heritage), timber production and recreation (people and events).

Historically, the area was cleared of its ancient forests centuries ago by humans for early agriculture. The nutrient-poor soils resulted in the formation of heathland, which was maintained by people for grazing. Without continued maintenance heathland gradually converts back to woodland.

As heath areas lost favour they began to scrub over. They had no designations, were little valued and were mostly viewed as wasteland. In 1919 areas like this were highlighted as suitable for tree planting, at a time when Britain was desperate for timber. The country's woodland resource had greatly diminished, and covered less than 5 per cent of the total land area. Today, the UK's woodland cover has risen to 13 per cent.

Wareham Forest was planted in 1924 on land that was a matrix of heath and scrub. As the soils were nutrient poor, it was believed broadleaf species would not yield enough growth per year to produce timber quickly and give good financial returns. So a variety of conifer species have been grown on the site. These include Corsican pine, *Pinus nigra* subsp. *laricio*, maritime pine, *Pinus pinaster*, Monterey pine, *Pinus radiata*, and Scots pine, *Pinus sylvestris*. In recent years, there has been a greater focus on broadleaf species, with areas of sessile oak, *Quercus petraea*, planted in the north of the forest.

The site is managed on rotation, with trees clear felled at 60 years. This maintains a mosaic of clear fell, trees of varying degrees of age, wooded heath and permanent open ground. The FC has increased the extent and quality of the ride network within Wareham.

Male sand lizard basking

Nick Moulton

Wareham Forest heath tracks

Mark Warn

Rides act as veins, linking permanent and temporary areas of heath within the forest itself, but also areas of heath in the wider landscape. Connecting previously fragmented segments has greatly increased habitat availability and species survival rates.

Previously, just 10 per cent of Wareham Forest was open space. The Purbeck Heaths Forest Design Plan then highlighted areas for ride/glade widening. This long-term plan is collaborative; drawing together the expertise of the FC and its policies, Natural England, NGOs and others, and public opinion. Today open space habitat has risen to 30-35 per cent, with a variety of temporary areas opening up as felling activities take place.

The site supports all six of the UK's terrestrial reptile species. It is one of the most important sites in England for the smooth snake, *Coronella austriaca*, and sand lizard, *Lacerta agilis*, both European Protected Species with a strong affinity for heathland. Since 1994, the Amphibian and Reptile Conservation Trust (ARC) and FC have monitored and mapped reptile populations. Where possible this information has been inputted to FCs Ride Widening Schemes, Heathland Restoration Plans and Open Habitats Policy, to ensure maximum benefit.

Reptiles are creatures of edges, or require more than one habitat in order to complete their life cycles. Open spaces, glades, rides and paths can provide these kinds of habitat in abundance. Reptiles, in particular, need open areas for basking (thermoregulation) with areas of close cover nearby for shelter.

ARC lease three sites within Wareham Forest and directly input into these. The FC also utilises ARC's expertise throughout the rest of the forest. The site now offers a wealth of rides, glades and areas of first thinnings that these cold-blooded species use as basking sites. Some reptile species also use the mature crops for foraging. Their work has resulted in larger, more robust populations at Wareham; increasing numbers and linking sub-populations.

Wareham Forest sand management Nick Moulton

The heathland rides have the following structure: a central bare track (good for basking), a short swiped area leading into taller heather, a patchy scrub layer (mainly European gorse, Ulex europaeus); and finally high forest. Scalloping is also not as essential as heath species require maximum sun. FC has added scrapes in the taller heath, providing reptile basking sites away from main tracks.

Rides have the added advantage of acting as fire breaks. There is a high risk of fire in dry heathland. If unchecked it can ravage large areas. Rides can help to minimise fire spread, they also provide good access to the fire service to enable them to effectively tackle a blaze.

The structure of temporary open spaces depends on forestry rotation. During the first 15 years a newly-planted block is dominated by heath, as the ground remains open. After this the canopy closes over, gradually shading out the sun-loving heathland plants. But their seed bank sits in the soil, waiting for the right conditions to return to allow growth.

At 25-30 years first thinnings take place, and subsequent thinning is carried out over time. This opens up the dense canopy, allowing light to again reach the woodland floor. The sunlight stimulates growth from the seed bank, and heathland plants and grasses start to recolonise the area. At 60 years the trees are clear felled and the heath dominates once more. New clear fell compartments are not located next to other recently cleared areas, ensuring greater structural diversity. ARC and FC are currently researching how fast recolonisation of clear fell by flora and fauna takes place.

The restoration and improvement work has been very successful for a protected habitat (heath HAP) and has restored the species range and conservation status of the sand lizard and smooth snake (SAPs) in Dorset.

Workman's Wood

Workman's wood can be found on the Ebworth Estate, Gloucestershire, and is named after its previous owner John Workman – a respected forester and nature conservationist. He died in 2008, leaving his 405 hectare (ha) estate to the National Trust – for over 50 years he had been the adviser on forestry and nature conservation for the Trust.

The woods he owned and directly managed are a legacy of his visionary, and somewhat unorthodox at the time, method of continuous cover forestry. No clear felling was carried out, and natural regeneration was encouraged. Careful and regular thinning retained the best trees, which developed to maturity. Through this John developed an intimate relationship with his wood.

The valley in which the timber was grown is steep sided. This meant the trees were drawn up to the light, producing impressive trunks of over 60 feet before the first branch, producing fine timber for furniture manufacturers. The demand for such home-grown timber has diminished in recent years. The beech, *Fagus sylvatica*, logs were extracted and taken, first by horse-drawn wagons and later by traction engine, along the narrow lanes to the mill.

The original ancient semi-natural woodland was once scattered through the valley, it was used to supply charcoal for smelting. Beech trees were coppiced to produce multi-stems, cut on rotation every 15-20 years. The steep valley sides and use by humans have contributed greatly to the woods survival.

The Workmans bought the estate in 1900 when UK woodland cover was far less than today. During the agricultural depression it was difficult to find tenant farmers, so much of the open grassy hillsides were planted with trees. This connected the ancient

Harts Tongue Fern northeastwildlife.co.uk

woodland blocks, creating one large wood that now extends over 200 ha. The original wall boundaries of the old fields, now covered by trees, can still be seen within the wood.

Other areas of the wood were once open parkland. These sit adjacent to the original Ebworth House, a large Georgian building (once a hunting lodge, now demolished), which sat proudly on the hillside next to an old deer park.

Today Ebworth's landscape shows how beech and ash, *Fraxinus excelsior,* woodland, with some conifer has been managed over the last century. Changes in the flora are evident through relatively recent management in woodland terms, as recent as the establishment of new woodland in 1960 when nearby Saltridge wood was extended out over pasture.

Workman's wood has numerous forestry tracks to give good access. So trees can be felled within reach of a track, for easier extraction along the steep woodland slopes. These were cut through with a bulldozer by Dave Harris the woodman in the 1960s – he still lives on the estate

Although it would be frowned upon today, it nevertheless shows that plants can respond well to such intrusions and some actually benefit from disturbance. Dave recalls that many of the less common plants found in the wood today became established after widening was done and only on the steep-sided track edges. These plants include fingered sedge, *Carex digitata*, and stinking hellebore, *Helleborus foetidus*.

The track edges, with exposed sub soil, offer ideal growing conditions for many plants. These include primrose, *Primula vulgaris*, harts tongue fern, *Phyllitis scolopendrium*, yellow archangel, *Lamiastrum galeobdolon*, and honeysuckle, *Lonicera periclymenum*.

Rarer plants survive in the wood's glades. Snowdrops, *Galanthus nivalis*, bluebells, *Hyacinthoides non-scripta*, woodruff, *Galium odoratum*, and wild garlic, *Allium ursinum*, carpet much of the woodland floor in spring, even in areas which were until the early part of the last century grazed by sheep.

Today the wood is designated a National Nature Reserve, Special Area of Conservation and has been awarded a National Centre of Excellence by the Forest Authority in 1994. It is an example of how important active woodland management is to ensure a diverse habitat for plants, insects and other wildlife.

During the Second World War the wood was over felled under instruction from the war office. The wood then must have been more of a factory floor, where timber was removed on an industrial scale. Despite this it has continued, through careful stewardship, to be a wood of national importance for its timber and natural history.

Workman's Wood track edge Paul Rutter

Today the wood continues to require stewardship and ongoing tree management. Through continued, careful and informed management it could become an even richer habitat. The alternative, to leave the wood alone and allow every part it to become crowded with trees, will not enhance its biodiversity.

The wood needs continued gradual thinning and coppicing to increase light levels on a regular cycle. Much of the thinned wood is used to heat the nearby offices and dwellings at Ebworth, using a state of the art wood boiler and solar panels. Other activities, such as topping track edges in late summer and dragging timber along the rides to keep them open and disturb the ground, stimulates growth and diversity of flora.

As part of the mixed management of the woodland, it is also important to leave some areas quiet and undisturbed. Minimum intervention benefits a different suite of species that depend on more stable or darker closed-canopy conditions for survival.

Workman's wood is a good example of woodland management improving biodiversity, sometimes by accident. It shows we have much to learn from history and the actions of previous generations, and sheds light on the many merits of traditional management.

Woodland Creation

The Woodland Trust's woodland creation sites provide a clean canvas for design. Open space habitat can be factored in from the very beginning. There are ways to increase the immediate benefits of these rides and glades, including the sowing of wildflower seeds. Wildflowers can provide biodiversity and aesthetic benefits.

In Tyne and Wear, Hedley Hall Wood was planted in 1993-95 on former arable and pasture land, leaving 36 per cent open space. In 2007, Hedley Hall was included in the then active Forest of Flowers project, a joint venture between the Woodland Trust and Landlife.

A local ecologist surveyed the open areas and grassy rides, and found nothing of interest in the ground vegetation. A deep ploughing technique was used in some of the rides and open spaces to turn over the top 75-100cm of soil. This buries the over-fertilised topsoil and the agricultural grasses and ruderals.

Annual wildflowers were seeded for short term colour and show, these dominate for the first 1-2 years; the perennials then come into their own. Grasses have now moved in and are blending with the wildflowers, creating species-rich grassland. Ground nesting birds, such as grey partridge, *Perdix perdix*, have benefitted as the grassland provides vegetative cover. Hedley Hall has also seen a rise in butterfly populations, while the wildflower display received a great deal of public support.

Grazing by cattle and sheep takes place on an old 5 hectare (ha) meadow through the Flexigraze scheme. Membership into the scheme allocates grazing credits. These can be used to acquire the services of graziers also in the scheme. The advantage of this is its total flexibility, choosing exactly when and which species you want to graze – getting the best conservation benefits for the site. This can be especially useful for smaller sites.

Heartwood annual flower display Louise Neicho

Although the Forest of Flowers project has finished, the Woodland Trust are still keen to incorporate wildflowers into new plantings. Heartwood Forest is a 347 ha woodland creation site in Hertfordshire, previously arable farmland.

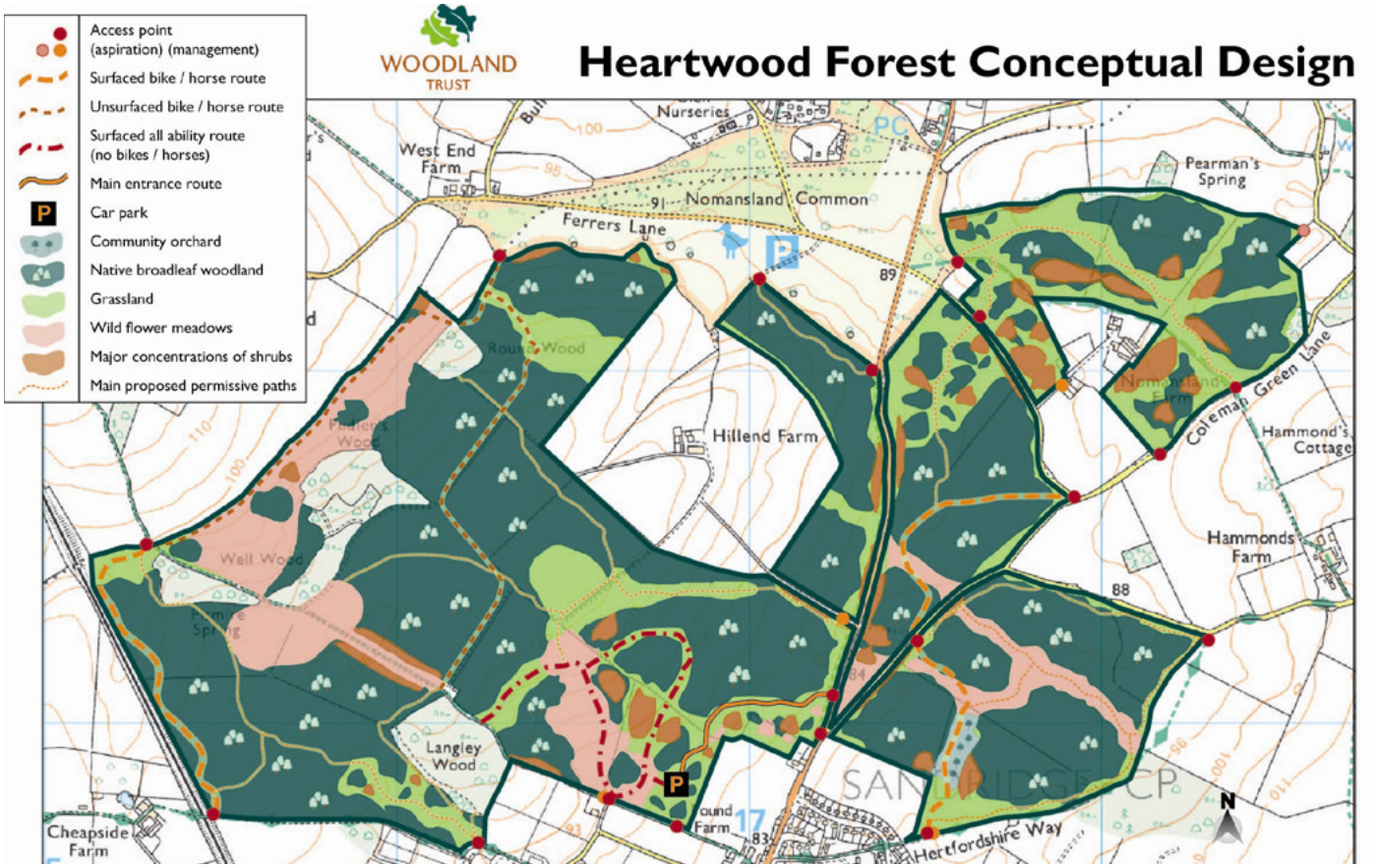
Open spaces have been designed into the site (see Heartwood Forest Conceptual Design below) and make up 20-25 per cent of the total land area. The overall vision is a large landscape-scale project, forming a mosaic of woodland, grassland, wildflower meadows and a community orchard, with miles of paths and bridleways. Heartwood joins fragmented pockets of ancient woodland and Nomansland Common (an area of large grassland habitat), providing connectivity for a range of species.

Sections of Heartwood were shallow ploughed. Some were planted with a grass and perennial flower mix, including meadow fescue, *Festuca pratensis*, white clover, *Trifolium repens,* Lady's bedstraw, *Galium verum*, and cowslip, *Primula veris*. Some were planted purely with grasses, such as red fescue, *Festuca rubra*, and Timothy grass, *Phleum pratense*. Another area was planted with a cornfield annual mix to give visitors short-term show as the trees are growing. A topping mower is used on one section. This technique removes the tops of taller plants, stimulating regrowth and encouraging diversity.

A percentage of the grassland is regularly cut to maintain a short sward. This benefits swifts, Apus apus, and swallows, Hirundo rustica, which prefer these areas for catching insects over those with a longer sward. These short grassy areas are popular with visitors, who use them for a range of activities like picnics and events.

Heartwood also contains a Roman settlement and Bronze Age roundhouse. These were discovered when the Trust carried out an Environmental Impact Assessment. These structures prevented ploughing, and the areas have been left as open grassland to preserve the important archaeology.

For more information on the Forest of Flowers project please see the autumn 2011 issue of Wood Wise, available from www.scribd.com



Heartwood Forest Conceptual Design

Bullfinch northeastwildlife.co.uk

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