Restoring the Claylands

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Norfolk Wildlife Trust

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Image: M Watson

Learning from History

Until the middle of the twentieth century the Norfolk Claylands had an ancient, intricate landscape of small fields, some under pasture, bounded by hedges containing many trees. This was poorly suited to the needs of modern arable farming and, through the 1950s, 60s and 70s, was progressively simplified.

Hedges were grubbed out, fields were amalgamated, pastures ploughed, farmland ponds disappeared and the number of trees declined dramatically. We are now entering a new phase. Fuelled by mounting concerns about climate change and a more general environmental crisis, initiatives are under way to encourage large-scale replanting of trees and hedges, and other forms of countryside restoration beneficial to wildlife.

But, what should landowners and farmers plant, and where? In spite of recent changes the Claylands retain their own particular character, in part because in places pockets of relatively well-preserved countryside have survived. The local landscape has always had its own distinctive qualities, different from other parts of Norfolk, such as Breckland or the north-west of the county: qualities born of the way that people have interacted with the natural environment over many centuries.

Our sense of place is intimately bound up with the character of the landscape, and a 'one-size-fits-all' approach to countryside restoration runs the risk of making everywhere look much the same. If we think about the environment as something shaped by man over time, rather than simply in terms of how we can increase biodiversity, this can be avoided. Working with the grain of history, in the case of the Norfolk Claylands, also brings very real benefits for wildlife. Exploiting the land for food, fuel and raw materials, our ancestors inadvertently created not only a varied range of habitats, but a wealth of connections between them.

It is not possible to restore the countryside to how it was in the past. The landscape needs to continue to provide food in a modern and efficient way. Restoration to some arbitrary point in history is anyway a bit meaningless, given that the local landscape has always been changing.

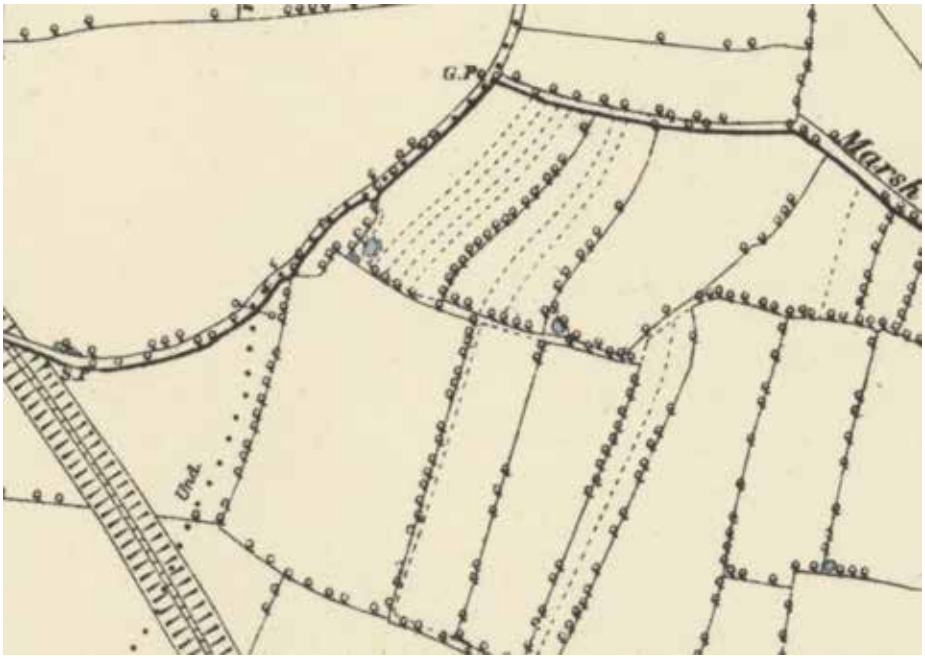
But, some characteristics remained the same for centuries, and these can provide a useful guide to future changes and additions.

A Changing Landscape

Many features of the Claylands landscape – some field boundaries, many roads and woods, the surviving areas of common land – were already in existence by the thirteenth century. Unlike the English Midlands, or parts of northern and western Norfolk, this is not an area in which the basic framework of the countryside was created by the large-scale, planned enclosure of extensive 'open fields' – areas of arable containing the intermixed, unhedged strips of many individuals – in the eighteenth and nineteenth centuries. Open fields certainly existed in the Claylands in the Middle Ages but they were less communally organised; individual fields were small and interspersed with enclosed land, woods and commons.

The latter were a particularly prominent feature and were usually flanked by the farms of those with rights to use them, for grazing livestock and as a source of fuel. They often formed long chains, linked by wide roads which were themselves, in effect, narrow linear commons. Deer parks – enclosed wood pastures where deer were farmed and hunted – also existed in a number of parishes.

Through the fifteenth, sixteenth and seventeenth centuries the area of open fields gradually contracted (although small fragments survived into the twentieth century in places like Forncett St. Mary, Talconeston and Hapton). Landowners acquired bundles of strips and planted a hedge around the perimeter, thus creating a distinctive field pattern which can be found across wide areas of the Claylands.



1. Fragments of open fields still survived in a few places in south Norfolk, as here at Hapton, when the first 6-inch Ordnance Survey maps were produced in the 1880s. The sinuous shape of the strips is replicated in the adjacent field boundaries, created as bundles of strips were enclosed in a gradual, piecemeal fashion. ***(First edition 6-inch Ordnance Survey map, 1880s - reproduced with the permission of the National Library of Scotland).***

2. Boundary patterns produced by piecemeal enclosure often exhibit numerous small 'kinks', tiny dog-legs, and instances of where the boundary of one field runs, not to the corner of the next field, but to a point some way along the boundary line. ***(First edition 6-inch Ordnance Survey map, 1880s - reproduced with the permission of the National Library of Scotland).***

Common land was traditionally land that was owned by someone, usually the lord of the manor, but over which a defined group of people enjoyed rights to graze livestock and to extract fuel and useful materials. These rights are referred to as 'rights of common'. Those entitled to exercise such rights are called commoners.

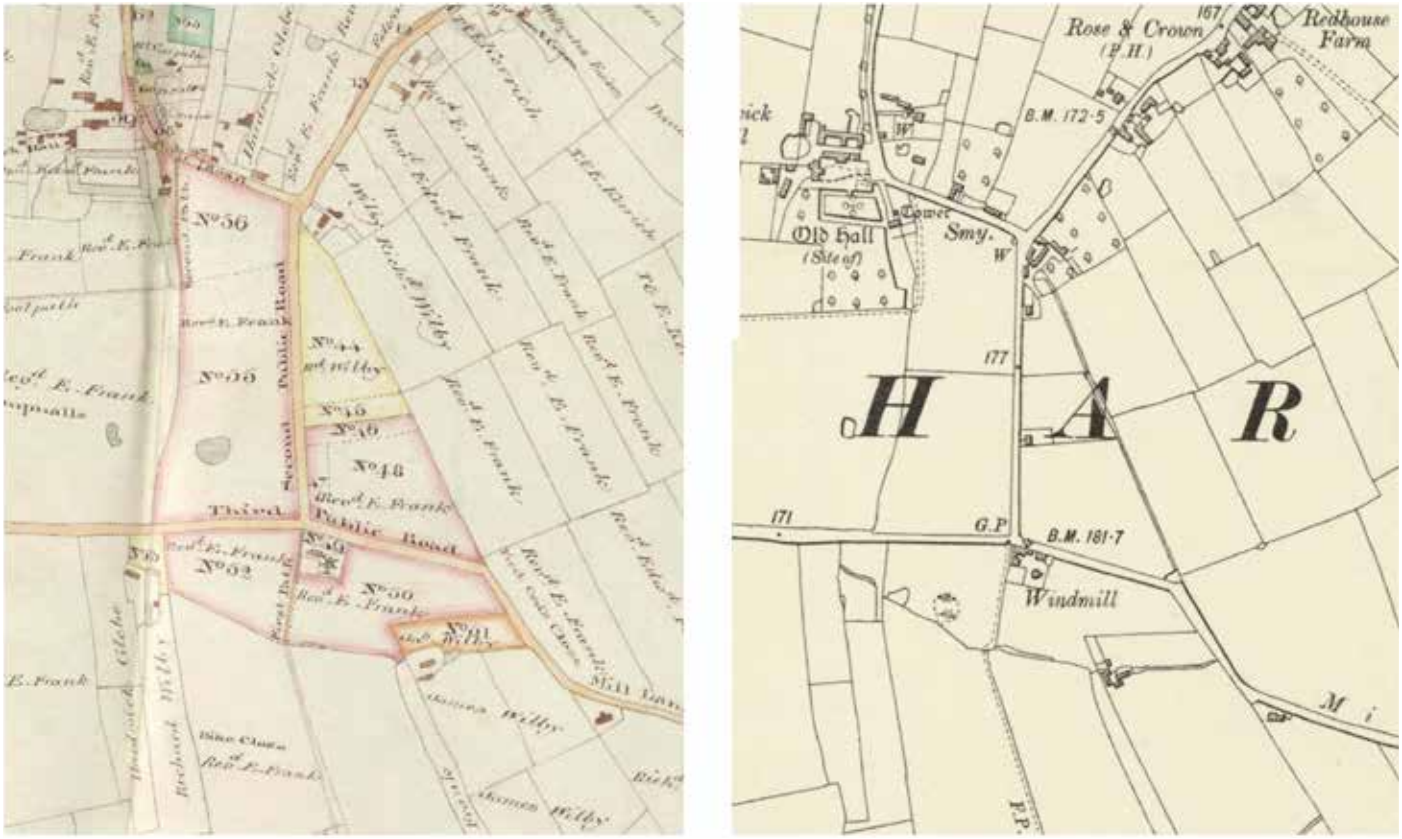
Enclosure was the process of converting common land, or open fields, into absolute private property. Common rights were suppressed and commoners compensated by being given parcels of the enclosed land.

3. Extract from a map of Channons Hall, Tibenham, surveyed in 1640, showing the small deer park (the fenced area below right of the hall) set in a wider landscape of pasture fields. (Credit: Norfolk Record Office, MC 1777/1.).

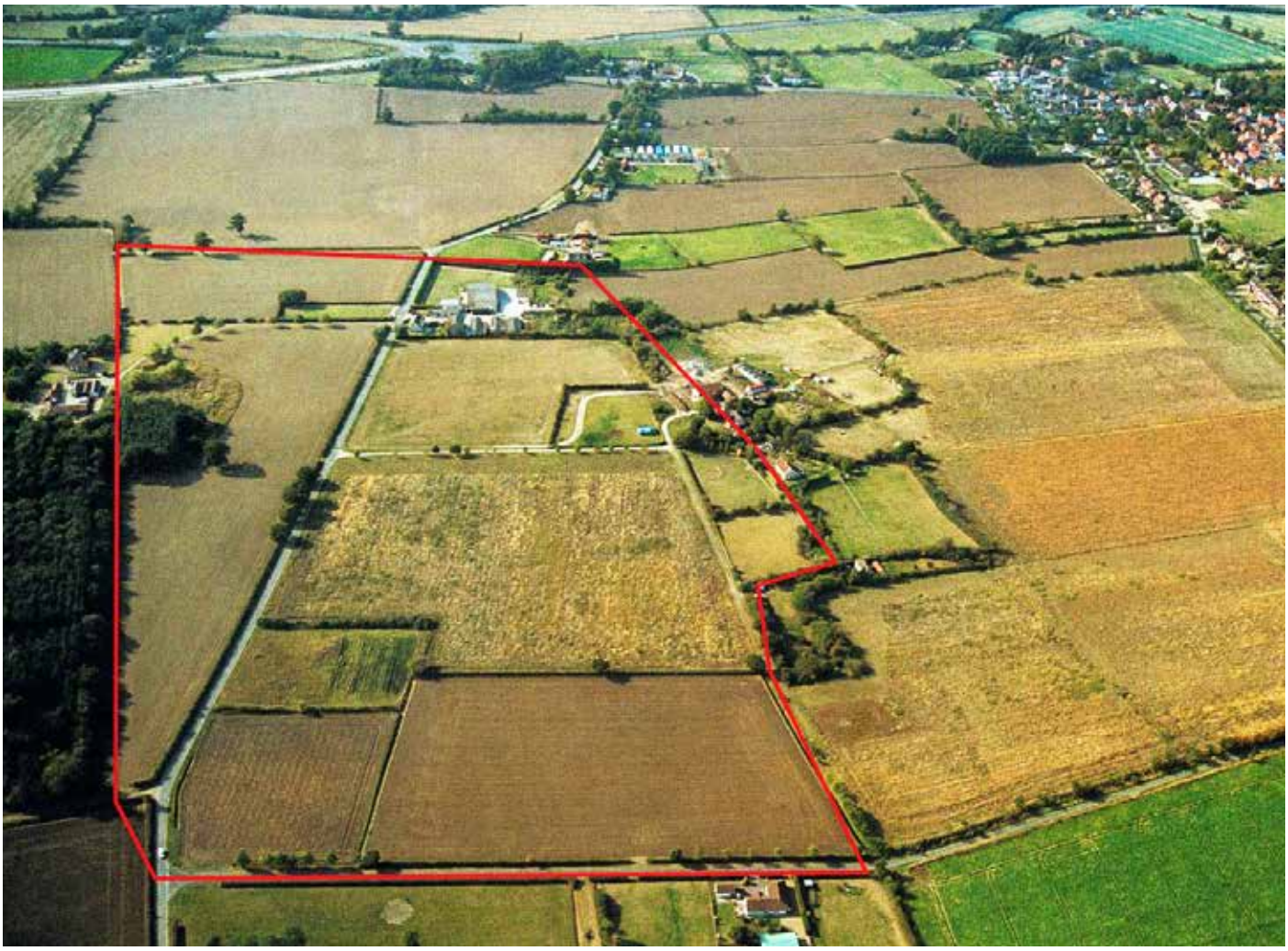
Individual strips were usually slightly sinuous, sometimes displaying a shape like a reversed 'S', and because the new hedges were established along the edges of bundles of strips, they served to preserve, in simplified form, these slightly wavy lines of the earlier landscape.

In addition, because open-field strips running end to end seldom came to be enclosed in line by this method, boundary patterns produced by piecemeal enclosure often exhibit numerous small 'kinks', tiny dog-legs, and instances of where the boundary of one field runs, not to the corner of the next field, but to a point some way along the boundary line, a strip or two strip's distance away (image 1 and 2). Many of these new enclosures, as well as many existing fields, were laid to pasture, for in the course of the fifteenth, sixteenth and seventeenth centuries the Claylands became an important cattle farming area. Fields were small – on most farms covering, on average, less than 5 acres (c. 2 hectares) - and bounded by hedges. These were usually planted on a substantial bank, accompanied by a deep ditch and densely planted with trees (image 3).

In the late eighteenth century local farming, and therefore the landscape, began to change again. Farmers now concentrated on the production of wheat and other arable crops. Land was better drained, the area under the plough expanded, hedgerow timber was extensively thinned and fields amalgamated, although not on the scale that was to be seen in the twentieth century. In addition, during and immediately after the Napoleonic Wars, in the early decades of the nineteenth century, many



4. The enclosure of greens and commons by parliamentary acts in the late eighteenth and early nineteenth centuries created numerous 'islands' of ruler-sraight roads and hedges in the otherwise rather irregular Clayland landscape. Left, extract from the Hardwick enclosure map of 1815, showing the new fields and public roads to be created within the area of Hardwick Common. Right, the same area mapped by the Ordnance Survey in 1904. *(Credit: Norfolk Record Office, C/Sca2/143).*



5. Dickleburgh High Common, enclosed in 1855, can still be traced in the landscape (shown by the red line). The ruler-straight road running down the left-hand side of the image crosses the area of the former common diagonally. Straight boundaries run back from it to the old common edge, along which farms and cottages are scattered.
(Image: Tom Williamson).

commons and greens were enclosed by parliamentary act, creating islands of fields with ruler-straight boundaries within a wider, older landscape of irregularity (image 4 and 5). This contrast was, however, often blurred as landowners replaced old, sinuous hedgerows with straighter, more 'modern' ones. After c.1880 the onset of a depression in agriculture slowed the rate of change until the middle decades of the twentieth century when, as already noted, the Claylands landscape was radically simplified.

Some idea of its appearance before this happened can be obtained from the 6-inch Ordnance Survey maps from the late nineteenth and early twentieth centuries, which can be consulted online on the website: National Library of Scotland.

For most Claylands parishes there is also a tithe map, surveyed around 1840, which is available digitally on Norfolk County Council's 'Norfolk Historic Maps' website. This also includes copies of the vertical aerial photographs taken by the RAF in the immediate aftermath of the Second World War. Refer to: Norfolk Historic Maps

There may be earlier maps of your area, held at the Norfolk Record Office; their catalogue can be consulted online at: Norfolk Record Office.

These sources will provide some idea of a landscape that has, in many parts of the Claylands, largely vanished. They may show some features that it is possible to reinstate, but more importantly they give some indication of the kinds of features that characterised this distinctive countryside.

Hedges

Hedges provide a home for a wide range of wildlife and also serve as corridors, connecting habitats. They also, more than almost anything else, provide visual interest, of particular importance in this often uneventful terrain. A single hedge planted across the middle of an extensive area of arable can have an immense and almost instantaneous effect.

Re-instating hedges on boundaries now only marked by a ditch is a practical approach, as it is unlikely to interfere seriously with farming operations. Planting on roadsides makes sense for the same reason. Re-planting boundaries which have been completely lost through field amalgamation is more challenging but should be considered in the case of the very largest fields. Recreating the line of a lost boundary is desirable, but certainly not essential. Any hedge of the right kind is a welcome addition to the landscape.

Most hedges on the Claylands were planted before the mid-eighteenth century and therefore contain a mixture of shrub species, in contrast to the minority planted after this time, which tend to be dominated by hawthorn and/or blackthorn (image 6). This is partly because older hedges have had more time to be colonised by additional species. But, it is also because they were originally planted with a number of different shrubs.

It was difficult for farmers to obtain large quantities of hedging thorn before the development of large commercial nurseries in the course of the eighteenth century. In addition,

6. A typical species-rich clayland hedge.
(Image: Tom Williamson)

hedges were regarded as a source of firewood and planted appropriately. These older hedges typically contain some combination of hawthorn, blackthorn, field maple, ash, elm, hazel, dogwood and elder. Smaller quantities of holly, hornbeam, oak, spindle, crab apple, willows, alder, bullace, purging buckthorn or guelder rose are also often present. There are usually between five and eight species in any 30 metre length of hedge.

In general terms it is best to plant some combination of these species – be guided by what is growing in neighbouring hedges. But, for those particularly keen to maintain the subtleties of local landscape the following additional 'rules' may be useful.

- **Where replanting dead straight boundaries, such as those created by the enclosure of greens and commons in the early nineteenth century:** mimic the newer hedges of the area and plant mainly hawthorn, with smaller amounts of blackthorn and scattered examples of ash and field maple (image 7).

- **On roadsides and major boundaries, such as the farm boundary or long, continuous and slightly wavy lines of field boundary:** replicate the composition of the very oldest hedges in the area, planted in the remote past when farmland was first created. These contain little hawthorn, have large masses of hazel, maple and dogwood continuing for several metres, and a scatter of other species, especially oak and hornbeam (image 8).

But such attention to detail is not essential. The best advice is – plant mixed, and look at what is in neighbouring hedges. If possible, plant a double rather than single line of shrubs, as this will give more body to the hedge; space the plants in staggered rows.

For further information plus practical advice on planting, see: Norfolk Wildlife Trust - Hedges.

There were and are many different ways of maintaining new hedges, as they mature, and old ones already in existence. Laying or plashing creates a stunning hedge – dense and impenetrable – but is expensive and unnecessary on an arable farm.

In fact, by the eighteenth century many hedges on the Claylands were managed by coppicing – they were cut down almost to ground level every twelve years or so, a method which required less skill and produced more firewood. Even where fields contained livestock, hedges might be managed in this way, with the ditch accompanying the hedge, and faggots of cut thorny material, serving as a stock-proof boundary while the hedge recovered.

Drastic cutting back to ground level every ten or fifteen years should be considered as an alternative to regular mechanical trimming, although the latter is perfectly acceptable and preferable by far to no maintenance at all. An unmanaged hedge soon becomes a gappy line of trees and shrubs.

7. A straight, species-poor hedge in Raveningham, planted around 1800 when the existing, irregular field layout was rationalised. ***(Image: Tom Williamson)***

8. Hedges can vary greatly, in age and character, even within quite limited areas. It is not necessary to reflect this when re-planting lost hedges, but it can add a measure of variety and interest. Most of the boundaries shown on this map, surveyed in 1904, originated in the period between the fourteenth and the eighteenh century; hedges on such boundaries usually contain between five and seven species in any 30 metre length, well mixed. Ruler-straight hedges of eighteenth or nineteenth-century date like (a) and (b), in contrast – in this case, planted when a small common was enclosed – are dominated by hawthorn and/or blackthorn, with few other species. The oldest boundaries – on the edge of former commons (c), roadsides (d) and running in a gently serpentine fashion for long distances through the landscape (e) - often have particularly species-rich hedges featuring long lines of hazel and maple. ***(Ordnance Survey map 1904 - reproduced with the permission of the National Library of Scotland).***

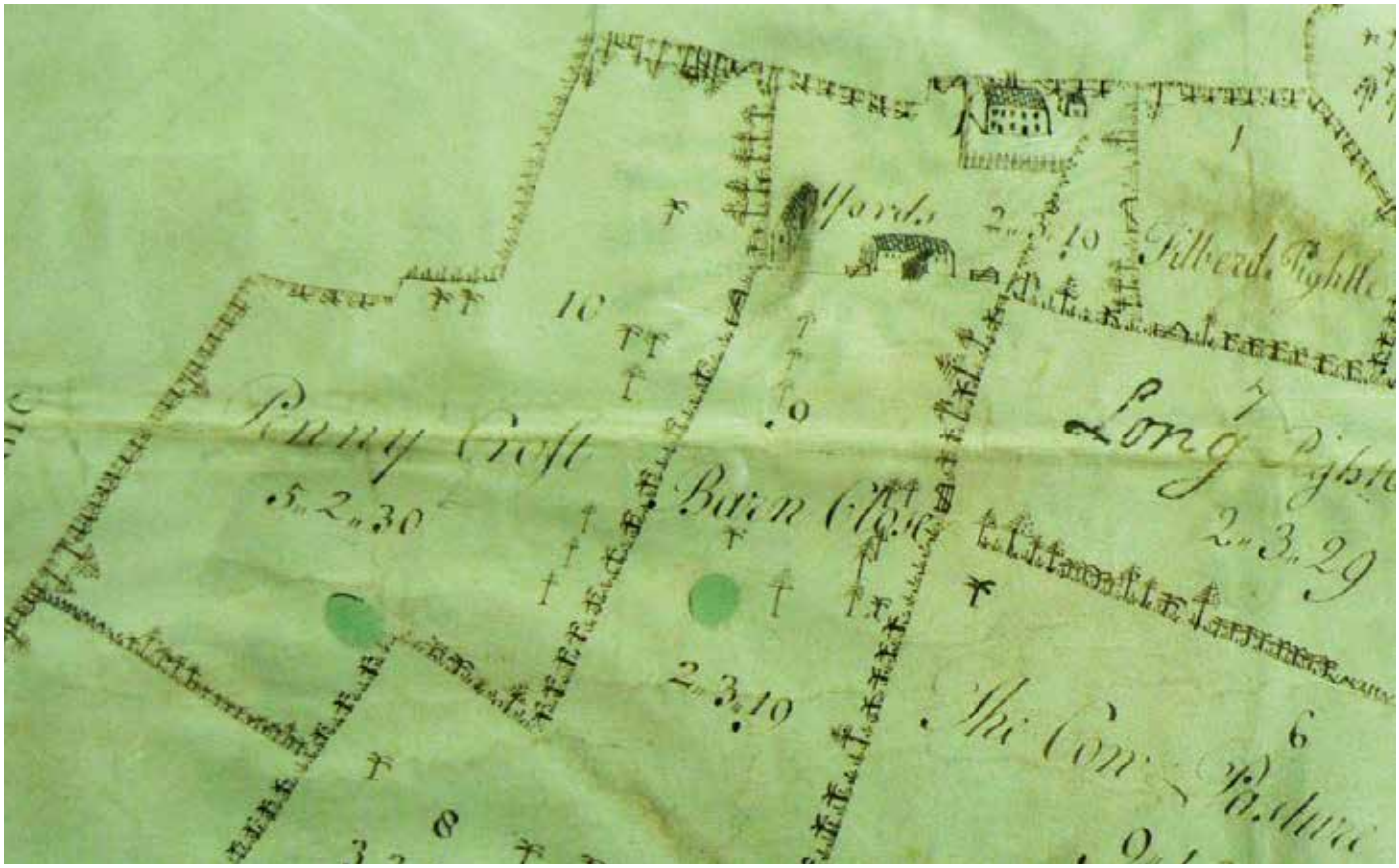
Farmland Trees

For centuries the Claylands of Norfolk and Suffolk were characterised by very high numbers of farmland trees, mainly but not exclusively growing in hedgerows. Before the nineteenth century farms commonly boasted more than 20 per hectare, of which around 80 percent were pollards, cropped at intervals of 10-15 years at a height of around 2-3 metres in order to provide a regular crop of straight 'poles' which could be used as firewood, as hedge stakes and in innumerable other ways around the farm (image 9). Former pollards are easily recognised, with a cluster of branches rising from a short trunk or 'bole' (image 10). Pollarding declined in the nineteenth century and redundant pollards were systematically removed, although many can still be found, hollow 'veterans' providing important habitats, especially for insects dependent on dead wood. The density of trees was thus steadily reduced but even in the 1880s many farms could boast upwards of five hedgerow trees per hectare (image 11).

Here, as in most other regions of England, the overwhelming majority of farmland trees – well over 80 per cent - comprised just three species, oak, ash and elm, planted or encouraged by landowners because they provided the most useful and valuable wood and timber. The other trees present – most notably hornbeam and maple, but with willows and black poplar on damper ground, even in hedges – were usually managed as pollards rather than as timber trees (image 12).

Trees are important for birdlife, but also for sustaining biodiversity more generally and, together with hedges, were vital components in the web of biological connectivity which embraced the Claylands. But, they also provide beauty and variety to the landscape and, appropriately planted, serve to maintain and reinforce the particular character of the Claylands.

It is not possible to simply replicate the range of trees typically found on the Claylands in the past. Dutch Elm Disease means that elm will not



9. A map of an estate in Scarning, on the edge of the Claylands, surveyed in 1761, recording the positions of individual farmland trees; the 'palm tree' symbols represent pollards. Maps and surveys indicate that, before the nineteenth century, this kind of tree density was not unusual.
(Credit: Norfolk Record Office, BCH 20).

currently grow into a tree and ash is now threatened by ash dieback. Increasing the proportion of oak to make up for these losses may be unwise as we cannot be sure what further tree diseases may assail us. As a rough rule of thumb, oak should make up around 60 percent of a new planting, with hornbeam and maple around 15 per cent each. The remainder might comprise black poplar and willow, on damper ground, perhaps with a handful of other species for interest and variety. Wild service, holly and wild pear will all do well where the soil is not too waterlogged in winter.

Traditionally, the overwhelming majority of farmland trees were found in hedges, and they should ideally be included in new hedges being created or in old, gappy ones being restored. Pasture fields were sometimes densely planted with pollarded trees, but a more common arrangement was to group them in lines, two or three deep, around one or more field margin, to create strips of open woodland which were often referred to as 'grovetts' or 'rows'. These would look magnificent, and bring many environmental benefits – certainly worth considering where space is available.

Trees can be added to existing hedges, if sufficient space is made. But older Claylands hedges usually contain a number of species which – suitably tagged to preserve them from the flailer – will grow into respectable trees. Maple is particularly common but hornbeam and holly also occur. Some ash might also be tagged: if they succumb to dieback they can always be removed.

For more information and advice see: Norfolk Wildlife Trust - Trees

10. A typical example of an ancient oak pollard in a hedge at Hedenham, with branches rising from a short but massive 'bole'. ***(Image: Tom Williamson).***

11. The First Edition Ordnance Survey 6-inch and 25-inch maps recorded the positions of all trees above sapling size, in this case in the south of Moulton. They indicate that even in the late nineteenth century the Claylands contained numerous farmland trees and hedges, but should not be treated as a rigid blueprint for re-planting. ***(First edition 6-inch Ordnance Survey map, 1880s - reproduced with the permission of the National Library of Scotland).***

12. Old hornbeam pollards are a typical feature of the Clayland landscape but because even the most ancient examples fail to attain any great circumference they are often, as here, hidden in outgrown hedges. ***(Image: Tom Williamson).***

Woodland

The South Norfolk Claylands have not been densely wooded for centuries. Large woods were, and to an extent still are, mainly found on more dissected ground, where there are significant valleys, as around Shotesham or Hedenham (image 13).

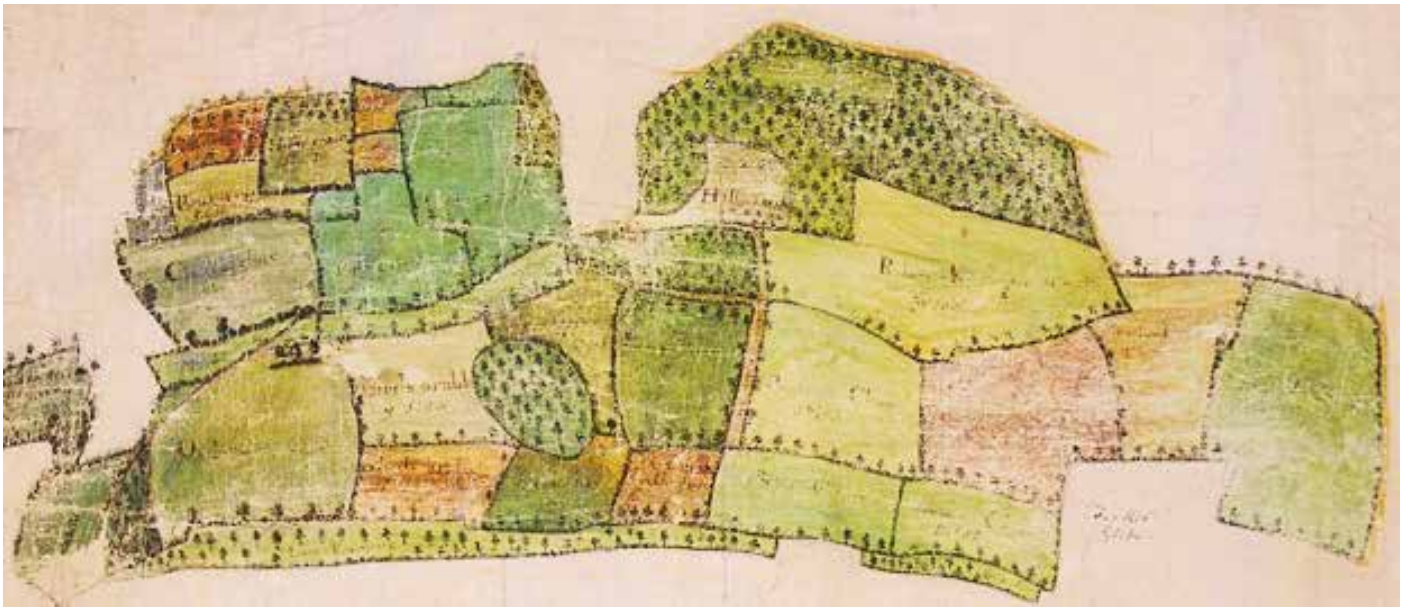
On the wide, level areas of the clay plateau large woods were rare by the Middle Ages, although early maps often show some small copses, and many more were added to the landscape, largely to serve as game cover, in the course of the nineteenth century. It is not entirely clear why this pattern developed but it would be good to maintain it. In most circumstances, the planting of relatively small woods is therefore best, covering a hectare or so (image 14).

Traditionally, woodland in south Norfolk comprised timber trees of oak (usually felled at around 80 years of age) over an understory dominated by some combination of ash, hazel, maple and hornbeam, which was coppiced (cut down to near ground level) every 8-15 years to provide a regular crop of 'poles' (image 15).

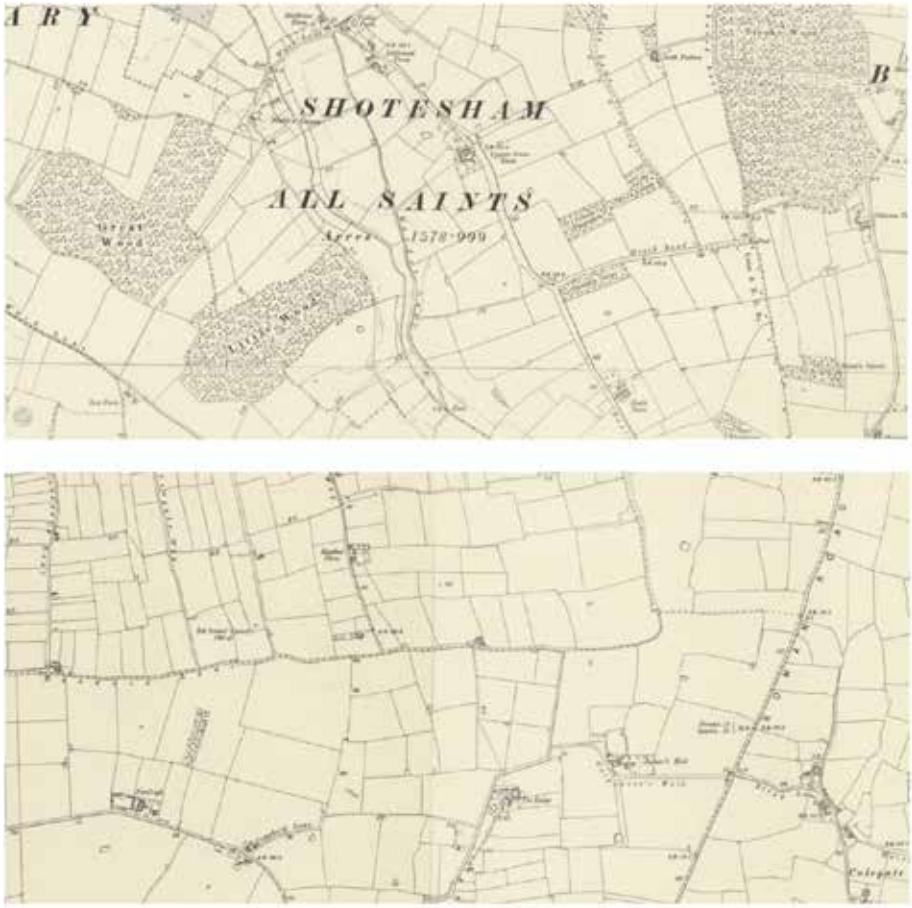
Other species, including elm and (on damp patches) alder, might be locally important. When planting new woods the issues already noted with respect to hedgerow trees, concerning disease and resilience, should be borne in mind. For timber trees plant around 60 per cent oak, 15 per cent each of maple and hornbeam, with a scatter of other indigenous species to add interest. Ideally, some kind of understorey should be included.

Unless future management by coppicing is envisaged, the full range of species traditionally found as understorey should be avoided, as most of these will grow into tall trees, making the wood congested and dark: plant mainly hazel, with some dogwood and guelder rose. Plant at intervals of around 2–2.5 metres, with the timber trees spaced at 6–7 metres.

For more information and advice see: Norfolk Wildlife Trust - Woodlands



13. A map of land in Hedenham, surveyed in 1617, shows the abundance of woodland where the clay plateau is dissected by valleys. All these areas of woodland still exist. Note the small hedged fields and abundance of farmland trees. *(Credit: Norfolk Record Office, MC 1761/1).*



14. Woods cluster where the clay plateau is cut by valleys and the terrain rolling, as around Shotesham (above). Elsewhere, as here in the north of Tivetshall (below), woods have for centuries been small and scattered. *(First edition Ordnance Survey map, 1880s - reproduced with the permission of the National Library of Scotland).*

15. The ancient coppiced wood at Ashwellthorpe, managed on traditional lines by the Norfolk Wildlife Trust.
(Image: Tom Williamson).

Ponds

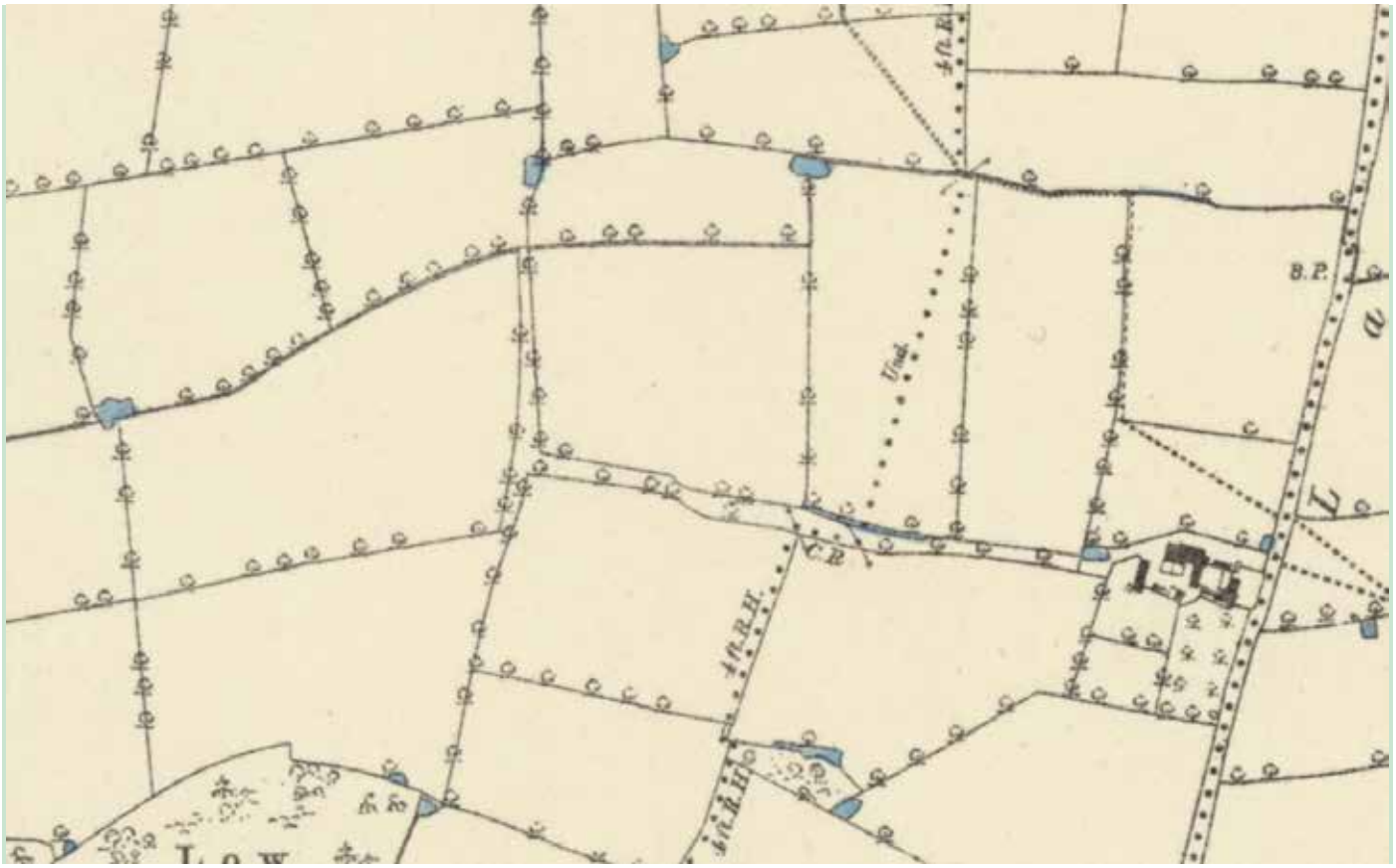
Farmland ponds have disappeared from the Claylands landscape at a frightening rate over the last century, either deliberately filled in or overgrown and silted through neglect. Even in the early twentieth century there were often ten or more to every square kilometre of land; two centuries earlier, when cattle farming was an important aspect of the local economy, they were even more numerous. The majority were, indeed, intentionally dug to provide water for cattle although some may primarily have been excavated to obtain clay, a few may be natural and one or two may be the truncated remains of medieval moats. Most were located on the edges of fields, often in the corners (image 16). Here they would be safely out of the way should the field be converted to arable and cropped for a few years. Here, moreover, they could be fed with water from the ditches which, running beside the hedges, formed the boundaries of the fields; ditches, ponds and minor streams formed one continuous web of water during the winter months. Most ponds will gradually silt up, and need to be dug out every few decades.

Farmland ponds in various stages of development provide habitats for a wide range of aquatic and wetland flora and fauna. They are particularly beneficial where a number exist in reasonable proximity, providing a vital degree of habitat connectivity. Where possible, old or lost ponds should be restored in preference to entirely new ones being created but any farm pond brings benefits, aesthetically and historically, as well as ecologically.

For more information and advice on ponds see: Norfolk Wildlife Trust - Ponds

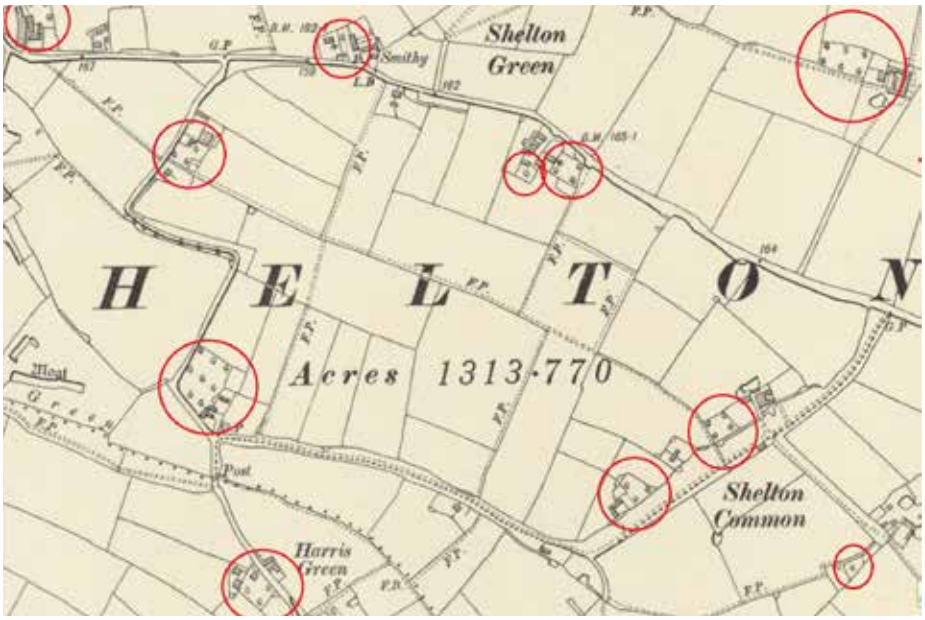
Wildfowl and Wetlands Trust: Restoring Lost Farmland Ponds

Norfolk Ponds Project: NPP Homepage



16. As this extract from a late nineteenth-century Ordnance Survey 25-inch map shows, farmland ponds were once numerous in the Claylands. Most were placed on the edges of fields, often in corners. *(Late nineteenth-century Ordnance Survey 25-inch map - reproduced with the permission of the National Library of Scotland).*

Orchards



17. The early twentieth-century 6-inch Ordnance Survey maps show orchards as neat grids of tree symbols, and demonstrate their abundance in the South Norfolk Claylands. They were invariably placed close to houses. ***(Early twentieth-century 6-inch Ordnance Survey map - reproduced with the permission of the National Library of Scotland).***

18. A traditional farm orchard in the Norfolk Claylands, with tall, old apple trees on vigorous rootstocks. ***(Image: Tom Williamson).***

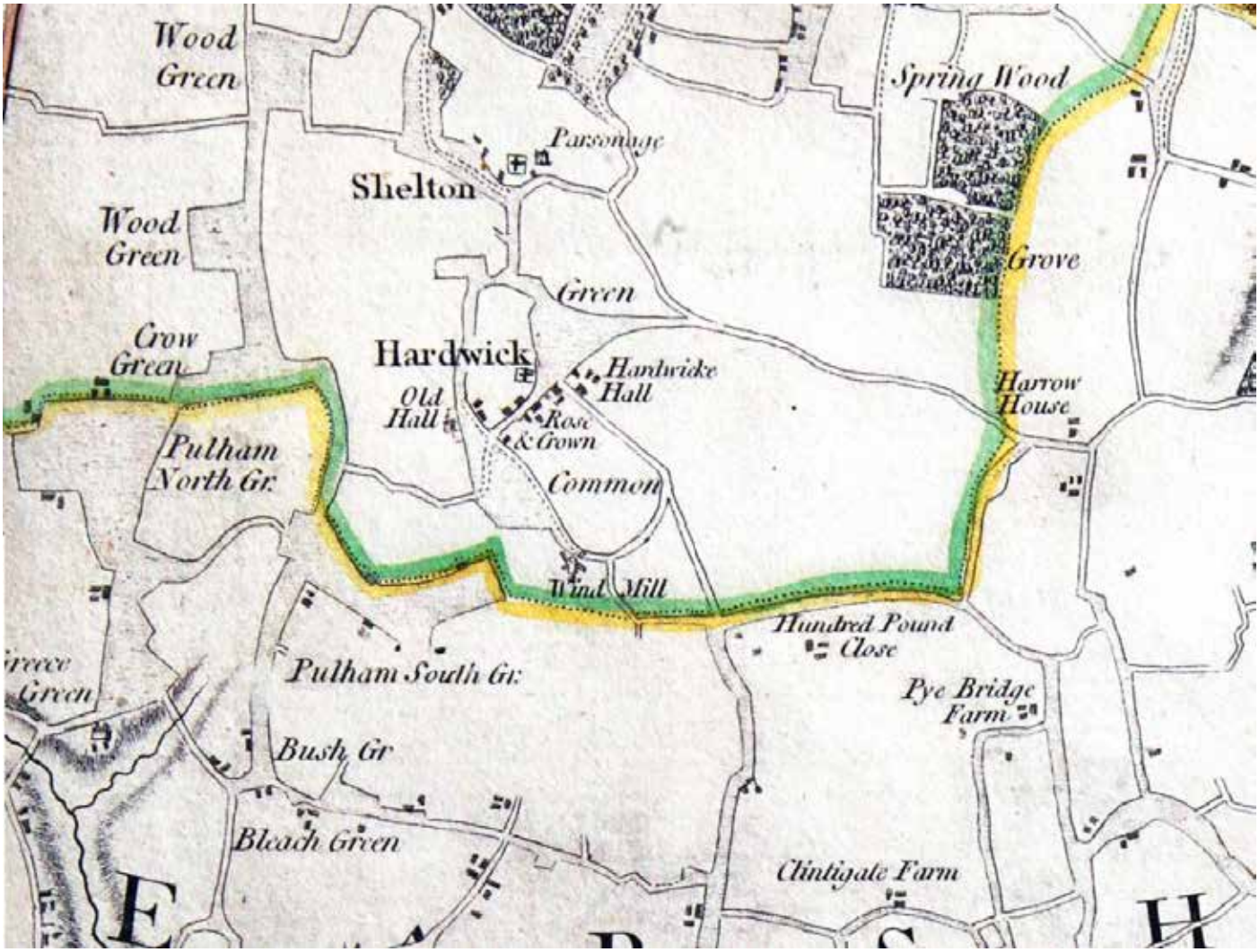
One of the greatest changes to the landscape of the Norfolk Claylands over the last century has been the catastrophic decline in the number of orchards. In the early twentieth century the majority of farms had a small orchard, located beside the farmhouse, usually covering between 0.2 and 0.5 hectares, which provided fruit (mainly apples) for the household and a small surplus for sale; they are easily identified on the 6-inch Ordnance Survey maps, marked by neat grids of tree symbols (image 17). Many lost orchards were intentionally grubbed out but others have simply become gardens or paddocks through neglect, for fruit trees grow old and die faster than most trees – apple trees for example seldom survive more than 120 years. But this also means that they 'veteranise' rapidly, providing the dead wood and hollowed trunks required by a host of organisms, especially rare insects. Orchards convey a host of other benefits for wildlife -windfalls provide rich pickings for fieldfares and other birds.

Plant new orchards, where possible, on the sites of ones shown on the old Ordnance Survey maps, or at least on sites close to houses. Orchards were seldom planted in remote locations because owners were keen to protect their fruit from wildlife – and thieves. If possible plant local varieties on vigorous rootstocks – farm orchards contained tall, spreading trees (image 18). For advice on planting, sourcing appropriate varieties, and other matters consult the websites of:

- The East of England Apples and Orchards Project
- Orchards East Forum

Grassland

The quantity of permanent grassland in the South Norfolk Claylands has fluctuated over time, probably reaching a peak in the sixteenth and seventeenth centuries, when cattle farming formed the mainstay of the local economy. Grassland in the past took a variety of forms, including meadows cut for hay, mainly but not exclusively located beside rivers and streams; enclosed pasture fields; and commons and roadside verges, which together formed a continuous network of grassland, grazed in common, running through the landscape (image 19). This web was further extended by strips of grass beside private tracks and by the practice of maintaining 'borders' around the margins of arable fields. These were unploughed strips, similar in many respects to modern 'conservation headlands', on which the plough and plough team were turned. They were sometimes grazed but mainly cut for hay. Many, in the manner described earlier, were also planted with pollard 'rows'. Similar lines of pollards, called 'plantings', existed around the margins of the larger commons (image 20). The area of grassland declined in the later eighteenth and nineteenth centuries, not least through the enclosure of many commons, although a significant number, including Fritton Common and Hales Green, survived. More permanent



19. William Faden's county map of 1797 is a useful guide to the extent of clayland commons which, together with wide, grassy roads, formed long, interconnected chains of pasture running through the landscape. ***(Faden's Map of Norfolk 1797).***

grassland was lost in the period of post-war agricultural intensification, with the ploughing of many small paddocks and meadows.

Areas of grassland, even in narrow strips and small pockets, are always a bonus for wildlife, especially if managed correctly. In particular, if verges and margins are regularly mown, but the cut material not removed, the vegetation can become rank and uninteresting, dominated by common plants like cow parsley.

When establishing new areas of grassland – or, indeed, when creating any of the other landscape features discussed here – always attempt to emulate the high degrees of connectivity provided by the countryside in the past. By linking two existing areas of grassland with an unploughed field margin – or two previously isolated hedges with a new hedge – environmental benefit is significantly multiplied.

William Faden's county map of 1797 is a useful guide to the extent of Claylands commons: Fadens Map of Norfolk

20. Fritton Common, one of the best of the surviving Clayland commons, still boasts the remains of its 'plantings', narrow bands of pollarded trees placed around its margins. Similar lines of trees, referred to as 'grovetts' or 'rows', were planted along the edges of many private fields.
(Image: Tom Williamson).

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