

# A brief history of woodlands in Britain\*

## Introduction

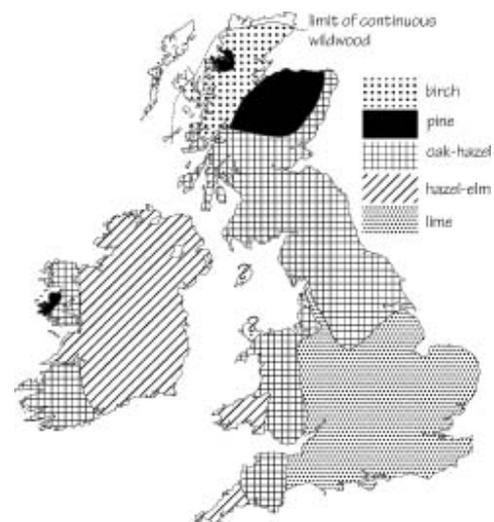
For the last million years the climate of Britain has been arctic, interrupted with brief warm periods or interglacials of thousands of years, one of which we are part way through. The history of British woodland since the last glaciation is, in geological time, extremely brief, and is inextricably linked with the development of civilization. To quote Oliver Rackham in *Trees and Woodland in the British Landscape* (1990), 'the gulf of time which separates us from the end of the last glaciation is only about six times as great as that between us and Julius Caesar'.

## Wildwood

At the height of the last glaciation (100,000 - 12,000 BC), most of Britain would have been bare of trees. Birch and willow scrub possibly persisted along the lower margins of the ice, with pine in places. Relicts of pre-glacial flora may have survived in sheltered bays along the western coasts of Great Britain and Ireland, but elsewhere as far as the south of England, ice swept the land clean.

The development of Britain's post-glacial flora can be deduced from studies of pollen and seed deposits in peat, and by means of radiocarbon dating. Tundra and moorland followed the retreating ice, and then waves of colonisation by different tree species spread from the south. The first were birch, aspen and willow, and then about 8500 BC pine and hazel spread north, replacing birch which became uncommon for several thousand years. Oak and alder followed the pine, then lime, elm, holly, ash, beech, hornbeam and maple in [succession](#) spread northwards. The earliest trees were those of arctic conditions; the later trees were those of warmer climates. The earliest trees spread the furthest north, with alder reaching Ireland shortly before it was cut off as sea levels rose. The later species were slower to move north and to become abundant, as there was no vacant ground to colonise. Beech and lime did not spread beyond southern Britain.

From the time lime arrived, in about 7300, to about 4500 BC there was a period of relative climatic stability called the Atlantic Period, during which the various species settled to form a series of wildwood or wilderness types, as shown in the diagram. The tree line was much higher than now, as shown by the remains of trees found in present-day moorland. The tree line varied across the country. The far north of Scotland was treeless to sea level, but in the eastern Highlands may have been as high as 915m (3,000ft). In the North York Moors tree remains have been found at 360m (1150ft), but parts of Dartmoor at 610m (2,000ft) have apparently always been treeless. The only natural grassland was probably small areas on high mountains, or on exposed maritime cliffs.



\*Agate, E (2002) *Woodlands – a practical handbook*. British Trust for Conservation Volunteers

What did the wilderness or wildwood look like, before man starting interfering with it? A recent theory is that the wilderness in Western Europe was a mosaic of grassland, scrub, individual trees and groups or groves of trees (Vera, F.W.M, 2000). It was not a closed, impenetrable wildwood, but was a park-like landscape, maintained by the grazing and browsing of wild herbivores. This may have been true in Britain during earlier interglacials, when the great beasts of the Palaeolithic era required large areas of grassland. Pollen records show that a wide range of grassland plants persisted in the last interglacial. However, since the last glaciation, the bison, elk and other large herbivores which persisted on mainland Europe were extinct in Britain, so Vera's theory may not apply so well to Britain.

However, the persistence of oak in Britain throughout the period since its spread northwards after the last glaciation may be an indication that the wildwood was not continuous. Oak is a pioneer species, which requires open ground in which to regenerate (see [flora and fauna](#)). It requires grazing animals to maintain open areas, and regenerates in the thorny scrub which protects it from browsing. Archaeological evidence shows that red deer, which are grazers of grass as well as browsers of trees, were a mainstay of the Mesolithic economy in Britain, being used for their meat, skins, antlers and bones. Aurochs or wild cattle, which were present in Britain until the Bronze Age, were specialised grass eaters, and required grassland not closed [forest](#).

## **Woodland clearance and management**

At the end of the Mesolithic era there is evidence of the beginnings of agriculture. The sudden decline of elm around 4,000 BC, which occurred throughout Europe, is thought to be not due to clearance, but to elm disease. There was an increase in agricultural weeds, such as plantain and stinging nettle, together with archaeological evidence of Neolithic settlement. In some areas, such as East Anglia, the chalklands and the Somerset Levels, population increased dramatically, and virtually all the wildwood was cleared.

Clearance increased during the Bronze Age (2400-750BC) to its probable height in the early Iron Age. Oliver Rackham (1990) estimates that about half of England had ceased to be wildwood by 500BC.

Much of the remaining woods were managed by coppicing. Neolithic man had discovered that the regrowth from a stump is more useful than the original tree. During the Iron Age, the Celtic peoples developed woodworking to a fine art, as shown by remains of houses, boats, wheels and other artefacts. The management of woodland by coppicing was hugely important for about the next two millennia, producing material for buildings, roads, fences, carts, and the fuel for heating, cooking, metalworking and pottery. Coppicing is discussed further in the next section.

Since Roman times there has been a sharp distinction between wooded and non-wooded areas of Britain. The Domesday Book (1086) is evidence that every [wood](#) in England belonged to some person or some community, and had an economic value. Many woods were 'exclaves' owned by communities some miles away. The fact that it was worth transporting the woodland produce over some distance indicates their value, and that ownership had been established long previously. In 1086 only about 15% of England was woodland or [wood-pasture](#), 35% was arable, 30% pasture, 1% hay meadow and the remaining 20% was mountain, moor, heath, fen or urban land. The Domesday landscape was more like modern day France than the untamed woodland of folklore. Nearly all woods were highly managed, as coppices or wood-pastures.

The nearest natural remnants of woodlands are those on inaccessible steep slopes. These fragments can teach us about the persistence of vestigial [forest](#) under extreme conditions, but they cannot reveal widespread or characteristic features of the ancient natural woodland.

The produce of English woodlands was mainly [underwood](#) for fuel and other uses, with small oaks used for domestic building. Typical medieval timber-framed houses were built mainly of oaks less than 18" diameter. Large timbers were in short supply, and were reserved for the great ecclesiastical buildings. The builders of Ely Cathedral in the 13th century had to use smaller roof timbers than planned, and the pine poles for the scaffolding were imported from Norway. Thin oak boards or wainscot for domestic building were imported from Central Europe.

Even from its low proportion of 15% in 1086, woodland cover shrank further to 10% by 1350, due to population increase. The Black Death of 1349 brought this to a sudden stop, and any woods surviving in 1350 had a good chance of surviving the next 500 years.

Throughout history, nearly all clearance of woodland has been for agriculture. Industry tended to sustain woodland rather than destroy it. Up until the industrial revolution, industries relied on [coppice](#) woodland for fuel. To quote Rackham (1990), 'the survival of almost any large tract of woodland suggests that there has been an industry to protect it against the claims of farmers'. Such areas included The Weald, the coastal fringes of the Lake District, the [Forest](#) of Dean and the Merthyr and Ebbw Valleys. It was the agricultural areas of East Anglia, the Midlands, lowland Scotland and elsewhere where woodlands almost completely disappeared.

## **Coppicing**

From earliest times in Britain, woodland needs were fulfilled not by the felling of new areas of wildwood, but by the periodic harvesting of managed [coppice](#) plots. Coppicing allowed the natural deciduous woodland to survive, in modified form, because of its exploitation for fuel, building [wood](#) and other purposes. The wide-held belief that woodlands were cleared for charcoal, fuelwood for brick and lime kilns and for tanbark is erroneous. In fact, these demands sustained the [coppice](#) woodlands, and it was with their demise that clearance increased.

'Coppice' comes from the French word *couper*, to cut. Coppices or 'copses' are woodlands cut on a fairly short [rotation](#) of five to thirty years. In most cases, one part of the [wood](#), called a 'coupe', is harvested each year. The [coppice](#) trees and their produce are known as 'underwood'. Underwood species, which are all deciduous, respond to [cutting](#) by sending up multiple stems from the stools. Periodic cutting greatly extends the life of most trees, so that coppiced stools may be many hundreds of years old.

The practice of coppicing can be traced back to Neolithic times (4500 BC). Neolithic wattle trackways in the Somerset Levels are evidence of sophisticated coppicing systems which produced rods of exactly the same size. Archaeological evidence shows that [coppice](#) products were used for numerous rural needs throughout the Bronze, Roman and Saxon periods. It's estimated that 23,000 acres of coppice were required to provide charcoal for the Roman military ironworks in the Weald (Rackham, O, 1986). Coppicing remained the most widespread method of woodland management until the mid 1800s. The reason for its importance over such a long period was that it allowed the

woodland crop to be harvested and converted with simple hand tools. Large, mature trees are difficult to cut, transport and convert, whereas [coppice](#) growth is of a size which is easy to handle.



The long history of coppicing is the reason why ancient [coppice](#) woodlands can be seen as the direct descendants of the original wildwood. It is perhaps a paradox that a coppiced [wood](#), with a [structure](#) which looks least like one's idea of the ancient natural [forest](#), is biologically closest to it. It is unlikely that trees were planted for coppicing, or that any particular selection of species was made. Even in the late 18th century, it is recorded that 'the [underwood](#) was not carefully selected and planted; the production of it, both in quantity and quality was, for the most part left to chance' (Peterken, 1981). In some places coppices were 'improved' through encouraging the valuable species by layering, planting and [natural regeneration](#), to fill any gaps where old stools died. Unwanted shrubs and invasive species such as birch were sometimes removed to favour the desirable species. However, the general pattern of species remained very close to the natural cover. Planting only became commonplace from the late 18th to the late 19th centuries, and then again in the period after World War II.

The system of '[coppice](#) with standards' is also ancient, with records of felling dating from the 1200s. Under this system, some trees are grown as standards over a longer [rotation](#), with the [coppice](#) beneath cropped at more frequent intervals. The coppice or [underwood](#) suppressed the lower side branches of the [standard](#) trees, so encouraging the growth of tall, unbranched trunks. During the reign of Henry VIII, there was a legal requirement that at least 12 standards per acre (30 per hectare) be grown, but at other times numbers varied greatly, according to the demand. Periods of felling occurred during time of war, as well as after the Dissolution and during the Commonwealth.

The words 'timber' and 'wood' have historically described different woodland products. [Timber](#) referred to the large beams and planks cut from [standard](#) trees, used for large buildings and other structures. [Wood](#) referred to anything less than 2 foot in girth (7" or 18cm diameter), and included [coppice](#) poles, [pollard](#) poles or the branches of large trees felled for [timber](#). The [coppice](#) with standards system provided both [timber](#) and [wood](#), and in a single plot the [timber](#) and wood often belonged to different people. Historically, wood was generally the more valued crop. From both the timber and wood crop, nothing was wasted, with branches, [bark](#), 'loppium et choppium', twigs and even leaves having a use.

Oak was by far the most abundant [standard](#) tree, although other species such as ash were occasionally allowed free growth. Every soil type and region had characteristic combinations of [coppice](#) species. These included hazel and ash on the Midland clays, beech and sessile oak on western sandstone, and lime in central Lincolnshire. Hornbeam and sweet chestnut, a Roman introduction, grew widely in the south east, while local or minor [underwood](#) species included whitebeam, wild cherry, crab apple, maple and elm. Some underwood species were particularly suited to specialised uses, and there was some selection in favour of these, but most [coppice](#) remained mixed, to serve a variety of needs.

In the uplands, sessile oak was by far the most common species and dominated both the [underwood](#) and [canopy](#) of the coppiced woodland. Where conditions were difficult, standards grew too slowly and erratically to be worth fostering, so 'scrub oak' [coppice](#) without standards developed. Much of this was used for tanbark or charcoal.

From the late 18th century, coppicing began to decline. One reason for this was the trend towards growing more [standard](#) trees for the production of [timber](#), and the fashion for new plantations (see [brief history of woodlands in Britain](#)). Many landowners greatly increased the density of oak in their [coppice](#) woods through supplementary planting, although much of this was never harvested. In the Chilterns, coppice working as well as [wood-pasture](#) management declined due to the planting of beech for the furniture industry. From the mid 19th century, some of the most important traditional uses of [coppice](#) products diminished as coke and coal replaced charcoal and firewood for fuel, and artificial substitutes replaced tanbark in the leather industry. In addition, the general agricultural decline of the mid and late 19th century meant that less hazel was needed for sheep hurdles and other farm products. However, many coppiced woods continued in use, and apart from a lengthened [rotation](#), many coppices were much the same at the beginning of the 20th century as they had been a thousand years earlier.

Active commercial coppicing survived throughout the 20th century, mainly in the sweet chestnut coppices of Kent and East Anglia, with the main outlet being the fencing industry. In the last decade or so there has been a revival of coppicing, especially of hazel, in Hampshire and other southern counties, and of oak in the North West. This is partly due to the realisation of the importance of coppicing in maintaining traditional woodlands, and partly due to [coppice](#) workers developing new markets and products. These include faggots for bank stabilisation, barbecue charcoal, [greenwood](#) furniture, yurts, garden ornaments and many other products. The demand from [coppice](#) workers for good quality coppice in many areas now exceeds the supply.

## Wood-pastures

A recent theory (Vera, F.W.M, 2000) suggests that [wood-pasture](#) is the closest type of landscape to that which existed in prehistory (see [brief history of woodlands in Britain](#)). Pollen records show that oak and hazel, which require open conditions to regenerate, were continuous throughout prehistory. According to Rackham (1986), '[wood-pasture](#) is well documented in England for the last 1200 years, but these written records probably only tell the last one fifth of the story that began in the Neolithic Age'.

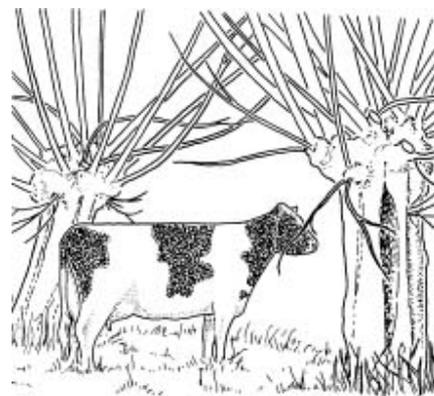
Natural wooded, grazed, landscapes became managed wood-pastures with the domestication of stock. With limited winter fodder, numbers of stock were kept at a level which could survive through the winter. In winter, when growth stagnates, browsing and grazing is at its most damaging, but in spring and summer, when there is too much to eat, some is left ungrazed and unbrowsed. This not only allowed the survival of seedling trees, but meant that grasses, herbaceous plants and annuals would flower, as in a hay meadow. In turn this supported invertebrates, leading to the diversity of species of plants and animals which are typical of mosaic landscapes with trees, scrub and grassland.

The Domesday Book (1086) recognised *silva pastilis* or [wood-pasture](#), as opposed to *silva minuta* or underwood/[coppice](#). Old records list regulations about fruit, felling for [timber](#), and [cutting](#) of foliage for fodder, but there is no regulation on regeneration, presumably because it happened naturally. Vegetative or [coppice](#) regrowth had to be protected from livestock, but protection of seedling trees was not required, as sufficient grew up protected in thorny scrub. Thorns and holly were considered so important for the regeneration of trees that a statute dating from 1768 laid down a punishment for damaging thorns and holly in the New [Forest](#) (Rackham, 1980). Palatable species such as ash, elm and hazel tended to decline under grazing, whereas species such as oak, beech and hornbeam, which are less palatable and better able to withstand browsing, tended to survive.

Domesday records that nearly all woodland which was not [coppice](#) was some type of [wood-pasture](#). Most were communal, with rights to grazing, fuel, fencing [wood](#), [timber](#), and other products long since apportioned. Pannage, the right to feed swine on acorns, was less important in Britain than on the continent, as the acorn crop in Britain is less reliable. Some wood-pastures were later enclosed as parks.

Trees intermixed with pasture had a number of advantages. Trees provided shade and shelter for livestock. Their branches could be pollarded at 2.3m (6-10') above ground level, out of reach of grazing animals, to provide winter fodder or to produce many of the same woodland products as [coppice underwood](#). Sometimes the trees were left to grow up for [timber](#), or even 'shredded' by repeatedly [cutting](#) off the side branches, leaving a tuft at the top, a practice still seen in parts of France.

Pollarding, like coppicing, reinvigorates many species of broadleaved tree and prolongs their lives. Even when pollarding ceases, these trees are likely to live on despite retrenchment, when branches die back to remain as 'stag's heads'. Many surviving pollards are 300-500 years old. These veteran trees, worthless from the point of view of [timber](#) production, are important for the habitats they provide for lichens, [bryophytes](#), the specialised invertebrates of dead or dying [wood](#), and for hole-nesting birds (see [flora and fauna](#)).



Compared to the rest of Europe, Britain retains a large number of wood-pastures with ancient trees.

## Wooded commons

On the wooded commons, which were a feature of lowland Britain, the trees themselves were often owned by the lord of the manor, but commoners had the right to cut [pollard](#) poles for fuel or feed. Grazing was carefully regulated, with commoners allowed to graze a certain number of animals. Wooded commons had disappeared in many areas by the 13th century. Many had been taken over by private landowners and cleared for cultivation, and others had been enclosed as private parks. Where grazing was unregulated, either over-grazing resulted in treeless commons, or under-grazing allowed tree cover to spread. Commons have characteristic straggling outlines, because they comprise land which it was no one person's duty to fence. Houses tend to front the common, with their private land to the back.

## Parks

Parks or policies, as they are known in Scotland, are enclosures for semi-wild animals. They came into vogue under the Normans to contain herds of fallow deer, an introduced species. There were also parks for red deer, semi-wild white cattle, hares and swine. The Domesday Book (1086) records 35 parks in England, a number which Rackham (1990) estimates grew to a maximum of about 3,200 by 1300, covering nearly 2% of England, and enclosing about a quarter of the woodland of England. Medieval parks usually had a characteristic compact outline with rounded corners to save fencing costs. Often they contained both woods and pastures, but unless they were protected the former tended to turn into the latter, from the effects of grazing and browsing. After a decline in the late middle ages, there was a revival under Henry VIII, who created at least 7 parks, the largest of which,

Hampton Court [Chase](#), enclosed 4,000 hectares (10,000 acres) of land and 4 villages. Some of those parks which remained through to the 17th and 18th centuries were remodelled by the great landscape designers. Many old trees were retained, valued for the air of antiquity which they gave to the landscape. There are about 100 parks still in use in England, mostly for fallow deer.

### **Winter-grazed woodlands**

Winter-grazed woodlands are typical of parts of the upland North and West. These are woods where domestic stock are enclosed, or where sheep and deer are allowed free access from the adjacent uplands during the winter months. In many areas the seasonal migration from the open moor to sheltered woodland was essential to the grazing economy.

### **Forests**

Nowadays the word 'forest' is usually taken to mean a large, densely wooded area. The association of the Forestry Commission with plantations of conifers has helped equate 'forest' with dense, mainly coniferous woodland. However, the word [Forest](#), as in the New Forest, Forest of Dean, Sherwood Forest and others described an area that was subjected by the king to special law, called Forest Law, concerned with game and hunting. Forests were not necessarily wooded, and many comprised large areas of heath and moorland. A [Forest](#) was a place of deer, not of trees (Rackham, O, 1986).

William the Conqueror introduced the system of [Forest](#) Law, which had long been operating in Europe. By Domesday (1086) there were about 25 Forests, and the number grew until by the time of King John (1199-1216) there were 143 Forests in England. Although the hunting of deer and other game was important, the operation of the Law and the revenue gathering which accompanied it was the main reason for the Forests' existence. A corrupt bureaucracy developed, and the tension caused between the king and the nobility led to the curtailment of the king's power under Magna Carta (1215), after which no more Forests were created in England.

The location of Forests was related partly to existing [Crown](#) lands and palaces, which needed provisions of deer and game for feasting and entertaining. Forests were mainly on heath and moorland soils which were not suitable for cultivation. The most wooded areas of England, such as the Weald and the Chilterns, had few Forests. The total area of [Forest](#) in England was about one million acres, or 3% of the land area, but less than half was [wood-pasture](#). The [Crown](#) did not have a dominant interest, as Forests included commons with pre-existing common rights, and most of the grazing and woodcutting was done by the landowners and commoners.

Similar systems developed in Wales and Scotland, with over 100 Forests created in Wales and about 150 in Scotland. The [Forest](#) system slowly declined in England, with many subject to Enclosure Acts, which turned them over to commercial forestry or low-grade agriculture. In Wales and Scotland the Forests lasted much longer than in England, with some operating in Scotland until modern times.

Many of these ancient Forests keep their names, but as an institution, only the New [Forest](#) survives, with its courts, verderers and other traditions. Many Forests retain important areas of [wood-pasture](#), heathland, moorland and other valuable habitats. Some of the ancient trees of Windsor [Forest](#) still exist in what is now Windsor Great [Park](#), and the New [Forest](#) contains an exceptional number of ancient trees.

## The planting of woodland

There is a long history of planting orchard and garden trees, grown for their crops, for shelter and shade, and for ornament. The ancient Greeks and Romans were knowledgeable at growing, transplanting and tending trees. Trees were valued, and were not only transplanted from nearby woodland, but were collected and traded over great distances.

For their fruit, the Romans introduced to Britain the cultivated apple, the black mulberry, the fig, the sweet chestnut, the common walnut and the medlar. Laurel, cypress and myrtle were brought to Britain for garden planting, and the native box, holly and ivy were also used for hedges and topiary.

Throughout the middle ages, planting of garden and orchard trees continued. The Domesday Book (1086) lists many large and small gardens, and by the mid 12th century, the wealthy citizens of London had quite large gardens adjoining their houses. The greatest gardens were those attached to the monasteries, with large orchards of fruit and nut trees.

Hedges also have a long history, and archaeological and literary evidence suggests that hedges were in use in Roman Britain. It's not known though whether these were planted, whether they were relics of woodland plants managed to form hedges, or whether they grew up protected from grazing by dead hedges (Hedging, BTCV, 1998).

There may have been some transplanting of trees in managed coppices during the middle ages, to fill gaps and maintain the [coppice](#) crop. The high value of the coppice crop also meant that some new coppices were planted. The [coppice](#) with standards system (see [brief history of woodlands in Britain](#)) probably included the transplanting of young trees, to give a reasonably even coverage of [standard](#) trees. As early as the 13th century, trees were being planted in parks and hedgerows. There are records of some planting of small areas of woodland in the middle ages. However, the first major planting of native trees was not so much for their [wood](#) or [timber](#), but for their beauty. Extensive planting of avenues, clumps and plantations by wealthy landowners was common by the 1500s.

It was not until the 1600s that the idea of planting for [timber](#) took hold. This was partly influenced by the publication in 1664 of *Sylva, A Discourse of Forest Trees*, by John Evelyn, a diarist, statesman, gardener and arboriculturist. This advocated the planting of trees for [timber](#), and influenced many landowners, including King Charles II, to make extensive new plantations. Evelyn believed, wrongly, that the woods were in serious decline due to being cut down for the iron industry, shipbuilding and other purposes. He failed to recognise that it was the iron industry and other uses that sustained the woodlands, and that the [cutting](#) down of native broadleaved trees does not destroy them. To quote Rackham (1990) on *Sylva*, 'much of the misinformation about trees that is still current today can be traced back to it'.

The plantings made pre-1600 were coppices, following the pattern of existing woods by sowing and planting a mixture of local species, and are difficult to distinguish from other woodland. Evelyn encouraged the planting of only one or two species, often conifers or exotic species, with the intention of producing particular [timber](#) crops.

The 20th Century

The '[plantation](#) movement' was very active in Scotland and Ireland, where the area of plantations overtook the area of native woodland cover during the 18th century. In Ireland planting was ordered by statute.

Beech was widely planted throughout Britain during the 18th and 19th centuries. At various times there were fashions for planting wych-elm, hornbeam, larch, and in the 20th century, Scots pine, hybrid poplar and lodgepole pine. Rackham (1990) notes that often the markets for which these species were chosen had disappeared by the time the trees matured, or with the passing of time, their purpose was forgotten.

## **The 20<sup>th</sup> Century**

The [plantation](#) movement did little to offset Britain's growing reliance on overseas supplies, or the decline in management of traditional woods. By the beginning of the 20th century about 90% of all [timber](#) and [forest](#) products were imported. The bulk of this trade was softwoods from Scandinavia and North America, with tropical hardwoods also important. The strategic danger of this situation became obvious in the First World War (1914-1918), when enemy action prevented imports getting through. Over the four years, about 180,000 hectares (450,000 acres) were felled to meet the demands.

The establishment of the Forestry Commission in 1919 aimed to ensure that the near disastrous shortage of wartime [timber](#) would never occur again. By 1939 the Commission had established 230 forests on about 265,000 hectares (655,000 acres) of land, with 145,000 hectares (359,000 acres) actually planted up. These forests were of fast-growing timber, mainly conifers, planted close together to get the maximum amount of timber per acre. Large even-aged blocks of single species or simple mixtures of straight line planting were often thrown across the landscape with little regard for variations in terrain or local features.

By the time of the Second World War (1939-1945), the Commission forests were still too young to provide much [timber](#), and about 212,000 hectares (524,000 acres) of private woodland were felled to meet the demand.

However, felled woods, left to their own devices, regrow. Much more damaging to the remaining semi-natural woodlands of Britain were the agricultural and forestry policies which were followed after World War II. Rackham (1990) estimates that nearly half of the remaining ancient woodlands of England, Wales and Scotland were seriously damaged or destroyed in the period 1945-75. In that 30 years there was more damage and destruction than in the previous 1000 years. The biggest losses were to agriculture and to forestry, with housing, roads and industry using only small amounts. After the food shortages of World War II there was a perceived need to maximise food production by bulldozing woodlands and hedgerows, destroying them so they could not regrow. Agricultural grants were directed at the clearance of woodlands and hedgerows in order to maximise production. At the same time, improved varieties of agricultural crops were increasing yields to such an extent that these clearances were in fact unnecessary. Many semi-natural woodlands were cut down and replanted with conifers, for [timber](#) production. The damage here has turned out to be less severe than might be expected. In many woods the planted conifers failed to thrive, and the deciduous species grew back and are now once more dominating these woodlands.

During the last decade of the 20th century there was a great change in Forestry Commission policy. The UK commitment to biodiversity following the Rio Earth Summit (1992) has resulted in Biodiversity Action Plans being drawn up by government conservation and forestry agencies and other organisations, which include commitments to conserve and extend [semi-natural woodland](#) (see [management](#)). The publication by the Forestry Commission of their Practice Guides The Management of Semi-Natural Woodlands (1994) signalled the great change in policy and practice. The importance of using local [provenance](#) planting stock is now accepted (see [planting and early care](#)). Grants are given towards encouraging [natural regeneration](#) (see [management](#)). Ancient woodlands which were planted with conifers are now categorised as Plantations on [Ancient Woodland](#) Sites, and advice is directed at their restoration. Management and felling of the maturing plantations continues, but the way forward is by managing woodlands through continuous cover systems (see [management](#)), coppicing, and other systems which maintain traditional woodland cover. The importance of veteran trees is now recognised (see [habitats](#)).

Grants are directed at tree and hedgerow planting and management, creation of ponds and other habitats, in a direct reversal of the post-war policies. Those who have farmed throughout this period have been given grants to clear and destroy, and then grants to plant, create and restore.

Table 1a: TIMELINE OF WOODLAND CHANGES IN BRITAIN SINCE 10,000 BC

PERIOD	YEAR	WOODLAND CHANGE
Last glaciation	c. 100,000 – 12,000 BC	
Post-glacial/present interglacial	c. 12,000 BC onwards	
Palaeolithic	to c. 10,000 BC	
Mesolithic	c. 10,000 – 4,500 BC	Trees spread north in the following order: birch, aspen, willow, pine, hazel, alder, oak, lime, elm, holly, ash, beech, hornbeam, maple. Climate stabilises, and 'climax woodland types' develop (map p1). Grassland rare. Tree line higher than present day. Britain becomes an island c. 5,500 BC. Elk, aurochs (wild cattle) and red deer widespread
Neolithic	4,500 – 2,000 BC	Neolithic settlers arrive c. 4,000 BC, bringing crops, animals and weeds, shown by sudden reappearance of grasses, cereals and grassland herbs in pollen records. Sudden loss of elm due to elm disease. Stonehenge (2,800 BC) and other monuments suggest unobstructed horizons and large areas of open land. Hurdle-making and other evidence of extensive coppicing from c. 3,000 BC. Round-houses are evidence of sophisticated woodmanship. Formation of heaths with podzols due to woodland clearance on light, acid soils. Formation of peat and moorland in high rainfall areas, partly due to wildwood clearance, and partly due to climate change.
Bronze Age	2,400 – 750 BC	Aurochs probably became extinct. Area of heath extends. Moorland areas are abandoned as peat layers deepen.
Iron Age (in England)	750 BC – AD 40	By 500 BC, probably half of England had ceased to be wildwood.
Roman (in England)	AD 40 – 410	Extensive coppicing to supply fuel for domestic use, ironworking, corn-drying and other uses. Great demand for timber for buildings, bridges and ships. Sweet chestnut introduced.

Dark Ages (in England)	AD 410 – 700	Little evidence of spread of secondary woodland.
Anglo-Saxon (in England)	AD 410 – 1066	Anglo-Saxon charters (600-1080) are evidence of primarily a pastoral and arable landscape in England. Woods have names and boundaries, and were owned and managed, mostly as wood-pasture. Wild beavers become extinct.
Middle Ages	AD 1066 – 1536	<i>Domesday Book</i> 1086. Woodland and wood-pasture comprise 15% of England. Wood-pastures enclosed as parks for fallow deer (3,200 parks in England by 1300). Underwood rotations very short. Financial returns from underwood were greater per acre than from arable land. Clearance continues, to leave only 10% woodland cover by 1350. Timber for building imported from Norway, Baltic and Central Europe. Land shortage pushes cultivation back up onto the moors. Forests, for deer, mainly on heath and moor, are declared (25 at Domesday, reaching maximum of 143 in England by Magna Carta in 1215.) Black Death in 1349 causes halt in population growth. Woods present then remained until 1800s. Secondary woodland spread on unused agricultural land. Rabbits and fallow deer introduced in early 1100s. Rabbits confined in warrens until late 1700s. Wild swine rare by 1200s. Wolves extinct in England in 1396. Red deer survive in moorland.
Post-medieval	AD 1536 onwards	Importance of oak bark for tanning 1780-1850, from oak coppices. Trees spread on heathland with the decline of heathland cropping. Woodland cover in England in 1870 is below 5%. Conifers, sycamore, rhododendron and other exotics planted in existing woods. Coppicing declined sharply as other fuels became available. Many heathlands planted with conifers. Destruction of ancient woods for agriculture and conifer plantations mainly from 1945. Forestry Commission Inventory 2001 records England's woodland cover at 8.4%, of which 60% is broadleaved. Estimate of 1.3 billion trees. Oak is most common tree.