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A brief history of woodlands in Britain

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

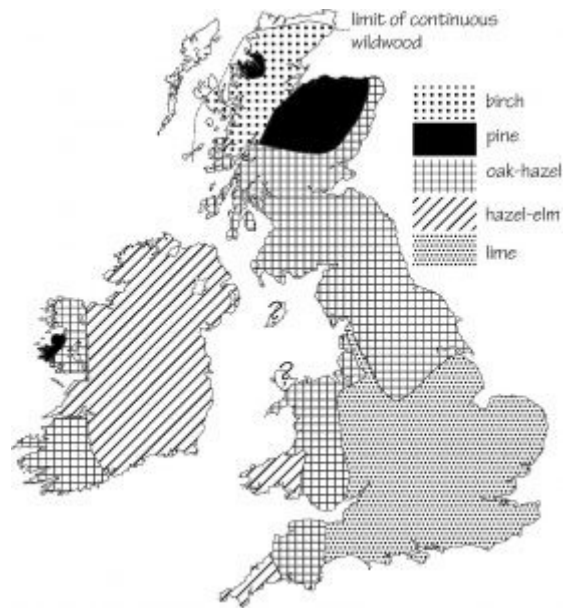
[The table below summarises the changes in British woodland since the last glaciation.](#)

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.



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. 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.

PERIOD	YEAR	WOODLAND CHANGE
Last glacial	c. 100,000 - 12,000 BC	n/a
Post-glacial/present interglacial	c. 12,000 BC onwards	n/a
Palaeolithic	to c. 10,000 BC	n/a
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 (see map above). 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 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.
Neolithic	4,500 - 2,000 BC	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.
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	Domesday Book 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%.

PERIOD**YEAR****WOODLAND CHANGE**

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.

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