

Afforestation: UK Forestry Policy in Response to Changing Resource Needs

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Abstract: Forestry in the United Kingdom (UK) has been subject to a series of policy changes since the early 1900s. At the time, the country's forest cover was down to an estimated 4.7%, which created dangerous dependencies on the timber supply of other countries, especially during World War I. In response, the UK government embarked on an intensive afforestation programme. The aim of this chapter is to provide a better understanding of the challenges involved in re-storing a key natural resource, using forests in the UK as a case study example. Through a comprehensive review of scholarly literature, documents, and reports, this work examines the UK Government's afforestation programme, which began in 1919 and held sway until the 1970s. This has since been overlain with ideas about multi-functionality and sustainable forest management and, more recently, a renewed emphasis on forest expansion. The findings offer important insights into the long-standing impact of natural resource depletion and the efforts needed to undo, at least some of the damage.

Keywords: forestry policy; paradigms; sustainable forest management; plantations; colonialism

1. Introduction

In the United Kingdom (UK), the importance of forestry changed considerably over time. Until the early 20th Century despite, at times, considerable timber shortages government action was only taken ad hoc, in response to specific problems either in relation to the provision of oak for naval purposes or the royal forests.¹ Forestry was mainly practised in the context of estates owned by the aristocracy, wealthy individuals, and the crown estate.²

¹ Aldhous, J.R. 'British forestry: 70 years of achievement', *Forestry* **70** (1997): 283–291.

² Forbes, A.C. *English Estate Forestry*, (London: Edward Arnold, 1904); Holmes, G.D. 'History of Forestry and Forest Management', *Philosophical Transactions of the Royal Society of London. Series B, Biological Sciences*, **271** (1975): 69–80.

The general view was that forestry was mainly the responsibility of private individuals, rather than of the state; successive governments and most land-owners did not feel the necessity to increase timber production.³ Importing timber from abroad was much cheaper than to produce it at home.⁴ In the early 20th century, the forest cover in the UK was down to about 4.7%,⁵ lower than any other European country.⁶ Ninety percent of the country's timber needs were met by imports – hardwoods came mainly from tropical areas, and softwoods from the Baltic States, Russia and North America.⁷

The extent of the UK's dependence on timber imports and the dangers that accompany it were only fully realised in the 1914–18 war.⁸ During World War I, the UK was mostly cut off from its overseas timber supplies and had to rely on its own forests for timber. Its dependence on foreign timber supplies became a major national security issue.⁹ The mining industry, for instance, struggled to get hold of the pit props it needed for the production of coal, which in turn was needed for the manufacture of steel used for armaments and shipbuilding.¹⁰ In response to the timber crisis, a Forestry Sub-committee known as the Acland Committee was set up in 1916 under the War Reconstruction Committee.¹¹ The Acland Committee looked at the best ways of increasing timber supplies and recommended a state organisation as being the most effective way of co-ordinating re-forestation to meet future timber needs.¹² The committee

³ Holmes, G.D. 'History of Forestry and Forest Management', *Philosophical Transactions of the Royal Society of London. Series B, Biological Sciences*, **271** (1975): 69–80; Robinson, R.L. 'British Forestry', *Forestry* **1** (1927): 1–5.

⁴ Zuckerman, S. *Forestry, Agriculture and Marginal Land. A Report by the Natural Resources Committee*, (London: Her Majesty's Stationery Office, 1957); Aldhous, J.R. 'British forestry: 70 years of achievement', *Forestry* **70** (1997): 283–291.

⁵ *Forestry Statistics 2018. A compendium of statistics about woodland, forestry and primary wood processing in the United Kingdom*, (Edinburgh: Forest Research, 2018).

⁶ Holmes, G.D. 'History of Forestry and Forest Management', *Philosophical Transactions of the Royal Society of London. Series B, Biological Sciences*, **271** (1975): 69–80.

⁷ Holmes, G.D. 'History of Forestry and Forest Management', *Philosophical Transactions of the Royal Society of London. Series B, Biological Sciences*, **271** (1975): 69–80.

⁸ Holmes, G.D. 'History of Forestry and Forest Management', *Philosophical Transactions of the Royal Society of London. Series B, Biological Sciences*, **271** (1975): 69–80.

⁹ Griffith, 'The Forestry Commission', *Political Quarterly* **22** (1951): 194–197.

¹⁰ Foot, D. *Woods & People. Putting Forests on the Map*, (Stroud: The History Press, 2010).

¹¹ Acland. *Final Report of the Forestry Sub-Committee of the Reconstruction Committee. Cd 8881*, (London, 1918).

¹² Acland. *Final Report of the Forestry Sub-Committee of the Reconstruction Committee. Cd 8881*, (London, 1918).

further suggested to increase forest cover from three million acres to four and three quarter million acres over an eighty-year period; this would have made the UK independent from foreign timber supplies for up to three years.¹³ It recommended that over the first ten years, 150,000 acres should be planted by the Forestry Commission and 50,000 by private landowners with government assistance.¹⁴ At the time, 97 per cent of the wooded land was privately owned with the remainder being royal forests, belonging to the crown estate; broadleaved trees dominated these woodlands.¹⁵

During the following 100 years, forestry in the UK was subject to a series of policy changes, initially focusing on afforestation and timber production but gradually widening the objectives for forest expansion and management. The aim of this chapter is to provide a better understanding of the challenges involved in re-storing a natural resource, using forests in the UK as a case study example. Through a comprehensive review of scholarly literature, documents, and reports, this work examines afforestation efforts in the UK between 1919 and 2018. Further attention is given to the gradual shift of forestry objectives and factors that have driven these changes. It should be noted that due to the devolution of political administration, which began in 1998, it is not always possible to keep a clear UK focus in the historic overview presented in this chapter. In recent years, the articulation of forestry policy has increasingly been delegated to the country level – England, Scotland, and Wales; Northern Ireland has had a special status throughout the last hundreds of years.

2. State-run Afforestation – Land Acquisition and Tree Planting

In 1919, the first Forestry Act was passed in response to the recommendation of the Acland Committee. The act established the Forestry Commission, a semi-independent board of Commissioners¹⁶, as the Forest Authority for

¹³ Acland. *Final Report of the Forestry Sub-Committee of the Reconstruction Committee*. Cd 8881, (London, 1918).

¹⁴ Acland. *Final Report of the Forestry Sub-Committee of the Reconstruction Committee*. Cd 8881, (London, 1918).

¹⁵ Coppock, J.T. 'A decade of post-war forestry in Great Britain', *Economic Geography*, 36 (1960): 127–138.

¹⁶ One of which had to be a Member of Parliament to respond to questions in the House



Figure 1: Forestry Commission Newton Nursery, Morayshire, 1936.

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Great Britain.¹⁷ It was given wide powers to promote afforestation, the production and supply of timber, and timber industries, to acquire and plant land, make grants, and to undertake research and education in Great Britain.¹⁸ In Northern Ireland, forestry was placed under the responsibility of the Ministry of Agriculture.¹⁹ During the 1920s and 30s, the Forestry Commission, under the on-going direction of the Treasury, focused on acquiring inexpensive land.²⁰ This included poor-quality agricultural land and later

of Commons. Foot, D. *Woods & People. Putting Forests on the Map*, (Stroud: The History Press, 2010).

¹⁷ Holmes, G.D. 'History of Forestry and Forest Management', *Philosophical Transactions of the Royal Society of London. Series B, Biological Sciences*, 271 (1975): 69–80.

¹⁸ *Forestry Act 1919*. (London: Her Majesty's Stationery Office, 1919).

¹⁹ Aldhous, J.R. 'British forestry: 70 years of achievement', *Forestry* 70 (1997): 283–291.

²⁰ In 1922, the Treasury had set the ceiling on what the Commission could pay for land at



Figure 2: Planting squad at Hobseat, Fetteresso Forest, 1952.

© Crown Copyright Forestry Commission, David Anderson and Forestry Memories.

on moor- and heathland.²¹ Land had become particularly cheap during the Great Recession (1929–1933).²² At the time, landowners felt that capital invested in forestry or farming was money wasted and therefore frequently sold their land.²³

In the early 1930's, in response to the growing interest in the countryside, due to growing car ownership and enhanced rail links, the Forestry Commission began to open up some of its less productive forests to the public,

£3 per acre and later at £4 per acre. Foot, D. *Woods & People. Putting Forests on the Map*, (Stroud: The History Press, 2010).

²¹ Rackham, O. *Woodlands*, (London: Collins, 2006).

²² Griffith, 'The Forestry Commission', *Political Quarterly* 22 (1951): 194–197; Foot, D. *Woods & People. Putting Forests on the Map*, (Stroud: The History Press, 2010).

²³ Foot, D. *Woods & People. Putting Forests on the Map*, (Stroud: The History Press, 2010).

giving birth to National Forest Parks.²⁴ The first Forest Park was established in Argyll, Scotland in 1935. Still, several more decades were to elapse before recreation became a formal objective for the Forestry Commission's estate under the Countryside Act 1968.²⁵ By 1939, the Commission had acquired 263000 ha (650000 acres) of land of which it had planted 150000 ha (370000 acres) in 230 new forests; it had become the largest landowner in the UK.²⁶ The Commission's landholdings included the royal forests, hitherto part of the crown estate, and local council woods that had been placed under the responsibility of the Commission as part of the 1923 Forestry (Transfer and Woods) Act.²⁷ The royal forests, especially, were largely established semi-natural broadleaved woodlands; some had existed for hundreds of years.²⁸ The new plantations, on the other hand, consisted of even-aged, non-native, and fast growing conifer species, mainly Sitka spruce, Norway spruce, and Lodgepole pine.²⁹ In the same period, 51000 ha (125000 acres) were replanted in private forests with the aid of grants.³⁰ Apart from the visual differences, the ecological differences between existing woodlands and exotic conifer plantations were considerable, including their level of diversity and their soil and understorey composition.³¹

During World War II, UK forests took another serious blow, particularly former Royal Forests, such as the New Forest and the Forest of Dean, and privately owned forests.³² In fact, the felling of trees in the south of England was so ferocious that the War Office demanded a complete stop because it needed woodlands to hide the build-up of its supplies and troops for the invasion of occupied Continental Europe.³³ As the Forestry Commission had few plantations over twenty years old other than those it had taken over

²⁴ Nail, S. *Forest Policies and Social Change in England*, (Dordrecht; London:, Springer, 2010).

²⁵ Mather, A.S. 'Pressures on British forest policy: prologue to the post-industrial forest?', *Area* **23** (1991): 245–253.

²⁶ Aldhous, J.R. 'British forestry: 70 years of achievement', *Forestry* **70** (1997): 283–291.

²⁷ *The Forestry (Transfer of Woods) Act 1923*, (London: Her Majesty's Stationery Office, 1923).

²⁸ Stewart, P. 'British forestry policy: time for a change?', *Land Use Policy* **2**(1985): 16–29.

²⁹ Coppock, J.T. 'A decade of post-war forestry in Great Britain', *Economic Geography*, **36** (1960): 127–138.

³⁰ Aldhous, J.R. 'British forestry: 70 years of achievement', *Forestry* **70** (1997): 283–291.

³¹ Peterken, G.F. *Natural Woodland*, (Cambridge: Cambridge University Press, 1996).

³² Foot, D. *Woods & People. Putting Forests on the Map*, (Stroud: The History Press, 2010).

³³ Meiggs, R. *Home Timber Production 1939–1945*, (London: Crosby Lockwood, 1949).

from the Crown Estate, private forests once again had to shoulder the bulk of the burden put on forests by the war.³⁴ In 1943, the Forestry Commission responded to the renewed timber crisis with the publication of a Post-war Forest Policy,³⁵ supplemented by a report on Private Woodlands.³⁶ In view of an anticipated increase in world timber consumption, highlighted in the latter of the two reports, the total area of woodland planned under the original Acland report's was increased to four and three quarter million acres to five million acres (2.024 million hectares) over the next fifty years.³⁷ Almost half of this was meant to be planted by private landowners with the help of governmental financial incentives.³⁸ To make tree felling more difficult, licences for timber felling were introduced through the 1947 Town and Country Planning Act.³⁹

3. Intensification of Timber Production

The Forestry Act 1951 placed even more emphasis on timber production. It requested the Forestry Commission to “*promote the establishment and maintenance of adequate reserves of growing trees*”.⁴⁰ This included substantial investments in wood processing industries, such as sawmills and the particleboard industry.⁴¹ During the challenging post-war years, particularly the 1950s, food self-sufficiency and rural development were main areas of concern.⁴² In line with the intensification of agriculture, the focus in UK forestry shifted from re-forestation and expansion to intensification of timber

³⁴ Anon. ‘Editorial: Post-War Forestry in Great Britain’, *Nature* **154** (1944): 683–715.

³⁵ *Post-war Forest Policy of Great Britain. Cmd 6447*, (London: Her Majesty’s Stationery Office, 1943).

³⁶ *Post-war forest policy. Private Woodlands. Cmd 6500*, (London: Her Majesty’s Stationery Office, 1944).

³⁷ *Post-war Forest Policy of Great Britain. Cmd 6447*, (London: Her Majesty’s Stationery Office, 1943).

³⁸ *Post-war Forest Policy of Great Britain. Cmd 6447*, (London: Her Majesty’s Stationery Office, 1943).

³⁹ *The Forestry Act 1947*, (London: Her Majesty’s Stationery Office, 1947).

⁴⁰ *The Forestry Act 1951*, (London: Her Majesty’s Stationery Office, 1951).

⁴¹ Holmes, G.D. ‘History of Forestry and Forest Management’, *Philosophical Transactions of the Royal Society of London. Series B, Biological Sciences*, 271 (1975): 69–80.

⁴² Foot, D. *Woods & People. Putting Forests on the Map*, (Stroud: The History Press, 2010).

production. This approach, however, resulted in severe land manipulation,⁴³ including through the use of heavy machinery, fertilisers, herbicides, and pesticides.⁴⁴ The visual effects of the industrialisation of forestry and the increasingly harsh treatment of the trees and their wider surroundings resulted in environmental protests in the Lake District and later on in Cumbria and north-west England.⁴⁵ The prime objection was to the “*extensive, monotonous exotic conifer plantations – the goose-stepping monocultures*”.⁴⁶ Whereas established forests, especially royal forests, tended to be closely linked to the rest of the landscape,⁴⁷ new plantations were mainly planted in geometrical blocks on open ground.⁴⁸ There was also “*widespread demand for greater access into state forests*”.⁴⁹

In the following years, the industrialisation of forestry even intensified. The Forestry Commission, due to pressure of the Treasury and a growing domestic wood processing industry, was forced to become more efficient and to supply large amounts of timber.⁵⁰ In particular, the demand for pulp and board wood⁵¹ had risen in the 1950s, as a result of the increasing circulation of newspapers, magazines, and books.⁵² This growing demand led to renewed concerns of possible future timber shortages, and was followed by new planting programmes on a grand scale.⁵³ The Forestry Commission,

⁴³ Mason, W.L. ‘Changes in the management of British forests between 1945 and 2000 and possible future trends’, *Ibis* **149** (2007), 45.

⁴⁴ Tsouvalis, J. *Critical Geography of Britain’s State Forests*, (Oxford: Oxford University Press, 2000).

⁴⁵ Aldhous, J.R. ‘British forestry: 70 years of achievement’, *Forestry* **70** (1997): 283–291.

⁴⁶ Edwardson, T.E. ‘Amenity and forestry’, *Forestry*, **29** (1) (1956), 44.

⁴⁷ Peterken, G.F. *Natural Woodland*, (Cambridge: Cambridge University Press, 1996).

⁴⁸ Coppock, J.T. ‘A decade of post-war forestry in Great Britain’, *Economic Geography*, **36** (1960): 127–138.

⁴⁹ Yarrow, C. ‘A preliminary survey of the public’s concepts of amenity in British Forestry’, *Forestry*, **39** (1) (1966), 59.

⁵⁰ Oosthoek, K.J. ‘Chapter 4. Origins and Development of State Forestry in the United Kingdom’, in Oosthoek, K.J., Hölzl, R. (eds.), *Managing Northern Europe’s Forests. Histories from the Age of Enlightenment to the Age of Ecology*, (Oxford: Berghahn Books, 2018); Oosthoek, K.J. *Conquering the Highlands: A History of the Afforestation of the Scottish Uplands*, (Sidney: ANU E Press, 2013).

⁵¹ This was due to technical advances in the use of wood in new forms and on a large scale, such as fibre board and plywood, particularly boards and cartons. Scott, C.W. ‘The Changing Aims of Forestry’, *Forestry* **39** (1966): 10–16.

⁵² Scott, C.W. ‘The Changing Aims of Forestry’, *Forestry* **39** (1966): 10–16.

⁵³ Scott, C.W. ‘The Changing Aims of Forestry’, *Forestry* **39** (1966): 10–16.



Figure 3: Early plough and D2 Caterpillar Tractor, 1946.

© Crown Copyright Forestry Commission, Jim Christie and Forestry Memories.

helped by further technological advances, rationalised and mechanised its operations and increasingly planted shorter rotation species.⁵⁴ The Forestry Act 1967⁵⁵, which consolidated the Forestry Acts 1919 to 1963, reinforced this development by reiterating the importance of afforestation and timber production; it also kept the clause on “*maintaining adequate reserves of trees*”. The 1960s also saw the beginning of large-scale afforestation by private forest investment companies⁵⁶ which had been stimulated by a favourable tax system.⁵⁷ Generous tax advantages allowed individuals on high incomes to

⁵⁴ For more information on the forestry industry and the Forestry Commission timber sales policy: Foot, D. *Woods & People. Putting Forests on the Map*, (Stroud: The History Press, 2010), 143–149.

⁵⁵ *The Forestry Act 1967*, (London: Her Majesty’s Stationery Office, 1967).

⁵⁶ Foot, D. *Woods & People. Putting Forests on the Map*, (Stroud: The History Press, 2010).

⁵⁷ Tompkins, S. *Forestry in Crisis. The Battle for the Hills*, (London: Christopher Helm, 1989); Tsouvalis, J. *Critical Geography of Britain’s State Forests*, (Oxford: Oxford University Press, 2000).

offset their taxable income against expenditure on new forest plantations.⁵⁸ This had led to the creation of, mainly privately-owned large-scale conifer plantations in the Scottish uplands.⁵⁹

4. The Widening of Forestry Objectives – Timber, Recreation, and Conservation

In the 1960s, changes in perception began to influence forestry policy, gradually leading to the widening of forestry objectives.⁶⁰ Various non-governmental organisations and statutory bodies discussed the need to make the wider countryside, including forests, more attractive and more accessible to the general public. At the time, “*recognised rights of way were few and their use was actively discouraged*”.⁶¹ The Council for the Protection of Rural England (CPRE) also mobilised a campaign against tree planting on open land.⁶² In response to the growing influence of the environmental movement, the Forestry Commission began to plant and manage its lands increasingly for amenity purposes.⁶³ In 1964, for instance, the Commission appointed landscape consultant Sylvia Crowe to introduce more aesthetic treatments of afforestation schemes, including contour planting and the use of broadleaved trees in sensitive and edge locations.⁶⁴ The Countryside Act 1968,⁶⁵ a further product of these debates, strengthened this development. The Act created the Countryside Commission with the remit to cater for recreation in the countryside. It also required public bodies, including the Forestry Com-

⁵⁸ Tompkins, S. *Forestry in Crisis. The Battle for the Hills*, (London: Christopher Helm, 1989).

⁵⁹ Tsouvalis, J. *Critical Geography of Britain's State Forests*, (Oxford: Oxford University Press, 2000).

⁶⁰ Raum, S., Potter, A. 'Forestry paradigms and policy change: the evolution of forestry policy in Britain in relation to the ecosystem approach', *Land Use Policy* **49** (2015): 462–470.

⁶¹ Foot, D. *Woods & People. Putting Forests on the Map*, (Stroud: The History Press, 2010), 64.

⁶² Foot, D. *Woods & People. Putting Forests on the Map*, (Stroud: The History Press, 2010); *Growing against the grain*, (Council for the Protection of Rural England, 1987).

⁶³ Nail, S. *Forest Policies and Social Change in England*, (Dordrecht; London; Springer, 2010).

⁶⁴ Crowe, S. *The landscape of forests and woods*, (London: Her Majesty's Stationery Office, 1978).

⁶⁵ *Countryside Act 1968*, (London: Her Majesty's Stationery Office, 1968).

mission, “to have regard to the desirability of conserving the natural beauty and amenity⁶⁶ of the countryside”.⁶⁷ The Forestry Commission, thereafter, provided recreational facilities, including forest holiday cabins.⁶⁸

A key review of forestry in 1972, undertaken by the Treasury,⁶⁹ considered, for the first time, the costs and benefits of forestry in the UK. Its main aim was “to clarify what the nation’ was ‘getting in return for accepting the low financial rates of profit ... achieved, and expected on new plantations”, by quantifying the non-timber objectives of landscape amenity and recreation.⁷⁰ Interestingly, the analysis concluded that even though afforestation failed to produce the 10% return on investment expected from public sector investment, it became economically viable when recreation and amenity were taken into account.⁷¹ The study estimated that some 1.5 million visits to public forests were undertaken annually (in 1968) and expected this figure to increase substantially by up to 10% each year.⁷² The outcome of this review, arguably, brought about a major shift towards the widening of forestry objectives.⁷³

The 1979 EC Convention on the Conservation of European Wildlife and Natural Habitat⁷⁴ added the protection of wild plants, animal species, and their habitats to this list of objectives. The Convention was implemented into

⁶⁶ In the Town and Country Planning Act 1974, the term amenity was defined as ‘that element in the appearance and layout of town and country which makes for a comfortable and pleasant life rather than a mere existence’. *The Forestry Act 1947*, (London: Her Majesty’s Stationery Office, 1947).

⁶⁷ *Countryside Act 1968*, (London: Her Majesty’s Stationery Office, 1968).

⁶⁸ Nail, S. *Forest Policies and Social Change in England*, (Dordrecht; London:, Springer, 2010).

⁶⁹ *Forestry in Great Britain: an Interdepartmental Cost/Benefit Study*, (London: Her Majesty’s Stationery Office, 1972).

⁷⁰ *Forestry in Great Britain: an Interdepartmental Cost/Benefit Study*, (London: Her Majesty’s Stationery Office, 1972), 1.

⁷¹ Nail, S. *Forest Policies and Social Change in England*, (Dordrecht; London:, Springer, 2010); Holmes, G.D. ‘History of Forestry and Forest Management’, *Philosophical Transactions of the Royal Society of London. Series B, Biological Sciences*, 271 (1975): 69–80.

⁷² *Forestry in Great Britain: an Interdepartmental Cost/Benefit Study*, (London: Her Majesty’s Stationery Office, 1972).

⁷³ *Review of Forestry Commission Objectives and Achievements*, (London: Her Majesty’s Stationery Office, 1986).

⁷⁴ *The Convention on the Conservation of European Wildlife and Natural Habitat (Bern Convention)*, (Bern: Council of Europe, 1979).

UK law through the Wildlife and Countryside Act 1981.⁷⁵ In the same year, John Morton Boyd, the newly retired head of the Scottish Nature Conservancy Council (NCC) was appointed by the Forestry Commission to encourage more nature conservation on the Commission's estate.⁷⁶ Also in 1981, the Nature Conservancy Council began to identify and compile a list of ancient woodlands⁷⁷. The Ancient Woodland Inventory was a first step towards protecting woodlands in the wider countryside.⁷⁸ Still, timber production remained the main focus throughout this period.⁷⁹

5. The Balancing of Different Forestry Objectives

The 1985 Wildlife and Countryside Amendment Act⁸⁰ not only strengthened nature conservation, but also instructed the Forestry Commission to keep a “reasonable balance” between the “development of afforestation, the management of forests and the production and supply of timber, and the conservation and enhancement of natural beauty and the conservation of flora, fauna and geological or physiographic features of special interest”.⁸¹ The Forestry Commission responded by introducing a Policy and Guidance on Broadleaved Woodlands in the same year.⁸² In the following years, more emphasis was placed on forest conservation, and the quality and health of water and soil, emphasising the importance of the regulative capacity of natural forests, and evidenced through a range of guidelines produced by the Forestry Commission.⁸³ Interestingly, around the same time, the Commission had achieved

⁷⁵ *The Forestry Act 1981*, (London: Her Majesty's Stationery Office, 1981).

⁷⁶ Foot, D. *Woods & People. Putting Forests on the Map*, (Stroud: The History Press, 2010).

⁷⁷ The term 'ancient' refers to woodlands that have been continuously present at a site since 1600, irrelevant of the management methods used.

⁷⁸ Thomas, R.C. 'The Conservation of a Fragmented Ecosystem within a Cultural Landscape – The Case of Ancient Woodland in England', *Biological Conservation* **82** (1997): 243–252.

⁷⁹ Raum, S., Potter, A. 'Forestry paradigms and policy change: the evolution of forestry policy in Britain in relation to the ecosystem approach', *Land Use Policy* **49** (2015): 462–470.

⁸⁰ *Wildlife and Countryside (Amendment) Act 1985*, (London: Her Majesty's Stationery Office, 1985).

⁸¹ *Wildlife and Countryside (Amendment) Act 1985*, (London: Her Majesty's Stationery Office, 1985).

⁸² *The Policy for Broadleaved Woodland*. (Edinburgh: Forestry Commission, 1985b); *Management Guidelines for Broadleaved Woodland*, (Edinburgh: Forestry Commission, 1985a).

⁸³ *Forest Landscape Design Guidelines*, (London: HMSO, 1989); *Forest Nature Conservation*

its 1943 target of 5 million acres of forest cover in the UK (2.024 million hectares);⁸⁴ approximately 9% of land cover⁸⁵ which, arguably, has led to a relaxation of its focus on timber production.

In the late 1980s, there were also calls for more public involvement in forestry,⁸⁶ leading to the idea of community forests. The Countryside Commission, the then Government body responsible for the enjoyment of the countryside, took up this idea and launched a community forest programme in 1989.⁸⁷ Community forests were subsequently established on the edges of major UK cities to revitalise urban fringes and to contribute to the quality of life of city dwellers.⁸⁸ This frequently consisted of tree planting and management activities on redundant industrial land by volunteers to encourage a sense of community ownership.⁸⁹ The National Forest scheme, inaugurated in 1990, was conceived to create a new large scale forest in the heart of England as a major recreational and tourism resource.⁹⁰ The scheme helped regenerate industrial areas, namely the defunct coalfields in South Leicestershire and South Derbyshire.⁹¹ The new forest was also intended to make a major contribution to carbon sequestration.⁹² By the early 1990s, plantation forest expansion had slowed considerably and the focus had shifted towards balancing multiple social, economic and environmental forestry objectives.⁹³

Guidelines, (London: HMSO, 1990); *Forests and Water Guidelines 2nd edn*, (London: HMSO, 1991b).

⁸⁴ Mather, A.S. 'Pressures on British forest policy: prologue to the post-industrial forest?', *Area* 23 (1991): 245–253.

⁸⁵ *Forestry Statistics 2018. A compendium of statistics about woodland, forestry and primary wood processing in the United Kingdom*, (Edinburgh: Forest Research, 2018).

⁸⁶ Richards, E.G. *British Forestry in the 20th century. Policy and Achievements*, (Leiden–Boston: Brill, 2003).

⁸⁷ Countryside Commission. *Forests for the Community*, CCP 270, (Cheltenham: Countryside Commission, 1989).

⁸⁸ Nail, S. *Forest Policies and Social Change in England*, (Dordrecht; London: Springer, 2010).

⁸⁹ Foot, D. *Woods & People. Putting Forests on the Map*, (Stroud: The History Press, 2010).

⁹⁰ Countryside Commission. *A New National Forest*, CCP 328, (Cheltenham: Countryside Commission, 1990).

⁹¹ Foot, D. *Woods & People. Putting Forests on the Map*, (Stroud: The History Press, 2010).

⁹² Countryside Commission. *A New National Forest*, CCP 328, (Cheltenham: Countryside Commission, 1990).

⁹³ Raum, S., Potter, A. 'Forestry paradigms and policy change: the evolution of forestry policy in Britain in relation to the ecosystem approach', *Land Use Policy* 49 (2015): 462–470.

6. A Renewed Focus on Afforestation

Forests also played a prominent role at the United Nations Conference on the Environment and Development (UNCED) in 1992 in Rio de Janeiro.⁹⁴ As part of the Rio summit process, the significance of forests for society was acknowledged in various international agreements, including the Convention on Climate Change,⁹⁵ the Convention on Biological Diversity,⁹⁶ the Convention to Combat Desertification,⁹⁷ and the UN Rio Forest Principles.⁹⁸

The 1992 UN Convention on Climate Change⁹⁹ added a new objective for tree planting – carbon sequestration. In the UK, in anticipation of the international Rio commitments on climate change, afforestation had already been put back on the agenda by the 1991 Forestry Policy. The policy aimed to increase forest cover by an indicative 33 000 ha annually over the next 50 years.¹⁰⁰ At the time, the UK's forest cover was around 11% and the Forestry Commission owned or leased 35% of the woodland area in Great Britain.¹⁰¹ However, whereas afforestation in the past was directed towards the production of timber,¹⁰² the reason for woodland expansion in the 1990s was primarily to fulfil wider international objectives linked to climate change, but also biodiversity. Following the 1997 Kyoto Protocol which came into force in the UK in 2005, the 2008 Climate Change Act¹⁰³ and the 2009 Carbon

⁹⁴ Bill, S. 'Social indicators of multifunctional rural land use: The case of forestry in the UK', *Agriculture, Ecosystems & Environment*, **120** (2007): 31–40.

⁹⁵ *United Nations Framework Convention on Climate Change*, (United Nations, 1992a).

⁹⁶ *UN Convention on Biological Diversity. Montreal Secretariat of the Convention on Biological Diversity*, (1992). <https://www.cbd.int/doc/legal/cbd-en.pdf> (accessed 22 July 2016).

⁹⁷ *United Nations Framework Convention to Combat Desertification*, (United Nations, 1992b).

⁹⁸ The full title is 'The Non-Legally Binding Authoritative Statement on Principles for a Global Consensus on the Management, Conservation and Sustainable Development of All Types of Forest'. *Non-legally binding authoritative statement of principles for a global consensus on the management, conservation and sustainable development of all types of forests*, (Rio de Janeiro: United Nations, 1992).

⁹⁹ *United Nations Framework Convention on Climate Change*, (United Nations, 1992a).

¹⁰⁰ *Forestry Policy for Great Britain*, (Edinburgh: Forestry Commission, 1991a).

¹⁰¹ Aldhous, J.R. 'British forestry: 70 years of achievement', *Forestry* **70** (1997): 283–291.

¹⁰² Weldon, S. *Public participation and partnership: a review of Forestry Commission practice and governance in a changing political and economic context*. (Edinburgh: Forestry Commission, 2004).

¹⁰³ *The Climate Change Act 2008*, (London: Her Majesty's Stationery Office, 2008a).



Figure 4: Forest Cover Map in the UK.
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Transition Plan¹⁰⁴ encouraged afforestation as a cost-effective way to mitigate climate change.

There were also increasing calls for the development of renewable energy as a way of replacing carbon intensive fossil fuel. The 2006 Natural Environment and Rural Communities Act,¹⁰⁵ for instance, introduced an Energy Crops Grant Scheme in 2007, which provided grants for the establishment of approved energy crops, including short rotation coppice trees. The UK Biomass Strategy,¹⁰⁶ the Woodfuel Strategy for England,¹⁰⁷ the Energy Act 2008,¹⁰⁸ the 2009 EU Renewable Energy Directive,¹⁰⁹ the 2009 UK Renewable

¹⁰⁴ *UK Low Carbon Transition Plan*, (London: Department for Energy and Climate Change, 2009).

¹⁰⁵ *The Natural Environment and Rural Communities Act 2006*, (London: Her Majesty's Stationery Office, 2006).

¹⁰⁶ *The UK Biomass Strategy*, (London: Department for Environment, Food and Rural Affairs, 2007).

¹⁰⁷ *A Woodfuel Strategy for England*, (London: Forestry Commission, 2007).

¹⁰⁸ *The Energy Act 2008*, (London: Her Majesty's Stationery Office, 2008b).

¹⁰⁹ *Directive 2009/28/EC of the European Parliament and of the Council of 23 April 2009 on the promotion of the use of energy from renewable sources. EU RED, 2009/28/EC*, (Brussels, 2009).

Energy Strategy,¹¹⁰ and the Renewable Heat Incentive¹¹¹ were all driving increased demand for home grown timber¹¹². The Woodfuel Implementation Plan 2011–2014 which aimed at ensuring sufficient quantities of wood fuel production to meet the increased demand that the 2011 Renewable Heat Incentive was likely to stimulate, required to bring “*an additional 2 million tonnes of wood to energy markets in England, each year by 2020*”.¹¹³ However, the still low woodland cover of then 13% of the total land area in the UK¹¹⁴ challenged these rather ambitious biomass goals.

7. UK Forestry Today

Today, the total woodland area in the UK is estimated to be 3.17 million hectares.¹¹⁵ This represents 13% of the total land area in the UK, 10% in England, 15% in Wales, 19% in Scotland, and 8% in Northern Ireland.¹¹⁶ Home-grown timber supply accounted for approximately 20% of timber, paper and pulp consumption in 2013; it was 4% in 1945.¹¹⁷ Of the total UK woodland area, 0.86 million hectares (27%) is owned or managed by the Forestry Commission (in England and Scotland), Natural Resources Wales (in Wales) or the Forest Service (in Northern Ireland), ranging from 16% in England to 55% in Northern Ireland.¹¹⁸ The other forest owners comprise of approximately 43.6% private owners, 12% businesses, 3.6% charities, and

¹¹⁰ *The UK Renewable Energy Strategy*, (London: The Stationery Office, 2009).

¹¹¹ *UK Low Carbon Transition Plan*, (London: Department for Energy and Climate Change, 2009).

¹¹² *The UK National Ecosystem Assessment: Synthesis of the Key Findings*. (Cambridge: UNEP-WCMC, 2011).

¹¹³ *Woodfuel Implementation Plan 2011–2014*, (Edinburgh: Forestry Commission, 2011).

¹¹⁴ *Forestry Statistics 2018. A compendium of statistics about woodland, forestry and primary wood processing in the United Kingdom*, (Edinburgh: Forest Research, 2018).

¹¹⁵ *Forestry Statistics 2018. A compendium of statistics about woodland, forestry and primary wood processing in the United Kingdom*, (Edinburgh: Forest Research, 2018).

¹¹⁶ *Forestry Statistics 2018. A compendium of statistics about woodland, forestry and primary wood processing in the United Kingdom*, (Edinburgh: Forest Research, 2018).

¹¹⁷ Quine, C.P., Bailey, S.A., Watts, K. ‘Practitioners perspective: Sustainable forest management in a time of ecosystem services frameworks: common ground and consequences’, *Journal of Applied Ecology* **50** (2013): 863–867.

¹¹⁸ *Forestry Statistics 2018. A compendium of statistics about woodland, forestry and primary wood processing in the United Kingdom*, (Edinburgh: Forest Research, 2018).

4.9% local authorities and other public owners in 2001.¹¹⁹ However, all of these forest owners tend to have different objectives for their forest management that need to be taken into account.¹²⁰ The increasing fragmentation of private forest owners adds to the diversity of forest management objectives. Moreover, due to the devolution of public administration in 1998, today, each of the four countries operates its own forestry policy, adding to this complexity.¹²¹

Table 1: Changes in Woodland Coverage and Management Objectives in the UK

Year	Hectares (000 ha)	Percentage of land cover	Main Forest Resource Objectives*
1905	1140	4,7%	Timber
1924	1272	5,00%	Timber
1947	1481	5,9%	Timber, landscape amenity
1965	1740	7,40%	Timber, landscape amenity, recreation
1980	2108	9,00%	Timber, recreation, conservation
1998	2506	12,00%	Timber, recreation, carbon sequestration, biodiversity
2018	3173	13,10%	Timber, recreation, carbon sequestration, biodiversity, woody biomass

*These are formally supported by law. Source: Forestry Commission (2018)

8. Conclusion

Over the last 100 years, successive governments have had shifting priorities for forestry in the UK, with significant impacts on tree planting and management. It evolved from a focus on re-forestation, to provide an adequate supply of timber, to consideration of the multiple public benefits associated with forest ecosystems. Between 1919 and 1939, there was only a small net change in the gross woodland area in the UK and the net area of privately owned woodland did not increase until after 1956. The net area of state forests

¹¹⁹ This is the last publication of this type of data. Smith, S., Gilbert, J., Coppock, R. 'Great Britain: new forecast of softwood availability', *Forestry & British Timber* **30** (2001): 20–25.

¹²⁰ Raum, S. 'A framework for integrating systematic stakeholder analysis in ecosystem services research: Stakeholder mapping for forest ecosystem services in the UK', *Ecosystem Services* **29** (2018): 170–184.

¹²¹ Raum, S. 'A framework for integrating systematic stakeholder analysis in ecosystem services research: Stakeholder mapping for forest ecosystem services in the UK', *Ecosystem Services* **29** (2018): 170–184.

nearly doubled between the mid-1940s and 1980, after which planting slowed considerably.¹²² Yet, new plantation forests differed markedly, both visually and ecologically from established woodlands. Policy mechanisms have been based throughout on a combination of statutory controls, including felling licenses, planting and management grants, and tax concessions, which became increasingly supplemented by guidelines, education, and certification.

To conclude, despite a hundred year-long effort to re-afforest the country and an increase of forest cover from initially 4.7% to 13.1%, forestry policy in the UK continues to be influenced by its low forest cover. Today, the UK is still one of the least densely forested countries in Europe, which has an average of 38% of forest cover as a whole; the world wide average is 31%.¹²³ Comparable countries, such as Sweden (68%), Germany (33%), Italy (32%), and France (31%) have much higher forest cover.¹²⁴ Moreover, the UK is the second largest importer of timber in the world.¹²⁵ It therefore continues to strongly dependent on the timber supplies of other countries. New forestry objectives have added to the pressure on the important forest resource, involving an ever-widening group of stakeholders, and requiring increasingly complex trade-off decisions between their varying needs. Future attempts to regulate, incentivise and persuade further planting and the provision of the required benefits mix from forests must also address the interests of an increasingly diverse group of forest owners, including scattered small scale private owners. At the same time, it will be increasingly challenging to make more land available for tree planting and to align multiple forestry objectives. The findings offer import insights into the long-standing impact of natural resource depletion and the efforts needed to undo, at least some of the damage.

¹²² Aldhous, J.R. 'British forestry: 70 years of achievement', *Forestry* **70** (1997): 283–291.

¹²³ *Forestry Statistics 2018. A compendium of statistics about woodland, forestry and primary wood processing in the United Kingdom*, (Edinburgh: Forest Research, 2018).

¹²⁴ *Forestry Statistics 2018. A compendium of statistics about woodland, forestry and primary wood processing in the United Kingdom*, (Edinburgh: Forest Research, 2018).

¹²⁵ *Forestry Statistics 2018. A compendium of statistics about woodland, forestry and primary wood processing in the United Kingdom*, (Edinburgh: Forest Research, 2018).

References

- Acland. *Final Report of the Forestry Sub-Committee of the Reconstruction Committee*. Cd 8881, (London, 1918).
- Aldhous, J.R. 'British forestry: 70 years of achievement', *Forestry* **70** (1997): 283–291.
- Anon. 'Editorial: Post-War Forestry in Great Britain', *Nature* **154** (1944): 683–715.
- Bill, S. 'Social indicators of multifunctional rural land use: The case of forestry in the UK', *Agriculture, Ecosystems & Environment*, **120** (2007): 31–40.
- The Climate Change Act 2008*, (London: Her Majesty's Stationery Office, 2008a).
- The Convention on the Conservation of European Wildlife and Natural Habitat (Bern Convention)*, (Geneva: United Nations, 1979).
- Coppock, J.T. 'A decade of post-war forestry in Great Britain', *Economic Geography*, **36** (1960): 127–138.
- Countryside Act 1968*, (London: Her Majesty's Stationery Office, 1968).
- Countryside Commission. *Forests for the Community*, CCP 270, (Cheltenham: Countryside Commission, 1989).
- Countryside Commission. *A New National Forest*, CCP 328, (Cheltenham: Countryside Commission, 1990).
- Crowe, S. *The landscape of forests and woods*, (London: Her Majesty's Stationery Office, 1978).
- Dandt, N. *Public Perception on Short Term Rotation Forestry?*, (Farnham: Forestry Commission, 2010).
- Directive 2009/28/EC of the European Parliament and of the Council of 23 April 2009 on the promotion of the use of energy from renewable sources. EU RED, 2009/28/EC*, (Brussels, 2009).
- Edwardson, T.E. 'Amenity and forestry', *Forestry*, **29** (1) (1956): 44–52.
- The Energy Act 2008*, (London: Her Majesty's Stationery Office, 2008b).
- Foot, D. *Woods & People. Putting Forests on the Map*, (Stroud: The History Press, 2010).
- Forbes, A.C. *English Estate Forestry*, (London: Edward Arnold, 1904).
- Forest Landscape Design Guidelines*, (London: HMSO, 1989).
- Forest Nature Conservation Guidelines*, (London: HMSO, 1990).
- Forestry Act 1919*. (London: Her Majesty's Stationery Office, 1919).
- The Forestry Act 1945*, (London: Her Majesty's Stationery Office, 1945).
- The Forestry Act 1947*, (London: Her Majesty's Stationery Office, 1947).
- The Forestry Act 1951*, (London: Her Majesty's Stationery Office, 1951).
- The Forestry Act 1967*, (London: Her Majesty's Stationery Office, 1967).
- The Forestry Act 1981*, (London: Her Majesty's Stationery Office, 1981).
- Forestry in Great Britain: an Interdepartmental Cost/Benefit Study*, (London: Her Majesty's Stationery Office, 1972).
- Forestry Policy for Great Britain*, (Edinburgh: Forestry Commission, 1991a).

- Forestry Statistics 2018. A compendium of statistics about woodland, forestry and primary wood processing in the United Kingdom*, (Edinburgh: Forest Research, 2018).
- The Forestry (Transfer of Woods) Act 1923*, (London: Her Majesty's Stationery Office, 1923).
- Forests and Water Guidelines 2nd edn*, (London: HMSO, 1991b).
- Growing against the grain*, (Council for the Protection of Rural England, 1987).
- Griffith, 'The Forestry Commission', *Political Quarterly* **22** (1951): 194–197.
- Haberl, H., Sprinz, D., Bonazountas, M., Cocco, P., Desaubies, Y., Henze, M., Hertel, O., Johnson, R.K., Kastrup, U., Laconte, P., Lange, E., Novak, P., Paavola, J., Reenberg, A., Hove, S.v.d., Vermeire, T., Wadhams, P., Searchinger, T. 'Correcting a fundamental error in greenhouse gas accounting related to bioenergy', *Energy Policy*, **45** (2012): 18–23.
- Holmes, G.D. 'History of Forestry and Forest Management', *Philosophical Transactions of the Royal Society of London. Series B, Biological Sciences*, **271** (1975): 69–80.
- Management Guidelines for Broadleaved Woodland*, (Edinburgh: Forestry Commission, 1985a).
- Mason, W.L. 'Changes in the management of British forests between 1945 and 2000 and possible future trends', *Ibis* **149** (2007): 41–52.
- Mather, A.S. 'Pressures on British forest policy: prologue to the post-industrial forest?', *Area* **23** (1991): 245–253.
- Meiggs, R. *Home Timber Production 1939–1945*, (London: Crosby Lockwood, 1949).
- Nail, S. *Forest Policies and Social Change in England*, (Dordrecht; London: Springer, 2010).
- The Natural Environment and Rural Communities Act 2006*, (London: Her Majesty's Stationery Office, 2006).
- Non-legally binding authoritative statement of principles for a global consensus on the management, conservation and sustainable development of all types of forests*, (Rio de Janeiro: United Nations, 1992). <http://www.un.org/documents/ga/conf151/aconf15126-3annex3.htm> (accessed 22 July 2016).
- Oosthoek, K.J. *Conquering the Highlands: A History of the Afforestation of the Scottish Uplands*, (Sidney: ANU E Press, 2013).
- Oosthoek, K.J. 'Chapter 4. Origins and Development of State Forestry in the United Kingdom', in Oosthoek, K.J., Hölzl, R. (eds.), *Managing Northern Europe's Forests. Histories from the Age of Enlightenment to the Age of Ecology*, (Oxford: Berghahn Books, 2018).
- The Policy for Broadleaved Woodland*. (Edinburgh: Forestry Commission, 1985b).
- Post-war Forest Policy of Great Britain. Cmd 6447*, (London: Her Majesty's Stationery Office, 1943).
- Post-war forest policy. Private Woodlands. Cmd 6500*, (London: Her Majesty's Stationery Office, 1944).
- Peterken, G.F. *Natural Woodland*, (Cambridge: Cambridge University Press, 1996).

- Quine, C.P., Bailey, S.A., Watts, K. 'Practitioners perspective: Sustainable forest management in a time of ecosystem services frameworks: common ground and consequences', *Journal of Applied Ecology* **50** (2013): 863–867.
- Rackham, O. *Woodlands*, (London: Collins, 2006).
- Raum, S. 'A framework for integrating systematic stakeholder analysis in ecosystem services research: Stakeholder mapping for forest ecosystem services in the UK', *Ecosystem Services* **29** (2018): 170–184.
- Raum, S., Potter, A. 'Forestry paradigms and policy change: the evolution of forestry policy in Britain in relation to the ecosystem approach', *Land Use Policy* **49** (2015): 462–470.
- Review of Forestry Commission Objectives and Achievements*, (London: Her Majesty's Stationery Office, 1986).
- Richards, E.G. *British Forestry in the 20th century. Policy and Achievements*, (Leiden–Boston: Brill, 2003).
- Robinson, R.L. 'British Forestry', *Forestry* **1** (1927): 1–5.
- Scott, C.W. 'The Changing Aims of Forestry', *Forestry* **39** (1966): 10–16.
- Stewart, P. 'British forestry policy: time for a change?', *Land Use Policy* **2**(1985): 16–29.
- Smith, S., Gilbert, J., Coppock, R. 'Great Britain: new forecast of softwood availability', *Forestry & British Timber* **30** (2001): 20–25.
- Thomas, R.C. 'The Conservation of a Fragmented Ecosystem within a Cultural Landscape – The Case of Ancient Woodland in England', *Biological Conservation* **82** (1997): 243–252.
- Tompkins, S. *Forestry in Crisis. The Battle for the Hills*, (London: Christopher Helm, 1989).
- Tsouvalis, J. *Critical Geography of Britain's State Forests*, (Oxford: Oxford University Press, 2000).
- The UK Biomass Strategy*, (London: Department for Environment, Food and Rural Affairs, 2007).
- The UK Forestry Standard*, (Edinburgh: Forestry Commission, 2017).
- UK Low Carbon Transition Plan*, (London: Department for Energy and Climate Change, 2009).
- The UK National Ecosystem Assessment: Synthesis of the Key Findings*. (Cambridge: UNEP-WCMC, 2011).
- The UK Renewable Energy Strategy*, (London: The Stationery Office, 2009).
- UN Convention on Biological Diversity. Montreal Secretariat of the Convention on Biological Diversity*, (1992). <https://www.cbd.int/doc/legal/cbd-en.pdf> (accessed 22 July 2016).
- United Nations Framework Convention on Climate Change*, (United Nations, 1992a).
- United Nations Framework Convention to Combat Desertification*, (United Nations, 1992b).

- Weldon, S. *Public participation and partnership: a review of Forestry Commission practice and governance in a changing political and economic context*. (Edinburgh: Forestry Commission, 2004).
- Wildlife and Countryside (Amendment) Act 1985*, (London: Her Majesty's Stationery Office, 1985).
- Woodfuel Implementation Plan 2011–2014*, (Edinburgh: Forestry Commission, 2011).
- A Woodfuel Strategy for England*, (London: Forestry Commission, 2007).
- Yarrow, C. 'A preliminary survey of the public's concepts of amenity in British Forestry', *Forestry*, **39** (1) (1966): 59–67.
- Zuckerman, S. *Forestry, Agriculture and Marginal Land. A Report by the Natural Resources Committee*, (London: Her Majesty's Stationery Office, 1957).