

Case Study 24

Chiltern Beechwoods

Location and ownership of woodlands

This case study deals with several plantation woodlands in the Chilterns, with a significant beech component, managed by different owners for a range of objectives:-

1. Ipsden Estate, Checkendon, Oxon [NGR SU 6xx8xx] extending to 143 ha (~350 acres) and privately owned and managed by the Reade family over >50 years.
2. Ramscoat Wood, Chesham, Bucks [NGR SP 9xx0xx] extending to 22 ha (~55 acres), privately owned by a family living locally and managed by Rik Pakenham.
3. Ashridge Estate, Berkhamsted, Herts [NGR SP 970132] extending to 620 ha (~1530 acres), owned and managed by National Trust (locally Ashridge College).
4. Queen and College Wood, Christmas Common, Oxon [NGR SU 720923] extending to 117 ha (~290 acres) being owned and managed by the Forestry Commission. Commentary is also relevant to the FC Wendover Woods nearby.

All of these woodlands encompass Ancient Woodland Sites, although extensive past replanting, mainly with beech, ash and shade tolerant conifers has occurred in many cases. Ashridge Estate also includes the Ashridge Commons and Woods SSSI site.

Significance/ reasons for selection as case-study example

This example was selected as a case-study within this project for two main reasons:-

1. The Chiltern beechwoods are an area of the country with a considerable heritage of silvicultural innovation, including selection management of beech woodland for furniture manufacture and adoption of alternative silvicultural systems involving diversification with shade-tolerant conifers, after the last war. The influence of individual knowledgeable professional proponents of alternative silviculture - Ray Bourne at Oxford University, the Reade family at Ipsden/ Checkendon, E. Garfitt and more recently Rik Pakenham of Chiltern Forestry has been significant here.
2. Diversification of beech/ (conifer) plantations (adoption scenario 14) follows various ATC pathways in different places - group selection with shade-tolerant conifers at Ipsden, group selection with quality mixed hardwoods at Ramscoat and extensive naturalisation of structure and composition at Ashridge / Wendover. Objectives vary, key challenges - namely climate and grey squirrels - are shared.

Owner objectives for management (including adoption of ATC systems)

Objectives of management in these woodlands are diverse, reflecting ownership, but a common factor is that ATC is being employed to diversify the structure (and in some cases the species composition) of beech plantations, partly to address perceived risks. Although now secondary to landscape amenity and conservation aims in some cases, timber production remains a shared objective of management. At Ramscoat, Ashridge, Queen and College Wood and Wendover, diversification is in terms of structural development of beech and by fostering other native hardwood tree species. By contrast, work at Ipsden Estate over the past 60 years demonstrates what can be achieved using single tree and group selection systems to diversify beech woodland by incorporating a range of productive tree species, including shade-tolerant conifers.

Biophysical characteristics of the sites

These sites broadly occupy sites on the gentle Chiltern dip slopes 100-250 m asl. Despite the generally easterly aspect of the Chiltern dip slope, local aspect varies.

The climate of these sites is warm and fairly dry [ESC AT₅ 1500-1700 dd, MD 150-180 mm, annual rainfall 750-800 mm] with a sheltered to moderate exposure [DAMS = 11-16]. The solid geology is mainly of Cretaceous chalk but with an overburden of drift in many cases. The predominant soil type is the acid argillic clay-with-flints [ESC SMR Moist-Sl. Dry; ESC SNR Medium to Rich] but local rendzina and calcareous brown-earths have ESC SMR Medium-Sl.Dry, ESC SNR Carbonate].

Terrain at these sites is characterised by a preponderance of gentle dip slopes which pose few difficulties for forestry working, other than a tendency of some of the heavier clay drifts to winter water-logging and consequent rutting. Some areas of steeper scarp slopes do occur at Ashridge and Wendover. There is generally a well-developed internal track network and good local outlets for woodfuel in particular. Grey squirrel are a major effective constraint on productive hardwood management.

Stand history and current composition

The majority of sites dealt with in this case-study began as “Chiltern beechwoods” which combined mature semi-natural beech and planted stocking of up to 200 years. These woodlands were historically managed fairly intensively, often using selection systems (during the 18th and 19th centuries for the production of traditional Chiltern furniture). Heavy fellings took place in some areas during the last war and subsequent restocking was usually with mixed conifer-hardwood plantations. Surviving mature beech stands tended to be less well managed after the war, with a uniform high canopy and little natural regeneration. At Queen and College Wood, surviving mature beech stands from the 1800's / early 1900's, have been regenerated by group replanting with mixed hardwoods since acquisition as a demonstration site by FC in the 1940's. At Ipsden Estate, mature stands of beech have been diversified since the 1950's by a combination of group felling and replanting work (restocking with oak, ash, cherry, larch) and underplanting with beech, *Abies* firs and western red cedar. At Ramscoat Wood, while there is some older beech, most of the stocking comprises post-war plantings of oak, beech, ash and sycamore (conifer nurses having been removed earlier) with natural regeneration arising since the 1980's. At Wendover Woods, attempts are currently being made to diversify extensive stands of 20th century beech plantations by under-planting and securing natural regeneration of ash, oak, cherry and other native hardwoods. At Ashridge Estate, emphasis is on structural diversification of mature beech-dominated woodlands, while retaining heritage value.

Silvicultural treatments applied to date and intended future silviculture

Ramscoat Wood - here, post-war plantings of oak, beech, ash, sycamore and hornbeam had been heavily thinned in 1986, initiating natural regeneration of these same species. Since that time, this has been encouraged to develop and diversify by thinning of the matrix (on the uniform shelterwood basis) and group selection fellings. It is intended to continue to reduce the basal area towards 20 m²/ha which should allow natural regeneration, including some oak, to develop towards a complex, multi-storied structure. Removals concentrate on material of poorer form, serving woodfuel markets, which should improve the form in the standing crop. Detailed enumeration, using FCIN45 plot-based methods, is employed to monitor transformation progress.

Ipsden Estate - these are diverse woodlands where ATC conversion has been pursued since the 1950's (informally prior to that) with detailed enumeration by *Methodes du Controle* being applied. Older stands of Chiltern beech have been partly restocked by small coupe-felling and replanting, mainly with valuable hardwoods such as oak, ash and cherry with some larch, spruce and fir. Small even-aged groups of these species at a range of ages are now carefully thinned and managed. Other areas of mature beech-dominated woodland were partially underplanted with *Abies* firs and western red cedar, diversifying the predominantly beech regeneration arising naturally. These areas now have an attractive, complex structure with intimately mixed hardwood and conifer stock and significant reliance on natural regeneration for future development.

Evaluation of current silvicultural status in terms of ATC adoption/ regeneration

Work at Ipsden Estate ATC working has progressed to *developmental category 1* (complete or near-complete transformation) since its inception in the 1950's. At Ramscoat Wood, rapid silvicultural progress over the past 15-20 years has reached *developmental category 2* (progressive/ mature transformation). Queen and College Wood, where regeneration silviculture has been pursued since the 1940's, is now partly in *developmental category 2*, but with some areas still in *developmental category 3* (early-stage transformation), which is also reflected at Ashridge and Wendover, where work is of more recent inception. There is abundant natural regeneration at Ramscoat Wood, with an increasingly significant contribution to restocking by natural regeneration at Ipsden Estate and Queen and College Wood. At Wendover and Ashridge, levels of natural regeneration are lower but growing. It is believed likely that application of ATC approaches will be sustained at these sites.

Commentary on inventory and monitoring protocols/ demonstration potential

Detailed enumeration using the *Methodes du Controle* has been in force at Ipsden over 60 years and in recent years the enumeration system of FCIN45 has been applied at Ramscoat Wood. Those sites have considerable ATC demonstration potential, best utilised through organised visits, given the privacy of the sites. Queen and College Wood has served for number of years as an FC beechwood regeneration research and demonstration site, with beech permanent sample plot and provenance trials established within the woodland. Together with Wendover it could be used as a self-guided demonstration site for ATC approaches relevant to FC beech plantations.

Commentary on economic and operational implications of ATC adoption

The private Ipsden and Ramscoat examples have benefited from unusually expert, intensive and committed management. Diversification of extensive areas of Chiltern beech plantations on the public forest estate is challenging due to grey squirrel and deer pressure and the recent emergence of *Chalara* in ash (a key alternative species).

Other relevant field examples recorded within the project

The most relevant comparisons for this example are with those dealing with semi-natural beechwoods in the Cotswolds (Case Study 23), beech plantations at Dalmeny and Dalkeith Estates (Case Study 21) and, at an earlier stage of development, Hooke Park (Case Study 22). The Ipsden experience can be compared with others using shade tolerant conifers as at Tavistock/ Dartington Hall (Case Study 18) and Ffrwdgrech (Case Study 5), while work at Ramscoat has parallels with Case Study 3.

Photographic record



Left: mature beech stands with an understorey of holly - the original condition

IPSDEN ESTATE

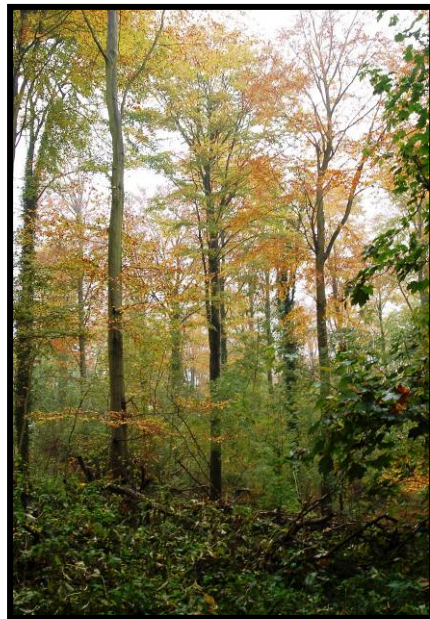
Right: selection management of beech/ conifer intimate mixtures



Left: group selection and replant system - a larch group

IPSDEN ESTATE

Right: group selection and replant system - a quality hardwood group



Left: dense hardwood regeneration under uniform shelterwood

RAMSCOAT WOOD

Right: groups of hardwood regeneration developing under older beech managed by group selection



Left: heritage beech woodland managed for conservation and amenity (photo: National Trust)

ASHRIDGE ESTATE

Right: a uniform beech plantation with timber potential



Left: FC beech permanent sample plot and regeneration trial areas

QUEEN & COLL/ WENDOVER

Right: mid-rotation beech plantations where ATC is used for species diversification

