Case Study 3

Newbyth Wood, East Lothian

Location and ownership of woodlands

This case study deals with a small private woodland in East Lothian where management advice from consultant Colin MacBrayne has been engaged:-

1. Newbyth Wood, Tyninghame, East Lothian [NGR NT 590796] which is owned by a private individual living in the Edinburgh area. Area is 65 ha (~160 acres).

Information relating to other similar sites in the region has been redacted pending confirmation (or otherwise) of owner agreement to their inclusion/ dissemination.

Significance/ reasons for selection as case-study example

This site has been selected as a case-study within this project for two main reasons:-

1. This example focuses on the production of quality hardwood timber (primarily oak) and simultaneous regeneration of mature stands, within smaller private estate woodlands, using alternative silvicultural systems (adoption scenarios 2, 12 and 15). In common with many similar situations, there is a desire to maximise the value in existing stands of mature hardwoods by selective harvesting while creating conditions for a successor crop, by natural regeneration or re-planting. Continuity of landscape amenity and sporting potential is also an important factor. Improved local woodfuel markets allow more profitable thinning of woodlands.

2. This example also highlights the potential significance for adoption of alternative silvicultural systems of an enthusiastic and knowledgeable forestry agent practicing within a particular locality. This can encourage wider owner uptake.

Owner objectives for management (including adoption of ATC systems)

This is an example where alternative silvicultural systems have been adopted over recent years by a private owner with professional forestry advice. The owner wishes to balance private recreational amenity with an element of quality hardwood timber production for income. There is also a seasonal pheasant shooting interest.

In these woodlands there is a quantity of maturing hardwood timber (mainly oak) that is becoming available for harvest to supply quality timber and woodfuel demands. Coniferous stocking is being progressively replaced with hardwoods by replanting. Adoption of the forms of alternative silviculture described within this case-study is aimed to achieve economic timber production on a modest scale while avoiding major changes to the amenity value of the woodlands or their visual landscape appearance. Small-coupe working with tubed replanting and promotion of advance mixed-species natural regeneration prior to final fellings both help to allow perpetuation of the woodlands in the landscape, along with their visual amenity, shelter and sporting values.

Biophysical characteristics of the site

The site is at sea level, occupying gentle, often flat, lowland ground. Aspect is not of management significance.

The climate of the site is fairly warm and notably dry for Scotland [ESC AT_5 1437 dd, MD 157 mm, annual rainfall 613mm] with a moderate wind regime [DAMS = 12]. The solid geology is of the Central Scotland carboniferous series (basaltic at Newbyth Wood). These generally produce fairly heavy soils with a tendency to imperfect drainage but moderate to high fertility levels [default ESC SMR Moist to Wet; ESC SNR Medium to Rich]

Terrain is easy throughout the site, but with a tendency to waterlogging and rutting of extraction tracks imposing some seasonal limitations on extraction. Access at Newbyth Wood has recently been improved to facilitate ATC management. There is good provision for egress onto nearby public roads, giving convenient access to a reasonably well-developed range of regional markets for hardwood timber and woodfuel in the Scottish Borders, Lothian, Fife, Stirlingshire and Perthshire areas.

Stand history and current composition

Although there is a significant mid-rotation coniferous component to the stocking at Newbyth Wood, the interest for this study is in maturing stands of quality hardwoods, principally oak with secondary components of ash and sycamore. A notable stand of p1930's pure oak with above average form for Scottish conditions is found alongside stands of good sycamore. By comparison with many lowland estate woodlands managed mainly for pheasant shooting, these woods appear to have a history of reasonable thinning over the past few decades, although there are few records of this.

Silvicultural treatments applied to date and intended future silviculture

Conventional management for timber in these woodlands might consist of clear-felling of the oak crops at 80-120 years followed by hardwood replanting within fenced exclosures. The oak stands at Newbyth Wood should become ready for final felling over the next 20-40 years. Under an alternative silvicultural approach, at Newbyth Wood, thinning is progressive in the p1930's oak, with some natural regeneration emerging in peripheral gaps. Replanting has not been used as yet within that stand but is being used successfully to restock larger ex-conifer felling coupes elsewhere in these woodlands. In older oak stands in other woodlands, Colin MacBrayne has also implemented small coupe felling and replanting with tube-protected hardwoods.

It is intended to rely more heavily in future on natural regeneration of quality hardwoods, reducing the costs associated with group replanting. This may well be quite readily achieved in the case of beech, ash and sycamore regeneration. Shelterwood oak regeneration of the type reported for Wyre Forest and the Forest of Dean in Case Study 28 would be the ideal. However approaches relying on natural regeneration in British oak woodlands, especially in the north of the country, have often proven problematic, as discussed for the Cawdor example (Case Study 4).

Common problems include (a) insufficient light for seedling growth due to cautious opening of the oak canopy, coupled with lower angles of insolation, (b) lack of seed production/ infrequent mast years in the north, (c) weed competition, (d) deer pressure and (e) seedling herbivory by caterpillars of oak moths. If these factors can be successfully mitigated, natural regeneration may well be recruited at Newbyth Wood, otherwise dependence on group and underplanting may be continued.

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

Implementation of alternative silvicultural systems at Newbyth Wood represents ***developmental category 3*** (early-stage transformation) as it has only been initiated in recent years. Natural regeneration, beginning to emerge at Newbyth Wood, is employed alongside coupe-fell and replant approaches. It is expected that natural regeneration will increase in importance in future years. Continuation of ATC in these woodlands is likely to depend on ownership priorities and perceptions of success in securing satisfactory and economic restocking.

Commentary on inventory and monitoring protocols/ demonstration potential

The main mode of monitoring applied in these woodlands is periodic visual inspection of growing stock and natural regeneration, combined with tariff measures of standing volume for timber sales. There is no established repeat enumeration regime. The main value of these woodlands is for demonstration of ATC as a component of small estate woodland management, hardwood timber marketing and woodfuel production. They have hosted several pre-arranged/ organised visits and that would appear to remain the most appropriate approach. Self-guiding would be inappropriate due to sporting use.

Commentary on economic and operational implications of ATC adoption

The manager of these woodlands, together with their owners, feel that adoption of small-scale ATC working best meets their combined economic and amenity objectives. Work is carried out by local forestry contractors. Comparison with ongoing clear-fell working is of limited relevance as it would not meet site aims.

Other relevant field examples recorded within the project

This example can usefully be compared with the experience on the larger Scottish lowland estates (Dalmeny and Dalkeith Estates - Case Study 21) and with Cirencester Park Estate (Case Study 2) where retention and rejuvenation of woodlands in designed landscapes is a priority. Smaller private woodland examples such as Wilderness Wood (Case Study 25) and Whittingehame and Abbey St. Bathan's Estates (Case Study 26) highlight the range of ATC approaches applied to similar woods.

Photographic record

Left: 1930's oak plantation tended on a uniform shelterwood system producing quality hardwood timber

NEWBYTH WOOD

Right: mixed hardwood regen. arising in small canopy gaps

Left: restocking with planted hardwoods on a conifer felling site

NEWBYTH WOOD

Right: natural hardwood regeneration in felling coupe - sycamore, ash dominate