Case Study 26

Whittingehame and Abbey St. Bathans Estates, South-East Scotland

Location and ownership of woodlands

This case-study deals with woodlands on two small-to-medium scale privately-owned mixed estates in south eastern Scotland:-

1. Whittingehame Estate, by Haddington, East Lothian [NGR NT 605734]. The land is owned and managed by the Brander family, descending from the Balfours who were hereditary owners at Whittingehame. The area under ATC management extends to some 100 ha (250 acres) comprising the majority of estate woodlands.

2. Abbey St. Bathans Estate, Duns, Berwickshire [NGR NT 7xx6xx]. The land is owned and managed by the Dobie family, who have a long-standing interest in forestry. The estate woodlands extend to some 250 ha (625 acres) with various forms of non-clearfell management now being considered over much of this area.

A significant proportion of the woodlands on these two estates are on Ancient Woodland Sites, with some being replanted/ PAWS, but with an important SSSI designated ancient semi-natural oak woodland resource at Abbey St Bathans (63 ha).

Significance/ reasons for selection as case-study example

These examples were selected as case-studies in this project for two main reasons:-

1. They reflect a growing trend for mixed woodlands on small private estates and farms to be brought into active management for a combination of local sawmilling and woodfuel production, often to heat estate accommodation and workspaces (adoption scenario 15). Typically, stands of post-war hardwoods and more recent conifer blocks have not been optimally thinned due to previously poorer markets. Experiences will be of interest to private owners contemplating similar initiatives.

2. These examples also show the potential of alternative silvicultural systems to reconcile more active woodland management with owner objectives of estate amenity and game cover. Flexible lighter-weight harvesting and processing equipment opens up new opportunities. These two estates have atypically knowledgeable and enthusiastic owners, creating identified demonstration value.

Owner objectives for management (including adoption of ATC systems)

As smaller estates operating essentially as family businesses, Whittingehame and Abbey St. Bathans Estates both operate multi-functional woodland management. Both estates have in-house processing activities (sawmill at Abbey St. Bathans, woodfuel at Whittingehame) which use a proportion of timber grown on the estates. The remainder of produce is sold to external processors to generate income. Both estates use their woodlands as a context for pheasant shooting. At Abbey St Bathans there is a considerable focus on native oak woodland conservation within the SSSI, while at Whittingehame, woodlands form important elements of the designed landscape seen from the Tower. As relatively recent adopters of alternative silvicultural systems, both estates view these as the optimum way to combine objectives while controlling costs.

Biophysical characteristics of the sites

Whittingehame Estate - located in the foothills of the Lammermuir Hills of East Lothian, at 60-140m asl, with predominantly north-westerly aspects. Climate is warm and moist [AT_5 of 1316 dd, MD of 134 mm, annual rainfall 761 mm]. The site is moderately sheltered with a DAMS score of 13. The solid geology is of the Carboniferous limestone. Soils vary from brown earths of moderate fertility [ESC SMR Fresh; ESC SNR Medium] to some wetter alluvial valley soils along the Whittingehame Water [ESC SMR Moist to Very Moist; ESC SNR Medium to Rich].

Abbey St. Bathans Estate - located along the Whiteadder Water in Berwickshire at 100-240m, these are upland fringe woodlands. Climate is warm and fairly moist [AT_5 of 1268 dd, MD of 128 mm, annual rainfall 782 mm]. The site is topographically sheltered with a DAMS score of 10, at least within the valley. The solid geology is of the Silurian Llandovery series producing freely-drained brown earth soils of low to moderate fertility [ESC SMR Fresh; ESC SNR Poor to Medium].

These forestry sites have distinct ecological and silvicultural similarities and are within twelve miles of each other in the eastern Scottish Borders. Access and logistics for forestry management, harvesting and extraction are variable at both sites with a proportion of steeper slopes posing challenges and conservation/ riparian constraints.

Stand history and current composition

Whittingehame Estate - apart from the notable arboretum and mature policy plantings, most of the stock derives from post-war replantings with a range of conifer and hardwood species. Pole-stage and young timber ash and sycamore form a key component of the stocking along the Whittingehame Water valley, while even-aged stands of Norway spruce, Douglas fir and lodgepole pine date from 1950-1970. Many stands serve a function as landscape shelterbelts and game coverts, and until recent years there had been a tendency toward under-thinning and limited regeneration.

Abbey St Bathans Estate - apart from the notable ancient semi-natural oak woodland resource, estate woodlands comprise even-aged conifer plantations from the period 1950-1980, with much Sitka spruce and larch, together with some pine and fir. Woodlands are on prominent valley slopes and delineate the estate landscape. Some spruce and fir plantations from the 1960's and 1970's had missed their first thinning as a result of weaker markets for small diameter roundwood, now being addressed.

Silvicultural treatments applied to date and intended future silviculture

Adoption of alternative silvicultural systems on these estates so far has concentrated on "getting back into the woods" and implementing a thinning regime to extend the rotation of retained stock and produce timber and woodfuel for estate processing. The opportunity to use small-diameter material on the estates is a major advantage when initiating ATC transformation in smaller woodlands, where parcel volumes are restricted. At Abbey St. Bathans, flexible lighter-weight harvesting and forwarding equipment has recently been employed to bring back into management p1960's and 1970's spruce and larch plantations, some on steeper sites, which might otherwise have been considered for early clearfelling under conventional forestry systems. At

Whittingehame, promising young-timber stands of ash and sycamore on steep banks have been thinned, producing woodfuel and increasing the long-term timber potential of these stands. Areas of estate woodland forming an important element of pheasant shoots, which had become over-stocked, have recently been thinned using estate forestry equipment, creating the opportunity for mixed regeneration and better game cover. Some denser conifer stands, where it was felt impractical to achieve transformation within the current rotation, have been coupe-felled, with mixed conifer-hardwood replanting intended to be managed on a non-clearfell basis during the next rotation. Given the interest in estate processing in both cases, it appears likely that ATC adoption will continue as stands mature and natural regeneration increases.

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

Implementation of alternative silvicultural systems on these estates represents ***developmental category 3*** (early-stage transformation) or ***developmental category 4*** (preliminary stage transformation) as it has only been initiated in recent years. Most work has been to prepare stands for transformation by improved thinning practice. Other than in the mature semi-natural oakwood stands at Abbey St. Bathans, natural regeneration has not yet been a major consideration. Restocking of small coupe-felling areas has usually been by replanting, mainly at Whittingehame. It is expected that in future, natural regeneration will initiate in stands that have been opened-up by recent thinning work. Continuation of ATC on these estates will depend on ownership priorities and perceptions of success in securing satisfactory and economic restocking.

Commentary on inventory and monitoring protocols/ demonstration potential

Being relatively recent adopters of ATC, these properties have not implemented detailed quantitative enumeration and monitoring protocols, instead using simpler periodic growing-stock and regeneration assessments. Both properties have undertaken some demonstration activities in respect of ATC adoption - for example Abbey St Bathans Estate has recently hosted a woodfuel and low-impact silviculture demonstration day and both estates have hosted forestry society visits. An demonstration visits to these sites would need to be pre-arranged with their owners.

Commentary on economic and operational implications of ATC adoption

Adoption of ATC systems in estate woodlands of this kind alters the economic balance from one of periodic “pulses” of timber income and restocking expenditure to one of more “constant offtake, constant input”. Both estates have a significant self-management and on-site processing capability which makes this more attractive.

Other relevant field examples recorded within the project

This example can usefully be compared with the ATC experience in smaller private woodland examples such as Wilderness Wood (Case Study 25) and Newbyth Wood (Case Study 3). There is also a link to the hardwood ATC working on Scottish lowland estates (Dalmeny and Dalkeith Estates - Case Study 21) and at Cirencester Park (Case Study 2). Also relevant is Cowdray Park (Case Study 8), where ATC is currently being initiated within mixed species private estate woodlands.

Photographic record

Left: landscape view of the estate woodlands - hardwood (ancient oakwood) and softwood (p1960-80)

ABBEY ST. BATHANS ESTATE

Right: lightweight harvester thinning p1970's spruce plantations

Left: lightweight forwarder moving thinnings from p1970's spruce plt^{n}

ABBEY ST. BATHANS ESTATE

Right: quad-bike skidder moving thinnings from p1970's spruce plt^{n}

Left: RSFS party viewing logs prior to processing in the estate sawmill

ABBEY ST. BATHANS ESTATE

Right: manufacture of tongue-and-groove boarding at estate sawmill

Left: thinning operation in mixed coniferous game covert on estate

WHITTINGEHAME ESTATE

Right: thinned hardwood stand on estate for improved timber potential

Left: thinned pole-stage ash-sycamore stand on estate

WHITTINGEHAME ESTATE

Right: woodfuel handling using estate trailer and contract chipping

Left: woodfuel drying in estate silo

WHITTINGEHAME ESTATE

Right: multi-property woodfuel boiler in former garden boilerhouse