

Case Study 6

Blelack Woods, Glen Tanar and Glen Dye Estates, Aberdeenshire

Location and ownership of woodlands

This case-study refers to woodlands on two private estates near Aboyne on Royal Deeside, these being Blelack Woods, by Logie Coldstone and Glen Tanar Estate, by Dinnet. Also included is the Glen Dye Estate, further south on the mountain road between Banchory and Fettercairn. Relevant details are:-

1. Blelack Woods, Logie Coldstone [NGR NJ 435030], woodland area 262 ha (~650 acres) on privately owned estate land managed by RTS Ltd.
2. Glen Tanar Estate, Dinnet [NGR NO 465940], woodland area 4,328 ha (~10,700 acres) owned by the Bruce family, managed by RTS Ltd. This site includes a National Nature Reserve and SSSI designation covering ancient pine woodlands.
3. Glen Dye Estate, Fettercairn [NGR NO 6xx8xx], woodland area under ATC ~200 ha (500 acres), owned by the Gladstone family, agents being Strutt & Parker.

Significance/ reasons for selection as case-study example

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

1. Blelack Woods and Glen Tanar illustrate well-established uses of shelterwood and group selection systems for restocking mature Scots pine stands (adoption scenarios 3, 4). These woodlands meet multiple objectives of conservation, timber production and estate amenity. Clearfelling could represent a break with local forestry traditions. Recruitment of natural pine regeneration is an obvious approach, also fostering suitable ground vegetation to support priority species.
2. All sites illustrate the use of ATC with a complex structure and mixed shade-tolerant conifers to diversify upland larch and pine plantations (adoption scenarios 4, 5). Although this is a long-established and proven technique in estate policy woodlands, such as those at Glen Dye, it is becoming relevant to many more conventional upland larch plantations where the *Phytophthora* threat is apparent.

Owner objectives for management (including adoption of ATC systems)

The main objective of management of Scots pine plantations at Blelack Woods is economic timber production with secondary objectives of estate amenity and wildlife conservation. The Glen Tanar woodlands are managed primarily for nature conservation within the National Nature Reserve, with silvicultural operations aimed to promote natural pinewood regeneration and conditions suitable for the capercaillie and red squirrel. Adjoining plantations at Glen Tanar are managed for timber production with conservation and amenity as secondary objectives. Non-clearfell silviculture is seen as the best, and most economic approach to achieving these aims in a region where Scots pine often regenerates freely, given suitable site and stand preparation. At Glen Dye, mature mixed conifer plantations are managed for timber production, but with a strong emphasis on estate amenity closer to the main house.

Biophysical characteristics of the site

These are distinctly upland sites in a cold part of the country, ranging from 180 m asl to an upper forest limit at ~400 m asl in Glen Tanar. Most of the ATC interest at Glen Tanar and Glen Dye is at the middle elevations, being 180-250 m asl.

The climate of these sites is cool and fairly moist [ESC AT₅ ~1100 dd, MD ~110 mm, annual rainfall 850-1100 mm], but with a sheltered wind regime [DAMS = 9-11]. The solid geology is of intrusive Aberdeenshire granite with some better Dalradian series rocks along lower parts of Glen Tanar. Soils over the granite are generally very infertile [ESC SNR Very Poor], but can range from ESC SMR Very Moist where peat occurs, to Fresh or Slightly Dry over coarse-textured fluviglacial sands and gravels.

Terrain is easy on the level site at Blelack, but more variable at Glen Dye and Glen Tanar where there are some steeper slopes. However these areas have been managed as forestry for many years and there is usually little difficulty in harvesting, extracting and marketing the Scots pine timber. Conservation designations on the Glen Tanar woodlands imply a need for sensitive silviculture, limiting wildlife/ habitat impacts.

Stand history and current composition

All of these woodlands carry a predominantly mature stocking of Scots pine, with smaller proportions of mature larch and firs in each case. At Blelack Woods and Glen Dye Estate, pine stands are of plantation origin dating mainly from the period 1880-1930. At Glen Tanar, forestry plantations of Scots pine range in age from 40 to perhaps 120 years, together with assumed semi-natural stands within the ancient Caledonian pinewood, believed to be 170-190 years old. The latter arose by natural regeneration following heavy selective fellings during and after the Napoleonic Wars, with the regeneration having been protected from deer until the 1860's. Blelack and Glen Tanar have very significant levels of Scots pine natural regeneration under both uniform and group shelterwood systems. Some pine stands at all three properties also have a partial understorey of natural regeneration of more shade tolerant conifers, including notable noble/ silver fir at Glen Dye and mixed spruce - fir at Blelack/ Glen Tanar. Broadleaved stocking at these sites is secondary and dominated by birch.

Silvicultural treatments applied to date and intended future silviculture

Two distinct approaches have been adopted for natural regeneration of Scots pine over the past 20-30 years - uniform shelterwood/ seed-tree felling and group shelterwood. In either case, preparatory thinning of pole-stage and mid-rotation pine stands is recommended. At Blelack and Glen Tanar, identified stands have then been subject to seed-tree fellings leaving 50-100 mature stems per hectare. Mechanical scarification is used to temporarily reduce competition from heather and *Vaccinium* and to provide a mineral seed bed for Scots pine. This approach has produced prolific regeneration of Scots pine, sufficient to fully restock the sites before final removal of the seed trees if desired. At Glen Tanar, an alternative approach has been to fell small coupes (~0.3ha) within maturing, thinned Scots pine plantations and allow these to infill by natural regeneration. This has recently been successful although there were earlier difficulties with deer browsing on trees regenerating within small coupes.

Experimental treatments, including controlled burns, have been tried to manage ground vegetation under pine to favour *Vaccinium* species to benefit capercaillie.

At all three properties, there are also mature Scots pine stands which have developed a spontaneous, shade-tolerant coniferous understorey of spruce, *Abies* firs and western hemlock, seeding in from neighbouring stands. These mixed stands can then be managed on a selection forestry approach as at Glen Dye, producing attractive and diverse stands with a complex structure. The wider range of species should help to mitigate current disease threats to pine and larch in the region. Where it is desired to retain pine or larch as significant crop elements, selection thinnings must be sufficiently heavy to protect these from being out-competed by shade bearers.

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

These are all sites where application of alternative silvicultural systems is now well-established, having achieved *developmental category 2* (progressive/ mature transformation) overall with some areas at Glen Dye and Blelack Woods approaching *developmental category 1* (complete/ near complete transformation). The distinction between these categories is of less significance in systems involving relatively simple structures in Scots pine stands. It appears likely that management using alternative silvicultural systems will be continued at these sites, as there is little economic incentive to move to clearfell, where regeneration might require replanting operations.

Commentary on inventory and monitoring protocols/ demonstration potential

The pine stands at Blelack and Glen Tanar were previously subject to periodic enumeration supervised by former forest manager, Irvine Ross. The Glen Dye woodlands are also subject to periodic assessments of stocking and regeneration. The Glen Tanar woodlands already effectively serve as a demonstration site for active Caledonian pinewood management with onsite interpretation facilities and many organised visits in the past. The Blelack site has been used as an occasional training location on recent FC ATC courses run by Jens Haufe. Glen Dye is a popular hill-walking location with some existing on-site interpretation information. At each of these sites, owners and managers would prefer to be notified of intended visits.

Commentary on economic and operational implications of ATC adoption

Management using natural regeneration has been the traditional regime in the pinewoods of Deeside for many years and is regarded as the most cost-effective approach, avoiding the costs of replanting. Operational aspects of seed tree felling, scarification and group selection pose few difficulties, given the accessible sites.

Other relevant field examples recorded within the project

With emphasis on the management of mature pine plantations under ATC at Blelack and Glen Tanar Estates, the most direct comparisons are with the experiences reported for Cawdor (Case Study 4) and Curr and Anagach Woods/ Windsor Forest (Case Study 7). Some of the work at Cowdray Park Estate (Case Study 8) is also relevant. Blelack Woods offers one of the best examples of the uniform shelterwood approach to regeneration of pure Scots pine, while Glen Tanar includes semi-natural stands.

Photographic record



Left: application of seed-tree shelterwood regeneration in pine

BLELACK WOODS

Right: application of seed-tree shelterwood regeneration in pine



Left: diversification of Scots pine plantations by shade-tolerant regeneration with spruce and fir

BLELACK WOODS

Right: diversification of Scots pine plantations by shade-tolerant regeneration with spruce and fir



Left: Scots pine plantation stands regularly thinned preparatory to regeneration phase

GLEN TANAR

Right: regeneration of Scots pine by a group shelterwood/ regen. system



Left: seed-tree felling/ semi-natural pine stand with good regeneration

GLEN TANAR

Right: diversification of Scots pine plantation by shade-tolerant regeneration with noble fir



Left: initiation of noble fir regeneration under mature larch

GLEN DYE

Right: well-developed silver fir regeneration under mature pine



Left: complex stand structure combining pine, larch and silver fir

GLEN DYE

Right: well-developed silver fir regeneration under mature larch

