Implementing Continuous Cover Forestry in Woodlands with High Visitor Pressure

Report on the Annual Scottish Site Vist to Beecraigs Country Park and Callendar Wood, September 2010

by Owen Davies, Forest Research

As the early mist dispersed and the sun began to show, 35 members and guests assembled at Beecraigs Country Park to be welcomed by West Lothian District Council countryside manager Eirwen Hopwood, assisted by Archie Morison.

Beecraigs Country Park is located in the Bathgate Hills, just to the south of Linlithgow. It is owned and managed by West Lothian District Council and covers about 128 ha, making it the largest of the three West Lothian parks. Prior to 1914 it was three separate tenant farms. A reservoir was dug in 1914-18 by prisoners of war, to supply drinking water for Linlithgow and the surrounding area, and managed by the Water Board who planted much of the catchment area with mainly coniferous trees from the 1920s to the 1960s. The council took over responsibility for the area in 1974 with the aim of developing it as a country park. Park staff strive to maintain a balance between their two main objectives of public access and woodland management, the latter generating revenue where possible to support the wider management of the park. A new 10-year management plan is being drafted and CCF is seen as a valuable approach to reconcile harvesting with recreational and landscape demands. The country park has its own sawmill which can handle trees of up to about 80 cm dbh.

Discussion during site visits was led by Colin Edwards and Bill Mason, both of Forest Research. The first stop was at a fenced area of approximately 3 ha with an overstorey mostly of 80-year-old Scots pine. Domestic pigs had been kept here for three years in the mid to late 1990s to create ground disturbance with the aim of promoting conifer natural regeneration. Most of the area has regenerated with broadleaves, particularly sycamore, with some Sitka and Norway spruce. It was felt that the pigs had been kept in for too long, or that the area should have been sub-divided to more carefully control their movements, and that the excessive trampling and fertilisation on an already fertile soil had made the move towards broadleaves inevitable. Colin Edwards argued that it was the rapid opening of the canopy before natural regeneration had been established which gave rise to the need for ground disturbance and encouraged strong growth of weeds.

Fig 1a: *Discussing the effects of 3 years of pig management under Scots pine*

Fig 1b: *Whilst the pigs had been very popular with the public, it was questionable whether they had helped regeneration recruitment*

Regarding the next steps in the management of this stand, it was pointed out that at present it was neither especially attractive nor productive, and that left to its own devices it was likely to produce coarse Sitka spruce which would also fail to meet either amenity or production objectives. The sycamore could be grown on to firewood dimensions and allowed to shade out weeds to improve the prospects for future natural or artificial regeneration.

A general issue was raised of whether it was better to combine or zone the pursuit of objectives in the woods. Some areas are currently more distant from visitor facilities than others, and the pursuit of production objectives is therefore less constrained, but there is always the possibility that visitor infrastructure might expand over time.

Fig. 2 *Discussing options for the P1923 stand of SS at Beecraigs*

The second stop was in a compartment where some areas were dominated by poor p1923 Scots pine and others by fine p1923 Sitka spruce. In the pine areas there was strong regeneration of western hemlock and Sitka spruce saplings, while in the spruce areas there was only scattered regeneration of hemlock and a dense ground flora of grasses and ferns. In discussing the future management of the site it was agreed that the pine and spruce areas should be managed separately, being very different in character. Opportunities exist here to manage the area under a group shelterwood system; existing groups of regeneration could be developed by thinning to increase light levels above and adjacent to the groups.

Skidding to create ground disturbance was mentioned as a means of promoting further regeneration, though presumably care must be exercised on a moist site very close to a reservoir. Some questioned whether the site was ideal for Sitka spruce. Underplanting with Douglas fir – in groups without ground preparation or tending as has been used so successfully in the Lakes by Gareth Browning – to give a Sitka/

hemlock/Douglas mix was suggested, as was planting gaps with Norway spruce for the sake of red squirrel habitat. Deer browsing did not appear to limit regeneration, particularly given the high level of disturbance from public access.

The next stop, within the same compartment, was in an area where dense western hemlock regeneration had been respaced by volunteers to open views into the stand from a road. As this visibility is important for visitors to feel secure and to enjoy their visit, intervening at some scale in hemlock regeneration will always be necessary unless seed sources are eliminated, potentially a major task. Apart from these issues with dense regeneration, western hemlock does not have the pariah status in the park that it holds elsewhere; the mill does not discriminate between spruce and hemlock, except that hemlock is considered unsuitable for fencing, and there are no problems with butt rot.

Fig 3. *The development of an irregular structure is well underway in parts of the stand*

Here it was noted that as there is always some management activity in the park members of the public generally accept it. This is an important point and, I think, a good opportunity for education about the importance of active forest management.

We returned to our vehicles to travel to the less-frequented south of the park, most of the visitor facilities (and our first three stops) being concentrated in the northeast near to the reservoir and the park centre. Though visitor pressure is lower, the elevation is higher, and there is a greater incidence of windthrow. Our fourth stop was at a cleared windthrown gap in a stand of p1923 Sitka spruce with an adjacent strip of probably post-war grand fir and with pine on knolls. There was sporadic natural regeneration, but here there is higher deer pressure and still competing vegetation including bramble. Various management strategies were suggested. Most seemed happy that the spruce were sufficiently stable for CCF to be an option, though the underthinned grand fir were troublesome. Spruce regeneration seemed likely – unfortunately it was already colonising the drier knolls where other species might have been preferred. Larch planting was suggested. It was proposed that management might utilise gaps similar in scale to the windthrow already occurring, of around 0.5-1 ha.

The final stop at Beecraigs was in a stand of p1938 Sitka spruce with occasional p1923 Scots pine, presumably the remnants of a failed planting. There were dense areas of spruce regeneration with a few rowan, totalling 8,900 saplings per ha according to Forest Research assessments. There seemed to me to be great potential for developing an irregular structure, with large trees interspersed with areas of regeneration in which the more vigorous stems were already growing clear of their neighbours without any respacing. Although the park sawmill could handle many of the large trees there was support for retaining some to senesce naturally,

as required by UKWAS. Concern was voiced that, if visitor facilities expanded, there would be the same problem here of a wall of regeneration. I didn't feel that this was the case, and certainly if the overstorey and later the understorey are thinned then machine access routes will break up the regeneration. It was noted that machine access could be a problem on what is a very wet site; young regeneration in racks may form a helpful live brash mat!

A general point was raised regarding the mapping of the park, the old stock map being now very heavily annotated! A new forester for the park is soon to be appointed, and Bill and Colin suggested that there would be much to be gained from the new incumbent surveying the woodlands afresh to establish what exactly is on the ground.

Charlie Taylor closed the site visits at Beecraigs by thanking Eirwen and Archie for their input and also Richard Toleman for suggesting the visit.

We returned to the visitor facilities for lunch, which was enjoyed in warm sunshine with views over the park, with the added challenge of dodging the wasps who seemed determined to take their share of every mouthful. My own record was competing with four wasps for a bite of a single apple!

Having avoided any insect-related mishaps we travelled in convoy to Falkirk for the afternoon visit. Our guides having estimated our navigational abilities rather ungenerously we arrived ahead of schedule, and took the opportunity to discuss the direction of future meetings of the Scottish section of the CCFG. Proposals included focussing on harvesting practice, revisiting sites, hands-on activities such as marking thinnings, and more formal workshops with presentations.

We were introduced to Callendar Wood by local Forestry Commission Scotland staff Robert Clamp, Alistair Angus and John Ogilvie. The wood is located to the south of Falkirk and covers an area of 94 ha. In 1999 it was acquired from Callendar Estate by Scottish Ministers with Millennium funding and is now managed by Forest Enterprise. Much of the woodland is made up of plantations on ancient woodland sites (PAWS) which would previously have carried upland oak woods. Colin Edwards noted that the wood has a long

Fig 4. *The clearance of dense rhododentron ponticum has lead to the recruitment of a range of tree seedlings*

history of management. For instance, there was a period of coppicing in the eighteenth century and the introduction of Scots pine in the nineteenth century. Although the old trees vary in size, age analysis shows them to be of similar ages. Topographical exposure is not high, with DAMS scores (Quine and White, 1993)

in the region of 10-11. The wood is the most heavily visited in Scottish Lowlands Forest District, with over 150,000 visits per year; as such it is a key WIAT (Woodlands In and Around Towns) site.

The forest design plan is under revision, but is currently based on low-impact silvicultural systems and PAWS restoration. The new plan is expected to emphasise CCF principles as means of meeting multiple objectives. An early priority of Forest Enterprise management in this wood was rhododendron control. Areas of windthrow were also cleared. Some thinning has been undertaken, but with no specific prescription. District staff are hoping for natural regeneration and to maintain the mixed character of the woodland; while PAWS restoration is still important, around 20 ha will remain conifer dominated. Management issues include public access, roe deer and strong weed growth, but management benefits from the efforts of the British Trust for Conservation Volunteers and a criminal justice team.

Our first stop was in a stand only a short distance from one of the main entrances to the wood, where the impression created for visitors is important. The stand is of p1963 Scots pine, Sitka spruce and European larch, in an area cleared of rhododendron which had previously formed a very dark and forbidding mass. Windthrow in 1998, rhododendron clearance and subsequent thinning have resulted in some impressive natural regeneration, particularly of larch. It was felt by the group that there was no need to rush the transformation of the stand to CCF, only to take advantage of what might otherwise be considered inconveniences, namely the rhododendron clearance and the windthrow. As large trees were considered desirable some thinning was in order, but it was generally felt that transformation should not proceed too rapidly lest the expansion of regeneration create a visual barrier just as forbidding as the rhododendron removed a decade ago.

The second stop was at a fenced area of cleared windthrow now stocked with p2007 tubed oak and naturally regenerated birch plus a few spruce. It was agreed that the extent of the area was such that it must be considered clearfell and restock rather than CCF! Members were keen that this young stand of native broadleaves should be managed to produce a crop and not just for amenity, and this was certainly the intention of the District staff. Such management is made possible by markets which have developed in only the last few years. Regarding the working of the stand, some were in favour of mechanised thinning as part of a wider contract including conifer thinnings to gradually develop competencies in working with hardwoods; others felt that the thinning of the stand was a viable prospect for a firewood contractor felling motor manually. The question was raised as to whether one should intervene soon to rescue some of the tubed oak or allow the birch to form a thicket and accept some losses; the balance of opinion seemed to be towards the latter option.

The third stop was at a stand on the boundary with Callendar Park which, like the first stand visited, forms a gateway to the wood. Young but very mixed regeneration – including beech, spruce, larch, holly, Douglas fir, grand fir and oak – was found under an overstorey of larch, Scots pine, birch and Douglas fir. Again it was considered desirable to promote the development of large trees through thinning; either the mixed regeneration would respond or the understorey could be planted. This was considered another example of benign neglect with no need to force the transformation of the stand towards CCF. However, this is a PAWS site and there is pressure to restore to native woodland, probably of oak or ash. It was argued that to attempt restoration here would be to commit to a high input, low output system, having to fight the natural processes currently in operation and removing most of what was currently regenerating. Given the importance of the stand in question for amenity, it seemed to make more sense to concentrate restoration efforts elsewhere in the wood. One member pointed out that one of the important features of PAWS sites is remnant ancient woodland vegetation, which is present here. She suggested that the current relatively light and partly deciduous canopy was acting much as the canopy of a native woodland and that much would be gained simply by continuing to approximate native woodland understorey conditions.

The final stop at Callendar Wood was to view a number of patches of birch of different ages, all of which were

apparently the result of natural colonisation of gaps in the woodland. All agreed that there was potential to manage these, if only for firewood production. It was suggested, however, that given the density with which birch regeneration sprang up, there was scope for intervening early to select the best quality stems in the hope of supplying as yet undeveloped markets in the future.

With this optimistic thought to cheer us, it remained only for Jim Colchester to thank our hosts Robert, Alistair and John and to enjoy the walk back to the cars through this fine wood.

As is usual at CCFG field meetings this was an enjoyable day with much thought-provoking discussion. Both of the woodlands visited served to show how well CCF principles can be adapted to the management of woodlands with high levels of public access.

Reference

Quine, C.P., and White, I.M.S. (1993). Revised windiness scores for the windthrow hazard classification: the revised scoring method. *Forestry Commission Research Information Note 230*. Edinburgh: Forestry Commission. 5 pp.

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