CCFG Site Visit to Cawdor and Darnaway Estates

- A Look at Two Differing Estates

By Colin Edwards and Yvonne Greive

On a warm and sunny morning in early September CCFG members met at Darnaway Village hall before setting off on a short tour of woods on Cawdor Estate, managed under CCF principles by Steve Connolly and Hazel Cowan.

Our first stop was Moss-side Wood, just on the outskirts of Nairn. This is a 41 ha predominantly Scots pine plantation from 1910. It contains an element of other minor species including Douglas fir and beech. There is one way marked footpath that bisects the woodland, although there are numerous informal footpaths throughout the wood, all are heavily used by dog walkers and day visitors.

Historically the plantation was managed as standard commercial pine woodland and was thinned regularly under a standard low thinning regime. However, following windblow events in the early 1980’s a series of canopy gaps appeared along the southern edge: these were restocked with SP. A second series of gaps were created by further windblow events in 1988 and were restocked with SP and Sycamore.

By the mid nineties natural regeneration was appearing around the edges of these gaps and so the estate decided to carry out a normal silvicultural thinning and also concentrated on enlarging these existing holes and thinning heavily around the gap edges, especially on the northern edge, to increase the amount of lateral light reaching the forest floor.

All the work was completed using ‘traditional’ motor manual techniques rather than using a mechanised harvester to protect the developing natural regeneration. A repeat thinning in 2006 was undertaken with the same objectives, and again the response was to encourage more seedling recruitment, and the development of existing seedlings into saplings and onto small trees. The area is due to be thinned again in 2013.

The group discussed the reasons for success: and agreed that it was the combination of the right species on the right soil (Scots pine on light sandy soil of poor nutrient status), limited vegetation competition and very little browsing damage. There is high public use of the woodland which, it was suggested, was probably preventing serious levels of deer damage. In another part of the wood we saw the effects that richer soils had on preventing regeneration recruitment.
We were told that it was very difficult to manage the site in separate parcels, i.e. the small natural regeneration, established saplings, and existing mature crop, and so the Estate have decided to treat all these cohorts as one crop. The intention is to thin all parts of the woodland that are stable, including some of the very first restock plantings from the 1980s, to encourage further regeneration recruitment from the 1910 crop.

The structure of the woodland and spatial pattern of regeneration recruitment clearly demonstrated how adaptive management should follow the regeneration on a site. This determines the character of the silvicultural system that should be practiced rather than trying to impose a regime on a site to fit in with a predetermined notion.

Our second stop was in Carse Wood, which lies 4 miles from Nairn on a more coastal location than Moss-side wood. We visited a small area of a 200ha block which is located on a raised beach; the soils here are sandy, making them of poor nutrient status and dry in nature.

The main species was again Scots pine, but planted in 1940. Photographic evidence suggests that at least part of the wood has had natural regenerated before, but the system used was unknown. Historically it has also been managed as a commercial woodland and standard low thinned regularly. Cawdor Estate now have a Scottish Rural Development Programme (SRDP) funded LISS management plan: within the plan it states that a shelterwood system using natural regeneration was to be implemented in areas of the stand that we visited.

Strips 30 m wide and approximately 670 m long were repeated on N-S axis over an area of approx 3.7 ha. The orientation of the cut was chosen to maximise light (especially in winter), and a distance of 30 m was used as it is the distance within which most SP seed would fall. Ground preparation of the cut strips was planned to be undertaken by a
scarifier, but due to technical difficulties this site disturbance was actually completed using a continuous mounder. This may have removed too much of the humus layer, revealing the sand beneath that is a difficult medium for seed germination and early seedling growth due to moisture deficits in spring.

The intention is to fell further strips of 30 m width in approximately 7 year intervals adjacent to the existing strips, and to further thin the main crop to encourage seed development in the canopy, light penetration to the forest floor and advanced regeneration recruitment. Eventually all the existing mature crop will be felled, although this may take about 50-60 years. If successful, felled and disturbed strips will be re-established with natural regeneration, and the cycle of felling will start all over again.

We saw evidence of large quantities of 1yr old SP seedlings, but also the beginnings of the recolonisation of other vegetation such as foxgloves. The intention is for the Estate to monitor permanent sample plots to record seedling recruitment and mortality, and vegetation encroachment.

A deer exclusion plot has been erected nearby to monitor the effect of deer pressure on recruitment: unlike Moss-side this area sees few visitors or dog walkers to ensure deer are regularly disturbed. Damage from roe deer is expected to be high.

Although there was discussion and debate on the appropriate width of the strip, the type and severity of site disturbance to encourage regeneration recruitment and the interval between successive cuts, all agreed it was an exciting demonstration of a silvicultural system little practiced in Scotland in recent decades. The Estate was encouraged to continue with its planned management regime and a further visit by the CCFG to the area was (provisionally) planned for 20 years time when the success of the system could be viewed and debated again.

Stop 2: Carse Wood, Cawdor
For the afternoon visits to Darnaway forest we were hosted by Moray Estates and invited to provide our collective thoughts on the management of some of the areas of woodland currently under consideration for CCF management on the Estate.

We started in an area of oak and beech, where the beech was to be removed as it was causing crown dieback and death of some of the oak. It was hoped to manage the oak and encourage regeneration using CCF principles. Some oak, which had been planted in tubes in small groups beneath a small canopy gap, clearly demonstrated the effects of changing light quality and quantity on the growth and form of saplings. Oaks close to the gap centre were of good form and healthy, but those on the gap edge were spindly and less likely to survive. Further thinning of the stand is anticipated to encourage oak
regeneration, but there was some discussion within the group as to the rate and severity of the next intervention. Some favoured a gradual process of removal, to encourage stand recovery and crown development, while others favoured a one-intervention event that removed all the unwanted species in a single operation.

At the next stop Bill Mason led a discussion on the history and future management potential of a 100 years old stand of western red cedar (WRC). There were no records of the precise planting date, but it is currently registered as a seed stand and contains significant quantities of seedling and sapling regeneration. The stand demonstrated the potential rapid growth and quality possible from this minor conifer, but unfortunately recently felled trees were also shown to have butt rot.

Bill then outlined possible alternative tree species in this general location (north east Scotland) which could cope with predicted effects of climate change and the risks from pests & pathogens.

The range of suitable species for the site type visited could include:

- Macedonian pine
- Leyland cypress
- Alders
- Norway spruce
- Coastal redwood

The ESC decision support system and published information on alternative species (e.g. FC Bulletin 30 Exotic forest trees in Great Britain, 1954) could be used to ask what species may be suitable with climate change. Interestingly western red cedar is highly ranked in terms of timber & market, especially with the development of the market for thinning, eg firewood. WRC will not easily establish on open sites subject to exposure, but it is slightly less sensitive to frost than Douglas fir or coast redwood. This can be overcome by under planting it into other light canopied species such as larch or birch, or planting in mixture with species that provide some nursing e.g. Norway spruce. Charlie Taylor commented on the effect of provenance choice, and suggested that the origin should be carefully checked as poor choice at this stage could result in a poor crop later in the rotation.

Our final stop was to a PAWS site dominated by western hemlock and beech. The objective for this stand is to return it to oak for use by raptors, and for the development of native ground flora species. The group thought that it has been too long shaded to return to native vegetation & species, and suggested accepting the western hemlock regeneration and managing the stand under a CCF system with both the WH and Beech. One issue that is often raised, when intending to sell western hemlock, is that saw millers cannot easily get the bark off of it, and
that the stem fluting makes the product of lower quality. However, these trees were of good form and had limited buttress development.

It was suggested in low priority PAWS sites, where the biodiversity of the site will not be significantly affected by felling and there is no native element in the woodland, group selection could be practiced to produce a timber crop while converting back to native species. To achieve this from the current stand conditions another intervention would be needed to group felling around marked future crop trees. Group felling would also provide suitable site disturbance to encourage natural regeneration recruitment.

Another suggestion was raised by the group to fell the stand, maximising on the potential timber now, and replant with the species required for the native woodland type suggested under the PAWS objective. Opening up the canopy would also encourage some natural regeneration recruitment, but without mature trees of the correct species there to provide seed, it is expected that hemlock and beech would once again dominate the site.

The organisers of the event and the two Estates that invited us to view and comment on their stands and management were thanked for organising and hosting the day.

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ABOUT THE CCFG

The Continuous Cover Forestry Group was founded in 1991. Our primary objectives are to promote the transformation of even-aged plantations to structurally, visually and biologically diverse woodlands, and to promote the sustainable management of high quality timber. We play a key role in training and education, and are influential in the formulation of new forest policies in England, Wales and Scotland. We have over 200 individual and corporate members, and membership is open to all with an interest in forestry, forest conservation and woodland environments. The CCFG website gives more information and membership details.

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