

Pro Silva Study Tour, Scotland 2024

"Shaping our future with resilient forests"

26th-29th September 2024

Report by Robert Windle & Conor Dowling

Attendees: 36 Pro Silva Ireland members consisting of foresters, forest owners, ecologists, inspectors, contractors, land managers and NPWS rangers

Thursday 26th September 2024

Craigvinean Forest, Perthshire

Forest management, CCF and forest resilience

Hosts: Nick Gough & Martin Price, [Forestry and Land Scotland](#)

Craigvinean Forest, located in Perthshire, is one of Scotland's oldest managed forests, and is a credit to its owner and foresters, as 300 years previously this area was cleared for agriculture and timber revenue. Craigvinean was one of the first areas planted with Larch for commercial reasons. In 1737, the 2nd Duke of Atoll was given plants brought back from the Alps at a request of the Marquis of Breadalbane. The duke soon realised that larch was well suited to the rugged terrain and produced great timber. This discovery led to an extraordinary planting programme and by 1830 the family had planted around 27 million conifers of which nearly 15 million were larch. It's from these forests that European Larch and Japanese Larch hybridised. Legend has it, the duke was so enthusiastic in his efforts to establish the trees that he ordered cannons to be loaded with larch seed and fired across the bare slopes and rocky outcrops of Craig a Barns to establish these forests.

Craigvinean Forest is one of the Big Tree Forests of Perthshire and is actively managed by Forestry & Land Scotland. Craigvinean is a very popular amenity forest, hence the reasons for CCF management. Timber production also remains an important management object of the forest.

Species include Birch, Scots Pine, European Larch, Douglas Fir and Sitka Spruce. Craigvinean forest covers an area of about 1,900 hectares. The forest has been managed as a national trial site for Continuous Cover Forestry (CCF) silviculture for the past 20 years, with 1,293 hectares of the conifer woodland has predominantly been managed for the purpose of continuous cover forestry.

Sections of Craigvinean has suffered windblow in the past. But the cleared areas have led to promotion of regeneration.

The discussion at this forest centred around:

- Forest management planning, peatland restoration, landscape and future development
- Management of light demanding regenerating species over shade tolerant species
- Economics of CCF for Forestry and Land Scotland (equivalent to Coillte)
- Marketing oversized trees to sawmills
- Thinning regimes to create trees with large canopy structures to provide seed
- Conflicting land uses between recreational forest visitors and harvesting



Photo 1: Natural regeneration under Douglas fir, Norway spruce and Sitka spruce mixture.



Photo 2: Viewpoint showing landscape management

Friday 27th September 2024

Introduction to Pine Forests in Scotland

Pinus sylvestris commonly known as 'Scots Pine' is widely found throughout Scotland. *Pinus sylvestris* subspecies *scotica* or Caledonia pine is found throughout the Scottish Highlands.

After the last ice age, *Pinus sylvestris* migrated to the area now known today as England and spread west and north in succession to birch. It migrated to Ireland and entered Scotland via a land bridge that connected both countries. When Scots Pine migrated to Scotland it became widespread in the east and north of Scotland. Post glacial vegetation helped the establishment of other tree species such as Oak. This reduced the number of pine forests in England and south Scotland leaving behind only remnants of the pine forests in the Lake District region of England and in Co. Clare in Ireland.

About 5000 years ago the climate changed and became wetter and colder. Blanket and Fen bog established and began to cover much of the landscape, the inexorable growth in blanket peat became a less favourable environment for trees, especially in the northwest highlands. This similarity can be seen throughout the midlands and west of Ireland. In Scotland most of this woodland disappeared before records could be transcribed.

Forest grazing system

By the 1600's, animal grazing had reduced forest cover that was found on the lower slopes. These areas were being transformed for agricultural use. Interestingly, forest grazing of cattle and goats was a common practice, and it is found that this practice did not harm the forest regeneration. The timber from the pine forests was used locally due to the large size of the trees. The pinewoods freely regenerated under this land management system.

Rebellion

After the Jacobite Rebellion in 1715, military roads were constructed across the highlands of Scotland to link a series of fortified barracks. This increased the accessibility to the highlands and subsequently the commercial exploitation of pinewood forests. Rivers such as the Spey and the Dee were logistically used to float large pine logs to the coast. From here they were transported southwards to England for lumber uses. For up to two centuries the exploitation continued without much thought to the regeneration or replanting the denuded landscape.

Highland clearances

The enlightenment period of the 18th century marked a dramatic impact on agricultural and forestry practices. This is a period when the highland clearances took place to make way for large scale and very profitable sheep farming instead of small-scale subsistence or 'Croft' farming. This had a damning impact on forest regeneration through the grazing of sheep.

Estate forestry

In 1848, while touring Scotland, Queen Victoria bought Balmoral Castle estate and the adjacent Ballochbule Wood. This gentrified land ownership and management in Scotland. It became fashionable for the gentry to own estates north of the border predominantly for sporting pastimes. Estates were vast and provided sport such as game shooting, deer stalking and salmon fishing for the

owner and their invited guests. Sporting was, and still is, a large part of business management for many estates in Scotland. The revenue brought in from sporting activities helps the financial viability of these estates. It also supports local jobs and ensures the active management of the estate and its animals/habitat species.

World War 1 and 2

Prior to WW1, one in seven ships into Britain was timber imports. Space on merchant ships was in demand and expensive. The British government requested the Canadian government for overseas forestry workers to help reduce the timber shortage and the dependency on timber imports. The Canadian Government formed The Canadian Forestry Corporation (CFC). The CFC was a military unit but it focussed on recruiting men experienced in forestry work instead of military experience.

The CFC established camps in rural areas where they began felling operations on pinewood forests. For logistics, miniature railway systems were built. This accommodated the transport of logs to sawmills. The CFC brought their experience and technology used throughout the US and Canada sawmilling sector.

This again was repeated during WW2. The reforestation of these site was often delayed as the newly formed Forestry Commission struggled with resourcing. Post-war Britain meant limited available funding, lack of policy and wider resources. The reforestation of these sites was planted with various species such as lodgepole pine, Sitka spruce, Douglas fir, Lawson Cypress etc.

Kinveachy forest

Pinewood silviculture using CCF principles

Hosts: Will Anderson, Chief Executive Seafield Estate

Caitlin Erskine, Forest Manager

Our host, Will Anderson, gave a detailed oral account of the history of the landscape and its management throughout the centuries. (as outlined on the introduction)

This estate was managed for game shooting from about the 1820 through to the late 1990's. It was in the 1990's that large areas within the estate were designated as a Special Area of Scientific Interest, this was due to existing breeding populations of Capercaillie. This designation impacted the Seafield estate as grouse and deer shooting created a significant revenue stream for the estate. The estate decided to diversify into developing and expanding the existing forest along with other ventures such as close to nature tourism.

Forestry

The forest we visited is described as sub-boreal, which consisted of Scots Pine, as the dominant species, and Birch and Juniper as the minor species. Ground flora consisted of Heather *Erica Tetralix*, Bilberry *Vaccinium Mytilus*, *Deschampsia*, *Molina*, *Nardus* and Mosses *Polytrichum* and *Sphagnum*.

Soil: shallow peat >10cm over grit.

The discussion at this forest centred around:

- Deer management: Reducing deer population from 40 per sq.km to 3 per sq.km
- Issues with neighbouring estates regarding the reduction in deer numbers. Seen as a negative for shooting sport.
- The promotion of natural regeneration since the reduction in deer numbers.
- Implementation of Capercaillie management plans to conserve and grow their populations.
- A forest fire in 1947 and the impact this had on the forest and its slow regeneration over the past 80 years.

Loch Vaa

Located just outside Aviemore this forest consisted of predominantly 150 yr old Scots pine managed in a shelterwood system. There are roughly 80-100 stems per hectare of approx. 2-3cubic metres per tree. There was a selection thinning conducted here to reduce the basal area and promote natural regeneration. The ground was heavily vegetated with heather. A scarifying operation post felling was seen as a failure as it made no difference to natural regeneration.

Discussion points:

- Marketability of timber
- Future management for this area



Photo 3. Loch Vaa. Note abundant regeneration of Scots Pine and Birch

Glenfeshie Estate

Rewilding

Hosts: Ronan Dugan & Joe Dunne, Conservation Assistant

Glenfeshie Estate is part of [Wildland Scotland](#). A forestry management unit totalling 4,623 hectares that has a long-term vision to reverse the centuries of ecological decline in the Cairngorms by restoring the semi-natural landscape over a 200-year period. This is also part of a wider project called [Cairngorm Connect](#), the biggest habitat restoration project in Britain encompassing 600 sq.kms.

Anders Holch Povlse, owner of clothing website ASOS, bought Glenfeshie Estate in 2006. The estate encompasses approx. 43,000 acres. One of the main management objectives in the estate is the reduction in deer population to promote and protect natural regeneration of pine species. The removal of sheep grazing was an active step in promoting natural regeneration. These two management steps has shown a dramatic change in the landscape. A 10-year comparison picture shown to the group showed the significant difference in the landscape from grassland to a uneven aged regenerated forest.

Since 2006, active deer management has reduced the deer population from 80 per sq. km to 1 per sq. km. We visited an upland planting site at an elevation of 650 metres. The estate had received government grant aid to carry out the planting operation. Species consisted of a Scots pine/Birch mix planting at a density of 500-3000 stems. per ha. The soil is a shallow peat with a heavy heather vegetation layer.

Also discussed:

- The Registered foresters present were very impressed with this grant-aided scenario and its implementation and drew comparisons with Ireland blanket peats.
- The shallow peat depth present there.
- Risk of windblow.
- Fire risk from dried windblow and mature woody heather.
- Limited diversity of native species planted. Oak would have established in these conditions.
- The site has seen an increase in hen harrier numbers from 6 pairs in 2023 to 11 pairs in 2024
- The estate is partner in the Cairngorms Connects project, which seeks to conserve and enhance biodiversity within the Cairngorms National Park.



Photo 4: Landscape management of Glenfeshie estate



Photo 5: Landscape showing planting in the distance



Photo 6: Sporadic planting of Scots Pine/Birch



Photo 7: Scots Pine that suffered windblow on an adjoining site. This emphasising the potential risks from windblow and fire in this glen



Photo 8: Windblow damage

Saturday 28th September

Logie Timber

Logie Estate, Forres, Morray

Hosts: Rob Edmonds and Mark Council

Logie timber is small scale sawmill business which is part of Logie Estate. Logie Timber was founded by Mark Council and Alec Laing. They produce timber products using locally sourced logs. Their main product is cladding for exterior and interior use produced from Larch and Douglas Fir. They also produce various timber products from hardwood for the timber market. Logie timber works directly with furniture makers, interior designers and architects to produce bespoke products that large sawmills can't provide. This is due to the type of sawmill that the mill uses. They mill approx. 2,500-3,000m³ annually and work off a 50% timber conversion rate. Logie Timber has 10 employees working full time in the mill and converts approx. 12-15m³ per day.

Rob Edmonds, sales manager, brought us on a tour of the mill where he went through the conversion process from log to final product. Logs are left for 2 years to air dry before conversion. The mill uses a horizontal bandsaw mill that converts normal and oversized logs to workable timber pieces.

Timber can be kiln dried to various moisture contents and depending on what the final product is, can be planed, shaped and sanded. Douglas Fir, Larch and Western Red Cedar from CCF managed forests often produce over-sized trees. These logs are the main source of timber for the mill and they can be bought at a reduced rate. Round wood timber prices decline once logs go about 30cm diameter, which is one downside to CCF. Logie timber pay between £70-80m³. (CCF members felt these pieces were low compared to Irish log prices)

The original Stenner mill is adjacent to the newly commissioned sawmill. The original shed was built using traditional timber frame joinery using lodgepole pine logs. The new building, home to the new mill consists of timber construction using 100% Scottish timber. The exterior cladding produced from the mill can last up to 50 years without treatment depending on what profile is used.



Photo 9: Machinery and timber products



Photo 10 & 11: (L) Stenner bandsaw sawmill (R) Wadkin Table saw. Traditional timber frame joinery construction on roof and walls



Photo 12: Newly commissioned mill. Roof was constructed using all Scottish timber.

Darnaway Forest

CCF at scale with a variety of species

Host: Ben Clinch, Forestry manager

Ben Clinch is the Forest manager for the Moray Estates. Managing over 4000ha of multi-functional forests consisting of commercial and amenity forests. Many innovations in Scottish forestry practice were trialled here under Ben's management. The careful and thoughtful past management can be seen throughout the estate today. Replanting with a diverse range of species after the Great War has greatly benefited the species mixture and resilience of the forest estate.

Continuous cover forestry is being applied to transform the forests to show an irregular structure; stand management makes full use of the ecological properties. Habitat management increases the potential increase in important species, such as Capercaillie, a designated species of this area. An important note is the low rainfall of this region. The eastern side of Scotland gets approx. 750mm of rainfall per year. This can impact the growth rate of Sitka spruce and the management decision of the crop.

We visited a registered Beech stand that is used to produce seed for distribution. The stand was incredibly impressive with straight stems throughout. Interestingly, the marketability of this timber is very poor at the minute in Scotland and the discussion continued about what to do with the stand. Ben will continue to collect seed from here until the timber can be sold at a good price. We also visited an impressive Western Red Cedar stand that is managed through CCF. Regeneration was prolific throughout and we discussed the need for the continued use of urea to stop the spread of *Heterobasidion annosum*. Ben felt that the cedar timber was easier to market as cladding is widely used throughout that region in Scotland.

We visited a commercial Sitka spruce stand where highland cattle were actively grazing throughout the forest. The highland breed of cattle has a long history in the Scottish Highlands. This breed is exceptionally hardy with an ability to convert poor grazing areas efficiently. Highland cattle are very maternal animals and can breed for up to 18 years. The cattle have a GPS system attached to a collar. This GPS produces data that can be used to monitor the grazing and distribution patterns of the cattle. This type of grazing plays an important part of the conservation of Darnaway forest. Highland cattle graze at a low density and they are selective in what they graze. Their grazing and dunging can lead to nutrient recycling and a greater diversity in ground vegetation. They controlled the grass and rush species with *Luzula sylvatica* being dominant throughout. Their ground disturbance helps promote natural regeneration by giving seeds a good bed to establish. Sapling browsing was not an issue as the cattle had no interest in browsing young trees.

The discussions on the Moray Estate included:

- Late transformation of Sitka Spruce (40 yrs. Top ht 25m 700 stems/ha) to irregular forest canopy. Growth very similar to the Douglas Fir due to the low rain fall.
- Late transformation of Douglas fir (40 yrs. Top ht 25m 800 stems/ha) to an irregular forest canopy.
- Deer management to promote regeneration.
- The importance of using urea to reduce the occurrence of *Heterobasidion annosum*.
- Timber prices and marketability of large diameter logs.

- We viewed a registered Beech and Western Red Cedar seed stand
- Highland Cattle and their benefits



Photos 13 & 14: (L) Beech seed stand (R) Western Red Cedar CCF



Photos 15 & 16: Highland Cattle grazing in a Sitka spruce stand

Sunday 29th September

Faskally Forest

Anderson CCF Research Plot

Hosts: Ted Wilson, Martin Price and Willie McGee

In 1953, the Forestry Commission acquired Faskally forest. Mark Loudon (M.L.) Anderson introduced CCF management in Faskally. Anderson was a forester born in April 1895 in Kinneff, Scotland. He was a research forester with the Forestry Commission in Britain (1919-31) and also worked in Ireland from 1926-1928. He returned to Britain but moved back to Ireland in 1932 and worked as a Forestry Inspector with the Forestry Division of Ireland. He was promoted to Chief Inspector in 1934 and was then made Director of Forestry 1940 to 1946. He then went into academia and was appointed Professor of Forestry in Edinburgh (1951-61).

Anderson was an advocate of planting deciduous and conifer trees in mixtures which became known as 'Anderson Groups'. He organised the first Irish census of woodlands, encouraged the use of lodgepole pines, opposed the planting of the Gaeltacht areas and was the founding president of the Society of Irish Foresters (1943-44). His legacy lives on through many areas of forestry but the fruition of his work can be seen in Faskally forest. The mixed plots and diverse selection of species have created an intimately mixed forest over the proceeding 70 years.

Short field exercise and discussion on site:

- Exercise: Identify the number of natural regenerating species within a 10m radius plot. 20 different conifer and broadleaf species were present.
- Discussion: management of regeneration to maturity
- Managing the light depending species in favour of shade tolerant species that would be commercially favourable
- Wider Scottish Forest policy on planting of peats, forest management, amenity forests and conflicting interests

Conclusion

The Pro Silva Ireland tour to Scotland had a full itinerary of forest visits in a variety of locations. The distribution of professional foresters, ecologists, inspectors, contractors, land managers, NPWS rangers and forest owners led to many interesting discussions. The facilitators of this trip showed their expertise, knowledge and passion for forest management from start to finish and brought a positive environment to learn in. Credit is due to the Pro Silva executive for a successful tour but a special mention to Olive Leavy and Ted Wilson for adding the finesse. It was a pleasure to be invited by Pro Silva Ireland and there is much to debate going forward.