

Excursion C -The Native Pinewoods of North Loch Lomond - Report by Mike Phillips

1995-96

Some 20 members of the group with tour leader Nick Mainprize departed by bus from Ardlui at 0930 and headed for the first stop at Glen Falloch. Presenters for the day were Penny Martin SNH, Colin MacBrayne RTS Ltd. and Graham Tuley FA, who all lent valued knowledge to the day. Much relief was expressed that the clouds at least held their moisture to themselves and we all returned dry at the end of the day, even underfoot there was little in the way of moisture no doubt due to the recent westerly summer.

For each wood this report starts with the background notes supplied to the group members by the organisers, followed by a record of the visit.

First Steps in the Regeneration of Glen Falloch Pinewood

The rationale behind restoration

Glen Falloch Pinewood is the most southerly remnant of the ancient Caledonian pinewood which formerly covered a large part of the Scottish Highlands and was designated in 1990 as a Site of Special Scientific Interest. A combination of grazing and past felling has resulted in an impoverished pinewood with no opportunity to regenerate naturally. The main objectives in restoration are to maintain historical woodland cover, and enhance this ancient pinewood both for the benefit of wildlife and the landscape.

Historical background

Records indicate that Glen Falloch Pinewoods represent primary woodland. Pollen analysis shows that the wood is unusual in that it established 4300 years ago, a time when most woodland of this type was receding throughout western Scotland. Approximately 120 trees remain today, estimated to be aged between 100-150 years, at a density of less than one tree per hectare.

Vegetation

Glen Falloch Pinewood falls within the South-central zone of native Scots pine woodland (grouped according to biochemical similarity). It is classified as NVC type *Pinus sylvestris*-*Hylocomium splendens* woodland (W18, subcommunity c/d). In contrast to the heathy ground typical of eastern pinewoods, in Glen Falloch the ground flora shows western affinity with an increase in dominance by sedges, purple moor grass and bryophyte communities.

Management today

Today, Glen Falloch Pinewood is owned and managed by Glen Falloch Estate. The Glen supports extensive sheep and cattle grazing with wild deer, both Red and Roe.

A small 1 ha enclosure constructed in 1982 has showed remarkable growth of both naturally seeded and planted Glen Falloch pines and broadleaves, and recovery of the ground flora.

In 1993, Glen Falloch Estate commenced a Management agreement with SNH. Co-operation between SNH, the estate, the grazing tenant and the Forestry Authority resulted in the construction of 2 larger enclosures in 1993. These comprise a 7.5 and 40 ha deer/stock proof enclosure linked by a domestic stock fence top and bottom to allow for seasonal deer and stock movements. Regeneration is to be encouraged under the Woodland Grant Scheme, using both natural regeneration and new planting of local provenance Glen Falloch Pine and native broadleaved trees. The first phase of planting was carried out in March 1994. A regular site monitoring programme, to include fixed point photography and ground survey, is being implemented to measure the success of this scheme.

Glen Falloch: Visit

The roadside stopping point involved an element of risk, however all passed the test and we proceeded on and up over the fence to enter the pinewood. Perhaps 'enter' is hardly the word as one had to look for the trees in this rather sad, degraded and scattered old remnant pinewood.

Sad it may indeed appear but much has been and is being done to reverse the decline by fencing and planting together with much longer term natural regeneration, about which there was a great deal of discussion. The biggest problem is likely to be adequate pollen spread and although viable seed is being collected and plants raised, without highly expensive research into the degree of pollen and selfing we will be unable to gauge just how wide is the genetic base of the population.

However all is not bleak, for with the advent of scions currently being taken from each of the old trees and grafts now established at the Forestry Commission's Northern Research Station with the aim of forming an 'orchard', the genetic structure of the whole population has been saved from further decline.

The seed from the orchard will only give a 'reasonable' mixture, this is probably as near as we can get to the ideal. Without further research and controlled crossing patterns (a full diallel) it will still be impossible to know which clones are genetically incompatible or showing inbreeding depression.

The exact number of trees surviving in the population seems to be uncertain and numbers between 110 and 120 have been quoted, also the age structure is said to be 100 to 150

years. Steven and Carlisle (1959) give the age as 'over' 130 years (166 now). I would suggest much older. This could be verified by core sampling.

Minimum intervention was suggested but with perhaps some screening around the old trees if it is thought on the other hand that small ?? of well mixed annual seed collections and planting are insufficient.

A point was raised regarding the availability of precise and detailed records of the seed collections being undertaken ie:- number and location of each tree sampled, number of cones per tree, position in the crown, yield of seed per cone per tree (full and empty) and the number of unopened cones per tree, which should all be standard procedure. It was suggested that perhaps this extra work might be undertaken by a student with grant aid for a short period over a number of years, which would cover such things as weather patterns and flowering periodicity.

Very little flowering was seen past or present which again raises the question of adequate population sampling.

The possibility of mixing the seed from different zones was also discussed with Rannoch being mentioned but this was thought to be too extreme, however thought might be given to some closer remnants such as the 3 to 4 populations within the north Loch Lomond area, needless to say not everyone was in agreement and some thought the status quo should be strictly adhered to. Perhaps with the more precise data (expected) from the work on DNA we might be in a better position to decide.

The 1982 enclosure is luxuriant, with hardwoods but not many pine to be seen!

Nevertheless it does indicate what can be achieved given the right long term policy together with the ever necessary finance. Of course the process is very slow at least by commercial standards but the general feeling appeared to be that the old wood is no longer in danger of being completely lost.

Coille Coire Chuile Pinewood Site of Special Scientific Interest 'Wood of the Corrie of Reeds'

Background

This wood is the second southernmost remnant of native Caledonian pine in Britain, covering an area of approximately 200 acres on the hill slopes near Tyndrum. It is owned by Major M Cruikshank, Auchreoch Farm, and was notified as a Site of Special Scientific Interest in 1957.

Coille Coire Chuile was described in Steven and Carlisle's book 'The Native Pinewoods of Scotland', and subsequently surveyed by the Institute of Terrestrial Ecology's Woodland Habitat team. The pinewood was found to be of south western type, but having its own unique genetic make-up from its long period of isolation from other pinewoods.

Management History

In common with the majority of pinewoods Coille Coire Chuile had been heavily grazed by both sheep and deer with subsequent poor natural regeneration. Deer include both a

few roe and around 60 red deer (Sykes. 1992). Grazing is principally confined to the winter months.

Present land management covers three main areas – farming, sporting and forestry (M Cruikshank, 1987 figures). The owner runs 500 ewes on 1750 acres covering the Fiarach and the Auchreoch Glen. There are a further 170 acres which are kept free of sheep grazing. This ground rises to 3204 feet (Beinn Dubhchraig) and was retained for Red deer stalking and trout fishing in Loch Oss. Commercial forestry comprises 89 acres planted in 1964-65 along the south side of the Oban railway, comprising Sitka spruce and Japanese arch, with a small number of Scots pine (not local provenance). The plantation provides shelter for livestock and game. Mixed broadleaved trees have also been planted for amenity and fuel. In 1986 the burnside strip west of Collie Coire Chuile was enclosed to encourage natural regeneration on the Auchreoch/Cononish March.

Recreational Use

The footpath running through the woodland is a popular route with walkers and campers, for access to Ben Oss/Beinn Dubhchraig and beyond. The landowner has experienced problems with litter, open gates, path erosion, etc.

Management Agreement

As a result of the concern of both the owner and the (then) Nature Conservancy Council a Management Agreement (MA) between the owner and NCC (now SNH) was concluded in 1974. This agreement was carried out under Section 15 of the Countryside Act 1968. This was the first of its kind in Scotland and allows SNH to make a financial contribution towards the management of an SSSI. Each party would meet half the cost of fencing with the owner responsible for ongoing maintenance.

Under the terms of this Agreement at this site, the aims were to ensure the ‘conservation of the natural Caledonian Pinewood at Coille Coire Chuile with its characteristic associations of animals and plants’ to be achieved by allowing unaided natural regeneration to take place within fenced exclosures. Provision is made in the original agreement to permit planting or ground disturbance after 9 years if natural regeneration was judged to be inadequate. At no time would more than half the area under the agreement (210 acres) be fenced off, allowing the remainder to be used as winter shelter for livestock. The removal of exclosures would be by agreement between both parties, when the regeneration is judged to be above grazing and browsing height. At this time domestic stock and deer could gain access to the woodland. The terms of the agreement were for 27 years.

The agreement has been running for 19 years and is due for renewal or renegotiation in 2001. An alternative is for the owner to enter the Woodland Grant Scheme for grant to manage and extend the native pinewood. Discussions between Forestry Authority and the owner are under way.

To date 2 exclosures are in place. The first (12 ha) was erected in 1975, and the second (21.5 ha) in 1984. In 1993 the fence separating the two exclosures was removed, creating a total fenced area of 33.53 ha (60 acres).

Current Vegetation Status [Young (1993)]

Natural regeneration is favoured on the drier morainic knolls; markedly less so on the surrounding areas of wet heath. Outwith the exclosures, regeneration is present on most dry knolls within the range of mature seed trees but kept in check below the existing vegetation level by grazing pressure and possibly by heather check. Birch and rowan have colonised vigorously and more widely.

Regeneration inside the 1975 exclosure has been monitored by ITE since 1975. Seedlings occur at a density of 23/ha. By 1990, although surviving pine was growing slowly but steadily, there was a decline in seedling recruitment. Pine seedling growth rate is slow and recruitment mainly from regeneration present prior to exclosure.

The 1984 exclosure lies on higher ground with more exposed knolls and mature birch trees. This received ground preparation and planting of 2 knolls in the western end in 1989, although natural regeneration exhibits better growth. Higher stocking occurs in the central section, but again with pine showing slower growth and a more restricted distribution compared to birch and rowan

The close proximity of the Sitka spruce plantation (sold by the owner to Fountain Forestry) to the south requires consideration to avoid seeding in of Sitka or second rotation Scots pine, not of local origin. (A buffer zone of local provenance pine was part of the original agreement when this land was sold, but this has not been carried through.)

References

Sykes, J.M. (1992) "Caledonian Pinewood regeneration: progress after 16 years of enclosure at Collie Coire, Perthshire" *Arboricultural Journal* 1992, Vol. 16 pp61-67.
Young, P. (1993) 'Regeneration of Native Pinewoods: a case study of two remnants in the South-West Highlands' Environmental Management M Sc. Dissertation, Stirling University.

Collie Coire Chuile: Visit

We arrived at the roadside opposite the site at lunch time, but due to circumstances beyond the control of the group commanders we were only able to view this pinewood from a distance brought only a little closer with binoculars. This was a disappointment to all of us and although the presenters and the handout gave a lot of detail, critical examination and worthwhile discussion was lacking without the necessary "within wood" experience.

Again the question of seed collections was raised as it appeared the collecting is being done by a commercial forestry contractor but few details were available.

From the details available and the general discussion it would appear that this old woodland is by no means under threat of extinction, except that is from walkers and fire.

Blackmount Pinewoods

Introduction

This site has been visited twice before in NWDG meetings. This third visit gives members the opportunity to assess the progress of one of the first integrated management programmes aimed at conserving a pinewood.

Background

The woodland we see at Doire Darach today is considered to be a fragment of the native woodland which, formerly, covered much of the surrounding land except the upper slopes of the mountains and the deep water-logged peats. The site may represent a largely undisturbed woodland soil, but it is unlikely that the woodland itself reflects the natural forest state for the area. The second statistical account of 1843 describes the continuing exploitation of these woodlands, it refers to fragments, many of which survive to this day.

Description

An open pinewood extending for 1.5km along the southern shore of Loch Tulla (170m alt). The extent of actual native pinewood is about 60 ha although the SSSI covers 193 ha. Scots pine dominates the lower reaches of the wood, but the proportion of birch, rowan and willow increase up the flanks of Mam Carruigh, the deciduous elements extending up to 270m.

The vegetation in the lower sections reflects the topographical pattern of raised hummocks separated by peat filled hollows; the drier raised areas support heathier vegetation typical of dry pinewoods, ling in more open locations with blaeberry favoured in shadier aspects - crowberry, cowberry, chickweed wintergreen, dwarf cornel and fir clubmoss are also present; ling, purple moor grass and deer sedge with bog myrtle predominate in the wetter areas. This patterning influences the regeneration.

An interesting insect flora characteristic of ancient pine forest has been recorded for the site.

Management

The management at Doire Darach represents a partnership approach. The senior partner in this instance is undoubtedly the owner. Without his initial action and continued interest the progress of native woodland management at the site would have been much slower. Records do not describe why this fragment survived, but they do describe modification in the form of selected felling followed by a long period of very low recruitment except among birch trees.

Latterly, in the 1930s, sporadic and flawed attempts were made to conserve the

woodland. These must have arisen out of interest in and concern for the pinewood habitat and the regeneration that did occur demonstrated the potential for recovery. A few enclosures were established together with what is now considered to be inappropriate planting of larch, Rhododendron and non-native Scots pine contributed little to the overall enhancement of the habitat.

The trigger event was probably the fire in 1975 which swept through the northern section of the wood (see map) between the road and the loch. Sections of the burnt area were enclosed and birch and rowan were cut back to encourage regrowth. Regeneration was prolific on the burnt soil and we can see today the thickets of birch, rowan and pine that resulted

The success of this work encouraged further activity, support and advice from the then NCC and FC which contributed to more extensive measures. In 1980 a programme was embarked upon which aimed to conserve and extend the remaining woodland. The NCC supported the initial series of deer exclosures aimed at encouraging natural regeneration, purely by preventing deer damage. The FC supported the pinewood extension scheme of planting with native source pine. The work was undertaken by the estate forestry managers, Scottish Woodlands Ltd.

The work continues today with a larger enclosure targeted at reversing the decline of pine on the slopes of Mam Carruigh.

The examples illustrated here are not unique, similar work is being undertaken at Crannoch Wood, Loch Dochard, Gleann Fuar, Bridge of Orchy and Glas Beinn.

Blackmount Pinewoods: Visit

Doire Darach

The first observation by everyone was the lack of natural regeneration due largely it was felt to the long rank heather growth, though even so there were indeed a few examples of up to 20 year old plants which somehow had managed to struggle up to heather height. Birch is very thick in places and here a suggestion was put forward that in the long term as the birch opened out or died, the pine would regenerate in the absence of the heather. In contrast to Glen Falloch, there was abundant flowering on almost all the old trees and a good seed collection could be made in '96-97' when perhaps a prior decision could be made to undertake a limited amount of screefing.

Many of the pine are showing signs of extreme age 300- 330 years though Steven and Carlisle 159' record most of the pine are over 120 years old and some much older. Core sampling would be interesting. Recently, seed collecting has been carried out and plants raised.

Perhaps one of the most interesting parts of this sit was at the last stop where an area had

been ploughed and planted in 1961 with seed and plants from the old wood, and was thriving, in fact seed had been collected from it already. It was felt that this was a good practical approach and could well be implemented alongside other native pinewoods to co-exist, as it were, in the general effort to maintain the widest possible genetic structure. Though such 'artificial' plantings could not perhaps be termed native pinewoods, at least under the present definition.

At this point a few hungry midges began to awaken to our presence though even they did little to detract from the successful interesting and inspired discussion. Let us now look forward to continued inspired results, much has indeed been achieved but it does take time which is perhaps why we don't always feel we have progressed a great deal.

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NATIVE PINWOODS.GENE CONSERVATION.TREATMENT.

1). It would seem that there is a pressing need for an experienced forester to visit each of the 36 Native stands and write a prescription for their management.

2). Gene conservation could best be obtained by sampling a large cross section of the population perhaps of the 500 trees using high pruners and/or a gun with about 5 to 10 cones per tree.

This seed could be held in store and/or planted in due course into blocks away from any contamination for eventual seed collecting and perhaps return to the original source.

Many of the old stands are small, scattered and planted through and very difficult or impossible to conserve in their original state. Properly sampled seed collections now would ensure the genetic content would not be lost. (Faulkner - McLean).

REPORT ON VISIT TO NATIVE PINWOODS.

Ref: 42.28.

8/2/78 GLENMORISTON. (F.C.) (R.F. - A.P. - C.N. - M.T.T.P.).

There are two more or less adjacent fairly close grown blocks of 70 to 150 year old pine very few of which have yet produced spreading or rounded crowns and flattened bark associated with very old trees.

The whole area has been planted through with foreign S.P. and other spp., and the only hope of conservation and preservation is to complete plough a large area around the blocks and remove all foreign S.P. for a considerable distance to the west. Natural regeneration could then be accepted and/or planting of the native material. Fencing might also be a necessary consideration.

An alternative consideration should be given to the establishment of a new reserve on the opposite side of the glen where there is a new acquisition.

A large area of ground to the west (planted through) carries widely spaced old native pine too far apart to ensure adequate cross pollination. If the entire original stand was considered for conservation the whole area would have to be ploughed through and replanted with native material. For many years any regeneration which might take place would very likely be selfed. During the week of the 15th Feb., 700 g of seed was collected in a costly trial of climbing and felling.

GLENGARRY. (F.C.)

Very few of the pure "close grown" areas of Native Pine are now left and have either been felled and planted through or clear felled, leaving scattered isolated individuals. At the far west above Greenfield there are two small compact blocks of native pine, left it appears mainly because of a deer pass running down between the plantation alongside the Greenfield burn.

There would appear only to be two possible ways of continued conservation here:

1). Plough and plant the Deer Pass with seed collected from the adjacent native pine

and/or replanting the adjacent (to west) P.75/77 ploughing after removal of the present planting.

No regeneration seen, seed could be collected by high pruners.

9.2.78 GLEN NEVIS. (PRIVATE - BRITISH ALUMINIUM).

This is a very small stand of perhaps 200 to 400 trees and fairly widely spaced. Most of the trees probably very old. One tree said to be 400 years old (C. McLean).

There is no regeneration.

The only hope here would be fencing and hand drainage and turf planting.

Seed collection by high pruners.

GLEN LOY. (F.C.).

A perfectly balanced ecological native pine area except for the absence of regeneration.

Some of the trees are very old and the stocking is good. Group planting on turfs in the more open areas and/or some form of intense cultivation would seem to be the answer. There appears to be no adjacent reserve of unplanted ground. Immediately to the west the ground is open but privately owned.

23.2.78 ACHNASHELLACH AND GLENCARRON. (PRIVATE)

Seen only from road and M.T.T.P. discussed with forester Bob Murdoch.

According to the forest maps there is only a small area of Native Woodland left in the Glencarron estate and most of it comes within the F.C. boundary.

The owner Mr. Sladen is not living locally but there is a stalker Brian Watson who could only refer me to Jack Evans.

There are three separate areas of F.C. owned native pine at Achnashellach all of which could be classed as the same origin. If the owner was interested a comparatively cheap collection by F.C. staff at Achnashellach using long pruners might be considered from all or any of these areas for the Glencarron Estate needs. A large unplanted area lies adjacent to the private section of the native wood. Seed could also be collected for possible use on F.C. ground at Achnashellach.

27.2.78. BEINN RICHE (N.C.C.) C.M. - M.T.T.P.

Met Mr. Ball (Area Officer), Mr. Collier (Chief Warden), Mr. Cross (Beinn Riche, Warden) at Anascaun Field station.

Discussed the native pine wood regeneration and advised on selection and methods of collection. Later several areas were visited to ascertain seed crops available. It was thought that the young regeneration areas might be carrying cone crops which would be easy to collect but unfortunately there were no cones at all on the young tree.

It was later agreed that attempts would be made by the local Nature Conservancy staff to collect cones from the old trees which have reasonable crops throughout using high pruners. It may be possible to loan pruners from Research sources over the next few weeks.

Stress was laid on the importance of collecting a few cones from as many trees as possible - eg. 50 to 100 cones from at least 100 trees = av. 7500 cones = 1.34 hl = 933g approx. (~~3250~~ transplants).

A cut test on a number of trees gave an average of 12 seed per cone which indicates a reasonable yield of seed.

At the moment the Nature Conservancy have no Beinn Riche seed in store and it is hoped to build up a stock for use over the next few years.

Mr Ball also mentioned that the N.C.C. also hope to collect seed from Shieldaig (from which source resultant plants are used on Rhum). This collection was discussed and Mr. Ball agreed that any surplus seed might be made available to the Shieldaig estate if they require it. This should therefore take care of this particular native stand and no F.C. visit should be necessary.

23.2.78 COULIN. (PRIVATE) C.M. - M.T.T.P.

Met Capt. Wills and Jack Evans at Coulin Lodge.

The estate is proposing to plant initially some 40 ha over a few years using native pine from Coulin and advice was given regarding the amount of cones and seed required and the best means to achieve this.

After discussion C.M. and myself inspected Egan Dorchs area, the upper end of which contains many very old trees in a fairly compact wood. All the trees are dying (many already dead) with very thin sparse crowns and yellowing to light green needles, and there are no cones worth collecting. However down the glen towards the track over the Coulin Pass and to the east of the pass track, up to 50 trees were counted with over 50 cones on each which could be collected. This is 5000 cones ² approx. 1 hl and ~~12500~~ transplants, sufficient for ~~24~~ ha. Also visited the old pine woods at the N.W. end of Loch Clair but very few cones seen.

The lower end of Egan Dorchs and to the east of the Coulin pass road would therefore be the best areas for seed collections and the owner and factor agreed that they would collect seed from these cones using high pruners and sampling a large no. of trees.

1/3/78. ANAT. (PRIVATE)

We met Mr. Murray the forester at the entrance gates to Anat Lodge.

Mr. Murray first showed us a very interesting area of 13 year old S.P. composed of 1000 plants derived from a seed collection made by C. McLean in 1960-61 from a wide range of trees at Anat native woodlands. Some of the seed went to Saltoun and some we gifted to Anat estate. These trees are now coning and a very useful easy collection could be made. C.M. suggested thinning the stand.

The main block of native pine at Anat lies on a south facing slope (most native stands face north) is extensive and well stocked with mainly very old trees. No regeneration seen. Seed collections could very easily be made here using high pruners and collecting from a large number of trees.

It appears that the owner Lady Robson is very interested in the old native woods and is also keen to preserve them and carry out a replanting programme in the absence of regeneration.

Cone collection to start as soon as possible.

2.5.78 RHIDORROCH (EAST). (PRIVATE).

Mr. Forayth the farm manager met us at the lodge and the purpose and methods of a possible cone collection were discussed. We then climbed the hill into the native pine area to assess the cone crop and found this to be very good.

Again pruner collecting seemed best suited and we carried out a little exercise collecting a set number of cones from a range of trees merely by reaching up and pulling branches down. Using this method it appears that one man could collect very easily 100 cones per hour or 500-600 per day. Two men could therefore collect 1000 cones per day which = (approx.) sufficient plants to stock 1 ha at 2 x 2 m. We advised Mr. Forayth of this and it appears that he may do the work himself as he has no labour. However it was pointed out that Mr. Christie should be contacted if F.C. labour was required.

The owner Mr. Vanveen is very keen to preserve the old pines and we were shown an area which he proposes to plant with material from the native pine wood at Rhidorroch. This is an excellent site though fencing and ploughing would be required. The area lies just east of the lodge on the hill facing south. It would appear that something like 10 ha is under consideration.

A fair amount of heavily grazed natural regeneration was seen though there are deer and sheep on the ground.

A further suggestion would be to fence off a small part of the old native wood at a time (plus perhaps some cultivation) and then move the fence over as the natural regeneration become established.

Any surplus seed from any collections made could be offered to the neighbouring estate of Rhidorroch (west) if they so desired and a planting programme considered as estates adjoin and the native pines also adjoin though on Rhidorroch west there are very few native trees left and those very scattered.

No approach made to the owner.

M.T.T. Phillips.

7/3/78.