

SCOTTISH WOODLAND HISTORY DISCUSSION GROUP (SWHDG)

NOTES VII



SEVENTH MEETING

WEDNESDAY 6TH NOVEMBER 2002

**SCOTTISH NATURAL HERITAGE CENTRE
BATTLEBY, PERTH**

A C K N O W L E D G E M E N T S

The Scottish Woodland History Discussion Group is indebted to the undernoted for their sponsorship and help in making the seventh meeting of the group a success:



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Front cover photograph: Glen Tanar pines

CONTENTS

CONFERENCE REPORT

Chris Smout & Fiona Watson

i

NATIVE WOODLAND MANAGEMENT IN SUTHERLAND: THE DOCUMENTARY EVIDENCE

Malcolm Bangor-Jones

page 1

POSSIBLE FUTURE TOPICS FOR SCOTTISH WOODLAND HISTORY RESEARCH

Chris Smout

page 6

WRITERS AND WOODLAND

John Fowler

page 11

SEEING THE WOOD AND THE TREES: DENDROCHRONOLOGICAL STUDIES IN SCOTLAND

Anne Crone & Coralie Mills

page 14

NATIVE TIMBER IN CONSTRUCTION - STRATHSPEY'S UNIQUE HISTORY

Una Lee

page 23

MANAGING ARCHAEOLOGICAL SITES IN WOODLAND - A QUESTION OF VALUE OR AESTHETICS?

Jonathan Wordsworth

page 30

TWO WOODS AND A POND

Brian & Barbara Ballinger

page 32

FEDDANHILL - PLANTATION OR WOODLAND?

Graham Tuley

page 34

SCOTTISH WOODLAND HISTORY DISCUSSION GROUP

CONFERENCE REPORT

The seventh annual meeting of SWHDG, held at Battleby on 6 November 2002, had no particular theme but was devoted to exploring what members had been doing in their own research and activities. The answers made for a very varied and fascinating day, with lots of lively discussion.

Malcolm Bangor-Jones began by describing years of work in the archives on the woodland history of Sutherland, where records of exploitation go back to the sixteenth century. Access to the timber resource was always controlled by the landowners who gave permission for cutting and bound the tenants to preserve the woods. The seventeenth-century lairds also controlled the manufacture of bloomery iron, encouraged a wood trade from Strathnaver to Caithness, and specified that felling should take place in February and March 'on the growth of the moon'. In the eighteenth century, exploitation intensified. Oak was systematically coppiced at Creich and the rise of herring fishing created pressure on the woods in the north-west through the use of tanbark for the nets and birch to smoke the catch. As the resource grew scarcer, landlords took measures to preserve it, and when the big sheep farmers replaced the peasantry in the early nineteenth century, the clearances were accompanied by the revival and spread of many of the birch woods. As long as careful shepherding remained, sheep and the regeneration of the woods were surprisingly compatible.

Next there followed two presentations based on books on the edge of publication. Chris Smout explained the nature and content of *People and Woods in Scotland: a History*, commissioned by the Forestry Commission to mark the year of 'Treefest' as a survey of forest history since the last Ice Age. Reflecting on what we still did not know and might pursue, he presented a list of problems and projects for Scottish woodland historians for the future (see below pages 6-10). John Fowler, author of *Landscape and Lives: the Scottish Forest Through the Ages*, introduced past writers who have dealt with trees, with particular reference to the poets. Sir Walter Scott, planter extraordinaire as well as a novelist and poet, railed against the insensitive thrusting of a 'great black patch' of conifers on a hillside. Wordsworth damned the felling of venerable woods in the Lakes and condemned the vogue for planting larch, a tree 'less than any other pleasing'. So exotics have always had voluble critics.

After lunch, the dendrochronologists Anne Crone and Coralie Mills explained their science, and showed how tree-ring analysis could throw light on medieval history. For the roof timbers of large buildings, there is evidence of increasing reliance on Baltic and Scandinavian oak after the end of the fourteenth century as big trees became hard to find in Scotland. Pine imports also began to appear shortly after. Whereas scientists have built up an impressive oak tree-ring chronology over many centuries and many lands, so that a beam can be traced to its birth and felling year and area of provenance, the same has not yet been done for Scots pine. However, a project involving trees in Glen Loyn should help to remedy this for the period since the mid-fifteenth century. Una Lee followed, describing a project investigating the native pine in buildings in Strathspey, which included the discovery of the oldest known surviving softwood roof in the British Isles, built in the sixteenth century on Castle Grant. The trees used were fine and straight, quite unlike the tortured ‘granny pines’ of popular imagination, but comparable to the best Caledonian pine still coming out of the area.

Jonathan Wordsworth then posed us all a question – if an archaeological site becomes not only overgrown, but also overthrown, by picturesque trees, what do you do? His conundrum was actual: the deserted village of Lawers in Perthshire where gean, ash and other trees are pushing over the ruins. The discussion group, never prepared to hold back, gave him abundant conflicting advice. In cases like this, the biggest questions are how significant the archaeology might be and how the community might feel. Those amongst us who belong to what was disparagingly called the ‘owls and ivy brigade’, were in favour of letting nature take its picturesque course. Others, who pointed out that trees were a renewable resource and ruins were not, were all for ruthless cut and carry, but the management would need to be kept up if the problem was not to reappear every few years.

The two last papers were also about practical problems, but those that arise when you buy a wood as a ‘hobby forester’. You want to make sure that you know its history and have a plan to manage it properly for biodiversity and landscape. Brian and Barbara Ballinger gave a lively description of their quest for such a wood, and their endeavours to transform a conifer plantation on a Ross-shire heath into something more diverse, without obliterating all traces of its past. Judging from the pictures, they were being wonderfully successful. Graham Tuley was doing something similar not far away on the Black Isle, but his account concentrated on the discovery in the wood of an old rifle range, and the use of a succession of maps to illuminate its past.

Altogether, it was an extremely rich and satisfying day. It ended with a determination to organise a field outing next May or June to Darnaway to see the remnants of the most famous of all the old royal forests in Scotland.

Anyone interested in joining the Scottish Woodland History Discussion Group should contact Nicola Jeffress, AHRB Research Centre for Environmental History, University of Stirling, Stirling, FK9 4LA.

CHRIS SMOUT AND FIONA WATSON

NATIVE WOODLAND MANAGEMENT IN SUTHERLAND: THE DOCUMENTARY EVIDENCE

MALCOLM BANGOR-JONES

This short paper attempts the task of covering 300 years of woodland history – from 1600 to 1900. It is a very brief impressionistic survey. Others have already drawn attention to the cartographic sources: this paper draws on some of the documentary evidence.

Geography of estates and native woodlands

Land went hand in hand with power and an awareness of landownership and the geographical distribution of estates is essential to woodland history. The Sutherland estate dominated the structure of landownership in Sutherland. However, while it reached its largest extent in 1858, this was the result of over two centuries of gradual expansion. It is important to bear in mind too that there were other estates: the very extensive Reay estate; Assynt, a separate entity until bought by Sutherland family in 1757; and a number of properties which were never acquired by the Sutherland family, including Strathoykel, Skibo, Pulrossie, and Gruids.

The native woodlands consisted of birch woods, locally important patches of, for instance, hazel and alder, and also oak woodlands, particularly along the Kyle of Sutherland and the Dornoch Firth. No native pinewoods survived from the prehistoric times in Sutherland, despite assertions to the contrary. The straggling remnants at Invercassley were planted in the early 1800s while the well-known Loch Assynt pines – which unfortunately appear in a map in the recent book on Beinn Eighe – were planted in the late 1860s.

Preservation and management

Access to the native woodlands was controlled by the landlords. Tenants were generally prevented by their tenurial arrangements from cutting wood. Furthermore, to quote from a lease, on the Sutherland estate tenants were bound to “preserve the wood growing on the...lands and to prevent their being Cut or destroyed by any person whatsoever”.

It was recognised that tenants needed wood for their houses and farm buildings. In 1642, Lord Reay agreed to give the possessor of Carnachy in Strathnaver a lease of the “hail Landis and Grassingis and su muiche of ye Woodis of LetterMuniscarrie”. Any future tacksman was not to cut the woods, except as much “as may Sufficentlie serve for ye saidis gentlemen and yr bowmen [herds] duelling houssis byres barnes and shealing bothies”. Cutting was to take place either in February or March “on ye grouth and Incres of ye moone” (a stipulation found throughout Scotland in the 17th century), with Lord Reay’s “bailyes or oficeris being socht and desyrit to be present”.

In 1682 the tenant of Shiness in the parish of Lairg promised to “preserve and keep ye woods...frie from all skeith and damage”, but was granted “wood leave” for maintaining the houses. Similarly, in 1736 west coast tenants on the Reay estate were allowed to cut timber for “repairing and upholding the said houses and bigings in any of the woods of Eddrachillis”. The Reay estate also contained what were known as “prohibited” woods which the tenants were not allowed to use.

At the time of the Clearances, the main timbers in the tenants' houses, the cruck couples, were the property of the landlord. The smaller timbers, usually unearthed from the peat bogs, were allowed to belong to the tenants.

Exploitation

In the late 16th and early 17th centuries there was a fair amount of iron working in Sutherland - commonly located near to woodland. It was not always welcomed. In the 1620s tenants were prosecuted for making iron in the woods of Creich. However, financially hard-pressed landlords could be tempted. In 1634 Lord Reay granted one of his creditors "speciall and full power...to cutt ye woodis and growand treis sproung upe & growand...mak Irone and all uther kynd of comoditie". It is difficult in the present state of knowledge to assess the long-term impact of such activity. In Sutherland iron-making had come to an end long before the end of the 17th century and its impact may not have been as significant as has been previously thought.

Many landlords experienced financial difficulties in the 17th century – these were not the best circumstances to encourage the sustainable use of woodlands. However, most landlords employed woodkeepers to keep a watch on their woods and to report woodstealers. Prosecutions were not uncommon. In 1700 the inhabitants of upper Strathnaver and Strath Halladale were summoned to answer "for cutting stealing & peiling of my lord Strathna[ve]rs woods". Thomas roy confessed to "the takeing of ane half load of bark out of the wood of Skelpick". However, the sheriff forgave this fault. John Mackay in Truderscaig admitted to sending "two lead of bark out of the said wood in tuo severall yeires to thurso and thrie or four lead off timber for caibres pleughes". He also stated that some local lairds or tacksmen had taken timber to build their houses. This is further evidence of a trade in timber with largely treeless Caithness which no doubt enabled the people of Strathnaver to buy in much needed grain.

The Creich Oakwoods

The Creich oakwoods appear to have been managed from an early period. The oaks were reserved for periodic exploitation, and also the larger birches. In 1695 a 4-year contract was signed with a merchant from Portsoy for the "great Oak and Birk timber wood of Meikle Altess". The merchant was allowed to cut - albeit only on the growth of the moon - any oaks or birch trees "Consisting of Tuentie four inchs about 3 foot abow ground", excepting any birch trees which were "instantly capable to be made couple trees" for houses.

In 1787 the woodkeeper reported that about 200 of the Migdale oaks "ought to be cut and sold off." Several offers were obtained. A merchant at Burghhead made an offer for all trees above 6 inches circumference for building a sloop on the Dornoch Firth. He promised to "cut the wood properly, that it shall not injure the second growth." The Ledmore woods between Creich and Spinningdale, were shared between two estates. The woods were of particular value, not only for timber, but also as wood pasture. Part is now managed by the Woodland Trust.

Growing pressures in the 18th century

As has been recognised, pressure on the woods in Sutherland increased as population grew during the 18th century. In 1765 the Assynt woods were being cut and smuggled away by men from Eddrachillis for sale in Lewis and Caithness. Wood cutting, the peeling of bark, and destruction of woodland by muirburn - evidently a well-established practice - had all gone unchecked for some time in eastern Sutherland. In 1784 the estate manager was faced with a severe outbreak of illegal activity, particularly from tenants cutting wood for their houses. Woodkeepers' salaries were withheld, prosecutions were made, and no tenant was to get even "a

stick” without payment. Also, with peat diggings running out in some areas, people may have turned to the woods for fuel.

The rise of the herring fishing during the 18th century created additional pressures. People in Assynt and Eddrachillis sold bark to the large vessels from the Clyde ports – the herring busses - for preserving nets and sails. Bark was also used for local boats and wood was cut for smoking herrings at the fishing stations.

In 1817 the factor for Assynt stated “that this country was, a few years ago nearly covered with wood, but owing to the tenants being allowed to cut down as much of it as they pleased & to destroy by peeling off the bark, there is now scarcely a tree standing in the parish”. No doubt he was guilty of exaggeration. However, the cumulative impact of these pressures may have been severe.

The new estate managements

Things had already begun to change, not only on the Sutherland estate but also on other properties. Estate managements were becoming much more efficient. The Sutherland family looked for “more vigorous and determined measures” from their factors to protect the native woodlands. Woodstealers were to be removed.

One important development was the provision by the estate of timber for building. This was easily undertaken on the east coast where large plantations had been established and could be harvested. On the north and west coasts this was more difficult, and initially timber was still taken from the native woodlands. In due course it would be imported.

But peeling or barking continued to be quite common. In 1831 the wet ground alongside the River Oykel was “getting rapidly Covered with Allar Trees” but it was noticed that “severals of them [had been] deprived of their bark, which the Country people employ to produce a black die.”

Sheep farming

The impact of sheep farming is of particular interest, especially in view of the claims which have been made in the past about its damaging effect on native woodlands. The documentary evidence for Sutherland suggests that this view must be modified.

Firstly we should note the conditions under which the sheep farmers held their lands. Each farmer was bound not “to injure or damage any tree or trees, or any of the natural woods growing thereon or to suffer the same to be so damaged or Cut down by any of his Family, servants or Cattle; and to use his best endeavour, to protect, and increase the growth of the said natural woods”. In 1831 it was also laid down that “for every tree so cut or damaged it shall be optional in the Proprietors to charge him [the tenant] £5 Stg of additional Rent.”

How did sheep farmers manage to comply with these conditions? It was not by enclosing the woods. In 1807 with the creation of the first massive sheep farm on the Sutherland estate, the wood of Achinduich had been enclosed and partly planted. However, within a few years the sheepfarmers were looking for compensation for loss of wintering. The factor concluded that "I wish the wood had been left as it was, the sacrifice in money is really too much. The old Birches woud have protected themselves with a little care on the tenants part, absolutely I regret the money that this place has, and will cost". Rather, careful management on the sheepfarmer's

part - and on the part of his manager and shepherds - appears to have been the key. The absence of small tenants must have also assisted.

Within 10 to 20 years of the introduction of sheepfarming on the Sutherland estate the effects were startling. In 1830 it was reported that "the birch woods are rising rapidly all over Assynt and are now an object worthy of attention". By 1835 the woods had "grown very considerably; and immediate steps should be taken to have them thinned and properly trained." Instructions had been issued a few years earlier for the woods of Scale in Strathnaver and Suisgill in Kildonan: they were to be "put upon a regular system of cutting so as to make use of that which is decaying & at the same time so as not to denude the sheep farms." On the north coast, the harvested timber was given to small tenants for their houses and the brush for their yards.

In 1842 the Strathnaver woods were to be given a thinning. Patrick Sellar, sheepfarmer extraordinaire, advised that "The thinning is Chiefly wanted at Grubmore – where an axe has never yet fallen, & the Birch is quite Choked with Willow & hazel – Would you be so good as to begin there? But, if you Could postpone it to Spring, when the Sap is rising in the trees, your money will go twice the length; and, as the Braxy Season will then be past, & no Grass to Soil, it will be a better Job for all parties. I have Spent nearly £250 in Similar work at Acharn But had I taken October to it, £400 would not have gone over the Same ground I assure you".

I would not wish to give the impression that sheep farming was the best form of land use for the native woodlands. In 1835 the estate commissioner noticed that in the Strath of Kildonan the "Birch woods are growing, although I suspect those on Mr Houston's farm have again Suffered from fire, which is very provoking, and must be checked." Indeed, fire was a problem which did not go away.

Deer Forests and shootings

How should we assess the 'deer forest era'? Did it bring changes which would have been detrimental to woodlands? What was the impact of heather burning and increased deer numbers? We are very far from being able to answer these questions but let us briefly consider some evidence from the 1890s. A ground officer was pleased that one of the sheep farmers did not get permission to burn more heather: "all Glen Loth and Sleadle is over burnt for the last two years and the shepherd without assistance used to burn after I was through with burning."

A shooting tenant in the Strath of Kildonan was concerned that the estate was not keeping up the plantations. The fences were down and cattle and sheep were straying. The plantations were the only shelter for game during winter and the grouse sheltered in the long heather. It would be a hardship to the tenant "if the enclosure were let for grazing and the heather burnt inside as severely as it is outside." We have to remember that the number of deer forests – land cleared of livestock - was still limited, although it was growing. However, the sporting tenancies were mostly organised into "shootings" which took place over farmland. It is possible that farmers were operating in a more intensive mode: more sheep, more heather burning, all in an attempt to counter the impact of agricultural depression.

There was also shooting over croftland where similar problems could arise. A gamekeeper requested a copy of the "Rules of the heather burning the Linsid Crofters are now under the Comission Act. the Ground is Small And Cant Stand to Much Burning Mr Hall [the shooting tenant] says there is always to much Burnt And all parties goes and Sets fires through the Hill, whithout Giving any Notic to me and Goes off and leave is Burning". The tenant also complained, citing both heather burning and overstocking of sheep. Crofters were facing the

same pressures from low prices for their produce as the sheep farmers. At the same time, with changes such as the rise of the Highland Land League and the advent of local authorities, there was also less respect for the estate management's authority.

I am not saying that the impact of deer was insignificant— one only has to see the way the trees are currently taking off in the enclosures in the Inchnadamph Nature Reserve in Assynt to appreciate the impact deer can have. I am merely suggesting that the picture is complex and there is much work to be done here.

Concluding remarks

It is clear that efforts were made in Sutherland to preserve the native woodlands, and encourage regeneration, although, like other parts of Highlands, we hear very little about enclosing. Despite these efforts one gains an impression of a gradually shrinking asset. Some woodlands were indeed protected, and at times, encouraged. However, there are areas which were wooded, which lost their woodland cover, and are still treeless. Only the Creich oakwoods appear to have been coppiced on a regular cycle. Such intensive cropping does not appear to have taken place elsewhere in Sutherland.

Although we know a fair amount about estate management in general terms we are far from being able to identify management aims and practices in detail. We also do not know the extent to which local people, the small tenants, crofters and cottars, engaged consciously in woodland 'management', even if in an informal way. While one can find a good deal of evidence within Sutherland of native woodlands of trees with a pollarded form, we do not really know the circumstances under which these were created. How extensive was the technique of 'cutting high'? Was it a conscious management practice or merely a convenient way of helping yourself to timber? There are many questions and, as yet, not too many answers.

POSSIBLE FUTURE TOPICS FOR SCOTTISH WOODLAND HISTORY RESEARCH

CHRIS SMOUT

At the meeting, I took the opportunity to explain the nature and content of *People and Woods in Scotland: a History* (Edinburgh University Press, 2002) a volume that I had the honour of editing for the Forestry Commission as part of the *Treefest* celebrations, and to which several members of SWHDG contributed. As that book is now published, there is no point in recapitulating here what I said about it. However, I also reflected (largely in the light of my task as editor) on what might be some future topics for woodland history research in Scotland, on tasks that needed doing and opportunities that might present themselves.

I chose ten topics of very different kinds.

1. A fuller critique of F.W.M. Vera's theory that prehistoric woodland in northern Europe was essentially wood pasture, a series of groves set in a matrix of open country, rather than a closed canopy of high forest with scattered open patches, the paradigm expressed by Peterken and others. Vera's *Grazing Ecology and Forest History* (Cabi Publishing, Wallingford, 2000) is proving extremely influential with forest ecologists and managers in the Forestry Commission, English Nature, the English National Trust and the Woodland Trust, and has received considerable acclaim (see *New Scientist*, 7 Sept., 2002, pp. 35-37). Peterken's own review was more cautious (*British Wildlife*, Feb., 2001, pp. 225-6): he described it as a "polemic, an advocate's statement that should be read with caution", though more recently (see *NS, loc. cit.*) he has said that "the difference between the high forest and wood pasture hypothesis may be a matter of degree . . . perhaps we can agree that openings lasted longer and formed a higher proportion of the natural forest than most of us have envisaged, without having to accept that wood pasture was everywhere all the time".
 - palynology, ecology, archaeology
 - prehistoric and early historic

Most of the reviews of which I am aware, however, have come from ecologists, although this is really as much an historical as an ecological hypothesis. I found it compelling on first reading, but it has to be said that, in my personal experience, forest scientists as far apart as Bialowieza in Poland and Duke Forest in North Carolina do not recognise Vera's account of the past and present state of their woods. Nevertheless, I am not aware of any written critique from them. To a considerable extent the hypothesis must hinge on palynological evidence, for only this technique has the power to track woodland history over very long periods. Tipping (*pers. comm.*) has suggested that Vera's appreciation of what palynology can and cannot tell us about primary woodlands is somewhat skewed by limited reading on the subject and no practical expertise. What is urgently needed, then, is a really well-informed critique of Vera's book from these perspectives. It is urgent because, in the opinion of at least one Forest Enterprise ecologist, Vera's opinions are set to become as influential in the coming decades as those of Peterken and Rackham.

2. A central database of archaeological timber finds in early structures, by site, purpose, species, dimension, and age.

One of the fascinating outcomes (for me) of editing *People and Woods* was my personal discovery of the wealth of data that archaeologists hold about past timber structures, often accurately dated by radio-carbon or palynological techniques, and identifiable by species. It is an invaluable resource for understanding the past character and distribution of woods, and

often strongly suggestive of management practices such as coppicing, or of the availability or otherwise of large timbers. As far as I know, however, all this information is scattered in excavation reports, museum inventories and similar places. Would it not be a very worthwhile enterprise for Historic Scotland or RCAHMS (or some other body) to gather all this prehistoric, early historic and medieval information together into a single database?

- archaeology, including dendrochronology and carbon dating
 - prehistoric, early historic, medieval

3. A database of place-names with woodland elements.

The study of place-names (toponymy) has a long history in Scotland, but also a long history of under-funding which has recently been brought to the attention of the Scottish Parliament, though with what outcome remains to be seen. Woodland elements in Scottish place-names are numerous, evocative and various, from Sauchiehall Street and Kingussie to Askedal and Oakbank – at least four languages involved. They can also be exceedingly informative to the woodland historian, for example when Loch Ghiubhachain in Wester Ross reveals by its name the site of a vanished pinewood, or even, in Edinburgh, the school name Darroch, not so far from Wrights Houses, reveals the presence of a long-lost oakwood. Perhaps this is the sort of topic best approached initially through a Ph.D. thesis.

- place-name science, local history
 - early historic and medieval

4. The extent of medieval woodland explored through pollen analysis.

How much woodland was there left in Scotland at the beginning and end of the middle ages? We have a generalised view, formed from the work of palynologists and archaeologists, of a considerably diminished woodland resource between the end of the Bronze Age and just before the arrival of the Romans, largely due to Iron Age clearing for agriculture, but thereafter there has been little work on any scale done to determine the extent of the wood, until we can analyse Pont's maps and those of General Roy. Historians have long hypothesised a decline in the resource from the fourteenth century onwards, signified by increasing difficulty in sourcing large timbers from within Scotland and the growth of an import trade, but it is probably only palynologists who will ultimately be able to tell us how extensive the medieval woods were on upland and lowland alike, and when they declined. In some ways the postulated decline of the woods in the fourteenth and fifteenth centuries is counter-intuitive, as the Black Death of the mid-fourteenth century could have carried off a third of the population and led (as apparently in Norway) to deserted farms in marginal situations and the reclothing of the land by forest. In few other eras is even the outline of our forest history as obscure as in medieval times.

- palynology
 - Medieval

5. Further work on early maps to establish the reliability and usefulness of Pont, Gordon, Roy and estate maps.

Very large strides have been made in recent years in the understanding, and also in the accessibility on the web, of Scottish maps between ca. 1590 and ca. 1760, and there are plans to extend the work a good deal further.

Nevertheless, there is a lot that we do not understand and much that needs further close examination. For example, can we read Gordon's maps as informed redrawing of Pont's sketches, or are they mere embellishments? This matters because Gordon left draft maps of many areas for which there are no Pont originals and some for which there are. Although

they are all based on Pont, they almost invariably show more woodland than Pont does. If history had left us all of Gordon but none of Pont we would probably come to the conclusion that there had been a very sharp fall in woodland cover between his day and that of Roy's survey a century later. I incline to the view that Gordon was often an embellisher who took liberties with the Pont originals, but more critical study might show otherwise, or qualify this harsh opinion. Local historians, for example, might be able to verify in detail his depiction of woods, from independent sources.

Similarly with Roy, there is a real need to verify what is for practical purposes usually accepted as a definitive survey, used for Ancient Woodland Inventories and the like. We know that there are substantial differences between the protracted and the fair copies. What are the implications? We know that there are important omissions of woodland, such as in Muckairn parish on the very doorstep of Bunawe furnace, or of the Loch Clair pinewoods in Wester Ross. How extensive and important were they? Local historians using estate maps to compare with Roy's Survey could provide a critique that would be invaluable for conservation purposes as well as for historical research.

There is also another consideration. It was said in the eighteenth century that "our Highland woods change their stances", meaning that as birch and pine do not regenerate under their own shade, they grow upon the moor next to a wood rather than regenerate on the site of an existing wood. Can this process be traced through historical cartography? It was certainly not always true: Rothiemurchus when felled regrew in the same spot. But if it can be shown to have been often true, where does this leave the concept of an ancient woodland site? Does it become a shifting rather than a fixed entity?

- local history, cartographic history, palynology
 - 16th – 18th centuries

6. Detailed studies of the variation in the size and composition of local woods.

To some extent this point overlaps with the last, but it is also of wider character. It is often easy to establish the continuity of a wood in a given locality. For example, *Macfarlane's Geographical Collections* may mention a wood in a Highland strath, it might be visible in Roy, and it might be on the Ancient Woodland Inventory today. It is easy to assume that because it is still there little has changed, but this might not at all be the case. In Glen Esk, for example, described as full of woods in the seventeenth century, the Pont maps show a concentration at the head of the glen and its feeder straths but nothing much in the lower part of the valley, whereas today the upper straths are bare but the lower part of the valley full of birch, much of it on previously cultivated ground. Similarly at Rhidorroch in Wester Ross, the present extent of the wood is probably 10-20% of the extent in the seventeenth and eighteenth centuries, and to say that the wood is "still there" is to understate the extent of its decline and alteration. Only careful local history using all available documents and maps can unravel these stories. Other changes might not be so much in locality as in composition: here, particularly, the western oakwoods are likely to have lost biodiversity and natural structure as a result of the drive to a monoculture of oak by charcoalers and tanbarkers in the eighteenth and early nineteenth centuries. That is more difficult to pick up, but sometimes estate papers or felling deeds describe species composition.

- local history, cartographic history
 - 16th – 20th centuries

7. Exploitation of the Victorian woods, with particular reference to local industries such as pyroligneous works, bobbin and shuttle mills, gunpowder works and sawmills of all kinds. There is a tendency to think that little happened in the woods between the end of the tanbark and charcoal boom around 1840 and the First World War, but nothing could be further from the truth. The coming of the railways and the steam ship produced a rush of activity in Scottish woods hitherto considered too remote to bother about, while the rise of industry produced markets for new products ranging from bobbins to herring bungs, from brooms to acids and explosives, which the Scottish woods could partly satisfy. Ultimately most of these markets were largely obliterated by further technological change (the invention of nitro-glycerine and dynamite replacing the use of alder and birch in making gunpowder) or by a further increase in imports (especially of American hardwoods in the late nineteenth century). But the tale of all these little works and enterprises, some fixed round watermills, others itinerating round portable steam sawmills, remains to be told in detail by local historians. Some of the concerns were quite famous in their day, like the Balmaha pyroligneous acid works; others survive even now, like the bucket mill and the sawmill in the Forest of Birse. All must have a good story around them.

- local history
 - 19th century

8. Exploring the local history of twentieth-century afforestation, especially with regard to timing, choice of location and species, constraints, technologies used, environmental impacts and social and economic impacts on the community.

Few changes in Scottish land-use have been so marked in physical terms, or so compressed in time, than the increase in the area under wood from about 5% of the land surface in 1900 to about 17% around 2000, with three quarters of the change compressed into about forty years of the second half of the century. It was an enormous undertaking, involving large numbers of people, arousing great hopes and great ire, and changing the face of Scotland for ever. The story nationally has never been treated at full length, but the story locally is even more interesting. Here is a truly wonderful opportunity to involve those who actually carried out most of the work, in oral history recollection, before it is too late. What actually happened? Why was one place chosen and not another? What did local people think of the afforestation projects? What was the story of those forest villages, so often later sold off as holiday homes? How far did local officers modify the instructions of head office, and why? Rumour has it that some of the better schemes, that combined modern forestry with the maximum possible sensitivity to scenery and biodiversity, came about because local officers bent their instructions from head office. There was apparently bending in another sense, too, by planters on piece-work who occasionally stuffed some of their saplings upside down into the same hole. What actually went on? Oral history would often need to be contextualised by documentary study, of course, but frequently the Forestry Commission has prolific records: they, too, may get trashed in the interests of office space before too long, no matter the anxiety of local archivists to get hold of them; so time is of the essence.

This seems to me to be a truly golden opportunity, and it is worth noting that a similar project is in progress in Wales, involving the National Museum of Wales and the Forestry Commission, and part funded by the Heritage Lottery Fund. Individuals could of course embark immediately on their own local projects here in Scotland, since nothing very elaborate is needed apart from time, energy and contacts, but there is a good deal to be said for a co-ordinated national project on the local history of afforestation, in the longer run, for which early individual efforts might serve as pilots.

- local history, including oral history
 - 20th centuryA similar project is in progress in Wales, involving the National Museum of Wales and the Forestry Commission, and part funded by the Heritage Lottery Fund.

If any reader of *SWHDG Notes* is particularly interested in this topic, either from the point of view of sharing their own experience or of starting a local project to investigate the twentieth-century history of afforestation, please write to me at the AHRB Research Centre for Environmental History, University of St. Andrews, St. Katharine's Lodge, The Scores, St. Andrews, Fife, KY16 9AL. A full-scale national project cannot, of course, be immediately arranged, but expressions of interest would be helpful in seeking funding and partners.

9. Exploring the indicator species of ancient woodland in Scotland, especially in the uplands.

In 1997, John and Alan Miles published in T.C. Smout (ed.), *Scottish Woodland History* (Scottish Cultural Press, reprint 2002) what they termed a “preliminary test in north-east Scotland” of the plant indicators of long-established woodland. Their results were “ecologically striking”, and, in their words, “suggest that more extensive studies, perhaps based on the existing inventory of ancient and long-established woodland (Walker and Kirby, 1989) would give worthwhile insights”, particularly if they illuminated colonisation and extinction rates of such indicator species, or threw light on the rare species that old woods accumulate with time. As far as I know, no ecologist or palynologist has risen to this challenge, and it remains of great importance. We cannot expect that the indicator species that mark woods as ancient in England or in the Scottish Lowlands will be the same as those in the Scottish Highlands, and until they are investigated in appropriate depth we are missing a trick in understanding and identifying better our older woods.

- ecology and palynology
 - all periods

10. Exploring local traditions of woodland use and belief.

It is sometimes said that Scotland is poor (in comparison to England, Germany or Scandinavia) in woodland tradition, whether relating to the ethnography of past use, or to the folklore traditions of past belief. On the other hand, some of the older collections of Gaelic folklore, notably Alexander Carmichael, *Carmina Gadelica* (Edinburgh, 1928) are quite rich in tree lore. Tess Darwin’s ethnobotanical research (reported in *Reforestation Scotland*, 1994, and elsewhere) is involved in this area, and it surely has continuing rich potential for local woodland historians to make a contribution.

- local history, including oral history
 - all periods

In listing these ten topics I am aware both of the danger of exposing my ignorance (perhaps some of them are already being actively investigated and I know nothing about it) and of appearing to lay down the law about what we should all be doing. But that is not the idea – it is to make proposals and suggestions from one perspective, to open new options and not to close any down.

WRITERS AND WOODLAND

JOHN FOWLER

While researching a book on the woodlands of Scotland* I've read many texts. Some are inspiring and a delight to read, others less so. At its best, the literature of trees and forests will recall the joy of walking in the woods and taking pleasure in the world of trees.

Poets may paint wonderful word pictures. Kenneth White - a Scottish poet and academic who taught until recently at the Sorbonne - asks us, in a poem called Interpretation of a Twisted Pine, to

*Behold the mad pine
Stark on the sky-line*

I've often thought of those lines when driving from Glasgow, past the head of Loch Lomond towards Crianlarich. There, along Glen Falloch, is what is commonly considered to be the most southerly surviving old Caledonian pinewood - just a few decrepit old trees, not really a woodland at all. As you approach, you catch sight of one or two of the survivors silhouetted against the sky - mad pines, indeed, and stark, just as the poet wrote.

Then there's Norman McCaig giving a voice to one rowan berry among a cluster, and imagining it pondering on the continuity of life; with the thought that

*in the next years
after next year, I'll be a tree,
swaying and swinging
with a genealogy of berries*

But I shan't dwell on poetic imagery, though trees and woods do make fine metaphors. The literature of the forest contains much wisdom and, often, a good deal of practical advice.

For centuries, texts have been written on the nature of trees, where they might be encouraged to grow, and how to plant and tend them. These range from down-to-earth manuals to lengthy treatises - and surprisingly often, views expressed long ago may seem just as relevant today.

I can't vouch for the diarist John Evelyn, a significant man of letters, whose encyclopedic work on trees and their culture, appropriately called *Sylva*, was first published towards the end of the 17th century. This is a very hard read. Writing in the following century Thomas Hamilton, the 6th Earl of Haddington, a keen tree planter (as was his wife), was severely critical of Evelyn. 'His style was too cramp', he wrote dismissively. Haddington thought he could do better, and produced his own treatise to prove it.

Sir Walter Scott was literally a tree planter. He got his hands dirty planting his own saplings and sowing the batches of acorns and seeds sent by friends. He liked nothing better than to be grubbing about in the woods which he raised on his formerly almost treeless estate at Abbotsford, near Melrose.

*Landscapes and Lives: the Scottish Forest Through the Ages, by John Fowler (Canongate, £16.99).

Scott's novels and poetry alike portray his love of trees. For example, *The Lady of the Lake*, a wonderful narrative poem, probably little read now, is filled with descriptions of scenery where the plants and trees natural to the Scottish countryside have been 'scattered free and wild' by 'boon nature'. Anyone seeking texts for a sermon on the virtues of native woodland, which is very much the environmental orthodoxy of today, could find plenty of texts in Scott. This passage from the *Lady of the Lake*, for example, in which he describes the wooded crags and glens of the Trossachs, might serve as a handy list of our main native species

Hawthorn and hazel mingled there
he writes, followed by
With boughs that quaked at every breath
Gray birch and aspen wept beneath.
Aloft, the ash and warrior oak
Cast anchor in the rifted rock;
And higher yet, the pine tree hung
His shattered trunk, and frequent flung,
Where seemed the cliffs to meet on high,
His boughs athwart the narrowed sky.

Scott, besides being a poet and novelist, also wrote shrewdly about silviculture. For example, in the library at Abbotsford, written in his own hand, can be found his woodland journal entitled *Sylva Abbotsfordiensis*, Memoranda concerning the woods and plantations at Abbotsford. This he began on New Year's Day 1819.

(In parenthesis - just before that date he had published his novel *The Heart of Midlothian*, in which dying laird Dumbiedykes adjures his son: 'Jock, when ye hae naething else to do, ye may be aye sticking in a tree ~ 5 will be growing, Jock, when ye're sleeping.')

In 1827 a long essay by Scott appeared in the *Quarterly Journal* entitled *On Planting Waste Lands*. This was partly a critical riposte to a treatise called *The Forester's Guide and Profitable Planter*. Scott was a man before his time. While arguing the case for sound forestry, he also formulated environmental and aesthetic principles which we can easily approve of today. For instance, he railed against blind, blanket afforestation:

Here you shall see a solitary mountain with a great black patch stuck on its side, like a plaster of Burgundy pitch, and there another, where the plantation, instead of gracefully sweeping down to its feet, is broken short off in mid air.

Had he been able to observe forestry practice in much of the last century, Scott would have been horrified to find such brutalism even more rampant than in his own day. But he was not merely a critic; he had an alternative to suggest. In properly designed plantations

future woods will advance and recede from the eye, according to and along with the sweep of the hills and banks which support them, thus occupying precisely the place in the landscape where nature's own hand would have placed them.

It's interesting, by the way, that Scott was not an unreserved admirer of Scots pine. On one hand, he admired what we now call the Caledonian pine - not a term current in his day: 'This is a noble tree, growing with huge contorted arms, not altogether unlike the oak, and forming therein a strong contrast to the common fir' - by fir, meaning pine in general - the terms were less rigid at the time, when classification was variable and, by our standards, imprecise. Pine, fir - the distinction was blurred.

Dense and unthinned plantations of the species were anathema to Scott, who objected that the interior of such a wood

presents only a dull and hopeless succession of spindle-shanked Scotch firs, which, like a horde of savages, after having invaded and ruined a civilised and wealthy province, are finally employed in destroying each other.

Nowadays we're just as likely to make the same point about Sitka spruce. The poet William Wordsworth took much the same tack in his Guide to the Lakes, which was first published anonymously in 1810. He criticised the owner of a small island in his beloved Lake District who had clear-felled the 'venerable wood' that grew around his house and planted anew with 'Scotch firs' - fir again - which were 'left to spindle up by each other's side - a melancholy phalanx'. But it was larch which particularly roused the Wordsworthian ire. Larch, a conifer usually favoured by landscapists because of its spring and autumn tones, and its light touch on the ground - though I note that every stick of it is now being removed from the eastern slopes above Loch Lomond, being unarguably a non-native species and an incomer.

Larch was very much on the up and up when Wordsworth wrote. It was in those years that the fourth duke of Atholl, building on the pioneering introductions of his predecessors, embarked on the creation of vast forests of larch on the Perthshire moorlands east of the Tay. The 'planting duke' was convinced that larch would be the saviour of Britain in peace and war (he thought it would replace oak in naval shipbuilding). Wrongly, as it turned out.

Wordsworth acknowledged that larch, when still young, and 'looked at singly' *has some elegance in form and appearance, especially in spring, decorated, as it then is, by the pink tassels of its blossoms, but as a tree, it is less than any other pleasing.*

But at last, even our William agreed that tree might find an occasional niche in his approved romantic landscape, if used sparingly. Hence he entreated all who sought to plant trees for profit

that the native deciduous trees may be left in complete possession of the lower ground, and that plantations of larch, if introduced at all, may be confined to the highest and most barren tracts. Interposition of rocks would there break the dreary uniformity

and furthermore

the winds would take hold of the trees, and imprint upon their shapes a wildness congenial to their situation

though not so congenial, I feel, to the forester keen to take his timber to the sawmill. But there, where the realms of literature are in danger of clashing with the harsher realities of commerce, I leave the subject.

SEEING THE WOOD AND THE TREES: DENDROCHRONOLOGICAL STUDIES IN SCOTLAND

ANNE CRONE & CORALIE M MILLS

This paper was recently published in *Antiquity* (76) 2002,788-94. Our talk at SWHDG concentrated on medieval and later evidence, but this paper also includes a summary for earlier periods.

Introduction

The value of dendrochronology as a precise dating tool is well established and this paper concentrates on other aspects of its value to Scottish archaeology and history. Timber in Scotland has been a resource under pressure for a long time, and consequently the history of timber trade and woodland exploitation is particularly interesting. Scotland now has very restricted semi-natural woodland, representing about 1% of land cover. While the extent of semi-natural woodland has undoubtedly shrunk in recent centuries, pollen evidence indicates that much of Scotland has been characterised by open landscapes since later prehistory (Tipping 1994).

Dendrochronology is the principal means by which the history of the exploitation and husbandry of the timber resource can be unravelled. Intrinsic to dendrochronology is its ability to provide information on the date, provenance and quality of timbers, allowing a more sophisticated and precise history to be developed than is possible through other environmental techniques. In this paper, we review the accumulating tree-ring evidence and the light it throws on the history of timber availability and exploitation in Scotland.

The prehistoric period

Currently there are only a handful of dated timbers of prehistoric date in Scotland. A group of bog oaks found near Stranraer has produced two chronologies, dated 4610–4054 BC and 4209–3920 bc, while a single bog oak from the Solway Firth coast has been dated to 3112–2849 bc. Studies of bog oaks from elsewhere have yielded long, promising sequences yet there is often little or no correlation even between trees that have apparently been growing close together. This was the case at Parks of Garden where a Neolithic platform had been built over oak trunks which had toppled into the peat on the edge of the Flanders Moss (Ellis forthcoming).

Very occasionally, archaeological sites of prehistoric date have produced timbers suitable for dendrochronology but as yet none have been dated, probably because the assemblages are usually too small. Crannogs are an obvious source of large timber assemblages but few have been excavated. Timbers from two prehistoric crannogs have been examined but the sequences were unsuitable for chronology construction because they were either too short or had severely stressed growth-patterns.

Elsewhere in the British Isles the prehistoric sections of the long master chronologies were amongst the most onerous to construct, primarily because of the scarcity of suitable material and the lengthy timespan to be covered (Baillie & Brown 1988; Hillam et al. 1990). The existence of those chronologies will make the task of constructing a prehistoric chronology for Scotland somewhat easier, as and when suitable material is forthcoming.

AD 1–1000

A scarcity of suitable material continues into the Roman period. A few Roman sites have yielded small assemblages of oak timbers but the sequences were generally too short and fast-grown for chronology construction. The quality and type of timber suggests that the Romans used whatever materials were to hand and either did not search out good quality oak or it was unavailable to them. For example, at Elginhaugh fort, near Edinburgh, the major structural posts were mainly alder.

Two sites have produced sufficiently large assemblages to construct long, robust chronologies for the Early Historic period. A chronology covering AD 278–752 was built using timbers from the Northumbrian settlement at Whithorn (Crone 1998). Some of the timbers had as many as 317 rings, indicating an origin in mature woodland.

The assemblage from Buiston crannog, Ayrshire, comprised 300 oak and 79 alder timbers, many of which retained the bark edge, making it possible to date to the year phases of construction and repair on the crannog (Crone 2000a). The settlement consisted of a roundhouse encircled by a timber palisade, both frequently refurbished over a period of approximately 80 years from the late 6th century to the latter half of the 7th century. The oak master chronology covers the period AD 250–649. By combining tree-ring analysis and wood anatomy it was possible to reconstruct the woodland resources available during the occupation of Buiston. These included alder carr, hazel coppice and oakwoods comprising a mixture of mature oak coppice, young maiden trees and stands of oaks between 200–300 years old. The woodlands show little change over the 80 years, suggesting that the crannog-dwellers carefully managed this resource by selective felling throughout a large area, thus avoiding over-exploitation of any one stand.

Whithorn and Buiston are both in south-west Scotland (Figure 1) and their chronologies dated successfully against chronologies from northern Ireland, presumably because both regions have similar environmental conditions. It was expected that these two Scottish chronologies would help date timbers from Early Historic sites further north in Scotland, Loch Glashan crannog, Argyll, the monastic settlement on Iona, Argyll, and Dundurn hillfort, Perthshire (Crone 1998). However, these remain undated, perhaps because of the small size of the assemblages but more probably as a consequence of Scotland's biogeographic diversity, underlining the importance of establishing a network of local chronologies across Scotland.

There is a gap in tree-ring coverage from the mid-8th to mid-10th century (Figure 2) but excavated sites of this period in Scotland are very rare (Crone 1998). It was hoped that medieval timbers might extend chronological coverage back in time but, despite the variety in context and construction date of the medieval data discussed below, only two sequences extend back beyond the mid-10th century (Crone 2000b). The synchronicity of the 'birth dates' of so much medieval timber suggests an event in the early 10th century that allowed woodland regeneration along the eastern seaboard of Scotland and up the major navigable waterways (Figure 1). Woodland can regenerate when settlement contracts, reducing the pressure for fuel, building materials and most importantly agricultural land (Baillie 1982: 213). It may have been the activities of Norse raiding parties along the east coast in the early 10th century which caused a contraction of settlement to safer, inland locations.

AD 1000–1400

Tree-ring coverage improves dramatically in Scotland from the medieval period, with suitable timbers more forthcoming from urban excavations and standing buildings (Figure 2), and the results have contributed chronological definition for a period with sparse documentary evidence.

Analysis of assemblages from excavations in Aberdeen, Inverness, Glasgow and Perth has identified a major phase of building activity in the late 12th/early 13th century, a relatively uncharted period in the history of the burghs (Crone 2000b). These towns were granted burgh status during the 12th century and the flurry of building activity later that century may have resulted from the prosperity that their new status brought. The burghers used local oak from mature woodlands that had been able to regenerate after the 10th century event.

Timber was frequently re-used in Scottish buildings, particularly from the later medieval period when local timber resources were diminishing (see below). While analysis of re-used timber may bedevil accurate dating of their host buildings it can provide valuable evidence of earlier urban development. Two late 16th century houses in St Andrews, Fife, have yielded timbers of late 13th century and early 14th century date, prompting the suggestion that 'ghost' phases in the town's history could be traced through a focussed dendrochronological sampling programme (Mills 2000). These re-used timbers therefore have a significant conservation and research value beyond the history of the building within which they now reside.

The larger data set covering this period has made it possible to detect a distinction between chronologies from north-east and south/central Scotland, the two 'tree-ring regions' presumably reflecting varying environmental conditions. The variation in growth response between trees growing in different areas makes it possible to track the movement of timber, on both a national and international level, an analytical approach known as 'dendroprovenancing' (Bonde et al. 1997). Although the network of chronologies in Scotland is currently too sparse (Figure 1) to be precise about native sources, it is occasionally possible to identify timber that has been transported some distance. Large 15th century timbers found within the Chapel Royal, Stirling Castle, did not match Perth and Glasgow, the nearest available chronologies, but displayed very significant correlations with Spynie Palace, near Elgin and Darnaway Castle, both in north-east Scotland (Crone & Fawcett 1998). A Royal Forest existed at Darnaway throughout the medieval period and regularly provided oak for Royal building projects, possibly because Darnaway oak was of superior quality to that available more locally (see below).

Dendroprovenancing has also enabled us to identify foreign timber in Scotland, the earliest examples appearing during the 14th century. Structural timbers from Queen Mary's House, St Andrews, felled in the early 14th century, came from the eastern Baltic (Baillie 1995). We can be more specific about the origin of a barrel from Aberdeen, the staves of which date to the later 14th century (Crone 2001). Significant correlations with chronologies from Hanseatic ports on the Baltic coast of what is now Poland pinpoint the source of the oak and its date suggests that it arrived on the first wave of trade between Scotland and the eastern Hansa.

It is generally assumed that the impetus behind the growing trade in imported timber was the diminishing supply of local timber. Other circumstantial evidence, in the form of a change from timber-built to stone-built houses during the 14th century, supports this assumption (Crone & Watson 2002). However, it is clear from the tree-ring evidence that most 14th century oak timber is native and imported examples are few. In some parts of Scotland at least, good quality timber was available well into the 15th century. North-east Scotland in particular appears to have had stands of large, long-lived trees throughout the 14th century. The planks used to line a well found in Elgin came from trees felled in AD 1301, which were slow-grown and over 355 years old. Trees of this age were still available a century later; one of the timbers used in the roof at Darnaway was over 418 years old (Stell & Baillie 1993), while the north-eastern Scottish oak used in Stirling Castle (see above) was over 342 years old.

The dendrochronological evidence suggests that, throughout the period AD 1000-1400, native woodlands were able to supply plentiful mature oak timber. Most of the buildings mentioned

above were high status, the owners of which would have had access to such timber, either through ownership or Royal grants. However, the use of high-quality oak in the well at Elgin, a relatively lowly structure where poorer quality timber could have sufficed, implies that mature oak was readily available.

AD 1400 onwards

By the late medieval period there is compelling dendrochronological evidence that Scottish woodlands could no longer meet the home demand for timber (Mills & Crone 1998). Of the buildings so far studied, few built after AD 1400 contain native oak, and the frequency of imported and re-used timber increases (Figure 2). The principal source of imported timber in late-medieval Scotland is the Baltic and Scandinavian regions, with evidence of specialised supply patterns. Standard building timber came mainly from Scandinavia, while fine, cleft planking, known as 'Estland board' came from further east, perhaps as far as the Ukraine or Belarus (Crone & Watson forthcoming). Examples of Scottish sites with Scandinavian oak include, for the 15th century, Guthrie Aisle roof and re-used material in a townhouse in Brechin (BRECHIN1), and for the 16th century, Stirling Castle, Edinburgh Castle Great Hall, Midhope Castle, Gardyne's Land in Dundee and the Old Students' Union in St Andrews. Examples of 'Estland boards' include, in the 15th century, Guthrie Aisle painted ceiling and, in the 16th century, a group of finely carved panels now in Perth Museum.

The picture of increasing importation may, however, be exaggerated. Firstly, imported timbers are easier to date and provenance, mainly because there are far more reference chronologies available. Secondly, it is proving difficult to identify later medieval native Scottish oak primarily because suspected material is often difficult to analyse, due to either short sequence length or stressed growth-patterns, characteristics that hint at a reduction in the availability of mature, well-grown oak.

Native Scottish oak in late medieval primary contexts is rare. Most of the identified examples are from south-west Scotland, ie Threave Castle, Lincluden College and Castle of Park, analysed during Baillie's pioneering work (Baillie 1977; 1982). Despite the initial impression that a good timber supply survived for longer in the south-west, the Threave chronology represented young trees, not mature woodland, while the long Lincluden chronology gave better statistical matches with Irish chronologies than with nearby Castle of Park, hinting at diversity in the local woodland resource and the possibility that some non-local timber was used. Native oak was used in the early 16th century ceiling in the King's Bedchamber, Stirling Castle (Crone & Fawcett 1998), but the timber was young and fast grown. Young timber was also used in Alloa Tower, a late 15th century building which could not be dendrochronologically dated because of the shortness of the sequences. Together, these examples hint at a growing scarcity of mature oak, in central Scotland, at least. The mixture of imported and native timber in the 16th century buildings at Stirling Castle suggests that, by this date, even royal projects were experiencing difficulties with the timber supply.

From c. 1550 to 1800 Scottish tree-ring coverage is represented by only two chronologies based on long-lived oaks from south/central Scotland, Cadzow and Lockwood (Figure 1; Baillie 1977), and this affects our ability to date native material from this period. The chronologies from two late 16th /early 17th century buildings on the east coast, at Brechin (BRECHIN2) and Gardyne's Land, Dundee, could not be dated against any European or other British data and it was assumed that they must represent native material. Unfortunately, neither could they be dated against the south/central Scottish chronologies, once again raising the issue of different 'tree-ring regions' and the need to develop more localised reference chronologies.

After AD 1600 we currently have no dated oak from Scottish buildings, apart from one assemblage of German oak in the early 19th century from Elie Granary, Fife. Conifers become the commonest species used for structural timber, no doubt because foreign supplies of oak were also becoming scarce. Analysis of assemblages of pine with long, sensitive sequences from St John's House, St Andrews (Mills & Crone 1998) and from the Great Hall at Stirling Castle (Crone & Fawcett 1998) have produced robust site chronologies but could not be matched against European pine chronologies. The lack of sufficiently old, native pine reference chronologies means it is not yet possible to determine whether these timbers are Scottish. However, a project is underway to construct long native pine chronologies from remnant woodlands, and a tentative chronology back to AD 1497 has been created for the first study site, forming a significant extension to the pre-existing replicated chronologies which only go back to AD 1671 (Hughes 1987). The only pine so far dated from a Scottish building, an 18th century house in Haddington, was imported from Scandinavia (Mills & Crone 1998). However, we know from historical evidence that the native Scottish pinewoods were increasingly exploited from the 17th century onwards, and we anticipate finding significant collections of timber from our native pinewoods in historic buildings in Scotland and beyond.

Vernacular buildings, many of late 18th/early 19th century date which are beginning to be recognised more generally for their conservation and research value, have also been studied dendrochronologically. Most are simple cruck-frame buildings, and tree-ring studies indicate that they were constructed using whatever timber was locally available. For example Moirlanich Longhouse, Perthshire, was built using very young trees, mostly of ash with some elm and sycamore, the mixture of species reflecting the composition of nearby woodland. A similar picture emerged from the study of Sunnybrae Cottage, Pitlochry, another Perthshire cruck building, where young ash and pine predominate. A local ash chronology is being developed from old trees to assist in dating these vernacular buildings, but as yet it does not extend back far enough to date either Sunnybrae or Moirlanich.

Future directions for dendrochronology in Scotland

Chronological and geographical tree-ring coverage in Scotland is still patchy (Figures 1 & 2) and routine dating is currently only possible for certain periods and areas. Thus any surviving oak timber of pre-1800 date is valuable for improving and developing coverage, even if it is not always suitable for precision dating. In particular, research priorities should focus on the prehistoric period, the mid 8th–10th century gap and the post-medieval period when native oak becomes scarce.

Of equal importance is the development of conifer dendrochronology, to meet the increasing conservation interest in historic buildings of the last few centuries. A key objective is to build long reference chronologies from the remnants of the Caledonian pine forest, so that native Scottish pine can be identified and dated, and the history of exploitation of Scotland's pinewoods refined.

Conclusion

The tree-ring database for Scotland is still relatively small but already a complex history of timber supply and exploitation is emerging. Careful woodland management is evident on at least one early medieval site, while some event, possibly Norse incursions, affected the timber resource fundamentally by allowing woodland regeneration in coastal areas. Up to c. AD 1400, native oak continues to meet most demand, supplying the needs of the developing burghs and the building programmes of the aristocracy. During the 15th century the quality and quantity of native oak dwindles, and alternative sources, first imported oak and, later, conifers, both native

and imported, were increasingly exploited from the end of the century. Dendrochronology is still in its developmental stage in Scotland, and further work should focus on filling gaps and fleshing out the oak chronology network, and on developing native pine chronologies to assist in dating and provenancing the predominantly coniferous timbers in post-medieval historic buildings.

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Illustrations

- FIGURE 1. Map of Scotland showing location of all places mentioned in the text.
- FIGURE 2. Bar diagram showing current chronological coverage for Scotland. Each bar illustrates the span of the master chronology from that particular site or building. The * indicates those sites from which only a single timber has been dated.

NATIVE TIMBER IN CONSTRUCTION – STRATHSPEY'S UNIQUE HISTORY

UNA LEE

SUMMARY

This paper reports on recent research into the use of native pine in traditional building construction in Strathspey. It analyses the character and quality of this timber, and uses this information to comment on the character of semi-natural woodland in Strathspey before the introduction of modern forestry practice.

BACKGROUND

Strathspey is the wide valley of the river Spey passing between the Cairngorms and the Monadhliath mountains in the central Highlands of Scotland. The mid-eighteenth century Roy maps illustrate the impenetrability of this landscape and the dominance of its mountains, rivers and woodland. Like many parts of the central Highlands, this region was extremely difficult to access, even after the construction of military roads in the first half of the eighteenth century. Road access really only became practical here in the nineteenth century, followed quickly by rail.

Before the arrival of rail transport it would have been relatively difficult to import building materials into Strathspey and, as a result, most materials had to be sourced locally. By contrast, elsewhere in Scotland, in coastal regions, river estuaries and areas with good road networks, building materials have been imported for many centuries. There is evidence, for instance, that Polish oak was imported to the east coast in the thirteenth and fourteenth centuries (Mills and Crone 1998). By the seventeenth century there was a steady flow of timber into coastal regions from the Baltic, which was followed, after the Napoleonic Wars, by an influx of timber from the New World. In the last half of the eighteenth century Strathspey, in common with the rest of Scotland, experienced significant economic improvement and an accompanying growth in construction. In most of Scotland this development utilized imported timber, whereas in Strathspey local timber would have had to be used.

It is likely that the source of construction timber in Strathspey progressively altered during the first half of the nineteenth century. Up to the eighteenth century, Strathspey had retained a significant proportion of its semi-natural woodland cover. The subsequent commercial exploitation of these woodlands led to the introduction of native pine plantations, which began on a large scale in the 1760s. Assuming a minimum 60-year rotation, these plantations would have begun to yield timber by the 1820s. It is therefore probable that, prior to 1820, all timber used for construction in Strathspey would have come from semi-natural woodland. The arrival of the railways in the 1860s brought the potential for imported timber to be used. This suggests that, between 1820 and 1860, the timber used in construction is likely to have been locally-sourced, native pine of both semi-natural and plantation origin.

The key objectives of this study were:

- to identify whether native timber has survived in construction in Strathspey and, if so, to analyse the quality of this timber for evidence of the character of semi-natural woodland before the introduction of modern forestry practices
- to study the technology that existed to exploit this woodland resource
- to investigate the relationship between Strathspey's community and its woodland prior to the twentieth century.

METHOD

The research concentrated on buildings that pre-dated the arrival of the railways in the 1860s, in order to maximise the likelihood that local timber was used. It began with an examination of documentary evidence to identify existing buildings where it was likely that native timber would have survived. The examination of documentary evidence was followed by a field-study of buildings in Strathspey, which included a survey of timber character and quality in ten buildings. The earliest of the buildings surveyed dates to c1540 and the remainder date to between 1765 and 1870. A total of 42 timbers were sampled that predate the introduction of large-scale, commercial planting in Strathspey.

The survey focussed primarily on roof structures because these were more likely to have escaped the impacts of fashion and taste than, for instance, joinery finishes or floorboards. Where possible, it measured the age of the tree when it was felled, its growth rate, and the minimum size of the log. Growth rate was measured by calculating the average number of tree rings per inch along the cross-section of the timber. From this information, some broad conclusions could be drawn about the character of the woodland where these trees had grown. This was compared with the character of semi-natural woodland growing in Strathspey today. Toolmarks were also recorded as evidence of how trees were converted from logs into timber, and the techniques that were used to shape and connect construction timbers.

THE BUILDINGS

The buildings examined in this study are grouped into five categories, according to age and construction method. These are:

- vernacular buildings
- “consciously designed” buildings
- buildings of the planned towns
- buildings of the railway revolution
- Castle Grant

VERNACULAR BUILDINGS

Vernacular buildings are, for the most part, self-built using the combined resources of a community’s labour and whatever building materials come to hand. They are built as economically as possible.

At its site in Newtonmore, the Highland Folk Museum has built an outstanding reconstruction of a turf-walled house, which is typical of Strathspey’s vernacular building tradition. This is the type of dwelling that most of Strathspey’s population would have lived in up to the middle of the eighteenth century. Turf-cutting is an extremely onerous activity making it likely that houses were built communally (Noble 1983). Turf-walled houses are by nature ephemeral and none have survived in the Highlands, although there is photographic evidence that one partly turf-walled house was occupied in the Braes of Abernethy in 1900 (George Dixon pers comm). In building the reconstruction, the Highland Folk Museum used up one acre of turf for the walls (Noble 1983). It is hardly surprising that turf-walled houses were extremely unpopular with landowners, who continually attempted to discourage their construction. Tenants had little choice however. They had to build as cheaply as possible, using whatever materials came to hand and, up to the time of agricultural reform, there was little incentive to build more permanent homes because tenancies were insecure and short-lived.

The turf-walled house at the Highland Folk Museum is built of timber and earth. The walls consist of layers of grassy turf stacked one on top of the other. These walls are not loadbearing,

which means they do not support the roof. The house has no windows. It contains a central hearth that lets some smoke out through a hole in the roof. The roof is thatched with layers of thinly-cut turf, known as divots. This heavy thatch is supported on a series of A-shaped timber trusses, made up of bent pine poles connected by a collar tie, all jointed with pine pegs. This type of truss is known in Scotland as a couple, and in England, a cruck. The timber most commonly used in Strathspey was Scots pine. Here it was traditional for a laird to supply the timber and retain ownership of the couples when a family moved on from that location (Noble 1983). Coupled roofs are mentioned in one of the earliest written accounts of construction in Strathspey, which dates to c1585 (SRO GD 248/13/6). It is evident that Strathspey tenants continued to construct their dwellings and farm buildings out of timber and turf into the nineteenth century (Noble, 1983), but gradually more use was made of masonry instead of turf, for the outer walls.

At least two coupled roofs have survived in 19thC masonry buildings in Strathspey, one at an outhouse near Nethybridge and one at Badden Cottage, Alvie. The outhouse roof has been recently repaired and was surveyed as part of this study. The roof structure consists of three perfectly preserved couples constructed from pine poles. Each couple has two curved blades connected by a collar tie and a timber plate at the apex. The poles used for the blades are naturally bent. All poles are roughly axed square and pegged together using pine pegs. These couples support a series of purlins, which have been renewed using pine poles to match the original. In turn, the purlins support new sarking boards, running vertically from the apex of the roof to the eaves.

CONSCIOUSLY DESIGNED BUILDINGS

Great shifts took place in Strathspey in the eighteenth century, driven by increased political stability and stonger links with the outside world by road and river. In addition the spirit of improvement and economic development that swept Scotland in the second half of the century received the support of some Strathspey lairds, such as Grant of Castle Grant and the Duke of Gordon.

With improvement came a new style of masonry building that was “consciously designed” by, for instance, an architect, engineer, master mason or educated landowner. They were built by a variety of tradesmen including masons, joiners, plasterers and slaters, whose skills were only previously employed on the very high status dwellings of Highland lairds. Unlike vernacular construction, the stone walls of these buildings were loadbearing, which means they supported the weight of the roof and one or more upper floors. This relatively sophisticated construction method was adopted by land and property owners throughout Scotland and continued to be used until World War I. In Strathspey it heralded the arrival of a new middle-class.

One early example of this new type of building was a house built c1765 at Coulnakyle, near Nethy Bridge, to accommodate the Castle Grant Estate’s wood manager (GD248/1542). Coulnakyle has a harled exterior, sash-and-case windows and a slate roof. Its roof structure consists of a series timber trusses (rafters, collars and ceiling ties) made up of small diameter pine poles that have been roughly squared with a minimal amount of axing, and jointed with pine pegs. Some of these timbers are inscribed with Roman numerals, which were the traditional carpenter’s marks that guided the assembly of each truss at roof level after the timbers had been shaped, notched and cut to size at ground level.

Similar pegged roofs have survived at the Garvamore Inn, Laggan (extended c1777), and at Pitmain House, Kingussie (c1790), now the headquarters of the Highland Folk Museum. A significant development of these later roofs is that one face of each rafter is sawn, indicating that

the pine log was roughly axed square to begin with and then ripped up the middle by a frame-saw. At Cluny Castle, Laggan (1805 (Gifford 1992)), the roof timbers were similarly sawn along one face only but instead of being connected with pine pegs, they were spiked together using blacksmith's nails, thereby speeding up considerably the erection of this type of roof structure.

There is documentary evidence that water-powered sawmilling was in operation in Strathspey as early as 1630 (Dixon, 1976). It would appear from this study, however, that it was still economical to use a minimal amount of sawing and a substantial amount of hand-dressing of structural timber up to the end of the eighteenth century.

PLANNED TOWNS

Along with the introduction of a radically new construction style, the spirit of improvement in the second half of the eighteenth century brought a new kind of settlement to rural Scotland in the form of planned towns. A planned town consisted of a street pattern that was laid out and subdivided into plots for sale to private owners. Examples of planned towns in Strathspey include Grantown-on Spey and Kingussie. In Grantown, families were permitted to build "temporary" houses, often constructed of turf, at the back of their site, which they were expected to replace with a stone house on the streetline when their means allowed it.

In 1995 the Grantown Museum commissioned an archaeological survey of a building at the rear of 92 High Street, Grantown, prior to having it dismantled and stored for re-construction (Atkinson 1995). It is possible that this building, constructed sometime after 1805, was intended as a temporary house. The harled exterior, slate roof covering and sash & case windows of this house gave it the appearance of a conventional 19thC masonry building. Instead it was a remarkable survivor of a construction method known as timber post-and-beam, which was commonplace in urban Scotland up to the end of the seventeenth century (Hay 1976). In post-and-beam construction the weight of the roof was carried on a framework of posts and beams. In this example the posts were located around the perimeter of the house. A timber ring beam supporting the rafters was fixed to the top of the posts at eaves level. The timber was all Scots pine, roughly flattened with an axe and drilled and jointed with pegs. The pegs were hardwood, including oak and ash and elm.

The MacRobert House, Kingussie (c1820), presented evidence of the influence of the industrial revolution on timber processing and construction techniques in Strathspey. Here the roof timbers were sawn on all four sides and spiked together with blacksmith's nails. An examination of these sawmarks revealed that while the majority of timbers were frame-sawn, one ceiling joist was circular sawn. Circular saws came into general use in Scotland around 1820 (Anderson 1967) and there is evidence of a plan to build a "circle sawmill" on the Rothiemurchus Estate as early as 1816 (NAS RHP85381). The McRobert House was built no more than 15 years after Grantown's post and beam house, using the load-bearing masonry construction method that is more typical of the buildings of a planned town.

RAILWAY REVOLUTION

Perhaps the greatest construction revolution of all arrived with the railways in the mid-nineteenth century. Not only was it now possible to import building materials into the region (bricks, corrugated iron, cast iron and even timber), but the new railway station buildings, such as Carrbridge and Aviemore, embraced a new building method of timber-frame, timber-clad construction. Houses built using this method became commonplace in Strathspey. Many have

survived to make a vital contribution to the character of the region, distinguishing it from most other parts of the Highlands. Two significant questions remain unanswered from this study:

- to what extent was local timber used in these new timber-frame, timber-clad buildings?
- were the railway station buildings responsible for the introduction of this construction method, or did it exist in Strathspey prior to their arrival?

One small timber-frame, timber-clad sawmiller's cottage at Achterblair near Carrbridge is built of Scots pine that is almost certainly local. The cottage was built before 1870 and was occupied until the 1980s. Its exterior is clad in millbacks, a by-product of mechanical sawing. One of its two chimneys is wooden (the other is a more recent brick insertion) and beneath a more recent roof covering of corrugated metal lies the original covering of quartersawn pine boards, lapped over each other as is typical for a slate or shingled roof. A wooden wallhead bracket suggests that there was once a timber rhone at the eaves. On the interior, the walls, ceiling and floors are all lined with timber.

CASTLE GRANT

The Grants of Castle Grant have owned a significant area of land in Strathspey from at least the sixteenth century. In 1811 the Chief of Grant acquired the title of Earl of Seafield and his holdings became the Seafield Estate. The first tower house was constructed on the site of Castle Grant in the 1530s (Gifford 1992) and underwent substantial changes in the seventeenth and eighteenth centuries. It remained in the ownership of the Grant family until 1975. Since the sixteenth century Castle Grant has been transformed from a compact tower house to an elaborate mansion.

Despite these changes, a significant quantity of original building timber has survived in the building and most of this timber is native pine. The examples surveyed for this study include large 16thC floor joists, hand dressed by axe and 17thC tongue-and-grooved floorboards, planed along the sides and top with the marks of a framesaw still visible on the underside. In addition the house contains mid-18thC joinery finishes, including wall and ceiling panelling, some with very fine carving.

The roof space revealed two roof structures. The most recent set of rafters dates to c1755 (Gifford 1992) and are the earliest example of timbers in this study to be sawn on all four sides. These rafters have been built over the original 16thC tower house roof structure. The tower house roof is comprised of rafters, collars, struts and ties, all superbly hand dressed by axe, labelled with carpenters' marks and jointed with pine pegs. Although a small number of early oak roofs have survived in Scotland, such as the 14thC roof at Darnaway Castle in Moray (Mills and Crone 1998), this 16th C roof structure at Castle Grant is believed to be the earliest softwood roof structure to have survived anywhere in Britain.

TIMBER QUALITY AND WOODLAND CHARACTER

This survey of building timbers revealed that:

- the trees used were between 40 and 120 years old at the time of felling (most being between 50 and 90 years old)
- virtually all of the timbers were straight-grained along lengths up to approximately eight metres (most were under six metres)
- the top diameter of the logs varied from 15 cm (6 inches) to 35cm (14 inches)
- the growth rate of the trees was for the most part between 10 and 20 rings per inch

For comparison, a limited survey was carried out on logs recently felled at Curr Wood, between Grantown-on-Spey and Carrbridge. Curr Wood was chosen because it was established by natural regeneration rather than planting. The logs surveyed varied in age up to 155 years old. They were straight grained, varied widely in diameter, and could readily yield timber up to eight metres in length. Their growth rate corresponded to the growth rate recorded in the building survey.

The popular image of semi-natural pinewoods is often characterised by twisted, heavily branched, Caledonian pine trees. By contrast, the trees at Curr Wood are straight-stemmed and straight-grained. In reality both can be the product of natural regeneration, which often results in a varied woodland composition including pockets of closely spaced trees and thinly wooded areas of open-grown, solitary trees. Open-grown trees tend to yield timber that is bent or spiral-grained, while the timber from closely-spaced trees is more commonly straight-grained.

This study suggests that, prior to the introduction of plantation forestry, Strathspey's semi-natural woodland consisted of a varied woodland matrix. The bent pine poles of vernacular construction indicate a woodland source that was open-grown, while the straight-grained timber of higher-status, loadbearing masonry buildings suggests that woodlands like Curr Wood were once commonplace within this woodland matrix.

THREE BROAD CONCLUSIONS

There are three broad conclusions to draw from this research:

- Strathspey's communities made widespread use of local timber in construction prior to the middle of the nineteenth century, indicating that there was a strong functional relationship between these communities and their local woodlands.
- The quality of the timber surveyed demonstrates that, between the sixteenth and eighteenth centuries, semi-natural woodland in Strathspey consisted, not just of twisted granny pines, but of a matrix of trees of varying age and diameter at least some of which were closely spaced and straight-stemmed.
- A significant quantity of native timber, predating the arrival of plantation forestry, has survived in construction in Strathspey. This includes the roof structure at Castle Grant, which, at 450 years old, is believed to be Britain's oldest surviving softwood roof structure.

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MANAGING ARCHAEOLOGICAL SITES IN WOODLAND - A QUESTION OF VALUE OR AESTHETICS?

JONATHAN WORDSWORTH

As an archaeologist working to preserve the cultural heritage in the rural landscape, I have listened with interest to the annual meetings of the Woodland History Discussion Group. While I am happy to promote to archaeologists and other land managers the idea that woodlands and the individual elements within them are both cultural and ecological artefacts, I have difficulty in defining what is significant and I am presenting this talk in the hope of getting some guidance from you for this.

Both foresters and archaeologists know that trees can damage archaeological sites and current Forestry Commission policy no longer allows modern plantations to be established on archaeological sites. Indeed Forestry Commission and Forest Enterprise encourage the removal of such trees and the exclusion of trees from archaeological sites in areas of new planting. This approach may well be extended into all woodland management under new Scottish Forestry Grant Scheme.

However many archaeological sites are now planted or have been colonised by trees that are of significant ecological or cultural significance in their own right and it would be inappropriate to remove these trees. Where the trees are relatively small there may not be too many issues over the removal of the tree, though I am sure there are many in the audience who would prefer to see this tree remaining on aesthetic grounds. But when we come to mature trees the issue becomes more complex. For example, mature larch trees at Woodhouselee on the Bush Estate form part of a designed landscape that can be traced back to the 18thC. Storm damage from these trees has chipped a 19th century memorial, itself protected under listed building legislation. We have no criteria for deciding relative importance other than discussion between interested parties. This is fine when there is consensus on importance but where there is disagreement there appears to be no clear system for relating the relative importance of different interest groups.

An example of this is the mature oaks to be seen west of the A9 just to the north of Killiecrankie on the Atholl Estate. These have been planted in clumps as part of a designed landscape and are of significant landscape interest, as well as probable ecological interest as well. However one clump has been planted on top of a prehistoric burial mound and they are both causing current damage and potentially threatening much more. Few archaeologists would now ask or even want these trees to be cut down to protect the monument – but there will come a point when possible wind throw from a decaying tree will cause more severe damage to the monument. In terms of ecology such a decaying oak will actually be at its most interesting but in terms of landscape and cultural heritage this is not desirable. Who decides and how?

The deserted village at the site of Milton of Lawers by Loch Tay is an interesting case study to discuss these issues in more detail. It lies within an area previously discussed by Fiona where there was a deliberate policy by the Breadalbane Estate to encourage the tenants to plant trees. It has been suggested that some of the more mature trees along the boundary dykes might date back to the 18th century or earlier and it would need dendrochronological work to confirm or deny this.

Lawers is a special place with an ambience or magic all of its own and to a large extent this is caused by a combination of the ruins within a woodland setting. This has been recognised by archaeologists as well as others.

My own connection with the site was as part of a National Trust Thistle Camp where we removed some of the scrub and smaller trees off the top or east end of the village. As part of this a condition statement was carried out recording both on paper and photographically the location and shape of the trees on the site. However in doing this work I was aware that the removal of the scrub was primarily aesthetic and cosmetic. This romantic situation is neither contemporary with the settlement nor especially old. Photographs of the site taken around 1900 show the site as largely treeless. Few if any of the trees which were predominantly ash could be seen as dating to before the middle of the 19th century.

An ash on the northern boundary is one of the largest trees with a base stump of c0.9m diameter. It has been pollarded at least twice in its history. Other large trees survive adjacent to the old medieval church, rebuilt in the 17th century, and must clearly date to the period after it was abandoned c1800. They are causing severe damage to the building and have contributed to the collapse of the east gable of this building. Other parts of the building will collapse in the near future, significantly reducing its value as a romantic ruin. While there is a romance in ruins, this does require the ruins to survive as a monument and I think some hard decisions need to be taken either over the removal of some of these trees or a clear acceptance that the aesthetic value of the site must necessarily decline. Similar issues can be discussed in relation to the adjacent laird's house at Lawers, known as the Lady of Lawer's house.

In discussion that followed the talk, foresters were happy to accept the removal of trees from the site and archaeologists and historians thought that it might be appropriate to leave the trees standing. The consensus was that such decisions should be taken locally on a case-by-case basis after discussions between interested parties. As this is the situation that occurs at present it was felt that this was not an issue of concern. However while this pragmatic approach has the merit of practicality, I remain concerned that the real decisions for protecting or neglecting site management will not be made apparent. If archaeological sites are to be preserved for their woodland history or environmental or indeed aesthetic values, then these need to be made more explicit with clearer criteria for reaching such a decision.

So in conclusion what am I asking? Firstly that archaeologists should record the ambient vegetation, especially trees, when carrying out their surveys and this should include visible detail on the woodland history. These will be important historical documents in their own right. Archaeologists must also define value to sites not purely in academic terms. It must be balanced with aesthetics and landscape value as well as with environmental values.

Secondly, if sites are to be protected by judicious pollarding of particular trees and branches then guidance should be drawn up with appropriate case studies as to where this approach has worked. Such guidance needs to inform archaeologists where such work is inappropriate in wood historical or environmental terms.

Finally archaeologists need to know more clearly from foresters and ecologists what species and ecological niches are the most important. It is not enough to say that certain trees or woodlands are of biodiversity importance. We need to know why this is so.

TWO WOODS AND A POND

BRIAN AND BARBARA BALLINGER

In recent years a new type of woodland owner (“hobby forester”) may have arisen. The speakers are both retired psychiatrists and are aware of several other retired psychiatrists who own small woodlands, as well as various people from other walks of life.

We had a long standing wish to own a piece of land for reasons that may not be entirely rational, but include the joy of visiting and working in it and the study of wildlife. In Scotland small woodlands are not widely available, but in the course of a year three properties were acquired. In each case a brief plan was developed with an emphasis on wildlife and landscape rather than wood production. We have also attempted to produce species lists for all types of wildlife and define plant communities. We have aimed to move in a “natural” direction, although we have had increasing doubt as to what this term really means, as well as preserving features of the wood showing its history (as a “cultural landscape”).

The first property we bought was the Dam Pond near Tealing in Angus, an old mill pond. This cannot be regarded as a wood, although it is surrounded by trees and an area of grassland.

Brownie Wood near Gauldry in north Fife was the next purchase. This is an old mixed plantation of 10 ha with considerable quantities of pine and larch, and also a variety of broadleaves including birch, oak, elm, sycamore, beech, cherry and rowan. This wood has beautiful views over the Tay and North Sea. Some plants such as bluebells (wild hyacinths) point to woodland having been here for some time.

Brownie Wood does not appear on General Roy’s map and the Fife hills opposite Dundee appear bare in Slezer’s late 17th century illustrations. However woodland is featured here on Knox’s map from the 1850s and on the 19th century ordnance survey map. There are references to late 18th and early 19th century planting in this general area in Anderson’s History of Scottish Forestry. In our management of this wood, we have begun to move slowly to increase the proportion of broadleaves, bearing in mind its prominence as a landscape feature on the skyline viewed from Dundee riverside.

The larger wood that we came to own was Garrick Wood in Easter Ross near Tain. This is a wood of 35 ha at an elevation of approximately 50 metres above sea level which stretches for nearly a kilometre along the A9. The trees are mainly birch and pine with willow and some exotics. There are also areas of heath and bog.

Pont’s maps do not include any woodland in this location and Roy’s map seems to indicate rough boggy ground. Avery’s 18th century map labelled this area as a large moor, but the 19th century ordnance survey shows scattered woodland.

The Old Statistical Account of Scotland reports that areas south-west of Tain were planted with pine and in 1770 parts of the Calrossie estate, then apparently associated with Balnagown, were being planted on an area described as a moor. After the Second World War part of Garrick wood was planted with spruce, but most of this was removed in 1994.

We have identified 150 vascular plant species, including three different orchids and 10 NVC community types. Around 200 species of fungi have been found and there are considerable areas of Sphagnum moss as well as lichens, particularly Cladonias. A variety of bird and animal life is present.

In terms of management we are aiming to protect some areas of bog and heath from encroachment by trees and gorse. We are reducing the residual spruce areas and have undertaken limited broadleaved planting in a bare area near the entrance. Some drainage channels have been blocked and deer control is under consideration.

FEDDANHILL - PLANTATION OR WOODLAND?

GRAHAM TULEY

Introduction

The 14 hectare woodland on the Black Isle above Fortrose was bought 10 years by a forestry graduate who has worked in research, forest management and then as a native woodland adviser before taking early retirement 6 years ago. Four major sources of information - maps and forestry knowledge - archaeology - talking to people - old written records have been used. The previous owners (Forestry Commission) did not have a map of the route of a major water pipeline, knew nothing about 2 old concrete walls (rifle range), old well (for Feddanhill croft) or the origin of the Scots pine (lost records).

Maps

Maps are useful but can be misleading and the 1992 edition 1:25,000 scale map shows the reservoir (built 1960s), recent houses but not a 30 year old plantation. Blaeu's map of the 1600s shows woodland in the area but there are no Roy maps of the Black Isle. First Edition Ordnance Survey at 1:2500 (1870s) shows farms/crofts of Mountpleasant, Feddanhill, Broomhill and North Inch as well as 2 Rifle Butts, Flagpole, Well and a Stone. The southern part of what is now woodland is shown as a field, and to the northeast what is now fields is shown as a mixture of woodland and rough ground. The Second Edition (1905/6) 1:2500 shows a little woodland in what was the field, there are different boundaries between dense/open woodland and rough ground and there are some broadleaved symbols. The 2 Rifle Butts have been replaced by a much larger structure "Targets".

Archaeology

As a training exercise for people doing an archaeology course, the area round the Rifle Butts and Targets was surveyed. One of the students, Annette Jack, then did an investigation of the Targets plus a great deal of subsequent research in various records, and she has given me a copy of her unpublished report. The soil that she excavated has been replaced on the embankment and the area thatched with spruce branches to prevent rabbits burrowing, discourage people and mountain bikes and encourage vegetation to regrow now that most trees have been removed. A shed has been built using locally produced spruce and the concrete walls and so the wood and metal archaeological remains are now protected from the weather and it is used as a woodland store (best bullets in local museum). She found that the range was used from the 1860's to the 1940s and the ammunition store and target shed still exist nearby but the shooting positions (up to 600 yards) were removed about 30 years ago.

During visits 3 boundary stones (plus one loose), 2 old ratchet strainers and some old metal fence posts have been found. Two of these boundary stones appear to show an ownership boundary through the wood and just north of road to Broomhill Farm but there is no other evidence on the ground.

People

Taking people for walks round the wood and talking to people who live nearby has yielded a lot of information which can be followed up at a later date. The 10 old pine trees that remain near the Targets were damaged by bullets and tanks got stuck in wet areas in the wood during training in the last war. Various marks on the concrete walls were explained (seats and roof used to exist) as well as details about construction of the reservoir and water pipeline. The route

of a telephone line through the wood and in part of the public road verge has resulted in a capitalised rental payment in 2000 which was more profitable than selling 560 tonnes of mainly small sized timber 5 years before.

The previous crop on what was a field was Douglas fir and there was a gorse problem when the present mainly spruce crop was planted. "F" on the boundary stones is for Flowerburn Estate, not Fortrose or Feddanhill. The housing estate of "Feddon Hill" has been created on land which has no claim to the name. Broomhill and Feddanhill are now one farm and recently Mount Pleasant was sold off in several lots and on one of these a new farmhouse has been built which is also called Mount Pleasant.

Old written records

As a forester this is a source that is neglected but some investigation has raised more questions than answers. Fortrose is a big village but it is in the Parish of Rosemarkie and the burn just south of the woodland is the boundary with the Parish of Avoch.

In Highland Council Archives there are Valuation Rolls for over a hundred years but there are no maps and I have inspected only some of them. In 1868-69 Broomhill and Feddenhill were part of Flowerburn Estate and the remainder was Rosehaugh Estate. By 1880-81 Broomhill was now Raddery Estate and by 1900-01 there is Feddanhill Farm (Flowerburn) but Feddihill Feu Lands (Rosehaugh). There are other changes and to add to the confusion at times two of the estates have areas listed as Broomhill.

There are other records in the Archives and in 1920 Flowerburn sold two fields Feddan Hill about 13 acres. Sales particulars for Rosehaugh in 1943 (not sold) were based on 1905/06 maps with woodland altogether but lot 62 (Area 0 acres 3 roods 0 poles) is "Feu at Feddanhill". In the 1950s my wood was sold to Forestry Commission as "Feddanhill Plantation" which they sold 10 years ago as "Mount Pleasant".

Conclusions

Part is a recent plantation (second crop now 40 years) but some may have had woodland cover for a very long time but with changes in density of trees. The whole area may have had very few trees for 20 years until 1961.