

Farm Woodland Forum Newsletter July 2008



5000 Years of Integrated Land Management

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This newsletter includes a report on the Farm Woodland Forum's Annual Meeting in 2008. The meeting was entitled "5000 Years of Integrated Land Management". The meeting was held in the grand venue of Castle Menzies near Aberfeldy, Perthshire. A really varied programme was organised for the Forum by Mike Strachan of the Forestry Commission, and it included presentations, a workshop, and field visits. The conference highlighted the deep historical links between communities, land management and tree use.

Tuesday 24th June 2008

The meeting was opened at Castle Menzies by Mike Strachan. The afternoon of the first day started with four scene-setting talks.



Fig 1. Speakers from the first day (from left to right): Nick Dixon, Dallas Seawright, Mike Strachan, and Alan Hendry

What can underwater archaeology tell us about land use?

Nick Dixon, Research Fellow in Archaeology, The Scottish Crannog Centre
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Nick Dixon energetically drew from over 30 years of experience to describe Scotland's "submerged cultural heritage". He introduced the audience to "crannogs", which were ancient defensible homesteads built of timber and standing on wooden piles at the edge of numerous lochs. Radio carbon dating suggests that some of the oldest remains are as much as 8000 years old. He gave specific examples of the crannogs at Kenmore Bay on the northern shore of Loch Tay, but the theme also had international relevance. Scotland, as Nick informed us, has something in the order of 30,000 lochs, 6,000 rivers and 69% of the UK coastline.

Nick explained that the underwater archaeology of the crannogs indicate the early presence of agriculture. Timescales encompass Mesolithic, Neolithic, bronze age, iron age, the dark ages and up to as recently as 300 years ago. Discoveries of spelt wheat, barley, flax and even opium poppies indicate a range of former arable activities, artefacts such as a wooden butter dish show a history of dairying, and evidence of gathered plant remains reveal diverse dietary supplements!

Underwater, the timbers have been kept in a remarkably well-preserved condition including alder, oak and ash pillars and floor timbers and woven hazel panels. Even Iron Age acorns and leaves have been discovered. Archaeologists have tried to reconstruct what a crannog may look like and we visited one such reconstruction on the Thursday (See Fig. 8).

Nick also presented accounts of discoveries of log boats – the longest (15 m) having been discovered in Loch Arthur. The Loch Tay log boat, dating from the Middle Bronze Age (approx. 1500 BC), was 11 m long, 1 m wide, and would have transported people and cargo. It had been impressively hewn from a single oak log, the size of which would be near impossible to find today in Scotland. There was even evidence of the use of moss to caulk the stern board. Linking this back to land use, Nick asserted that the construction of crannogs and log boats would have required infrastructure and skills to harvest and utilise trees and timber.

Questions and discussion explored similarities and differences between Irish and Scottish crannogs, as well as social structures associated with these dwellings which were likely to be based around complex extended families of people who were "farmers and proud to be farmers". Nick closed his presentation with an open invitation to "tree people" to get involved and make contact and with the suggestion that if we want to know about past land use then we should look under the water!

History lessons for the future

Mike Smith, Forest Research
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Mike set out to show how the historical and cultural land-use in the Scottish Highlands has influenced the development, distribution, structure and composition of upland forests. He challenged the widely accepted Victorian perception of a Highland "wilderness", with an alternative view of a more populated pastoral landscape that prevailed prior to the Highland clearances, and stressed the role of forest grazing in this landscape. There is evidence that from the 11th century, the Scottish uplands were occupied by people who were managing the land and the vegetation to meet the needs of their pastoral way of life. Breeding and movement of livestock were essential, and can be traced back as far as historical records exist. The evidence shows that this pastoral lifestyle, which involved seasonal transhumance, was practiced right across Scotland. It is therefore unlikely that any surviving remnant woodland in the uplands has escaped the influence of grazing management at some point in its history.

A range of case study areas was examined: Rhidorroch, Affaric/Cannich hills, Strath A'an and Glen More. These areas were chosen to illustrate variants of historic transhumance and agriculture; known in Scotland as the shieling system. Cultural, historical and biological records from these areas are related to the surviving woodland remnants. Historic place names could be used to give an indication of previous land-use and vegetation, and Geographic Information Systems (GIS) had been used to make comparisons between open woodlands on historic maps (Blaeu 1654, Gordon 1636, Roy 1755, OS first edition 1860) with present day canopy cover.

Within the case study areas, the remnants of historic cultural landscapes with associated vegetation, large open-grown veteran trees and species-rich upland pastures, are related to their historical land-use origins. Mike's thesis was that consideration of these historical origins can help inform a better understanding of Scotland's landscape heritage and ecology, and should be taken into account in the planning and management of future landscape restoration in the Scottish Highlands.

Management of grasslands in orchards

Dallas Seawright, Fife Coast and Countryside Trust, Dallas.seawright@fife.gov.uk

Dallas started by looking at historical trends: the area of unimproved grassland in England and Wales is only 3% of the area occupied in the 1930s, and areas of traditional orchards have declined significantly resulting in loss of habitat and traditional fruit varieties. However there was now a resurgent of interest in traditional orchards, which are included in the UK Biodiversity Action Plan.

Models and ecological theory can be used to draw up management guidelines which will deliver the desired mosaic of habitats. Different mowing regimes can bring about changes in vegetation structure and sward density regardless of community type, but in most instances the clippings should be removed. The effect of grazing depends on the livestock used and the stocking rate. It should be remembered that grassland is a successional habitat. Dallas noted that there is no one 'correct' management solution, and even short-turf habitats with few flowers and lots of moss may be rich in other species, such as waxcap mushrooms.

Discussion focused on our lack of knowledge of the extent of traditional orchards, on the damage that may have been caused by introduction of the 50 trees per hectare limit for Single Farm Payment eligibility, and support given for these systems in other European countries.

Scottish Rural Development Programme Alan Hendry, Scottish Rural Development Programme

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Alan described the new funding mechanism for Scotland's Rural Development Programme (SRDP). The programme aimed to link all rural funding from all public bodies into a single application process. To help achieve this, the Scottish government had launched an Environmental & Rural Services (SEARS) programme alongside the SRDP. Further information can be found on the SRDP at www.scotland.gov.uk/srdp and for SEARS at www.sears.scotland.gov.uk

Alan reported that the SEARS programme was improving the links between the government agencies and it provided a 'one-stop shop' for users. One initial benefit has been an online calendar for inspections, which will enable all inspections to be carried out in a single visit instead of several visits by different agencies.

The SRDP is an outcome-based programme that seeks to achieve to best value for money for the Scottish taxpayer. Alan explained that specific national outcomes will be delivered locally in 11 Scottish regions. Regional Proposal Assessment Committees (RPACs) had been established and they are able to set their own regional priorities (that fit into the national outcomes) according to the differing landscapes, business and populations.

The programme has a budget of £1.6 billion and is open until 2013. The programme has three levels of funding:

- Tier 1 is the single farm payment,
- Tier 2 is called Land Managers Options (LMO's) and replaces the old Land Management Contracts Menu Scheme but will be working on the same basis of a non-competitive options scheme with a maximum allowance per applicant.
- Tier 3 Rural Priorities is the major change, and is the competitive part and is open to land owners and communities alike for funding such as town hall restoration, business development, woodland creation, diversification etc.

Alan explained that applications to the SRDP can only be made on-line, with the first stage called "Statements of Intent (SOI)". This is a process where the applicant must

give a brief description of the proposal and how this directly relates to a particular priority. The SOI is then given a “Red” or “Amber” light by a case officer from the Forestry Commission, the Scottish Government Rural Payments and Inspections Directorate (SGRPID) or Scottish Natural Heritage. “Red” would mean that the proposal is unsuitable and does not fit into the priorities. An “Amber” light indicates that the proposal is agreed in principle and a full application should be submitted.

At present there was still no progress on the problems arising with the 50-trees per hectare rule. It appeared that a farmer could lose the associated Single Farm Payment, if more than 50 trees per hectare were planted, making it difficult to introduce integrated practices such as silvopastoral systems, which use around 400 trees per hectare. The hope is that this may be able to be amended later in the year when a review will be held on the SRDP. It was also noted that although there are no indicative budgets, things like tree planting should benefit from a points based system within SRDP, which is referenced to aims in the national forestry strategy such as and increased woodland area.

After the four talks, the participants were given a tour of Castle Menzies (Fig. 2). This was following by the Forum dinner and the Annual General Meeting of the Farm Woodland Forum.



Fig 2. View of Castle Menzies (Photo by P. Burgess)

Wednesday 25th June

The second day started with four morning presentations, before a series of field visits in the afternoon.

Medieval building construction

Bruce Walker, Dundee University

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Bruce gave a historically-oriented presentation focussing on medieval building construction. He observed that Scotland has no “really-old stone buildings”. In fact stone buildings only appeared in the fifteenth and sixteenth centuries and then in styles very much influenced by timber buildings.

Bruce presented a fascinating set of images that clearly illustrated the use of wood, poles, turf and clay. This written account cannot do justice to the expert narrative that accompanied the succession of photos, paintings and maps. One particularly striking image was that of a simple dwelling constructed of bent hazel poles covered with canvas used by some travelling people in Scotland until the late twentieth century. Another showed an old turf dwelling in Erisky inhabited by an elderly man that was quickly demolished and its existence then denied by the local community upon the death of the resident, again in the late twentieth century.

Images of timber roof frames showed a distinctive truss structure that features no diagonal or inclined braces – the structural integrity of these ‘cupples’ relied upon the mechanical advantage offered by parallel alignment of timbers. An example of palisade construction on the Black Isle combined vertical poles with a clay mix render applied with a technique akin to throwing snowballs!

Images of Edinburgh and Glasgow town house revealed construction techniques involving a masonry basement and ground floor construction topped with timber framed and timber clad, a construction approach that is thought to be typical of the medieval period. The questions and discussion that followed allowed opportunity to explore further some of the assumptions about Scottish architecture.

Historic building timber supply in Scotland; the evidence from dendrochronology

Coralie Mills, AOC Archaeology Group
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Coralie guided us through an account of the challenges and achievements of over 20 years of work on the Scottish native oak and pine dendrochronology project, work undertaken in collaboration with Anne Crone. This project has focussed specifically on addressing the gaps in the application of dendrochronology to the analysis of native timber found in construction.

Tree growth, visible as rings of annual increment, reflects specific climatic and growing conditions. By correlating the results with samples of known provenance, trees over an age of 60 years can be attributed to a particular time, and often a particular region. Interestingly, Coralie pointed out that it has been more straightforward to determine chronologies of imported timber than native due to gaps in reference chronologies for Scotland. The project has worked at addressing this.

An emerging picture of building timber supply reveals interesting historical patterns. From prehistory, there are only a few dated oak samples in Scotland with few sites and no continuous chronology. From the Roman period the little timber that has survived provides evidence that young fast grown oak and alder was favoured. Early historic sites such as an Ayrshire crannog, have provided oak chronologies from 250 to 645 AD. This suggests that crannog dwellers were carefully managing woodland resources – a point that has resonance with the earlier presentation on underwater archaeology.

The diverse biogeography of Scotland makes the development of chronologies difficult and complex – requiring a network of chronologies. However, from 1000 to 1400 AD tree ring coverage improves dramatically. Most sites show use of native oak and good quality timber generally available from local sources, but with some transported long distances within Scotland.

In the fifteenth and sixteenth centuries native oak becomes rarer and imported oak becomes more evident as “Scottish woodlands could no longer match the demand for timber”. Timber was imported from Baltic and Scandinavian countries. An example is the Eestland board from Poland and Belarus – a fine panel board sourced from the eastern Baltic.

Coralie presented evidence from Stirling Palace showing a range of sources over time and in accordance with timber type. The earliest example of imported floorboards was identified as Scandinavian timber felled in 1535 AD. Fine oak boards were imported from Poland and Belarus, carved panels in Polish oak. Edinburgh more commonly traded with Norway, an example being the timbers in the Great Hall of Edinburgh Castle.

The extension of native chronologies is on-going work. Work on Scots pine in local buildings would complement the chronologies already developed for oak, and rural vernacular buildings were being investigated. In summary, this was a fascinating tour through dendrochronology with a revealing history of timber trade and movement. Questions and discussion explored the variables that influence annual ring development.

Veteran worked trees as bio-cultural heritage

Peter Quelch, previously native woodland advisor for Forestry Commission Scotland
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Peter gave an illustrated talk on ancient wood pastures in Scotland and the north of England, using a number of case study sites. These ancient wood pastures contain very old veteran trees which had been worked and managed for wood products over a very long period of time.

Peter showed some pictures of ancient wood pasture on the Loch Katrine Estate, now being managed by the Forestry Commission after taking over management from Scottish Water. The wood pastures of alder and birch had been grazed by sheep and cattle. At the east end of Loch Arklet, the worked trees within the wood pasture were associated with old, pre-1800 settlements. Below the wood pasture, there were areas of cultivation and a drover's road. The veteran trees of birch and alder which have been low pollarded were often hollow and gnarled making them difficult to age. Some of the veteran trees have rowan or birch growing out of their hollow trunks; these are known as 'air trees' (Fig. 3). In Glen Gyle (the birthplace of Rob Roy MacGregor) there are some old alder pollards at the tree-line of about 300 m, which are associated with shielings, tracks and de-stoned meadows. There is no written description of how these wood pastures were managed.

Peter then showed some birch pollards and low oak pollards from Borrowdale in the Lake District. Some of these trees have bulbous skirts, a result of a century or more of grazing. Again the pollards were linked to old

field systems, often on rocky slopes where ash and elm were managed for livestock fodder.



Fig 3. Veteran pollard with 'air tree', as seen on the Thursday field visit

Peter postulated that wood pasture was common and widely distributed in the 18th Century before the land clearances and pre-enclosure. The pollards used for either fodder or fuel would have been managed differently, the pollards used for fodder would have been cut more frequently. The nutritional value of the fodder would vary depending on the tree species and time of year. He considered that elm provided the best fodder followed by ash. The pollards in Scotland had not been dated, however some pollard branches in the Lake District had been aged at 140 years old (25 cm branch) suggesting that some of the trees were likely to be over 500 years old. He concluded that dating more trees was vital for getting a better understanding of the management history of these wood pastures.

Woodland grazing as a system

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Lucy and Meg ran this session in the form of a quiz-based workshop (Fig. 4). The delegates lined up according to their knowledge and experience of woodland grazing and were then split into five teams. Each team was supplied with information and literature on the West Highland Woodland Grazing Project and S9 Pilot Stewardship Grant for controlled livestock grazing in woodland. The teams then had 20 minutes to answer a range of questions on

woodland grazing and management planning, the West Highland Woodland Grazing Project and the S9 pilot scheme. Prizes were given to the winning team and wooden spoons to the team with the lowest mark. A copy of the 'Livestock in Woods Newsletter - Spring 2008' which has information about the West Highland Woodland Grazing Project and S9 grant scheme can be downloaded from:

http://www.grazinganimalsproject.org.uk/books_documents_and_reports.html



Fig 4.. Workshop session on woodland grazing as a system

You can also download a Woodland Grazing Toolkit developed by the WHWGP, together with Monitoring Protocols and a Woodland Grazing Guidance Note from:

<http://www.argyll-bute.gov.uk/biodiversity/LBAP/Index.htm>

Field visit to Bunrannoch

Peter Quelch, Lucy Sumsion, Meg Pollock and Jon Wordsworth led a visit to an area of wood pasture at Bunrannoch on the south side of Loch Rannoch where Peter showed us some of the veteran alder and birch pollards (Fig 5). Some of the veteran pollards had rowan 'air trees' growing out of them (Fig 3). The low pollards had probably not been cut for 150 years.



Fig 5. Peter Quelch describing the effects of tree management on tree form

Below the wood pasture there were the remains of a settlement dating back to pre-historic times which had been periodically abandoned (Fig. 6). Jon Wordsworth gave us a brief introduction to the history and archaeology of the Rannoch woodlands.



Fig 6. Area of archaeological remains of an ancient settlement close the wood pasture (Photo: P. Burgess)

Part of the wood pasture was still grazed by sheep while another area had been fenced off. The fenced area was still accessible to deer. Within this area there were also some caged exclosures containing regenerating trees, which sheep, deer and hares could

not access. There was little evidence of regeneration outside these caged exclosures. We then split into three groups, with Lucy, Meg and Peter as group leaders, to discuss the past, present and future management of the site. The rain and midges eventually accelerated our departure from the site!

Field visit to Craiganour

The group then visited the birch woodlands at Craiganour on the north side of Loch Rannoch. The visit was hosted by Willie Miller who manages the grazing on the site.



Fig 7. Willie Miller, our host at Craiganour

The Craiganour birch woodlands are being managed under an S9 pilot stewardship grant for controlled livestock grazing in woodland. The 90 ha site of mature birch trees (about 80 years old), which was formerly open to grazing by sheep, is now fenced allowing managed grazing by Highland cattle. It was hoped that the cattle would increase disturbance and break up some of the moss layer and bracken thus promoting regeneration in some areas whilst maintaining open ground in others. Twenty to twenty-five Highland cows (with or without calves) were grazed on the 90 ha site between December and February in 2007/08. The cattle are grazed on hill ground during the summer. Regeneration appeared to be most successful in areas where sheep were formerly fed and where bracken spraying had occurred. There was some discussion about the spread of bracken possibly linked to a lack of late frosts in recent years and how it might be controlled by trampling of the young crosiers in spring. Although most of the regeneration was of birch there was also some limited oak and ash regeneration. Meg Pollock then described the monitoring that was required at S9 sites, and how one of the aims was to get farmers involved in the monitoring.

Thursday 26th June

On the Thursday, Mike Strachan led visits to some of the oldest used trees in Europe, and perhaps the oldest living tree in Europe, and some of the youngest broadleaf trees. Hence we covered 7000 years in one morning!

Scottish Crannog Centre

Crannogs, as we learnt on the first day of the conference, are formed from the wood of local alder, elm and oak trees, and they were the “Scottish castles” of up to 7000 years ago. Like castles, they are believed to have been valued by their owners for defence and as status symbols. The Scottish Crannog Centre on Loch Tay includes a reconstruction of a crannog based on the results of underwater archaeology. The crannog we visited was like a wooden house on stilts and suggests the original builders had substantial experience of wood-working. We were guided around the centre by Mr Dirk Sporleder who also gave us an excellent demonstration of various wood-based crafts including spindle making, wood drilling, and yarn spinning. Lastly Farm Woodland Forum member Tom Dutson gave a demonstration on how to start a fire from two pieces of wood (when one of them is not a match).



Fig 8. *Scottish Crannog Centre* (Photo: P Burgess)

Fortingall Yew

During the morning, the delegates also visited the Fortingall Yew which is estimated to be 5000 years old. Hence it is believed to be the oldest living tree in the UK, and perhaps the oldest living thing in Europe. In fact the tree could have been over 3500 years old, when a Christian Church was placed next to the tree in the 7th century. Stokes and Rodger (2004) cite a quote that it had a circumference of 16 m in 1769. Since then the central part of the tree has died and it now comprises a ring of what appears to be separate trees, which are still growing.



Fig 9. *The Fortingall Yew* (Photo: P Burgess)

Broadleaf Tree Management

The last visit of the conference included a visit to the farm of Mr Athel Price which lies on the opposite side of the strath from Castle Menzies. The group firstly visited the Bolfracks Silvopastoral Demonstration site, which was established with the support of the Breadalbane Initiative for Farm Forestry (Figure 10).



Fig 10. *View of the Bolfracks Silvopastoral Demonstration Site, planted in March 2008* (Photo: P Burgess)

The site included a 50:50 mixture of sycamore and ash that had been planted at 4 m x 4 m spacing in March 2008. A root-core borer had been used to loosen the soil around the trees, but unfortunately subsequent settling of the returned soil had led to soil depressions which could create ice pockets during the winter. Potential remedies were to add further soil or to cut away the down-slope side of the holes.

The system had been designed to produce good quality timber whilst maintaining the grazing value of the land. The aim with the trees was to produce 5 m clean stems by year 15, including three formative prunes and three high prunes. Based on the experience of the UK Silvopastoral Network the “rule of thumb” advice is that the branches should be pruned whenever they reach the size of a thumb!



Fig 11. Athel Price has won various awards for his woodland management

Lastly the group visited a 45 ha broadleaf woodland plantation which was planted onto grassland in 1996 with support of the Farm Woodland Premium Scheme. The woodland included species such as birch, ash, wild cherry and sycamore. Twelve years on the trees had reached a good height, and Athel and his team had thinned and pruned the stand. This has resulted in a well-vegetated understorey, and there was substantial discussion as to the extent to which the understorey could be managed by controlled summer grazing.



Fig 12. Twelve-year-old high-pruned broadleaf woodland at Farrochil (Photo: P Burgess)

At the end of the field visit, we thanked Mike Strachan, his team, and the hosts of our site visits for organising such an interesting and varied programme. The next meeting is planned for late June 2009.