Scottish Wild Land Group

Wild Land News no 61, Autumn 2004

Trees and wild land values in West Glen Affric: a personal view

Article

*by **Richard Tipping, Althea Davies & Eileen Tisdall, University of Stirling***

How extensive were Scotland's forests? How has the tree cover varied over the millennia with periods of climate change? What is the natural balance between trees and peat? What impact have humans had? The authors examine the issues in the context of native woodland restoration in Glen Affric.

West Affric and wilderness values

To the north of the Great Glen and west of Cannich, in the heart of the northern Scottish Highlands, are two starkly contrasting landscapes within the same broad strath of Glen Affric. In the east and centre of the glen are the extensive, highly prized and internationally renowned Scots pine and pine-birch woodlands, managed for their contribution to biodiversity by Forest Enterprise, our most recent National Nature Reserve. West of these are the open and almost treeless hills, mountains and Munros of the National Trust for Scotland (NTS) owned West Affric Estate. Neither landscape is natural, and neither can be seen as wilderness, and yet the myths persist. The Affric pinewoods invoked one of the more famous aphorisms in Scottish conservation, "to stand in them is to feel the past" (Steven & Carlisle in 1959), and this tangible contact with a past 'golden age' unsullied by human impacts has been used subliminally and purposefully to justify nature conservation and encouraged the new scientific and philosophical disciplines of restoration ecology. To restore is to replace: but what are we restoring? How do we know what to put back? Do we need to restore or can we choose a new future? If we choose to restore, how faithful to the past must we be?

Past Landscapes and the West Affric Forest Restoration Initiative

Andrew Bachell has summarised the motives behind the partnership between the NTS, Millennium Forests for Scotland (MFS) and Trees for Life that led in the 1990s to an initiative to restore woodland to West Glen Affric. Our role at Stirling University, funded through both the NTS and MFS, was to supply data on whether woodlands had ever grown in the west of the glen, what the woodlands looked like, identify what had happened to these woods, when and how they had disappeared and why their absence today is so complete when only a few kilometres eastward are

some of the finest semi-natural woods in Scotland, and to aid in future management by understanding what had happened in the past.

To understand what had happened in West Glen Affric, we had to reconstruct through time - the last 11500 years or so of the present interglacial - the history of plant communities and soils, the impacts of past human communities and the variability of past climate. Between 1996 and 2000 we sampled peat and lake sediments throughout the glen. Althea Davies identified pollen grains accumulating in stratigraphic sequences and used these to reconstruct changes in the natural vegetation, as well as how people altered this. Eileen Tisdall explored past changes in climate, principally in rainfall since this factor is most influential in the Highlands, from measuring how the level of a small lochan had risen and fallen and measuring how peat surfaces became wetter and drier through time. These separate analyses were all dated by the radiocarbon (14C) method, supported by the Natural Environment Research Council. The objectives, methods and results have been and are being published.

What we found from these scientific analyses surprised the NTS, challenged and overturned many of the assumptions about landscape history that had driven the reforesting policy, created an inevitable complexity to planning from this improved knowledge base, and presented some awkward choices. We will briefly describe these findings before, in the final section, developing a personal view as to how this vastly increased knowledge of West Affric has been and might be used.

We found that:

- West Glen Affric indeed once had a rich and diverse woodland, established by 10000 years ago
- this woodland bore little relation to the pine-rich woods to the east, despite the apparent abundance of pine stumps preserved in peat, but was dominated by deciduous trees like birch, rowan, hazel, willow and alder
- the structure and composition of the woods varied over short distances in a highly complex mosaic determined by soil type and hydrology
- fluctuating climates in the first 3000 years of the present interglacial allowed pine trees to periodically penetrate westward and to compete with birch, but that at other times the woods were enriched in trees like oak and, probably, elm
- changes to wetter climates early in the interglacial may have triggered very extensive blanket peat growth. Alternatively, blanket peat is simply the soil that inevitably develops in this wettest corner of Europe, but its spread was not caused by human mismanagement of this landscape
- peat covered most surfaces by 7000-6000 years ago, but for around 2000-3000 years ago the woods grew alongside and on blanket peat: peat and trees were not mutually exclusive
- in a very short period lasting less than 500 years around 4300-3800 years ago regeneration in the different woodland mosaics throughout the glen, in all niches, failed.
- this collapse appears to have been a dramatic failure of trees to regenerate, probably caused by very marked changes in climate, still poorly defined but probably involving marked seasonal fluctuations in temperature and storminess

- woodland decline had initially nothing to do with the impacts of early farming communities, but the natural replacement of trees by open grasslands and heath encouraged early Bronze Age pastoralists to colonise and settle in the glen
- these and later farmers lived within a landscape that was already difficult to farm because acid soils and blanket peat were through natural processes already dominant when they arrived 3800 years ago. Because these communities maintained a low-risk agriculture they could survive intense later prehistoric and historic periods of climatic deterioration
- this low-risk agriculture included the cultivation of barley in localities like alluvial fans where soil nutrients could be maintained by flooding, although livestock were probably always more important
- farmers have not caused the damage to these fragile environments that we commonly assume, and it is very likely that people lived with, and not in opposition to, their environment
- some trees survived the woodland decline, and a few were still there 650 years ago when they were lost to agriculture, but whether these scattered individuals could be described as woodland after 3800 years ago is debateable.

Past landscapes and choices for the future

There is of course no requirement to use knowledge of the past as the basis of decision making in nature conservation. We can create new 'natural' landscapes which have no need to reflect its past. However, many justifications for nature conservation have implicitly or explicitly drawn on history, from Fraser Darling's emotive but rather wayward and misinformed assumptions of human-driven landscape destruction to the present. Purported anthropogenic abuses and misuses have become a major factor in arguing for the restoration or repair of this damage, but as a consequence of our analyses in West Glen Affric, this argument retains very little validity for this landscape. We have demonstrated that the extensive peatlands that Fraser Darling disparagingly described as 'wet desert' are natural; far from a product of human mismanagement this nutrient impoverished soil is what nature deals. We have argued that woodland loss was also initiated naturally, and in common with other analyses in northern Scotland, was induced by climatic change. Our study has emphasised how people in the past lived with what nature dealt, and showed no rapacious tendencies. If guilt over people's former destructive tendencies motivates conservation values, there is no need for guilt in West Glen Affric.

Andrew Bachell argued that the replacement of less natural landscapes with 'wild woodlands' was a major objective of the planting scheme in West Glen Affric. However, our data show that future woodlands will not replace a landscape less wild and natural, because the heath and blanket peat that will be displaced is itself natural in origin. This must lead us to question the values which seem to place woodland above open heath in this part of Scotland. James Fenton has also argued that woodland is not the natural end-point of landscape development in the highlands, and so should not be automatically presumed to be the desired aim of restoration: our data strongly support this view.

The recognition that initial woodland loss occurred through climatic change allows us to ponder the wisdom of extensive woodland restoration at a time of increasing

climatic variability. Our data allow us to argue that the tree species recommended for West Affric in initial plans, in particular the much-treasured Scots pine, had very little relevance in former woodlands here, and indeed were highly vulnerable to environmental change. It has led us to query the expense of planting programmes, fencing and fertilising for seedlings that may not survive the next decade. Other trees will grow, although the ethical and practical issues of enclosing the trees, described by others in this volume, and the increasing need to come to terms with deer populations, have still to be resolved. Whether trees ever expand from these enclosures and their improved soils remains to be seen. And whether people will ever come to regard these trees as other than artificial transplants also remains to be seen.

Richard Tipping is a palaeo-ecologist at Stirling University with a particular interest in the development of woodlands in Scotland since the end of the last ice age, and its response to climate changes and human interventions. Althea Davies and Eileen Tisdall have carried out detailed investigations in Glen Affric under Richard's guidance.

Further Reading

For a discussion of the relevance of history to the authenticity of the new native woodland programme in Scotland, and to read Andrew Bachell's and our views on the debate, you can obtain a copy of 'Tipping, R. (ed) Using the Past in the Future of Scotlands New Native Woodlands. St. Andrews: Scottish Woodland History Discussion Group Notes IV, from the Secretary of the AHRB Centre for Environmental History at Stirling University FK9 4LA.

To pursue the scientific analyses from our work in West Glen Affric you can order this book from the Publications Secretary of the QRA (qra.org.uk): Tipping, R. 2003. *The Quaternary of Glen Affric & Kintail*. London: Quaternary Research Association. 217 pp.

Contact: Richard Tipping (rt1@stir.ac.uk)