CARBON IN THE UPLANDS: THREATS & OPPORTUNITIES
OVERVIEW FOR THE DAY April 2010: ROGER CROFTS

Any conference on carbon in the uplands must bear in mind the **many uses** of the uplands and the **diverse demands** which these place on their natural and human resources.

Sporting management provides economic and social benefits; it demands significant investment and can produce high quality habitats and species richness if done well. But in some places, deer numbers are too high for the carrying capacity of their range and the authorities have proved incompetent to deal with this and the legislation is dysfunctional. Food production, particularly of sheep meat, and to a lesser extent beef predominantly for fattening elsewhere, are a vital component despite the declining numbers of livestock in the aftermath of the 2003 CAP Mid-term Review reforms. Timber production is significant as a supplier to the processing industry and plantations provide recreational resources for formal and informal activities. But the expansion of forestry under the government's plans for the middle of the century are a source of conflict between different interests due to the shortage of land available without creating a disbenefit for other uses, such as biodiversity and upland livestock farming..

Maintaining landscape diversity has been recognised as an important consideration for decades, but the current government is reluctant to recognise this and to develop a clear policy position. Access and enjoyment continue to increase and the legal position has been clarified under the access provisions of the ……(Scotland) Act 2001. Biodiversity conservation is significant, not only to meet obligations under international Conventions and EU Directives, but also because of the high quality of much of the semi-natural habitats of the uplands. Renewable energy is the major new demand, particularly the development of onshore wind turbine installations on the higher ground and the supporting infrastructure for access and for grid connections. This will continue as a main plank to meet the government's renewable energy targets for 2020.

The provision of ecosystem services has come rapidly up the policy agenda in recognition of the importance of the uplands for water supply, water catchment management, soil formation and many other elements of the natural system. Finally, there are many commentators who consider that the overriding priority should be the use of the uplands to help to mitigate the extent of climate change and to adapt to its consequences.

There are two critical points. First, given this **diversity of use** it is fair to ask whether this results in **chaotic conflict**. It clearly does with the arguments, for example, between additional forestry, more wind farms, landscape maintenance and biodiversity conservation. Apparently, every case has to be decided on its individual merits and there is no single decision making system. So **chaos in diversity** is the current order of the day. Second, **climate change cannot and should not override** all of the other uses and demands. What is required is a more coherent and integrated approach.

But in the by going we do have to consider the uncomfortable question of **'do we abandon the land to achieve the carbon benefits?'** There are good arguments on either

side, but public policy has never been able to cope with such a stark choice and will not do this time round.

The uplands are **an artificial construct** as a result of long human use and management intervention, but given the need to resolve conflict **do we need a new paradigm?** Emphatically yes as the current muddle and mess cannot continue if all of the public benefits are to be gained and the legitimate needs of owners and managers, and local communities are to be met. It should have a central objective of **resource conflict resolution environmentally sustainable use of resources.** The delivery package requires the following elements:

- ✓ Strategic policy framework
- ✓ Multiple objectives
- ✓ Integrated management
- ✓ Interlocking incentives
- ✓ Informed by knowledge and practice.

The statutory Land Use Strategy currently under preparation is a critical element, provided that it is both strategic and regional, and it does not safeguard anyone one public policy use over others, as they all have equal legitimacy. Other elements should also be considered, including a non disturbance approach for all carbon rich soil, a climate change proofing test for all policies and incentives, and a radically different land support regime well beyond the increasingly complex and defunct CAP

The Royal Society of Edinburgh recommended the following integrated policy and also land use changes.

RSE Inquiry Future of the Hills & Islands
Recommendations for integrated policy for land use

- **Strategic Land Use Policy Framework**
- **Land Stewardship Proofing Test**
- **Make case for public support for land management**
  - combat climate change
  - maintain & enhance biodiversity
  - secure food supply
  - achieve biosecurity

RSE Inquiry Future of the Hills & Islands
Recommendations for combating climate change through land use

- Prevent rapid run off & flooding
- Reduce disturbance carbon-rich soils
- Reduce grazing intensity
- Review muirburn practice
- Retain vegetation cover
- Additional tree planting
- Develop carbon trading scheme
- Consider mandatory codes of practice

Any conference involving scientists and practioners must address the extent of existing knowledge and whether it is adequately communicated. Do we have sufficient information? Are we communicating to sources of need in the right way? Can we assess whole life carbon effects of activities? What are the most carbon neutral activities? It is important to focus on what we know, to transfer knowledge from source to user, and to actively promote knowledge exchange between practitioner, scientist and policy maker.

CARBON IN THE UPLANDS: THREATS & OPPORTUNITIES: CONFERENCE SUMMARY AND CONCLUSIONS ROGER CROFTS

In overview, the conference can be summarised as addressing 6 key questions.

What is the problem?

- Many conflicting demands on the uplands
- Public policy has many and diverse objectives
- The situation is ever changing
- There is insufficient knowledge to address all of the issues
- There is inadequate information transfer & exchange
- There are no integrated strategies, policies & incentives
- There is inadequate recognition of regional variation in policies and incentives
- As a result clients, those living and working in and using the uplands are ignored and confused.

What do we know?

Quite a lot is known as a result of empirical research and modelling through the work of research groups combining fundamental science and the practical management implications.

- ✓ Burning moorlands for carbon & biodiversity benefits is fine within strict limits
- ✓ Maintaining carbon throughout all management operations is vital
- ✓ The use of ruminant genetics can lessen the effects of livestock GHG emissions
- ✓ Water quality and changes in sediment and chemical loads are well documented
- ✓ Dissolved organic carbon trends are known
- ✓ Nutrient cycling data is available
- ✓ The link between land management and environmental function is reasonably well understood
- ✓ Changes in land cover, habitat and species is well documented
- ✓ There is useful data on the valuation of assets and activities
- ✓ Information is available on the temporal & spatial variation of key climate parameters

What do we need to know?

There remain many questions for research and investigation. The critical point is to ensure that there is an inclusive process for identifying needs which involves not just the

scientific community but practitioners and advisors. The key items identfied for further investigation are as follows:

- Development of carbon budgets, carbon accounting, and a carbon calculator
- Improved knowledge of the susceptibility and resilience in environmental systems to predicted and unknown changes
- Development of possibilities for mitigation on and off site and the costs and benefits
- Practical scientific work on restoration and environmental reconstruction
- Risk assessment methodologies for new activities
- Development of methodologies for greenhouse gases over the whole lifetime of proposed activities
- Field study in different biogeographical regions to provide results and management advice relevant to different situations
- Demonstration and monitoring of multi objective approaches at key locations
- Testing of stick and carrot, regulatory and incentive, approaches

How do we improve communication?

Some new approaches were described, such as the CLAD knowledge exchange network run from Glasgow University, the Scottish Government's Upland Ecosystems Group, and multi partner projects such as at Liverpool University. The valuable work of existing networks, such as the Heather Trust, was recognised.

However, it is essential to develop skills for translating scientific results into policy and practice, and to train advisers for these tasks, as well as to ensure that communication was between scientists and users in both directions. A common language understandable to all is needed along with simple, but not over simplified, guidance.

How do we meet the challenges?

It is essential to resolve conflict between different demands and to achieve multiple objectives in integrated manner. The key components identified were:

- Land Use Strategy: requires the following - strategy, interrelated elements, regional component, link to CAP
- Integrated valuation systems
- New integrated support schemes
- Cross compliance that works
- More funds for uplands to recognise the public goods and non-market benefits provided
- Regional integrated development strategies and plans
- Improved management guidance.

What should happen next?

Participants considered:

1. Material from the conference should be written up and made available to all participants
2. The output should also be made *accessible* to all interests

3. Capacity to use new knowledge and blend it with experience should be further developed
4. Develop regional guidance
5. Expand the communicating network
6. Invite the hosts to continue leading.

Key messages

The following are the key messages which the conference chair took from the meeting:

- The new term of "Carbon landscape"
- But this was too narrow given the diversity of users and demands
- Many layers of interest and complexity
- There are lots of changes occurring now and the extent is not expected to change
- Cultural inheritance and changing societal values should be at the forefront in determining the future
- There is no single solution, national frameworks and local guidance are needed
- New knowledge is needed
- Existing knowledge should be exchanged