ESRC Seminars Series Sustaining Mountain Landscapes: conflict and compromise in the British Uplands

Northern Pennines landscape instability and environmental change

Date: 10th June 2004

SEMINAR BRIEFING

This briefing contains:

- 1. Confirmation of the programme.
- 2. Short summaries of the content of the main three talks
- 3. Summary of the main objectives of the seminar series
- 4. Some additional organisational details (maps and directions, addresses of accommodation, etc.)
- 5. A list of participants

Programme:

9.30	Coffee and registration
10.00	Introduction
10.15	Jeff Warburton (Geography, Durham University) - The changing physical landscape over the historical period
11.00	Fred Worrall (Earth Sciences, Durham University) – Changes in the carbon balance of upland peats
11.45	John Adamson (CEH, Lancaster) – Research at Moor House - Upper Teesdale National Nature Reserve
12.30	Bill Heal (Consultant) – Upland change overview – emerging issues
13.00	Lunch
14.00	Discussion of Issues
15.45	Coffee
16.15	Summary

Summaries of Presentations

Jeff Warburton - The changing physical landscape over the historical period

It is often recognised that upland management is limited by uncertainties of future environmental change. However the limitations imposed by uncertainties about recent past history of landscape change are often over-looked. Based on recent geomorphological studies in the North Pennines it is now possible to examine the significance of changes in hillslope and fluvial processes over the historic past (10^2 years). This includes investigations into river channel form; impacts of mining; changes in sediment yield; impacts of land use change on runoff and sediment production; changes in peatland erosion processes and re-evaluation of rates of peat accumulation. These changes can be evaluated within a sediment budget framework which provides a quantitative statement of the rates of sediment production, transport and discharge of material. Understanding current sediment production and transport regime in a catchment and trends provides an indication of the likely effects of changing climate and land-use on the sediment regime.

Fred Worrall – Changes in the carbon balnce of upland peats

Upland peats are not only an important habitat but are the UKs largest single terrestrial carbon store. Upland peats are an environment common in cold, wet climates and so as climate warms rainfall patterns change can these areas survive and what consequences might climate change have for these environment? Based on data and modelling for the North Pennines we have been able to show that at present the peatlands are a net source of carbon but remain a net sink of carbon greenhouse gases. However, modelling suggests that within the next 30 years the Pennine peatlands will become a net source of greenhouse gases. By far the most sensitive indicator of change is the release of dissolved organic carbon and that increases in this indicator are primarily driven by increasing drought frequency. Experiments to explore whether land management can reverse this process suggest that only mitigation will be possible.

John Adamson – Research at Moor House - Upper Teesdale National Nature Reserve

The Moor House portion of the NNR has been described as the most intensively researched upland area in the UK. Climate monitoring began on the site in the 1930s and ecological research in 1954. The potential for and the impact of forestry, grouse and sheep were examined and later soil and stream processes were studied. The site is now part of the UK Environmental Change Network which undertakes monitoring of a wide range of physical and biological variables in both terrestrial and freshwater ecosystems. Staff and postgraduates from seven universities and from three research institutes currently work on the site with topics ranging from carbon cycling to grouse population dynamics. Some current researchers make use of 13 sheep exclusion plots established between 1953 and 1972 which cover a variety of upland vegetation types and some of which include heather burning treatments. This long history of research has left a legacy of publications and data which are archived at CEH.

Seminar Objectives

The Research Seminar Series is designed to achieve the following:

- 1. to facilitate discussions between researchers in several distinct disciplines who are concerned with the long-term future of the British Uplands
- 2. to explore the capacity of existing research approaches and sources of knowledge in providing the appropriate outputs for decision making
- 3. to investigate the performance of the current and likely future alternative institutional frameworks of governance in Upland areas and their contribution in policy advice and conflict management

4. to develop inter-disciplinary research networks combining academics and stakeholders, and to identify new research agendas that cross traditional academic and founding council boundaries.

Further details of the scope of the seminar series and details of other activities can be found on the project website: http://www.geog.sussex.ac.uk/britishuplands/

Organisation - Additional Details

<u>Location</u> - The seminar will be held in the Geography Wing of the new SRIF Building on the Science Site, University of Durham The seminar room is Room 013 on the Ground Floor of the Geography Wing in the new SRIF 'EGG' building adjacent to Physics. The Geography wing is at the western end of the building and the entrance is through the double doors at the front. The seminar room is the first right and along the corridor to the end.

A map of Durham is available on the University homepage (http://www.dur.ac.uk/map/). The SRIF Building is a new building so does not yet appear on the map. It is located at the intersection of two lines projected between 12 - 14 and 11 - 13 on the University map. Access to the Science site is by the barrier control (15) off Stockton Road. Day parking permits can be requested at the barrier control on entering the science site.

Overnight Accommodation – Two main possibilities have been suggested to me:

- 1. Castle View Guest House 4 Crossgate Tel 0191 3868852 £45 B+B
- 2. The Georgian Town House 10 Crossgate Tel 0191 3868070 £55 B+B

I have a list of other accommodation should anyone require this.

Should anyone require any additional assistance with arrangements please let me know and I'll do what I can to help. Please note I am away from Durham Wednesday 2^{nd} to Friday 4^{th} of June.

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List of Participants

Name	Affiliation	Main Interests
Adamson, John	Centre for Ecology and	Upland environmental change
	Hydrology, Lancaster	
Armstrong, Alona	University of Durham,	Research student - Erosion and
	Geography	sedimentation
Birdsall, Katherine	North Pennines AONB	Landscape conservation,
	Partnership	biodiversity, geodiversity,
	-	countryside issues
Bracken, Louise	University of Durham,	Fluvial geomorphology and
	Geography	hillslope processes
Burt, Tim	University of Durham,	Upland hydrology and
	Geography	geomorphology
Clement, Sarah	University of Durham,	Research student - Peatland
	Geography	landscapes - erosion and vegetation
Crowle, Alistair	English Nature	Upland habitats
Funnell, Don	University of Sussex, Geography	Rural development, upland and
		mountain regions
Gibson, Harry	University of Durham, Earth	Research Student
	Sciences	
Grand-Clement,	University of Reading	Research student - Soils and
Emilie		vegetation
Heal, Bill	Consultant	Environmental change in upland,
		mountain and Arctic areas
Jackson, Richard	Landscape Section, Durham	Conservation and enhancement of
	County Council	Durham landscape
Nicholson, Kit	International Centre for the	Applied policy research in the
	Uplands - Cumbria	uplands
Prentice, Jim	Northumbrian Water	Water Resources
Robinson, Dave	University of Sussex, Geography	Soil erosion, land degradation and
		weathering
Rowson, James	University of Durham, Earth	Research Student
	Sciences	
Townsend, Alan	International Centre for Regional	Regeneration and planning
	Regeneration and Development	
	Studies	
Townsend, Janet	University of Durham,	The role of physical geography in
	Geography	human life and landscape
Warburton, Jeff	University of Durham,	Upland geomorphology and
	Geography	erosion
Woodley-Stewart,	North Pennines AONB	Landscape conservation,
Chris	Partnership	biodiversity, geodiversity,
		countryside issues
Worrall, Fred	University of Durham, Earth	Environmental geochemistry,
	Sciences	carbon and water colour