

Managing Uncertainty in Dynamic Socio-Environmental Systems: An Application to UK Uplands

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With:

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Partners

- Participating organisations:
 - Moors for the Future Partnership (Peak District National Park Authority, DEFRA, English Nature, National Trust, United Utilities, Yorkshire Water, Severn Trent Water, Sheffield City Council, Peak Park Moorland Owners & Tenants Association, Country Land & Business Association and National Farmers Union)
 - with Leeds, Durham & Sheffield Universities
- Cooperation:
 - DEFRA's Forestry, Soils & Uplands Division, Heather Trust, international advisory board

Research Needs (1 of 2)

UK uplands provide a range of goods and services, but are affected by:

- Historic pollution
- Current land use
- Future change
 - Burning regulation
 - CAP reform
 - WFD implementation
 - Kyoto
 - Cultural, demographic & climate change



Research Needs (2 of 2)

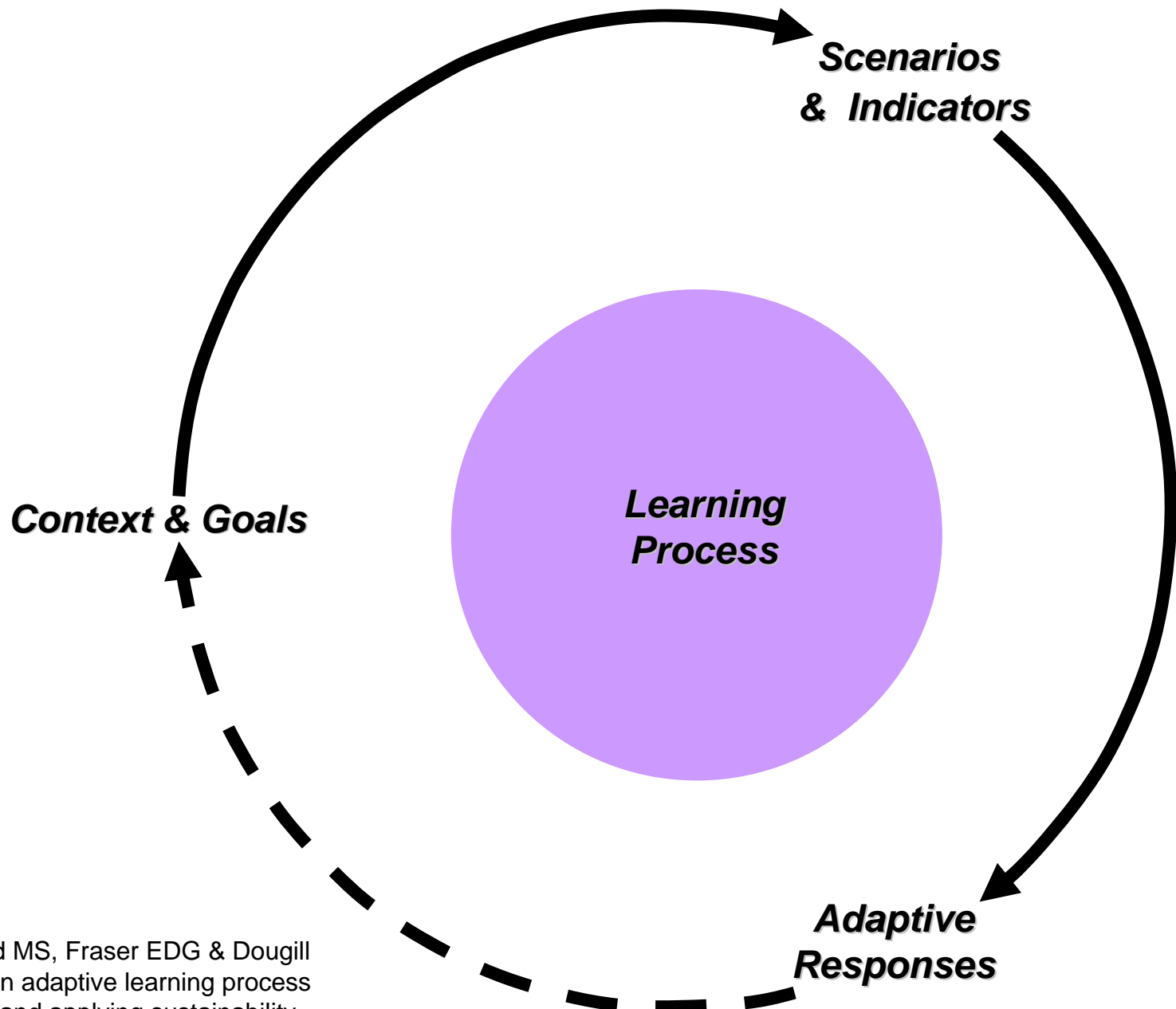
- Adaptation to CAP reform?
- Knowledge integration for WFD Programmes of Measures?
- Carbon storage?
- Can integration of knowledge sources reduce stakeholder conflict and identify innovative adaptations that could not be developed by any group alone?

Aims (1 of 2)

- Methodological framework
- Two-way learning and meaningful interaction between:
 - i) different stakeholder groups
 - ii) social and natural scientists
 - iii) stakeholders and researchers

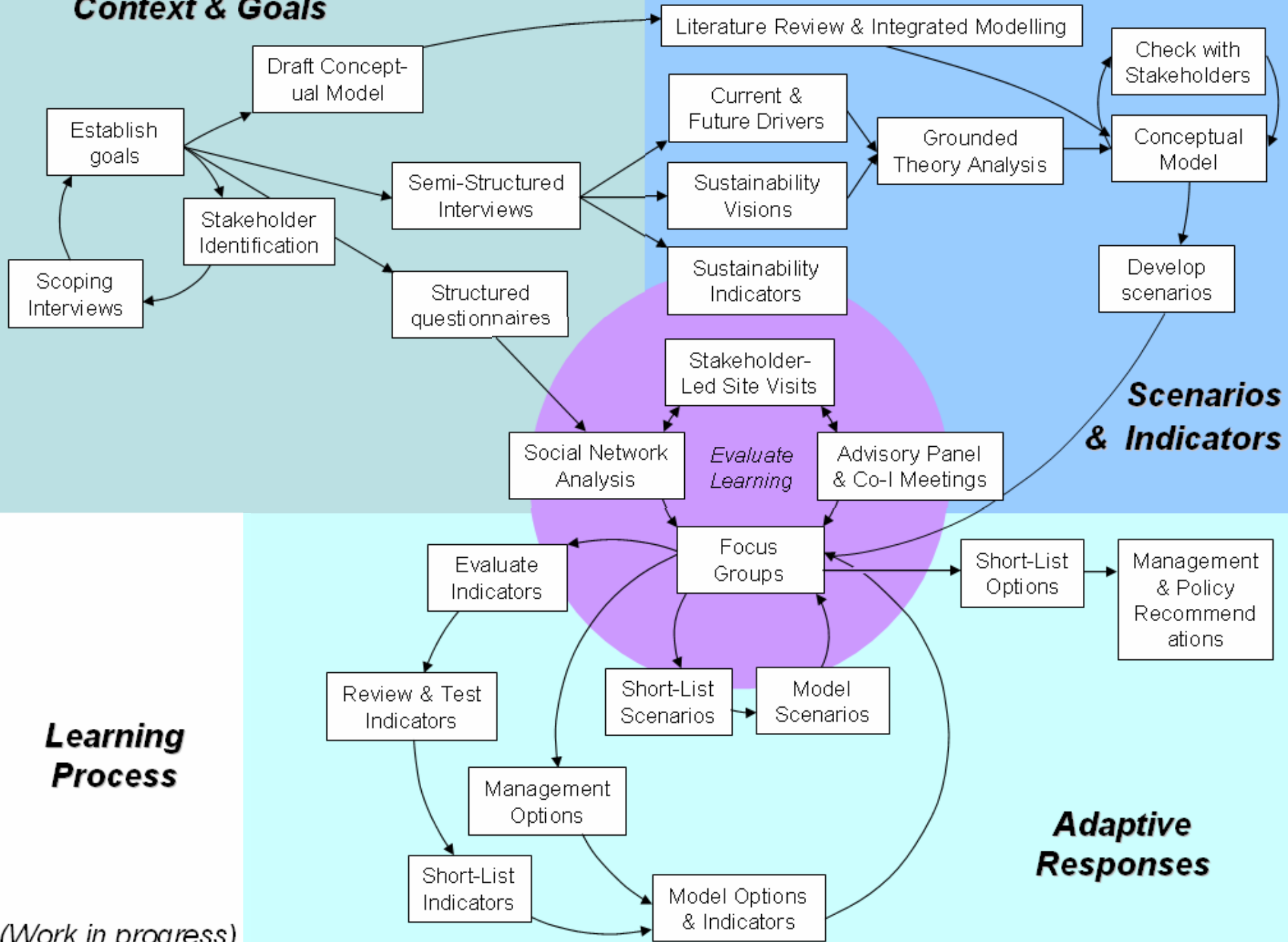
Aims (2 of 2)

- Driving forces, barriers, uncertainties re: economic and social change in Peak District uplands
- Stakeholder adaptive responses to rural change scenarios in Peak District uplands
- Sustainability indicators
- Data & research gaps, tools and methods



Builds on Reed MS, Fraser EDG & Dougill
AJ (in press) An adaptive learning process
for developing and applying sustainability
indicators with local communities,
forthcoming in *Ecological Economics*

Context & Goals



Learning Process

Adaptive Responses

(Work in progress)

i) Context & Goals (1 of 3)

- Focus Group with local NGOs and key stakeholders



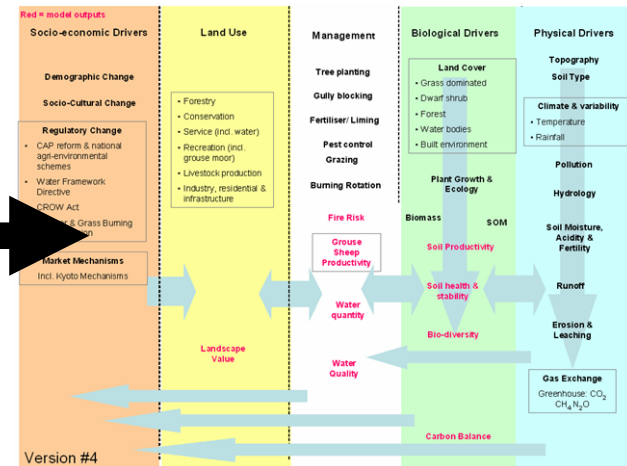
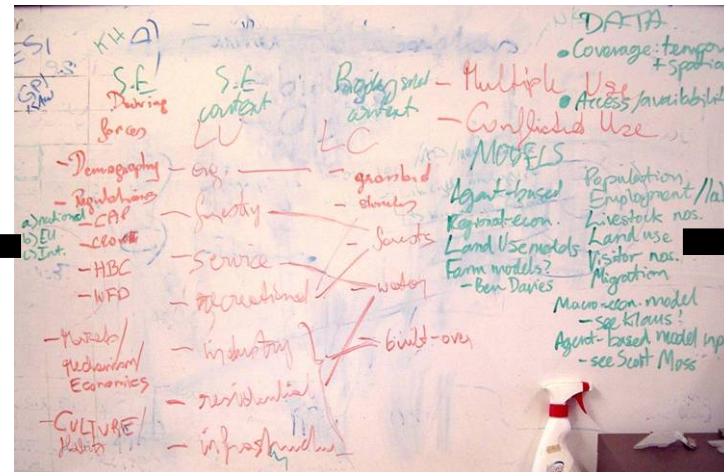
i) Context & Goals (2 of 3)

- Scoping interviews (triangulate stakeholder categories and goals)
 - Narrower focus
 - Contribute to Defra's Heather & Grass Burning Code revision



i) Context & Goals (3 of 3)

- Preliminary conceptual model of system



ii) Scenarios & indicators (1 of 4)

- Semi-structured interviews: visions, drivers, indicators
- Grounded Theory Analysis



ii) Scenarios & indicators (2 of 4)

Combine preliminary conceptual model with:

- Results from GT analysis of semi-structured interviews
- Literature review (Shotbolt *et al.* in prep.; Stringer *et al.* in prep.)

ii) Scenarios & indicators (3 of 4)

- Triangulate conceptual model with stakeholders

ii) Scenarios & indicators (4 of 4)

- Storyboards presented at focus groups



Tress B, Tress G (2003) Scenario visualisation for participatory landscape planning: a study from Denmark, *Landscape and Urban Planning* 64: 161–178

- Evaluate & short-list indicators from interviews & literature (test in future)
- Used in models
- Used by stakeholders

iii) Adaptive responses

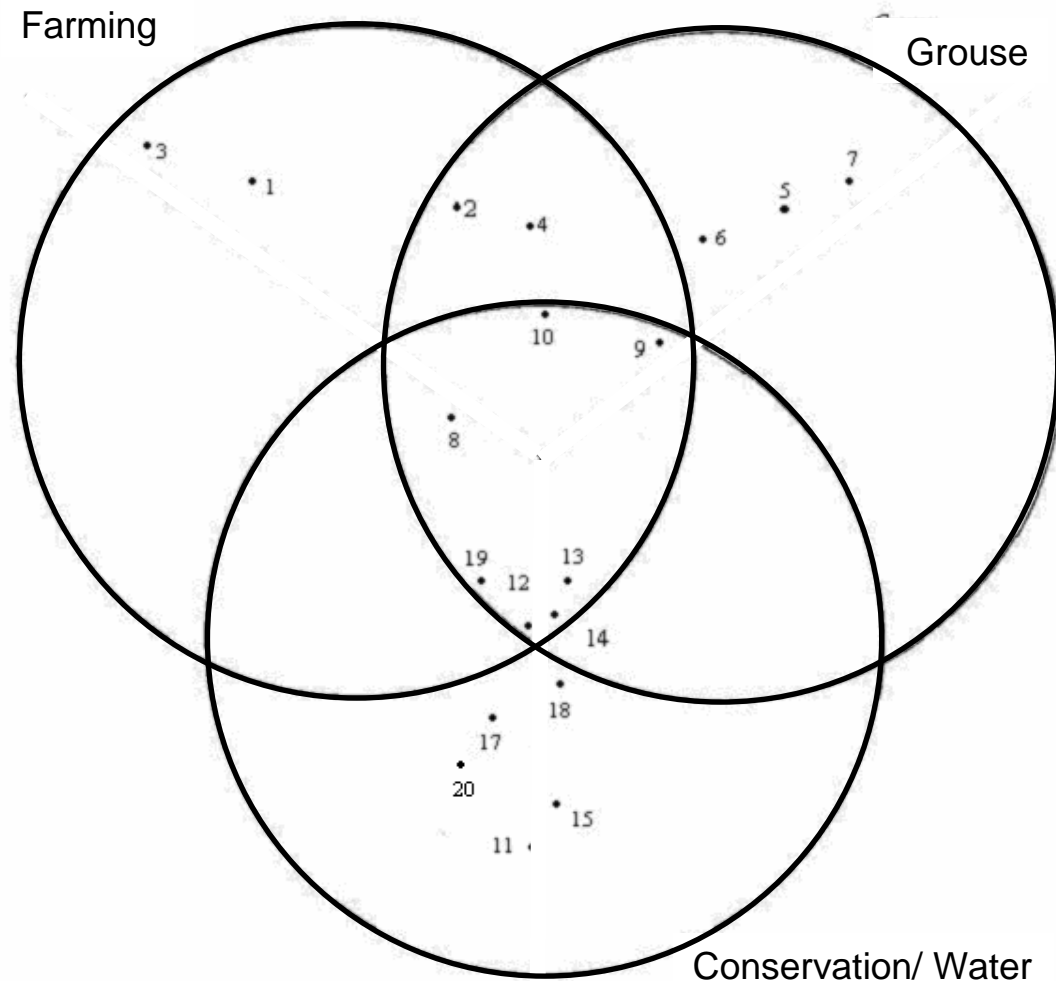
- Focus groups: evaluate and short-list scenarios
- Management responses to scenarios
- Integrated modelling of management responses & indicators
- Feedback outputs to focus groups and refine
- Short-list most appropriate options

iv) Learning Process (1 of 3)

- Every step of this research is designed to promote learning between: i) different stakeholders; ii) researchers from different disciplines; iii) researchers & stakeholders

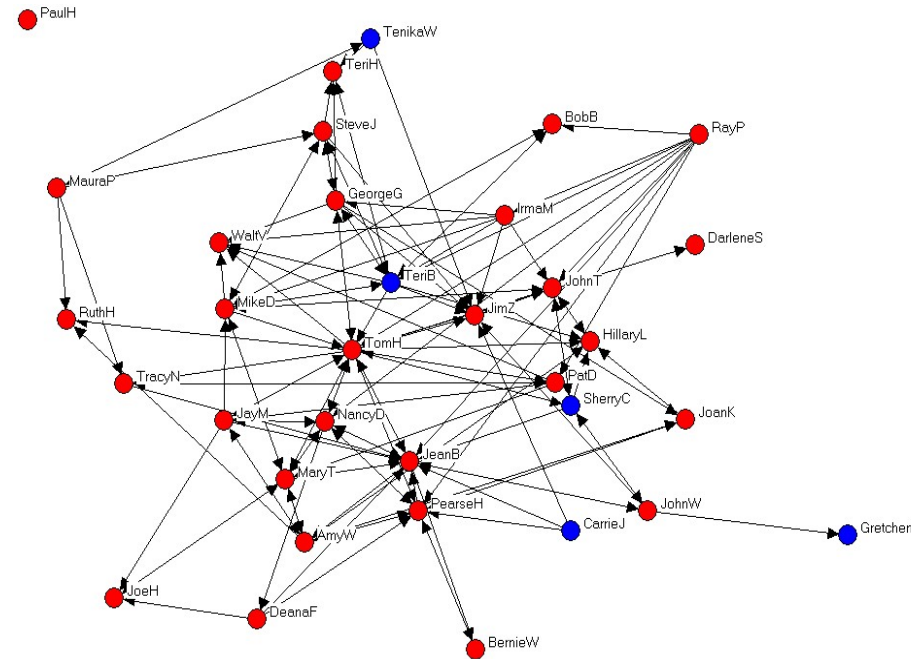
iv) Learning Process (2 of 3)

- Initial analysis suggests a number of powerful, respected and influential individuals have less extreme views: foci for mediation and diffusion of ideas/attitudes?



iv) Learning Process (3 of 3)

- Testing: Social Network Analysis
- Effect of focus group interactions on social networks?
- Who are the central actors?
- Who do people trust, share views with, work with?
- Are there groups that are particularly isolated or poorly connected?



Scoping Study Outputs (1 of 3)

Policy:

- Methodological framework to predict, monitor and manage social, economic and environmental change in uplands
- Provide voice for stakeholders to policy-makers
- In particular through input to DEFRA's burning code review

Scoping Study Outputs (2 of 3)

- Stakeholders:
- Dissemination of likely future scenarios and adaptive management ideas
- Information exchange between stakeholder groups
- Moors for the Future partnership: strengthened and extended stakeholder network

Scoping Study Outputs (3 of 3)

Academic:

- Methodological framework
- Interdisciplinary capacity building
- National and international conferences
- Papers: 2 in press, 2 in prep., 1 more planned

Reed MS, Fraser EDG & Dougill AJ (in press) An adaptive learning process for developing and applying sustainability indicators with local communities, forthcoming in Ecological Economics

Reed MS, Fraser EDG, Morse S & Dougill AJ (in press) Integrating methods for developing sustainability indicators that can facilitate learning and action, forthcoming in Ecology & Society

Stringer LC, Prell C, Reed MS, Hubacek K et al. [tbc] (in prep.) Unpacking "participation" in the adaptive management of socio-ecological systems: a critical review. Submitting to Journal of Rural Studies

Shotbolt, L., Holden, J., Reed, MS., Stringer, L., Chapman, PJ., Dougill, A., Kirkby, M.J., and Hubacek, K. (in prep.). Scenarios of upland change: reviewing the evidence. Submitting to Environmental Conservation