Post Medieval land use and vegetation change in the Yorkshire Dales, UK: understanding ecological and social resilience through time

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Traditional knowledge systems provide a dominant focus for sustainable land management within international agreements on ecosystem and biodiversity conservation, for example the Convention on Biological Diversity article 8j. Against a backdrop of the findings of the Millennium Ecosystem assessment, that, on a global scale, “ecosystems have changed more in the last 50 years than at any other time in human history” it is very easy to assume support for traditional management as part of an idyllic system of sustainable future landscapes. Their link with the past is beguiling and, in the UK uplands, where human impact has been more limited and ecosystems are semi-natural, traditional management techniques are seen as a key management tool. However, traditional land management is not a static entity; land management activities and objectives change through time driven by a variety of forces. Sustainability and resilience are not always a conscious or achieved outcome; adaptation may be frequent. In addition, detailed understanding of ecosystem and biodiversity change is almost completely limited to recent and short term studies. For most areas, we simply do not know, in any detail, human influence on biodiversity over decadal and centennial timeframes. This may have impacts on the ability of policy to set, and to achieve, objectives for resilient and adapted social-ecological systems.

Integrated research projects examining vegetation change using palaeoecological techniques and human impact via historical research can help fill the gaps in our knowledge of drivers of biodiversity change between the millennial and decadal timeframes. They can challenge our perceptions of natural or sustainable habitats and inform us of models of resilience and the impact of periods of adaptation. We present ongoing research from the Yorkshire Dales, UK, which integrates palaeoecological and historical disciplines to further our understanding of sustainable upland pastoral systems.

The upper Ribblesdale area in the west of the Yorkshire Dales is currently valued for its semi-natural pastoral biodiversity and scenic qualities. However, much of the land has been drained, quarried and “improved”. In detail there was much change within this pastoral system throughout the centuries: The large-scale ranch-style farming of the medieval monastic era gave way after the Dissolution of the Monasteries to the development of smaller tenanted farms and eventually to piecemeal and more carefully planned enclosure. Periods of favourable and unfavourable climate impacted on the economics of the farming system with crop surpluses followed by crop failure, disease and famine. In later times there was a massive shifting of infrastructure with a developing transport system that drove some small settlements into decline whilst allowing others to flourish.
Pollen data in this study are beginning to show that habitats and biodiversity have changed significantly within the post-medieval period. This will be discussed in the light of evidence for land use drivers from the historical records and data will be presented to consider periods of change in a cycle of resilience and adaptation in traditional upland land management and pastoral ecosystems.