

## **Practical application of the Ecosystem Service approach: A case study of the UK Environmental Change Network**

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In this presentation we examine the practicality of using data collected as part of a UK long-term monitoring network, the Environmental Change Network (ECN), to assess (i) the ecosystem services of eleven sites using the framework and tools devised by the Millennium Ecosystem Assessment (MA 2003) and (ii) the Cairngorm site using the ISSE framework. The Environmental change network was established to provide scientifically robust monitoring of the natural environment for the detection and attribution of the effects of environmental change on biodiversity. As such it has concentrated on the collection of biophysical data. ECN data was augmented by other data sources and a similarity analysis of the resulting 72 variables collated for each site revealed that the 11 sites were grouped essentially into four clusters: land with at least 50% forest cover, livestock farmland, uplands and a 'mixed use' group. Analysis of 'ECN only data' revealed erosion, floods and sulphur flux were associated with the upland sites while greater landscape diversity (e.g. higher number of vegetation classes and ordnance survey features) were associated with the two sites with significant forestry i.e. Alice Holt and Wytham. Greater diversity of carabid beetles and birds, a larger emission of greenhouse gases (GHGs) and more manmade spiritual features were associated with the other two groups farmland and 'mixed use'. Analysis of all 72 variables revealed the forest, upland and farmland sites remained clustered but that the 'mixed use' sites are now not closely clustered. While these sites (Rothamsted, Drayton and Porton Down) are biophysically similar (lowland, grass and arable systems) their cultural uses and the provisioning services delivered are very different. Public access to both Porton Down and Drayton is restricted as the former is a military base and the latter an animal research facility. In-depth analysis of the Cairngorm ECN site using the ISSE methodology reveals that water regulation was the most important service delivered to the landscape by this catchment. These study has shown the value of access to long term monitoring sites when assessing ecosystem services of landscapes.