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Designing and Implementing Large Scale Experiments in Land Use

Perturbations in climate, technology, and the variation in subsidy systems brought about by CAP and WTO reform, have the potential to cause landscape-scale changes in farming systems. In particular the total area and spatial distribution of land in different food and non-food crops, or assigned to different land management schemes, may change markedly. A key issue that emerges from this is to define the most appropriate way to distribute these different land use categories to achieve biodiversity, environmental, production and socio-economic benefits.

The aim of this scoping study was to consider what experimental and modelling approaches are necessary to understand how biodiversity and socio-economic factors respond to large-scale changes in the spatial distribution of land use. The project centred around a workshop which brought together scientists and social scientists to enter into discourse on large scale experimentation, to examine the different approaches which have been taken to large scale investigations in ecology and evaluate them in terms of their strengths and weaknesses. The study aimed to investigate the extent to which scientific experimentation can be used to inform socio-economic factors and policy, given the different scales at which they operate, and to consider at what stage in the investigative process natural and social scientists should be working together.

The outputs of the workshop were used to develop an opinion paper asking why so much good ecological scientific research does not have a greater policy impact. The research team identified two potentially important and related reasons for this observation. First, much current ecological science is not being conducted at a scale that is readily meaningful or useful to policy makers. Second, to make much of this research policy relevant requires collaborative interdisciplinary research integrating ecologists and social scientists. However, the challenge of undertaking meaningful interdisciplinary research only re-emphasise the problems of scale: ecologists and social scientists traditionally frame their research questions at different scales. This paradox and inherent tension is apparent in collaborative research efforts of ecologists and economists examining the many facets of natural resource management. If evidence-based research is to become a meaningful policy requirement, much greater attention needs to be given to the scale of the research efforts as well as to the interaction with social scientists at every stage of the research process.