

**RES-224-25-0099, Dr P White, University of York**

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**Integrating Spatial Data on the Rural Economy, Land Use and Biodiversity**

The emphasis of government policy on sustainable development has highlighted the importance of biodiversity conservation, but the problem of integrating data across different disciplines has limited research on the interactions between biodiversity and socio-economic and cultural conditions.

In this project, the research team developed a novel method based on Genetic Algorithms to integrate data from the natural and social sciences and investigate associations between biodiversity (measured here as bird species richness) and agricultural, social and economic factors. The number of birds of medium conservation concern and the number of rare breeding birds showed a negative correlation with agricultural productivity, suggesting that there is a trade-off between agricultural productivity and biodiversity, although this negative association was not consistent for all measures of bird richness used. Further analysis, incorporating additional environmental, agricultural and socio-economic variables, showed that some of these socio-economic factors also had strong associations with patterns of bird biodiversity at the landscape scale. These results demonstrate clearly the added value that can be gained from incorporating socio-economic and cultural information in understanding spatial patterns of biodiversity. The availability of methods to integrate information from both the natural and social sciences is essential if this is to be achieved.

This research has established new interdisciplinary research partnerships between the university sector and the BTO, one of the key research institutes on bird conservation in the UK. The results of the project are being written up as an article for the BTO's membership newsletter, *BTO News*. This will ensure that the results are communicated to the nature conservation sector, and in particular to the many amateur naturalists and ornithologists, who collect the bird data as part of BTO-organised surveys.