

# science summary



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## 1930s Land Utilisation mapping: an improved evidence-base for policy?

Science summary: SC050031/SS

A new report from the Environment Agency Science Department describes how land use maps produced in the 1930s contain a wealth of information that could still prove useful today. The purpose of the latest study has been to determine a cost-effective means for conversion of this map data to a format usable in Geographic Information Systems (GIS).

Between 1931 and 1934, the Land Utilisation Survey of Great Britain (LUSGB) recorded land use field-by-field for the whole of the country. Much of the survey work was actually carried out by local schoolchildren and university students, under the overall direction of Professor L. Dudley Stamp from the London School of Economics. Stamp issued guidelines to the schoolchildren and students instructing them to classify each field-size area into one of seven broad categories of land use, including arable land, meadow land, permanent pasture, built-up areas (divided into "houses with gardens" and "agriculturally unproductive"), rough grazing, woodland, water and transport. These types are shown as different colours on the maps. Following extensive data checking by Stamp and his academic collaborators, the surveys were combined to produce 172 coloured maps covering the whole country.

In a separate piece of work undertaken in 2003/2004, all the LUSGB maps were digitally scanned and geo-referenced (aligned with correct map co-ordinates). These digital maps can be viewed on the Vision of Britain web site: <http://www.VisionOfBritain.org.uk/maps>. In this study, the research team at the University of Portsmouth set about developing a method for converting the data so it can be analysed and compared with modern day land usage using GIS techniques.

It proved impossible to rely upon fully automated methods. This is due primarily to two factors. Firstly, the LUSGB maps were printed over a long period by several

different printers introducing differences in colour tones between maps. Secondly, the coloured land use information is overlaid upon Ordnance Survey maps containing contour lines and significant amounts of black lettering. Some manual intervention is therefore essential for the production of reliable digitised map layers. The report therefore recommends that "supervised classification" should be used to deal with colour variation, with successive filters then applied using GIS software to remove much of the background clutter. Some manual editing will still be required. The report outlines these methods with a provisional costing.

Several organisations are interested in using the converted LUSGB data. For example, Natural England hope it will help determine whether farmers are preserving traditional landscapes, while English Heritage want to identify historic farm buildings. In addition, the Environment Agency can use it to compare land use in the last century with land use today in order to target areas for habitat restoration, to model historic versus current pollution implications, and for a range of other purposes.

**This summary relates to information from Science Project SC050031, reported in detail in the following output(s):-**

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