

The Wildlife Information Centre

The Scottish Borders Habitat Data

The Scottish Borders Habitat data has been derived from the analysis of aerial photographs. This dataset is an extremely valuable resource for the people of the Borders as it is the first time that we have had access to a proper understanding about what wildlife habitats we have and where they are found. The next stage is to check that the analysis of the aerial photographs is accurate by “ground-truthing” the data by checking sample areas in the field. Once we can demonstrate that this sophisticated process of survey from aerial photography is accurate we will have an excellent foundation to work on.

How it came about

In 2005 Tweed Forum began to look at the usefulness of an aerial survey of the Tweed catchment. Consultations over two years demonstrated that an aerial survey could be very valuable especially linked to the production of a habitat survey. As a result the aerial survey was commissioned by the Scottish Borders and flown in 2008 and 2009. As the photographs were taken with digital cameras it was possible to analyse every pixel and allocate it to one of the categories in the standard Phase 1 Habitat Survey methodology. This methodology was created in the 1970s but developed to become the standard first level survey method in the 1990s and still used universally today. The instructions on how to carry out the survey, updated in 2010, are readily available¹. Basically the possible ‘habitats’ are classified into ten types (e.g. woodland and scrub; grassland and marsh; heathland, open water etc.) and each of these divided up further as appropriate into a total of 122 categories. Codes (and colour codes) for each type and sub-types are provided for simple analysis of results.

What it consists of

A specialist consultancy was commissioned to analyse the photographs and as a result produced a habitat map of the Borders (and part of northern England covered by the photographs). Some other information was used to check if the computer analysis was accurate (e.g. previous Phase 1 surveys; National Vegetation Classification (NVC) surveys of sites etc.) The resulting data consists of a Geographical Information System (GIS) dataset where each area of habitat (i.e. those larger than 0.5 hectares) is represented by a polygon that is a shape matching the boundaries of that habitat. Each of the polygons is allocated to one of the Phase 1 habitat categories and as a result very sophisticated analysis can be done on the data.

What it can be used for

The data has an infinite number of possible uses such as identifying areas of Priority Habitats where conservation measures should be applied; identifying which habitats might be involved in a development proposal; developing a large scale strategy for wetland conservation; identifying the optimum sites for sustainable floodplain restoration etc.

Fundamentally the data allows any sort of analysis of species, sites and habitats at a Scottish Borders level down to an individual wood. It can aid protection and conservation of existing places but also act as

¹ Joint Nature Conservation Committee's website: **Handbook for Phase 1 habitat survey - a technique for environmental audit**
<http://www.jncc.gov.uk/page-2468>

the raw material for planning long-term actions such as landscape scale tree planting or habitat restoration. The dataset can be used to produce distribution maps of a habitat; identify large areas of specific habitats or perhaps map the distribution of species by habitat.

What still needs to be done

The value of the data depends on its accuracy. As it was done remotely (that is from aerial photographs flown at different times of year) there is a real possibility that some habitat types are not correctly interpreted by the process. An example of this is grassland types where the differences between plant-rich areas and species-poor ones are not clear from the air. Before the data are used widely we need to be confident that the information we are using can be proved to be accurate.

A process of 'ground truthing' is accepted as the best way of demonstrating that remotely gather data is accurate. This involves examining a proportion of the habitat maps produced from the air photographs and comparing them with the habitats than can be seen on the ground. If the match is good the confidence in the data is confirmed and if there is a mismatch the reason for the error can be worked out and possibly applied to similar places elsewhere to correct them.

How you can help

With such a huge area as the Scottish Borders it is clearly not feasible to ground truth every part of the habitat map. What is possible is for a number of people to check the areas they are already familiar with and identify where the habitat map matches, or does match, what is on the ground. Feeding this information back will allow the underlying dataset to be modified and improved until it can be used with a known level of confidence in it.

We are looking for as many enthusiastic people as we can find to check the data on their local patch (or anywhere else they are visiting) and report back and detailed instructions on what to do are available from the TWIC.

To help with this work you will need to have a reasonable understanding of flowering plants and habitats and be prepared to look at the Phase 1 method to understand what the habitats shown on the map mean.

TWIC will help you check out your site or sites by supplying maps and guidance sheets. We are also running a number of training courses to help explain the process and to give you confidence in how to set about the work.

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