

## ***Getting the most from Countryside Survey data***

### **Notes on the downloadable data**

To help preserve their representativeness of the wider countryside, the precise locations of Countryside Survey squares is held in confidence by UKCEH. It has been agreed that the locations of squares will not be identified to external users with any greater precision than 100 square km. It is therefore not possible for users to identify whether or not any survey squares fall within defined areas below this threshold.

### **Sampling Considerations in the use of Countryside Survey Data**

Countryside Survey (CS) field Survey data comprise information collected from a sample of 1-km squares in GB. Each selected square is mapped and detailed measurements made of selected features, for example a number of quadrats are laid out and used to collect additional information on vegetation, soils etc. Thus there are two levels of sampling, whole square and within-square. Measurements are made at both levels so that some characterise the square while others describe features within the square. Measurements are of varied types ranging from binary (yes/no) variables to continuous variables such as areas or lengths.

CS sample squares are *not* a random subset of the set of all 1-km squares in GB and this has implications for any analyses. Most importantly the sample is a stratified one with sub-samples of squares selected within designated strata. The strata used for square selection are defined by the ITE Land Classification. The details of the classification have changed somewhat from its original form, largely as a result of the need for separate country reporting. Originally the classification comprised 32 Land Classes. In 1998, due to the requirement for separate reporting in Scotland, the classification was modified to contain 42 classes. In 2007 the requirement for Wales only reporting led to further revision of the classification resulting in 45 land classes. Effectively each country now has a separate classification, 21 classes in England, 8 in Wales and 16 in Scotland. Estimates derived from CS data without taking account of the stratification may not be representative and will have inaccurate estimates of variation.

An additional complication associated with the sampling procedure is that not all 1-km squares in GB were considered for field survey. Any square whose area, as measured from 1:250'000 scale OS maps, was more than 90% sea or more than 75% urban was excluded from survey (see Countryside Survey 1990 Main Report (Barr et al., 1993) for exact details). Strictly speaking the field survey data is only representative of the squares in GB that meet the above criteria. In practice estimates for the whole of GB, or regions of it, are made under the assumption that vegetative land in excluded squares is similar in composition to that in the sampled squares. Although this is unlikely to be completely true the total amount of land concerned is very small and the resulting bias likely to be negligible in general. Only if a region under consideration contains a high proportion of sea or urban squares is a problem likely to occur.

As a result of this sampling design, official estimates from CS are produced by calculating ratio estimates (Cochran, 1963) for each land class, taking into account the area of vegetative land in each sample square. Land class estimates are then combined using as weights the area of vegetative land in each land class as a whole. From 1998, because of concerns about the skewness of some of the features being estimated, standard errors and confidence intervals have been estimated using the bootstrap method (Efron and Tibshirani, 1993).

## References

Barr, C.J., Bunce, R.G.H., Clarke, R.T. , Fuller, R.M., Furse, M.T., Gillespie, M.K., Groom, G.B., Hallam, C.J., Hornung, M., Howard, D.C., and Ness, M.J. (1993). *Countryside Survey 1990 Main Report*, DETR, London.

Cochran, W.G. (1963). *Sampling techniques* (2nd ed.). Wiley & Sons; London.

Efron, B. and Tibshirani, R.J. (1993). *An introduction to the bootstrap*. Chapman and Hall; London.