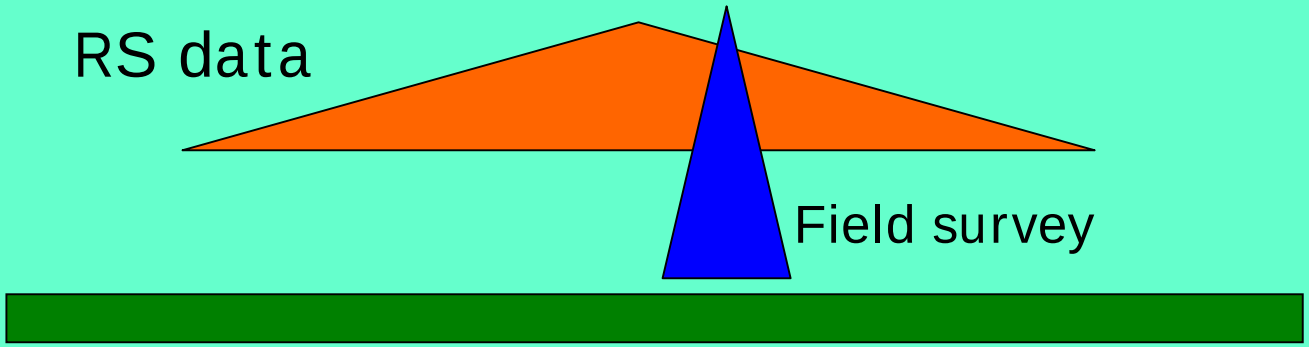
Monitoring the ‘unobservable’

Roy Haines-Young
CEH &
University of Nottingham

Overview

- The problem
- Background to Countryside Survey and CIS
- Integration issues
- Key questions

The problem



- How can we combine the synoptic view of land cover derived from remotely-sensed imagery with field-based survey data to model conditions in the wider countryside?

Background

- What is Countryside Survey?

What is CS?

A major, national survey of land cover, vegetation and landscape features associated with the wider countryside



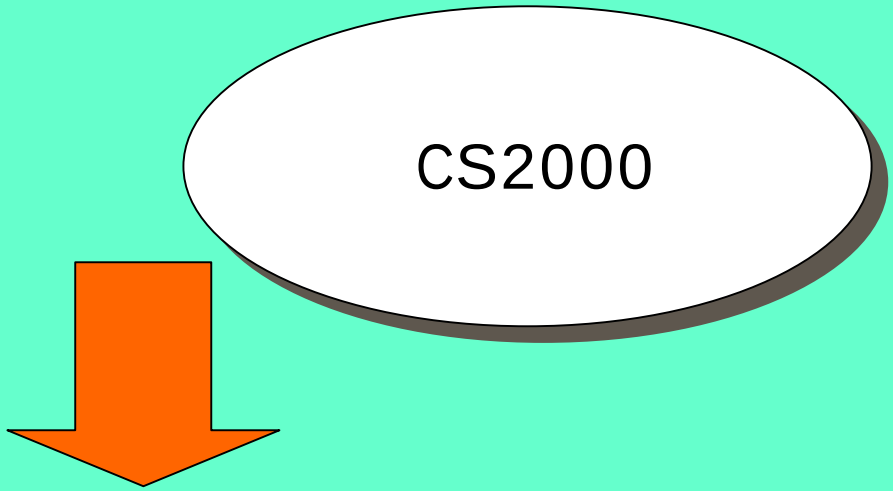
Most recent survey = CS2000

http://www.cs2000.org.uk

Background

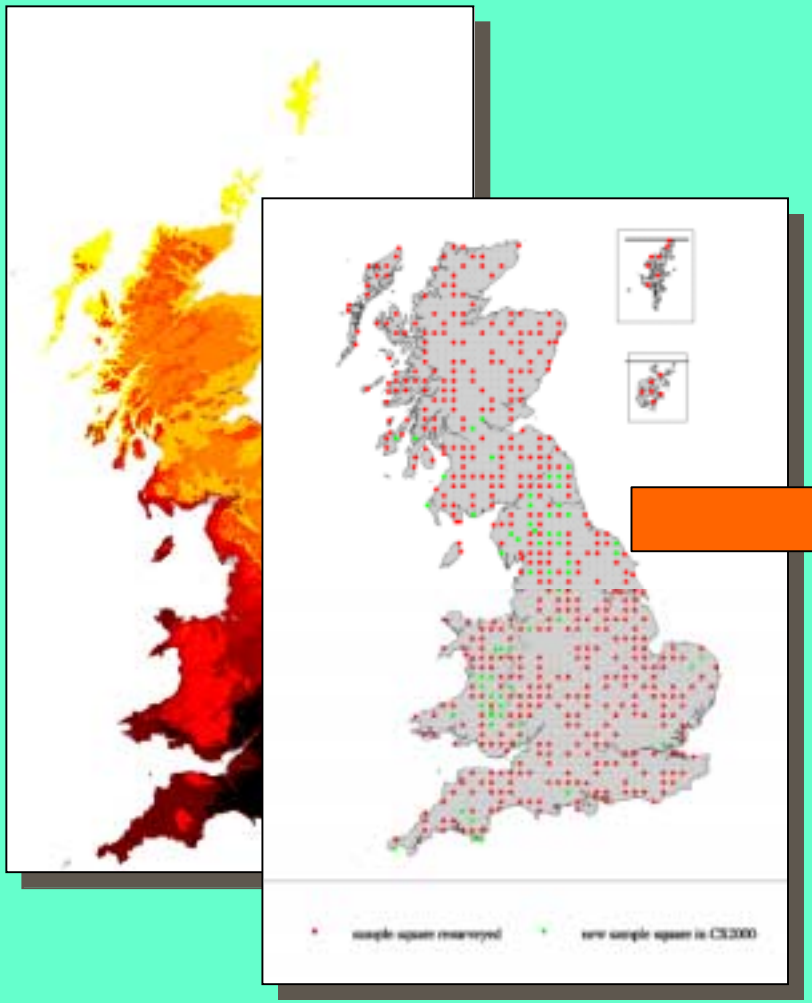
- What is Countryside Survey?
- How has CS2000 been designed?

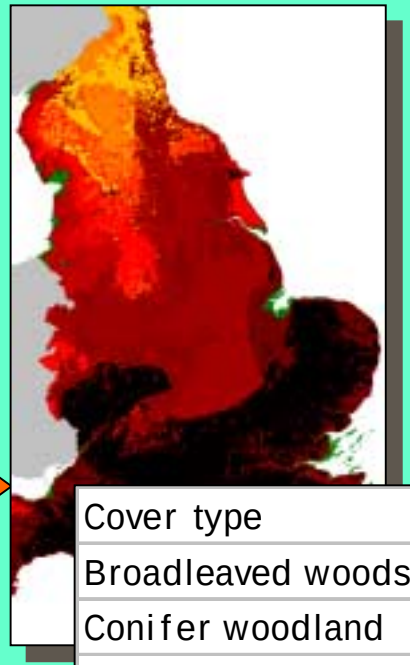
CS2000 design



Sample-based
field survey

CS2000 Field Survey Design

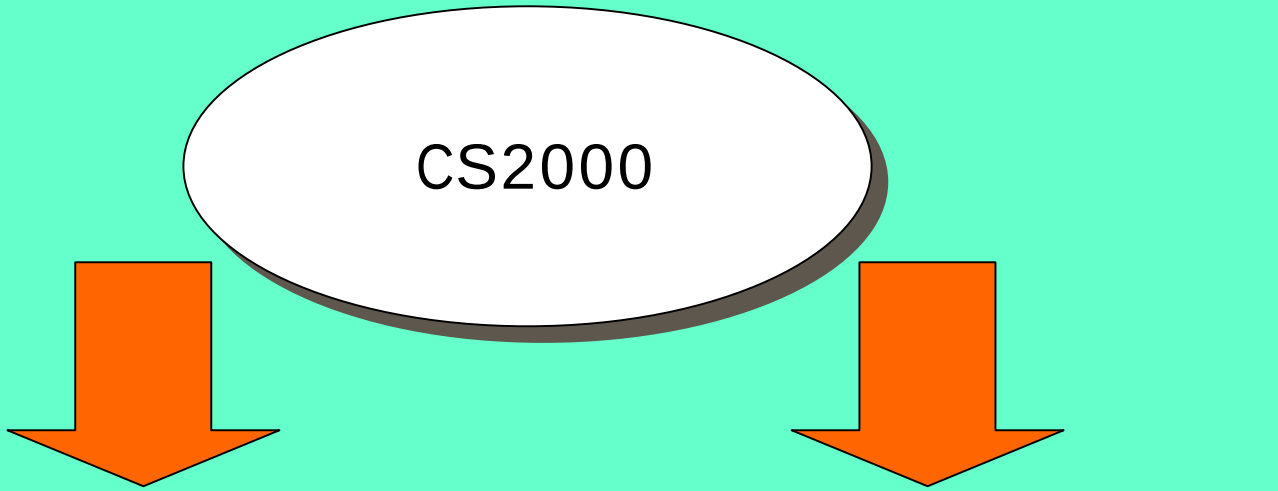




Cover type	Area (km sq)
Broadleaved woods	9140
Conifer woodland	13660
Felled woodland	360
Mixed woodland	2220
Shrub	910

Weighted estimates...

CS2000 design



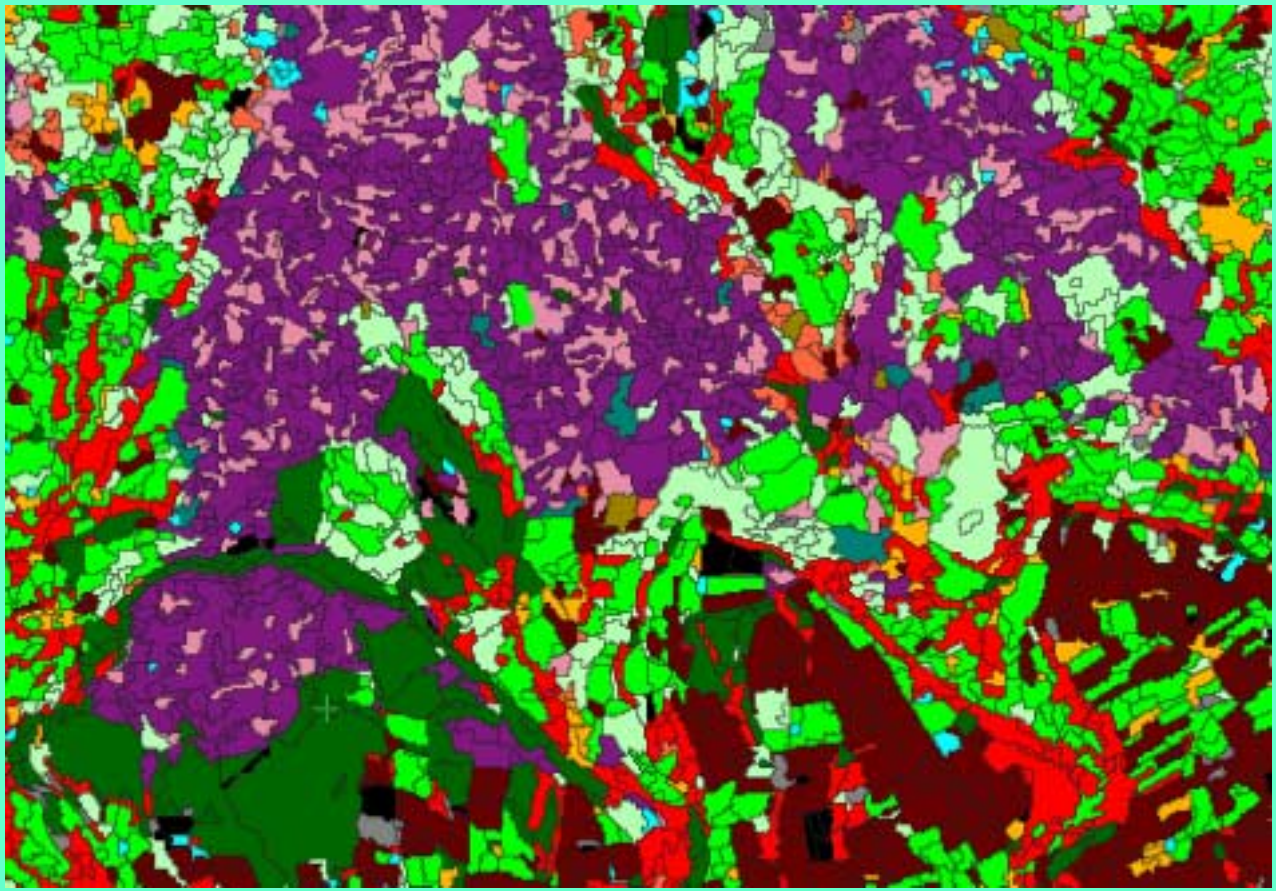
Assessments of habitat quality →

Land Cover Map 2000



The ‘per parcel’ approach to image classification allows a better representation of ‘landscape objects’.

LCM2000



Summer-winter composite Landsat image - North York Moors

scale: approx.. 12km across

LCM1990

- Potentially a much higher resolution view...



woodland density per km sq



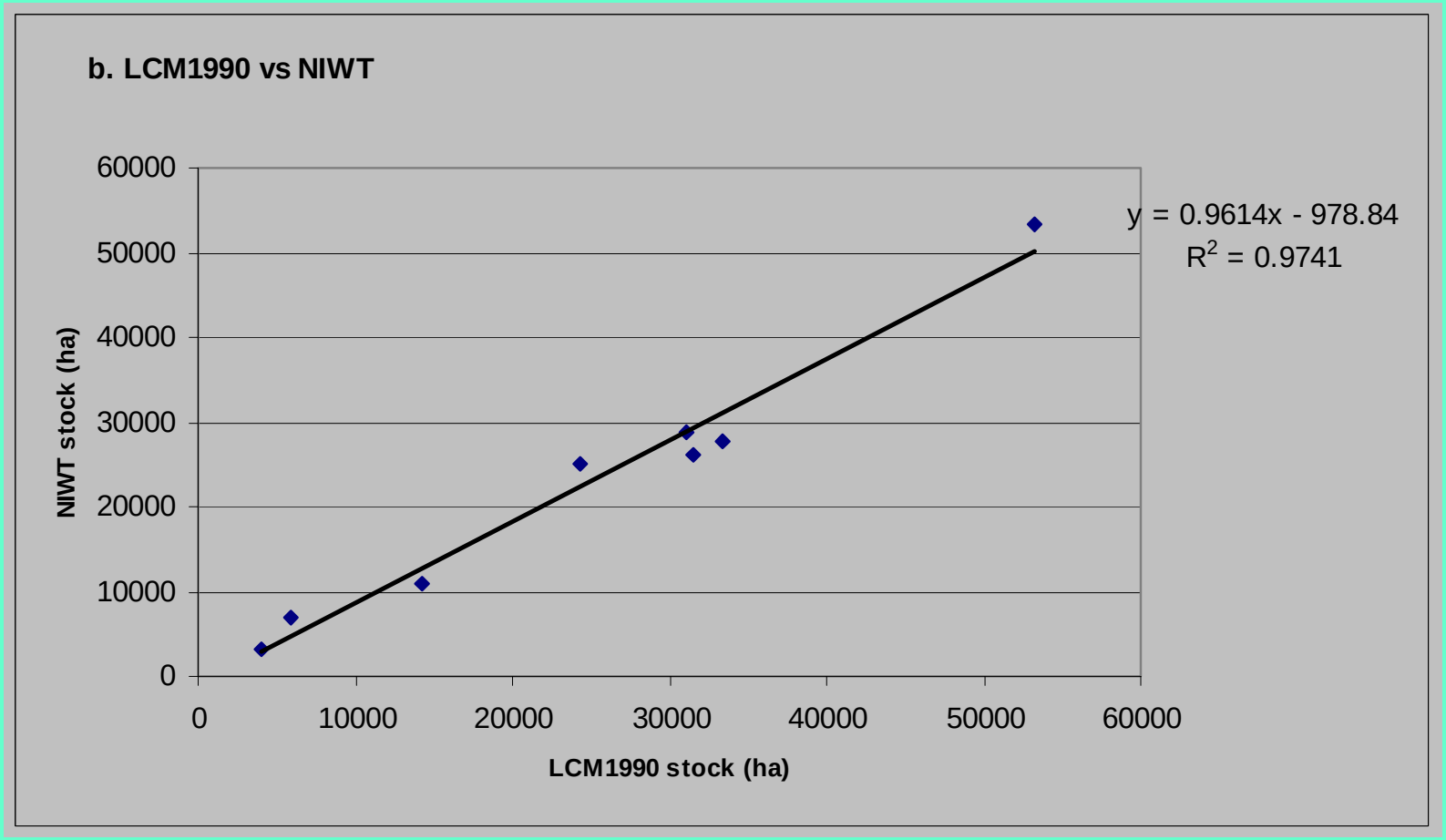
Background

- What is Countryside Survey?
- How has CS2000 been designed?
  - Field Survey
  - LCM2000
- How are the data delivered?
  - Countryside Information System (CIS)
    - uses 1km x 1km cell as the basic spatial unit

Integration issues

- For CS2000 Field Survey and LCM2000 can be linked at the level of the UK BAP 'Broad Habitats'
  - How to calibrate stock estimates?

Integration issues



Integration issues



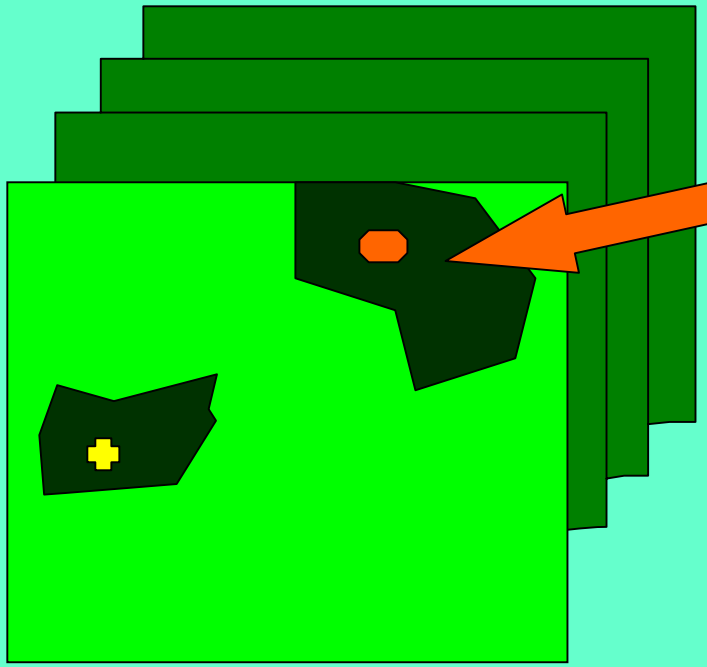


At what scale should calibration be made?

Integration issues

- For CS2000 Field Survey and LCM2000 can be linked at the level of the UK BAP 'Broad Habitats'
  - How to calibrate stock estimates?
  - How do we deal with attribute data for field survey polygons?

Integration issues



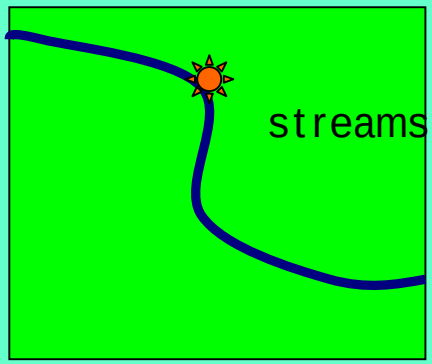
Point samples for attributes

Assigned to a given cover type

Assigned to a given landscape type

Integration issues

- Methodology…
- But how do we calculate error terms?
- And what about linear features?
- Can we assign attribute data from RS to field survey objects?





Key questions

- At what scale is calibration/linkage appropriate?
- Can the process be reversed?
- How do we deal with uncertainties?
- To what extent can the user ‘drive’ the process in a system like CIS?