



**The  
UK Terrestrial Biodiversity Surveillance  
Strategy**

**Surveillance Rationale Workshop**

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## Surveillance Rationale Workshop

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Present at the workshop: David Allen (CCW), Stephen Baillie (BTO), Helen Baker (JNCC), Stuart Ball (JNCC), Peter Carey (CEH), Chris Cheffings (JNCC), Peter Cranswick (WWT), Mark Crick (JNCC), Karen Haysom (BCT), Ian Jones (NE), Ed Mackey (SNH), Mike Morecroft (CEH), David Noble (BTO), Helen Pontier (Defra), Simon Poulton (Mammal Soc), David Roy (CEH), Lee Walker (CEH), Lawrence Way (JNCC)

The principal objective of the workshop was to achieve an expert testing of the objectives contained within the UK Surveillance Strategy. Questions to be considered included:

- Do the three objectives provide an adequate description of surveillance need?
- How should the objectives be translated into statements of surveillance requirements?
- Does the UK Surveillance Strategy communicate the objectives sufficiently?

In order to address these questions, discussions centred around a number of discussion themes, with more detailed questions within them.

### *Issues of communication regarding the UK Surveillance Strategy*

When explaining the need for a UK Surveillance Strategy we must be explicit regarding why biodiversity, and hence surveillance of biodiversity, is vital to human wellbeing, i.e. the linkage between functional ecosystems, ecosystem services and human wellbeing. This is more a communication need for the strategy, rather than an aspect that impacts the design of surveillance. The sole implication for design is that surveillance should have a broad functional base.

We need to take care regarding the usage of the words 'surveillance', 'monitoring' and 'sampling'. It was considered that Objective 1 was mostly long-term 'surveillance', whilst the other two objectives were mostly 'monitoring' activities. The strategy encompasses both.

Many participants disliked the analysis of Objective 1 in terms of policy outcome. Objective 1 was perceived as being more fundamental in terms of describing biodiversity, than a policy focus could provide. Objective 1 should be stated and analysed in terms of biodiversity status and change, these measurements can then be related to the outcome of some of the broad biodiversity policies. Other policies (particularly the narrower policies) will have relevant measures included within Objectives 2 and 3.

The need for clear communication of the need for biodiversity surveillance as well as the results of biodiversity surveillance, suggests that it may be necessary to develop a section of the strategy devoted to a communications plan.

We should:

- Ensure that communications regarding the strategy incorporate an explicit link between surveillance and the provision of ecosystem services.
- Improve communications and explanation regarding the scope of ‘surveillance’. Improve editorial control over the use of technical terms within the strategy.
- Remove the policy focus from the analysis of Objective 1, and from the requirements for sampling. The use of surveillance results in measuring policy outcome should be covered in the purpose of the strategy (similar to the coverage of ecosystem services).
- Incorporate the need for surveillance and the need for a surveillance strategy should be into communicating the purpose of the strategy.
- Continue further project planning for achieving buy-in to the strategy.
- Improve the communication of the results of biodiversity surveillance could be developed as a separate section of the surveillance strategy or could be referred to a separate strategy for reporting.

### *Translating Objective 1 into sampling requirements*

The workshop was able to agree on a number of design principles:

1. Long-term surveillance will necessarily be designed around taxonomic groupings of species, but this should not be a barrier to a range of different analyses (*e.g.* functional groupings, levels of diversity, habitat groupings).
2. It is not possible to produce an *a priori* selection of species that will provide optimal information against an environmental pressure.
3. Rare species will not on-their-own provide a balanced picture of biodiversity status and change. They are subject to a different set of drivers (socio-economic and conservation management) and are very restricted to particular habitat types.

There was a general agreement that the main focus of Objective 1 should be to provide data on the stock, status, and trends of both habitats and species. In addition, it was felt that measures that can relate changes to causation would be necessary within the framework of Objective 1. Some of the measures related to causation will fall outside the biodiversity surveillance strategy, but within the broader ERF strategy. Some of the measures of causation would be improved by filling the gaps in habitats surveillance (discussed below). Some aspects of causation will be covered by the supplementary sampling within Objective 2; the balance between Objectives 1 and 2 is further discussed in the discussion of different scales of surveillance.

No clear direction was agreed on how to produce surveillance recommendations for balancing surveillance between species groups in order to maximise information in a cost-effective manner. It was agreed that analysis of change in functional groupings of species across taxonomic groups should be undertaken. It was also agreed that the use of surveillance of higher trophic levels was useful in some instances, but could not provide a general rule. It was also questioned how much extra information was produced by having surveillance coverage of multiple higher trophic level groups (*i.e.* how much extra information is available by surveying birds and mammals and herptiles). The lack of *a priori* selection rules means that the best statement of surveillance need for species might be for as broad a functional base as possible, planned pragmatically around taxonomic groupings.

Objective 1 should provide the bulk of the information that might be accessed for assessing ecosystem services. We need to ensure that there is sufficient coverage of species valued by the public for aesthetic or cultural reasons. These may correlate with rare species in some cases.

We should:

- Focus Objective 1, and the surveillance requirements within it, on stock, status and change of as broad a base of habitats and species as pragmatically possible.
- Clarify the linkage with ERFF, and the degree to which causation measures will be included in the surveillance requirements of Objective 1.

### *Filling the gaps in habitats surveillance*

Several aspects of habitat surveillance were agreed to be major gaps:

1. Time series of 'Land Cover Map' style coverage
2. Improved information on structural elements of habitats
3. Land use statistics, particularly agricultural land use statistics
4. Habitat quality

Some of these gaps, particularly structural elements and habitat quality, can be partially filled from species surveillance. However, species are not sufficient on their own, and neither are habitats. The gaps in habitat surveillance make attributing causation for biodiversity change particularly difficult. It was felt that before a 'major new framework' for habitat surveillance was designed, we needed to have a more complete picture of where the gaps were by integrating all of the current information.

We should:

- Investigate the possibility of layering together all of the current spatially-explicit surveillance, in order to identify the gaps in surveillance. There may also be a need for some further data analysis, in order to understand the true nature of the gaps.
- Ensure that a scheme is designed to provide time series data on land cover.

### *Improving data access and analysis*

There was general agreement that we needed to continue to work to promote data access, in particular access that would allow a wider range of analysis to be completed, and which would promote partnership working. Data on species attributes are available for some taxa, but are not easily accessible. Species attribute data would greatly facilitate functional analyses. One suggestion for information that we need to have access to (particularly for assessing surveillance need) is a database of sites covered by surveillance, and a range of attributes for that site. This could facilitate partnerships for sampling and data analysis, as well as potentially assisting short-term research into impacts of environmental pressures (by allowing the identification of a gradient in the pressure across surveyed sites). Considerably more data analysis should be undertaken, including meta-analysis, to improve the communication of biodiversity information, and to investigate the true surveillance gaps.

We should:

- Investigate the possibility of collating information on sites that are surveyed, followed by analysis of this information to identify surveillance gaps.
- Provide a meta-analysis of available data to improve biodiversity information and reporting.

*How to include different scales and types of surveillance within a single strategy*

Several discussions were held regarding how the ‘standard’ surveillance pyramid fitted in to the surveillance strategy. The pyramid in this context is considered to include few intensively surveyed sites at the top, and many sites with low levels of surveillance at its base. In general it is agreed that effective surveillance requires a balance between these various scales. There were also linked discussions regarding how to make investment decisions between schemes with intensive cosampling of biodiversity and explanatory variables versus schemes with extensive sampling of biodiversity which can be correlated with separately sampled explanatory variables (probably using interpolated or otherwise estimated data).

Intensively surveyed sites allow for a much tighter linkage between biodiversity change and causation, however by relying on relatively few sites, it may not be possible to reach general conclusions regarding the impact on UK biodiversity. Therefore, different scales of survey are complementary and need to be incorporated within the strategy.

Most people present at the workshop considered that causation should be included as a surveillance requirement within Objective 1 (although some of the debates took place within the policy context of Objective 2). This suggests that the concept of balancing the need for different scales should be included in the surveillance requirements specified for Objective 1. The question of how much sampling of non-biodiversity elements (as some causative variables will be) should be incorporated within a biodiversity surveillance strategy is a difficult one. Some participants considered that producing a strategy for biodiversity alone is not really possible, and that we should focus on the strategy being set out by ERFF. Another possibility might be to only include non-biodiversity sampling as a part of the policy context sampling within Objective 2.

Most people present considered that we should have increased linkage between surveillance analysis and interpretation and results from short-term research. By improving our understanding of ecosystems and species interactions, both research and intensively surveyed sites should add to surveillance interpretation. Research may have a particular policy focus, and may be particularly appropriate for increasing our understanding of Objective 2.

We may be able to improve the ability to correlate long-term extensive surveillance results with causative factors. The design of large-scale schemes can often be improved, and it may be possible to increase the overlap on sites for the different schemes. However, increasing overlap can cause problems of finding volunteers, increasing landowner refusals to access, and possibly bias if landowners manage surveyed land differently.

We should:

- Continue to refine the ‘decision-making tool’ described by the UK surveillance strategy. Eventually, this may require the development of a series of tools for different contexts (for instance there may be a linkage here with the ‘hierarchy’ designed following the vegetation sampling workshop).

Throughout the workshop it was emphasised that the UK Surveillance Strategy is currently evolving, and opportunities remain for further input to the design of the components.