A global audit of biodiversity monitoring

# Typology and selection criteria for species monitoring schemes

A range of partners, collaborators and experts met in November 2017 to develop a typology of monitoring schemes to help guide the process of deciding which to include in the review.

Because at this stage the aim is to perform a **broad** search at the **global** scale rather than an in-depth one, we decided to focus on producing a near-comprehensive audit of schemes that are **primarily designed to track changes in species abundance or occurrence over time**. In such an assessment, schemes should meet **most** of the following criteria:

* The major aim of scheme is to track changes in biodiversity over time
* The scheme should have defined standardised, consistent and systematic methodology
* Temporal, spatial and taxonomic resolution should be high
* It should aim to be long-running as opposed to provide a snapshot of current status
* Data collected should relate to species' or species communities' abundance or occurrence
* It should be formally co-ordinated by an entity (organisation, community or individual)

As the scale we are operating is large, we are compiling information on schemes at **supra-national and national** level rather than at site-specific level. However, this criterion will be relaxed for poorly known or endangered taxa and for ecosystem- or biome- specific schemes.

Furthermore, for a small number of countries, we will perform **in-depth** search of monitoring schemes, thus including site-specific surveys.

Below is the typology of biodiversity monitoring protocols and the schemes we are targeting as part of the audit.

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| **Type of scheme** | **Characteristics** | **Examples** | **Target for current project** |
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| 1. Synthetic multinational schemes
 | Data collected from a range of sources and synthesised in time series with the sole or primary intent to monitor biodiversity over time | Living Planet Index; Red List Index; PECBMS | Comprehensive global review |
| 1. **Dedicated biodiversity monitoring surveys**
 | **Data being collected directly on specified taxa at national or supra-national levels with the sole or primary intent to monitor biodiversity over time. This also include biodiversity monitored for resource management.** | **International Waterbird Census, UK Breeding Birds Survey, Botanical Society of Britain and Ireland National Plant Monitoring Scheme, IGCP mountain gorilla census,**  | **Comprehensive global review** |
| 1. Unsynthesised data on presence or distribution
 | Location data but may not be time-series and not synthesised into measures of biodiversity change | GBIF, eBird, BirdTrack | May be covered by a comprehensive global review of multi-national holdings; national reviews of national-level holdings  |
| 1. Data on environmental changes likely to reflect changes in biodiversity
 | Changes in habitat cover or extent, often assessed remotely, but not changes in biodiversity directly | Global Forest Watch; Global Coral Reef Monitoring Network | May be covered by a comprehensive global review |
| 1. Data on non-associated, non-biological change
 | Environmental but no direct relationship to changes in biodiversity | Spread of night lights, climate change | None |
| 1. Non-scheme repeated surveys
 | Surveys relating to aims other than monitoring (e.g. research) but which could be analysed to derive trends | Counts of Meerkats, primates | case studies as part of national in-depth reviews |
| 1. Single site surveys
 | Regular data collected on taxa at specified site (e.g. protected area, KBA, site EIA) | Minsmere avocet counts; mammal surveys in Udzungwa Mountains NP | case studies as part of national in-depth reviews |

According to the selection criteria, the main schemes targeted in this audit are thus type-2 surveys although criteria could be relaxed to include other type of schemes if time allows.

In-depth reviews will be performed for a small number of focal countries and type-6 and type-7 surveys will also be included.