



The UK Terrestrial Biodiversity Surveillance Strategy

UK Habitats Directive Surveillance Approach

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1. Requirement

The Habitats Directive explicitly requires Member States to implement surveillance of the conservation status of habitats and species of Community Interest (Article 11), and to monitor incidental capture and kill of Annex IV (a) species (Article 12.4). Article 14 places a requirement for further surveillance of exploited species of flora and fauna listed in Annex V where necessary. The Habitats Directive is transposed into UK law by four sets of regulations, known as the Habitats Regulations - The Conservation of Habitats and Species Regulations 2010 (covering England, Wales and Scotland for reserved matters), 'The Conservation (Natural Habitats, &c.) (Scotland) Regulations (as Amended in 1994, 2007, and 2009), The Conservation (Natural Habitats, etc.) (Northern Ireland) Regulations 1995 (as amended in 2004 and 2009) and the Offshore Marine Conservation (Natural Habitats, &c) Regulations 2007 (as amended in 2009). All four sets of regulations require "an assessment of how, and to what extent, surveillance of the conservation status of each relevant habitat and species needs to be carried out, having regard to (i) whether a habitat or species is a priority natural habitat type or priority species; and (ii) the conservation status of the habitat or species."

Article 17 of the Habitats Directive requires reporting of the conservation status of all species and habitats on its Annexes (referred to in the Directive as species and habitats of Community Interest; henceforth referred to as 'features') every 6 years. The reporting format set out by the Commission requires information on the different parameters – range, population (species only), extent (habitats only), habitat for species (species only), structure and function (habitats only) and future prospects, and requires 12 year trends for range, population, area, and habitat for species.

The Directive text and the Conservation Regulations do not specify the frequency or quality of surveillance required. There is no explicit requirement that new data should be collected for all features each reporting round.

2. Responsibilities

The parties with the legal responsibility to assess surveillance need and to implement it are summarised in Table 1.

Table 1. Responsibilities for surveillance assessment and implementation for transposition of Article 11 and Article 12.4 (incidental capture and kill) surveillance.

'Country'	Responsibility for assessment of surveillance requirement	Responsibility for implementing surveillance required
England	NE	Secretary of State
Wales	CCW	Welsh Ministers
Scotland	SNH	SNH
Northern Ireland	DoENI	DoENI
Offshore	JNCC	Secretary of State

3. Fit with other requirements

The UK Terrestrial Biodiversity Surveillance Strategy requires surveillance for three main purposes: to provide a broad overview of the status of biodiversity and ecosystem services, to enable us to see the effects of pressures and of conservation action on biodiversity, and to detect the status and meet reporting requirements of species and habitats of particular conservation concern, e.g. Habitats Directive features.

In addition to the Habitats Directive, other European drivers for biodiversity evidence requirements in the terrestrial (and freshwater) environment include the Birds Directive, Water Framework Directive and the Rural Development Regulation. In the marine environment the requirements of the OSPAR convention and the Marine Strategy Framework Directive apply as well as the Habitats, Birds and to some extent the Water Framework Directive. The evidence requirements of the European directives can largely be mapped into the broader more ecosystem service oriented

framework of indicators for the Convention on Biological Diversity's strategic plan for 2011-2020.

The approach to biodiversity and ecosystem services in England, Scotland, Wales and Northern Ireland is currently being refreshed as part of country level strategies or frameworks. Surveillance/monitoring has a major role in delivering measures of overall strategy progress/outcome through indicators, and it is clearly desirable to align the EU and international reporting requirements with those of value at the country strategy level. The largest current surveillance and monitoring effort is to determine if public funds directed to achieving biodiversity outcomes within each country strategy are achieving the desired results at the scale of the expenditure e.g.: protected sites, stewardship agreements, landscapes.

The species covered by the Habitats Directive are a subset (circa 10%) of the overall priorities as judged by the UK BAP process and country listings. Some species, such as bats, are widespread and likely to provide a significant functional role within ecosystems, and be a useful indicator of widespread habitat quality. However, many Habitats Directive species are very restricted in distribution and unlikely to provide a significant functional role within ecosystems. Country conservation bodies have to decide how to best meet all their surveillance requirements, whilst balancing surveillance against conservation spend that will help achieve conservation status.

4. Assessing Surveillance need

The Country Agencies have assessed the surveillance requirements of features on the Directive and identified where it is a priority to increase the data collected for features within the next planning period.

The surveillance leads from across the UK Country Agencies and JNCC have developed some general principles to guide the assessment of where collecting new information is a priority. These include basing the assessment of priority on the state of existing knowledge, species conservation status and the ability of surveillance to guide action to achieve or maintain conservation status. Practical issues have also been taken into account, for example for currently intractable features such as marine habitats, it has been acknowledged that a phased approach will be required to gradually build up the evidence base. Conservation bodies are planning to repeat this assessment of surveillance need at regular intervals to help inform surveillance plans. They are planning to next refresh the assessment following the 2013 Article 17 reporting round, when features will have had relevant surveillance information collated and their conservation status reassessed. Species and habitats identified as a high priority for new information do not stay priorities for ever – as surveillance takes place the knowledge base increases, which may change its priority. The general principles to guide assessment of surveillance need are listed in Annex 1 to this paper.

5. Surveillance Plans

Conservation bodies are using knowledge of existing surveillance data along with their assessment of surveillance need to form surveillance plans. NB. The marine monitoring R&D programme led by JNCC will make recommendations on options for cetacean monitoring in 2013/14 and marine habitats monitoring in 2014/15.

Species

Surveillance design considerations should also take into account species specific issues, for example co-occurrence of different species, proportion on protected sites, distribution across countries, taxonomic groupings and habitat associations. This is to maximise practicality and efficiency of surveillance, and to make best use of the way voluntary organisations organise their expertise and can be involved in surveillance solutions. In the past, surveillance schemes and surveys have been more ad hoc, but the current exercise of ensuring sufficient surveillance for habitats directive features is encouraging a more systematic look at requirements and solutions. SNH and Natural England are making progress in integrating Habitats Directive species surveillance in a wider framework that also meets other surveillance requirements.

Current and preferred surveillance solutions for terrestrial species are outlined in Annex 2 below,

along with the suggested lead for surveillance. For restricted species protected site monitoring will play a large part, along with greater use of in house agency staff resources to do targeted surveys. The use of voluntary schemes will be particularly useful for localised and widespread species, which pose a particular challenge. An assessment of the impact of incidental capture and kill of Annex IV species, and a summary of action, is provided in Annex 3 to this paper.

Habitats

The range of non marine habitats is established and will not change probably for decades and so is not really a surveillance issue. Extent and condition are currently measured largely using field based techniques, or air photo interpretation and are relatively costly to do. The required frequency of condition assessment is ideally determined by local threat and management needs. At a national level the overall picture of extent and condition will change slowly, and hence a complete picture is required less frequently.

A few Annex I habitats are sufficiently extensive and widely distributed to be picked up by the general purpose sampling framework of Countryside Survey. However, most widespread habitats are not well covered by current surveillance and represent a major gap. For restricted habitats, the majority of information has come from site condition monitoring (common standards monitoring) undertaken by the country agencies for Special Areas of Conservation (SACs).

The major gaps are in marine habitats and terrestrial/freshwater habitats outside of SACs. Remote sensing is an important development area for habitat monitoring within all the conservation bodies and Defra. Large improvements in knowledge are likely to result from this work (e.g. better range and extent figures), but its limitations should be recognised, e.g. in its ability to show change in condition.

Current and preferred surveillance solutions for habitats are outlined in Annex 4 below, along with the suggested lead for surveillance.

Annex 1

Principles for assessing surveillance requirements

1. Species/habitats at high risk of undergoing, or being likely to undergo in the future, a significant negative impact will generally require a high frequency of sampling. This will enable early detection of problems, allowing them to be addressed, for example, through research to establish the driver of change, through management or policy change. There is less value in carrying out as frequent monitoring for low risk species/habitats because they are unlikely to undergo a significant negative impact in the future. The 6 yearly Article 17 assessment of Future Prospects should usually be adequate in forming the basis of this assessment of risk, i.e. if this is assessed as being at Favourable then it is low risk. The assessment should take into account the best available information, for example, biodiversity status data, and information on pressures.

2. The frequency of surveillance needed for species and habitats will depend on their ecology and management. Species/habitats that are naturally very dynamic will need a greater frequency of surveillance to help us get a clearer understanding of their status. Species or habitats that depend on annual management or management prone to vary significantly in type or intensity are also in need of higher frequency surveillance as they are vulnerable to decline/deterioration if management regimes change.

3. Frequency of surveillance of different parameters (e.g. range/extent, population, condition) should be appropriate to their sensitivity to change. For example, range is often less sensitive to change than condition or population trends, and there is often less value in recording it as frequently as condition or population levels.

4. The level of existing knowledge of the habitat/species itself and/or of pressures affecting it should be taken into account when deciding on surveillance need. The less information we have about a habitat or species, the higher the risk that it could be under threat and at poor status without us realising it. In the last Article 17 reporting round a number of species and habitats had their conservation status assessed as 'unknown'. Species and habitats lacking basic inventory information have a high requirement for surveillance to solve this information gap because we cannot usually assess if it is under threat until we know where it is. However a poor knowledge base is often due to the cost and accessibility difficulties associated with surveillance, for example in the marine environment. In these situations a phased process should be planned to build up the knowledge base over time.

5. The confidence we have in the conservation assessment should influence surveillance required. The level of confidence we have in conservation assessments should always be clearly documented. Habitats and species for which assessments are based on poor evidence are generally at a higher need of surveillance in the next period. However, care should be taken when using the quality of evidence as documented in the 2007 FCS reports, as the definitions used for high and medium quality evidence were fairly restrictive.

6. Some habitats and species are assigned 'Priority' status in the Habitats Directive, or the UK has special responsibility for a resource due to it having a high proportion of the European resource. This should be taken into account when deciding on surveillance need. These habitats and species will not necessary be at greater risk of poor conservation status than a non-priority species or habitat, but the implications of a decline in status would be of greater concern. If several habitats or species were judged in need of frequent surveillance due to the principles above but resources were limited, it may be best to meet the requirements of these species or habitats first.

7. Surveillance should be balanced against other activities that can help achieve FCS. Reviews of pressures can be particularly useful in helping to understand causes of decline. This is needed to inform action that can be taken to reduce negative impacts, for example, reducing the pressure, or altering site management. There is little value in continuing to survey a habitat or

species that we know is at unfavourable conservation status if no action is taken to improve known pressures. Resources would be better spent in conservation action.

8. Habitats Directive surveillance requirements should be integrated with the requirements of other drivers (e.g. BAP, MSFD, PSA targets) and local site management plans. This may increase the level of surveillance needed for some habitats and species of Community Interest. For example, surveillance should be carried out where needed to provide useful feedback for site management, even if the habitat or species is at FCS and not in need of frequent surveillance at a UK scale. However, efficiencies can be achieved by using the same surveillance for multiple purposes.

9. Surveillance of exploitation of Annex V species will be needed where this is a significant factor causing it to be at poor conservation status. If a species is at FCS, then it seems reasonable to judge that any exploitation is not having a significant negative effect on the population. Where a species is at poor conservation status further research may be needed to determine if exploitation is a significant factor. If it is, then surveillance of the exploitation will need to be set up and the problem addressed.

10. Monitoring of incidental capture and kill of Annex IV (a) species should be considered. MS are required to establish systems to monitor the incidental (accidental) capture and killing of European Protected Species, and must take action (research or conservation measures as required) to ensure that incidental capture and killing does not have a significant negative impact on the species concerned. If a species is at FCS, then it seems reasonable to judge that any exploitation is not having a significant negative impact on the population. However, if a species is not at FCS then sufficient information is needed to assess if incidental capture and kill is making a significant contribution to this poor conservation status, so that action can be taken. Monitoring of incidental capture and kill is particularly important where we have less confidence in the status of the species, and where we assess that incidental capture and kill is having a negative impact on the population.

Annex 2. Summary of surveillance approach for terrestrial species on the Habitats Directive¹

Category	Species	Approach	
		Current	Preferred
Restricted <15km squares	15 species 5 invertebrates 4 vascular plants 3 bryophytes 1 amphibian 2 fish	Common standards monitoring on SACs Un collated ad hoc data CEH surveys (fish, large blue butterfly) Targeted single species survey	CSM on SACs Use of agency staff and schemes to improve ad hoc CEH surveys Targeted surveys
Localised 16-100 10km squares	22 species 3 bats 3 herptiles 4 fish 6 invertebrates 4 plants 2 bryophytes	Commissioned targeted survey Use of voluntary scheme data	Methods development to add to National Bat Monitoring Programme Targeted survey Improved sampling/analysis of vol scheme data
Widespread >100 10km squares	39 species 2 amphibians 2 bryophytes 7 fish 4 invertebrates 14 bats 6 other mammals 3 vascular plants 1 lichen	NARRS and ad hoc Collation of ad hoc Salmon fisheries data, otherwise unclear Targeted survey and ad hoc Nat Bat Monitoring programme National Game Bag census Targeted single species survey (expensive)	Modelled status or pond scheme Modelled status Inclusion in EA and SEPA fish schemes Various National Bat Monitoring Programme Targeted based on priority

¹ Numbers in the different categories (restricted/localised/widespread) based on best available information. May change slightly as distribution data is checked and updated.

Annex 3. Assessment of impact Incidental Capture and Kill for Annex IV species and action taken.

Species	Known incidental capture or kill	Assessment of impact	Action	Lead (cost effective)
Bats (all species)	Collisions with turbines	Of the 16 UK bat species, 5 were last recorded as Favourable, 9 unknown, 1 Inadequate (Becksteins), and one inadequate but improving (Greater Horseshoe). The main threats are habitat change, and reduction in prey due to increased use of pesticides. Collision is unlikely to be a significant negative impact.	Research into bats and turbines	DEFRA
Large Blue Butterfly	No significant impacts known	The Large Blue has a restricted distribution, being found largely on specific habitat (short limestone turf) in protected sites. The species has low dispersal so is unlikely to be impacted by incidental capture and kill.	-	-
Wild Cat	Road kill, poisoning	A rare but wide ranging species in Scottish highlands. Last assessed as unfavourable bad. Roads identified as a pressure.	Collation of road kill by highways authorities	SNH
Cetaceans (all species)	By-catch; collisions;	This may have a significant negative impact – monitoring needed.	UK bycatch monitoring scheme and the Cetacean Stranding Investigation Programme stranding scheme	Defra (in partnership with Devolved Administrations)
Dormouse	Road kill; accidental kill during cultivation.	Assessed as Bad and deteriorating. Though some dormice are subject to this, other habitat related pressures are likely to be much more significant than ICK.	-	-
Sand Lizard	Arson/accidental fires/inappropriate heathland management through burning	A heathland specialist, assessed as inadequate but improving. Fire prevention measures are common on the heathland sites where it is found. Hard to record instances of ICK from a fire, but effects on populations should be picked up by general population monitoring.	-	Site Managers
Great Crested Newt	Accidental kill during cultivation; road kill; getting trapped in drains.	A widespread species, last assessed as inadequate. Although some GCNs are likely to be killed by ICK, populations are more likely to be limited by lack of adequate habitat, and ICK is very hard to control. Resources would be better invested in habitat creation/management.	-	-
Otter	Road kill,	The otter was last assessed as	-	-

	poisoning	being at favourable conservation status, so ICK is unlikely to be having a significant negative impact.		
Smooth Snake	Arson/accidental fires/inappropriate heathland management through burning	Assessed as inadequate but improving. Fire prevention measures are common on the heathland sites where it is found. Hard to record instances of ICK from a fire, but effects on populations should be picked up by general population monitoring.	-	Site Managers
Sturgeon	By-catch	Could be impacted by bycatch, but very rare in UK waters.	Covered by the UK cetacean bycatch monitoring scheme	Defra (in partnership with DAs)
Natterjack toad	Accidental kill during cultivation; Road kill	A habitat specialist of sandy heaths, dunes and upper saltmarsh last assessed as bad but improving. Habitat management is likely to be much more important than ICK. Local solutions would need to be put in place if risk of ICK considered significant at a local level, especially during the toad's vulnerable dispersal period.	Local site monitoring and management as appropriate	Site managers
Marine Turtles	By-catch, plastics ingestion & strangulation	Likely to be a significant negative impact. Marine turtles are fairly rare in UK waters. No incidents of bycatch recorded in recent past.	Covered by the UK cetacean bycatch monitoring scheme and the Cetacean stranding investigation programme.	Defra (in partnership with DAs)
Pool frog	No significant impacts known	Status bad but improving. Very restricted site in England. Management at reintroduction site likely to limit ICK. Action to increase its habitat populations is more important.	-	-
Fisher's estuarine moth	Destruction of Hog's fennel (larval food plant), e.g. by strimming or flooding	Status last recorded as bad. Destruction of larval food plant could be an issue. Coastal flooding is a pressure. Awareness raising and habitat creation likely to be much more useful than searching for dead caterpillars on destroyed hog's fennel.	Habitat creation and breeding program in Essex to compensate for kill due to coastal habitat loss.	Project funded by NE. (Lots of partners involved)
Lesser whirlpool ram's-horn snail	Ditch clearance	Status last recorded as inadequate and deteriorating. Restricted to a few locations in Norfolk, Suffolk and Sussex – likely that site owners are aware of its needs. Hard to record ICK. Main problem for species is likely to be lack of suitable habitat.	-	-

Annex 4. Summary of surveillance approach for habitats on the Habitats Directive

Category	Habitat	Approach		Suggested lead
		Current	Preferred	
Marine	8 habitats	Common standards monitoring for inshore SACs only. Outside SACs is a major gap	Integrated solution for meeting habitat information needs across directives and polices the marine environment. Likely to involve sampling and use of pressures data sets.	To be determined, JNCC leading work to establish options which will be evaluated in 2013.
Over 80% habitat within SAC network	25 habitats (Approx)	Site condition monitoring using field base techniques.	Combination of remote sensing and field base techniques, streamlining of field protocols, better collaboration to integrate sampling with other needs eg: forest stock/condition, coastal/flood defence, Water framework directive	CCW, NE NIEA, SNH
Habitats with much of extent outside SACs, Typically widespread	44 habitats (approx)	Occasional habitat specific surveys, Q habitats are covered by Countryside survey, but surveillance of habitats outside SACs is a major gap	Combination of remote sensing techniques, sample based field survey including using volunteers (re-design of Countryside survey and other schemes), improving habitat recording for Stewardship monitoring, and integration with other needs eg: forest stock/condition.	CCW, NE, NIEA, SNH organisation collaboration with other agencies at county level, DEFRA/JNCC/CEH determining future role of UK sample based schemes, land cover mapping.