Establishment of a UK network of Special Protection Areas for waterbirds: the SPA review and future directions

Helen Baker & David A. Stroud
Joint Nature Conservation Committee, Monkstone House, City Road, Peterborough, PE1 1JY, UK.
(email: Helen.Baker@jncc.gov.uk)


ABSTRACT

Special Protection Areas (SPAs) are sites designated under the European Union Directive on the Conservation of Wild Birds (79/409/EEC). The first analyses of the SPA network in the UK were published in the early 1990s. These reviews approached network creation on the individual merits of each site. Another network review was published in 2001, following agreement of formal UK SPA selection guidelines. The 2001 review was significantly different in its species-based approach; protection requirements of each species were assessed and a suite of SPAs selected accordingly. The national network comprises the aggregated SPA suites for 103 species or biogeographical populations, with 242 sites designated. The UK is of international importance for its waterbird populations and high proportions of many populations occur within the SPA network. Sites of importance for assemblages of over 20,000 non-breeding waterbirds are also included. The 2001 review highlighted gaps in the network, especially in the marine environment, which are now being addressed. National standards in monitoring SPA condition have been implemented, with each site assessed every six years. This will aid management of individual SPAs, and will allow regular assessment of the effectiveness of the national network in contributing to species conservation.

INTRODUCTION

Special Protection Areas (SPAs) are strictly protected sites designated in accordance with the European Union Directive on the Conservation of Wild Birds (79/409/EEC; the "Birds Directive"). SPAs are designated for rare and vulnerable species within the EU (listed in Annex I of the Directive), and also for other regularly occurring migratory species. SPAs, together with Sites of Community Importance (SCI; identified under the EU Directive on the Conservation of Natural Habitats and of Wild Fauna and Flora - 92/43/EEC; "the Habitats Directive"), form the Natura 2000 network, which is intended to be a coherent ecological network. Designation of an area as a Natura 2000 site provides a high level of habitat protection, with explicit procedures and strict tests to be followed in relation to proposed developments affecting the site. SPA management is focused on the requirements of the species for which the site has been selected ("qualifying species"); potential impacts of activities that might negatively affect the site are assessed against effects on these birds.

Despite the intention that SPAs will contribute to a coherent European ecological network of protected sites, there are no detailed guidelines or criteria agreed at the EU level for selecting SPAs. The Directive provides broad guidance stating that the most suitable territories in number and size shall be classified and that these should ensure survival and reproduction within the species’ area of distribution. In addition, for migratory species, SPA provision should take into account breeding, moulting and wintering areas and staging posts along the migration route, paying particular attention to protection of internationally important wetlands. The specific mention of internationally important wetlands is an implicit reference to the Convention on Wetlands (Ramsar, 1971) and an indication that the Ramsar site selection criteria should guide selection of SPAs for migratory waterbirds (Temple-Lang 1982).

Since the Birds Directive came into force, legal cases have influenced development of SPA selection approaches. Of greatest significance was Case C-3/96 Commission v Netherlands [1998] ECR I-3031, which established that in the absence of a scientific evaluation published by a government, the European Court of Justice could assess Member State SPA provision against BirdLife International’s Important Bird Area (IBA) network (Grimmett & Jones 1989). The IBA identification process uses specific criteria for selecting sites, but there has been no formal adoption of these criteria as a common standard for selecting SPAs at either UK or European Union scales. The IBA process makes no reference to network coherence, and no IBA suites for species are identified, although its stated aim is to provide a network of sites that are of importance for the long-term viability of those populations amenable to site-based conservation across their biogeographical range. BirdLife International considers the IBA network to be the minimum essential to ensure the survival of these species (Heath & Evans 2000).

The means of achieving the SPA components of a coherent ecological network of Natura 2000 sites are therefore not clear. The Habitats Directive states that the designation of habitats, either alone or in order to support species, should be proportional to their occurrence. However, the Directive provides no guidance on what proportions would be adequate to contribute to a coherent ecological network. During moderation of national SCI lists, arbitrary levels of biogeographical representation were used to prioritize further network development (EU Habitats Committee 1997). When the proposed SCIs within a region supported more than 60% of a habitat or species, the consideration of more sites was of low priority. This level was chosen as it is likely to ensure that in most cases the objectives of the Habitats Directive would be met. However, the selection of SCIs is guided by more specific criteria than the Birds Directive provides for SPAs, and no similar target has been established for assessing the European SPA network.

In this paper, we describe the approach in the UK to establishing a network of SPAs, and the UK SPA selection guidelines. We also explore what the network provides specifically for
In order to assess progress, a full analysis of the SPA network in Britain was carried out and published in 1990, with site details published in 1992 (Stroud et al. 1990, Pritchard et al. 1992). SPAs in Northern Ireland were evaluated, adopting an approach similar to that used in Great Britain, on an All-Ireland basis in the early 1990s (Way et al. 1993). These reviews approached the task of defining a network of sites from an assessment of “best” sites on their own individual merits, rather than an assessment of the national, or international, needs of the species for which the network was being established. This type of approach was based on that for IBAs and the identification of potential Ramsar sites through its series of directories of wetlands of international importance (e.g. Carp 1980). The UK had designated 33 SPAs at the time of completion of the 1990 review, but critically the review identified a further 190 areas that should be considered for designation. A further list identified other areas where more data were required before further assessment of status could be made.

In 1994, the UK government requested that the Joint Nature Conservation Committee (JNCC) co-ordinate another review of the network and provide guidance on site selection. This resulted in the publication of formal UK SPA selection guidelines (JNCC 1999; Box 1) and a full review of terrestrial SPAs (Stroud et al. 2001).

The 2001 review was significantly different from previous reviews in that it approached site selection from a species perspective; site protection needs of both Annex I species occurring in the UK and other regularly occurring migratory species were assessed. Integral was the application of the UK SPA selection guidelines through a clearly defined decision-making process (Stroud et al. 2001). SPAs were not selected for Annex I or migratory species that are widely dispersed (and therefore deemed unsuitable for site-based conservation measures), but at least one SPA was selected for each of 103 species or biogeographical populations. The review assessed the protection requirements of each species or population in detail, and for each of these, derived a suite of SPAs accordingly. The overall UK network of SPAs is derived from the combination of all 103 suites for species or populations.

THE UK SPA SELECTION GUIDELINES

The formal UK SPA selection guidelines (JNCC 1999) rely very much on the international precedence set by both the contemporary Ramsar Criteria and IBA Criteria, whilst taking into consideration the requirements of the Birds Directive and the desire for a more species-led approach. The UK SPA selection guidelines are not criteria – the application process is a two stage process, and it allows a degree of ecological assessment to inform the selection of the “most suitable” sites (see Box 1). Hence, the SPA suite for a particular species may not necessarily comprise all nationally or internationally important areas for that species, but may contain sites with fewer birds that have been added, for example, to improve coverage of a species’ distribution.

THE UK SPA NETWORK

The UK SPA network currently comprises 242 designated SPAs, and extends to more than 1 470 300 ha – about 6% of the UK’s land surface. It includes suites of SPAs for 103 species or biogeographical populations, and incorporates 115 Ramsar sites.

The UK is of major international importance for several groups of birds. These include: breeding seabirds; wintering and

**Box 1. The UK Special Protection Area Selection Guidelines (JNCC 1999).**

Application of the guidelines involves two stages. Stage 1 is intended to identify areas that are likely to qualify for SPA status. These areas are then considered further, using one or more of the judgements in Stage 2 to select the most suitable areas in number and size for SPA classification.

**Stage 1**

1. **Population size and density**
   Areas holding or supporting more birds than others and/or holding or supporting birds at higher concentrations are favoured for selection.

2. **Species range**
   Areas selected for a given species provide as wide a geographic coverage across the species’ range as possible.

3. **Breeding success**
   Areas of higher breeding success than others are favoured for selection.

4. **History of occupancy**
   Areas known to have a longer history of occupation or use by the relevant species are favoured for selection.

5. **Multi-species areas**
   Areas holding or supporting the larger number of qualifying species under Article 4 of the Directive are favoured for selection.

6. **Naturalness**
   Areas comprising natural or semi-natural habitats are favoured for selection over those which do not.

7. **Severe weather refuges**
   Areas used at least once a decade by significant proportions of the biogeographical population of a species in periods of severe weather in any season, and which are vital to the survival of a viable population, are favoured for selection.

Finally, we provide a brief overview of monitoring and the future development of the UK SPA network.

**DEVELOPMENT OF THE UK SPA NETWORK**

The UK began its programme of SPA designation in 1982. In order to assess progress, a full analysis of the SPA network in waterbirds. Finally, we provide a brief overview of monitoring and the future development of the UK SPA network.
are well represented in the non-breeding season, such as the Bar-tailed Godwit *Limosa lapponica*, Dunlin *Calidris alpina alpina*, Red Knot *Calidris canutus* and Grey Plover *Pluvialis squatarola* for which the UK SPA network supports 70-90% of the British populations. In the case of the Annex I listed Bar-tailed Godwit, the network supports around 40% of the *lapponica* subspecies.

For these species, SPAs include both feeding and roosting habitats, and so meet the birds’ ecological needs during migration and in winter.

SPA provision in the UK for the Icelandic population of the Pink-footed Goose *Anser brachyrhynchus* is a good example of how a network of protected sites can make a significant contribution to the conservation of a species’ population. This non-Annex I migratory population winters almost exclusively in the UK and is highly aggregated: 24 SPAs have been selected for it, supporting approximately 80% of UK numbers and 70% of the biogeographical population. Birds have been shown to use these SPAs as a true network, taking advantage of the different sites within the suite as they make seasonal movements to alternative feeding areas (Mitchell & Hearn 2004). The level of representation of the species in the UK network can be considered to be adequate, and the need for additional sites, given the current quality of habitats in the network and behaviour of the population, to be unnecessary. Hence, in this respect the network meets the requirements of Article 4 of the Birds Directive. However, these figures could be considered to be misleading in the sense that the focus of site protection for the species is primarily to provide safe roosting areas; the suite contains very little foraging habitat, which for this species is primarily intensively managed farmland. The designation of SPAs to include such habitat may not be appropriate, given that the species has been highly adaptable to changes in agriculture over the last 40 years and has

passage waterbirds; birds of Britain’s distinctive uplands; and birds of Caledonian pinewoods. A high proportion (in some cases all) of the national and international populations of such species are contained within the UK SPA network. The habitat protection provided for these birds is a major contribution to their international conservation. Those species of greatest conservation concern in the context of the Birds Directive tend to have the highest proportions of their populations within the UK SPA network, as do those that have the smallest geographical ranges, and those where the UK holds a high proportion of international numbers (Fig. 1). Such figures allow an assessment of whether a network of sites is achieving its conservation aims in terms of providing a sufficient extent and geographical range of habitats for any given species.

The UK is of outstanding international importance for its waterbird populations, a consequence of its mild winter climate and strategic location on migratory flyways. In the mid-1990s, the SPA network supported an average of over 2 186 000 non-breeding waterbirds, approximately 40% of all waterbirds present in the UK in mid-winter. Fifty-seven sites of importance for assemblages of over 20 000 non-breeding waterbirds have been selected. In addition, a further 62 SPAs support internationally and/or nationally important numbers of waterbirds.

The performance of the UK SPA network for non-breeding waterbirds has been assessed and shown to be good (Jackson et al. 2004), but can be demonstrated more generally by a brief review of a few examples. Many species have high representation in the UK SPA network, with sites meeting most of the species’ needs. For example, the network supports over 60% of the British breeding population of Black-throated Divers *Gavia arctica*, with sites providing nesting, roosting and feeding requirements during the breeding period. A number of waders

Fig. 1. The proportions of international populations of non-breeding waterbirds within the UK SPA network in relation to their occurrence in the UK (from Stroud et al. 2001). Solid line: linear relationship for Annex I species; $y = 0.8743x – 0.0261$; $R^2 = 0.9353$. Broken line: linear relationship for non-Annex I migratory species; $y = 0.6018x + 0.0044$; $R^2 = 0.7029$. Waterbirds around the world
derived significant benefit from this (Mitchell & Hearn 2004, Fox et al. 2005). To achieve a coherent ecological network for this species, a complementary approach to SPA designation of some form of wider landscape management that would ensure the perpetuation of suitable foraging areas, and access to them, may be more effective. Defining disturbance-free feeding zones around the sites within the network, and possibly also corridors (in the form of daytime resting places), could be beneficial in such a landscape approach. However, there is no defined mechanism for this kind of approach within the Birds Directive, although Article 3 could be interpreted as seeking the establishment of protected areas with a less strict level of protection than Natura 2000 sites. Other mechanisms may also be available to ensure that feeding areas have some degree of protection, such as agri-environmental provisions. For such species, including many other Anatidae, it may be that agri-environmental policies should aim to define a certain overall extent of feeding habitat within a defined distance of major roosts without being overly concerned about specific feeding locations. However, further assessment of the protection requirements of foraging habitats for those species using arable crops is required.

Not all species are as well represented within the UK SPA network, for a number of reasons. For example, less than 5% of British Mallards Anas platyrhynchos occur within the SPA network (representing less than 1% of the biogeographical population) due to the species being more widely dispersed during the non-breeding period. The contribution that protected sites can make to the conservation of dispersed species will be small, and wider countryside measures become of primary, but complementary, importance. The concept of a coherent ecological network for the conservation of such species must be developed at landscape-scale.

Overall, the terrestrial component of the UK SPA network is considered by the UK government to be substantially complete and the representation of each species within the network to be, in the majority of cases, at a sufficient level to meet the objectives of Article 4 of the Birds Directive. However, as no quantitative targets are set by the Birds Directive and few studies of conservation strategies for birds have been made that define optimal levels of site protection, there is no contemporary guidance on acceptable levels of population representation in the network.

There have been previous attempts to define target ranges for species representation in a network of protected sites (e.g. Stroud et al. 1990, based on Bezzel 1980), but the final ranges produced remain arbitrary. Nevertheless, this kind of approach, which uses variables such as range occupancy, abundance, trends and international responsibility to highlight levels of high, moderate and low provision, seems intuitively useful. Furthermore, setting levels of population representation to assist in selecting networks of protected sites has been shown to be an effective approach (Jackson et al. 2004). Further refinement of a target-setting approach for population representation, based on testing of outcomes, would perhaps provide a simple and meaningful way to guide the definition of national and international networks.

Utilizing the standard Natura 2000 data submitted by Member States to the European Commission (available from the European Topic Centre on Biological Diversity), it is possible to begin to develop an understanding of how the overall European SPA network contributes to the conservation of populations. For example, there have been at least 235 SPAs designated for Bewick’s Swan Cygnus columbianus bewickii throughout the EU15. Numbers peak in eastern European sites in autumn and spring, as birds migrate through the Baltic countries, and in western European sites, in winter. The UK has designated 15 SPAs for this population, and these support over 95% of British numbers and around 30% of the biogeographical population. However, it is difficult to assess the degree to which the EU15 SPA network provides support for this population from the standard data alone. The development of meaningful evaluation techniques, at population level, of the Natura 2000 network is essential, but to ensure that this network meets its objectives, the component national networks need to be of a sufficient standard. However, national action must be placed within the context of the full range of the species, especially for migratory species. Clearer approaches to target setting for national networks and guidance on achieving a coherent European ecological network is essential if SPA provision is to be a truly effective conservation tool at pan-European level. The long-term performance of the network will ultimately be assessed by the conservation status of the populations concerned.

THE FUTURE DEVELOPMENT AND MONITORING OF THE UK SPA NETWORK

The 2001 UK SPA review highlighted cases where current data are inadequate to allow the selection of SPAs for certain species or at certain times of the year. These include sites for gulls and raptors in winter, and for mixed populations of passage waders. In addition, the review had a terrestrial focus, and a separate review process has been initiated for birds in the marine environment.

The UK government established a post-review scientific consultative group in 2001 (UK SPA and Ramsar Scientific Working Group – see http://www.jncc.gov.uk/page-1770 for more information) to advise it on the development of the SPA network, its monitoring and management. This group includes representatives from the government, non-governmental conservation organizations, and land and marine industrial sectors. One of the group’s work areas is to review the importance of cropped habitats as feeding areas (for species such as the Pink-footed Goose) and evaluate possible approaches to the conservation and management of these areas in the context of the Birds Directive. Another area of work is to develop further a target-setting approach for population representation that may aid in further assessment and development of the SPA network.

The establishment of a network of SPAs must be accompanied by effective monitoring and management. EU Member States are obligated to avoid both the deterioration of habitats within SPAs and significant disturbance to the birds using these sites.

Monitoring protocols for SPAs, termed “Common Standards Monitoring”, have been developed in the UK: all qualifying species will be monitored on each SPA at least once every six years (JNCC 2004). The aim is to provide an “alerts” type system which warns of unfavourable changes in the condition of the qualifying bird features, the causes of which can then be further explored and site management modified if appropriate (see Austin et al. 2006). Standardized monitoring of birds is already in place for many sites, with national schemes, such as the BTO/WWT/RSPB/JNCC Wetland Bird Survey for waterbirds, providing regular counts of birds, and in some cases trends, in many SPAs. Such schemes are heavily reliant on the
considerable efforts of volunteer bird-watchers, and both major non-governmental conservation organizations and the government have aided the development of such monitoring capacity. However, some sites are infrequently monitored, especially those in remote areas, and for these, the Common Standards Monitoring approach (JNCC 2004) will provide a valuable opportunity to enhance the collection of information and use this to better focus the conservation management of individual SPAs. It will also allow periodic assessment, at national network scale, of the continuing effectiveness of SPAs in contributing to the conservation of certain bird populations.

CONCLUSIONS
The UK Special Protection Area network comprises 242 designated sites, with suites of sites for each of 103 bird species or populations, and extends to about 6% of the UK’s land area (Stroud et al. 2001). A species-based approach to building the network has allowed the selection of sites that not only support large numbers of birds, but are also sufficient to maintain species’ ranges within the UK. Although substantially complete in the terrestrial environment, the network remains in development and SPA provision for birds in the marine environment is the current priority for such development. The key challenge remains understanding when the network is sufficient to meet the conservation needs of a species in the context of the species’ ecology and other complementary measures. We believe that a species-based approach is intuitively the best way to build a coherent network, but recognize that setting targets is conceptually and scientifically difficult to do and that sufficiency is likely always to be measured in terms of scientific judgement; this should not detract from striving to create effective protected site networks.

REFERENCES


