4. Applying the SPA selection guidelines

The application of the selection guidelines has generated the list of SPAs set out in Appendix 7. The section below explains the methods and approach adopted in selecting the list of UK SPAs and their qualifying features. The species accounts in Appendix 6 summarise the reasons why the particular suite of SPAs has been selected for each species. They also include information about each species' population status, size and distribution, and population structure and trends.

Following the agreement of site selection guidelines, JNCC convened a series of inter-agency review workshops in January 1998, which assessed the suite of sites for each regularly occurring Annex I species, and each regularly occurring migratory species (see Appendix 5.1).

The requirements of each species were assessed against a 'decision-tree' (see Figure 4.1). For many species, the initial meetings highlighted the need for further work to identify additional possible sites, and/or add further qualifying species to existing sites. The process of reviewing species site requirements was substantially completed by June 1999.

4.1 Selection Stage 1.1

4.1.1 'National' population estimates and thresholds

For Annex I species, 1% thresholds relate to national rather than international population numbers. 'National' populations have been defined separately for Great Britain and for all-Ireland as two separate biogeographic entities, reflecting a long-established approach (Way *et al.* 1993).

For Great Britain, thresholds were derived from breeding or non-breeding population estimates collated by Stone *et al.* (1997), except for Hen Harrier, Stone Curlew, Greenshank and Woodlark. The assessment of 483 pairs derived from the 1988 national survey of Hen Harriers (Sim *et al.* 1999, in press) was used as the most recent national context. For Stone Curlew, an unpublished national total for 1998 was used (English Nature unpublished), whilst for Greenshank, the total of 1,440 pairs derived from the 1997 national stratified sample survey (Hancock *et al.* 1997) was adopted. For Woodlark, the more recent population estimate of 1,500 pairs derived from the British Trust for Ornithology (BTO) national survey of 1997 (Wotton & Gillings 2000) was used.

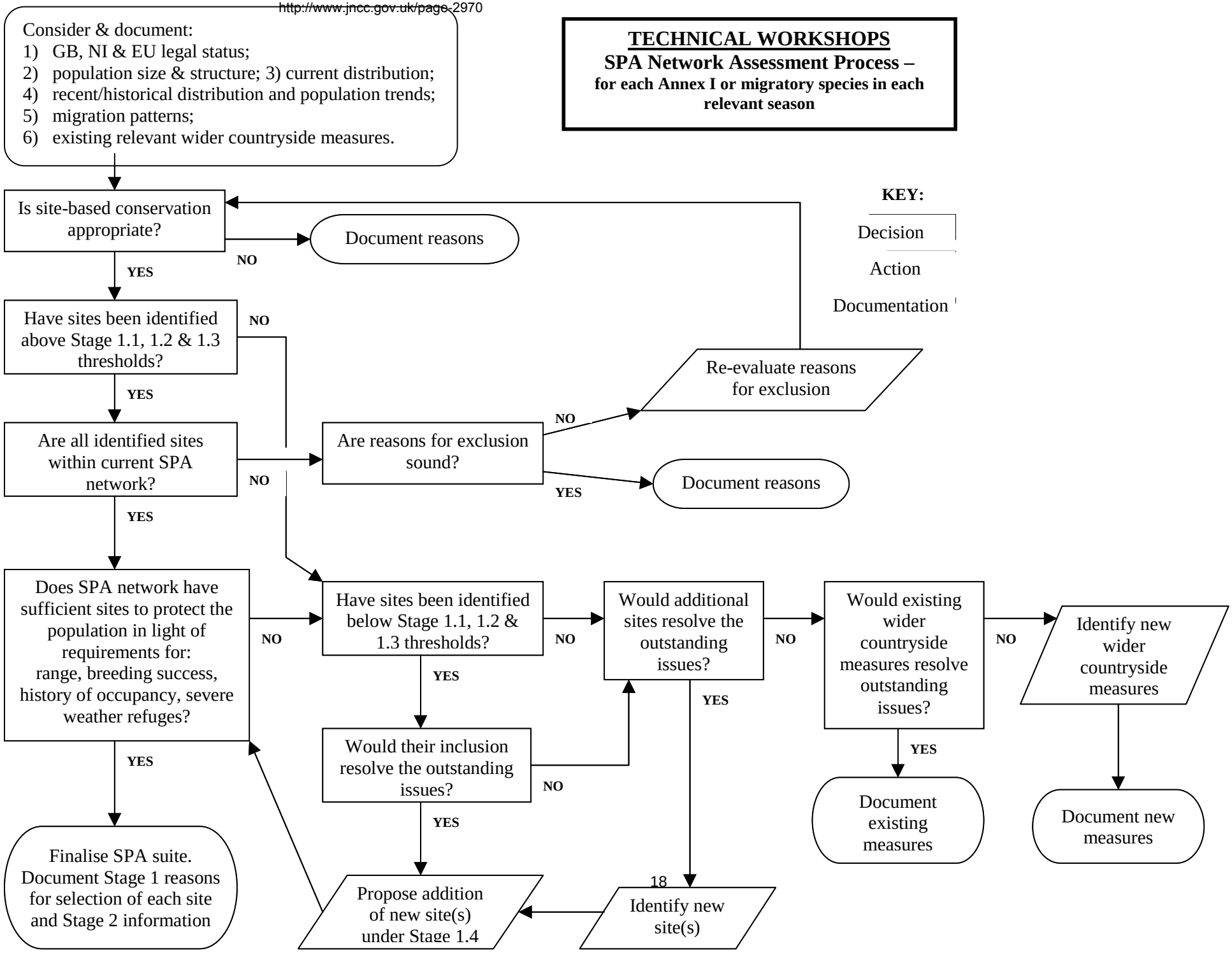
For all-Ireland populations, thresholds for non-breeding waterfowl used by Way *et al.* (1993) were used, whilst for other species thresholds were calculated from all-Ireland population estimates made by Gibbons *et al.* (1993).

4.1.2 Minimum numbers for wintering waterbirds

The size of the national population of some wintering waterbirds is very small. This typically is the case for those species whose main range in the non-breeding season occurs either to the south (*e.g.* for Ruff and Greenshank) or east (*e.g.* Bean Goose and Smew) of the UK. For these species, 1% of national populations give small values, often amounting to just a few individuals. In an international context these very small numbers are not of major significance for sustaining viable biogeographical populations of these species.

With this in mind, it has been the statutory agencies' long-standing practice to require at least 50 individuals to be regularly present on a site before that area is considered for site selection (Salmon 1981). This has been the practice with regard to the selection of SSSIs and has also been adopted for this review of SPAs.

Note that the guideline has only been applied in the context of wintering waterbirds. It would not be appropriate for breeding birds where the rarest breeding populations of many species are characterised by just a few pairs. Nor would it be appropriate where the global population size is small (for example, a globally threatened species of waterbird such as Bittern). In such a case, it would be entirely appropriate to select a site based on small absolute numbers (asindeed, is urged by the Ramsar Convention's site selection guidance – Res. C.VII.11).



4.2 Selection Stage 1.2

Whilst Guideline 1.1 selects the most important sites in the UK for Annex I species, Guideline 1.2 selects the most important sites at flyway scale. In this way, the number of UK sites selected under this guideline reflect the proportional responsibility the UK has for the species concerned. Significant numbers of sites have been selected for those species where the UK holds the major part of their international population (*e.g.* Pintail and many of the goose populations).

4.2.1 International population estimates and thresholds

For UK waterbirds, the recommended 1% thresholds published by Rose & Scott (1997) have been used, except for the following species.

For Red-breasted Merganser, Scott & Rose (1996) recommended the treatment of birds occurring in East Greenland, Iceland, Britain and Ireland as a separate biogeographical population. However, for reasons given in species account A6.42, the review has followed the earlier treatment of Rose & Scott (1994), which groups British Red-breasted Mergansers with others from north-west and central Europe, giving a 1% threshold of 1,250.

The British breeding population of Goosander is non-migratory, although these birds are joined in winter by others regularly migrating from Scandinavia (Boyd 1959; Owen *et al.* 1986). Accordingly, SPAs have been selected to cover aggregations in the non-breeding season, but not the breeding period.

For taxa other than waterbirds, there are fewer compiled data and no regular international summary of population sizes. For birds of prey, international totals for each species in European countries west of the Urals[5] were calculated from data in Hagemeijer & Blair (1997) and reported by the DETR/JNCC Raptor Working Group (2000 – Table 2.3).

4.3 Selection Stage 1.3

4.3.1 Definition of important assemblage components

Guidelines 1.1 and 1.2 refer to numbers of a particular species at a site, whilst guideline 1.3 covers total numbers of *all* species within a defined assemblage at a site. All migratory and Annex I waterbirds within an assemblage are qualifying species. The main component species that characterise particular assemblages have been identified. To achieve this, 1% of national populations was used to provide basic guidance. In other words, at sites holding at least 20,000 waterbirds, species have been listed in this review where at least 1% of a national population is present within the assemblage.

This approach, however, does not highlight the presence within internationally important assemblages of those species with very large national populations (and hence very large 1% national thresholds). This relates especially to Lapwing and more occasionally Wigeon, Dunlin, Knot and Oystercatcher. These species may rank as the primary or secondary component of a site’s waterbird assemblage but despite many thousands being present, numbers are less than 1% of national populations. In order for species to qualify as a listed component of an assemblage, their numbers had to exceed 10% of the minimum qualifying assemblage of 20,000 individuals (*i.e.* at least 2,000 individuals). The same rules were adopted for assemblages of seabirds.

4.3.2 Single species assemblages

For the purposes of SPA classification and this review, the presence of 20,000 or more individuals of a single species on a site was not considered to fulfil the definition of an ‘assemblage’. For SPA classification purposes, assemblages have had to include more than one species within the relevant season. Thus, a site holding 28,000 individual breeding Black-headed Gulls alone (comprising only 0.8% of international population) would not be considered to fulfil guideline 1.3.

4.3.3 Breeding seabirds

In the breeding season, 20,000 seabirds are taken as equating to 10,000 pairs (or other standard units such as apparently occupied nest sites/territories as appropriate for some species – Lloyd *et al.* 1991).

[5] The definition of Europe used in this context includes the islands of the Azores, Madeira and the Canaries, Russia east to the Urals, and the Caucasus, but excludes the whole of Turkey.

4.4 Selection Stage 1.4

The Directive requires Member States to select the *“most suitable territories”* as sites for SPA classification. Initial selections were made using guidelines 1.1–1.3. Guideline 1.4 gives latitude for the exercise of scientific judgement where the application of guidelines 1.1–1.3 are considered to identify insufficient SPAs, and if site-based protection is an appropriate conservation response for the species, sites may be selected. Generally, this is through the addition of the species as a qualifying feature, following consideration of Stage 2 judgements, to SPAs classified for other species. If no such site within the existing network can be identified, and a robust case can be made, then a new, single-species site may be identified (as has occurred, for example, for Leach’s Petrel and Cormorant).

Guideline 1.4 has been used to select SPA suites (in whole or in part) for the following species: Leach’s Petrel, breeding Cormorant, Bean Goose, Pink-footed Goose, breeding Wigeon, Scaup, breeding Common Scoter, breeding and wintering Hen Harrier, breeding Merlin, breeding Peregrine, Corncrake, breeding and wintering Oystercatcher, breeding Golden Plover, breeding Ringed Plover, Sanderling, Purple Sandpiper, breeding Dunlin, breeding Black-tailed Godwit, breeding Whimbrel, breeding Redshank, breeding Greenshank, Little Tern and Arctic Skua.

4.5 Site boundaries

The UK SPA network consists of 243 sites covering a wide variety of different habitats, ranging from offshore seabird stacks and cliffs, to estuaries and lowland heathland. It is beyond the scope of this report to deal comprehensively with the issue of determining boundaries for these SPAs because unique issues usually arise at each site. This section outlines the general principles underlying boundary determination.

In many cases, SPAs have been selected which are distinct in habitat and/or ornithological importance from the surroundings and have definable and recognisable character (*i.e.* the specific boundary is clearly identifiable ‘on the ground’). They must also provide for the conservation requirements of the species in the season(s) and for the particular purposes for which they are classified. This process involves informed scientific judgement to define the most suitable territories (*i.e.* SPAs).

4.5.1 Site boundaries and the SPA review

The application of the first stage of the SPA guidelines identifies broad areas of interest or potential ornithological importance. The application of the Stage 2 judgements, however, requires more precise locational information since this process involves between-site comparisons of numbers, densities and other attributes that depend on exact area assessments. Thus, Stage 2 is integrally linked with the determination of site boundaries for the qualifying species as outlined below.

4.5.2 General principles

The first stage of boundary determination involves defining the extent of area required by the qualifying species concerned. These scientific judgements are made in the light of the ecological requirements of the relevant species that may be delivered by that particular site, and the extent to which the site can fulfil these requirements. This follows a rigorous assessment of best-available local information regarding distribution, abundance and movements of the qualifying species. It may also involve the commissioning of special surveys where the information base is weak.

Following this stage, every attempt is made to define a boundary that is identifiable on the ground and can be recognised by those responsible for the management of the site. This boundary will include the most suitable areas for the qualifying species identified in the first stage, but will relate to landscape features such as changes in habitat, field boundaries, rivers, roads *etc*., and thus may be marginally more extensive.

Some SPAs consist of a cluster of smaller units sometimes separated from each other by significant distance. Where this occurs it is often for one or more of the following reasons:

i. where site elements are ecologically linked in their use by a common bird population (*e.g.* a group of alternative roost or feeding areas used by one population of waterbirds); and/or

ii. where habitat was formerly geographically continuous before being separated by human activity (as for example heathland areas now fragmented).

iii. where breeding birds are widely separated by the presence of habitats not directly contributing to their conservation, accordingly, these areas have been excluded in site definitions.

In cases where species' requirements are not met entirely by means of SPA classification, additional provision is achieved through other policies (for example agri-environment incentives to manage areas surrounding SPAs in an environmentally sensitive manner).

4.5.3 Modifications to site boundaries

Over the period since the implementation of the Birds Directive, detailed knowledge both of UK bird species and of sites has grown. In the light of these improvements in understanding, it has sometimes been found necessary to extend the scope of some initial classifications (Appendix 8).

4.6 Stage 2 judgements

The Stage 1 guidelines have been used to identify possible sites for SPA classification, whereas the Stage 2 judgements have been used to decide which are the most ‘suitable’ (in the sense of Article 4.1 of the Birds Directive). Those sites meeting several of the Stage 2 judgements have not necessarily been selected in preference to those meeting only one. This is because the factors operate independently as indicators of the various different kinds of importance that a site may have.

4.6.1 Population size and density

Comparisons of population sizes have been undertaken on a simple numerical basis, for non-breeding waterbirds using five-year peak mean counts (where these were available). Different means of calculating densities were applied to different species as appropriate.

4.6.2 Species range

In order to maintain range, SPAs have been selected to represent the extremities and the main centre(s) of the range, and principle occurrences in relevant regions of the UK.

Some species such as Pink-footed Goose and Icelandic Greylag Goose (species accounts A6.18 and A6.21) move across the country in the course of the non-breeding season and thus have a dynamic distribution. In such cases, the selection of sites has been undertaken on a regional basis to ensure that the main centres of occurrence are all represented within respective SPA suites.

4.6.3 Breeding success

The role of one site in providing birds for other areas – *i.e.* its success as a source – is generally judged by absolute measures of productivity at the breeding site rather than evidence of its known contribution of birds, by dispersal, to other locations. Thus, recruitment to other areas is generally inferred from high productivity at the source rather than known occupation at the destination (information which is usually unavailable). Extremely limited data exist to apply this judgement, although it has been applied where appropriate to select sites for species such as Black-throated Diver, Slavonian Grebe and Golden Eagle where information on productivity at different sites exists.

4.6.4 History of occupancy

Sites with a long history of occupancy are normally favourable to species. There are, however, some important exceptions to this. For example, some birds use successional habitats and favourable conditions may occur only for a limited number of years. In such situations, recently occupied sites can be especially important in ensuring the survival and reproduction of some birds. This Stage 2 judgement has, therefore, been applied with caution in the light of such ecological requirements.

At an early stage in the review, the Project Steering Group agreed to adopt the period of the first BTO Breeding Bird Atlas – 1968-1972 (Sharrock 1976) – as the baseline against which to assess history of occupancy. Any site occupied for the first time more recently than 1972 has not, therefore, been considered as having a long history of occupation in the context of this guideline.

Certain colonial nesting species, particularly terns, regularly move between different nesting sites from year to year. Thus, numbers at any one site can fluctuate from several hundred pairs to zero and back within the space of a few years (Sears & Avery 1993). Terns have, therefore, been retained as qualifying species on a number of sites where contemporary numbers are very low (below current qualification thresholds) but where there is a history of occupancy and/or where a site is known to be part of a large complex of nesting areas.

4.6.5 Multi-species areas

The favouring of sites with larger numbers of qualifying species has regard for complementarity theory (Pressey *et al.* 1993; Pressey 1996; see Appendix 1), although this has not been formally applied in this review. Multi-species sites are important since the large number of species supported on such sites is typically an attribute of areas of high conservation importance. Generally, multi-species sites are large and often contain a diverse mosaic of high-quality habitats. Such areas provide a degree of ecological complexity that support many species at levels of international importance.

The distinctive ecology of some species means that they rarely occur together with other species at levels of European importance. For example, most SPAs selected for Black-throated Diver contain only that species at qualifying levels. This judgement has been applied carefully in order to avoid inappropriately ‘downgrading’ the status of some single-species sites, which may be of critical importance for a species in a way that a multiple-species site may not.

4.6.6 Naturalness

As a general rule, sites having a low degree of naturalness (for example, urban and other industrialised landscapes) have not been selected for SPA classification. However, some ‘less natural’ sites, with large numbers of species or high species diversity, have been chosen as SPAs. This, typically, reflects appropriate management over long periods that has benefited the species concerned. Such areas include low-intensity and small-scale arable areas (which can be of particular importance for species such as Corncrake and Stone Curlew) and some water storage reservoirs.

4.6.7 Severe weather refuges

Severe weather in winter can result in the displacement of birds from their normal haunts to areas (usually in the south or west) which are subject to milder conditions. Some species readily move long distances to find more favourable areas at the onset of hard conditions, whilst others, for example Oystercatcher, tend to stay and ‘gamble’ that local food supplies will last for the duration of the cold (Meininger *et al.* 1991; Camphuysen *et al.* 1996).

Following several periods of severe cold weather in the 1980s, Ridgill & Fox (1990) reviewed cold weather movements of Mallard, Teal, Wigeon, Pintail, Shoveler, Pochard, Tufted Duck, Shelduck and Coot in western Europe. This highlighted the major importance of British west coast estuaries for those wildfowl and waders displaced in cold periods from eastern Britain and continental Europe. SPAs have been selected to reflect this. The 1990s were generally a period of milder winters and the analyses undertaken by Ridgill & Fox (1990) have yet to be made for other wildfowl or for wader species.

4.7 Species for which SPA suites will require future review

There are a very small number of species that, for reasons outlined below, it has not yet been possible to identify full SPA suites. These will require further review. There are three main reasons for this:

- it is too early to assess ’most suitable‘ sites for species that are actively expanding in range and population size in the UK;
- lack of suitable data and information with which to assess important sites;
- the protection requirements of birds in the offshore marine environment are outside the scope of this review.

4.7.1 Recent UK colonists

A number of species have colonised the UK in recent years, predominantly from mainland Europe. For example, Little Egret was a regular but rare vagrant in the UK until large influxes began in 1989. Since then, numbers have continued to increase and the species is found at wide-ranging sites along the coast of southern and south-eastern England (see species account A6.14). In 1996, it bred in the UK for the first time. The SPA suite for this species reflects the current size and distribution of the population in each season. Given the continuing expansion of the population size and range, however, a review of its SPA suite is likely to be required at a future date. The Rare Breeding Birds Panel and the Wetland Bird Survey will provide the necessary data for such a review.

4.7.2 Re-establishing raptors

Both White-tailed Eagle and Red Kite are currently undergoing significant expansions in their UK populations and distribution arising from re-establishment schemes which commenced in the late 1980s (Evans *et al.* 1994). Within the UK, the Red Kite’s current SPA provision maintains the native core population in Wales. A suite of SPAs for Red Kites may be appropriate in England and Scotland in the

future, when populations in these countries have increased to such an extent that the ‘most suitable’ sites can be determined. Data from the Rare Birds Breeding Panel and the proposed decennial national survey of Red Kites (commencing in 2000) will provide the necessary data for such a review.

4.7.3 Wintering gulls

The review discovered that for gull species, data were not available to undertake a comprehensive assessment of their distribution and need for SPA protection during the winter period. Data from the most recent (decennial) national gull roost survey undertaken by the BTO in 1993 are unpublished. The Wetland Bird Survey (WeBS) began collecting data on wintering gulls in 1993 (Cranswick *et al.* 1995) and when suitable data are available allowing regularity at key sites to be assessed, it is intended to review SPA suites for these species. In the light of this data inadequacy, JNCC will be working to further develop WeBS monitoring to better assess wintering gull numbers, and identify important sites in a national context.

4.7.4 Wintering raptors in coastal areas

Information on the distribution and numbers of Hen Harriers and Merlins in winter, especially in coastal areas, is currently limited. Where information is available, this has been used to identify suites of SPAs for these species. JNCC and the country agencies will work to develop better monitoring of wintering raptors in the UK, at both site and national scales. It is possible that further sites of European importance for Hen Harrier and Merlin will be identified through this work.

4.7.5 Passage waders and terns

The estuaries and rocky-shore coasts of the UK are important to waders not just during the winter period, but also during the autumn and spring migration periods. For some species, for example Sanderling and Ringed Plover, peak numbers recorded nationally occur in April-May or in August-October. Whilst WeBS collects data at some sites during these passage periods, they are not normally published annually and have only been systematically collected at most coastal sites since 1993 (Cranswick *et al.* 1995). The issues involved with interpretation of data during periods of high turnover (Frederiksen *et al.* 2001) and in situations where mixed populations (such as three populations of Dunlins) may be present, are also far from clear. Indeed, such situations may present intractable fieldwork problems. Where data relating to passage periods have been readily available, however, they have been used in this review.

The comprehensive database being developed by WeBS will allow much better interpretation of existing UK passage data for waterbirds (including Ringed Plover, Redshank, Curlew and Sanderling). It seems unlikely that new sites will be identified, but some species may be added as qualifying species to existing SPAs, where there is a large passage occurrence but limited overwintering.

Similar issues apply to terns on migration. Those breeding in northern parts of the UK use more southerly estuaries en route to wintering areas off the coasts of Africa. Knowledge of these autumn (and spring) movements is poor and the list of sites identified in this review is known to be incomplete. JNCC will review existing knowledge on important sites in the UK for waders and terns. The WeBS partnership is also actively taking steps to ensure that those sites of importance in any season of the year, and which are subject to monitoring, are clearly identified in annual published reports.

4.7.6 Marine species

Whilst this review has considered terrestrial sites that extend into marine or intertidal areas for example, estuaries or inshore areas – it has not considered the requirements of birds using the wholly offshore environment. The site suites presented here may be incomplete and possible additional provision still needs to be determined in the marine environment. The protection requirements of birds in the offshore marine environment (with respect to Article 4 of the Birds Directive) will be considered in a separate review being co-ordinated by JNCC.

4.8 Species for which SPAs are inappropriate

There are a number of species where site-based measures are not an appropriate protection mechanism, or it is simply not feasible to identify the ‘most suitable sites’. Where this is the case, it has been stated in the relevant species accounts. Typically, these species fall into the following categories:

4.8.1 Species that are broadly dispersed

Many migratory birds are broadly dispersed and do not occur in significant aggregations. Site-based measures under the Birds Directive are not, therefore, appropriate for their population conservation.

These include typical summer migrants, such as Swallow, House Martin, Chiffchaff and Willow Warbler, as well as winter migrants such as Redwing, Fieldfare, Lapland Bunting and Snow Bunting.

4.8.2 Species that are sedentary year-round

The Bonn Convention on the Conservation of Migratory Species of Wild Animals defines migratory species as *“the entire population or any geographically separate part of the population of any species or lower taxon of wild animals, a significant proportion of whose members cyclically and predictably cross one or more national jurisdictional boundaries”.* The BTO were asked to advise on the application of this definition to the UK avifauna and their findings are summarised in Appendix 3 (see also Appendix 5.1).

This review has highlighted the fact that certain resident or sedentary species in a UK context were listed as qualifying species on citations of SPAs designated some years ago. In view of the BTO work, the following sedentary species have now been removed as qualifying features from the citations for classified or proposed SPAs: Mute Swan, Black Guillemot, the native north Scottish population of Greylag Geese, Water Rail and Bearded Tit.

4.8.3 Non-native species

There are no requirements under the Birds Directive to take site-based protective measures for non-native bird species.