**Agreement on the Conservation of Albatrosses and Petrels**

## Third Meeting of Advisory Committee

*Valdivia, Chile, 19 – 22 June 2007*

---

# Title: Overview of Criteria That May Be Used in the Development of New Criteria for the Identification of Internationally Important Breeding Sites Critical for Species Listed in Annex 1 of ACAP

**Author: Secretariat**

# OVERVIEW OF CRITERIA THAT MAY BE USED IN THE DEVELOPMENT OF NEW CRITERIA FOR THE IDENTIFICATION OF INTERNATIONALLY IMPORTANT BREEDING SITES CRITICAL FOR SPECIES LISTED IN ANNEX 1 OF ACAP

by
Rob Hall
Institute of Antarctic And Southern Ocean Studies,
University of Tasmania

The purpose of this paper is two-fold: (i) to summarise the major points raised in an earlier paper submitted at the First Advisory Committee Meeting (held in Hobart during July, 2005) reviewing existing criteria that may be used in the development of new criteria for the identification of internationally important breeding sites critical for species list in Annex of ACAP; and (ii) to discuss recent developments pertaining to the subject.

## MAJOR EXISTING CRITERIA

Over the past two decades, two major approaches have been used to identify internationally important bird sites:

1. criteria developed and adopted by the Conference of Parties to the Ramsar Convention (formally, the Convention on Wetlands of International Importance especially as Waterfowl Habitat); and
2. criteria developed by BirdLife International in their Important Bird Area (IBA) Programme.

Five (of the nine) criteria for identifying wetland sites of international importance under the terms of the **Ramsar Convention** appear potentially relevant to identifying internationally important bird breeding sites:

- *Ramsar Criterion 2* specifies that a wetland should be considered internationally important if it supports vulnerable, endangered, or critically endangered species or threatened ecological communities;
- *Ramsar Criterion 3* specifies that a wetland should be considered internationally important if it supports populations of plant and/or animal species important for maintaining the biological diversity of a particular biogeographic region;
- *Ramsar Criterion 4* specifies that a wetland should be considered internationally important if it supports plant and/or animal species at a critical stage of their life cycles, or provides refuge during adverse conditions;
- *Ramsar Criterion 5* specifies that a wetland should be considered internationally important if it regularly supports 20,000 or more waterbirds; and
- *Ramsar Criterion 6* specifies that a wetland should be considered internationally important if it regularly supports 1% of the individuals in a population of one species or subspecies of waterbird (Ramsar Convention Secretariat 2007).

The Ramsar Convention entered into force in 1974 and currently has 154 parties. Worldwide, there are 1674 Ramsar sites currently designated on the Convention's List of Wetlands of International Importance. Such designation does not, however, confer legal protected area status on a site. What it does is confer a special type of recognition – as a site recognised internationally important that could be the starting point for a process of recovery, rehabilitation or national legal protection. Moreover, if a site already has national protected status, Ramsar designation supplements and strengthens such status (Ramsar Convention Secretariat 2007).

The ornithologically relevant criteria of the Ramsar Convention listed above are similar to criteria developed in **BirdLife International's Important Bird Area (IBA) Programme.** Derived from internationally recognized sources of bird population data, IBAs have been conceptualised at various levels – global (A level criteria), regional or continental (B level criteria), sub-regional and /or national (C level criteria) – using appropriately standardised categories and selection criteria. This allows the "nesting" of lower level categories and criteria within higher ones that, in turn, allow meaningful comparisons to be made between sites across regions of the world (Fishpool and Evans 2001).

A seminal example of BirdLife's IBA approach is *Important Bird Areas in Africa and associated islands: priorities for conservation* (Fishpool and Evans 2001) which identifies internationally Important Bird Areas of global significance (level A) based on the presence of at least one of the following:

A1. bird species of global concern;
A2. assemblages of restricted-range bird species;
A3. assemblages of biome-restricted bird species; and
A4. congregations of numbers of congregatory bird species

Site selection criteria derived from these categories are defined in the following ways:

- A1 sites are defined as holding significant numbers of globally threatened species, or other species of global conservation concern (*IBA Criterion A1*);
- A2 sites are known or thought to hold a significant component of a restricted-range species (*IBA Criterion A2*);
- A3 sites are known or thought to hold a significant component of the group of species whose distributions are largely or wholly confined to one biome (*IBA Criterion A3*);
- A4i sites are known or thought to hold, on a regular basis, 1% or more of a biogeographic population of a congregatory waterbird species (*IBA Criterion A4i*);
- A4ii sites are known or thought to hold on a regular basis, 1% or more of the global population of a congregatory seabird or terrestrial species (*IBA Criterion A4ii*);
- A4iii sites are known or thought to hold, on a regular basis, at least 20,000 waterbirds, or at least 10,000 pairs of seabirds, of one or more species (*IBA Criterion A4iii*);
- A4iv sites are known or thought to be a bottleneck site where migratory species pass regularly during migration in numbers exceeding set thresholds (*IBA Criterion A4iv*).

In the construction of the African inventory of IBAs, terms such as 'hold on a regular basis', 'globally threatened species,' 'significant numbers,' 'waterbird' and 'seabird' are defined in detail. For example, 'hold on a regular basis' includes seasonal presence (such as breeding season); 'globally threatened' includes species classified as Critical, Endangered and Vulnerable, according to internationally recognized IUCN criteria (Fishpool and Evans 2001).

From this brief summary of the IBA approach, the global IBA categories and criteria of probable relevance to the identification of internationally important breeding sites critical for ACAP Annex 1 species are *IBA Criteria A1, A3, A4i* (substituting Annex 1 species of albatrosses and petrels), *A4ii* and *A4iii*. It is noteworthy, too, that *IBA Criterion A4iii* is essentially the same as *Ramsar Criterion 5* and that *IBA Criteria A4i* and *A1* are closely related to *Ramsar Criteria 6* and *2*, respectively.

A further development of the IBA approach that merits noting is the identification of 'outstanding IBAs'. In 2003, BirdLife International published *Saving Asia's threatened birds: A guide for government and civil society* (BirdLife International 2003). Using globally significant IBA criteria, this initiative identified outstanding sites for threatened birds with *IBA Criterion A1 (for Critical, Endangered and Vulnerable bird species)* being a necessary condition for identification. Preliminary lists of IBAs for each Asian country were used to help identify the most outstanding sites for threatened birds in each forest, grassland and wetland region, and for seabirds. A total of 311 IBAs were selected, through consultation with regional experts, to ensure that every threatened species was covered by a least one IBA, although it was not possible to select sites for some poorly known birds. In general, the IBAs with the most extensive and highest quality natural habitat were chosen, but in some areas where natural habitats are fragmented it was necessary at times to select several smaller IBAs to provide a minimum level of coverage to the threatened species. In wetland regions, IBAs were chosen which regularly support globally outstanding (breeding, passage or wintering) congregations of threatened waterbirds.

Apart from the African and Asian IBA studies, BirdLife International has been involved in the identification of IBAs in Europe, the Middle East, the Pacific and the Americas. More recently, an Antarctic IBA Inventory (a joint initiative of BirdLife International and the Scientific Committee on Antarctic Research (SCAR) Group of Experts on Birds) has used BirdLife International's globally significant IBA approach and, through the application of *IBA Criteria A1, A4i, A4ii* and *A4iii*, to identify candidate IBAs (Harris and Woehler 2004). In addition, a new directory of IBAs in the UK's 14 Overseas Territories (including the Falkland Islands(Islas Malvinas) and the British Antarctic Territory) has also been published by the Royal Society for the Protection of Birds (Sanders 2006).

It must be noted that, like the Ramsar Convention approach, the IBA approach does not involve, directly, any notion of area protection. It does, however, provide a means by which to identify and prioritise site networks based upon their bird values and may provide a starting point for future designation of international and national protected area status (Harris and Woehler 2004).

What is clear, too, is that both approaches have been widely adopted in numerous other international instruments and initiatives:

- under the Asia Pacific Waterbird Conservation Strategy, the East Asian Flyway Anatidae Site Network, the East Asian-Australasian Shorebird Site Network and the North East Asian Crane Site Network have applied *Ramsar criteria*;
- the Conservation of Arctic Flora and Fauna (CAFF) Program has identified sites based on *Ramsar criteria* and *IBA categories and criteria*;
- the North American Waterbird Conservation Plan: Version 1 advocates the designation of global, continental, national and state/provincial IBAs using globally significant criteria developed by BirdLife International (*A1, A2, A3, A4i, A4ii* and *A4iii*);
- parties to the Agreement on the Conservation of African-Eurasian Waterbirds (AEWA) have applied *Ramsar Criteria 2, 3, 4, 5 and 6*;

In addition, one of the most significant developments in bird conservation over the past 25 years has been the European Economic Community's (now European Union's) Birds Directive that came into force in April, 1979. Protected sites classified in accordance with Article 4 of the Birds Directive are designated Special Protection Areas (SPAs), although formal criteria for selecting SPAs are not provided in it. In the UK, the **Joint Nature Conservation Committee (JNCC)** has developed **SPA Selection Guidelines** in two stages for use in that country (Joint Nature Conservation Committee 2005a):

*Stage 1* (to identify areas which are likely to qualify for SPA status) has four site criteria:

1. An area is used regularly by 1% or more of the Great Britain (or in Northern Ireland, the all-Ireland) population of a species listed in Annex 1 of the Birds Directive in any season.
2. An area is used regularly by 1% or more of the biogeographical population of a regularly occurring migratory species (other than those listed in Annex 1) in any season.
3. An area is used regularly by over 20,000 waterfowl (as defined by the Ramsar Convention) or 20,000 seabirds in any season.
4. An area which meets the requirements of one or more of the Stage 2 guidelines in any season, where the application of Stage 1 guidelines 1, 2, or 3 for a species does not identify an adequate suite of most suitable sites for the conservation of that species (Joint Nature Conservation Committee 2005b).

*Stage 2* (to select the most suitable areas in number and size for SPA classification) has seven site criteria:

1. Population size and density – areas holding or supporting more birds than others and/or holding or supporting birds at higher concentration 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 occupancy 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 for the survival of a viable population, are favoured for selection (Joint Nature Conservation Committee 2005c).

In regard to internationally important assemblages of breeding seabirds in the UK, 41 SPAs have been selected under Stage 1.3. Each of these sites holds more than 10,000 pairs of seabirds (i.e. more than 20,000 individuals) and in order to identify the important components of these assemblages, all species occurring at levels more than 1% of national populations (or where there are more than 2,000 individuals present) have also been identified **(**Joint Nature Conservation Committee 2005d). Note, too, that several of these SPA criteria are closely related to *IBA Criteria C41i, C4ii and C4iii* (with the "C" designation referring to national level sites).

From this brief, but by no means exhaustive, list of criteria used and/or advocated in various international instruments and initiatives, it is clear that Ramsar criteria and BirdLife International's IBA categories and criteria have in part (or in whole) gained widespread acceptance. Over the past decade, attention has also turned to examine the extension of sites (both IBAs and SPAs) to incorporate the marine environment covering, especially, breeding seabird feeding areas. It is to this development that attention is now turned.

## DEFINING INTERNATIONALLY IMPORTANT SITES IN OFFSHORE AND OCEANIC AREAS USED BY BREEDING SEABIRDS FOR FEEDING

In 1999, the UK High Court judged that the European Economic Community's Council Directive 92/43/EEC on the conservation of natural habitats of wild fauna and flora (1994 – known as the Habitats Directive) applied in UK waters beyond the 12 nautical mile limit of territorial waters up to the 200 mile limit of its EEZ (established under the terms of the Law of the Sea Convention that entered into force in 1994). This decision supported the European Commission's earlier view that the Habitats Directive, as well as the Birds Directive, applies to member states' EEZs (Communication from the Commission to the Council and the European Parliament 1999). As a consequence of these developments, the UK Government indicated it would amend existing regulations concerning the Habitats Directive and the Birds Directive and introduce new regulations to extend both directives into UK law in relevant offshore waters. To accomplish this task, it has become necessary, therefore, to redefine SPA selection criteria and guidelines to extend into the marine, offshore area beyond the territorial sea over waters the UK exercises sovereign rights of exploration and exploitation, conservation and management of natural resources. (Huggett 2001, Johnston *et al.* 2002, BirdLife International 2003b)

Reports and position papers have been penned and workshops convened to address this task – instigated and/or supported by the European Union (EU), the UK and other

EU member governments, BirdLife's European Partnership and others. For example, in respect of criteria developed for the delimitation of boundaries of breeding seabird SPAs or IBAs at sea, the **Royal Society for the Protection of Birds (RSPB)** has developed the *radius-based approach* methodology for defining boundaries of feeding areas around seabird colonies (RSPB 2000, see also Huggett 2001, Johnston *et al.* 2002, BirdLife International 2003b):

- The boundary at sea should be drawn as a radius from points at the margins of the colonies and parallel to the shoreline where the colony extends along a stretch of coast;
- The distance to the seaward boundary should be determined on the basis of information on foraging range, feeding and surface use of breeding seabirds;
- The distance to the seaward boundary should be species-specific and refer to those breeding species at the site which fulfil IBA criteria;
- When there is more than one breeding IBA species using the site, the highest recommended figure should be used to set the distance to the seaward boundary;
- Known and regularly used feeding areas adjacent to a recommended boundary should be incorporated within the site
- Where known and regularly used feeding areas do not lie adjacent to recommended boundaries, these locations should be considered as sites in their own right;
- Where the recommended seaward boundaries of sites overlap they should be merged to form a single site for management purposes.

A problem with this approach that has been raised in the UK is that data to determine reliable foraging radii is limited. To overcome this situation, Huggett (2001) suggests that an alternative approach is to define generic, precautionary radii for each species based on their known foraging ranges and then apply these to each of their colony IBAs. He maintains that the advantages of this generic-radii approach are that it does not require a detailed assessment of sea use or colony-specific foraging ranges and that it is relatively robust to variations in marine distribution among colonies and across years.

Huggett (2001) does acknowledge, however, that the drawback of the *radius-based approach* is that it will often incorporate sea areas that seabirds seldom use and, if subsequently protected as SPAs, can impose unnecessary constraints on human use within such areas. A Scottish Natural Heritage Report also criticises the generic foraging radius-based approach noting that feeding locations for birds from a particular breeding colony appear to be specific to that colony, rather than determined by a generic foraging distance for each species (Harding and Riley 2000).

Another discussion about extending internationally important seabird breeding sites offshore took place at the **Global Procellariiform Tracking Workshop** held in South Africa in 2003. The rapporteur for this part of the Workshop's proceedings (Dr Lincoln Fishpool) notes that existing global IBA criteria could be adapted and applied in the marine environment to identify IBAs for albatrosses and giant-petrels with IBA criteria of probable relevance to the marine environment being *IBA Criteria A1, A3, A4i, A4ii* and *A4iii* (BirdLife International 2004a).

Discussion at the workshop about seaward extension to breeding colonies suggested that extensions of 200 nautical miles (the limit of EEZs) would cover the breeding populations of a significant number (perhaps two-thirds) of albatross species. It was noted, however, that this approach is unlikely to be adequate for breeding species with long incubation stints and which forage beyond continental shelves and shelf breaks. Moreover, it was asserted that inclusion of the whole EEZ of some countries, particularly geographically large ones, as marine IBAs is unrealistic and a narrower focus is likely to be more appropriate. In addition, it was agreed that future work is needed to assess for each species what proportion of time they spend within EEZs and to undertake sensitivity analyses to explore the consequences of using different radii around colonies. These analyses should also take into account the conservation status of the species concerned.

Finally, it was concluded at the Workshop that, for albatrosses, IBAs are likely to be of three types: congregations of breeders around islands, congregations of breeders in oceanic areas and congregations of non-breeders and that if marine IBAs could be identified for albatrosses, it ought to be possible to identify sites for other birds (BirdLife International 2004a).

The first of these types, congregations of breeders around islands, has been discussed in terms of the *radius-based approach* to seaward extensions of breeding colony IBAs (see discussion above). In regard to congregations of breeders in oceanic areas, the *Marine Classification Criterion (MCC) approach* used in several **BirdLife International** studies of waterbird concentrations in the North Sea and the Baltic Sea could be relevant (BirdLife International 2003b). This approach is dependent on having sufficiently large amounts of quantitative data available on bird distribution in marine areas and uses the 1% threshold of *Ramsar Criterion 6* (which is closely related to *IBA Criteria A4i and A4ii*). It requires the quantification of three parameters (Skov *et al.* 2000):

- Parameter A - the size of the area based on the borders of a high-density aggregation of a waterbird or seabird species;
- Parameter B – the proportion of the total biogeographical or flyway population estimated to occur within the borders of the aggregation; and
- Parameter C – the degree of concentration displayed by the aggregation.

Important aggregations contain over 1% of the total biogeographical or flyway population of the species in question and the degree of concentration is regarded as important where 1% or more of a population is concentrated in an area of no more than 3000 $km^2$. In addition, the application of the *MCC approach* requires the precise delineation of the borders of the aggregations by the use of standard Geographical Information System (GIS) techniques (BirdLife International 2004b). This is, however, recognised as a potential problem with the *MCC approach* if applied to oceanic areas (Johnston *et al.* 2002, BirdLife International 2004b) as, too, is the requirement to meet the 1% threshold if applied to many thinly dispersed and wide ranging species such as albatrosses and petrels (Stroud *et al.* 2001, Johnston et al). BirdLife International acknowledge these and other drawbacks with the *MCC approach* related to its application for pelagically distributed seabirds (i.e. those species that only approach land in order to breed) including, for example, its “data hungry”, complex nature, the implementation of which requires the interpolation of census data and the necessity of GIS software (BirdLife International 2004b).

Notwithstanding these points, Johnston *et al* (2002) report that the *MCC approach* is being used as part of a JNCC Marine SPA Project to investigate small-scale (i.e. hundreds of metres) aggregations of active breeding birds around colonies.

Methodology to identify marine IBAs that provide rich feeding for seabird species Listed in Annex I of the EU's Birds Directive is also currently under further development by **Sociedad Portuguesa para o Estudo das Aves/BirdLife International in Portugal** and by **Sociedad Española de Ornitologia (BirdLife Partner in Spain)** with funding from the European Union (SPEA-SEA/BirdLife 2005). At two workshops held in late 2005, it was concluded, *inter alia*, that four types of marine IBAs must be considered for all regions:

1. seaward extensions of breeding colonies – utilising radius-based criteria analogous to those developed in the UK;
2. non-breeding coastal concentrations – although considered not appropriate for the vast majority of species/habitats in the Mediterranean, Macaronesian and Iberian regions, it was recommended to study approaches such as the Marine Classification Criterion (MCC);
3. migration bottlenecks – although Procellariiform tracking indicates that many species do migrate, even pelagically, across relatively narrow corridors, it was acknowledged that data availability limits the ability to define precise migration corridors in open waters, even where these do exist.
4. offshore foraging areas – it was concluded that until empirically-based models are developed to explore the interactions between the criteria used and the size of potential IBAs and, in addition, to undertake sensitivity and scenario analysis, it may be difficult to define criteria for these areas that can be applied consistently across taxa. It was also recognised that there is a need to develop techniques for combining remote tracking data with ship-based survey data as well as modelling software capable of establishing clear patterns for bird distribution according to sea variables (SPEA-SEA/BirdLife 2005).

Since these workshops, SPEA and SEO/BirdLife have worked to identify important areas for feeding seabirds using radio and satellite tracking and to test whether these sites meet current IBA criteria, the number of birds required at sites meet IBA criteria, and the size resulting areas may be. The findings of these studies will be trialled elsewhere and there are several meetings planned this autumn (2007) to develop the marine IBA process further.

The SPEA and SEO/BirdLife workshops recommended, too, that BirdLife International, particularly through its Global Seabird Programme, should seek to stimulate the development of marine IBAs in other priority areas – particularly in the light of the development of a marine IBA programme in New Zealand that coincides with the proposed Marine Reserves Bill that provides for extending the area within which marine reserves can be established out from territorial waters to the limit of its EEZ. Indeed, during the past year, BirdLife International has gathered information from places where the IBA identification process is currently underway and analysed an IBA dataset to determine candidate marine IBAs that currently exist for 330 species of seabirds worldwide. This has given BirdLife International a fairly comprehensive list of candidate marine IBAs worldwide. In addition, BirdLife International is currently working on compiling a foraging database for these species with the aim of developing guidelines on how to extend current IBAs seaward from

seabird breeding sites so that an IBA adequately includes foraging, maintenance, moulting and rafting areas.

## CONCLUSION

To reiterate a point made earlier, Ramsar criteria and BirdLife International's IBA categories and criteria for the identification of internationally important bird sites have in whole or in part (with modification) gained widespread acceptance. Their legitimacy is demonstrated by their adoption in numerous international instruments and initiatives. Although both sets of criteria are similar, *IBA Criteria A1, A3, A4i, A4ii* and *A4iii* appear more relevant to the identification of internationally important breeding sites critical for ACAP Annex 1 species. The *radius-based approach* for defining boundaries of feeding areas around or adjacent to seabird colonies offers a potentially useful methodology for the seaward extension of breeding sites to incorporate offshore areas used in particular for feeding, resting and social interactions. In regard to congregations of breeding birds in oceanic areas particularly used for feeding, the *MCC approach* may be useful, although it must be recognized that BirdLife International and others list numerous drawbacks with it in relation to its application for pelagically distributed seabirds (such as those species listed in Annex1 of ACAP).

In light of these conclusions, it is recommended that:

- the Advisory Committee (through the Breeding Sites Working Group) begin a process of workshopping criteria and guidelines to identify internationally important breeding sites critical for Annex 1 species based on the IBA global level categories and criteria (especially *A1, A3, A4i, A4ii* and *A4iii*) – recognising that adjustment to the numerical and proportionate thresholds involved may be required; that data availability may be a limiting factor; and that much work needs to be done in regard to incorporating offshore extensions and oceanic areas;
- the Advisory Committee liaise closely with BirdLife International to keep abreast of ongoing and new developments and initiatives in their Marine IBA Programme.

## ACKNOWLEDGMENTS

The author thanks Ben Lascelles (of BirdLife International) for information on recent developments in BirdLife International's Marine IBA Programme.

REFERENCES

BirdLife International 2003, *Saving Asia's threatened birds: A guide for government and civil society*, BirdLife International, Cambridge, U.K.

BirdLife International 2004a, *Tracking ocean wanderers: the global distribution of albatrosses and petrels. Results from the Global Procellariiform Tracking Workshop, 1-5 September, 2003, Gordon's Bay, South Africa*, BirdLife International, Cambridge, U.K.

BirdLife International 2004b, *Towards the identification of marine IBAs in the EU: an exploration by the Birds and Habitats Directives Task force*, 6th edition, final version completed 4 February, 2004, pdf available as a related link at <http://www.BirdLife.org/action/science/sites/antarctic_ibas/index.html>

Fishpool, L. D. C., and M. I. Evans eds. 2001, *Important Bird Areas in Africa and associated islands: priority sites for conservation*, BirdLife Conservation Series 11, Pisces Publications and BirdLife International, Newbury and Cambridge, U.K.

Harding, N. and H. Riley 2000, *The use of waters surrounding their colonies by seabirds in Scotland*. Scottish Natural Heritage, internal report.

Harris, J. W., and E. J. Woehler 2004, 'Can the Important Bird Area approach improve the Antarctic Protected Area System?' *Polar Record* 40 (213) 1-9.

Huggett, D. 2001, *Identification and demarcation of marine IBAs and their relationship to the Birds Directive*, in J. von Nordheim & D. Boedeker, Application of NATURA 2000 in the Marine Environment. Workshop at the International Academy for Nature Conservation (INA) on the Isle of Vilm (Germany) from 27 June to 1 July 2001, Annex 7, pp 57-63. Bundesamt für Naturschultz, Bonn.

Johnston, C. M., C. G. Turnbull and M. L. Tasker 2002. *Natura 2000 in UK Waters: Advice to support the implementation of the EC Habitats and Birds Directives in UK offshore waters. (JNCC Report 325)* JNCC, Peterborough. Available at <http://www.jncc.gov.uk/marine/offnat>

Joint Nature Conservation Committee 2005a, *SPA selection guidelines*, available at <http://www.jncc.gov.uk/page-1405>

Joint Nature Conservation Committee 2005b, *Selection guidelines for Special Protection Areas: Stage 1*, available at <http://www.jncc.gov.uk/page-1406>

Joint Nature Conservation Committee 2005c, *Selection guidelines for Special Protection Areas: Stage 2* and *Selection guidelines for Special Protection Areas*, available at <http://www.jncc.gov.uk/page-1407> and <http://www.jncc.gov.uk/page-1408>

Joint Nature Conservation Committee 2005d, *Assemblages of breeding seabirds*, available at <http://www.jncc.gov.uk/page-1422>

Ramsar Convention Secretariat 2005, *The Criteria for Identifying Wetlands of International Importance*, available at <http:www.ramsar.org>

RSPB 2000. *The development of boundary selection criteria for the extension of breeding seabird special protection areas into the marine environment.* Discussion paper presented by BirdLife International to the Meeting of the Biodiversity Committee (BDC), OSPAR Convention for the Protection of the Marine Environment of the North-East Atlantic, Vlissingen, 20-24 November, 2000.

Sanders, S. (ed.) 2006. *Important Bird Areas in the United Kingdom Overseas Territories: priority sites for conservation*, Royal Society for the Protection of Birds (RSPB), UK.

Skov, H., G. Vaitkus, K. N. Flensted, G. Girshanov, A. Kalamees, A. Kondratyev, M. Leivo, L. Luigujoe, C. Mayr, J. F. Mussen, L. Raudonikis, W. Scheller, P. O. Silo, A. Stipniece, B. Struwe-Juhl and B.Welander 2000, *Inventory of coastal and marine important bird areas in the Baltic Sea,* BirdLife International, Cambridge, U.K.

SPEA-SEO/BirdLife 2005. *Implementing N2000 in the marine environment Marine IBAs: Lisbon/Vilanova conclusions.*

Stroud, D. A., D. Chambers, S. Cook, N. Buxton, B. Fraser, P. Clement, P. Lewis, I. McLean, H. Baker and S. Whitehead 2001, *The UK SPA network: its scope and contents, Volume 1 – Rationale for the selection of sites*, Joint Nature Conservation Committee, Peterborough.