

Part 1: Background to site selection

The Habitats Directive: selection of Special Areas of Conservation in the UK

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Part 1: Background to site selection

1.1 Introduction

1.1.1 The Habitats Directive

In 1992 the then [European Community](#) adopted [Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora](#), known as the Habitats Directive. This is an important piece of supranational wildlife legislation, the principal stimulus for which was the need to provide a Community-wide mechanism to meet obligations under the 1979 [Bern Convention](#) and to complement the provisions of the 1979 [Birds Directive](#). The main objectives of the Habitats Directive are:

“...to contribute towards ensuring biodiversity through the conservation of natural habitats and of wild fauna and flora in the European territory of the Member States to which the Treaty applies” (Article 2.1); and

“...to maintain or restore, at favourable conservation status, natural habitats and species of wild fauna and flora of Community interest” (Article 2.2)

The 24 articles of the Directive specify a range of measures, including conservation of features in the landscape that are important for wildlife, the protection of species listed in the annexes from damage, destruction or over-exploitation, the surveillance of natural habitats and species, and ensuring that introductions of non-native species are not detrimental to naturally occurring habitats and species. The most stringent obligations relate to the selection, designation and protection of a network of sites – special areas of conservation (SACs).

Part 1 of the present publication describes the rationale for site selection – the process and principles used to guide the selection of the network of SACs in the UK. Parts 2 and 3 contain accounts of how these were applied to each of the habitat types and species for which sites have been selected, and give details of qualifying features on the sites selected for designation as SACs in the UK.

Box 1.1: Definition of favourable conservation status (Article 1)

Article 1(e): The conservation status of a natural habitat will be taken as ‘favourable’ when:

- its natural range and areas it covers within that range are stable or increasing, and;
- the specific structure and functions which are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future, and;
- the conservation status of its typical species is favourable as defined in Article 1(i).

Article 1(i) The conservation status will be taken as ‘favourable’ when:

- population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats, and;
- the natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future, and;
- there is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis.

1.1.2 Special areas of conservation (SACs)

Article 3 of the Habitats Directive requires the establishment of a European network of sites that will make a significant contribution to conserving the 189 habitat types and 788 species identified in Annexes I and II of the Directive (as amended). The listed habitat types and species are those meeting the Directive's criteria and thus considered to be most in need of conservation at a European level. A number of the listed habitat types and species are given priority status in the Directive (Article 1d; Article 1h). The Directive requires each Member State to prepare and propose to the [European Commission](#) (EC) a national list of sites for each of the features which occurs in their European territory¹, for evaluation in order to form a European network of sites of community importance (SCIs). Once adopted as SCIs, the Member States must designate the sites as special areas of conservation (SACs) within six years (Article 4.4). These SACs, together with Special Protection Areas (SPAs) classified under the [Birds Directive](#) (79/409/EEC), collectively form the [Natura 2000](#) network (Article 3.1). The selection rationale for SPAs is described in a companion publication to the present report ([Stroud et al. 2001](#)).

1.1.3 Protection and management of SACs

One of the principal mechanisms for delivering the objectives of the Habitats Directive is the designation of SACs and the implementation of appropriate conservation measures on these sites. These measures are described in Article 6 of the Directive, and guidance on their interpretation has been provided by the European Commission ([2000](#), [2001](#)).

SAC designation requires Member States to establish conservation measures which correspond to the ecological requirements of Annex I habitats and Annex II species present on the site (Article 6.1), and to take appropriate steps to avoid deterioration of the natural habitats and habitats of species, as well as significant disturbance of species, for which the site is designated (Article 6.2). This includes the appropriate assessment of the implications of any plans or projects that, alone or in combination, are likely to have a significant effect on the site in view of the site's conservation objectives (Article 6.3). If a negative assessment is concluded, a plan or project can only proceed if it is for imperative reasons of overriding public interest and no alternative solutions are possible, and the Member State must take compensatory measures to ensure the overall coherence of the Natura 2000 network (Article 6.4).

1.1.3.1 The Habitats Regulations

In the UK the Directive has been transposed into legislation by [The Conservation \(Natural Habitats, &c.\) Regulations 1994](#) (as amended) and [The Conservation \(Natural Habitats, &c.\) \(Northern Ireland\) Regulations 1995](#) (as amended). These are informally known as the 'Habitats Regulations'. The Regulations apply to the UK land area and its territorial sea (to 12 nautical miles from the coast), and are supported by government policy guidance². See [Section 1.6.4](#) for information on the regulatory background in the offshore area (from 12-200 nm)

¹ In the case of the UK, 'European territory' comprises both the UK 'mainland' (England, Wales, Scotland, Northern Ireland and associated sea areas) and the UK Overseas Territory of Gibraltar. The Habitats Directive also applies to the continental shelf and to the superadjacent [sic] waters up to a limit of 200 nautical miles from the baseline from which the territorial sea is measured (see Section 1.6.4). The present report describes the SAC selection process in the mainland UK only, excluding Gibraltar. A summary of the UK's implementation of the Habitats Directive in Gibraltar is included in [Defra \(2001\)](#); since that report was published, two candidate SACs have been selected in Gibraltar. Note that the Directive does not apply to Crown Dependencies – the Channel Isles and the Isle of Man, which are not part of the EU.

² Principally: **England:** *Planning Policy Statement PPS9: Biodiversity and Geological Conservation* (ODPM 2005), and supporting guidance); **Scotland:** *Nature conservation: implementation in Scotland of EC Directives on the Conservation of Natural Habitats and of Wild Flora and Fauna and the Conservation of Wild Birds ('the Habitats and Birds Directives')* (Scottish Executive 2000); *Planning for Natural Heritage: Planning Advice Note 60 (PAN 60)* (Scottish Executive 2000); *National Planning Policy Guidelines NPPG 14: Natural Heritage* (Scottish Office Development Department 1999); **Wales:** *Planning policy Wales* (National Assembly for Wales 2002); *Technical Advice Note TAN5 Nature conservation and planning* (Welsh Office 1996); **Northern Ireland:** *Planning Policy Statement 2 (PPS2) – Planning and Nature Conservation* (Department of the Environment Planning Service 1997).

Further, non-statutory, guidance is available in a series of *Habitats Regulations guidance notes* (English Nature 1997a,b, 1999, 2001a,b, in press).

Further details of the implementation of the Habitats Directive in the UK, including actions to support the protection and management of SACs, are given in the [First report by the United Kingdom under Article 17 on implementation of the Directive from June 1994 to December 2000](#) (Defra 2001).

1.2 Habitats and species of European interest in the UK

1.2.1 Habitat types of European Interest

Annex I of the Directive (as amended by the 2003 Treaty of Accession) comprises a list of 189 habitat types. Member States must consider designation of SACs for each of the features which occurs in their European territory.

Of these habitat types, 78 are believed to occur in the UK (excluding Gibraltar), based on the descriptions in the [Interpretation manual of European habitats](#) (European Commission DG Environment 2003). A [full list of these](#) is provided. As discussed later, the habitat types are very variable in the range of ecological variation they encompass. Some are very narrowly defined, comprising a single vegetation type and are analogous to single associations as described using traditional phytosociological techniques; others are large units defined on a physiographic basis, such as **1130 Estuaries**, encompassing complex mosaics of habitats and correspond approximately to the ‘Broad Habitats’ and/or ‘Priority Habitats’ of the [UK Biodiversity Action Plan](#) (Jackson 2000).

A sub-set of the Annex I habitat types are defined as being ‘priority’ because they are considered to be particularly vulnerable and are mainly, or exclusively, found within the European Union (Article 1d). The importance of these priority habitat types is emphasised at several places in the Directive (Articles 4 and 5 and Annex III), not only in terms of the selection of sites, but also in the measures required for site protection (Article 6) and surveillance (Article 11).

Of the 76 Annex I habitat types that are known to occur in mainland UK, 23 are defined as priority habitat types (Table 1.1).

Table 1.1 Annex I priority habitats known to occur in the UK

EU code	Directive name
1150	Coastal lagoons
1340	Inland salt meadows
2130	Fixed dunes with herbaceous vegetation (“grey dunes”)
2140	Decalcified fixed dunes with <i>Empetrum nigrum</i>
2150	Atlantic decalcified fixed dunes (<i>Calluno-Ulicetea</i>)
2250	Coastal dunes with <i>Juniperus</i> spp.
3170	Mediterranean temporary ponds
3180	Turloughs
4020	Temperate Atlantic wet heaths with <i>Erica ciliaris</i> and <i>Erica tetralix</i>
4040	Dry Atlantic coastal heaths with <i>Erica vagans</i>
6211	Semi-natural dry grasslands and scrubland facies on calcareous substrates (<i>Festuco-Brometalia</i>) (important orchid sites)
6230	Species-rich <i>Nardus</i> grassland, on siliceous substrates in mountain areas (and submountain areas in continental Europe)
7110	Active raised bogs
7130	Blanket bogs (only active bog has priority status)
7210	Calcareous fens with <i>Cladium mariscus</i> and species of the <i>Caricion davallianae</i>
7220	Petrifying springs with tufa formation (<i>Cratoneurion</i>)
7240	Alpine pioneer formations of the <i>Caricion bicoloris-atrofuscae</i>
8240	Limestone pavements
9180	<i>Tilio-Acerion</i> forests of slopes, screes and ravines
91C0	Caledonian forest
91D0	Bog woodland
91E0	Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (<i>Alno-Padion</i> , <i>Alnion incanae</i> , <i>Salicion albae</i>)
91J0	<i>Taxus baccata</i> woods of the British Isles

There has been considerable debate about the occurrence of some Annex I habitats in the UK. Habitats which it has been suggested might be present in the UK include **1410 Mediterranean salt meadows (*Juncetalia maritimi*)**, **2180 Wooded dunes of the Atlantic, Continental and Boreal region**, and **3270 Muddy river banks with *Chenopodium rubri* p.p. and *Bidention* p.p. vegetation**. However, following scrutiny of phytosociological literature and discussion with specialists in other Member States, none of these habitats is now considered to occur in the UK.

1.2.1.1 Offshore habitats

The Directive is now being implemented in UK offshore waters (see [Section 1.6.4](#)). Three Annex I habitats, **1110 Sandbanks which are slightly covered by seawater all the time**, **1170 Reefs** and **1180 Submarine structures made by leaking gases**, are known to occur in the UK Offshore area. In addition, **8330 Submerged or partially submerged sea caves** may also occur offshore (JNCC 2000).

Annex I habitat types which are or may be found in the UK offshore waters are listed in Table 1.2. However, it should be noted that the distribution and abundance of many habitat types within Europe are even less well understood in the offshore area than they are on land or in inshore waters. Some features present in UK waters may be regional variants or possibly degraded examples of the Annex I type, for example the ‘pockmarks’ primarily found in the North Sea, with smaller examples elsewhere, which represent **1180 Submarine structures made by leaking gases**.

Table 1.2 Annex I habitat types relevant to the UK offshore area

EU code	Directive name
1110	Sandbanks which are slightly covered by seawater all the time
1170	Reefs
1180	Submarine structures made by leaking gases
8330	Submerged or partially submerged sea caves

1.2.2 Species of European interest

The strategy for conservation of species set out in the Directive is more complex than that for habitat types. It comprises measures related to site designation for species listed in Annex II, strict protection of all populations of species listed in Annex IV, and the managed exploitation of species listed in Annex V. A number of species are listed in more than one Annex. The present report is concerned only with the process of site selection and so considers only Annex II species.

Annex II (as amended by the 2003 Treaty of Accession) lists 788 species, of which 61 have been recorded in the UK (excluding Gibraltar) since 1900. A sub-set of species listed in Annex II are considered to be particularly rare or endangered and are defined as ‘priority species’. Only one of these, the liverwort **1390 Western rustwort *Marsupella profunda***, is known to currently occur as a native in the UK.

Of the 61 Annex II species that have been recorded in the UK in the past century, 21 have not had specific sites proposed (Table 1.3), mostly because they are extinct in the UK or have been recorded only as non-natives or vagrants (see [Section 1.5.2.5](#)). A [full list of native species currently resident in the UK](#) is provided. The site selection rationale for **1351 Harbour porpoise *Phocoena phocoena*** is still being considered by the UK conservation agencies, together with the two UK native species added to Annex II in 2003, **4056 Ram’s-horn snail *Anisus vorticulus*** and **4035 Fisher’s estuarine moth *Gortyna borelii lunata***.

Table 1.3 Annex II species recorded in the UK since 1900 for which no SACs have been proposed

EU code	Species name (* indicates priority species)	Reason sites not selected
	<i>Invertebrates</i>	
1041	<i>Oxygastra curtisii</i> Orange-spotted emerald dragonfly	Extinct in UK
1060	<i>Lycaena dispar</i> Large copper butterfly	Extinct in UK, despite reintroduction attempts

EU code	Species name (* indicates priority species)	Reason sites not selected
1078	* <i>Callimorpha</i> (<i>Euplagia</i> , Jersey tiger <i>Panaxia</i>) <i>quadripunctaria</i>	Migrant to UK; established breeding populations are believed to derive from introductions
1088	<i>Cerambyx cerdo</i>	A longhorn beetle
4035	<i>Gortyna borelii lunata</i>	Fisher's estuarine moth
4056	<i>Anisus vorticulus</i>	Ram's-horn snail
	Fish	
1101	* <i>Acipenser sturio</i>	Sturgeon
1105	<i>Hucho hucho</i>	Danubian salmon
1113	* <i>Coregonus oxyrhincus</i>	Houting
1134	<i>Rhodeus sericeus amarus</i>	Bitterling
1141	<i>Chalcalburnus chalcoides</i>	Danubian bleak
2011	<i>Umbra krameri</i>	European mudminnow
	Amphibians	
1167	<i>Triturus cristatus</i>	Italian crested newt
	Reptiles	
1220	<i>Emys orbicularis</i>	European pond terrapin
1224	* <i>Caretta caretta</i>	Loggerhead turtle
1227	<i>Chelonia mydas</i>	Green turtle
	Mammals	
1324	<i>Myotis myotis</i>	Mouse-eared bat
1351	<i>Phocoena phocoena</i>	Harbour porpoise
	Plants	
1638	<i>Armeria pseudarmeria</i>	Estoril thrift
1862	<i>Narcissus cyclamineus</i>	Cyclamen-flowered daffodil
4093	<i>Rhododendron luteum</i>	Yellow azalea

In addition to the species listed in Table 1.3, experimental reintroduction of **1337 European beaver** *Castor fiber* (long extinct in the UK) has been proposed, but no licence for this work has been granted (see [Section 1.5.2.5](#)).

1.3 Establishment of SACs

1.3.1 Process for the selection and designation of SACs

Article 4.1 of the Directive requires that Member States employ criteria set out in Annex III to make a selection of sites for each Annex I habitat type and Annex II species that occurs naturally within their territory. It is not required that Member States select all occurrences of each habitat type and species for inclusion on the national list.

The process for the selection and designation of SACs is set out in Article 4:

- Member States to prepare national lists of sites of importance for Annex I habitat types and Annex II species of Community interest, based on relevant scientific information and the criteria listed in Annex III Stage 1, and in the light of the aims of the Directive, and to submit the lists to the European Commission (EC).
- The national lists to be considered in the light of the criteria listed in Annex III Stage 2 and within the context of biogeographical regions (Article 1(c)iii) and the EU as a whole, and Member States and the European Commission to adopt sites on Member States' national lists as Sites of Community Importance (SCIs).
- SCIs to be designated by Member States as SACs within six years of adoption by the Commission.

The Directive required Member States to transmit national lists to the Commission by June 1995, with a view to proposed sites being adopted as SCIs by June 1998. However, across the EU, progress has been slower than scheduled in Article 4, and the site list for the Atlantic Biogeographical Region

(which includes the UK) was not formally adopted by the Commission until December 2004. In the UK, designation of SACs is devolved to the relevant administration within each country. The UK's first SACs were subsequently designated in Wales in December 2004, in Scotland in March 2005, in England in April 2005, and in Northern Ireland in May 2005.

1.3.2 The collective EU process and criteria for site selection

The process that Member States and the Commission must follow in drawing up the list of Sites of Community Importance is set out in Article 4 and Annex III of the Directive. The process is broken down into two stages:

- Stage 1:** assessment of the relative importance of sites containing examples of the individual Annex I habitat types and Annex II species in each Member State;
- Stage 2:** assessment of the overall importance of the sites in the context of the appropriate biogeographical region and the EU as a whole. This stage is often informally referred to as 'moderation'.

The criteria to be employed in Stage 1 are listed in Annex III. They can be summarised as:

Habitats

- a. degree of representativity;
- b. area;
- c. degree of conservation of habitat structure and functions and restoration possibilities;
- d. global assessment of conservation value (i.e. an overall assessment, based on a-c above).

Species

- a. population size and density;
- b. degree of conservation of the features of the habitat that are important for the species, and restoration possibilities;
- c. degree of isolation of the population in relation to the species' natural range;
- d. global assessment of conservation value (i.e. an overall assessment, based on a-c above).

In addition, Member States are required to classify sites on their national lists according to their relative value for each habitat type and species, and to identify which of the sites in their national lists are selected for priority habitat types and species.

Further guidance on the assessment of the Annex III Stage 1 criteria is given in the EC guidance document for the Natura 2000 [Standard Data Form](#) (European Commission DGXI 1995).

The criteria used in Stage 2 are intended to be used to assess the sites at the level of the nine biogeographical regions and the EU as a whole. The Stage 2 criteria may be summarised as:

- a. relative value of the site at national level;
- b. relationship of the site to migration routes or its role as part of an ecosystem on both sides of one or more Community frontiers;
- c. total area of the site;
- d. number of Annex I habitat types and Annex II species present;
- e. global ecological value of the site at the level of the biogeographical region and/or EU as a whole.

The Stage 1 and Stage 2 criteria must be read alongside other site selection requirements or qualifications set out in the Directive. More specific requirements for site selection include:

- a. restrictions on the site selection obligations in respect of widely dispersed and aquatic species (Article 4.1);

- b. the requirement to contribute towards the maintenance of favourable conservation status¹ (Article 2.2 and Article 3.1);
- a. the obligation on each Member State to select a series of sites that reflects the proportion of the EU resource of a given habitat or species within their national territory (Article 3.2).

1.4 Assessment within biogeographical regions

1.4.1 The Atlantic Biogeographical Region

The nine European biogeographical regions recognised by the Directive, as amended by agreement with the Standing Committee of the Bern Convention (Emerald Network), form an important part of the framework for the evaluation of sites at a European level. The UK falls entirely within the Atlantic Biogeographical Region (Figure 1.1)². A review of the character and nature conservation significance of the Atlantic Biogeographical Region is given in [Hopkins & Buck](#) (1995).

¹ See Article 1(e) and 1(i) for definitions of favourable conservation status.

² The UK Overseas Territory of Gibraltar is entirely within the Mediterranean Biogeographical Region.

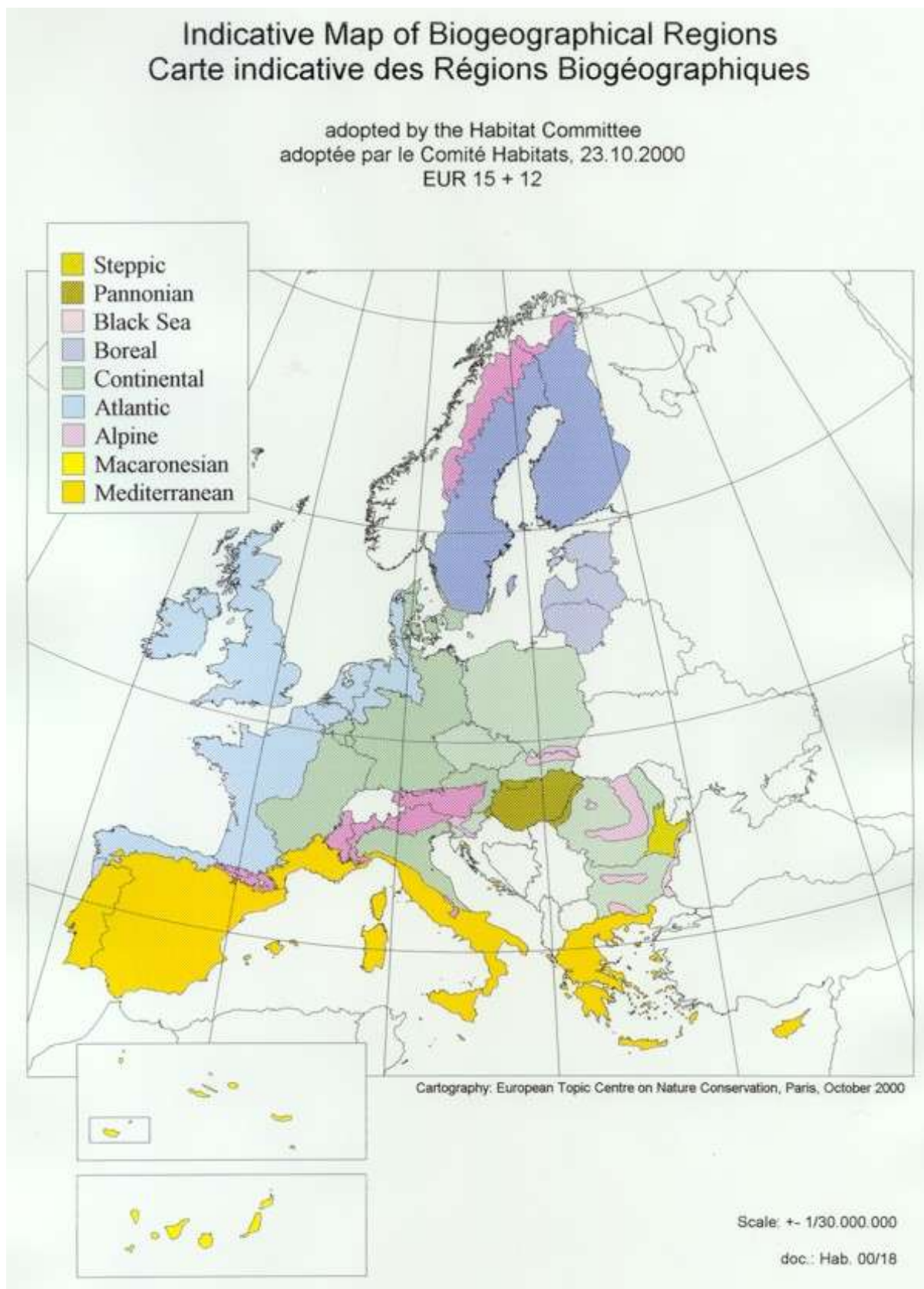


Figure 1.1 [European biogeographical regions](#) (Council Directive 92/43/EEC, as amended)

1.4.2 Selection of sites within the Atlantic Biogeographical Region

In October 1994 the European Commission Directorate General XI (DGXI) (now [DG Environment](#)), the UK Environment Departments and the JNCC jointly organised a meeting of the nine EC Member States with territory in the Atlantic Biogeographical Region. This was the first of a series of meetings for each of the biogeographical regions. Its purpose was to assist Member States in the preparation of their national lists. Agreements were reached concerning the interpretation and application of the Annex III Stage 1 criteria. It was also recognised by all Member States represented at the meeting that consideration of certain of the Stage 2 criteria, particularly those related to the habitat and species diversity of the sites, was relevant during Stage 1 to ensure a proper representation of sites and consistency across the biogeographical region.

A detailed report of this meeting is given by [Hopkins & Buck](#) (1995). The agreed conclusions are set out below; the procedures for site selection adopted in the UK are fully consistent with these conclusions.

Provision of information

1. *Acknowledging that the quality and extent of information about habitat types and species varies within the Region, Member States will provide information to the Commission in the Natura 2000 data entry form using the best scientific information available at the time according to the format agreed by the Habitats Committee.*

Balancing the national lists

2. *Acknowledging that outstanding single interest sites in terms of quality, extent or range make an important contribution to the Natura 2000 network, special emphasis will be given to identifying and delimiting sites containing complexes of interests on Annexes I and II as valuable ecological functional units.*
3. *Member States will give significant additional emphasis in number and area to sites containing priority habitat types and species.*
4. *In considering the degree of representativity of Annex I habitat types on individual sites, Member States will take account of the best examples in extent and quality of the main type (which is most characteristic of the Member State) and its main variants, having regard to geographical range.*
5. *Acknowledging that sites containing Annex I habitat types and Annex II species at the centre of their range will make an important contribution to Natura 2000, Member States will take responsibility for proposing sites containing habitats and species that are particularly rare in that Member State, with a view to preserving the range.*
6. *It is acknowledged that certain habitat types and species listed in Annexes I and II are relatively common and extensive in certain Member States. These Member States will have particular responsibility for proposing a proportion of the resource that is sufficient to contribute significantly to the maintenance of the habitat types and species at a favourable conservation status.*
7. *Where Annex II species' populations are too small to be naturally viable, or where the species occur only as vagrants or reintroductions, Member States may exclude them from consideration for site selection.*
8. *Artificial areas need not be excluded from site selection if they have spontaneously given rise to Annex I habitat types or host Annex II species and if it is considered that they have exceptional value.*

Defining boundaries

9. *It is acknowledged that different Member States will have different approaches to the definition of boundaries (e.g. the inclusion of buffer zones within the site), according to the habitat type or species concerned and the legal and management measures necessary to protect and extend the landscape context.*

1.4.3 EC guidance on the biogeographical region seminars

The Stage 2 criteria contained in Annex III of the Directive are rather vaguely defined. The European Topic Centre for Nature Conservation (ETC/NC) (now the European Topic Centre on Biodiversity) prepared further guidance ([Criteria for assessing national lists of pSCI at biogeographical level](#)) to aid assessment of proposed national site lists at biogeographical seminars. A working draft of these guidelines was endorsed by the EC Habitats Committee in 1997.

To streamline the assessment process at the biogeographical seminars, a preliminary ‘pre-selection’ phase has been adopted. This involves an assessment of the proportion of the total regional resource of each Annex I habitat and Annex II species contained within the proposed SAC series, and aims to identify those features for which more detailed scrutiny is desirable. The broad approach adopted is generally known as the ‘20/60 guidelines’. Habitats and species for which 60% or more of the total resource is contained within the proposed sites are generally considered to be a low priority for further scrutiny; features for which representation is less than 20% are a high priority, and those for which representation is between 20% and 60% are treated on a case-by-case basis. The EC has made it clear that this is for guidance only, and that these threshold values are intended to inform debate at the biogeographical seminars, and are not intended to be applied as rigid rules.

The ETC/NC paper also emphasised the importance of ensuring adequate coverage of the geographical range of each feature, and provided detailed criteria for selecting SCIs for the national site lists, expanding on the Stage 2 criteria listed in Annex III of the Directive.

1.5 Site selection criteria and principles in the UK

1.5.1 Summary of site selection criteria and principles

As noted in Section 1.3.2, Annex III of the Directive includes criteria for selecting sites eligible for identification as Sites of Community Importance and designation as Special Areas for Conservation (SACs). The text of the Directive also includes reference to selection of sites using the selection criteria and relevant scientific information. In preparing the UK national list of SACs (for terrestrial and inshore habitats), as well as the Annex III selection criteria, additional principles for site selection were developed, which interpret and supplement the Annex III selection criteria. These additional principles extend beyond the specific criteria that are included in Annex III and occur at various points in the Directive, and were developed in the light of discussions between Member States and the European Commission at the 1994 Atlantic Biogeographical meeting ([Hopkins & Buck 1995](#)). The selection criteria and additional principles for site selection are shown in Table 1.4 below. The interpretation of these main factors and the judgements made in applying them to selection of a high-quality site list are described below.

Table 1.4 Summary of site assessment criteria and additional principles used for site selection in the UK

Site assessment criteria: Annex I habitats		Reference
i)	Representativity	Annex III Stage 1A(a); Article 1e; Conclusions of 1994 Atlantic Biogeographical Region Meeting (para. 4).
ii)	Relative surface area of habitat	Annex III Stage 1A(b); Article 1e; Conclusions of 1994 Atlantic Biogeographical Region Meeting (para. 4).
iii)	Conservation of structure and function	Annex III Stage 1A(c); Article 1e.
iv)	Global assessment	Annex III Stage 1A(d).
Site assessment criteria: Annex II species		Reference
v)	Proportion of UK population	Annex III Stage 1B(a); Article 1i; Conclusions of 1994 Atlantic Biogeographical Region Meeting (para. 7).
vi)	Conservation of features important for species survival	Annex III Stage 1B(b); Article 1i.
vii)	Isolation of species populations	Annex III Stage 1B(c); Conclusions of 1994 Atlantic Biogeographical Region Meeting (para. 7).
viii)	Global assessment	Annex III Stage 1B(d).
Additional principles		Reference
ix)	Priority/non-priority status	Annex III Stage 1D; Article 1d; Conclusions of 1994 Atlantic Biogeographical Region Meeting (para. 3).
x)	Geographical range	Article 1e.
xi)	Special UK responsibilities	Article 3.2; Conclusions of 1994 Atlantic Biogeographical Region Meeting (para. 6).
xii)	Multiple interest	Annex III Stage 2.2(d); Conclusions of 1994 Atlantic Biogeographical Region Meeting (para. 2).
xiii)	Rarity	Conclusions of 1994 Atlantic Biogeographical Region Meeting (para. 5).

The process of site selection as a whole in the UK has been one of considering, in respect of the relevant criteria and principles in Table 1.4, the relative value of the proposed sites in relation to the whole national resource of each habitat type and each species separately. Information on how this is applied in each case is included in the accounts that follow.

To meet the requirements of the EC, all qualifying interest features are identified on each site, i.e. all occurrences of Annex I habitats and Annex II species which are considered to be of European importance. Fragmentary habitat occurrences, small populations of species, and habitats and species occurring outside their natural range have generally been treated as ‘non-significant presences’. These habitats and species are listed on the Natura 2000 standard data forms but do not require conservation objectives and are not protected under the Directive (as stated in the EC guidance document [Managing Natura 2000 sites: the provisions of Article 6 of the ‘Habitats’ Directive 92/43/EEC](#) (European Commission 2000)). In general, the standard used to select Sites of Special Scientific Interest (SSSIs) in England, Scotland and Wales, and Areas of Special Scientific Interest (ASSIs) in Northern Ireland has been used as the threshold to distinguish between non-significant presences and qualifying interest features. This approach is based on the assessment of criteria similar to those listed in Annex III of the Directive, and provides a standard benchmark for use across the UK.

Application of the criteria and principles in Table 1.4 has led to the selection of a list of sites, all of which, subject to consultation, have been or will be submitted as eligible for identification as sites of community importance (SCIs).

1.5.2 Considerations in the UK approach to site selection

The Habitats Directive requires Member States to use the criteria set out in the Directive to propose a national list of sites that provides appropriate representation of the habitat types listed in Annex I and the species listed in Annex II. The UK has had long experience of this kind of site selection process. The first major exercise to select a national site series was carried out by the Society for the Promotion of Nature Reserves, which in 1915 produced a provisional list of 273 areas in Britain worthy of protection as nature reserves – one of the first ever attempts to produce a series of areas to be protected by conservation measures (SPNR 1915; Rothschild & Marren 1997). This work helped to prepare the ground for the first official national strategy for nature conservation, which was set out in 1947

(Cmd. 7122 and Cmd. 7235) and led to the selection of a national series of sites notified as Sites of Special Scientific Interest (SSSIs) (Areas of Special Scientific Interest (ASSIs) in Northern Ireland).

The expanding information on and growing experience in nature conservation led to the publication of *A nature conservation review* (Ratcliffe 1977), a major site selection process which produced a revised list of biological sites considered to be of national importance for nature conservation. A major contribution of this work was to set out a series of clear, largely qualitative site selection criteria to guide and structure judgements about the nature conservation value of sites. The rationale and criteria used for site selection in the Review have been widely accepted and used in the UK, and the systems for conservation evaluation in many parts of the world draw upon them (Nature Conservancy Council 1989; Joint Nature Conservation Committee 1994). The criteria in Annex III of the Directive show similarities to those in the Review, and the UK has a great deal of practical experience in the use of such criteria for site evaluation and selection.

Despite the UK's long track record and experience in identifying areas of particular importance for wildlife conservation, identifying a national list of SACs in terms of Article 4 and Annex III posed a number of practical difficulties.

1.5.2.1 Relationship of SACs to SSSI/ASSIs

It is not appropriate simply to assume that all the UK's biological SSSIs and ASSIs should be put forward as candidate SACs. The Annex I list of habitat types and the Annex II list of species are special sub-sets of the habitats and species occurring in the EU, and they stem from application of the Article 1 definitions. Many SSSIs/ASSIs either have no, or no significant, occurrence of this subset of habitat types and species, and so cannot be regarded as of Community importance within the meaning of the Directive. Even where sites do have habitat types and species listed in the Directive they may not qualify for selection when assessed against the criteria set out in Annex III of the Directive and the other principles established. Furthermore, UK legislation does not enable the notification of marine sites below low water mark¹ as SSSI/ASSI. The UK has thus based site assessment on the criteria and principles set out in the Directive and has not simply made a selection based on existing protected areas. This has resulted in the identification of a large number of sites not previously notified as SSSI/ASSIs.

1.5.2.2 The role of expert opinion in site selection

The Annex III criteria are similar to UK domestic site selection guidelines in that they are principles by which to judge the relative importance of sites. The problems of applying such principles in practice are therefore familiar. Although some Annex III criteria (e.g. habitat extent) can be quantified relatively easily, scaling or quantifying the assessments for many of the criteria would necessarily be arbitrary. Even if it were possible to produce objective numerical values for each attribute, there would be a need to transform the various ratings into a common range of values, a process which would inevitably introduce an element of subjective weighting. There is currently no widely agreed way of determining such weighting and of then integrating the data into a single overall index (Margules 1986). Further, in any attempt to produce a single indicator value from assessments of a number of criteria there is the problem that intercorrelations are likely to introduce bias (Usher 1980). For example, in the Annex III criteria, there will always be a degree of positive correlation between the area of any site and the number of Annex I habitat types and Annex II species present on the site. As yet there is no broad consensus on how these problems should be resolved.

For these reasons, quantitative rule-based systems have so far not been widely adopted for the purpose of selecting statutory sites, either in the UK or elsewhere. The conservation agencies, faced with having to complete a major site-selection exercise within a limited timescale, using available data, felt that the risks of using any new, untried, quantitative rule-based approach outweighed any potential

¹ Generally, Mean Low Water in England and Northern Ireland; Mean Low Water of Spring tides in Scotland. In Wales, the limit is Mean Low Water for SSSIs notified before 2002, and, for more recent notifications, the limit of Lowest Astronomical Tides, where the intertidal features extend down to LAT. There is no provision for marine SSSIs/ASSIs beyond low water mark, although boundaries sometimes extend more widely within estuaries and other enclosed waters.

benefits. Instead, the proven approach, which recognises that site selection is essentially a matter of judgement and relies on a group of experts, each of whom understands the aims and guiding principles of the exercise, to make informed judgements to select an agreed list of sites, was used. The use of ‘best expert judgement’ is acknowledged as an appropriate means of ranking sites in the EC’s guidance on the Natura 2000 [Standard Data Form](#) (European Commission DGXI 1995).

1.5.2.3 Interpretation of Annex I categories

Annex I of the Directive uses a classification of habitat types that differs in several important respects from vegetation classification systems that have traditionally been used in the UK. During site selection it was necessary to interpret the habitat information available in the UK in terms of the Annex I habitat list. This is a complex task for those habitat types, such as **7150 Depressions on peat substrates of the *Rhynchosporion*** and **9180 *Tilio-Acerion* forests of slopes, screes and ravines**, that do not correspond clearly to types in classifications that have been used in habitat surveys in the UK, such as the National Vegetation Classification Rodwell 1991a,b, 1992, 1995, 2000).

1.5.2.4 Wide-ranging species

Article 4(1) states: “for aquatic species which range over wide areas, ... sites will be proposed only where there is a clearly identifiable area representing the physical and biological factors essential for their life and reproduction”. In the case of **1351 Harbour porpoise *Phocoena phocoena***, available evidence is that the species is widespread in territorial waters of the UK and the rest of northern Europe and is relatively evenly distributed. The site selection rationale for harbour porpoise is still being discussed by the EC and Member States, and the UK is currently considering whether it can identify sites which fulfil the criteria outlined in Article 4(1), and which contribute significantly towards maintaining favourable conservation status for this species.

The selection of sites for other wide-ranging species, such as **1355 Otter *Lutra lutra*** and **1365 Common seal *Phoca vitulina***, has also presented certain difficulties (see [Section 1.5.4.2.1](#)).

1.5.2.5 Artificial habitats and non-native and reintroduced species

Article 4(1) requires Member States to propose sites only for natural habitat types and species that are native to each Member State’s territory. Article 3(1) requires these habitats and species to be maintained or, where appropriate, restored at favourable conservation status in their natural range. Accordingly, habitats and species occurring outside their natural range are not a reason for SAC selection, and are not listed as qualifying features on SACs in the UK. This affects several Annex I habitats which are defined primarily by their dominant species, e.g. **1320 *Spartina* swards (*Spartinion maritimae*)** and **2160 Dunes with *Hippophae rhamnoides***. Stands of the widely-introduced invasive common cord-grass *Spartina anglica*, and stands of the invasive sea-buckthorn *Hippophae rhamnoides* resulting from introductions outside its natural range, are not considered eligible for site selection in the UK.

Artificial or anthropogenic examples of several other Annex I habitat types are also specifically excluded from selection, either by Annex I itself or by the descriptions in the [Interpretation manual](#) (e.g. **3150 Natural eutrophic lakes with *Magnopotamion* or *Hydrocharition*-type vegetation** and **3160 Natural dystrophic lakes and ponds**). However, the *Manual* makes it clear that artificial examples of certain habitats are eligible for selection as SACs, e.g. **3140 Hard oligo-mesotrophic waters with benthic vegetation of *Chara* spp.**, **6130 Calaminarian grasslands of the *Violetalia calaminariae***, and **7150 Depressions on peat substrates of the *Rhynchosporion***. For these habitats the selection of artificial examples has been considered on a case by case basis. In general, preference has been given to more natural habitat examples, but artificial stands have been selected where they are of outstanding conservation interest.

Similarly, in selecting sites for Annex II species, artificial habitats within the species’ natural range are eligible for selection. Most sites selected for Annex II bat species are artificial mines, tunnels or buildings, while the majority of the most important breeding sites selected for **1166 Great crested newt *Triturus cristatus*** are artificial ponds. For certain other species, e.g. **1092 White-clawed**

crayfish *Austropotamobius pallipes* and **1831 Floating water-plantain *Luronium natans***, preference has been given to natural sites, but some artificial examples supporting large populations have also been selected.

Article 22(a) provides for Member States to “study the desirability of re-introducing species in Annex IV that are native to their territory where this might contribute to their conservation, provided that an investigation, also taking into account experience in other Member States or elsewhere, has established that such re-introduction contributes effectively to re-establishing these species at a favourable conservation status and that it takes place only after proper consultation of the public concerned.” Annex IV lists animal and plant species of Community interest in need of strict protection, a list which includes all species listed in Table 1.3 above which are native to, but now extinct in, the UK, together with **1337 European beaver *Castor fiber***. Although a number of these species are subject to species recovery programmes in the UK, none can yet be considered sufficiently re-established in the wild to justify consideration as qualifying features on SACs.

1.5.2.6 Data collation

The process of identifying SACs has been underpinned by the collation of information on the distribution and abundance of Annex I habitats and Annex II species, both on individual sites and across the UK. UK data on the distribution and extent of Annex I habitats and the range and population size of Annex II species were published in *JNCC Report*, No. 312 ‘[Handbook on the UK status of EC Habitats Directive interest features](#)’ (Jackson & McLeod 2000, revised 2002).

At a national scale, data on the distribution and extent of Annex I habitats have been summarised from a variety of sources, in particular information collected during the development of the [National Vegetation Classification](#) (NVC) (Rodwell 1991 *et seq.*), the [National Marine Habitat Classification for Britain and Ireland](#) (Connor *et al.* 2004), and a range of habitat databases and inventories, mostly held by JNCC or the country agencies. At the site level, information sources range from detailed habitat surveys to local expert knowledge. Data have been difficult to obtain for some habitats, either because they have been poorly studied in the UK or because of problems in relating Annex I categories to standard UK vegetation classifications.

Good distribution data are available for the majority of Annex II species in the UK, as this country has a long history of biological recording. National data were obtained from the Biological Records Centre (BRC) at the [Centre for Ecology and Hydrology](#) (CEH). Information on population size is generally much harder to obtain, especially at a national scale, but reliable population counts are available for some species on some sites.

Considerable care was taken to ensure that site selection was based on the best available information, but (as in other Member States), the distribution and abundance within the UK of some Annex I habitat types and Annex II species are imperfectly known. This is particularly the case for inconspicuous plant and animal species (e.g. bryophytes and molluscs), and habitats which have been poorly studied in the UK (e.g. chasmophytic types). The timetable originally set out in the Directive precluded the commissioning of significant amounts of additional survey work to complement existing knowledge. However, for certain habitat types and species, critical appraisal led to the conclusion that current knowledge was inadequate to evaluate sites, and site selection was then necessarily delayed to await the results of additional information collection and analysis. Additional survey has since been undertaken both to improve knowledge of certain sites within the SAC series, and to provide an overview of the wider resource, for example a coastal lagoon survey of Scotland (Covey *et al.* 1998; Thorpe 1998; Thorpe *et al.* 1998). This process is still ongoing for offshore features, and in a small number of cases in the terrestrial environment.

The distribution and relative abundance of many habitat types and species are even less well understood within the EU as a whole. In the UK a best assessment has been made of the contribution that will be necessary to fulfil the Article 3.2 requirement for each Member State to “contribute to the creation of Natura 2000 in proportion to the representation within its territory of... [Annex I]... habitat types and the habitats of [Annex II] species”.

1.5.3 Identifying SAC boundaries

Sites on land (including freshwater sites and coastal sites down to low water mark¹) are normally notified as SSSI or ASSI, and, where appropriate, the same boundary has been used to simplify administrative arrangements and to assist in identification of the boundary on the ground. However, SSSI/ASSI are often notified for features which are of national importance but which are not Annex I habitats or Annex II species. Consequently, SSSI/ASSI may be larger than the SACs that are contained within their boundaries. As a general principle, SAC boundaries have been drawn closely around the qualifying habitat types or the habitats of species for which the sites have been selected, taking into account the need to ensure that the site operates as a functional whole for the conservation of the habitat type(s) or species and to maintain sensible management units.

Buffer zones have generally not been included as part of SACs. Measures are provided in the UK Habitats Regulations to control, through the planning system, adverse impacts on a qualifying feature arising outside the site. Some sites straddle the land/sea divide or are entirely marine. In these situations the seaward boundaries of the site have been drawn as straight lines, to ensure ease of identification on charts and at sea.

Some SACs are in fact clusters of geographically discrete sites. This has been appropriate when qualifying interests are ecologically interdependent or were geographically contiguous before being divided by human activity, as, for example, has happened in a number of cases with heathland and woodland. In some cases, such as the North Pennine Dales Meadows, a number of relatively small SSSIs in the same geographical area have been clustered into one site. Such clusters may contain a range of habitat types. However, the argument for clustering of sites is strongest where the fragments support the same habitat types or species. Since the area of the cluster is larger than an individual fragment, it will often support more species characteristic of the habitat type, simply because of the species-area relationship. This is well-established for a variety of habitats (see, for example, Dawson 1994). In addition, a cluster is likely to span a wider range of conditions for a single habitat type than a single fragment. This will increase the total species-richness and to some degree buffer the habitat resource against the uncertain effects of climate and other changes. Where the sites in the cluster are close together and species have relatively mobile patterns of distribution over time, there will be a higher probability of maintaining species diversity, as opportunities for successful dispersal and establishment will be more frequent.

Since 2002, the identification of SACs in UK offshore waters has been undertaken by JNCC, in consultation with the country conservation agencies to ensure that site identification is consistent with that undertaken to designate sites in the inshore marine and terrestrial environment (see [Section 1.6.4](#)).

1.5.4 UK interpretation of site selection criteria and principles

1.5.4.1 Selection criteria and principles for Annex I habitat types

1.5.4.1.1 Representativity

Representativity is the degree to which a given habitat corresponds to a described type, including not only the most typical form of the habitat, but also its main lines of variation. The [Interpretation manual of European habitats](#) (European Commission DG Environment 2003) is the reference source for defining the habitat types. A first requirement in the evaluation of any habitat example for inclusion on the national list has therefore been to ensure that it conforms to the general habitat type description in the *Manual*.

It is recognised in the introduction to the *Manual* that judgement plays a part in determining the degree to which a given habitat example fits the general description. This is because that description reflects

¹ Generally, Mean Low Water in England and Northern Ireland; Mean Low Water of Spring tides in Scotland. In Wales, the limit is Mean Low Water for SSSIs notified before 2002, and, for more recent notifications, the limit of Lowest Astronomical Tides, where the intertidal features extend down to LAT. There is no provision for marine SSSIs/ASSIs beyond low water mark, although boundaries sometimes extend more widely within estuaries and other enclosed waters.

the full variation of the habitat type in Europe and at a given site it is unlikely that the full range of variation will be encountered. The *Manual* is necessarily general in character and cannot fully accommodate every local facet of variation of each habitat in all the countries in which it occurs. Habitat selection in the UK has sought to cover the range of variation a habitat type encompasses, including its most typical form and the main variations.

In most cases, the decision concerning whether a given habitat example conforms to a described Annex I type has been straightforward. However, unlike most species, habitat types show a continuum of variation, and in the field there are frequently uninterrupted zonations between types. For example, transitions between **4010 Northern Atlantic wet heaths with *Erica tetralix*** and **4030 European dry heaths** frequently occur on lowland heaths and upland moorlands, with the former habitat gradually changing to the latter as soils become drier. Such transitions may be important in their own right and contribute towards the diversity of some sites. Some habitat examples may therefore be intermediate in character between two or more Annex I types. An extreme example of this problem for site selection is illustrated by the selection of rias. These are flooded river valleys typical of south Wales and south-west England and which also occur in France, Spain and Portugal. For the most part, such flooded valleys have limited freshwater influence and are classified as **1160 Large shallow inlets and bays**. However, in a few cases substantial rivers enter into rias and give, in the upper part of these inlets, brackish conditions more typical of **1130 Estuaries**. For this reason, parts of the ria systems at, for example, Milford Haven and Plymouth Sound have been listed as **1130 Estuaries**.

The range of variation exhibited by terrestrial habitats has been described in terms of the [National Vegetation Classification](#) (Rodwell 1991a,b, 1992, 1995, 2000), where possible. In the case of a small number of habitats, there is a simple correspondence between a single NVC type and an Annex I type, for example **6520 Mountain hay meadows**, which shows a limited range of variation and corresponds to NVC type MG3 *Anthoxanthum odoratum* – *Geranium sylvaticum* grassland.

In other cases, an Annex I habitat type corresponds to a series of NVC types, e.g. **4030 European dry heaths** corresponds to twelve different NVC types. For habitat types such as these, which show a wide range of variation in relation to climatic, edaphic and other factors, the NVC classification of the type has influenced site selection by providing the framework within which the diversity of the habitat type can be categorised and sites selected to reflect this diversity.

In other instances, the NVC is less valuable as a source of reference about the character or variability of a given habitat. For example, the NVC classification did not cover Northern Ireland, and, whilst there is general correspondence of vegetation types between Northern Ireland and England, Scotland and Wales, some vegetation types are probably restricted to Northern Ireland. In other cases the variability of the type is not fully described in the NVC or has been completely omitted, e.g. **7150 Depressions on peat substrates of the *Rhynchosporion***, various types of vegetation associated with **1220 Perennial vegetation of stony banks** (see Sneddon & Randall 1993), and the complex vegetation assemblages associated with types of soft rock cliff within **1230 Vegetated sea cliffs of the Atlantic and Baltic coasts**. In the case of certain coastal habitats, such as sand dunes, representative communities can be variable depending on the initial colonising species.

Marine habitats are often characterised by physical features or by sedentary animals such as molluscs and barnacles, as well as by their flora. These are not covered by the NVC, which is a terrestrial and freshwater vegetation classification. Coincident with the selection of sites under the Habitats Directive, work was in hand within the JNCC to develop a [National marine habitat classification](#) (Connor *et al.* 2004), and this ongoing work helped inform the process of selection.

Certain habitat types, such as **1130 Estuaries** and **1160 Large shallow inlets and bays**, are broad physiographic units, within which other Annex I habitat types, such as **1140 Mudflats and sandflats not covered by sea water at low tide**, may occur. In these cases, the larger physiographic habitat type and those included within it have been evaluated independently, as part of the national series for each type.

1.5.4.1.2 Area of habitat type

For the most part, the sites selected contain the largest examples in the UK of the habitat types for which they have been selected. Particular attention has been paid to the selection of sites that host a substantial proportion of the total habitat resource in the UK. For example, Salisbury Plain contains more than 36% of the UK resource of **6210 Semi-natural dry grasslands and scrubland facies on calcareous substrates (*Festuco-Brometalia*)**, and Dungeness supports nearly 44% of **1220 Perennial vegetation of stony banks** in the UK.

In general, this selection has been reinforced by other criteria; for example, habitat structure and function are most often best conserved in sites that are extensive. There are, however, circumstances where relatively small sites are selected. The most obvious cases are situations where only small sites for a given habitat survive, e.g. the last known surviving area of natural **1340 Inland salt meadows** is only about 0.1 ha in extent.

In other cases, relatively small sites are selected to encompass the range of ecological variation or to take account of the geographical range of a habitat. For example, **6210 Semi-natural dry grasslands and scrubland facies on calcareous substrates (*Festuco-Brometalia*)** which occurs on magnesian limestone in north-east England is recognised in the NVC as a distinct type, MG8 *Sesleria albicans* – *Scabiosa columbaria* grassland. This distinct type has an ecological character intermediate between southern limestone grasslands and the limestone grasslands typical of northern England. It was always very localised and is now severely reduced. Thrislington, County Durham, is selected as representative of this type, although it covers only 23 ha, contrasting with other sites in the calcareous grassland SAC series, which includes Salisbury Plain, Hampshire/Wiltshire, which at over 21,000 ha is thought to be the largest remaining calcareous grassland in Europe.

Some Annex I habitats are very extensive in the UK, e.g. **4030 European dry heaths** and **7130 Blanket bogs** which are major landscape components in the north and west of the UK. Many large examples of these habitats have been selected as SACs, but because of their distribution patterns, the SAC series contains a relatively small proportion of their total national extent.

1.5.4.1.3 Conservation of structure and function

The vegetation of most terrestrial sites in the UK's proposed list is either the result of or has been appreciably affected by past and present management practices. Habitat structure and function involve a number of inter-related components. Structure can relate to a variety of biotic and abiotic features, including species composition, the physical architecture of the vegetation, the ground morphology, the successional status of the vegetation, and species assemblages of plants, animals or both. Function relates to the way in which the biotic and abiotic features interact over time. Functions may include energy flows, biogeochemical cycles, hydrology and many other processes.

The value of structure as a criterion for comparing the quality of sites is very variable. Some types have very limited variation in structure. In the example of **6510 Lowland hay meadows (*Alopecurus pratensis*, *Sanguisorba officinalis*)**, the vegetation is characterised by a narrow range of plant forms that provide a vegetation canopy whose structure varies little between sites. Damaging activities, such as fertiliser application (which changes the botanical composition and reduces the biological diversity of such grassland), may cause only very modest changes to physical structure.

In other cases, structural features play a critical part in discrimination between sites. In the case of **8240 Limestone pavements** the selected sites are those that are of the highest quality in terms of well-developed 'clint' and 'grike' rock structure, reflected in the pattern of vegetation. Similarly, **7110 Active raised bogs** in which the central peat dome and surrounding lagg fen are most complete have been seen as of high value.

Many habitat types occur not as isolated examples surrounded by intensive land use but as parts of mosaics of habitat, notably on the coast and in the uplands. In these situations the juxtaposition of communities and the transitions between them have been seen as an important element of habitat structure.

The evaluation of habitat function is in many cases more difficult than that of structure, because of the complexity of functions and the limitations of our information and understanding of these functions. In some cases certain features are known to be of overriding importance for the maintenance of function. For example, in the freshwater habitat types listed in Annex I, an increase in nutrient status of the water will cause adverse change. However, in many cases the maintenance of habitat function is dependent upon a wide range of biotic and abiotic processes. It would be difficult to define and evaluate these individually, and in general the lack of significant deterioration of the habitat, as evidenced by, for example, the presence of typical native species, has been seen as evidence that habitat function is being conserved. In some cases these influences have been operating for a very long time. Current structure and function may be related to management, and such practices must be continued if the interest of the site is to be maintained.

Annex III also refers to possibilities for restoration of habitat structure and function. Where a sufficient number of examples of habitat types in good condition can be identified, it has been considered unnecessary to select sites that are damaged or in relatively poor condition. However, many sites may require adjustments to management or a modification in human impacts over part of their area. In these cases, the likelihood of successfully restoring structure and function has been a helpful consideration. Where the habitat type is rare in all or part of its range, options for site selection are more limited, and sites needing more significant restoration management may be selected. This is true with a proportion of the listed sites in the lowlands supporting **7230 Alkaline fens**, for example, where traditional management has been abandoned. Examples of **7120 Degraded raised bogs still capable of natural regeneration** have been selected to complement the SAC series for **7110 Active raised bogs**, and all sites require significant restoration management, for example to restore more natural hydrological processes.

1.5.4.1.4 Global assessment

The global assessment is an expert judgement of the overall value of the site for the conservation of the relevant Annex I habitat. It provides an integrated assessment of the other selection criteria, and may also take into account other relevant factors, such as ecological relationships between different habitats and species (European Commission DGXI 1995).

As an overall index of the site's conservation value, particular attention has been paid to the global assessment. Sites have been graded A, B or C, as described in European Commission DGXI (1995). In the UK these gradings have been interpreted as follows:

- A Sites holding outstanding examples of the habitat in a European context.
- B Sites holding excellent stands of the habitat, significantly above the threshold for SSSI/ASSI notification but of somewhat lower value than grade A sites.
- C Examples of the habitat which are of at least national interest (i.e. usually above the threshold for SSSI/ASSI notification on terrestrial sites) but not significantly above this. These habitats are not the primary reason for SACs being selected.

There is therefore a distinction between the principal features for which sites have been selected (those graded A or B) and those which are only of secondary interest (those graded C). This is a useful distinction but it is important to note that all three grades are qualifying SAC interest features.

Only examples of features graded A or B for global assessment are described in detail in the present report.

1.5.4.2 Selection principles for Annex II species

1.5.4.2.1 Proportion of UK population

For the most part the sites selected for individual species are those where the evidence indicates that the largest populations occur. In many cases these judgements have to be based not on precise counts of individuals but on estimates of abundance. For example, the number of populations has been taken into account in the case of **1065 Marsh fritillary *Euphydryas aurinia***. This species has naturally

highly variable populations, so the numbers of individuals in a given year are not necessarily an indication of the value of the site in the longer term. In other cases, extent within the site has been relevant and is typically used as a measure of abundance for perennial plants that spread by vegetative reproduction, such as **1614 Creeping marshwort** *Apium repens*.

For widely-distributed species, e.g. **1365 Common seal** *Phoca vitulina*, or where a distinct form occurs, such as the populations of **1065 Marsh fritillary** *E. aurinia scotica* in Scotland, some sites supporting a relatively small proportion of the UK population have been selected to ensure representation of geographic range. Where species occur widely at low population densities, e.g. **1355 Otter** *Lutra lutra*, or are relatively abundant within a more restricted range, e.g. **1083 Stag beetle** *Lucanus cervus*, the differentiation of sites on the basis of population size was rarely possible, and site selection has endeavoured to reflect the range of geographical areas and ecological conditions in which the species is found. For some widespread species the SAC series consequently contains a relatively small proportion of the total UK population. Effective conservation of such species will depend on a combination of site-based and wider environment measures.

1.5.4.2.2 Conservation of features important for species survival

The value of this factor in the comparison of sites is variable. For some Annex II species, such as **1654 Early gentian** *Gentianella anglica*, a small number of habitat features are required to ensure survival: essentially, short open turf and calcareous soils with low nutrient status. For other species, as for example **1355 Otter** *Lutra lutra*, a complex range of site features may be required, including all-year-round availability of food, suitable areas providing cover for young otters and good water quality. The features will vary from site to site, particularly depending on whether it is freshwater or coastal. For some species, the features required for survival are not fully known. In these cases the presence of a persistent population that is known to be stable has been seen as *prima facie* evidence that habitat conditions are favourable.

1.5.4.2.3 Isolation of species populations

This factor has been found to be relevant to only a small number of species populations in the UK. Isolation has been viewed positively only where populations are large or display distinctive physiological, ecological or genetic features, e.g. the distinctive form of **1065 Marsh fritillary** *Euphydryas aurinia scotica* in Scotland.

1092 White-clawed crayfish *Austropotamobius pallipes* is a special case for which this factor has been of primary significance in site selection. Crayfish plague (a virulent disease caused by the fungus *Aphanomyces astaci*) has been introduced into Britain and is spreading through the country, wiping out native crayfish populations. Therefore, selected sites are those which support a significant population that has been recorded over a number of years, but, most importantly, they are isolated from areas of crayfish plague infection and are often cut off from other populations. The degree of isolation is variable and the possibility of crayfish plague spreading to the selected sites cannot be ruled out entirely.

1.5.4.2.4 Global assessment

The global assessment is an evaluation of the overall value of the site for the species concerned. The same grading system has been used as for habitats (see [Section 1.5.4.1.4](#)), distinguishing the primary features for which sites have been selected as SACs from those which are of secondary interest.

1.5.4.3 General principles

1.5.4.3.1 Priority/non-priority status

The Directive requires Member States to give special attention to sites containing priority habitat types and species. Although there is no requirement to select every example of priority habitat types and species, site selection has been significantly weighted in favour of priority habitat types in terms of both number of sites and area covered. Of the 23 priority habitat types in the UK, some, such as **7130**

Blanket bogs (only a priority habitat if the bog is active), are very extensive, while others, such as **1340 Inland salt meadows**, cover a small surface area at only one site. Site selection takes account of this wide variability in the abundance of priority habitat types.

There is only one priority species known currently as a native in the UK, the liverwort **1390 Western rustwort** *Marsupella profunda*, and the two sites where it is a primary reason for selection support the largest known populations in the UK.

1.5.4.3.2 Rarity

The habitat types listed at Annex I of the Directive vary greatly in their abundance in the UK, ranging from **1340 Inland salt meadows**, with a total extent of only 0.1 ha, to **7130 Blanket bogs**, which is estimated to cover more than 2,000,000 ha. Many of the habitat types are very local and only a small proportion of them are known or estimated to cover more than 50,000 ha in the UK.

For the purposes of implementing the Directive, 23 Annex I habitat types are considered to be rare in the UK because their total extent is less than 1,000 ha or because there is a significant or outstanding representation of the habitat type at three or fewer sites (Table 1.5).

Table 1.5 Annex I habitats that are rare in the UK, covering less than 1,000 ha or with a significant or outstanding representation of the habitat type at three or fewer sites.

EU code	Directive name
1180	Submarine structures made by leaking gases
1210	Annual vegetation of drift lines
1320	<i>Spartina</i> swards (<i>Spartinion maritimae</i>) ¹
1340	Inland salt meadows
1420	Mediterranean and thermo-Atlantic halophilous scrubs (<i>Sarcocornetea fruticosi</i>)
2110	Embryonic shifting dunes
2160	Dunes with <i>Hippophae rhamnoides</i>
2170	Dunes with <i>Salix repens</i> ssp. <i>argentea</i> (<i>Salicion arenariae</i>)
2250	*Coastal dunes with <i>Juniperus</i> spp.
2330	Inland dunes with open <i>Corynephorus</i> and <i>Agrostis</i> grasslands
3110	Oligotrophic waters containing very few minerals of sandy plains (<i>Littorelletalia uniflorae</i>)
3170	*Mediterranean temporary ponds
3180	*Turloughs
4020	*Temperate Atlantic wet heaths with <i>Erica ciliaris</i> and <i>Erica tetralix</i>
4040	Dry Atlantic coastal heaths with <i>Erica vagans</i>
4080	Sub-Arctic <i>Salix</i> spp. scrub
5110	Stable xerothermophilous formations with <i>Buxus sempervirens</i> on rock slopes (<i>Berberidion</i> p.p.)
6170	Alpine and subalpine calcareous grasslands
6430	Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels
6520	Mountain hay meadows
7150	Depressions on peat substrates of the <i>Rhynchosporion</i>
7240	*Alpine pioneer formations of the <i>Caricion bicoloris-atrofuscae</i>
9160	Sub-Atlantic and medio-European oak or oak-hornbeam forests of the <i>Carpinion betuli</i>

Selection has aimed to ensure that the majority of the area covered by these habitat types has been included in the SAC series (other than for **1180 Submarine structures made by leaking gases**, for which site selection in offshore waters is still in progress). It should be noted that rare habitat types vary in their patterns of distribution. Some, such as **2250 Coastal dunes with *Juniperus* spp.**, are very localised and found at only a small number of sites. In these cases all or almost all of the UK resource is included within the SAC series. However, some other rare habitats, e.g. **6430 Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels**, are widely distributed, with a relatively small amount of the resource found at a larger number of sites. In these cases, although a large proportion of the resource is included in the SAC series, some small fragmentary examples with poor representation of the main features of the type have not been selected.

¹ In the UK stands of this Annex I type have only been selected as SACs where they are dominated by *Spartina maritima*, *Spartina alterniflora*, or the rare and local hybrid *Spartina x townsendii* (European Commission DGXI 1996).

Twelve Annex II species are recorded from 15 or fewer 10x10 km squares of the national grid in the UK and are considered to be nationally rare (Red Data Book species) (Table 1.6). For each of these species a high proportion of the total UK population is included within the SAC series (other than for two species added to Annex II in 2003, **4056 Ram’s-horn snail *Anisus vorticulus*** and **4035 Fisher’s estuarine moth *Gortyna borelii lunata***, for which selection rationale are still under consideration).

Table 1.6 Annex II species which are rare in the UK, recorded from 15 or fewer 10x10 km squares of the national grid.

EU code	Directive name	Common name
1079	<i>Limoniscus violaceus</i>	Violet click beetle
4035	<i>Gortyna borelii lunata</i>	Fisher’s estuarine moth
1014	<i>Vertigo angustior</i>	Narrow-mouthed whorl snail
1015	<i>Vertigo genesii</i>	Round-mouthed whorl snail
4056	<i>Anisus vorticulus</i>	Ram’s-horn snail
1386	<i>Buxbaumia viridis</i>	Green shield-moss
1390	* <i>Marsupella profunda</i>	Western rustwort
1421	<i>Trichomanes speciosum</i>	Killarney fern
1528	<i>Saxifraga hirculus</i>	Marsh saxifrage
1614	<i>Apium repens</i>	Creeping marshwort
1902	<i>Cypripedium calceolus</i>	Lady’s-slipper orchid
1903	<i>Liparis loeselii</i>	Fen orchid

1.5.4.3.3 Geographical range

In the case of both habitat types and species, favourable conservation status is dependent upon the maintenance of the geographical range of the habitat type or species, amongst other things. The SAC series for each habitat type and species has been selected to reflect its distribution in the UK. Habitat types and species vary considerably in their patterns of distribution. Some, such as **4030 European dry heaths**, are found in all parts of the UK and the SAC series reflects this. Others, such as **4040 Dry Atlantic coastal heaths with *Erica vagans***, are highly localised. However, there are also habitat types and species with very disjunct distributions, in that they occur in two or more parts of the UK that are widely separated. For example, **3160 Natural dystrophic lakes and ponds** are commonly associated with blanket bog in the north and west of the UK, but also occur rarely on lowland heaths in southern Britain. The sites selected reflect this disjunct distribution.

Frequently, where a very high proportion of the resource for a relatively widespread species or habitat type occurs in a given part of the UK, a high proportion of sites are selected in these centres of distribution.

1.5.4.3.4 Special UK responsibilities

The UK has special responsibility in the EU for certain habitat types and species because we hold a large proportion of the European resource. Endemic or near-endemic habitat types, such as **91C0 Caledonian forest**, **91A0 Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles**, and **1654 Early gentian *Gentianella anglica***, are obvious examples. There are others, such as **4010 Northern Atlantic wet heaths with *Erica tetralix***, **7130 Blanket bogs** and **1364 Grey seal *Halichoerus grypus***, where the UK resource is relatively large compared with that of other Member States. For these, and other habitat types and species where the UK hosts a disproportionately large part of the EU resource, the number, and sometimes the area, of UK sites selected is generally higher than for other habitat types and species, making a significant UK contribution to the maintenance of favourable conservation status in the EU. For some habitat types and species there is insufficient information upon which to make judgements about the proportion held by the UK. In these cases some adjustments to the list could be appropriate if EU-level assessment demonstrates the importance of the UK resource to be higher, or lower, than is currently known.

The proportion of the UK resource selected is, however, not a simple reflection of the proportion of the EU habitat type or species resource in the UK. The sites selected are themselves all of high quality when judged against other criteria. An objective of the site selection process has been to ensure that

selection is consistently based upon all the relevant factors for each habitat type and species. For example, **91C0 Caledonian forest** is a priority habitat, covers a small geographical area, and all the EU resource occurs in the UK, but it exhibits a relatively narrow range of variation. Taking this into account, approximately 60% of the total UK resource, and over 85% of core ancient forest, has been selected. A high proportion of the EU resource of **4030 European dry heaths** also occurs in the UK, but this is a non-priority habitat, covers a large geographical area, and exhibits a wide range of variation. The proportion of the UK resource of **4030 European dry heaths** proposed for inclusion on the national list is, therefore, less than for **91C0 Caledonian forest**, but nevertheless ensures adequate representation of the range of variation.

1.5.4.3.5 Multiple interest

Sites with multiple interests are of high intrinsic value. The Directive recognises this in its emphasis on the maintenance of biodiversity. Special emphasis has been given to the identification and delimitation of sites containing a multiplicity of high-quality interests forming an ecologically functional unit. In general, sites supporting the largest numbers of qualifying features are amongst the largest sites. Examples include upland sites (e.g. Moor House – Upper Teesdale, the Cairngorms, and Eryri/Snowdonia), and coastal sites (e.g. Morecambe Bay, and Dornoch Firth and Morrich More). This reflects the fact that the most extensive natural and semi-natural landscapes in the UK occur in upland and coastal regions. Consequently, Scotland and Wales contain the greatest SAC land area in relative terms, and individual sites are larger, on average, than those in England or Northern Ireland. Non-coastal lowland sites with large numbers of high-quality interests are much rarer, but include some outstanding examples, such as the New Forest, Dorset Heaths (Purbeck and Wareham) and Studland Dunes, and the Broads. Few sites in Europe have an ecological character similar to these areas.

A site selection process that only included multiple interest sites would have provided an inadequate representation of some habitat types and species in the UK. A number of habitat types and species, most typically those of lowland situations, are seldom found as part of habitat mosaics, as they occur most often in intensively-managed countryside, where semi-natural habitats and associated species populations are highly fragmented. They include several rare habitat types, such as **1340 Inland salt meadows**, as well as more widespread habitat types and species, such as **7110 Active raised bogs** and **1166 Great crested newt *Triturus cristatus***. Consequently, a significant proportion of sites support only one or a few features (see Figure 1.2).

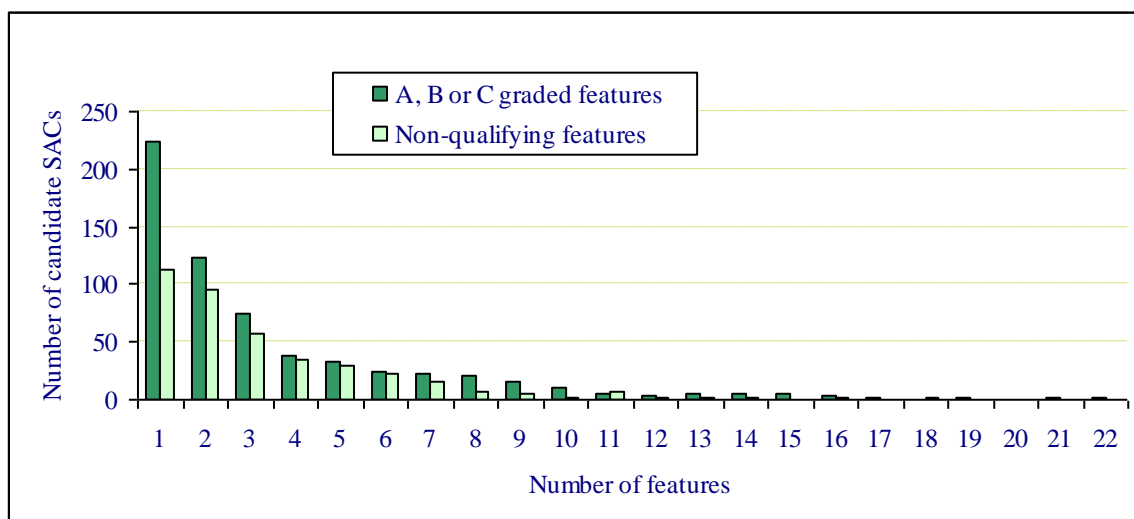


Figure 1.2 Numbers of features on SACs in the UK, August 2009

1.6 History of the UK site selection process

1.6.1 The role of Government

Until 1999, overall Governmental responsibility for implementing the Habitats Directive and approving the UK SAC list rested with DoE/DETR. Since 1999, devolution has altered the political landscape of the UK. In Scotland, Wales and Northern Ireland, implementation of the Habitats Directive (including the selection of SACs) is now a devolved matter for each of the country administrations (the [Scottish Executive](#), the [Welsh Assembly Government](#) and the [Northern Ireland Executive](#)); Defra (formerly DETR) is responsible for implementation of the Directive in England. Ultimately, relations with the European Union and obligations arising out of the Treaties remain the responsibility of the UK Government.

1.6.2 The role of the statutory conservation agencies

Advice to Government on the selection of SACs has been provided by the statutory nature conservation agencies (the [Countryside Council for Wales \(CCW\)](#), [English Nature \(EN\)](#) and [Scottish Natural Heritage \(SNH\)](#), together with the [Environment and Heritage Service \(EHS\)](#) in Northern Ireland). The work of the agencies is co-ordinated through the [Joint Nature Conservation Committee \(JNCC\)](#), ensuring that common standards for site selection are maintained throughout the UK.

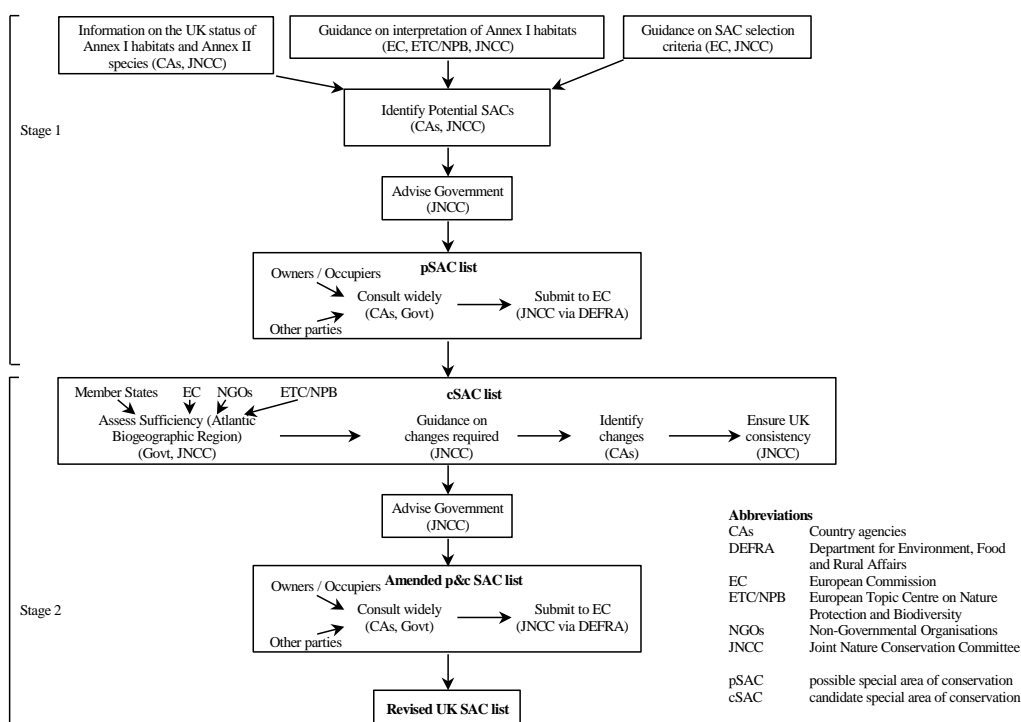


Figure 1.3 The SAC selection process in the UK (Defra 2001)

1.6.3 Selection of terrestrial and inshore marine sites

1.6.3.1 Stage 1 of the selection process

Following the adoption of the Habitats Directive in 1992, the conservation agencies began to draw up a list of potential SACs. In developing the process for selecting sites the agencies' initial planning considerations were:

- a. the timetable, principles and criteria for site selection set out in the Directive which should be followed, along with any interpretation developed by the EC Habitats Committee (established under Article 20 of the Directive);
- b. selection should be based upon current knowledge of the Annex I habitat types and Annex II species, as the timetable did not allow for large amounts of extra survey. Only where current knowledge was inadequate should selection be delayed to await the results of additional survey;
- c. there should be a consistent approach to selection, taking account of the distribution, abundance and range of variation of habitat types and species; and
- d. social and economic factors should not be taken into account¹.

In order to ensure an effective UK approach to the selection of SACs an inter-agency team of senior staff was established. This team was chaired by the Chief Officer of the JNCC and co-ordinated the interaction of the various specialists, provided quality assurance and managed various working groups involved in the process.

As a first stage of site selection seven specialist working groups were established to provide advice relating to woodlands, coastlands, marine habitats and species, freshwater habitats and species, lowland habitats, upland/peatland habitats, and terrestrial plant and animal species. These groups were commissioned to produce initial ideas on high-quality sites for each of the Annex I habitat types and Annex II species by application of the criteria listed in Section 1.5.4.

The process of site selection involved repeated internal peer review of the developing ideas and advice on high-quality sites. Changes were made to the proposals for sites to take account of the comments from internal peer review, new knowledge as it came to light or was produced from new surveys, and the comments and suggestions that arose from public consultation. A range of professional groups and statutory committees have scrutinised and critically reviewed the lists of sites in various iterations, as follows:

- a. specialist working groups drew up the initial list of sites for evaluation and quality assured subsequent changes to the list recommended by other groups;
- b. local staff of the country agencies were required to ensure that sites selected were the ones in their area of geographical responsibility that best satisfied the selection criteria, particularly in terms of representation and the conservation of habitat structure and function;
- c. the management boards or project boards of the individual agencies have taken an overview of the representation of sites in their country to ensure an evenness of response and adequate representation of each habitat and species;
- d. the governing bodies of the country agencies have approved the proposals within their particular geographical areas of responsibility;
- e. the Joint Nature Conservation Committee has formally approved the proposals prior to providing formal advice to Government;
- f. Government departments and administrations have scrutinised the site selection process and the resulting list to satisfy themselves that agencies have acted in accordance with the requirements of the Directive.

Once areas suitable for selection as SACs have been formally advised to UK Government, they are known as draft SACs (dSACs). Once formally approved by government as sites for public consultation, they are known as possible SACs (pSACs). In March 1995 the JNCC published, on behalf of the UK Government, an initial list of 280 sites that had been recommended as pSACs (JNCC 1995). Public consultation on this list of pSACs was initiated in March 1995. For each site, owners and/or occupiers were contacted by the conservation agencies and notified of the location and boundaries of the site, the reasons for its recommendation as a pSAC, and a summary of the Directive

¹ The Lappel Bank judgement ([ECJ C-44/96](#), 11 July 1996), established that selection of SPAs should be based on scientific, rather than socio-economic, criteria, and this policy has also been applied to SACs. It is currently being challenged in the European Court of Justice ([ECJ C-371/98](#)) in a case brought by First Corporate Shipping against the UK Government.

and its implications. In general, consultees were given a period of six weeks in which to respond; for marine sites the consultation period was extended to 12 weeks.

At the same time, comments were also sought from a wide range of organisations, including Government departments and agencies, local planning authorities, NGOs, and industrial and/or commercial bodies. As well as NGOs with a wide conservation remit, such as the World Wide Fund for Nature (WWF), specialist societies were also consulted. Many responses were received as a result of this consultation exercise. These were assessed by the conservation agencies, and, where appropriate, changes were made to the list of possible sites. For example, several sites were added to the UK list at this stage as a result of representations by NGOs, and in some cases, lists of qualifying features and/or site boundaries were amended on scientific grounds.

After 1995 further consultation with owner/occupiers was carried out, as amendments to the UK site list were formally advised to Government. A second major public consultation exercise commenced at the start of October 1997. Once again comments were received from a variety of organisations and considered by the conservation agencies.

Once consultation was completed satisfactorily, sites were submitted to the EC. At this stage, sites become known as candidate SACs (cSACs). For each site, a Natura 2000 standard data form was compiled from information supplied by the country agencies (following the [guidance](#) provided by the European Commission DGXI (1995)), and a digital map showing the site boundaries was produced. These data were submitted to the EC in both electronic format and hard copy. The first tranche of 136 candidate SACs was sent to the EC in June 1995. Over the next four years, eleven further tranches of sites were submitted, and by June 1999 a total list of 340 cSACs had been submitted. This completed Stage 1 of the selection process. The 340 sites were intended to represent a complete national list (with the exception of a small number of sites for which formal submission had been delayed), and were considered to represent a proper interpretation of the Directive's requirements. The rationale behind the selection of sites at this time was explained by Brown *et al.* (1997) and Hopkins (1995).

1.6.3.2 Stage 2 of the selection process

Within the Atlantic Biogeographical Region Stage 2 of the SAC selection process ('moderation') was initiated at meetings held in Kilkee and Paris in autumn 1999.

While the site lists from all Member States considered at the meetings were found to be insufficient in some respects, the UK list of 340 cSACs was judged to provide insufficient representation of a relatively large number of features (37 habitats and 28 species). There was general agreement that the UK had approached the selection of SACs in a logical and scientifically robust manner, and had succeeded in identifying the best sites for each interest feature. However, three key issues were raised in relation to the UK site list:

- a. The proposed sites were judged to provide inadequate coverage of the geographical range or ecological variation shown by some habitats and species.
- b. For some interest features the proportion of the total national resource contained within the SAC series was considered to be too low.
- c. The UK had only listed selected habitats and species (i.e. those considered to be of outstanding European importance) as SAC interest features. The EC requires every significant occurrence of an Annex I habitat or Annex II species on each site to be treated as a qualifying interest feature.

In response to the conclusions of the Paris and Kilkee meetings, the UK Government asked the statutory conservation agencies to undertake a thorough review of the list of candidate SACs. This process was started in October 1999. This work involved listing additional interest features on existing sites, and identifying new sites.

During the moderation process, attention focused on enhancing the site lists for those features which were judged to be insufficiently represented in the UK list. The majority of new sites were therefore selected primarily for these under-represented interest features. In a few cases, new sites were also proposed for habitats and species which were not found to be insufficient but where additional high-

quality examples were identified. High priority was given to finding sites which would fill geographical gaps in coverage. However, in a small number of cases no sites have been proposed in certain parts of the UK, either because there are no examples of sufficient size and/or quality, or because available survey data are not sufficient to allow suitable sites to be identified.

Effort was directed towards increasing the proportional representation of those interest features for which less than 20% of the national resource had been represented in the SAC series. Where appropriate, the assessment criteria previously applied were adjusted, for example to take account of the requirement to list every Annex I and Annex II feature on each site. Where necessary, existing site boundaries were amended to increase the representation of the principal features.

Provisional site lists were sent to JNCC in January 2000. JNCC then carried out a UK assessment of the proposals to check that a) a consistent approach towards site selection had been adopted across the UK, and b) the revised lists satisfactorily addressed the issues raised at the Kilkee and Paris meetings. This stage of the work relied heavily on input from inter-agency specialist working groups. Following discussion and resolution of any outstanding issues final amendments were made to the UK site list, and this was formally advised to DETR and devolved administrations in April 2000. Various minor amendments were made subsequently to the site list as additional information became available (e.g. addition/deletion of interest features and changes to site boundaries). Since October 2000, sites have been submitted or re-submitted to the EC in a series of tranches following consultation with site owner/occupiers and other interested parties.

Although the UK site selection process for the terrestrial environment and inshore marine waters is now largely complete, the consultation process has yet to be completed satisfactorily for a few new or amended sites, which have not been submitted to the EC. Some additions and changes to the national list of sites may arise as a result of further scientific work and public consultation. Any such changes are unlikely to significantly alter the fundamental composition of the SAC series.

The changes made to the UK site list during moderation are summarised in Table 1.7, which shows the number and area of sites in the cSAC series, and the number of qualifying features represented.

Table 1.7 Comparison of pre-moderation site list (June 1999) and latest site list (August 2008)

	England	England & Scotland	England & Wales	Northern Ireland	Scotland	Wales	UK Offshore	UK Total
Number of sites, June 1999	141	3	4	21	131	40	0	340
Number of sites, August 2008	231	3	7	54	236	85	5	616
Total site area, June 1999 (ha)	540,514	111,599	3,605	47,136	686,553	376,548	0	1,765,955
Total site area, August 2008 (ha) ¹	846,231	112,478	95,072	66,614	921,225	590,871	268,409	2,900,901
Number of interest features, June 1999	324	10	16	26	259	89	0	724
Number of interest features, August 2008 ²	766	21	48	157	864	357	5	2,218

¹ All area figures are rounded down to the nearest whole hectare.

² Refers only to European qualifying features (i.e. features with a global grade of A, B or C)

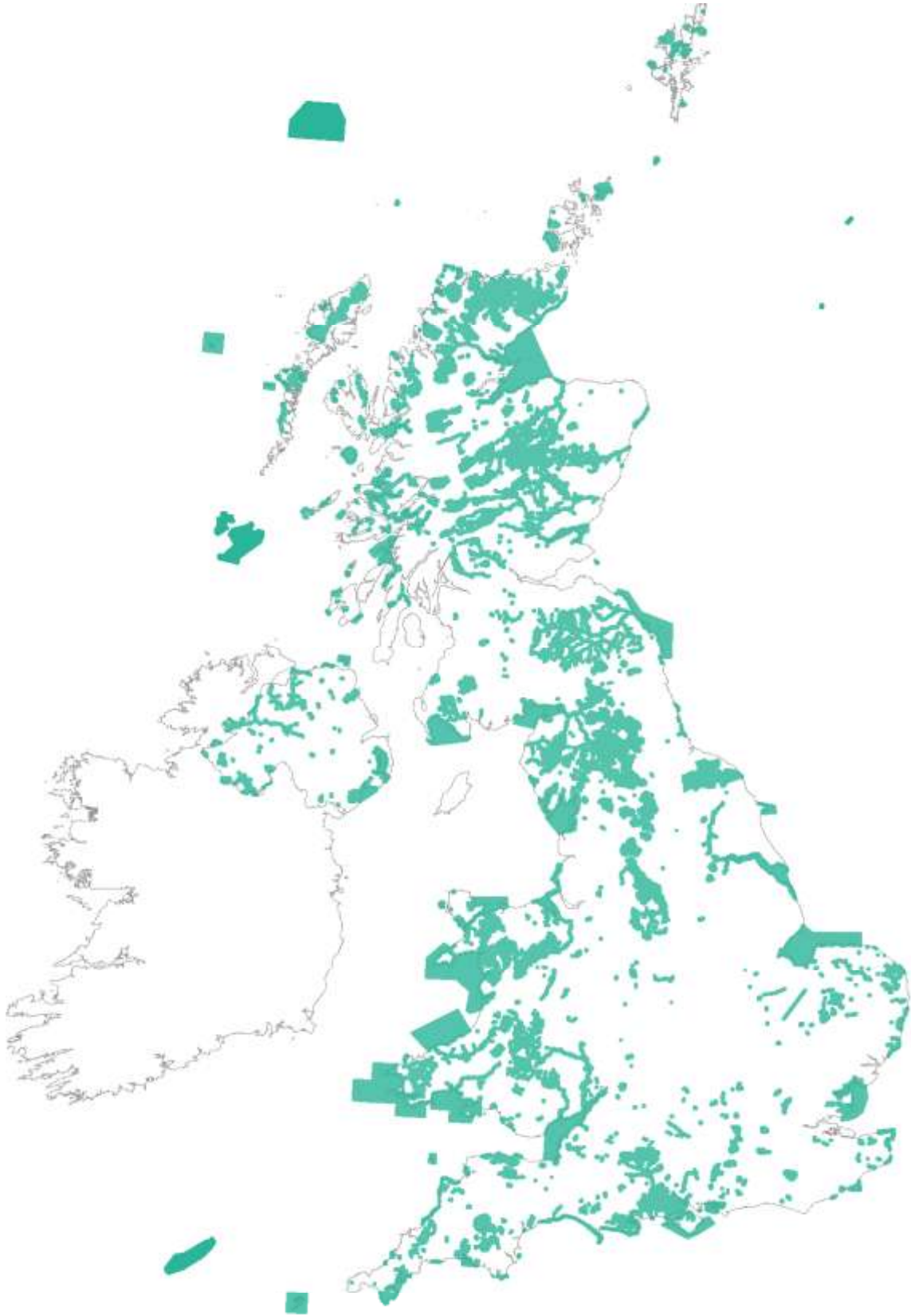


Figure 1.4 Distribution of SACs, SCIs and cSACs in the UK. As at August 2009

1.6.4 Selection of offshore sites

The [Habitats Regulations](#) apply to the UK land area and its territorial sea (out to 12 nautical miles from low-water mark) (see [Section 1.1.3.1](#)). Until May 2001 there was no legislation in the UK implementing the Habitats Directive in the offshore area, from 12-200 nm. Consequently, no sites have yet been designated in the UK offshore area. [The Offshore Petroleum Activities \(Conservation of Habitats\) Regulations 2001](#), covering oil and gas developments, were introduced in May 2001, and new and/or amended Habitats Regulations are shortly to be introduced to provide a mechanism for the designation of offshore SACs and SPAs.

In November 1999, the UK High Court found in favour of Greenpeace in its case against the UK Government regarding implementation of the Habitats Directive offshore ([CO/1336/99](#)). The court found that “the Habitats Directive applies to the UK continental shelf and to the superadjacent [*sic*] waters up to a limit of 200 nautical miles from the baseline from which the territorial sea is measured”. Prior to this judgement, the UK Government view was that the Habitats Directive did not apply outside UK territorial waters (12 nm from the coast). The UK Government is now implementing the Directive in the UK offshore area (from 12-200 nm) (Figure 1.5). The JNCC was asked in 2000 by the UK government to provide information to enable identification of offshore SACs ([Johnston *et al.* 2002](#)). Since 2002, JNCC has been investigating [selection of offshore SACs](#) (and SPAs) in the seas beyond territorial waters on behalf of Defra, following a similar process to that undertaken for terrestrial and inshore SACs (and SPAs).

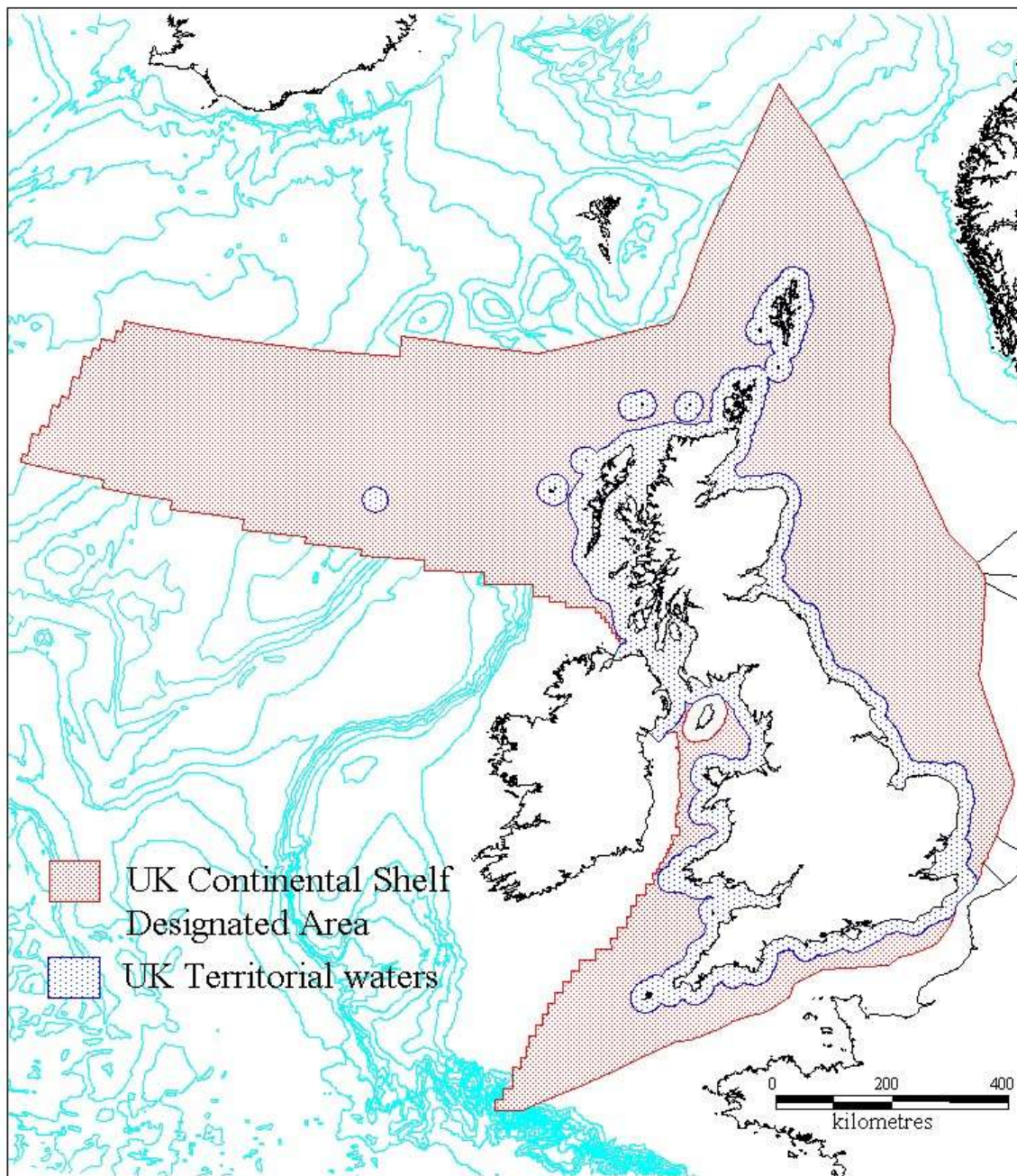


Figure 1.5 Likely maximum extent of UK offshore area. Based on UK Continental Shelf designations, and including UK limit of territorial waters (12 nm). (Note that the area is not coincident with the 200-mile fisheries limit.) The total extent of UK waters (UKCS designated area and territorial waters) is approximately 867,400 km², of which 161,200 km² is territorial waters (including around Rockall) and the offshore area 706,200 km². These figures exclude the territorial waters of the Isle of Man and the Channel Isles.

World Vector Shoreline copyright US Defense Mapping Agency
Bathymetry copyright GEBCO Digital Atlas, British Oceanographic Data Centre on behalf of IOC and IHO 1994 & 1997.
UK Continental Shelf designations courtesy Department of Trade and Industry via DEAL website www.ukdeal.co.uk.

1.6.5 UK SACs and the Natura 2000 network

1.6.5.1 Overview of the UK SAC series

Summary data on the UK SAC series are given in Table 1.8. Figure 1.4 shows the distribution of SACs in the UK.

Table 1.8 Area of SACs (including, for the purposes of this table, SACs, SCIs and cSACs) in each part of the UK, and actual and percentage land area within the SAC series, with a comparison for SPAs, and the total area of Natura 2000 sites in the UK (August 2009)

	England	England & Scotland	England & Wales	Northern Ireland	Scotland	Wales	UK Offshore	UK Total
Total national land area (km ²) (incl. inland water) ¹	130,410	n/a	n/a	14,144	78,789	20,758	n/a	244,101
Total area of UK territorial waters (km ²) ²	-	n/a	n/a	-	-	-	-	161,200
Number of SACs	231	3	7	54	236	85	5	621
Total SAC area (km ²) ³	8,462	1,125	951	666	9,212	5,909	2,684	29,009
SAC land area (km ²) ⁴	7,367	482	542	562	6,257	1,446	0	16,655
% SAC cover of total land area	5.65%	-	-	3.97%	7.94%	6.97%	n/a	6.82%
Total area of SACs in territorial waters (km ²) ⁵	1,096	643	408	104	2,956	4,463	2,684	12,354
% SAC cover of UK territorial waters	-	-	-	-	-	-	-	7.66%
Number of SPAs	78	1	2	14	145	17	0	257
Total SPA area (km ²) (classified/designated SPAs only)	6,714	436	377	1,082	6,274	1,230	0	16,114
Total area contained within Natura 2000 sites (km ²) ⁶	-	-	-	-	-	-	-	34,006
Total land area contained within Natura 2000 sites (km ²)	-	-	-	-	-	-	-	23,286
Total % Natura 2000 land cover	-	-	-	-	-	-	-	9.54%

Sites are distributed throughout the UK (see Figure 1.4). Concentrations of sites in certain parts of the UK (e.g. Scottish Highlands, north-west England, north Wales) reflect the presence of more extensive areas of semi-natural habitat and associated species in these regions. Individual sites vary considerably in size. The most extensive localities (e.g. The Wash and North Norfolk Coast, Caithness and Sutherland Peatlands) exceed 100,000 ha, while the smallest are less than one hectare.

¹ Source: *Whitaker's almanac*

² Source: JNCC Offshore Natura 2000 Project.

³ All area figures are rounded down to the nearest whole km².

⁴ This is calculated as the total SAC area, less the area classed by the country agencies on the Natura data forms as being in the NUTS Marine region, rather than any other administrative area. However, some inshore waters, particularly within estuaries, are not always classed as Marine on the forms. Consequently the land area within the SAC series is overestimated to some extent.

⁵ This is the SAC area classed by the country agencies on the Natura data forms as being in the NUTS Marine region. However, some coastal waters, particularly within estuaries, are not always classed as Marine on the forms. Consequently the marine area within the SAC series is underestimated to some extent.

⁶ SACs and SPAs in some cases overlap or coincide; this figure gives the area of the combined Natura site series without double-counting such 'double-badged' sites. This can be calculated only for designated SACs, SCIs and submitted candidate SACs and classified SPAs, by using GIS intersection.

There is considerable variation in the number of sites selected for each Annex I habitat and Annex II species. For very rare features with a restricted distribution (e.g. **1903 Fen orchid *Liparis loeselii***, **6520 Mountain hay meadows**, and **4020 Temperate Atlantic wet heaths with *Erica ciliaris* and *Erica tetralix***), the selection of only a small number of localities has been sufficient to include a high proportion of the total UK resource within the SAC series. For habitats and species with a wider distribution in the UK, a larger number of sites have been selected to ensure adequate representation in terms of geographical coverage, ecological variation and the proportion of the national resource within the site network. The number of sites selected has also generally been greater for priority features (e.g. **7110 Active raised bogs**), those for which the UK has particular responsibilities (e.g. **7130 Blanket bogs**), and habitats which show a wide range of ecological variation (e.g. **4030 European dry heaths**).

1.6.5.2 Favourable conservation status – the relationship between SACs and the wider environment

For Annex I habitats and Annex II species with a very restricted distribution, all or almost all examples are included within the SAC series, and site-based measures (as described in Article 6 of the Directive) are therefore likely to be sufficient to achieve favourable conservation status. However, most habitats and species are more widely distributed, and only a proportion of the total national and Community resource will be protected within SACs. Examples of such habitats and species in the UK include **4030 European dry heaths**, **1166 Great crested newt *Triturus cristatus*** and **1355 Otter *Lutra lutra***. For these interest features, maintaining or achieving favourable conservation status will require a complementary mix of site-based conservation measures and actions to be taken outside the SAC network.

The importance of wildlife conservation outside designated sites is recognised in the Directive, e.g. in the measures required to protect species listed on Annexes IV and V (Articles 12-16). Article 10 acknowledges that the series of Natura 2000 sites should function as an ecologically coherent network, and stresses the importance of managing landscape features, such as river banks, hedgerows and ponds, to facilitate species migration and dispersal, and generally to provide an ecological infrastructure which supports the protected sites network. In March 2002, the European Commission's Environment Committee reaffirmed the role of protection of species protected under the Birds and Habitats Directives outside of Nature 2000 sites in biodiversity conservation.

Complementary site-based and wider environment measures are fundamental to the successful implementation of the [UK Biodiversity Action Plan](#) (UK BAP), and are likely to become increasingly important if the predicted impacts of climate change are realised. Mechanisms for protecting and enhancing Annex I habitats and Annex II species across the UK include national [Habitat and Species Action Plans](#), [local biodiversity action plans](#), [agri-environment schemes](#), river basin management plans developed under [Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy](#) (the 'Water Framework Directive'), forestry practice guidance, and planning policies.

In order to report on the conservation status of Annex I habitats and Annex II species (as required by Article 17 of the Directive) it will be necessary to develop monitoring and surveillance schemes. On SACs, this will be achieved through the Common Standards Monitoring programme ([JNCC 1998](#)). In the wider environment, some Annex II species are already monitored effectively, but suitable surveillance schemes for other species (e.g. most fish species) have yet to be developed. Work is ongoing to develop surveillance strategies for Annex I habitats; this is likely to be linked to the reporting requirements of priority habitats under the UK BAP. The [Marine monitoring handbook](#) (Davies *et al.* 2001) addresses the principles behind, and the procedures for, monitoring Annex I habitats, and selected Annex II species, within marine SACs in British waters to assess their condition in accordance with the relevant requirements of the Directive and the UK's common standards for site monitoring.

1.7 Explanation of the accounts

The accounts for each Annex I and Annex II feature are headed with the codes and names for the habitat types, and species names, adopted by [Council Directive 97/62/EC Adapting to technical and scientific progress Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora](#). The codes for species are those adopted in Appendix C of the guidance to the [Standard Data Form](#) for Natura 2000 sites (European Commission DGXI 1995). Annex I priority habitat types and the single Annex II priority species known to currently occur in the UK are preceded in the headings by an asterisk (*).

Names of Annex I and Annex II features are highlighted in the text in **bold** where appropriate; the codes are also given when referring to a feature in a different account.

1 Background to selection

Description and ecological characteristics

- For Annex I habitats: typical species composition, structural characteristics, main lines of variation, associated rare species.
- For Annex II species: brief description, including any critical stages in life cycle, genetic variation, etc.
- Important biotic and abiotic factors, e.g. geology, climate, landscape setting, etc.

European status and distribution

A summary of the distribution, abundance and status of the feature in Europe, particularly EU member states, including any trends in distribution and abundance.

UK status and distribution

A summary of the distribution, abundance and status of the feature in the UK, including any trends in distribution and abundance. Features for which the UK has particular responsibilities are indicated.

Site selection rationale

- Rationale for selection of the UK SAC series for each interest feature, in relation to the factors described above.
- Data on proportion of UK resource contained within the SAC series.

2 Site accounts

Site accounts are provided for features of international importance which are primary reasons for the selection of a site as a SAC. Features of such outstanding quality are graded A or B when SACs are submitted to the EC.

Site name

Local authority (County/unitary/island council)

Brief account of the feature at the site. The local authorities listed are those that have a major role in planning and development control, as identified on the SAC consultation documents (the 'Reasons for Recommendation') at the time of submission as a candidate SAC – district councils are not listed.

3 SACs where this Annex I/Annex II feature is a qualifying feature, but not a primary reason for site selection

Features that are of national importance (generally of at least SSSI quality on terrestrial sites) but which occur on sites primarily selected for other (A or B grade) features are listed, but are not given site accounts for reasons of space. These 'secondary' features are graded C when cSACs are submitted to the EC. As with the primary features, they are European features, and therefore have conservation objectives

and are protected under the Habitats Regulations.

Features of below SSSI quality are not listed. These are listed as non-qualifying features (“non-significant presence”) when cSACs are submitted to the EC. They are not classed as European features, and therefore do not require conservation objectives and are not protected under the Habitats Regulations. However, in many cases they are still protected under UK legislation unrelated to the Habitats Directive.