

NATURA 2000

Completing the EU's network of sites TO CONSERVE FLORA AND FAUNA

BY DOUG EVANS

The selection of sites for what is perhaps the most ambitious network for biodiversity conservation in the world is coming to an end. For the last ten years, 15 member countries of the European Union have been working intensively to build Natura 2000 – and the ten newcomers who joined the EU on 1 January 2004 are catching up fast.

▼ ***Tulipa cypria*, found only on Cyprus, is one of many localized endemic plants protected by the Habitats Directive, in this case through Annexes II and IV.**

This final approval is the end of a long process whereby countries propose sites for the network. The European Commission, with the help of the European Topic Centre on Biological Diversity (ETC-BD), then assesses those sites, holding seminars to sort out any issues of concern. The selection process ends when the European Union finally adopts (and publishes) the list of approved sites as Sites of Community Importance. It is doing this for each (of seven) biogeographic regions. Once the list is adopted, countries have to designate the sites as Special Areas of Conservation.

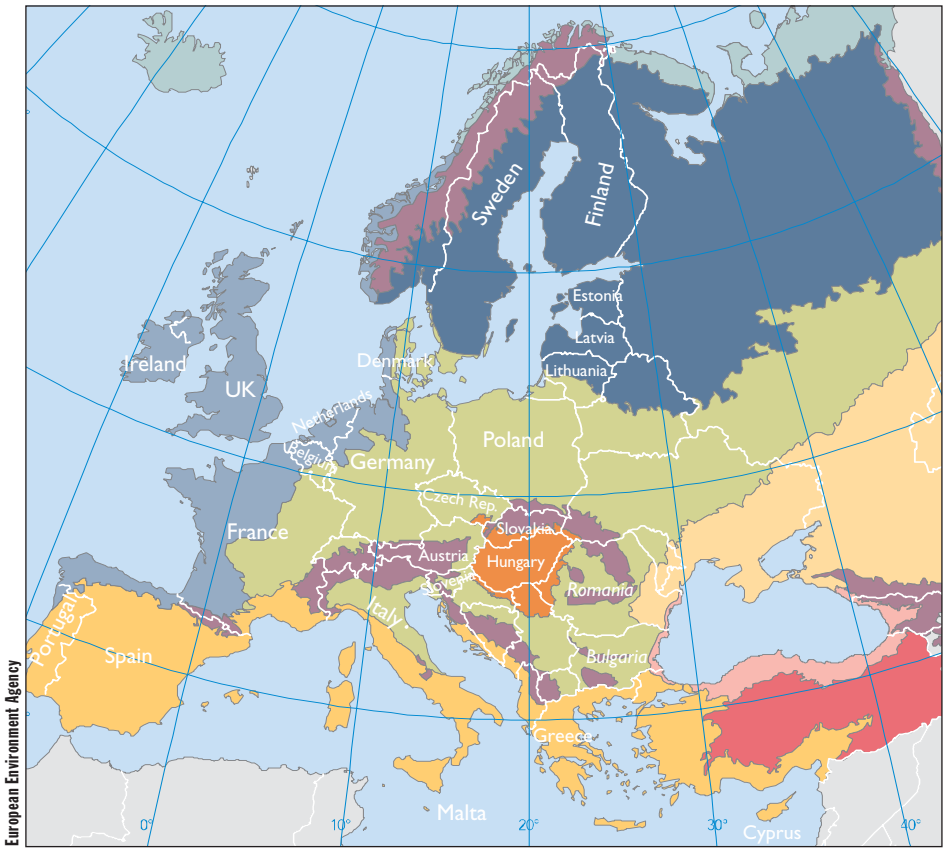
In 2001 the EU was able to adopt the first list of approved sites – for Macaronesia (Azores, Madeira and Canaries). The list for the Alpine region followed in December 2003, those for Atlantic and Continental regions in December 2004, and that for the Boreal region in January 2005. The list for the plant-rich Mediterranean region is expected soon. However, these lists are not the final word: countries can add more sites and in some cases have been asked to do so.

The network is massive. So far it includes more than 20,000 sites, covering over 600,000 km^2. It extends from the Mediterranean to the Arctic, from the Azores in the west to the great Hungarian Plain in the east, and from the ocean depths of the Atlantic to the highest summits of the Alps. With some 11.6% of the EU's land surface, the Natura 2000 network is possibly the Earth's largest network of sites to conserve biodiversity –

What is an EU Directive?

A directive is a framework law of the European Union and is written in the style of an international treaty. Once a directive is approved the member states, who of course played a key role in developing and approving the directive in the first place, have to implement it to a specified timetable, usually after transposing it into their national laws.

After approval the European Commission is responsible for ensuring implementation. The Commission has both carrot and stick to help it: in cases of non-compliance it can take a member state to the European Court of Justice, the highest legal power for EU countries; on the other hand it often has generous grants to offer countries to assist implementation – in the case of the Habitats Directive, the LIFE Nature fund with at its peak some €160 million a year.



European Environment Agency

▲ The Directive protects a wide range of habitats: natural rivers, *dehesa* with cork oak, bog woodland, alpine meadows, Atlantic oak woods and peat bog.

◀ Biogeographic regions of the European Union and its neighbours

Legend

Biogeographic region

- Arctic region
- Boreal region
- Atlantic region
- Continental
- Alpine (Alps, Pyrenees, Carpathians, Dinaric Alps, Balkans and Rhodopes, Scandes, Urals and Caucasia)
- Pannonian
- Mediterranean
- Macaronesian (not shown) (Includes Azores, Madeira, Canaries islands)
- Steppic
- Black Sea
- Anatolian

Names of present EU member states in white
(Countries negotiating to join in white italic)

for comparison the US National Parks cover some 200,000 km^2.

This network is built on two types of site, Special Protection Areas (SPAs) for wild birds, designated under the EU's 1979 Wild Birds Directive, and Special Areas of Conservation (SACs), under the 1992 Directive on the conservation of natural habitats and of wild fauna and flora, usually known as the Habitats Directive. This article concentrates on the SACs and in particular their contribution to plant conservation.

As so often, bird conservation led the way, with the 1979 Wild Birds Directive. This preceded a clear environmental mandate for the EU* but with migratory species like birds it was clear that coordinated action between countries was required. In the same year member states of the Council of Europe, a wider and older grouping than the EU, agreed the Bern Convention on the Conservation of European Wildlife and Natural Habitats; this included lists of plants and animals requiring special protection. As the EU evolved, its member states gave it the legal competence to act on environmental issues, especially in the 1987 modifications to the Treaty of Rome; during the 1980s discussions began on a further directive to protect species other than birds and to implement the Bern Convention at the EU scale. NGOs across Europe mounted a formidable lobbying programme to support officials such as Claus Stuffmann in the European Commission and allies in the European Parliament in favour of a strong directive.

It would have been possible to have

* For convenience I have used European Union (EU) throughout, even when referring to its predecessors, the European Economic Community and the European Community.

Photographs by Natural Image/Bob Gibbons unless otherwise mentioned

▼ Trailing Azalea (*Loiseleuria procumbens*), a species typical of alpine and boreal heath, one of the habitats listed on Annex I of the Habitats Directive.

▲ **The Rouen Violet (*Viola hispida*), a threatened endemic of chalk slopes in the lower Seine valley of N. France, is listed on Annexes II and IV.**

written a very short directive more or less saying "We implement the Bern Convention" but it was argued that lessons had been learnt since Bern and that the EU could go further. In the end a directive emerged that included both general protection measures for a list of species similar to Bern but also lists of threatened habitats and species requiring protected areas, now known as Special Areas of Conservation (SAC). Later the Bern Convention also agreed to have protected areas, leading to the voluntary Emerald network, and the Natura 2000 sites can be viewed as the EU contribution to the Emerald Network. One major difference between the Bern Convention and the Habitats Directive is that the second imposes legal obligations that can be enforced by both national and European courts.

Listing habitats as well as species

The Habitats Directive includes lists of the following:

- 225 habitats for which SACs are required (Annex I);
- 869 threatened species for which SACs are also required, including 572 plants (Annex II);
- Species requiring special protection measures (Annex IV);
- Species of conservation concern but regulated exploitation allowed (Annex V).

The idea of listing habitats (or more correctly habitat types) requiring SACs was very new at the time but has since been followed by some marine conventions. It has proved to have strong advantages: each habitat inevitably covers a whole suite of species, many of them restricted in range and including many non-vascular plants and fungi that might never be eligible for listing as individual species. And listing both habitat types and species in need of conservation action creates a broad net that has driven the selection process for Natura 2000 sites. Although each SAC is chosen for one or more of the listed habitats and/or species, virtually all contain many other species and features that will benefit from the conservation action taken.

Under the Birds Directive, progress in establishing the network of SPAs had been slow and had varied greatly from one country to another. To avoid this problem the Habitats Directive included both a timetable and a process for assessing proposals for sites from the member states. Assessments are made in the context of biogeographical regions to ensure that the proposals appear sufficient to ensure the maintenance of each listed habitat or species at Favourable Conservation Status.

These meetings involve the member states, the European Commission and NGOs representing conservation interests and land users, supported by the European Topic Centre on Biological Diversity (ETC-BD)** and invited experts. Where the meeting decides insufficient sites have been proposed for a

Table 1
Number of sites and area proposed by each member state

Country	Area of country (km^2)	Number of sites	Area of sites (km^2)	Terrestrial sites (km^2)	% of land protected
Austria	83,859	164	8,884	8,884	10.6
Belgium	30,528	278	3,221	3,040	10.0
Cyprus	9, 250	26	510	459	5.0
Czech Republic	78,866	864	7,244	7,244	9.2
Denmark	43,093	254	11,136	3,177	7.4
Estonia	45,226	509	10,591	7,172	15.9
Finland	338,145	1,660	47,932	42,791	12.7
France	549,192	1,219	42,201	37,295	6.8
Germany	357,031	3,535	32,146	24,956	7.0
Greece	131,940	239	27,641	21,643	16.4
Hungary	93,030	467	13,025	13,025	14.0
Ireland	70,280	413	10,561	7,175	10.2
Italy	301,333	2,256	43,978	41,751	13.9
Latvia	64,589	331	7,651	7,095	11.0
Lithuania	65,200	276	1,409	1,389	2.1
Luxembourg	2,597	47	383	383	14.7
Malta	316	23	39	39	12.3
Netherlands	41,526	141	7,508	3,955	9.5
Poland	312,685	184	11,715	11,715	3.7
Portugal	91,990	94	16,503	16,012	17.4
Sweden	414,864	3,903	62,356	56,523	13.6
Slovakia	48,845	382	5,739	5,739	11.7
Slovenia	20,273	259	6,360	6,359	31.4
Spain	504,782	1,382	119,122	113,931	22.6
United Kingdom	244,820	608	25,044	15,973	6.5
Total	**3,944,260**	**19,514**	**522,899**	**457,725**	**11.6**

** The European Topic Centre on Biological Diversity is the successor to the ETC – Nature Protection & Biodiversity (2000–2004) and the ETC – Nature Conservation (1995–1999). The ETC-BD, which is part of the European Environment Agency, provides scientific and technical support to the European Commission for the implementation of the two nature directives.

NATURA 2000

Completing the EU's network of sites
TO CONSERVE FLORA AND FAUNA

given species or habitat, the European Commission asks the country concerned to propose additional sites. As a second stage the ETC-BD check that all proposed sites contains Annex I habitats or Annex II species. After the assesment is complete the European Commission publishes lists of the agreed sites for each biogeographical region; at this stage the sites are known as Sites of Community Importance (SCI). The member states then formally designate the sites as SACs.

The biogeographical regions (p.23) are based on maps of potential natural vegetation but have been simplified and adjusted for administrative convenience. For example the original map treated some 100 ha of the Netherlands as Continental with the rest of the country as Atlantic, but was adjusted so that the Netherlands was entirely in one region. The division into regions is mostly to help with assessment and reporting, and habitats typical of one region are often found in another. For example alpine heaths and grasslands often occur on high ground outside the Alpine region and such sites often have particular value.

A key part of the process has been seminars, at least two of which have been held for each biogeographical region, plus a large number of meetings between individual member states and the European Commission and the ETC-BD to deal with issues identified. The seminars tried to assess whether the number and distribution of sites proposed was sufficient to ensure Favourable Conservation Status of the habitats and species listed on Annexes I and II. This is a very difficult judgement for a number of reasons. Firstly there is still debate on what Favourable Conservation Status actually means, then there are gaps in our knowledge both of the long-term requirements of the habitats and species and very often of their present distribution.

This lack of information has led to much new survey work and has improved our knowledge of many species and habitats. For example recent surveys in France have increased the number of known sites of the moss *Dicranum viride* from a handful of sites to more than 60. Other projects, often funded by EU-LIFE (L'instrument financier pour l'environnement), have increased our understanding of habitat and species requirements, particularly for management and for restoration. Typical would be the Restoration of Atlantic Oakwoods project in the United Kingdom, which undertook restoration work on seven large sites covering some 4900 ha of woodland, together with research into future management needs. Another good example is

Some Facts and Figures

Largest site
Vindelfjällen in northern Sweden is 5500 km^2.

Smallest site
Several sites are listed as 0 ha; some may be errors, others are the entrances to extensive cave systems.

Smallest species on Annex II
Three species of *Vertigo* (molluscs) are just a few millimetres in diameter. Among the plants are 29 bryophytes, including species such as the liverwort *Riccia breidleri* which is 2–3 mm 'tall'.

Largest species on Annex II
Abies nebrodensis, a rare fir endemic to Sicily which grows to 10–15 m tall, is probably the largest species (see PLANT TALK 24, pp. 26–30). The largest animal is Brown Bear (*Ursus arctos*).

▼ 'Queen of the Alps' (*Eryngium alpinum*), listed on Annexes II and IV and restricted to the Alps and neighbouring mountains, is threatened both by collection and habitat changes. In the Parc National des Écrins, France, a LIFE-funded habitat restoration project is helping to protect this species.

Doug Evans

Natural Image/Peter Wilson

▲ A striking lizard orchid from SE Europe, *Himantoglossum caprinum*, was added to the Annexes in 2004.

the work in Valencia, Spain, first to create a network of plant micro-reserves, many for species on Annex II (see PLANT TALK 14, pp. 20–23, 33) and later as a set of model projects to restore examples of the habitats on Annex I.

Information on habitat distribution and extent has caused many problems, in part now resolved by survey work leading to atlases of habitats such as those published by Austria and Spain. Other projects such as SynBioSys (**www.synbiosys.alterra.nl/eu/**), which aims to exploit the huge quantity of data gathered as phytosociological relevées, and BioHab (**www.biohab.alterra.nl**), which is developing mapping systems, are underway but are too late to help with site selection. However they may be important inputs into future monitoring and reporting. Information gathered as a result of Natura 2000, including the site descriptions included in the site proposals, has given a database of species and habitat distribution and quality across the EU which has started to be exploited for other uses, such as the development of biodiversity indicators by the European Environment Agency.

The habitats listed in Annex I are varied, and range from well-defined plant communities usually occurring as fairly small stands (such as 'Alpine pioneer formations of *Caricion bicoloris-atrofuscae*' – base-rich flushes at high altitude with many rare arctic-alpine plants such as *Carex microglochin*) to landscape units such as *machair* (dune landscapes unique to the west coasts of Ireland and Scotland). Many of the habitats (maybe a third according to one estimate) are 'semi-natural' and are the product of a long interaction between people and the environment. Typical examples include the hay meadows, *dehesas* and other wood pastures, and many of the heaths which form cultural landscapes. These habitats (along with many of the species they host) are dependent on continued, but appropriate, management.

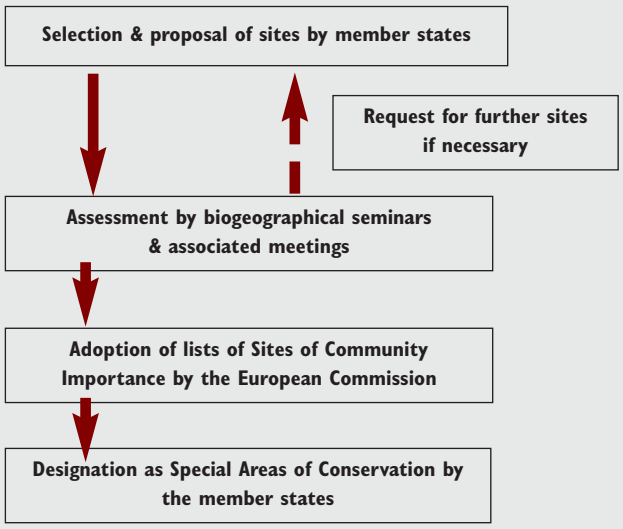
The selection of habitats was based on a classification of habitat types produced as part of the EU CORINE biotopes project during the 1980s; this drew heavily on phytosociological classifications in use in Europe, particularly in central Europe. However the selection (which was a compromise after long discussions) has led to many problems of interpretation, partly resolved by the production of the *Interpretation Manual of European Union Habitats* (recently revised and updated for the 'EU25', available from DG environment's website, see box). Problems remain, often due to the overlapping nature of some habitats; for example the aquatic habitat 'Oligotrophic waters containing very few minerals of sandy plains (*Littorelletalia uniflorarae*)' is actually a subset of habitat type 'Oligotrophic to mesotrophic standing waters with vegetation of the *Littorelletea uniflorae* and/or of the *Isoeto-Nanojuncetea*'. This example shows the complexity involved!

Each annex was the result of long negotiations between the European Commission and the member states, with much lobbying from NGOs. Governments argued the annexes should be short, that it would be better to tackle few species relatively well than have a long list protected only on paper. Moreover, the annexes have been increased each time the EU has grown, both in 1997 (following Austria, Finland and Sweden) and in 2004 (when ten countries joined). They will be extended again when future countries join – Bulgaria and Romania are likely to join in 2007 and revisions have already been prepared. The thinking among those responsible for the directive has been to get the existing network up and running successfully first, and only then to think about adding to the species annex and revising and possibly simplifying the list of habitats.

Nevertheless, the list of plant species on Annex II, although large, still misses many threatened species – one estimate at the time the directive was agreed was that some 1000 plant species from the then EU of 12 countries qualified for inclusion. And recent work by the University of Brest has shown that many rare and threatened plants are neither covered by the Habitats Directive nor by the Bern Convention – including many species linked to farming practices, such as the cornfield weeds *Bromus pseudosecalinus* and *Fumaria caroliniana*.

Botanists have sometimes criticized the Habitats Directive for being more focused on fauna than flora. It is true that more animal species are listed in the annexes for mainland Europe (though they include 123 plants endemic to Macaronesia). However most of the habitats are defined by their assemblage of plants and so the plants are protected in the SACs as an essential part of the habitat. When agreeing the new additions to the annexes following the ten more countries joining the EU, there was a strong tendency to favour adding a few new habitats rather than many new species. For example Cyprus originally proposed many species endemic to serpentine grasslands in the Troödos Mountains but later proposed the habitat 'Serpentinophilous grassland of Cyprus'. In some cases species were accepted where they are already protected by their habitat, partic-

From site selection to designation



NATURA 2000

Completing the EU's network of sites
TO CONSERVE FLORA AND FAUNA

ularly for flagship species such as *Moehringia villosa*, which is endemic to limestone cliffs in the Alps of Slovenia.

A strong force for conservation

As with all EU directives, the Habitats Directive gives targets and general principles but the detailed implementation is left to the member states (or regional governments in some federal countries such as Austria). This leads to different strategies for site selection, particularly in how to draw site boundaries, and management. Some countries, such as the UK, have drawn the site boundaries closely around the scientific interests and intend to use planning controls to protect sites from damaging activities nearby. Other countries have tended to propose large sites which often include buffer zones. Small sites with tightly drawn boundaries are especially common in intensively farmed landscapes such as southern England or northern Germany, while large sites are more characteristic of the far north, the mountains and southern Europe.

During the negotiations leading to the directive, several countries especially in northern Europe thought that their existing networks of protected areas would probably be sufficient to fulfil their obligations. However, in most cases, they have had to designate further sites to create the network after the selection process has revealed gaps in national networks. For instance the UK's series of Sites of Special Scientific Interest (SSSIs) has formed the backbone of its SACs, but rivers were poorly represented and several more have had to be added.

Conservationists are heartened by the strong legal protection accorded to SACs. Member states have to ensure Favourable Conservation Status for the listed species and habitats. Damaging works can only be carried out "for imperative reasons of overriding public interest". For the c. 30% of habitats and species on Annexes I and II that are marked as 'priorities', such grounds can only effectively be those of "human health or public safety".

Not surprisingly these strong provisions have led to political problems. Often these arise from a misunderstanding of the directive or a fear of the unknown. Others arise from a perceived conflict of interests between conservationists and landowners or land-users – sometimes ending up in court. For example in northern England there is an ongoing dispute over raised bogs; the authorities wish to propose an SAC but the owners want to continue exploiting peat. There have also been conflicts between different ministries in government, for example between ministries of environment and agriculture.

Some problems arise from the mistaken belief that SACs will be strict nature reserves with all activity and future development banned. Although some sites may be managed as nature reserves (most of which were already nature reserves), the directive simply asks for the establishment of appropriate measures (where required) to prevent deterioration of the listed habitats and disturbance of the listed species together with the avoidance of developments likely to have a significant negative impact. In fact about a third of the listed habitats, such as hay meadows and heathlands, depend on continued management to survive. Others can support exploitation or development as long as it is sustainable. For example, many woodland habitats can still be logged or otherwise exploited.

Within the EU15 the network is nearly complete, and all of the ten new member states have proposed sites. The Commission will assess their proposals in 2005 and 2006; lists for these countries should be ready fairly soon as they have all learnt from the experience of the 15 and appear to have made substantial proposals.

Once the network is established the focus will move from site selection and designation towards site management, monitoring and reporting. Indeed the move has already started: progress towards a common format for reporting is well advanced and several countries have started to implement monitoring projects. Management plans are being drawn up and various schemes to finance management are being put into place, the latter connected with recent reforms of the EU's Common Agricultural Policy.

The coming years will be exciting, as NGOs and governments work to make sure the numerous sites are looked after and managed to make sure their cargo of precious species and habitats is no longer threatened – but safe and increasing again. Progress so far is encouraging but the best is still to come!

The views expressed in this article are those of the author and do not represent the views of the EEA or its ETC-BD.

Dr Doug Evans has been working at the ETC-BD in Paris since 1999 on secondment from Scottish Natural Heritage.

For further information, including lists of agreed sites, see

http://europa.eu.int/comm/environment/nature/home.htm
and
http://biodiversity.eionet.eu.int/activities/Natura_2000/index_html

There are also many national and regional websites giving information on sites, site selection and the biology of the habitats and species, for example:

www.jncc.gov.uk/page-1457 (United Kingdom)
http://natura2000.environnement.gouv.fr/ (France)
www.natura2000.murl.nrw.de/ (Nordrhein – Westfalens, Germany)

More links are given on the ETC-BD website (see above).

For details on SPAs under the Birds Directive, see the recent EU brochure "The network of Special Protection Areas" (**http://org.eea.eu.int/documents/brochure/birds_directive_brochure**).