

(except through an online search facility – see WCMC and RBG Edinburgh, no date). However, analysis of IPA data indicates that at least 488 European CWR species were categorized as globally threatened in the 1997 Red List.

Another reason for the lack of CWR species in the Red List may be that, historically, there has not been a group of specialists taking CWR Red Listing in hand. The establishment of the CWR Specialist Group (CWRSRG) of the IUCN Species Survival Commission should rectify this (see Dulloo and Maxted, Chapter 48, this volume). Ultimately, while it is useful to have global Red List assessments available for CWR taxa (or any plant taxa), it may be more useful to investigate which taxa have been assessed at national level. Again, national Red Listing, or investigating which CWR taxa are already included on national Red Lists, could be an important role for the CWRSRG.

5.3.6 Does the EU Habitats Directive aid CWR conservation?

In 1992, the European Community adopted Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora (the EU Habitats Directive). The provisions of the Directive require EU member states to introduce a range of measures, including the protection of species listed in the Annexes, to undertake surveillance of habitats and species and produce a report every 6 years on the implementation of the Directive. Annexes I and II list natural habitat types and plant (and animal) species of community interest, 'whose conservation requires the designation of special areas of conservation', Annex IV lists plant (and animal) species of community interest 'in need of strict protection' (most species listed in Annex II are also listed in Annex IV) and Annex V lists plant (and animal) species of community interest 'whose taking in the wild and exploitation may be subject to management measures' (European Communities, 1995–2007). Species of community interest are those that are: (i) endangered, except those species whose natural range is marginal in that territory and which are not endangered or vulnerable in the western Palearctic region; or (ii) vulnerable (i.e. believed likely to move into the endangered category in the near future if the causal factors continue operating); or (iii) rare (i.e. with small populations that are not at present endangered or vulnerable, but are at risk); the species are located within restricted geographical areas or are thinly scattered over a more extensive range; or (iv) endemic and requiring particular attention by reason of the specific nature of their habitat and/or the potential impact of their exploitation on their habitat and/or the potential impact of their exploitation on their conservation status (European Communities, 1995–2007).

Each member state is required to prepare and propose a national list of sites for evaluation in order to form a European network of sites of community importance (SCIs). Once adopted, these are designated by member states as special areas of conservation (SACs) and, along with special protection areas (SPAs) classified under the EC Birds Directive, form a network of protected areas known as Natura 2000.

Species listed in Annexes II, IV and V (as of March 2007, including data from all 27 member states) were cross-checked against the Catalogue to see how many CWR are included (Table 5.11).⁹ There are 641 plant species listed

⁹ Matching carried out with accepted names in the Catalogue only.

Table 5.11. CWR of the European Union member states included in Annexes II, IV and V of the EU Habitats Directive.

Species list	No. of species in the four crop groups				Total no. of species	Percentage of EU CWR species	Percentage of vascular plant species in Annexes II, IV and V of the Habitats Directive
	Agricultural and horticultural	Forestry	Ornamental	Medicinal and aromatic			
EU CWR species ^a	14,515	2,126	4,785	12,448	16,052	-	-
Vascular plant species listed in Annexes II, IV and V of the EU Habitats Directive	-	-	-	-	641	-	-
EU CWR in HD Annex II ^b	331	18	120	275	380	2	59
EU CWR in HD Annex IV ^c	370	21	137	312	422	3	66
EU CWR in HD Annex V ^d	15	2	4	18	18	<1	3
EU CWR HD priority species ^e	117	9	42	105	141	1	22
Total no. of EU CWR included in Annexes II, IV and V of the EU Habitats Directive	385	23	141	330	440	3	69

^aIncludes all crop and CWR species that occur within the territories of the 27 EU member states.

^bAnnex II includes plant (and animal) species of community interest whose conservation requires the designation of special areas of conservation. Most species listed in this Annex are also listed in Annex IV.

^cAnnex IV lists plant (and animal) species of community interest in need of strict protection.

^dAnnex V lists plant (and animal) species of community interest whose taking in the wild and exploitation may be subject to management measures.

^ePriority species are endangered species for which the Community has particular responsibility in view of the proportion of their natural range which falls within the territory.

- Not applicable.

in Annexes II, IV and V – 440 (69%) of these are included in the CWR Catalogue. Of these, 385 species (60%) fall into the agricultural and horticultural crop group, 23 species (4%) in the forestry group, 141 species (22%) in the ornamental group and 330 species (51%) in the medicinal and aromatic plant group. A high percentage of priority species (endangered species for which the Community has particular responsibility in view of the proportion of their natural range which falls within the territory) are in the agricultural and horticultural, and medicinal and aromatic plant groups (83% and 74%, respectively). It is notable that only four species included in the Habitats Directive Annexes II, IV and V are wild relatives of major food crops: three *Brassica* species and one *Solanum* sp. This is out of a total of 153 wild relative species of major food crops that occur in the EU territories. A further 13 species are included in the minor food crop group, out of a total of 542.

It is not surprising that quite a high percentage of species listed in Annexes II, IV and V of the Habitats Directive are CWR because more than three-quarters of the flora of the region is of current or potential socio-economic use. What is striking is the relatively small percentage of CWR species listed overall as a proportion of the CWR flora of the region (3%); however, this equates almost exactly to the proportion of vascular plant species that occur in the EU territories included in the Habitats Directive Annexes (641 species out of an estimated total of 19,020). Perhaps this raises a question about the overall effectiveness of the Habitats Directive for plant conservation, let alone the conservation of CWR. Certainly, a small number of CWR in the major and minor food crop groups that are listed in the Habitats Directive Annexes is a strong indication that *in situ* CWR conservation of the most important groups is not being adequately addressed within the EU territories.

It is important to stress that the above analysis only takes into account the species listed in the Habitats Directive Annexes II, IV and V – there are, of course, many more species included within the habitats that are designated for conservation within the Natura 2000 network. As for any *in situ* conservation area, site inventories are required to find out which species are included. At EU level, these data are not available; however, it is possible to look at which CWR species are mentioned as characteristic of the habitats listed in the European Nature Information System (EUNIS) Database (EEA, 2007), some of which are included in the Habitats Directive Annex I (natural habitat types of community interest whose conservation requires the designation of SACs). Here, 1665 CWR species that occur in the EU territories are included (10% of the CWR flora of the EU) – 54 of these species are included in Annex II, 55 in Annex IV and five in Annex V. Of these, 91% are in the agricultural and horticultural crop group, 17% in the forestry group, 36% in the ornamental group and 78% in the medicinal and aromatic plant group. Nine wild relatives in the major food crop genera and 57 in the minor food crop genera, are included. Although not all these habitats are necessarily included in the Natura 2000 network, it is useful to discover that around 10% of the CWR flora of the EU is mentioned as characteristic of the habitats, because many of these habitats are included in the network – however, we cannot assume that these species are actively conserved.

5.3.7 Are CWR important in Important Plant Areas?

IPAs are natural or semi-natural sites exhibiting exceptional botanical richness and/or supporting an outstanding assemblage of rare, threatened and/or endemic plant species and/or vegetation of high botanical value (PlantLife International, no date). IPAs are not legal site designations, but a framework for identifying and highlighting the best sites for plants, and by implication, their conservation. Site selection is based on three criteria: threatened species, botanical richness and threatened habitats – a site qualifies as an IPA if it fulfils one or more criteria.

The CWR Catalogue data for Europe (as defined by Hollis and Brummitt, 2001) were compared with the list of species included in IPAs (designated under Criterion A) as of May 2005 (Table 5.12).¹⁰ Criterion A sites hold significant populations of one or more species that are of global or European conservation concern. Criterion A is further divided into four categories: A(i) – the site contains globally threatened species; A(ii) – the site contains regionally threatened species; A(iii) – the site contains national endemic species with demonstrable threat not covered by A(i) or A(ii); A(iv) – the site contains near endemic or limited range species with demonstrable threat not covered by A(i) or A(ii) (Anderson, 2002). Species included under Criteria A(iii) and A(iv) are nationally threatened species from Belarus, Czech Republic, Slovakia, Estonia, Slovenia, Poland and Romania only, which were the first seven countries in Europe to identify IPAs (see Anderson *et al.*, 2005).

Nine hundred and twelve CWR species of Europe are included in the IPAs – 51% of the vascular plant species included in the IPAs and 5% of the CWR flora of Europe. Of these, 488 (54%) are globally threatened species¹¹ and 426 (47%) are regionally threatened. The endemic species included under Criteria A(iii) and A(iv) (Belarus, Czech Republic, Slovakia, Estonia, Slovenia, Poland and Romania only) represent around 10% of the CWR species included in the IPAs. Three per cent of the agricultural and horticultural crops and CWR of Europe are included under the globally threatened Criterion A (i). Likewise, 2% of species in the forestry group, 4% in the ornamental group and 2% in the medicinal and aromatic group are included under this criterion. Looking at the overall number of European CWR species included in the IPAs, 5% of species in the agricultural and horticultural crop group are included, 3% in the forestry group, 7% in the ornamental group and 5% in the medicinal and aromatic plant group.

As for the CWR species included in the EU Habitats Directive, a relatively small percentage of the CWR species of Europe are included in IPAs (5%); however, this is in the context of the proportion of vascular plant species of Europe included in IPAs – 912 species out of an estimated total of 20,590 – around 4%. Again, the number of CWR in the major and minor food crop groups included in the IPAs may be an indication of how much attention is being paid to CWR in the context of this conservation initiative. With only three out of the 152 species in the major food crop genera that occur in Europe included and none of the 559 species in the minor food crop genera, we might conclude that more needs to be done to ensure that CWR are represented in IPAs.

¹⁰ Matching carried out with accepted names in the Catalogue only.

¹¹ Based on the 1997 IUCN Red List of Threatened Plants (Walter and Gillett, 1998).

Table 5.12. CWR of Europe included in Important Plant Areas (IPAs).

Species list	No. of species in the four crop groups				Total no. of species	Percentage of total European CWR	Percentage of total vascular plant species in IPAs	Percentage of total CWR species in IPAs
	Agricultural and horticultural	Forestry	Ornamental	Medicinal and aromatic				
European CWR species ^a	15,828	2,267	5,123	13,727	17,495	–	–	–
Vascular plant species included in IPAs	–	–	–	–	1,803	–	–	–
Criterion A(i) European CWR species (globally threatened)	400	52	214	338	488	3	27	54
Criterion A(ii) European CWR species (regionally threatened)	379	16	138	328	426	2	24	47
Criterion A(iii) European CWR species (national endemic species not covered by A(i) or A(ii)) ^b	86	16	41	69	95	<1	5	10
Criterion A(iv) European CWR species (near endemic or restricted range species not covered by A(i) or A(ii)) ^b	83	2	22	73	86	<1	5	9
Total European CWR species in IPAs ^c	791	75	349	668	912	5	51	–

^aIncludes all crop and CWR species that occur in Europe (Europe as defined by Hollis and Brummitt (2001)).

^bSpecies included under Criteria A(iii) and A(iv) are nationally threatened species from Belarus, Czech Republic, Slovakia, Estonia, Slovenia, Poland and Romania only.

^cIncluded under Criterion A only (A(iii) and A(iv) species from Belarus, Czech Republic, Slovakia, Estonia, Slovenia, Poland and Romania only).
– Not applicable.