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CONVENTION ON THE CONSERVATION OF EUROPEAN WILDLIFE
AND NATURAL HABITATS

Standing Committee
21st meeting

Strasbourg, 26-30 November 2001

**A joint Council of Europe
and Planta Europa
European Plant Conservation Strategy**

« Saving the Plants of Europe »

*Document prepared by
the Directorate of Culture and of Cultural and Natural Heritage*

St James's Palace

I was most encouraged to learn of the Third Planta Europa conference taking place in Prague in June. The threats to our European plant biodiversity spread year by year. Insensitive agricultural and land use policies are putting ecosystems and species under increasing threats and so our plant flora disappears at an alarming and unacceptable rate.

I am enormously heartened to discover that a realistic Plant Conservation Strategy is to be developed, as part of an emerging global initiative, to attempt to stem these losses. Saving wild plants and their habitats in the places where they grow, accompanied by research into the most important areas for protection – all of this, and much more, needs to be done.

May I, therefore wish the hard-working delegates of Planta Europa all possible success with their work to determine a clear way forward. I look forward to hearing of your plans for the coming years and don't forget that future unborn generations will salute you if you succeed in this great challenge.

[H.R.H. Prince Charles]

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The Conference of the Parties, at its sixth meeting, will consider the establishment of a global strategy for plant conservation (Decision V/10) to halt the current and continuing unacceptable loss of plant diversity.

The present document by Planta Europa and the Council of Europe has been developed as a contribution to, and part of, the proposed Global Strategy for Plant Conservation, submitted to COP 6 (UNEP/CBD/COP/6/INF/22). It was developed at the third Planta Europa European conference on the conservation of wild plants, held in June 2001 in Pruhonice, Czech Republic, and consists of long term policy directions and a set of medium term clear targets produced through a participatory process. It was refined after SBSTTA-7.

As one of the delegates at the conference I can testify that the 159 delegates from 38 European countries worked extremely hard to produce the targets.

I urge the Parties to the CBD at COP 6 to note that the targets produced are clear, realistic and measurable, and that they have been assigned a Planta Europa partner who has pledged to lead their implementation. The intention is that the Strategy would be implemented through, and avoid duplication with, existing initiatives.

I thus commend to COP 6 the European Plant Conservation Strategy.

M. Jan Plesnik
Chairman of SBSTTA,
Advisor to the Planta Europa Network and Deputy Director,
Agency for Nature Conservation and Landscape Protection of the Czech Republic, Prague.

Joining forces for plant protection

Where have all the flowers gone? In the last decades the intensification of agriculture, the spread of cities and the deep change of natural habitats have taken a heavy toll on European flora. We have lost much of the variety and colour of the countryside and many plants of our continent have become threatened with extinction. The Council of Europe reacted to the loss of plant biological diversity in the late seventies, when it adopted the Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention) that at present binds thirty-nine European states and the European Community. The Convention has become a European forum for discussion of plant conservation problems at the intergovernmental level, and a framework for positive action. Yet governments alone cannot do the immense and noble task to care for European flora: botanic gardens, scientific institutions, non-governmental organisations and other interested actors, such as foresters and farmers, need also to be involved if these efforts are to succeed. That is why the Council of Europe united forces with *Planta Europa*, to jointly produce this very comprehensive “European Plant Conservation Strategy” aiming to stop any further loss of plant diversity in Europe. This strategy is part of much more ambitious initiative at world level under the Convention on Biological Diversity and I invite all governments and interested organisations to follow the recommendations of the Standing Committee of the Bern Convention, support this strategy and implement it at the national and European level. European plants need many friends and the moment has come to join forces and coordinate the action of all around this Strategy.

Mr Bendik Rugaas
Director General
Directorate of Education, Culture and Heritage, Youth and Sport
Council of Europe

What you have in your hands today is the beginning of a tremendous partnership between the Planta Europa Network and the Council of Europe. It is a strategic response to the diminishing wild plant diversity in Europe; a framework for activities to halt and eventually reverse this decline.

The challenge we face to halt the destruction of European plant diversity is huge, as huge today as it was seven years ago, when a group of organisations and individuals came together to form the Planta Europa Network. I am proud to say that the Network has grown and risen to this challenge. This Strategy is testament to the commitment and willingness of European conservationists to actively support Planta Europa and to work together to see its mission become reality. Now with the establishment of the Planta Europa Secretariat, the Important Plant Areas programme and the launch of official membership it is evident that Planta Europa is going from strength to strength.

We are still however, near the beginning of our journey to safeguard the wild plants of Europe. This Strategy gives us a clear route to follow through the difficult territory ahead. The next step for Planta Europa, with the help of the governments of the Council of Europe, is to start to implement the Strategy and deliver some of the major tasks. If the spirit of the third Planta Europa Conference continues into our plant conservation work, I am sure that by our next conference in Valencia in 2004 there will be further significant progress to report.

Dr Torleif Ingelög
President of Planta Europa
Director, Swedish Species Information Unit

Paraphrasing a great Spanish poet: “There is no path. One makes one’s path while walking.”

The targets in the European Plant Conservation Strategy are clear and realistic, and they will clearly support current efforts at the national level to conserve all wild plants (both higher and lower) and their habitats. In combination with national efforts, implementation of this Strategy will provide a significant contribution to the vast effort needed at a global level to halt the destruction of plant diversity.

As European representative of CITES, I would like to encourage European countries to walk together and pave our own path at regional level to contribute with our commitment and co-operation to a Global Strategy for Plant Conservation.

Prof. Dr. Margarita Clemente
European Representative
CITES Plants Committee

ACKNOWLEDGEMENTS

This joint Council of Europe and Planta Europa European Plant Conservation Strategy was developed at the third Planta Europa conference for the conservation of wild plants held 23-28 June 2001 in Pruhonice in the Czech Republic. Special thanks go to the facilitators at this conference: Christoph Imboden (chief facilitator), Colin Bibby, Anne Harley, Martin Harper, Mira Mileva, Anna Kalinowska, Elizabeth Radford, Johan Samuelsson, Susanne Schmitt, Michael Scott, Bert van den Wollenberg; and to all 159 delegates from 38 countries who participated in developing the Strategy.

The Strategy was edited by Jane Smart, Christoph Imboden and Martin Harper. Hugh Synge prepared the long term European action points. Further editing took place by an editing committee including Elizabeth Radford, Eladio Fernandez-Galiano, Jan-Willem Sneep, Adrian Darby and Tessa Hetherington. The Strategy is based upon contributions from the delegates at the third Planta Europa conference, the European expert meeting in preparation for SBSTTA/VII, the Standing Committee of the Bern Convention and various European conservation organisations consulted following the conference.

The Planta Europa Network wishes to acknowledge the financial and/or technical support of the following organisations: the Agency for Nature Conservation and Landscape Protection of the Czech Republic (AOPK CR), BirdLife International, the Bulgarian Swiss Biodiversity Programme, the Council of Europe, the Czech Ministry for the Environment, the Department of Environment, Food and Rural Affairs DEFRA (UK)*, English Nature, Euro+Med Plantbase, the Finnish Environment Ministry, Species Survival Commission of the World Conservation Union (IUCN), the Ministry of Agriculture, Nature Management and Fisheries, Department of Nature Management (the Netherlands), Plantlife, the Royal Academy of Agriculture and Forestry, the Royal Society for the Protection of Birds (RSPB), Scottish Natural Heritage, and the Swedish Threatened Species Unit at the Swedish University of Agricultural Sciences.

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Planta Europa

Planta Europa is a developing network of organisations (government and non-government) working for plant conservation in Europe. The ultimate mission of this network is to conserve European wild plants, both higher and lower, and their habitats. Plantlife hosts the Planta Europa Secretariat. Planta Europa is the European Programme of Plantlife International.

Website: www.plantaeuropa.org

Council of Europe

The Council of Europe is an intergovernmental organisation which aims:

- to protect human rights, pluralist democracy and the rule of law;
- to promote awareness and encourage the development of Europe's cultural identity and diversity;
- to seek solutions to problems facing European society (discrimination against minorities, xenophobia, intolerance, environmental protection, human cloning, AIDS, drugs, organised crime etc.);
- to help consolidate democratic stability in Europe by backing political, legislative and constitutional reform.

Any European state can become a member of the Council of Europe provided it accepts the principle of the rule of law and guarantees human rights and fundamental freedoms to everyone under its jurisdiction.

Website: www.coe.int

The European Plant Conservation Strategy

The European Plant Conservation Strategy is a joint initiative of the Council of Europe and Planta Europa. It has been recognised as a contribution to the Global Strategy for Plant Conservation adopted by the Convention on Biological Diversity (CBD) (Decision VI/9).

The Global Strategy for Plant Conservation has been developed to provide a framework for action at the regional and national level as well as at the global level. Targets in both the Global Strategy and the European Strategy address five major objectives: understanding and documenting plant diversity; conserving plant diversity; using plant diversity sustainably; promoting education and awareness about plant diversity and building capacity for the conservation of plant diversity.

Partly in response to the decision by the CBD to consider the development of a Global Strategy for Plant Conservation (UNEP/CBD/COP/V/10), Planta Europa with the Council of Europe dedicated the third Planta Europa conference (Pruhonice, Czech Republic, June 2001) to the development of a plant conservation strategy for the European region.

Delegates from 38 European countries developed targets at the conference, for Planta Europa and its partners to achieve by 2007. The targets are clear, realistic and measurable and in each case a Planta Europa partner has pledged to take the lead on their implementation. Other organisations are welcome to join the contributing organisations to assist in achieving these challenging targets.

The Strategy also contains long term policy objectives complementing the Planta Europa targets. Whereas many of the targets are oriented for action by NGOs and technical agencies, the long-term policy objectives (termed 'Suggested long term European action:') are mainly directed at European governments.

A Vision and Goal were developed:

Vision: A world in which wild plants are valued – now and for the future

Goal: To halt the loss of wild plant diversity in Europe

Since the Planta Europa conference the European Plant Conservation Strategy has undergone a major consultation exercise; targets have been refined and new Partners have stated their willingness to help with implementation. Prior to its recognition by the CBD at COP 6 draft Strategy was submitted to the Subsidiary Body on Scientific, Technical and Technological Advice to the CBD (SBSTTA) in November 2001 (UNEP/CBD/SBSTTA/7/10/INF) where it was well received and recognised by that body as **'a valuable contribution to global plant conservation'**.

The European Plant Conservation Strategy was also submitted to the Standing Committee of the Bern Convention in November 2001. The Standing Committee (Recommendation No 87, 2001), recognizing that the European Plant Conservation strategy is a valuable contribution to the Global Strategy for Plant Conservation, recommended that Contracting Parties: *formulate and implement, or reinforce, as appropriate, national plant conservation strategies or have them incorporated as an integral part of national biodiversity strategies; take note, in that context, of the European Plant Conservation Strategy as presented to SBSTTA-7.*

The European Plant Conservation Strategy was considered at the second intergovernmental conference 'Biodiversity in Europe' (Budapest, February 2002), where it was acknowledged as 'a good example of the implementation of the CBD activities, namely of the Global Strategy for Plant Conservation, at the regional level'.

The targets within the global strategy for plant conservation adopted by COP 6 are included within this document alongside the European targets.

The European Plant Conservation Strategy makes a significant contribution to the implementation of Articles 6, 7, 8, 9, 10, 11, 12, 13, 17 and 18 of the CBD. It also contributes to the Pan European Biological and Landscape Diversity Strategy (PEBLDS).

The European Plant Conservation Strategy is published now (UNEP/CBD/COP/6/INF/22) as a contribution to, and part of, the Global Strategy for Plant Conservation adopted by COP 6.

Dr Jane Smart
Executive Director
Planta Europa and Plantlife International

Résolution formulée lors de la troisième conférence européenne de Planta Europa sur la conservation des plantes (23-28 juin 2001, Pruhonice, République tchèque), à l'adresse de la réunion d'avril 2002 de la Conférence des Parties à la Convention sur la diversité biologique (COP 6)

The Planta Europa conference:

1. *Calls for* the CBD COP 6 to establish a Global Strategy for Plant Conservation, and appropriate financial mechanism for its implementation.
2. *Urges* the Parties to the CBD to recognize the Council of Europe and Planta Europa European Plant Conservation Strategy as part of, and a contribution to, the Global Strategy for Plant Conservation;
3. *Commends* to the CBD COP 6 the final published European Plant Conservation Strategy

THE PLANT CONSERVATION IMPERATIVE

Plants are the foundation upon which the rest of our biodiversity depends. They cover the land surface of our earth like a fine skin, absorbing the energy of the sun to support the web of life on our planet. They add beauty to the landscape, feed us, clothe us, provide materials for building and give us many ingredients for medicine's prescribed drugs. Without wild plants, the animal kingdom would vanish. Indeed the life-support systems of the planet can only be maintained by protecting plant biodiversity. Plants are universally recognised as a vital part of the world's biological diversity and an essential resource for the planet.

Europe supports over 12,500 vascular plants (flowering plants, conifers and ferns; excluding the vast flora of Turkey), 1700 bryophyte species, 2,500 lichens and at least 8,000 macrofungi. The flora of Europe is one of the best known in the world, although even here our knowledge of the total biodiversity resource is incomplete. The geography and climate of Europe provides a great diversity of habitats from mountain-tops to the coasts, and includes species-rich grasslands, peatlands and forests. Centres of plant diversity in Europe include the mountain areas around the Mediterranean and the Black Sea with the floras of Spain, Greece, Italy, Bulgaria and Turkey supporting the most endemic plants.

The flora of Europe has been shaped by humans for millennia. Yet the last two centuries of industrialisation and changes in land-use have resulted in European plants now being considered among the most threatened in the world: 21 % of Europe's vascular plant species are classified as threatened according to IUCN, 50% of Europe's 4,700 vascular plant endemics are considered to be in danger of extinction, and 64 have already become extinct. In some European countries more than two thirds of the existing habitat types are considered endangered. In addition there has been widespread loss through genetic erosion.

The main factors which have led to the demise of the European flora can be summarised as:

- Habitat destruction
- Land use changes in agriculture and forestry
- Direct impacts by economic activities
- Introduction of non-native invasive species.

Although Europe was one of the first regions to address conservation of wild plants (the Council of Europe commissioned and published the first ever regional list of threatened plants in the 1970s), Europe's plant life continues to decline and its conservation is not yet receiving the attention it deserves. The scale of the problem was recognised in the Dobriř Assessment of the European Environment Agency, which states that 'given the projected growth in economic activity, the rate of loss of biodiversity is far more likely to increase than stabilise'.

It is also recognised that plants have been neglected in nature conservation. The trend in conservation towards the biodiversity agenda, spearheaded by the Convention on Biological Diversity (CBD) has however been very beneficial to plants. As primary producers and the providers of habitat infrastructure for many ecosystems, the disappearance of so many of them sets one of the greatest challenges for the world community: **to halt the destruction of plant diversity.**

Europe differs from other regions of the world in the pivotal role played by the European Union (EU). Uniquely, underlying policy on the environment is developed at EU rather than national level.

The EU's Sixth Action Programme, approved by the EU's Council of Ministers in June 2001, has the ambitious goal that biodiversity loss shall be stemmed by 2010. This programme will include implementation of five sectoral Biodiversity Action Plans published by the European Commission in March 2001; these are the European Community's commitment to implementation of the CBD.

The proposed Global Strategy for Plant Conservation provides a framework to facilitate harmony between existing initiatives aimed at plant conservation (relevant European legislation is outlined in Appendix 1). Within this framework a European dimension to this Strategy is important because:

- The European Union is a Party to the CBD
- The Council of Europe has a Memorandum of Co-operation with the CBD
- The Council of Europe's Bern Convention is a pioneering treaty on nature conservation
- 55 States have endorsed the Pan-European Biological and Landscape Diversity Strategy (PEBLDS)
- European Governments have offered some 13% of their territory to Natura 2000
- Development of trans-national actions will be encouraged
- Collaboration between national and international plant conservation initiatives will be enhanced
- The Planta Europa network is emerging as a vital force for plant conservation within Europe

Key references

Commission européenne (2001), *Plans d'action en faveur de la diversité biologique dans les domaines de la protection des ressources naturelles, de l'agriculture, de la pêche et de l'aide au développement et de la coopération économique*, Communication de la Commission au Conseil et au Parlement européen.

Stanners D. et Bordeau P. (dir. pub.) (1995), *Europe's Environment - The Dobříš Assessment*, Agence européenne pour l'environnement, Copenhague.

Van Opstal A.J.F.M. *et al.* (2000), *Endemic and characteristic plant species in Europe*, Part 1 : Northern Europe - EC-LNV, CBS et Alterra - Landbouw Natuurbeer Envisserij, Wageningen.

1. UNDERSTANDING AND DOCUMENTING PLANT DIVERSITY

If the steady decline of plant diversity is to be halted, a thorough understanding of the European flora is needed. This must include full listing and assessment of our wild plants, their abundance, and monitoring of change in their distribution and status.

Until recently, effort has focused on documenting rare species threatened with extinction: those restricted in range or numbers. Nearly all European countries now have national lists of threatened plants. The first List of Threatened Plants in Europe (IUCN SSC, 1977) which covered only vascular plants, is currently being revised through a 3year project funded by the European Union. The resulting list of plants is urgently needed to help to prioritise plant conservation action. Equivalent lists are also needed for lichens, fungi and algae (the Red Data Book of European Bryophytes was published in 1995).

It is now recognised that the focus on our rarest species reveals only part of the biodiversity decline. The reduction in abundance and range of many more numerous and widespread species is as much an expression of overall biodiversity loss as the increasing numbers of threatened species. This particularly affects plants inhabiting specialised and threatened habitats such as the heathlands in northern Europe and alpine pastures in central Europe.

A new approach to biodiversity conservation has therefore been developed during the past 10 years: the identification and documentation of *areas* that are particularly important for the diversity of different taxa. BirdLife International has initiated such programmes for birds on a regional and global level, and in Europe the exercise is largely complete. This has been of great value for biodiversity conservation planning.

At a global level, 'centres of plant diversity' or 'hotspots for plants' have been identified. In order to obtain information on the regional geographic scale, suitable for the planning and implementation of concrete conservation action, a programme has been launched to identify 'Important Plant Areas' (IPAs). The three objectives of the European IPA programme are: to

Identify, within each biogeographical zone, the most important sites for the conservation of plants (through standardised and numerical data); to promote awareness of the importance and the need to conserve these sites; and to promote direct conservation action and funding towards these sites.

Monitoring is essential to recognise and understand changes in plant diversity. In order to promote and facilitate collaboration in monitoring and use of indicators for reporting on Europe's biodiversity, the European Biodiversity Monitoring Initiative (EMBI) has been developed within the framework of PEBLDS implementation. A proposal for implementing the EMBI will be discussed by the PEBLDS Bureau at CBD COP 6.

Key references :

- Comité européen pour la conservation des bryophytes (1995), *Red Data Book of European Bryophytes*. ECCB/CECB, Trondheim.
- Grimmitt R.F.A. et Jones T.A. (1989), *Important Bird Areas in Europe*, International Council for Bird Preservation (Text publication 9), Cambridge, Royaume-Uni.
- Commission de sauvegarde des espèces (plantes menacées) de l'UICN (1977), *Liste des plantes rares, menacées et endémiques en Europe*, Conseil de l'Europe, Strasbourg.
- Palmer M. et Smart J. (2001), *Important Plant Areas in Europe. Guidelines for the selection of Important Plant Areas in Europe*, Plantlife, Royaume-Uni.
- Walter K.S. et Gillett H. J. (dir. pub.) (1998), *1997 IUCN Red List of Threatened Plants*, Union mondiale pour la nature, Gland, Suisse, et Cambridge, Royaume-Uni.
- WWF et UICN (1994) *Centres of plant diversity – A guide and strategy for their conservation*, vol.1 : Europe, Africa, South West Asia. IUCN Publications Unit, Cambridge, Royaume-Uni.

Global Strategy for Plant Conservation - targets adopted by CBD COP 6 :

- *A widely accessible working list of known plant species, as a step towards a complete world flora;*

- *A preliminary assessment of the conservation status of all known plant species, at national, regional and international levels;*
- *Development of models with protocols for plant conservation and sustainable use, based on research and practical experience.*

Suggested long term European action :

- E1 Develop programmes to update national vascular plant red lists every 4-6 years, and prepare national lists of threatened bryophytes, lichens and macrofungi;
- E2 Support the operational principle that national lists should use 1994 IUCN Red List categories to indicate threat status of individual species (this does not preclude additional use of national systems);
- E3 Carry out bilateral action between neighbouring countries to harmonise their lists taxonomically and to assist each other as appropriate;
- E4 Provide external assistance where necessary for the above three points, particularly in Central and Eastern European countries;
- E5 Produce reports on the action being taken by Bern Convention Parties for the plants on the listed on the Bern Convention present within their territories;
- E6 Establish regular monitoring of the status of threatened plants on Annex II of the EU Habitats Directive;
- E7 Provide international assistance for the identification of Important Plant Areas, especially in Central and East European countries;
- E8 Encourage, in each country, botanical societies or national botanical institutes to compile atlases showing the decline of wild plants, for all species or a small range of species in order to indicate important trends;
- E9 Consider the compilation of "Pink Books", showing the next tier of species below threatened status;
- E10 Help conservation bodies in their efforts to build up volunteer networks to assist research and monitoring programmes for wild plants (e.g. arable flowers in field margins).

European Plant Conservation Strategy Targets :

		Lead organisation(s)	Contributing organisations
1.1	Working list of all known European plant species (including cryptogamic plants and fungi) produced By 2004 : Prioritised list of groups that require taxonomic revision produced.	Euro+Med CECB CECC	IAL University of Bratislava
1.2	European Red List for vascular plants, revised list for bryophytes, and preliminary Red Lists for lichens, macrofungi and other selected groups published.	European Plant Specialist Group of IUCN ECCF ECCB	IAL Euro +Med
1.3	Manual of tried and tested (species and habitat) monitoring protocols for scientists and naturalists made available on the web – By 2004 : Compile list of national monitoring programmes and make available on web.	AEE	CECC CECB IAL
1.4	First edition of European Important Plant Areas (IPA) inventory completed – By 2002 : Operational Secretariat and regional/local nodes established – By 2002 : National human and knowledge resource studies completed – From 2002 : newsletter published annually – By 2002 : Guided Web chat room launched – By 2003 : Provisional site selection manual drafted – By 2004 : first draft national lists compiled for all European countries – By 2004 : IPA Workshop at Planta Europa Conference IV – By 2004 : Site selection manual revised – By 2007 : Inventory completed for all European countries	Plantlife International	Ministry of Agriculture, Nature Management and Fisheries, the Netherlands
1.5	Research initiated to assess effectiveness of IPA approach – By 2003 : IPAs Evaluation and Monitoring Manual produced – By 2003 National overviews of threats to IPAs produced (with recommendations).	Plantlife International	
1.6	Information about all designated areas important for plant conservation included in the Common Database on Nationally Designated Areas (CDDA)	ETC/NPB	Council of Europe PNUE WMC
1.7	Effectiveness of the "improved biodiversity indicators" for Sustainable Forest Management assessed in at least four biogeographical regions.		
1.8	Single web address and list server for exchanging information on European Red List projects established and maintained.	V.I.M.	
1.9	List of threatened European plant taxa in <i>ex situ</i> collections published on the web.	BGCI	Eurogard

2. CONSERVING PLANT DIVERSITY

Conservation action must be targeted at those plants and plant habitats most in need. Action will involve a mix of policy and legislative mechanisms as well as specific measures to be undertaken on the ground. In particular conservation frameworks should be developed for:

- Recovering threatened species;
- Reversing the impacts of intensive agriculture and forestry;
- Preventing habitat destruction and ensuring appropriate management;
- Tackling environmental pollution, including water pollution;
- Combating the ecological threat posed by non-native invasive species.

Recovering Threatened Species

Although few species have become extinct in Europe in recent years, many have massively reduced populations and ranges, making the need for comprehensive recovery action extremely urgent. Stimulated by the CBD, some countries have set targets for the recovery of many of their threatened species and are implementing these recovery plans. Others have the infrastructure in place to rescue threatened plants, but these are the exception rather than the rule. Key elements of any species recovery programme should include survey, research, practical action and advice.

The CBD stresses the ‘primacy of *in situ* conservation’ for the long-term conservation of biodiversity, but recognises the important supporting role of *ex situ* conservation. It provides an insurance against extinction in the wild, material for re-introduction, plant breeding and sustainable use programmes, as well as education and research. Techniques include seed and gene banking, *in vitro* field gene banks, as well as pollen banks.

Co-ordinating agencies for *ex situ* conservation are the International Plant Genetic Resources Institute (IPGRI), Botanic Gardens Conservation International (BGCI) and the International Association of Botanic Gardens (IABG).

Global Strategy for Plant Conservation - targets adopted by CBD COP 6 :

- 60 per cent of the world’s threatened species conserved *in situ*;
- 60 per cent of threatened plant species in accessible *ex situ* collections, preferably in the country of origin, and 10 per cent of them included in recovery and restoration programmes;

Key references :

Cheney J. *et al.* (dir. pub.) (2000), *Action Plan for Botanic Gardens in the European Union*, Jardin botanique national de Belgique/Botanic Gardens Conservation International, Universa, Wetteren.
 Conseil de l’Europe (1999), *Plan d’action en faveur de *Cypripedium calceolus* en Europe* (Sauvegarde de la nature n° 100).
 Wyse Jackson P. S. et Sutherland, L.A. (2000), *International Agenda for Botanic Gardens in Conservation*, Botanic Gardens Conservation International, Royaume-Uni.

Suggested long term European action:

- E11 Prepare and implement recovery plans for threatened plant species, with priority for those on the Bern Convention (Appendix 1) and the Habitats Directive (Annex IIb).
- E12 Undertake effective *ex situ* conservation of all European threatened plants and their genetic resources in the countries of origin, within a reasonable time period.

European Plant Conservation Strategy Targets :

		Lead organisation(s)	Contributing organisations
2.1	National programmes to identify and monitor non-red listed rapidly declining species promoted in 15 European countries and species included in recovery programmes as appropriate.		National Planta Europa members Euro+Med

2.2	To have promoted the development and implementation of recovery programmes in relevant countries for 50 priority plants across all taxa, their selection to be informed by European Red Lists and lists of rapidly declining but widely scattered species (see target 14) as these become available – By 2004 : list of priority species appropriate for recovery programmes developed.	Parties to the Bern Convention	Euro+Med National Planta Europa members
2.3	Flagship trans-boundary partnership projects for the recovery of at least 5 priority species to have reached implementation stage.	English Nature	
2.4	Spore-bank for pteridophytes established – By 2004 : Necessary technical protocols developed.	RBG Edimbourg	RBG Kew
2.5	80 % of the genetic diversity of 50% of regionally and nationally threatened species stored in gene banks (prioritised by degree of threat) – By 2004 : Inventory of taxa held in European germplasm (heredity material) collections and gaps for collection identified	ECP/GR EUFORGEN BGCI	IPGRI RBG Kew
2.6	At least 12 priority species of bryophytes brought into ex-situ conservation and methodology promoted internationally.	RBG Kew	
2.7	Manual with guidelines and case studies of best practice for integrated (<i>in-situ</i> and <i>ex-situ</i>) plant conservation programmes made available on the web.	Fédération des Conservatoires botaniques, France	UICN : CSE Plantlife
2.8	Protocols for <i>ex situ</i> conservation for all groups of vascular plants, cryptogamic plants and fungi produced..	ECP/GR EUFORGEN BGCI	IPGRI

Reversing the impacts of intensive agriculture and forestry

Farming accounts for 60% of the land surface of Europe. Modern agricultural practice has proved harmful to nature in general and plant diversity in particular, with the damage greatest in north-west Europe. In places, industrial agriculture has almost eradicated wild plants, and numerous rare habitats have been destroyed. There has been a spectacular decline of flowers in arable farmland across the whole of Europe. However, less intensively managed farmland, often using traditional farming practices, is of intrinsic conservation value.

The European Union's Common Agricultural Policy (CAP) is a driving factor and its impacts are felt beyond the Member States. There is much pressure to reform the CAP, particularly given the imminent enlargement of the EU. Reform is providing as yet limited but increasing opportunities to integrate positive management for plant conservation into agricultural policy. A great challenge is to shift subsidies away from production and towards support for environmentally sensitive farming practices.

Conservation of economically important plants

The genetic diversity present in crops and other useful plant species provides the basis for improving sustainable crop production, and for ensuring that useful plant species have sufficient genetic diversity to meet growing and changing human needs.

Europe's flora contains the relatives of a range of economically important plants, especially vegetables, tree fruits, vines and cereals. These have rich wild gene pools native to Europe and are important as a source of genetic variation for breeding of food crops. There is also a rich diversity of forestry trees. This diversity of traditional land-races and old varieties of food crops is now greatly diminished due to replacement by modern, uniform cultivars.

EU regulations that reduce the number of varieties of a crop that can be sold have proved very damaging to maintaining the diversity of major vegetable crops. However, IPGRI and two European networking programmes (the European Cooperative Programme for Crop Genetic Resources Network ECP/GR, and European Forest Genetic Resources Programme EUFORGEN) are currently assessing the taxonomic and genetic diversity of European wild crop relatives and developing methods to conserve it.

The conservation of plant genetic resources has also been recognised as an objective of international importance through the adoption, by over 150 countries of the Global Plan of Action on

the Conservation and Sustainable Use of Plant Genetic Resources for Food and Agriculture (1996). In November 2001 an International Treaty on Plant Genetic Resources was agreed, to provide a framework for conservation and exchange of plant germplasm, and allowing for the development of appropriate benefit sharing procedures.

Forestry

About 46% of Europe is forested, with the great majority of forests having been managed for centuries often leading to uniformity in age and structure. The proportion of forested land varies greatly from county to country and its extent is increasing. Marginal land is being abandoned and is reverting to scrub and woodland and there is now an increasing trend towards natural regeneration. However large portions of forests are planted.

Only isolated fragments of primary forests survive, mostly in Scandinavia and south-eastern Europe. These are of the greatest value for plants; research on woodland fungi in Estonia indicates that unmanaged, native woods may contain up to five times as many species as commercially managed woods.

The Statement of Forest Principles, adopted at the Earth Summit in Rio, emphasised that the forests in the North should be managed in a sustainable way. The MCPFE process, the Ministerial Conference on the Protection of Forests in Europe, adopted at the Second Ministerial Conference (Helsinki, 1993), inter alia, a definition of sustainable forest management in Europe. In 1998 in Lisbon, the third Ministerial Conference endorsed, inter alia, a Pan-European Work Programme on the Conservation and Enhancement of Biological and Landscape Diversity in Forest Ecosystems, 1997–2000. The MCPFE process guides the development of the conservation and sustainable management of forests in Europe.

Key References :

Plan mondial d'action pour la conservation et l'utilisation durable des ressources phylogénétiques pour l'alimentation et l'agriculture (Organisation des Nations Unies pour l'alimentation et l'agriculture, FAO), <http://icppgr.ecoport.org/gpatoc.htm>

CNUED (1992) *Rapport de la Conférence des Nations Unies sur l'environnement et le Développement* (Rio de Janeiro, 314 juin 1992), Annexe III - Déclaration de principes, non juridiquement contraignante mais faisant autorité, pour un consensus mondial sur la gestion, la conservation et l'exploitation écologiquement viable de tous les types de forêts (Déclaration de principes sur les forêts).

Global Strategy for Plant Conservation - targets adopted by CBD COP 6 :

- *At least 30 per cent of production lands managed consistent with the conservation of plant diversity;*
- *70 per cent of the genetic diversity of crops and other major socio-economically valuable plant species conserved, and associated local and indigenous knowledge maintained;*

Suggested long term European action :

E13 For countries within the EU continue the reform to the EU Common Agricultural Policy to support agricultural land management practices that will halt and reverse the declines in wild plant biodiversity in the wider countryside;

E14 Outside the EU and accession states, avoid further intensification and ensure careful maintenance of environment-friendly agriculture.

Changes in agricultural policy that will benefit wild plants include:

- directing money away from farming subsidies towards environmental stewardship
- ensuring production subsidies are subject to environmental conditions
- reducing use of herbicides by land managers
- introducing bold and innovative solutions for traditionally managed land threatened with abandonment

- restoring natural habitats of rivers, reversing the "canalisation" of rivers by reinstating meanders and water meadows
- restoration and where appropriate recreation of plant-rich habitats on land where biodiversity conservation is compatible with the main use, (such as road and motorway verges, railway embankments, village greens and river banks)
- use of agri-environment schemes to promote incentives for land managers to permit wild arable plants in field margins
- the extension of organic farming
- use of agri-environment measures in botanically important areas
- increasing the use at national level of the environmentally beneficial aspects of Agenda 2000 reforms, such as acreage payments, agri-environment measures, and policy for Less Favoured Areas.

E15 Encourage greater involvement by botanists/plant conservationists in fora on agricultural policy;

E16 Produce and implement an integrated plan for conservation of the plant genetic resources of Europe, wild and cultivated;

E17 Continue to revise national forestry policies in order to support the further implementation of the MCPFE commitments

E18 Key forestry management practises to benefit wild plants include:

- the continuation of the trend by forestry agencies and companies towards less intensive forest management
- leaving areas uncut with dead trees left standing, where appropriate, to support fungi
- use of native species as far as possible in tree planting schemes
- ensuring afforestation does not occur on land of high botanical value
- ensuring effective training and monitoring of forest managers in sustainable forestry principles and practice.
- ensure biodiversity sensitive management of commercial forestry in protected areas
- removing trees where detrimental afforestation has occurred on land of high botanical value/protected areas

E19 Ensure protection of remaining old-growth natural forests of conservation importance that are not yet protected, and of semi-natural forests, such as areas that have never been clear-felled but have been managed sustainably;

European Plant Conservation Strategy Targets :

		Proposed lead organisation	Contributing orgs
2.9	Plant conservation benefits of effective Rural Development Plans (including agri.-environmental schemes) and other relevant environmental stewardship incentive measures, promoted in all European countries <ul style="list-style-type: none"> – By 2003: Comparative survey at European level on plant conservation benefits and shortcomings of agri-environment schemes – By 2003: Feasibility of development of effective indicators considered 	UICN : Bureau régional pour l'Europe	National Plants Europa members BirdLife International
2.10	Management plan for at least 5 endangered taxa of wild crop relatives initiated in at least one protected area in each of 5 or more European countries <ul style="list-style-type: none"> – By 2003: EU funding obtained – By 2003: development of a web enabled database of European 	ECP/GR EUFORGEN	IPGRI

	wild crop relatives – By 2005 : Development of methodologies to design and implement management plans		
2.11	80% of the genetic diversity of 30% of wild crop relatives and other socio-economically and ethnobotanically important species stored in genebanks – By 2004 : Inventory completed and gaps identified	ECP/GR EUFORGEN	IPGRI BGCI RBG Kew

Preventing habitat destruction and ensuring appropriate management

While selected targeted actions for specific plant species and species groups will always be necessary, the best way to conserve most plants is to protect and manage the areas where they grow. Protected areas, of all types and sizes, are at the heart of any successful strategy for plant conservation. The Important Plant Area (IPA) programme can help by identifying the most important sites for plants, thereby underpinning site protection mechanisms. The conservation of IPAs will depend on active management to maintain plant diversity and ecological processes, both within and outside protected area networks.

Every country in Europe has a system of protected areas, and their rate of creation continues, supported by agreed international frameworks such as the Ramsar Convention and the Habitats and Species Directive (see Appendix 1). Yet the geographical distribution and biological representation are uneven - often biased towards mountain areas, and away from lowland ecosystems, where human pressures are stronger.

Parks for Life (IUCN, 1994) sets out a pan-European strategy for an effective and well-managed network of protected areas in Europe. It emphasises the need for protected areas to be integrated into regional planning and recommends that policies for sustainable resource use are developed.

Many rare and threatened plants and plant habitats are confined to extremely small areas, especially in the heavily used landscapes of lowland Europe. In response, the Regional Government of Valencia, Spain, has pioneered a special statutory category of microreserve. This has been so successful that there is a call for this approach to be extended throughout Europe.

Networks of Protected Areas

Protected areas should ideally be connected to each other through measures such as linking corridors and ‘stepping stones’ between core areas. Habitat restoration may be necessary in key areas to achieve this. This will help facilitate the spread of wild plants in response to climate change.

In Europe the connectivity approach has emerged in the concept of the Pan-European Ecological Network (PEEN), part of PEBLDS. Ministers from 54 countries in the UN-ECE region have endorsed the proposal to establish PEEN by 2005. Realisation of the Natura 2000 network and the Emerald Network (see appendix 1) will help greatly in the establishment of PEEN.

Key Reference :

Commission de l’UICN sur les parcs nationaux et les zones protégées (1994), *Parks for life : Action for Protected Areas in Europe*, UICN, Gland, Suisse, et Cambridge, Royaume-Uni.

De Klemm C. (1990), *Wild Plant Conservation and the Law*. IUCN Environmental Policy and Law Paper n° 24. UICN.

Global Strategy for Plant Conservation – targets adopted by CBD COP 6 :

- *At least 10 per cent of each of the world’s ecological regions effectively conserved;*
- *Protection of 50 per cent of the world’s most important areas for plant diversity assured;*

Suggested long term European action:

- E20 In EU countries continue the implementation of and full adherence to the Habitats Directive, with an increased emphasis on protection of the flora species on Annex II;
- E21 In countries external to the EU continue the implementation of and full adherence to the Bern Convention; focus on the establishment of the Emerald Network as a major contribution to PEEN;

- E22 Encourage liaison between those involved in selecting sites for the Natura 2000 and Emerald Networks and teams Identifying Important Plant Areas;
- E23 Speed up of the integration of the provisions of the Habitats Directive into national law where this has not been done;
- E24 At the appropriate time, reconsider the plant species on Annex II and the habitats on Annex I of the Habitats Directive, especially regarding the inclusion of cryptogams;
- E25 Consider how the Ramsar Convention could improve the conservation of wetlands and aquatic plants and urge national governments to use this opportunity for the benefit of plant diversity;
- E26 Carry out conservation action on IPAs that are not already in protected area networks;
- E27 Consider the recommendations in the *Parks for Life* Action Plan in national programmes and policies;
- E28 In each country promote the use of the full range of protected areas in IUCN categories I-V;
- E29 Create more IUCN Category II national parks and upgrade the protection of sites that aspire to IUCN categories II and V;
- E30 Continue to implement *Parks for Life* for new World Heritage sites for Europe ensuring key plant sites are included;
- E31 Continue to develop biological corridors across Europe;
- E32 Consider a set of natural sites for the Alpine region;
- E33 Consider the establishment of the micro-reserve approach for plant conservation developed by the Generalitat Valenciana (regional government of Valencia, Spain) by other countries and regions and help to promote the micro-reserve concept across Europe;
- E34 Actively encourage the management and conservation by each botanic garden of at least one area of natural or semi-natural vegetation of botanical importance;
- E35 Continue emphasis on Nature Reserves and their appropriate management, to protect rare plants and plant communities.

European Plant Conservation Strategy Targets :

		Proposed lead organisation(s)	Contributing organisations
2.12	Inclusion in the Habitats and Species Directive (and Emerald Network) of all qualifying species listed in the Bern Convention with the formal support of at least 3 national governments <ul style="list-style-type: none"> • By 2003: list of qualifying species produced • By 2004: States within the range of each qualifying species contacted 	Parties to the Bern Convention	National Planta Europa members WWF – EPO/DCPO
2.13	Inclusion of all relevant threatened vascular plants (including tree species), cryptogamic plants and fungi in relevant Bern Convention annexes promoted <ul style="list-style-type: none"> – By 2004: data sheets of all eligible cryptogamic plants completed – By 2004: data sheets of all vascular plant and fungi completed 	Plant Experts Group Bern Convention	
2.14	IPAs promoted for inclusion in the PEBLDS and National Biodiversity Action Plans, and promoted to support, inform and underpin international protected area networks (e.g., Emerald, Natura 2000, Pan-European Ecological Network, Ramsar etc.)	Plantlife International	Council of Europe National Planta Europa members
2.15	Programme designed and initiated to evaluate the effectiveness of current protected area management across selected sites of European importance for plants, and recommendations disseminated.	UICN : CMAP	
2.16	Existing initiatives on enhancement of wild plant diversity in urban and peri-urban areas reviewed in at least 5 countries.	PHB-UNESCO Urban Group	

2.17	Planta Europa to support partners in the defence of threatened sites important for plant conservation <ul style="list-style-type: none"> • By 2004: A mechanism (casework strategy) • By 2004: Relevant procedures for helping to save threatened sites promoted within Planta Europa network 	Secretariat of Planta Europa	Birdlife WWF-EPO Bern Convention National Planta Europa members
2.18	Practical micro-reserve programmes established and operational in least 2 regional pilot areas <ul style="list-style-type: none"> - By 2004 Benefits of micro-reserve programmes disseminated to target pilot areas 	Generalitat Valenciana	National Planta Europa members

Addressing environmental pollution, including water pollution

Human-induced climate change is already happening, and the implications for plants and the planet are great. The earth is already about 0.6°C warmer than it was one hundred years ago. Emissions of greenhouse gases are exceeding levels which can be removed by natural systems (forests, peat and the oceans). Furthermore, these systems are already under direct threat from human activity. For many plants their 'climate space' will be altered and policies and management practices must help enable their natural migration and adaptation to these changes.

All plants need nutrients to grow and thrive, but an excess of nutrients from fertilisers, sewage and traffic emissions (for example), can affect both their own survival and the wider environment. This 'overfeeding' is known as eutrophication and is a serious environmental problem across Europe. Certain plant groups, such as aquatic plants and lichens are particularly vulnerable. The EU Water Framework Directive is a potentially powerful tool to guarantee maintenance of good ecological quality of water catchments across the European Union and Accession States.

Key References:

Commission européenne (2002), *La directive-cadre sur l'eau. Tirez-en parti !*

Commission européenne (2002), *L'eau, c'est la vie. Directive-cadre sur l'eau.*
http://europa.eu.int/comm/environment/water/water-framework/pdf/leaflet_fr.pdf

Harrison P.A. *et al.* (2001), *Climate change and nature conservation in Britain and Ireland. – Modelling natural resources responses to climate change (the MONARCH project)*, UKCIP Technical Report, Oxford (voir aussi la bibliographie).

IPCC (2001), *Bilan 2001 des changements climatiques: les éléments scientifiques. Résumé à l'intention des décideurs*, version de Shanghai (21/01/01), Groupe d'experts intergouvernemental sur l'évolution du climat. <http://www.ipcc.ch/pub/un/giecg1.pdf>

European Plant Conservation Strategy Targets :

		Proposed lead organisation(s)	Contributing organisations
2.19	Support/campaign for national water strategies in every European country that gives priority to the importance of high water quality to the environment	National Planta Europa members	
2.20	Support/campaign for successful transposition of the Water Framework directive into national law with ecologically meaningful long term targets set for water quality.	National Planta Europa members	

Combating the ecological threat posed by non-native invasive species

The spread of invasive alien species is recognised as a major threat to plant diversity, habitats and ecosystems, and hence to food production and health. On the North Atlantic fringe of Europe, scrub of *Rhododendron ponticum* threatens native oak woodlands; in northern and north eastern Europe *Crassula helmsii* and other invasive aquatic species threaten the flora of often scarce freshwater habitats, and large areas of the Mediterranean coast are taken over by the Hottentot Fig, *Carprobrotus edulis*.

IUCN has stated one prime guiding principle: that the prevention of introduction of the invasive species “is the cheapest, most preferred option and should be given highest priority”.

Through the Bern Convention the Council of Europe is developing a European Strategy on invasive species, within the framework of the CBD. The Global Invasive Species Programme of the CBD suggests measures are needed to predict, prevent and control problem species:

- Improving understanding and awareness by all sectors of society
- Developing adequate risk assessments of species and their pathways
- Devising robust codes of conduct

Providing appropriate legal and institutional mechanisms

Key References :

McNeely J.A. *et al.* (2001), *A Global Stratégie on Invasive Alien Species*, UICN, Gland, Suisse, et Cambridge, Royaume-Uni, en coopération avec le Programme mondial sur les espèces envahissantes.

Duckworth J., Davis R. et Costley J. (sous presse), *Junk Food for Plants : How Nutrient Pollution is Threatening Britain’s Wild Flora*, Plantlife, Londres, Royaume-Uni.

Global Strategy for Plant Conservation - targets proposed for adoption at COP 6 :

- Management plans in place for at least 100 major alien species that threaten plants, plant communities and associated habitats and ecosystems;

Suggested long term European action:

E36 Develop a holistic institutional, policy and legislative framework on invasive species.

European Plant Conservation Strategy Targets :

		Proposed lead organisation(s)	Contributing organisations
2.21	Up to date information on European invasive species made available to relevant target audiences <ul style="list-style-type: none"> – By 2004: National lists of invasive plant species compiled in at least 90% of Planta Europa member countries and publicised as appropriate – By 2004: All relevant information included in web database of the Global Invasive Species Programme – By 2006: List of alien invasive species in Europe including their distribution and their negative ecological and economical effects published – By 2006: Fact sheets on the biology including information about control measures of 100 of the worst invasive species published 	UICN : Invasive Species Specialist Group	GISP DG XII of l’UE Institute Of Botany Pruhonice
2.22	Institutional, policy and legislative framework for invasive species control established in 25% of European countries.	UICN : Invasive Species Specialist Group	Council of Europe

3. USING PLANT DIVERSITY SUSTAINABLY

Sustainable use of biodiversity is one of the three major objectives of the CBD, but has received less attention in Europe than in many other regions where people are more dependent on wild species for their livelihoods.

Nevertheless, in Europe wild plants with commercial value are collected, for example fungi for food, bulbs for the horticultural trade and plants for medicinal use. Over 2000 medicinal and aromatic plant taxa are traded commercially, of which two-thirds are native to Europe. It is estimated that 90% are still collected from the wild. Unless plants are very rare in the wild, cultivation is more expensive than wild harvesting. In the EU medicinal and aromatic plants are cultivated on an estimated total area of 70,000 ha, comprising 130-140 species.

According to TRAFFIC International (1996, 1998), Western Europe is undergoing an herbal renaissance with use of medicinal plants doubling in a decade. Wild collection remains particularly prominent in Albania, Bulgaria, Turkey, Hungary and Spain. Collectors are mainly rural people, often women and children, for whom this activity provides a supplementary income.

More information is required to ensure that this use of medicinal and other useful wild plants is sustainable. Since there are clear signs of over-exploitation in some parts of Europe it is important to find improved ways of managing these resources. Communities that are using wild plants often have a rich and unique knowledge of these resources which itself is important to preserve.

Another vulnerable resource is peat. Prized by the horticulture industry as a growing medium, peatland habitats have been decimated over the past thirty years. European-wide efforts are needed to reduce our dependency on peat, to save the finest peatlands and to invest in alternatives to peat in the horticultural trade.

Key References :

Jenkins M. et Oldfield S. (1992), *Wild Plants in Trade*, TRAFFIC International, Cambridge, Royaume-Uni.

Lange D. (1998), *Europe's Medicinal and Aromatic plants : their use, trade and conservation*, A TRAFFIC Network report, TRAFFIC Europe, WWF.

Global Strategy for Plant Conservation - targets adopted by CBD COP 6 :

- *No species of wild flora endangered by international trade;*
- *30 per cent of plant-based products derived from sources that are sustainably managed;*
- *The decline of plant resources, and associated local and indigenous knowledge, innovations and practices that support sustainable livelihoods, local food security and health care, halted;*

Suggested long term European action:

E37 Develop national programmes to monitor and where necessary regulate the collection and trade in wild-collected plants and fungi with the objective of achieving sustainability.

European Plant Conservation Strategy Targets :

		Proposed lead organisations	Contributing organisations
3.1	Best practice for the conservation and sustainable use of medicinal plants (and other sociologically important plants) identified and promoted to relevant policy makers <ul style="list-style-type: none"> - By 2004: Evaluation of case-studies and other relevant information completed - Synthesis of literature on best practices for conservation and sustainable use of plants in Europe completed and promoted to relevant policy makers. 	WWF TRAFFIC	FFI National Planta Europa members

4. PROMOTING EDUCATION AND AWARENESS ABOUT PLANT DIVERSITY

It is a puzzle that given the fundamental importance of plants, the need for plant conservation is appreciated so little. A targeted programme of awareness and education is necessary to highlight the importance and plight of wild plants and in turn to try to change human attitudes and behaviour.

While all major international treaties, as well as national and regional conservation strategies, nowadays rightly stress the general importance of environmental education in order to foster and promote environmentally responsible citizenship, more attention needs to be given to the specific importance of wild plants and the issues which affect them.

Awareness essentially brings the issues relating to plant diversity to the attention of key groups who have the power to influence outcomes. Education is a set of processes that can inform, motivate and empower people to support plant conservation, not only by making lifestyle changes, but also through promoting change in the way that institutions, businesses and governments operate.

Awareness alone is not enough. It will only lead to conservation if interest is translated into action. Educational programmes are therefore necessary to influence the formal curricula of schools and universities, and also the work of national parks, museums and botanical gardens. Within the European plant conservation community, botanic gardens are exceptionally well placed to promote education and awareness.

Ideally a communication, education and public awareness strategy should be developed for many of the targets in the European Plant Conservation Strategy as awareness raising is a cross cutting issue. However, it is clear that more funding will be needed to increase the capacity of institutions to implement this important work.

Key References :

Cheney J. *et al.* (2000), *Action Plan for Botanic Gardens in the European Union*, Jardin botanique national de Belgique et BCGI, Universa, Wetteren.

Global Strategy for Plant Conservation – target adopted by CBD COP 6:

- *The importance of plant diversity and the need for its conservation incorporated into communication, education and public awareness programmes*

Suggested long term European action:

E38 Support education and awareness programmes in botanical institutions on plant conservation issues (e.g. the programmes of botanic gardens and natural history museums);

E39 Provide advice and encourage direct liaison with land managers to help reduce damage to wild plants. (e.g. by minimising the use of herbicides);

E40 Support initiatives to encourage the public to appreciate the diversity of wild plants and understand the environmental cost of "suburbanising" the countryside;

E41 Emphasise the importance of local patterns of genetic variation for plant conservation and landscape and habitat restoration.

European Plant Conservation Strategy Targets :

		Proposed lead organisation	Contributing organisation
4.1	A joint public promotion to articulate the case for wild plant conservation implemented by Planta Europa members <ul style="list-style-type: none"> - By 2004: Promotion plan conceived - By 2004: Information on 10 priority topics prepared - By 2004: Council of Europe fact sheets on the conservation biology of 50 threatened fast-declining taxa (see target 15) updated and published 	Council of Europe	National Planta Europa members
4.2	Report on the current status of plant conservation issues in the national curriculum (both higher and lower) of all European Countries produced together with recommendations for development.	Botanical Gardens European Consortium (BGCI et IABG)	IUCN Education Group Council of Europe
4.3	Support to the plant conservation network on planning and managing communication to target groups (to include training courses and help desk advice).	UICN : CEC	

5. BUILDING CAPACITY FOR THE CONSERVATION OF PLANT DIVERSITY

Plant conservation measures depend on the capacity available to deliver them. This capacity is both limited and uneven in the botanical world.

Plant conservation requires people with a wide range of skills and knowledge: in taxonomy, field botany, ethnobotany, ecology, advocacy, campaigning and many other areas. Although a large number of people indirectly support and assist plant conservation, there are few whose jobs are directly defined in terms of these activities. Fortunately, Europe has a great tradition of amateur naturalists, who are frequently members of botanical societies, who can support and complement the

work of professionals. For example 250 'flora guardians' in Sweden help to protect 150 species on 1300 sites. This resource needs to be nurtured and developed, and a European overview of available expertise and capacity is required.

Few universities now have traditional botany departments, where taxonomic skills are being taught – thus the lack of taxonomic expertise is a serious problem. The former Communist countries often had large botanical infrastructures and supported conventional botany, but these departments are now deeply weakened by lack of resources and funds. The taxonomic workforce is ageing; the infrastructure is poor and training neglected. It is ironic that the expertise to identify and classify plants and animals is disappearing at precisely the time when the vital importance of biodiversity conservation, which cannot be delivered without that expertise, is increasingly recognised by everyone. These problems have been summarised as 'the taxonomic impediment', which is being addressed by the CBD through the Global Taxonomy Initiative.

Plantlife, the Wild Plant Conservation Charity in the UK, is one of the few institutions created specifically for plant conservation. The effective implementation of the European Plant Conservation Strategy will depend on the development of appropriate organisational infrastructures to support trained people working with adequate facilities.

Funding is a constraint to plant conservation owing to a lack of awareness of its importance, and finance has been particularly limited for international co-operation. For the implementation of a coordinated and effective plant conservation strategy in Europe, where nations are increasingly agreeing to act through multi-lateral frameworks, considerable additional resources are required, and existing resources need to be better directed.

Key References :

American Museum of Natural History (1999), *The Global Taxonomy Initiative : Using Systematic Inventories to Meet Country and Regional Needs*, New York, Center for Biodiversity and Conservation, American Museum of Natural History (résultats de l'Atelier international DIVERSITAS/Systematics, Agenda 2000, 17-18 septembre 1998).

Site web de la CDB (www.biodiv.org/), *Initiative taxonomique mondiale*.

Global Strategy for Plant Conservation - targets adopted by CBD COP 6 :

- *The number of trained people working with appropriate facilities in plant conservation and related activities increased, according to national needs, to achieve the targets of this strategy;*
- *Networks for plant conservation activities established or strengthened at national, regional and international levels.*

Suggested long term European action:

- E42 Assess, country by country, the capacity for plant conservation, to include details of: taxonomists, field botanists, ecologists, ethnobotanists, conservation practitioners, seed biologists, horticulturists, plant geneticists, conservation advocates and campaigners, and environmental lawyers;
- E43 Review the botanical expertise of official conservation agencies (government and non government) contributing to plant conservation in each country;
- E44 Use the assessment to promote cooperation and expertise sharing between countries, and in funding applications;
- E45 Renew efforts to ensure funding and institutional support to maintain a core of taxonomists and taxonomic institutions in each country;
- E46 Develop a plant conservation role for each botanic garden, in collaboration and with the support of the relevant nature conservation agencies and NGOs;
- E47 Implement the Action Plan for Botanic Gardens in the European Union, prepared by the BGCI/IABG - European Botanic Gardens Consortium. (Support the work of the European Botanic Gardens in extending this approach to the rest of Europe);

- E48 Consider in each country without an NGO for plant conservation whether the establishment of one would be appropriate, either as a cost-effective delivery mechanism for government-funded conservation work and/or as a campaigning force;
- E49 Provide funding support for and urge conservation bodies in Europe (governmental and non-governmental) to become actively involved in the Planta Europa network;
- E50 Provide more resources for plant conservation, both nationally and internationally, including by:
- Developing innovative approaches to funding
 - Increasing grants from governments and international bodies for botany and plant conservation
 - Encouraging further enlargement of the LIFE Regulation for the benefit of plant conservation
 - Encouraging the EU to provide more aid from the European Union and its Member States for capacity-building in Central and Eastern Europe (e.g. use of the PHARE and TACIS mechanisms)

European Plant Conservation Strategy Targets

		Lead organisation(s)	Contributing organisations
5.1	Increase employed taxonomists supporting plant conservation by 25 % in each European country <ul style="list-style-type: none"> • By 2004: Capacity for taxonomic expertise in Europe assessed and reported on • By 2005: Promote needs to national governments and relevant institutes 		National Planta Europa members
5.2	Active partnership established with networks specialised in site management to promote training for landowners in sites important for plants.		UICN : CMAP Secretariat of Planta Europa
5.3	All targets in the European Plant Conservation Strategy supported by appropriate research <ul style="list-style-type: none"> • By 2003: Define research needs for each target • By 2003: Present Strategy to research bodies etc • By 2004: Find/allocate research partner • By 2004 Draw up memoranda of understanding as necessary: 	All lead organisations	National Planta Europa members
5.4	Increase by 25% number of volunteer recorders (amateur naturalists) for all plant groups contributing data to support plant conservation <ul style="list-style-type: none"> • By 2004: Assess the current contribution amateur naturalists make to plant recording • By 2004: Promote involvement in tailored national plant conservation projects 	National Planta Europa members	
5.5	Communication and information exchange between scientists and plant conservationists enhanced <ul style="list-style-type: none"> – By 2004: Directory of specialists in European plants developed and maintained – By 2004: Database of projects and case studies for plant conservation developed and maintained – By 2004: Database and information exchange system for European plant conservation and the Planta Europa Network established. 	Secretaria Planta Europa	National Planta Europa
5.6	Capacity of Planta Europa to achieve effective plant conservation enhanced <ul style="list-style-type: none"> – By 2002: Network of focal points in 75% European countries established – By 2004: Network of focal points in each country established 	Secrétariat of Planta Europa	National Planta Europa members

	<ul style="list-style-type: none"> - By 2004: Assessment of capacity in each country completed and gaps identified - By 2007: Collaborative projects which raise more than Euro 1 million facilitated 		
5.7	Starting from 2002, key conservation messages regularly disseminated to Planta Europa members.	Secretariat of Planta Europa	National Planta Europa members
5.8	<p>European Plant Conservation Strategy included within the Global Plant Conservation Strategy of CBD</p> <ul style="list-style-type: none"> - By 2002: Successfully lobbied at CBD COP 6 - By 2004: Common approach towards the development and implementation of the Global Plant Conservation Strategy agreed with key international networks (e.g. Ramsar Bureau, IUCN, Euro-MAB UNESCO, Council of Europe, FAO, IPGRI) achieved 	Secretariat of Planta Europa	National Planta Europa members

APPENDIX 1 - THE POLICY AND LEGISLATIVE FRAMEWORK FOR PLANT CONSERVATION

Global

- **The Convention on Biological Diversity (CBD)** was adopted in May 1992. UNCED 1992 Convention on Biological Diversity <http://www.biodiv.org/>. Biodiversity includes diversity within species, between species and of ecosystems. The objectives of the CBD are the conservation of biological diversity, the sustainable use of its components, and the equitable sharing of benefits arising from the use of genetic resources.
- **The Global Plan of Action for the Conservation and Sustainable Use of Plant Genetic Resources for Food and Agriculture** was adopted by 150 countries at the International Technical Conference on Plant Genetic Resources (Leipzig, 1996). It contains 20 priority activities grouped in four theme areas: *In situ* conservation and development; *Ex situ* conservation; Use of Plant Genetic Resources; Institution and capacity building <http://www.fao.org/ag/agp/>.
- **The Convention on International Trade in Endangered Species of Wild Flora and Fauna (CITES)** 1973, attempts to prevent commercial trade in species which are in danger of extinction. Species covered by the convention are listed in three appendices, and each appendix has a different level of trade restriction. <http://www.cites.org/>
- **The World Heritage Convention** 1972 allows sites of outstanding cultural and/or natural value to be designated as **World Heritage Sites** and promotes international cooperation for safeguarding these areas. <http://www.unesco.org/>
- **The Convention on Wetlands of International Importance** 1971 (commonly known as **The Ramsar Convention**) is an intergovernmental treaty, which provides the framework for national action and international cooperation for the conservation and wise use of wetlands and their resources. Under the Convention, wetlands of international importance are designated as **Ramsar sites** and the sustainable use of wetlands is promoted. The Ramsar Convention provides a tool to help the protection of wetland plant species. <http://ramsar.org/>
- **UNESCO Man and the Biosphere programme (MAB)** 1970s. Biosphere reserves are designated as representative international examples of habitats and ecosystems where practical management and research can be undertaken, with a focus on information exchange between all stakeholders. <http://www.unesco.org/mab/>

European

- **The Convention on the Conservation of European Wildlife and Natural Habitats** 1982 (commonly known as the **Bern Convention**) requires member states of the Council of Europe to ensure the conservation of wild fauna and flora species and their habitats. Special attention is given to endangered and vulnerable species listed in appendices. Appendix 1 lists all the Strictly Protected Flora Species. The Standing Committee of the Bern Convention continues to adopt resolutions and associated recommendations that support and underpin the articles of the convention. <http://www.ecnc.nl/doc/europe/legislat/bernconv.html>
- **The Emerald Network** is made up of **Areas of Special Conservation Interest (ASCIs)**; sites in Council of Europe countries that contain species and habitats of European importance. ASCIs are designated as a result of the Bern Convention Resolution 1 (1989) and Recommendations 14,15 and 16. The development of the Emerald Network in Council of Europe countries assists in preparatory work to comply with the EU Habitats Directive - see below. <http://www.nature.coe.int/english/cadres/emerald.htm>
- **The Habitats and Species Directive (EC Directive 92/43/EEC on the conservation of natural habitats of wild fauna and flora)** is a legislative instrument whose main focus to date has been the requirement of EC member states to set up a coherent ecological network of **Special Areas of Conservation (SACs)** that will, with Special Protection Areas (SPAs) designated under the Birds Directive, become the **Natura 2000 network**. SAC selection is based on the presence of species and habitats of European importance that are listed in the Directive's annexes. Annex I lists the habitat

types and Annex Iib lists the plant species that qualify sites for SAC designation. Once designated SACs are required to be adequately protected and managed to maintain and improve their nature conservation value. The Directive also makes provision for the protection of listed species outside of designated SACs. http://europa.eu.int/eur-lex/en/lif/dat/1992/en_392L0043.html

- **The Pan-European Biodiversity and Landscape Strategy (PEBLDS)** 1995 provides a framework for strengthening and building on existing initiatives and programmes, drawn up as a Pan-European response to the CBD. <http://www.nature.coe.int/english/cadres/biodiv.htm> A significant project for plant conservation developed under PEBLDS is the establishment of a **Pan-European Ecological Network (PEEN)** consisting of core conservation areas, ecological corridors, buffer zones and restoration areas. http://www.strategyguide.org/at1/at1_inde.html
- **The European Community Biodiversity Strategy** was launched in 2001 and provides the framework for developing Community policies and instruments in order to comply with the CBD. The Strategy therefore aims to anticipate, prevent and attack the causes of significant reduction or loss of biological diversity at the source and is divided into eight policy areas with objectives on how this can be achieved. **EC Biodiversity Action Plans** have been developed for 4 sectoral policies; Conservation of Natural Resources, Agriculture, Fisheries, and Development and Economic Co-operation. <http://biodiversity-chm.eea.eu.int/>

National Initiatives

- **National Strategies and Biodiversity Action Plans (NSBAPS)** have been, or are currently being developed by each contracting party to the CBD. These provide a framework for action to deliver national commitments to conserving and promoting sustainable use of biological diversity. (See National Government Environment Department websites.)

APPENDIX 2 PLANTA EUROPA NETWORK OPERATIONAL PRINCIPLES

Ways of working

The Network should:

- be built on what already exists, especially existing organisations and networks.
- be task oriented with minimum bureaucracy.
- form a genuine partnership within the spirit of these guidelines.
- include a fair geographical representation wherever possible.
- be built on the principles of mutual support and the sharing of expertise for the common good.

Specific tasks to be implemented by network members will be determined by Planta Europa resolutions passed at the conferences. In general these should result in:

- a set of commonly agreed tasks designed to build the capacity of the network to achieve its mission.
- promotion of plant conservation at a European level.
- promoting the European Plant Conservation Strategy and its implementation.

Definitions and principles

In the implementation of the European Plant Conservation Strategy, the following definitions and principles apply:

- Wild plant diversity is deemed to encompass diversity amongst plant taxa, as well as diversity in terms of vegetation (including plant associations), habitats and cultural landscapes, where these are of value to plant conservation.
- Wild plants include all native (or long established and non-invasive non-native) seed bearing plants, ferns, mosses, liverworts, lichens, fungi and algae.
- Europe is taken to include all member states of the Council of Europe, Belarus, Bosnia-Herzegovina and the Federal Republic of Yugoslavia.
- European biogeographic regions are those recognised under the EU Habitats and Species Directive and its extension to Pan-Europe, as adopted by the Standing Committee to the Bern Convention for use in the Emerald Network (i.e. Alpine, Anatolian, Arctic, Atlantic, Black Sea, Boreal, Continental, Macaronesian, Pannonian, Steppic and Mediterranean).
- The European Strategy will be implemented according to the principles of the Ecosystem Approach of the CBD.
- Most recent IUCN red list criteria should be used for all national and regional red lists.
- Red lists should be compiled as part of, and drawing on, full status lists.
- All recovery plans should include specific measures for appropriate research, advice, practical action, monitoring and partnerships.
- Lead organisations are responsible for leading the implementation of targets in partnership with other relevant organisations.
- Lead organisations should nominate a lead person as a contact for the Planta Europa Secretariat.
- Planta Europa Secretariat will report to network on progress with implementation of the Strategy.

All activities designed to support implementation of the Strategy should acknowledge Planta Europa and use the Planta Europa logo in any publications or other outputs produced.

Financial considerations

In the spirit of partnership as set out above the following financial considerations will apply:

- Any designated lead organisation may raise resources in the name of Planta Europa provided that they have informed the Secretariat of their intent and furnished the Secretariat with a copy of the proposal and its target audiences.
- If possible the lead organisations should fairly cost any anticipated support from the Secretariat in such proposals.
- The Secretariat will endeavour to keep a register of all such proposals and targets to promote co-ordination.
- The Secretariat will also, in the name of Planta Europa, endeavour to raise support for the tasks and the maintenance of Planta Europa itself.

APPENDIX 3 ACRONYMS

AEE	Agence européenne pour l'environnement
AOPK CR	Agence pour la conservation de la nature et la protection du paysage de la République tchèque
BGCI	Botanic Gardens Conservation International
BRC	Biological Records Centre (CEH, Monks Wood, Royaume-Uni)
CDB	Convention sur la diversité biologique/la biodiversité
CdE	Conseil de l'Europe
CEC	Commission sur l'éducation et la communication (UICN)
CECB	Comité européen pour la conservation des bryophytes
CECC	Conseil européen pour la conservation des champignons
CECN	Centre européen pour la conservation de la nature
CEH	Centre for Ecology and Hydrology, Royaume-Uni
CMAP	Commission mondiale des aires protégées (UICN)
CSE	Commission de sauvegarde des espèces (UICN)
DCPO	Danube Carpathian Programme (WWF)
DfID	Ministère du Développement international, Royaume-Uni
DHKD	Société de protection de la nature (Turquie)
ECP/GR	European Cooperative Programme for Crop Genetic Resources Networks
EFNCP	Forum européen pour la protection de la nature et des pâturages
EIONET	Réseau européen d'information et d'observation de l'environnement
ETC/NPB	Centre thématique européen pour la protection de la nature et la biodiversité (AEE) (France)
EUFORGEN	European Forest Genetic Resources Programme
EUNIS	Système européen d'information sur l'environnement
EURO+MED	Euro+Med Plantbase
EUROPLANT	Groupe de spécialistes des plantes d'Europe (CSE/UICN)
FAO	Organisation des Nations Unies pour l'alimentation et l'agriculture
FEM	Fonds pour l'environnement mondial
FFI	Faune et Flore Internationales
FoE	Friends of the Earth – Amis de la Terre
FSC	Conseil de bonne gestion forestière
GISP	Programme mondial sur les espèces envahissantes (UICN)
GTI	Initiative taxonomique mondiale (CDB)
IABG	Association internationale des jardins botaniques
IAL	International Association of Lichenology
IIED	Institut international pour l'environnement et le développement
IOPI	Organisation internationale d'information sur les plantes
IPGRI	Institut international des ressources phytogénétiques
ISTE	Département de pharmacobotanique, Université d'Istanbul
JNCC	Joint Nature Conservation Committee
MCPFE	Conférence ministérielle sur la protection des forêts en Europe
MSC	Conseil de bonne gestion marine
NHM	Natural History Museum, Royaume-Uni
OPTIMA	Organisation pour l'étude phytotaxonomique de la flore méditerranéenne
PEBLDS	Stratégie paneuropéenne de la diversité biologique et paysagère
PHB	Programme sur l'homme et la biosphère (UNESCO)
PNUE	Programme des Nations Unies pour l'environnement
RDB()	Red Data Book (Liste rouge, suivie du nom du pays)
RBG	Royal Botanic Gardens, Kew, Royaume-Uni
RBGE	Royal Botanic Gardens, Edimbourg, Royaume-Uni
REP	Réseau écologique paneuropéen
RSPB	Royal Society for the Protection of Birds, Royaume-Uni
SLU	Université suédoise des sciences agronomiques
TRAFFIC	Trade Records Analysis of Flora and Fauna in Commerce
UE	Union européenne

UICN	Union mondiale pour la nature
CEE/ONU	Commission économique pour l'Europe (ONU)
UNESCO	Organisation des Nations Unies pour l'éducation, la science et la culture
V.I.M.	Verlag für Interactive Medien
WCMC	Centre mondial de surveillance continue de la conservation (PNUE)
WRI	Institut mondial des ressources naturelles
WSL	Institut fédéral de recherches (Suisse)
WWF	Fonds mondial pour la nature
WWF-EPO	Fonds mondial pour la nature – Bureau de politique européenne

**APPENDIX 4 ORGANISATIONS REPRESENTED AT THE
THIRD PLANTA EUROPA CONFERENCE, CZECH REPUBLIC 23-28 JUNE 2001**

Agencija RS za okolje, Slovénie
 Agence pour la conservation de la nature et la protection du paysage de la République tchèque
 Université des sciences agronomiques, Wrocław, Pologne
 BirdLife International
 Centre de conservation de la biodiversité, Moscou, Russie
 Botanic Gardens Conservation International
 Jardin botanique, Université de Berne
 Musée botanique de l'université d'Oslo
 Botanical Society of the British Isles
 Société botanique de Belgique
 Bot. Ústav, Trebon, République tchèque
 British Lichen Society
 Programme bulgaro-suisse de conservation de la biodiversité
 Californian Native Plant Society
 Centre de cartographie de la faune et de la flore, Slovénie
 Université Charles, Département de botanique, République tchèque
 Conservatoire botanique de Brest
 Conservatoire botanique national méditerranéen de Porquerolles
 Conseil de l'Europe
 Countryside Council for Wales
 CSOP, Union tchèque pour la conservation de la nature
 Direction pour la gestion de la nature, Norvège
 EC-LNV, Wageningen, Pays-Bas
 Centre d'éducation et d'information Bilé Karpaty, République tchèque
 Egogestioni S.C.R.L. Palmero, Italie
 EKO- Agence KOPR, République tchèque
 English Nature
 Environment and Heritage Service, Irlande du Nord, Royaume-Uni
 Institut estonien de protection de l'environnement
 ETH Zurich, Suisse
 Commission européenne, DG Environnement
 Comité européen pour la conservation des bryophytes
 Conseil européen pour la conservation des champignons
 Centre thématique européen pour la protection de la nature et la biodiversité
 Faune et Flore Internationales
 Agence fédérale pour la conservation de la nature, Allemagne
 Institut finnois de l'environnement
 Fondation Floron
 Fondation Territori i Paisatge, Espagne
 Generalitat Valenciana, Espagne
 Centre grec pour les biotopes et les zones humides, EKBY, Thermi
 I.V.I.A, Valence, Espagne
 Institut islandais d'histoire naturelle
 Institut de protection de l'environnement du Portugal
 Institut de botanique, Pruhonice, République tchèque
 Institut de botanique, Vilnius, Lituanie
 Institut de botanique, Kiev, Ukraine
 Institut de botanique expérimentale, Bélarus
 Institut d'écologie paysagère, Nitra, République slovaque
 Institut d'écologie paysagère, Académie des sciences de la République tchèque
 Instituto sup. de Agronomia, Lisbonne, Portugal
 Institut international des ressources phytogénétiques
 UICN, Bureau régional pour l'Europe

UICN, Commission de sauvegarde des espèces
Université Jagellon, Institut de botanique, Cracovie, Pologne
Jardín botánico, Valence, Espagne
Université Jihoceská, Faculté de biologie, République tchèque
Joint Nature Conservation Committee, Royaume-Uni
Fonds lettonien pour la nature
Université Masaryk, Brno, République tchèque
Ministère de la Protection de l'environnement, Croatie
Ministère de l'Agriculture, du Patrimoine naturel et de la Pêche, Pays-Bas
Ministère de l'Environnement, Pologne
Ministère de l'Environnement, Turquie
Ministère de l'Environnement, Département des ressources naturelles, Russie
Ministère de l'Environnement et de l'Aménagement du territoire, République de Macédoine
Ministère de l'Environnement et de l'Aménagement du territoire, République de Moldova
Ministère de l'Environnement et de l'Eau, Bulgarie
Ministère de l'Environnement, République tchèque
Ministère de l'Environnement, Estonie
Ministère de la Protection de l'environnement et du Développement régional, République de Lettonie
Musée morave, République tchèque
Muséum national d'histoire naturelle, Paris, France
Centre régional pour l'environnement de Nord-Carélie
Jardin botanique national d'Ukraine
Natural History Museum, Londres, Royaume-Uni
Centre de recherche sur la conservation de la nature, Estonie
NP České Švýcarsko, République tchèque
Parque natural da Madeira, Madère, Portugal
PLA České Stredohoří, République tchèque
Planta Europa, Secrétariat
Plantlife
Plantlife International
Jardin botanique polaire-alpin RAN, Russie
Académie des sciences et de la conservation de la nature, Cracovie, Pologne
Académie polonaise des sciences, Jardin botanique, Varsovie
Pro Natura, Ligue suisse pour la protection de la nature
Regional Environmental Centre for Central and Eastern Europe
Royal Botanic Garden Edimbourg, Royaume-Uni
Royal Botanic Gardens Kew, Royaume-Uni
Société royale pour la conservation de la nature, Pays-Bas
Royal Society for the Protection of Birds, Royaume-Uni
Scottish Natural Heritage, Royaume-Uni
SCHKO Český kras, République tchèque
Institut de recherche Silva Tarouca, République tchèque
Agence slovaque de l'environnement, Centre ŠOP pour la protection du paysage
Commission pour la conservation des plantes sauvages, Suisse
TRAGSA, Madrid, Espagne
Programme des Nations Unies pour l'environnement
Université autonome de Madrid, Espagne
Université de Lille II, Département de botanique
Université de Belgrade, Faculté de biologie, Serbie
Université de Birmingham, Royaume-Uni
Université de Bratislava, Prirodovedecká fakulta UK, dép. de botanique, République slovaque
Université de Bucarest, Faculté de biologie, Jardin botanique, Roumanie
Université de Reading, Euro+Med Plantbase
Université de Palacký, Olomouc, République tchèque
Université de Salzburg, Institut de zoologie, Autriche
Université de Sienna, Jardin botanique, Italie
Université de Silésie, Pologne

Université de Bohême du Sud, République tchèque
Université de Szeged, Département de botanique et Jardin botanique, Hongrie
Université de Tartu, Institut de botanique, Estonie
Université de Trondheim, Norvège
Université de Zagreb, Faculté d'agronomie, Croatie
Université d'Utrecht, Jardin botanique, Pays-Bas
V.I.M. (Verlag für interaktive Medien), Allemagne
WSL, Institut fédéral de recherches, Suisse
WWF-Royaume-Uni