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CONVENTION ON THE CONSERVATION OF EUROPEAN WILDLIFE
AND NATURAL HABITATS

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European Strategy for Plant Conservation (2008-2014): A Sustainable Future for Europe

Report prepared by
the Planta Europa Network
and the Directorate of Culture and Cultural and Natural Heritage

Planta Europa is a network of organisations, non-governmental, scientific and governmental, working together to conserve European plants and fungi. Planta Europa currently has 78 members in 35 countries. Plantlife International hosts the Secretariat of Planta Europa

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

Goal: To secure and begin to restore plant diversity by 2014

Text prepared by Seona Anderson based on the outputs of workshops at the fifth Planta Europa Conference in Cluj Napoca, Romania, 5th – 9th September 2007, with subsequent editorial comments from the Planta Europa Network, the Council of Europe, lead partners and contributing organisations.

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FOREWORD/MESSAGE OF SUPPORT

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EXECUTIVE SUMMARY

The plants and fungi of Europe face an ever increasing range of threats, the fragmentation of their habitats (especially wetlands, heathlands and grasslands), the negative pressures from agricultural, forestry and development continue and newer threats are emerging in the form of a changing climate, the continued loss of genetic diversity in our crops, the spread of invasive alien species, and the indiscriminate growing of biofuels. The loss of our plants and their habitats is not of concern only to a few scientists in research institutes, it affects all of us. They are the backbone of the ecosystems that we and all other organisms rely on for food, materials, flooding prevention, water supplies, and leisure, and they are the cornerstone of our cultural and landscape heritage.

This Strategy brings coordination and a clear focus to a complex set of issues, outlining the many activities which exist or are planned to halt the loss of our plant diversity in Europe. The targets have been developed by the Planta Europa Network and the Council of Europe in partnership with other related conservation organisations. They are set within the 5 objectives and 16 targets of the CBD Global Strategy for Plant Conservation (Objective 1 – Documenting and understanding plant diversity; Objective 2 – Conserving plant diversity; Objective 3 – Using plant diversity sustainably; Objective 4 – Increasing education and awareness about plant diversity; Objective 5 – Increasing capacity for plant conservation). The importance of all plant and fungus groups, including mosses, lichens, fungi and the algae of the Plant Kingdom is recognised.

Many targets and activities within this strategy will contribute plant-based data and recommendations into key EU and Pan-European legislation and strategies, notably the EU Biodiversity Strategy, the EU Sustainability Strategy, the EC Habitats and Species Directive, the EC Water Framework Directive, reform of the EU Common Agricultural Policy, any future EC Soils Directive, the Pan-European Biological and Landscape Diversity Strategy and the Pan-European Ecological Network, the Kyiv and Belgrade Resolutions on Biodiversity. Objective 3 on sustainable use of plants highlights the needs for a considerable increase in effort to implement targets directly relating to the use of plant resources.

Europe has a significant influence on plant conservation in different regions of the world through its trade and development policies. This Strategy recognises our duty to understand the effects of our actions on plant diversity and not to export our ecological problems to other regions, for example by importing unsustainably grown plants, or the cultivation of biofuels in botanically rich areas beyond our continent, to satisfy European energy demands.

This Strategy also recognises that partnership with other organisations inside and outside of the fields of plant and fungus conservation will be key to the delivery of all targets. The vital importance of effective communication and data sharing to resolve key problems and prevent duplication of effort is also emphasised.

The European Parties to the CBD, including the European Community, have endorsed the implementation of the targets of the CBD Global Strategy for Plant Conservation, of which this strategy is a regional component. The successful delivery of this strategy will require strong government commitment to developing and enforcing relevant legislation and policies, and to providing adequate funding through national and regional sources.

Despite the increasing threats facing European wild plants, fungi and their habitats, there are many cases of successful action and research contributing towards halting the loss of plant diversity. A selection of these case studies are celebrated in the document and will be displayed in more detail on the Planta Europa website (www.plantaeuropa.org).

CHAPEAU/FRAMEWORK FOR THE EUROPEAN STRATEGY FOR PLANT CONSERVATION (2008-2014)

Overview: The launch of the new European Strategy for Plant Conservation (ESPC) presents individuals, institutions, organisations and governments across Europe with a unique opportunity to take action to secure the future of wild plants and fungi and the ecosystem services and livelihoods that depend upon them. It provides the framework within which European botanists, mycologists, phycologists and plant conservationists, can work to increase understanding and engagement by all groups with the conservation issues that define the future of European biodiversity. As well as continuing to emphasise the importance of all types of plants, mosses, fungi, lichens and algae the objectives of the new ESPC also embrace the full diversity of European habitat types from the sea, to peat bogs, wetlands and rivers, forests, grasslands, agricultural land and mountains. The term 'plant' is used as shorthand for vascular plants, mosses, lichen and the algae of the Plant Kingdom. A commitment to engaging with the challenges and opportunities presented by these issues is recognised as a fundamental requirement for the success of the ESPC.

Structure: As well as redefining the context for delivery the ESPC establishes a new structure to complement and enhance the other key European and Global initiatives influencing the future of plant conservation. Critically, the structure ensures the new ESPC is closely modelled on the 16 targets of the Global Strategy for Plant Conservation (GSPC) with specific European targets and activities aligned under each of the Global targets. In addition, the timescale of the new ESPC, 2008-2014, is designed to enable a mid-term review in 2010/11 that coincides with the review of the GSPC as well as the reviews of the European Union and Pan-European targets to halt the loss of biodiversity by 2010. The strong, evidence based successes of the first European Plant Conservation Strategy as well as the production of this new Strategy will demonstrate the effectiveness of the GSPC and establish a basis from which the future of the Global Strategy beyond 2010 is launched.

This Strategy also recognises the impact that Europe and European trade has in other regions of the world and on plant diversity far beyond its border, and that as far as possible it should attempt to enhance delivery of the Millennium Development Goals particularly on environmental sustainability, poverty alleviation and health. The mid-term review will therefore provide an essential opportunity to ensure the inclusion of plant conservation solutions and activities in the review of the Millennium Development Goals in 2015.

Scope of delivery: The success of the first EPCS has been its ability to:

- affect land management and land use on the ground,
- influence policy making and delivery at all levels and
- raise awareness in support of plant conservation objectives.

These remain the key success criteria, in the broadest terms, for this new Strategy but are now linked with a heightened awareness of the need to communicate and share expertise, evidence and solutions generated through the Strategy as broadly and efficiently as possible. Relative to other regions of the world Europe has less plant diversity but greater numbers of specialists. This Strategy is therefore designed to take advantage of this 'knowledge bank' and the increased access to internet and electronic media to encourage the sharing of expertise within and outside of Europe and to publicise successful research and practical conservation projects.

By enhancing the importance of communication as a key delivery mechanism this Strategy will be able to feed essential plant based data, conservation practices and concerns more effectively into the widest range of regional policy initiatives including: the European Union's strategies and policies (the EC Habitats Directive, the Natura 2000 network, the EC Water Framework Directive, the 7th Action Framework, reform of the EU Common Agricultural Policy, and the Council of Europe's Bern Convention and its Emerald Network, the Pan-European Biological and Landscape Diversity Strategy (PEBLDS), the Pan-European Ecological Network (PEEN) and the Kyiv (2003) and Belgrade (2007) Resolutions on Biodiversity. Above all, this Strategy recognises that there are significant differences in the challenges and opportunities for plant conservation across Europe, and that the scope for local, national and regional action under each of the targets will reflect this.

Scope within Europe: The geographical area of this new Strategy includes the 47 countries of the Council of Europe and Belarus: Albania, Andorra, Armenia, Austria, Azerbaijan, Belarus, Belgium, Bosnia-Herzegovina, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Georgia, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Liechtenstein, Lithuania, Luxembourg, Malta, Moldova, Monaco, Montenegro, Netherlands, Norway, Poland, Portugal, Romania, Russian Federation, San Marino, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, The Former Yugoslav Republic of Macedonia, Turkey, Ukraine, United Kingdom. This strategy also recognises the close connections between European countries and their overseas territories and welcomes any exchange of information and best practice models between Europe and these regions.

Both the IUCN Pan-European Assessment Situation Analysis (2007) and the European Environment Agency's 2007 report on the State of the European Environment emphasise that the largest areas of un-fragmented habitats, forests, tundra, wetlands are in Eastern Europe, and that the greatest fragmentation occurs in Western Europe. It is recognised that higher plant diversity increases in the south and the east of Europe and that national and regional percentages in the targets need to take account of this, and that resources should be targeted at areas with high diversity and fewer specialists. This Strategy is well placed to secure the pan-European commitment that will be required to protect and sustain plant diversity in this area.

Context – Existing and emerging issues: The IUCN Pan-European Assessment Situation Analysis (2007) and the European Environment Agency's 2007 report on the State of the European Environment, both highlight the increasing fragmentation of habitats, and the continued loss of plant-rich habitats especially wetlands (mire, bog and fen), heath/scrub/tundra, and grasslands. They also highlight the continued pressure of drivers such as agricultural intensification and urban expansion on biodiversity and the continued lack of recognition of the benefits of ecosystem services and the need to include them in economic assessments.

Using the conclusions raised in these reports and from other sources the new ESPC has identified the key issues that provide the context for and define the ability of this Strategy to achieve its aims at regional, national and local levels both now and for the future. It is important to note that at the Planta Europa Conference in 2007, which provided the foundation for the new ESPC, all participants agreed that it was not sufficient for these issues to be addressed as single objectives or targets but rather that they had to be incorporated and taken account of as the components of the overarching context for the whole Strategy. While some key issues have been recognised and accounted for in the first EPCS, others have dramatically increased in significance in terms of their impact on plant diversity or are receiving consideration for the first time.

Existing issues are:

- Habitat fragmentation and connectivity
- Agriculture and forestry practice and policy
- Invasive alien plants
- Sustainable development

Emerging issues are:

- Climate change
- Biofuels

Existing issues:

- **Habitat Fragmentation and Connectivity** - Habitat fragmentation not only remains one of the greatest challenges to halting the loss of plant diversity but is one whose effects will increase with climate change. In order to combat these effects increasing emphasis needs to be placed on conservation actions that not only secure important plant sites but which also identify the critical factors for providing buffers, connectivity between sites, enlargement and newer concepts such as 'zones of opportunity' for restoration. There are many models and proposed methods for increasing connectivity but more corridors need to be established on the ground in an effective

manner. Increased connectivity is required both to protect core areas of plant diversity and to provide viable habitat corridors for dispersal in response to a range of factors, including climate change. Both *in situ* and *ex situ* resources are vital to the successful establishment of corridors and enlargement and restoration of key sites. At national and regional levels in particular, concerted action to coordinate activities to restore, enlarge and link sites and zones will be essential. Activities need to be coordinated with the Pan-European Ecological Network, the Natura 2000 Network, the European Greenbelt Project and other regional networks.

- **Agriculture and forestry practice policy** – The pattern of continuing decline and degradation in biodiversity and ecosystem services, through intensive resource use, deforestation and nutrient loading calls for a strong institutional response similar to that required in other parts of the globe as identified in the Millennium Ecosystem Assessment (2005). Forest area is increasing in Europe but old growth, species rich forests, particularly in the south and east, are still under threat from intensive forestry or illegal logging. In addition, the twin problems of agricultural intensification in some areas and abandonment in others remain as significant conservation issues. The potential opportunities and threats to biodiversity and sustainable development resulting from the expansion of the European Union present immediate challenges that must be addressed without delay. Threats come in the form of intensified agricultural practices while opportunities arise from the availability of conservation resources via the Rural Development Fund.

  Agriculture and forestry policy were recognised as important in the first ESPC but highlighted as a weak area of achievement in the review. The new targets in this Strategy require plant conservationists to engage more effectively with policy and practice on these issues and to work with a greater range and number of partners. An early priority is for plant conservationists to make their voices heard in the reform of the EU Common Agricultural Policy in 2008. In particular the threats of intensification especially in lowland areas and the loss of grazing in upland areas need to be addressed in any reviews, the support for environmental management measures under Pillar 2 needs to be increased by Member States, and that effective methods for ensuring that environmental schemes provide measurable benefits for wildlife conservation are implemented and enforced.

- **Invasive Alien Plants** - Invasive alien plants remain a major issue for the conservation of plant diversity and the sustained provision of a range of ecosystem services, specifically those related to the supply and quality of water. Again, this is predicted to be a problem whose effects will increase negatively with climate change. Effects may include increases in the range and viability of current invasive species and increased opportunities for the introduction of new species. Measures to control known species, including national implementation of the European Strategy for Invasive Alien Plants (Recommendation 99 of the Standing Committee of the Bern Convention) and Recommendation 126 on the eradication of existing alien plants, and to assess the risk of potential impacts of new ones, as well as activities to raise awareness of the problems they create, are included under target 10 and in other targets.

- **Sustainable development** – There is an increasing awareness of Europe's 'ecological footprint' and the effects of our resource use on human communities and the environment inside and outside of Europe. The sustainability debate offers plant conservationists an opportunity to engage a wider audience in the benefits of plant conservation for environmental and humanitarian benefit and a stronger imperative to bring about change in agricultural and forestry practices. In particular, control of flooding and water resources will continue to become matters of increasing economic, social and biodiversity concern. Plant conservationists have a key role in providing evidence for conserving and restoring habitats such as flood plain forests, peat bogs, wetlands and habitats which provide flooding control or prevent water resources from being lost. At a broader level, Europe also has a responsibility to demonstrate that the securing and restoration of plant diversity lies at the heart of sustainable development and the ecosystem services it depends upon. An additional aspect of this issue that is given a more focused approach in the new ESPC is the need to ensure that Europe does not export its conservation problems by importing unsustainably sourced plant products from other parts of the world.

Emerging issues:

- **Climate Change** – Although it is recognised that certain groups of plants will benefit from changes to the climate in that they will be able to expand their range northwards, and that the threat of climate change may provide the impetus to conserve and manage native plant habitats to sequester Green House Gases, there are also many negative aspects of climate change for plant conservation. The Fourth Assessment Report from the 2nd Working Group contribution to the Intergovernmental Panel on Climate Change stated that "nearly all European regions are anticipated to be negatively affected by some future impacts of climate change. The great majority of organisms and ecosystems will have difficulties adapting to climate change." Climate change will affect many aspects of plant conservation in the future. It threatens plants that cannot migrate due to habitat fragmentation as well as those without a sufficiently diverse genetic stock that cannot adapt to the pace of climatic change. Certain habitats such as coastal lagoons and associated wetlands are one of the habitats at particular risk from the effects of climate change.

Themes already referenced above will determine the success of this new Strategy in meeting the challenge of climate change, specifically, its ability to:

- inform future development of the Global Strategy with regard to climate change;
- meet the increased need to raise awareness of the vital role of plant conservation in providing sustainable solutions to the impacts of climate change, both in terms of adaptive management and mitigation;
- fulfil the requirement for the plant conservation community to increase its capacity to share evidence, skills and solutions.

The current Global Strategy for Plant Conservation contains no direct objectives or targets to address climate change although it includes a number of actions that alleviate its impact including the need to maintain plant-based ecosystems as carbon sinks and reservoirs of genetic resources. Establishing climate change as a cross cutting imperative for delivery of this new Strategy is therefore expected to provide a strong regional evidence base to support the integration of climate change into the development of the GSPC beyond 2010.

In addition to promoting the future development of the GSPC, this Strategy believes strong partnerships will provide the best means of raising awareness of the role of plant conservation in providing sustainable solutions to the impacts of climate change at local, national and regional levels. Similarly, cooperation across national boundaries will be a crucial factor in the ability of this Strategy to build the capacity required to enable sufficient sharing of data, skills and adaptive management solutions to address the impacts of climate change. However it is recognised that the effects of climate change on plant diversity are not fully understood and the midterm review will make changes in line with new research or practical conservation solutions.

- **Biofuels** – All biofuels are sourced from plants and are extracted by a variety of methods. The majority, including bioethanol, biodiesel and cellulosic ethanol, require an increasing amount of land for biofuel crop production. The growing of biofuels is strongly linked to the climate change debate and is seen as a significant contribution towards mitigating the effects of climate warming. Strong support for biofuels is also at the heart of the EU's European Strategic Energy Technology Plan 2006 (SET-Plan) and the Energy Policy for Europe COM (2007) which includes a recommendation from the European Commission's Renewable Energy Roadmap 21 for binding targets to be set for biofuels to comprise up to 14% of all transport fuels and a minimum of 10% of vehicle fuel by 2020. However the indiscriminate planting of biofuels on plant-rich habitats, the intensification of land use for biofuel crops and the planting of species as biofuels which could become established as invasives could all have disastrous effects on plant diversity inside and outside of Europe. Again, the need for plant conservationists to raise these concerns at local, national and regional levels and to call for the implementation of biodiversity risk assessments is an imperative established by this new Strategy.

Implementation

Delivery mechanisms: Europe has a high number of specialists and a high degree of national and regional legislation for nature protection. Although this Strategy is designed to highlight the benefits of regional cooperation it is recognised that much of the activity will happen at the national and local level and much of the funding will be allocated at the national level. This will require strong national focal points and national government commitment. Effective communication will be one of the keys to successful implementation of this Strategy including the sharing of data and expertise, celebrating our conservation successes, and demonstrating to new audiences the benefits of having a Europe rich in wild plants and fungi.

Partnerships: The targets of this Strategy cannot be achieved by plant conservationists working in isolation. This Strategy aims to address both the deficit of skills and expertise in plant conservation and the need to take maximum advantage of the synergies generated through enhanced communication and information exchanges. In order to do this the Strategy will rely on enhanced partnership working at local, national and regional level. As well as the long established partnerships among different taxonomic groups and *in situ/ex situ* practitioners, this new Strategy calls strongly for plant conservationists to develop partnerships with those working in other sectors and industries whose work significantly impacts ESPC objectives. These will include partnerships with those involved in genetic diversity, animal, bird, marine and invertebrate conservation, those who work in agricultural, forestry, environment, spatial planning, tourism, trade, infrastructure and sustainable development policy and practice.

Funding: Funding remains one of the greatest obstacles to implementation of this Strategy. The challenges presented by the breadth of the geographic area covered by the Strategy have already raised the question of how resources should be prioritised. Many of the regional and EU funds are allocated at the national level and will require strong national plant conservation focal points to access them. Information on ways to access funding is increasing and Planta Europa has a role in publicising the available funds and fund-raising information for plant conservationists and encouraging fund-raising partnerships.

KEY THREATS IN EUROPEAN PLANT CONSERVATION

Habitat Fragmentation - Wetland habitats (mire, bog and fen) have suffered the highest percentage level of fragmentation and loss in Europe over the period from 1990-2000, with 107,044 hectares lost, followed by heath (298,108 ha) and grassland (269,787 ha) (EEA, 2005)

Climate change - 3,000 plant taxa within the EU Alpine Biogeographic Region are threatened with extinction (ENSCONET – reported in ENSCONEWS, 2007, No. 3)

Invasive Alien Species – The EEA/SEBI2010 have identified 163 'worst alien invasive species' for biodiversity, of which the largest proportion, 40 taxa, is vascular plants. On average more than one of the listed species established itself every year and there is no clear sign that the situation is improving (EEA 2007)

Agriculture, intensification and abandonment – High Nature Value Farmland (HNV) is a valuable asset for the conservation of biodiversity in Europe. It makes up 15-25% of the available agricultural land. The main threats are intensification and abandonment. Outside of protected areas conservation of HNV Farmland depends mainly on EU support, Less Favoured Areas and Agri-environment schemes. These measures are not well targeted at HNV Farmland and Southern Europe in particular gets little support for its HNV Farmland. (EEA 2004, 2007)

Poor Foresty Management – In the 2005 report on threats to Important Plant Areas in Central and Eastern Europe, poor forestry practices threatened 44% of the sites. (Plantlife International, 2005)

In the Global Forest Resource Assessment (2005) Europe and Western and Central Asia have the lowest percentage of forests designed primarily for conservation. (FAO, 2005)

Illegal logging is a special threat to forest biodiversity. It is most frequent in the Balkan Region, the Baltic Countries, the Russian Federation, the Caucasus, Central Asia and in some central and eastern European Countries (EEA 2007).

Decline of plant crops & crop wild relatives – The number of food crops and the crop wild relatives with which they are associated is declining. '*Worldwide, only 14 animal species and four plant species (wheat, maize, rice and potatoes) account for 90% of our food'* (EEA 2006). '*Europe hosts primary centres of diversity for a number of crops, including cereals, legumes, fruits, vegetables, industrial crops, oil crops, forages, medicinal and aromatic plants. Europe has a large responsibility for plant genetic resources, both within the region and in respect to other parts of the world*' (Bioversity International, website 2008)

Lack of representation for fungi, mosses, lichens and algae – These groups are under-represented in national and European conservation legislation and their importance in providing ecosystems services is often ignored.

Inadequate monitoring & conservation – Basic assessments of conservation status and monitoring of key sites identified are often inadequate or absent. *'A preliminary survey of 20 species and 8 habitats under the Birds and Habitats Directives revealed a 'favourable' conservation status in only 6% of the sample. This small and un-representative sample does not allow any extrapolation, and unfortunately general assessment of the conservation status of the almost 900 species and 220 habitats covered by the Birds and Habitats is not yet possible'*. (EEA – Fourth State of the Environment – 2007)

KEY SUCCESSES IN EUROPEAN PLANT CONSERVATION

Volunteering and capacity building – The NGO FLORON in the Netherlands currently has a network of over 1000 volunteer botanical recorders who provide data for red-listing, research and conservation projects. The NGO DHKD in Turkey has created IPANET, a network of local volunteer guardians to protect IPAs and engage with local communities and authorities.

Sustainable use – a community based project to identify and implement the key factors of sustainable *Arnica montana* use was carried out by the Garda de Sus Community in the Apuseni mountains and WWF. Lessons learned from this project can be directly utilised in others such as those focusing on medicinal and aromatic plants

Genetic resources – The EC-funded project, PGR Forum (www.pgrforum.org) has produced the Crop Wild Relative Catalogue for Europe and the Mediterranean and the online Crop Wild Relative Information System (CWRIS). The project also published methodologies for crop wild relative conservation, which are being tested with a number of case studies in a new EU project, AEGRO (http://www.bafz.de/aegro/).

Training and education – Scottish Natural Heritage and the British Lichen Society have set up a lichen training apprenticeship scheme, to build future capacity for lichen identification and conservation. The EU-funded Plant Science Gardens has established a teaching partnership among botanic gardens, primary schools and national school boards in 4 countries.

Production lands – The Pan-European inventory of High Nature Value Farmland is continuing to take account of available data. An Important Arable Plant Area (IAPA) Programme for conserving rare and threatened arable plants has been developed in the UK.

Check-listing and red-listing – A checklist for bryophytes of Europe has been completed and an European Red List for macro-fungi is in the final stages of completion.

***Ex situ* conservation** – The European Native Seed Conservation Network (ENSCONET) has been established to coordinate and improve European seed conservation practice, policy and research for native plant species. It currently holds 5200 European taxa. The Royal Botanic Gardens Kew has successfully developed protocols for sustainable collection of different types of bryophyte and developed methods to preserve such as cryopreservation.

Key plant sites and connectivity – Currently over 1000 Important Plant Areas (IPAs) have been identified in Europe, several hundred Plant Micro-reserves (PMRs). In addition, over 20,000 Natura 2000 sites have been identified under the Habitats and Species Directive, the Emerald Network is expanding to include countries in the Mediterranean basin, and an indicative map is available for the Pan-European Ecological Network (PEEN).

Ethnobotany – An EU-funded project (RUBIA) was established to record ethnobotanical field data on plants and their uses within their socio-economic and anthropological context in 12 sites in the Mediterranean, and to disseminate the results via databases, educational resources, and museum exhibitions.

Networks – During 2004 a plant conservation network was developed in Germany. There are currently 250 members from NGOs, Federal State authorities for nature conservation, academics, freelance and volunteer conservationists. The network is developing an internet platform and currently has working groups for IPAs and *ex situ* conservation.

SUMMARY TABLE OF NEW EUROPEAN STRATEGY TARGETS

GSPC target 1: A widely accessible working list of known plant species, as a step towards a complete world flora

ESPC 1.1	**A widely accessible dynamic working list of all known plant and fungi species (including bryophytes, lichen, algae and cultivated plants) available by 2010 for vascular plants and bryophytes and 2014 for other groups, as a part of a world list, and including country distributions.**
ESPC 1.2	**Alien plants annotated within the working list of plant species with a risk category (low risk, spreading but weedy, damaging ecosystems 'transformers').**

GSPC target 2: A preliminary assessment of the conservation status of all known plant species at national, regional and international levels

ESPC 2.1	**European Red Lists produced by 2014 (review of progress in 2011), vascular plants completed by 2010, Red Lists updated periodically for vascular plants and bryophytes, and at least a preliminary assessment produced for fungi, lichens, and algae.**

GSPC target 3: Development of models with protocols for plant conservation and sustainable use based on research and practical experience.

ESPC 3.1	**Proven methods that enable delivery of each target in the European Strategy, collected and made available in one place via an online facility linked with the Planta Europa website.**
ESPC 3.2	**European plant distribution data (national/regional datasets) published electronically and regularly updated to facilitate conservation activities including comprehensive conservation assessments, invasive plants and climate change research, through cross-border projects and using the GBIF standards and facilities.**

GSPC target 4: At least 10% of the world's ecological regions effectively conserved.

ESPC 4.1	Landscape-scale conservation of Europe's ecological regions must support the maintenance of plant diversity.
ESPC 4.1a	IPA data – including digital boundary data (or data from equivalent programmes with a focus on plants and fungi) and micro-reserve data are used to support the following biodiversity initiatives: Natura 2000; the Emerald Network; National Protected Areas; High Nature Value farmland; the Pan-European Ecological Network; Ramsar; Protected Area Networks, Invasive species programmes.
ESPC 4.1b	The negative impacts of habitat fragmentation and climate change on plant diversity reduced by implementing article 10 of the EC Habitats and Species Directive, the Pan-European Ecological Network and other measures such as creating buffers and corridors or identifying Zones of Opportunity for habitat restoration around IPAs

GSPC target 5: Protection of 50 per cent of the most important areas for plant diversity assured by 2010

ESPC 5.1	All countries implement a national strategy (action framework) by 2014 for the conservation of IPAs (or equivalent programme with a focus on site-based conservation on plants, fungi and their habitats, including genetic reserves for crop wild relatives).
ESPC 5.1a	IPA identification programmes (or equivalent programmes with a focus on plants and fungi and their habitats) completed in 100% of European countries by 2014
ESPC 5.1b	*At least 50% of IPAs legally protected through national protected area systems, and regional systems such as EU Natura 2000 AND at least 50% under appropriate management (which could be passive or active depending on conservation need)*

GSPC Target 6: At least 30% of production lands managed consistent with the conservation of plant diversity

ESPC 6.1	*80% of Europe's remaining high biodiversity production lands (e.g. old growth forest, natural/semi-natural grasslands, arable plant-rich areas, High Nature Value farmland) managed consistent with conservation of plant diversity through traditional management and other mechanisms* *(High Nature Value Farmland 15-25% of total agricultural area; primary forest c.7% of total forest area (excluding the area of old growth forest in the Russian Federation)*
ESPC 6.2	20%* of production lands managed to maintain and restore plant diversity, reduce fragmentation, and mitigate effects of climate change within the wider landscape (20% of those production lands not already included in target 6.1)
ESPC 6.3	100% of East European countries have mechanisms (lobbying information, case studies, biodiversity/economic benefit studies) to promote the urgent need for and the benefits of plant conservation in production lands.
ESPC 6.4	Ensure biodiversity risk assessments are a mandatory element of national and EU biofuel/biomass and development plans (to ensure that conversion of land to new uses such as urban development, infrastructure and biofuel production should only occur on low biodiversity land and should not impact connectivity functions)

GSPC target 7: 60 per cent of the world's threatened species conserved *in situ*.

ESPC 7.1	*60% of species of European conservation priority* plant and fungal species, including crop wild relatives, conserved in situ by 2014 through the implementation of national strategies for conserving priority species* (*prioritised according to their inclusion in regional and national legislation, including the EC Habitats and Species Directive, the Bern Convention and IPA programmes, and with reference to European Red Lists for all taxonomic groups as they are developed)
ESPC 7.1a	*Prepare information on plants (including vascular plants, bryophytes, algae, fungi) in readiness to contribute to any scientific update of the 2010 Biodiversity target in relation to:* • *Annexes (II, IV and V) of the EU Habitats and Species Directive* • *Appendix I of the Bern Convention* • *Priority species lists associated with of relevant national biodiversity legislation*
ESPC 7.1b	*Promote the development of 20 trans-boundary or multi-country species recovery projects (including cryptogamic species and fungi) to develop Pan-European cooperation and to develop methods for coping with climate change and connectivity issues*
ESPC 7.2	*Develop database of plant micro-reserve, genetic reserves for crop wild relatives, and where relevant other small in situ protected areas*

GSPC target 8: 60% of threatened plant species in accessible *ex situ* collections, preferably in the country of origin, and 10% of them included in recovery and restoration programme

ESPC 8.1	*Store in gene banks 60% of European threatened species, or species and populations of particular interest (e.g. populations under extreme conditions, or at the edge of their distribution area, species potentially at risk from the effects of climate change, including species with a trans-European distribution) and implement restoration programmes for 50 species*

ESPC 8.2	*At least 10 priority species in each country held in conservation gardens or research institutes active in that country, and research initiated into storage methods, recalcitrant seeds, autecology, propagation methods including germination and cultivation techniques, and re-introduction methods*

GSPC target 9: 70% of the genetic diversity of crops and other major socio-economically valuable plants conserved, and associated indigenous and local knowledge maintained.

ESPC 9.1	Establishment of 25 European crop wild relative genetic reserves covering the major hotspots of species and genetic diversity

GSPC target 10: Management plans in place for at least 100 alien species which threaten plants, plant communities, habitats and ecosystems

ESPC 10.1	Action Frameworks developed and implemented for controlling and monitoring the15 most problematic* invasive alien plants in each European region (Mediterranean, Baltic, Alps, South East Europe, East Europe, Atlantic etc) *(*as defined by the latest scientific information, and with reference to the EPPO, the DAISIE Information service, NEOBIOTA and other relevant organisations)*
ESPC 10.2	Action Frameworks developed and implemented for controlling and monitoring 10* problematic invasive alien species in each country, with reference to information from other countries and regional initiatives (*This number may be less for the smallest countries in Europe, i.e. those countries with an area of less than 1,000 km²)
ESPC 10.3	The existing EU web-based information system (DAISIE) to include at least 80% of European countries.
ESPC 10.4	The Code of Conduct on Horticultural and Invasive Alien Plants adopted and implemented in at least 10 European states.

GSPC target 11: No species of wild flora endangered by international trade

ESPC 11.1	**Action plans implemented and methods disseminated to ensure that 15 priority wild medicinal and aromatic plant and fungus taxa traded within Europe are not endangered by trade (based on recommendations in Lange 1998*) * Lange, D. 1998, Europe's Medicinal and Aromatic Plants: Their use, trade and conservation (A TRAFFIC Species in Danger Report, June 1998)**
ESPC 11.2	**Ensure that CITES and the EC Habitats and Species Directive are effective in protecting wild plant species from trade through updating of the annexes and appendices of CITES and the EC Habitats and Species Directive Annex V and providing recommendations for effective implementation**

GSPC target 12: 30% of plant-based products derived from sources that are sustainably managed

ESPC 12.1	**30% of plant-based products derived from sources that are sustainably managed**

GSPC target 13: The decline of plant resources, and associated indigenous and local knowledge, innovations and practices that support sustainable livelihoods, local food security, and health care, halted

ESPC 13.1	**Projects in place in four European sub regions demonstrating sustainable methods of conserving plant resources (crop wild relatives, land races, medicinal plants) whilst supporting European livelihoods (see also target 9 and associated activities)**
ESPC 13.2	Develop a handbook/series of case studies, in local languages, to provide training in methods and demonstrate the value of ethnobotanical projects to individuals, communities, researchers and children, in order to halt the loss of plant resources and local knowledge in Europe

GSPC Target 14: The importance of plant diversity and the need for its conservation incorporated into communication, education and public awareness programmes

ESPC 14.1	**6 year sequence of targeted campaigns at the Pan-European and regional level (within the EU, within accession countries and in non EU countries), that aim to ensure biodiversity initiatives, actions and incentives deliver sufficient plant conservation (including campaigns on climate change, agriculture, forestry and invasive species).** At least 1 regional campaign for each of the following audience groups at regional level: Policy makers; Children and young people; Land managers; General public; Trade and business. This target can also be implemented at the national level with national lead organisations
ESPC 14.2	***Initiate a wake up call for European Plant Conservation in all European countries***
ESPC 14.3	***Develop a high quality touring photographic exhibition, with a legacy of permanent exhibitions in public gardens and arboreta. These should be produced in local languages to highlight the plight of plants in Europe.***
ESPC 14.4	***50% of botanic gardens in Europe to display infomation on the GSPC and ESPC by 2010***

GSPC Target 15: The number of trained people working with appropriate facilities in plant conservation increased, according to national need, to meet the targets of this strategy

ESPC 15.1	A measurable increase in government resourcing of skill training for plant conservation at national and regional level. Priority skill areas must include taxonomy, field botany, ecology, policy and advocacy, all-age education, marketing and volunteer development.
ESPC 15.2	Identify and engage key partners to resource production of priority tools for building the capacity to deliver plant conservation at a national level. Priority tools are field guides in national languages, national Red Books or Red Lists, habitat and vegetation type maps.

GSPC Target 16: Networks for plant conservation activities established or strengthened at the national, regional and international level

ESPC 16.1	Ensure ESPC targets are communicated, understood and promoted through network partnerships at national, regional and international levels.
ESPC 16.2	Identify national plant focal points to develop/support development of plant conservation networks that facilitate sharing of skills and information at the national level.
ESPC 16.2a	Network of national coordinators (or focal points) for Eastern Europe for realization of the new European Strategy for Plant Conservation.
ESPC 16.3	Increase the number of ESPC projects which engage organizations from *in situ* and *ex situ* conservation, plant genetic research, wildlife conservation and sustainable use.

LEAD PARTNERS AND CONTRIBUTING ORGANISATIONS

Each target and activity in the Strategy has a number of organisations associated with it. These organisations are known as either *Lead Partners* or *Contributing Organisations* and they are acknowledged as specialists in the relevant fields of that target.

Lead partners are usually organisations that are recognised as strong European players in the field of activity relating to that target and are highlighted in bold text. Lead partners are willing to take on the role of coordination and facilitation of the target. This does not mean they are totally responsible for its delivery but they are prepared to act as a focal point for information, particularly for others who would like to work out how best they can contribute to the target. Lead partners are willing to provide a very short annual update of activities to the Planta Europa Secretariat including the challenges to target delivery, to help the Secretariat monitor overall implementation of the Strategy.

For certain targets it is recognised that more than one lead partner is appropriate.

For each target, many other organisations and individuals may be involved in major or minor activities that contribute to its delivery. These are referred to as *Contributing organisations* and their activities are equally essential for the delivery of the target as those of the lead partners. Contributing

organisations will also be asked to provide a very short annual update[1] of their activities to the Planta Europa Secretariat.

Planta Europa recognises that there are organisations, other than those listed in the Strategy, which are active in the field of plant conservation but who may not yet be aware of the European Strategy for Plant Conservation. These organisations are welcome to join as Lead or Contributing partners at any time. The Planta Europa Secretariat will provide a degree of coordination or information dissemination for all targets, depending on capacity, and the whole Planta Europa Network will continue to seek funding to increase capacity to implement the European Strategy for Plant Conservation.

OBJECTIVE 1: DOCUMENTING AND UNDERSTANDING PLANT DIVERSITY

The three elements of objective 1 are checklists, conservation assessments (resulting in Red Lists of threatened species) and methods; these elements form the basis for delivering the European Strategy for Plant Conservation.

Target 1: Check-listing is progressing well at the national and regional level in Europe, certainly for vascular plants, bryophytes and fungi. The European targets for check-listing emphasise the need for a dynamic list which can be updated regularly, and which should include bryophytes, lichen, algae, fungi and cultivated plants. Non-native species should be integrated into the European checklist with appropriate risk assessment for invasive alien species. Different European lead organisations are necessary for the different taxonomic groups and all initiatives should link into the work on GSPC target 1, coordinated by Royal Botanic Gardens Kew.

Target 2: There has been significant progress in national conservation assessments, however, the lack of development of a European Red List for vascular plants remains a key obstacle for European level species conservation. For countries or taxonomic groups where there has been less progress with Red Listing, the IUCN RapidList tool for preliminary assessments is strongly recommended as a step towards Red List assessment.

Target 3: The Planta Europa network will continue to collate, promote and disseminate widely the best examples of tried and tested methods for plant conservation. These case studies and methods will have relevance outside of Europe and can be used in the development of the Toolkit for the implementation of the GSPC. Many of the targets of this strategy, such as research on climate change, invasive aliens, widespread but declining species, require large amounts of data from across Europe to make sound judgements on priorities for conservation action and to target research effectively. Planta Europa urges individuals and organisations to share data between countries and in the region as a whole, through cross-border cooperation and initiatives, such as GBIF (the Global Biodiversity Information Facility).

[1] Annual updates could be in the form of newsletters or oral updates, and will not be onerous, but will be an essential part of monitoring Strategy implementation.

GSPC target 1: *A widely accessible working list of known plant species, as a step towards a complete world flora.*

GSPC information: This target is considered to be achievable by 2010, especially given that it is to be a *working* rather than a definitive list, and is limited to known organisms (currently about 270,000, which may increase by 10-20% by 2010). Some 900,000 scientific names are known for these 270,000 species. In effect the target will require the compilation and synthesis of existing knowledge, focussing on names and synonyms, and geographical distribution. Both national flora and compilations, and international initiatives are important in this respect.

ESPC information: This will be a dynamic list which includes vascular plants, cryptogamic plants and fungi. This list will include all species found in Europe, whether native or not, with an appropriate flag to show the level of threat (if any) they present as an invasive species. These invasive risk categories for non natives will vary across Europe and it is recommended that the highest known level of risk should be recorded, as an indication of the potential problem, and as a means of mitigating the possible spreading of these species due to climate change. Action under these targets needs to take account of all existing national or regional projects.
'Country distribution' is taken to mean at least the presence or absence of a particular species in a particular country but more detailed information can be included if available. The Euro+Med Plantbase database also provides valuable information for check-listing of vascular plant species in Europe.

Actions to mitigate the effects of climate change: Where possible any national and regional checklists could indicate any species known to be at particular risk from the effects of climate change. The risk category of alien invasive species to include any available information on the effects of climate change to their distribution

ESPC 1.1	**A widely accessible dynamic working list of all known plant and fungi species (including bryophytes, lichen, algae and cultivated plants) available by 2010 for vascular plants and bryophytes and 2014 for other groups, as a part of a world list, and including country distributions.**	*Lead & Contributing organisations:* **Royal Botanic Gardens Kew (**World Checklist of Selected Plant Families) for vascular plants, **ECCB** for Bryophytes, **ECCF** the conservation body of the **EMA** for Fungi, European Cooperative Programme for Genetic Resources **ECPGR** for agricultural plants. **European Botanic Gardens Consortium.** National leads as appropriate Link to **Royal Botanic Garden Kew** as coordinators of GSPC target 1 – Planta Europa will continue to ask advice from the Federation of European Phycological Societies (FEPS) and the International Association of Lichenologists (IAL) on the inclusion of algae and lichens in the strategy
ESPC 1.2	***Alien plants annotated within the working list of plant species with a risk category (low risk, spreading but weedy, damaging ecosystems 'transformers').(See also Target 10)***	*Lead & Contributing organisations:* **NEOBIOTA (dependent on capacity), national leads as appropriate** with reference to the latest information from DAISIE, the EPPO, the EEA, and the Council of Europe
European Actions		
ESPC 1.1 Dynamic checklist		
1. Ensure coordinated activity at the European level and contribute to the global activities under Target 1 of the GSPC		*Lead & Contributing organisations:* **Royal Botanic Gardens Kew** Coordination of the GSPC target 1) with input from the different taxonomic groups in Europe (**RBGK, ECCB, ECCF/EMA, ECPGR, Botanic Gardens** and **Planta Europa members** to provide national input as required

2. Provide links from the Planta Europa Electronic Information Platform to other global initiatives under this target.	*Lead organisation*: **Planta Europa Secretariat**
3. Checklists agreed and made available at national level, printed where appropriate	*Lead organisation*: **Planta Europa members** to provide information to the relevant European taxonomic group lead)
4. Creation of Eastern European regional checklist	*Lead organisation:* **Institute of Experimental Botany, Minsk, Belarus**
ESPC 1.2 Alien plants list	
5. Provide risk categories for alien species in checklist	*Lead organisations:* **Planta Europa members** and other relevant organisations to provide any relevant information to NEOBIOTA, DAISIE, EPPO.

Case study: The ECCB has completed a checklist of bryophytes including overall distribution. In addition threat status is provided for over 500 taxa. The lists covers all European countries, including the European part of Russia, the European parts of Turkey and Kazakhstan, and the northern Macronesian Islands.

Coordinators: The European Committee for the Conservation of Bryophytes (ECCB)

GSPC target 2: *A preliminary assessment of the conservation status of all known plant species at national, regional and international levels*

GSPC information: Over 60,000 species have been evaluated for conservation status according to internationally accepted criteria, of which 34,000 are classified as globally threatened with extinction (IUCN, 1997). In addition many countries have assessed the conservation status of their own flora. There are currently about 270,000 known species. Of those still to be evaluated, sufficient information for a full assessment is only available for a proportion.

ESPC information: The different methods for making conservation assessments for plants, i.e. full IUCN Red List criteria or the preliminary IUCN RapidList assessment, should be used where appropriate to deliver these targets. The development of a European Red List would greatly assist the delivery of the targets of this strategy, however the contribution of national Red Lists or RapidLists are also highly significant to this process. BGCI are currently developing a consolidated list of European threatened species as a step towards a formal Red List, which currently includes information on 27 countries, 9600 species with 15,500 country records. ENSCONET also holds information relevant to a European Red List and bases its collecting priorities in the biogeographic regions of Europe on endemicity and current threat status. Any European Red List should take account of biogeographical approaches rather than solely on political boundaries. National 'blue lists' (lists of species which have improved their conservation status through conservation action) should be developed where appropriate and fed into the periodic updates of the European Red Lists. The targets/actions on crop wild relatives have been moved to target 9. Activities relating to the EC Habitats and Species Directive have been moved to target 7. See target 3.2 on the collation of data sets for research and tackling climate change, invasive species, and species distribution changes.

Actions to mitigate the effects of climate change: Wherever possible species which are under high degree of threat from the effects of climate change should be indicated in national and regional Red Lists

ESPC 2.1	**European Red Lists produced by 2014 (review of progress in 2011), vascular plants completed by 2010, Red Lists updated periodically for vascular plants and bryophytes, and at least a preliminary assessment produced for fungi, lichens, and algae.**	*Lead & Contributing organisations:* **IUCN Species Programme, IUCN RofE, European Commission (**Vascular Plants Red List), **IUCN Med** (Mediterranean Plants Red List) **BGCI** and the **European Botanic Gardens Consortium** for list of European threatened species, **ENSCONET** (information from priority collecting lists), **ECCB** for Bryophytes, **ECCF/EMA** for Fungi, **National Red Listing**

		organisations as appropriate; IUCN to provide advice and assistance to coordinating organisations
European Actions		
ESPC 2.1 Red Listing		
1. Ensure coordinated European action under the proposed leads and the utilisation of all available national data		Proposed leads/contributing organisations: **IUCN Species Programme, IUCN RofE, European Commission** (Vascular Plants Red List), **IUCN Med** (Mediterranean Plants Red List) **BGCI** list of European threatened species, **ECCB** for Bryophytes, **ECCF/EMA** for Fungi, **Botanic Gardens; National Red Listing organisations** as appropriate; IUCN SSC to provide advice and assistance on methodology to coordinating organisations
2. European Countries with no Red List should produce at least a RapidList of threatened plant species by 2012 to feed into the European Red List process		*Lead & Contributing organisations:* **National Red Listing organisations.** IUCN SSC to provide support and advice as appropriate. **Planta Europa Secretariat** to provide links to IUCN RapidList methodology via the PE website
3. Where appropriate national 'Blue Lists' (lists of conservation successes) should be compiled at the national level, disseminated widely including through the PE website and included in any European Red List updating		*Proposed leads:* **National Red Listing organisations.** IUCN SSC to provide support and advice as appropriate. **Planta Europa Secretariat** to publicise via PE website

Case study: The EMA is carrying out work to develop a Red List for European macro-fungi. Currently 30 countries are participating in the project. A long list of 6500 species was 'cleaned' and 3000 species are currently undergoing evaluation using IUCN Red List Criteria. One of the aims is to ensure that fungi are included in the Bern Convention and other relevant legislation.

Coordinators: The European Mycological Association (EMA)

Case study: IUCN have developed a new online tool, RapidList, to provide preliminary conservation assessment for plants. The tool asks users a series of questions based on IUCN criteria, and classifies the species into 3 groups: likely threatened, likely not threatened, or likely data deficient. In a few minutes with minimal data a preliminary conservation assessment is formed.
www.iucn.org/themes/ssc/rapidlist.htm

Coordinators: IUCN Species Survival Commission

GSPC target 3: *Development of models with protocols for plant conservation and sustainable use based on research and practical experience.*

GSPC information: Conservation biology research, methods, and practical techniques for conservation are fundamental to the conservation of plant diversity and the sustainable use of its components. Key areas where the development of models is required include: the integration of *in situ* and *ex situ* conservation; maintenance of threatened species within ecosystems; applying the ecosystem approach; balancing sustainable use with conservation; methods for setting conservation priorities; and methods for monitoring conservation and sustainable use activities

ESPC information: Efforts under this target in Europe should focus on the gap areas, however only TESTED methods should be disseminated widely as models and protocols. These models/protocols should be widely accessible and available in different languages. Many of the targets in the strategy and the research used to underpin them require data from different sources across Europe. Planta Europa has a strong role to play in encouraging data sharing across national boundaries and through data collation initiatives such as the Global Biodiversity Information Facility (GBIF).

Actions to mitigate the effects of climate change: Making use of increased data sharing to identify the species and habitats most at risk from the effects of climate change, and to create scientific models of possible outcomes for plant diversity in a changing climate. Publicise tested methods for mitigating the effects of climate change on plant diversity through the Planta Europa Electronic Information Platform.

ESPC 3.1	***Proven methods that enable delivery of each target in the European Strategy, collected and made available in one place via an online facility linked with the Planta Europa website.***	Lead: **Planta Europa Secretariat** with support/information from Planta Europa members, Botanic Gardens, ENSCONET, research institutes and other relevant organisations
ESPC 3.2	**European plant distribution data (national/regional datasets) published electronically and regularly updated to facilitate conservation activities including comprehensive conservation assessments, invasive plants and climate change research, through cross-border projects and using the GBIF standards and facilities.**	*Lead & Contributing organisations:* **National Planta Europa members, Botanic Gardens, Research institutes** as appropriate**, JNCC (UK)** to lead on identifying opportunities and means to provide data to GBIF, to feed into national conservation projects, research projects and Pan-European Projects. ECPGR coordinate the electronic publishing of *in situ* data of national inventories of plant genetic resources.

European Actions	
ESPC 3.1 Available tested methods	
1. Provide an effective Electronic Information Platform on the Planta Europa website. Planta Europa Secretariat to develop in consultation with members and other relevant organisations.	*Lead organisation*: **Planta Europa Secretariat**
2. Planta Europa members should provide information to the electronic information platform – at least two methods per member	*Lead organisations:* **Planta Europa members**
3. Adaptation of habitats classification for Eastern Europe and preparing of Eastern European regional check list	*Lead & contributing organisations:* **IUCN-CIS** and **Institute of Experimental Botany, Belarus**
4. Profile of national progress with GSPC/ESPC targets made available through the new Planta Europa Electronic Information Platform	*Lead organisations*: **Planta Europa Members**
ESPC 3.2 Data availability, assessment & research	
5. Encourage Planta Europa members and other relevant botanical organisations to use GBIF (Global Biodiversity Information Facility) as a means to deliver targets which require assessments of many datasets across Europe (www.gbif.org)	*Lead organisations*: **National Planta Europa members, Botanic Gardens** as appropriate**, JNCC** to identify opportunities and means to provide data for **GBIF,** to feed into national conservation projects, research projects and other European initiatives

6. Available research and policy initiatives relating to climate change in Europe publicised via the Planta Europa website	Lead: **Planta Europa Secretariat** based on information from Planta Europa members and relevant organisations

Case study: In Croatia a series of manuals for monitoring plant species and habitats have been developed, which are available to download from the internet. They are aimed at naturalists and amateur botanists. The species include those on EC Habitats and Species Directive and the rare and threatened species of Croatia. The results from species monitoring will be fed into the National Biodiversity Monitoring Programme.

Coordinators: The State Institute for Nature Conservation, Croatia

OBJECTIVE 2: CONSERVING PLANT DIVERSITY

Objective 2 covers the widest range of activities of all the objectives, from the conservation of individual species, to landscape scale conservation and ensuring production lands contribute to maintaining European plant diversity. In order to achieve these targets those working in plant conservation (both *in situ* and *ex situ*) need to develop active partnerships with organisations involved in landscape conservation, the conservation of genetic resources, biodiversity friendly agriculture and forestry. Plant conservationists need to provide information and translate scientific findings into clear messages for regional and national biodiversity policy makers, relevant state agencies and land owners. This should ensure that decisions and actions taken at all levels properly consider the importance of plant diversity in maintaining functioning ecosystems, which are ultimately the basis for human well being.

Targets 4 and 5: Conserving *ecological regions* and *important areas for plants* – Programmes that focus on site-based conservation of plants such as the Important Plant Area (IPA) programme, are a means of generating sound data to ensure that the best sites for plant diversity in different ecological regions, are included in effective national and regional protected area networks. IPA data should be targeted at ongoing initiatives such as Natura 2000, High Nature Value Farmland, the Emerald network and the Pan-European Ecological Network of the Pan-European Biological and Landscape Diversity Strategy. Currently there are over 1000 IPAs identified in Europe, several hundred plant micro-reserves, and a European Ramsar list of wetland sites. The focus of the IPA programme, along with legally protected areas such as those within the Natura 2000 network must change from identification to long term protection and conservation. This must include measures to enlarge and connect these sites to help to mitigate the effects of climate change and habitat fragmentation. The plant micro-reserve programme offers a successful method of protecting smaller sites and has been particularly useful in regions with high levels of endemism.

Target 6: *Production lands* - Plant conservationists working alone will not achieve this target. Planta Europa recognises the need to work with a range of conservation and policy organisations, to demonstrate to politicians, farmers and foresters the benefits of conserving plant diversity. There is a need to illustrate that sustainable agriculture/forestry and economic stability and growth are not contradictory, i.e. sustainable management can be highly profitable. Plant conservationists need to engage with reform of the EU CAP to ensure greater support for effective environmental management schemes. We need to avoid exporting our problems outside of Europe, i.e by making Europe greener at the expense of others, for example by importing unsustainably grown products or growing our biofuels in other regions.

Targets 7 and 8: *Threatened species conservation* – Species diversity varies considerably across Europe and resources should be targeted at those countries with the highest number of species per unit of area, and with the lowest capacity to deliver conservation. The site-based conservation programmes of targets 4 and 5 provide a basis for *in situ* species conservation in Europe, through providing protection to priority species. Complementing these are numerous species recovery programmes in

many countries in Europe, which link *in situ* conservation (conservation of species in their natural habitats through research, protection and active management) and *ex situ* (conservation of species outside of their natural habitats, for example in botanic gardens and carrying out research into growing conditions, propagation methods and potential reintroductions expertise). The completion of a European Red List would also assist with identifying species requiring conservation action.

Planta Europa recognises that the promotion of this work at the national level via an Electronic Information Platform would allow greater regional cooperation and targeting of projects. The ESPC can be used as an opportunity to increase the cooperation between *in situ* and *ex situ* conservation organisations including species reintroduction programmes.

Target 9: *Conservation of genetic resources* – We rely on fewer and fewer crops in Europe and many formerly important crops are no longer cultivated, thus we are liable to genetic vulnerability and food insecurity. Conservation of landraces, crop wild relatives, medicinal and aromatic plants, and other useful plant diversity is an important element of maintaining a healthy socio-economic plant ecosystem. PGR Forum established the baseline data needed to begin systematic conservation of crop wild relatives in Europe by creating the Crop Wild Relative Catalogue for Europe and the Mediterranean. The project also produced an information management model and online system (CWRIS – http://www.pgrforum.org/cwris/cwris.asp) for managing crop wild relative information, with a particular focus on *in situ* conservation management data. Methodologies for crop wild relative genetic reserve establishment and management, and for assessing genetic erosion / pollution have also been published as a result of this project. The *In situ* and On Farm Working Group of the European Cooperative Programme for Plant Genetic Resources and the recently established IUCN/SSC Crop Wild Relative Specialist Group (www.cwrsg.org) have programmes of work to conserve this critical plant diversity.

Target 10: *Invasive alien species* – Invasive alien plant species constitute a major threat to European plant diversity, one which cannot be tackled at the national level alone and, a threat which will increase with climate change. Research and information exchange on methods of tackling invasive species, early warning systems and effective action plans are required. The ESPC will support initiatives such as the European Strategy for Invasive Alien Species (Recommendation 99 (2003) of the Standing Committee of the Bern Convention), the EU Invasive Species Communication (due in 2008), the NEOBIOTA working group, the DAISIE information portal, the Global Invasive Species Programme, and any future early warning system of the European Environment Agency.

GSPC target 4: *At least 10% of the world's ecological regions effectively conserved.*

GSPC information: Globally about 10% of the land surface is covered by protected areas. In general forest and mountain areas are well represented in protected areas, while natural grasslands (such as prairies) and coastal and estuarine ecosystems, including mangroves, are poorly represented. The target would imply: (i) increasing the representation of different ecological regions in protected areas, and (ii) increasing the effectiveness of protected areas. Since some ecological regions will include protected areas covering more than 10% of their area, the qualifier 'at least' is used. In some case ecosystem restoration and rehabilitation may be necessary. Effective conservation is understood to mean that the area is managed to achieve a favourable conservation status for plant species and communities. Various approaches are available for use in the identification of ecological regions, based on major vegetation types.

ESPC information: In Europe, as globally, this target requires an increase in representativity of ecosystems in protected areas and an increase in the effectiveness of protected areas. Delivery of this target is best achieved through the inclusion of plant and fungi data and sites (including IPA or equivalent data) in existing European conservation initiatives, notably the EU Natura 2000 network, the Pan-European Ecological Network (PEEN), the Council of Europe Emerald Network, the RAMSAR list of wetland sites coordinated by Wetlands International, IUCN-WCPA, National Protected Area Networks. And through landscape scale conservation, connectivity and mitigation of the effects of climate change. Methodology is being developed to identify areas (***Zones of Opportunity***) around and within IPAs where habitat restoration would have the greatest possibility of success.

This target is taken to mean that at least 10% of each of the major ecological regions (vegetation types) are protected and effectively conserved.

Threatened ecological regions in Europe: The EEA's 2005 report on the state of the European environment highlighted that the greatest decline in area of habitat occurred in the plant-rich and fungus-rich habitats of wetlands (mire, bog and fen), heath scrub and tundra, and grasslands, during the period 1990-2000. Although the coverage of forest and woodland within the EU is increasing this simple fact does not highlight the continued exploitation of species rich, old growth forest. *Actions to mitigate the effects of climate change:* Identifying and implementing measures to enlarge and connect core plant-rich and fungus-rich areas to help build genetic resilience within populations, preventing isolation, and to provide routes for species migration, where possible. **See also targets and activities under target 5.**		
ESPC 4.1	*Landscape-scale conservation of Europe's ecological regions must support the maintenance of plant diversity.*	*Lead organisations:* **IPA Secretariat** and **national IPA coordinators** to liaise with appropriate organisations including the Secretariat of PEEN & PEBLDS, Wetlands International, BirdLife International, WWF, IUCN-WCPA
ESPC 4.1a	*IPA data – including digital boundary data (or data from equivalent programmes with a focus on plants, and fungi) and micro-reserve data are used to support the following biodiversity initiatives: Natura 2000; the Emerald Network; National Protected Areas; the Pan-European Ecological Network; Ramsar; Protected Area Networks, Invasive species programmes.*	*Lead organisations:* **IPA Secretariat** and **national IPA coordinators** to liaise with appropriate organisations including the Secretariat of PEBLDS & PEEN, the European Topic Centre on Biodiversity, Wetlands International, BirdLife International, DAISIE, NEOBIOTA, EPPO
ESPC 4.1b	*The negative impacts of habitat fragmentation and climate change on plant diversity reduced by implementing article 10 of the EC Habitats and Species Directive and other measures such as the Pan-European Ecological Network (PEEN) and by creating buffers and corridors or identifying Zones of Opportunity for habitat restoration around IPAs*	*Lead:* **IPA Secretariat** and **national IPA coordinators** to liaise with appropriate organisations including the Council of Europe, European Topic Centre on Biodiversity, ECNC, the PEEN Secretariat, Butterfly Conservation in Europe, Societas Europea Herpetologica, Wetlands International, BirdLife International All regional and national conservation land management agencies
European Actions		
ESPC 4.1 Identifying IPAs		
1. Identify appropriate organisations to use the IPA 'Lobby Pack' in getting IPA programmes in place and using their data effectively to conserve sites, species and habitats (see target 5)		*Lead organisations:* **PE members, IPA coordinators, IPA secretariat**
ESPC 4.1a – Using IPA data		
2. Planta Europa Secretariat to lobby the European Commission (through EHF and CEEWEB) to consider the IPA network when developing and maintaining the Natura 2000 network.		*Lead organisations:* **Planta Europa Secretariat** through the European Habitats Forum (**EHF**) with **CEEWEB**
ESPC 4.1b Linking up IPAs to help combat climate change and fragmentation		
3. Produce a report for the European IPA network to help establish ecological networks to assist in adaptation to climate change and habitats vulnerable to climate change		*Lead organisations:* **IPA secretariat, IPA national coordinators, Planta Europa members**
4. Ask protected area experts in Europe, particularly IUCN WCPA, for short report/guidance on long-term protection and use methods to assess the effectiveness of the IPA approach		*Lead:* **IUCN WCPA**

Case study: In Turkey one of the solutions to the problems of effective protection of ecological regions has been to set up a system of local volunteers to influence resource use at their IPAs. The IPANET project will train a strong civil network to allow effective participation processes to influence political decisions on resource use. The project is being piloted at 9 IPAs in 7 geographical regions.

Coordinators: Stichting Rubicon (Netherlands) & DHKD (Turkey)
Funders: (MATRA Funds - Ministry of Foreign Affairs, the Netherlands)

GSPC target 5: *Protection of 50 per cent of the most important areas for plant diversity assured by 2010*

GSPC information: The most important areas for plant diversity would be identified according to criteria including endemism, species richness, and/or uniqueness of habitat, including relict ecosystems, also taking into account the provision of ecosystem services. They would be identified primarily at local and national level

ESPC information: Europe already has a set of well defined **Important Plant Areas** (IPA) selection criteria (Anderson, 2002) which have been used and tested in programmes across Europe. To date more than 15 European countries have been actively engaged in IPA identification projects and more than **1000** IPAs have been identified. Many of these sites form an integral part of the Natura 2000 network: legally protected sites designated under the EC Habitats and Species Directive and the Birds Directive in 25 EU countries. This will soon be in place in all 27 EU countries, forming the cornerstone of biodiversity protection within the EU. Outside the EU, a network of sites has been designated under the Emerald Network of the Bern Convention and a Pan-European network of sites and corridors has been identified under the Pan-European Ecological Network of the PEBLDS. The **Plant micro-reserve** programme has been developed most fully in Spain and successfully exported to other countries in Europe. A database of these sites will be developed under target 7. In addition there are also programmes such as the Important Arable Plant Areas, and the proposal to identify 25 **plant genetic reserves** (target 9) which target important plant sites for agricultural and socio-economic plant diversity. **Wetlands International** hosts the database of all **RAMSAR** sites of wetlands of international importance in Europe and beyond. All relevant data, including data on mosses, fungi, lichen and algae should be considered in the identification of important areas for plant diversity. In the UK specific methodologies have been developed for some of these other groups and national sites identified for important fungi areas, important stonewort areas, important arable plant areas, important lichen areas, important algae areas.

The focus of work at IPAs, Natura 2000 sites, Emerald and other important plant/fungi sites must move towards protection and effective management, full implementation of the EC Habitats and Species Directive, the Pan-European Biological and Diversity Strategy including the Pan-European Ecological Network (including increased awareness and political lobbying) and must include measures to ensure the connectivity of the networks and to mitigate against the effects of climate change.
In target 5.1b the distinction has been made between legal protection and effective conservation management on the ground, since legal protection does not necessarily equate to effective management.

Actions to mitigate the effects of climate change: Increased connectivity of important sites for plant diversity to allow for migration of species and to prevent isolation of populations. Publicising methods and case studies for improving connectivity of plant sites.
See also the targets and activities under target 4, and also target 9.

ESPC 5.1	All countries implement a national strategy (action framework) by 2014 for the conservation of IPAs (or equivalent programme with a focus on site-based conservation on plants, fungi and their habitats, including genetic reserves for crop wild relatives).	*Lead organisations:* **National organisations** supported by the **IPA secretariat, ECCB, ECCF/EMA,** and the **ECPGR** *in situ* and on farm group, **Wetlands International**, where appropriate
ESPC 5.1a	*IPA identification programmes (or equivalent programmes with a focus on plants and fungi and their habitats) completed in 100% of European countries by 2014*	*Lead organisations:* **National organisations** supported by the **IPA secretariat**, **ECCB, ECCF/EMA, ECPGR** *in situ* and on farm group, **Wetlands International** where appropriate

ESPC 5.1b	*At least 50% of IPAs legally protected through national protected area systems, and regional systems such as EU Natura 2000 AND at least 50% under appropriate management (which could be passive or active depending on conservation need)*	*Lead organisations:* **National organisations** supported by the **IPA secretariat**, **ECCB, ECCF/EMA , ECPGR** *in situ* and on farm group, **Wetlands International** where appropriate
European Actions		
ESPC 5.1 National strategies for IPA conservation		
1. Produce guidance ('IPA tool kit') on national strategies for IPAs, including national targets, case studies that demonstrate good management etc		*Lead organisations:* **IPA secretariat** with inputs from **national IPA coordinators**, national **Planta Europa members, ECPGR (*In situ* and On Farm Networks)** and **Wetlands International**
2. Make funding information (appropriate for IPA or equivalent programmes) more easily accessible to PE members		*Lead organisations:* **Planta Europa Secretariat** via the Planta Europa Information Platform, when resourced
3. Showcase our work at the World Conservation Congress, Barcelona (Oct 2008) to strengthen links to IUCN.		*Lead organisations:* All **Planta Europa members/ Secretariat** who attend the Congress
4. Each Botanic Garden/Planta Europa member to adopt and promote conservation of 1 IPA by 2010, 2 by 2012 and 3 by 2014.		*Lead organisations:* **Planta Europa Members, Botanic Gardens** with support from PE Secretariat, European Botanic Gardens Consortium as appropriate
ESPC 5.1a Identification of IPAs		
5. Encourage the identification of marine IPAs to contribute marine conservation objectives and link with the WCPA Marine Group and other organisations		*Lead organisations:* **relevant experts** including Planta Europa members and other relevant organisations and all results to be publicised via the Planta Europa website
6. Produce a series of short reports by 2009 for a tailored IPA "lobby pack", including: • an assessment of the audience which we aim to reach • the need for inclusion of bryophytes, algae, lichen and fungi • lessons learnt from previous programmes • what can be done in terms of IPA conservation and management • examples of linking IPAs, buffer zones & zones of opportunity • the need to update IPA data regularly to maintain scientific rigour.		*Lead organisation:* **Plantlife International** with help from the Planta Europa Network and other relevant organisations.
7. Identify appropriate organisations to use the IPA Lobby Pack in getting IPA programmes in place.		*Lead organisations:* **Planta Europa members**
ESPC 5.1b Protection and management of IPAs		
8. Work to see the EC Habitats and Species Directive fully implemented for the benefit of plant habitats using IPA & other relevant data - links to target 7		*Lead organisations:* ***Planta Europa secretariat** with the European Habitats Forum (**EHF**)*

Case study: Important Plant Area Projects in Europe have been completed or are being carried out in 10 European countries, and are being developed in many more. Currently over 1000 IPAs have been identified. Online data on the sites, their qualifying features and the threats are available at www.plantlifeipa.org/reports.asp

Coordinators: Plantlife International and National IPA organisations

Case study: The Plant Micro-Reserve Programme has been developed in Spain to provide protection and management for small populations of the many endemic species of the region. Currently over 200 PMR have been identified, they are legally protected by the Valencian Government, and have their own management plans.

Coordinators: Generalitat Valenciana Conselleria de Medio Ambiente

GSPC Target 6: *At least 30% of production lands managed consistent with the conservation of plant diversity*

GSPC Information: For the purposes of this target, *production lands*, refers to land where the primary purpose is agriculture (including horticulture), grazing or wood production. *Consistent with conservation of plant diversity* implies that a number of objectives are integrated into the management of such production lands: Conservation of plant diversity which is an integral part of the production system itself (i.e. crop, pasture or tree species and genetic diversity); Protection of other plant species in the production landscape which are unique, threatened or of particular socio-economic value; Use of management practices that avoid significant adverse impacts on plant diversity in surrounding ecosystems, for example by avoiding excessive release of agro-chemicals and preventing unsustainable soil erosion.
Higher targets are appropriate for natural or semi-natural forest and grassland

ESPC Information: This Strategy recognises that there are major differences in the challenges and opportunities for conserving plants in EU and non EU European countries.

The area of High Nature Value Farmland is estimated to be between **15-25%** of total agricultural area in Europe (EEA-UNEP 2004) – so the target is set at 80% of this percentage). The threats to plant diversity come mainly from the twin problems of agricultural intensification and land abandonment.
Global Forest Resource Assessment 2005 (FAO) reports the area of primary forest (forests of native species with no visible signs of human interference and little ecological disturbance) as very small, just over **7%** of the total forest area, if the Russian Federation is excluded (26.8% of total forest area with the Russian Federation included). Europe classified all forests over a certain age and size as 'primary' if no intervention had occurred for 25 years. 12 countries reported no primary forest at all. The Russian Federation alone has the highest area of forest of any country in the world, and in 2005 classified 31.6% of its forests as 'primary, and Belarus and Ukraine also had a relatively high percentage of primary forest'. The other major areas of primary forest in Europe occur in Scandinavia and the Baltic Region, South east Europe, with pockets in Austria, France, Italy, Portugal and Spain. The FAO highlighted that many countries do not have data on their primary forest and that proxies such forest in protected areas are used. Veen Ecology provides detailed information on old growth forest in Bulgaria, Romania and Ukraine.

Production land refers to agricultural and horticultural land, grazing land and forestry. The delivery of these targets at the national and regional level must cover all of these different types of production lands and should not focus only on one element. In Europe the distinction has been made between the relatively small area of production lands which still retain high levels of plant diversity and should be targeted for priority action (e.g. High Nature Value Farmland, old growth forest, natural & semi-natural grasslands) and those production lands which currently have low levels of plant diversity but which could be managed to increase their plant diversity and provide essential landscape functions such as corridors and connectivity between areas of high diversity. The BIOSCORE and ENRISK indicator systems are a tool to evaluate the impact of European Community policies on biodiversity. The 2008 review of the EU Common Agricultural Policy is an early opportunity for plant conservationists to raise their concerns about the increased intensification of agricultural in lowland areas, the loss of grazing in upland areas, the need for increased support for effective environmental management schemes under Pillar 2, and to ensure that such schemes provide actual and measurable benefit for wildlife conservation.

Relevant Organisations: There are many different organisations working in forest conservation and sustainable exploitation in Europe from small local or national NGOs, to regional campaigning organisations such as FERN or WWF, to EUFORGEN which is a network to conserve forest genetic diversity, to the Pan-European political network the Ministerial Conference for the Protection of Forests in Europe (MCPFE)
Organic agriculture is a small yet important sector of the agricultural community in Europe which has many benefits for the conservation of plant diversity. There are many national organic movements and certification schemes which contain reference to conservation of biodiversity in their guidelines and certification standards.
The International Federation of Organic Agricultural Movements (IFOAM) has published its draft Biodiversity and Landscape Standards which contain guidelines for the conservation of species and habitats for practitioners of organic agriculture.

Certification Schemes operating in Europe: Forest Stewardship Council (FSC) for sustainable forestry; various national organic agriculture certification schemes including Soil Association UK, and at the regional level the International Federation of Organic Agriculture Movements (IFOAM) Basic Standards; European Commission Regulation No. 834/2007 on organic production and labelling of organic produce

Actions to mitigate the effects of climate change: Provide clear messages for decision makers and administrators of agri-environment schemes, on the benefits of plant-rich farmland for providing ecosystem function and services, including connectivity and migration for all organisms and a healthy environment for crop pollinating insects. (see also target 9 for the conservation of genetic diversity of socio-economic plants to mitigate the potential effects of climate change)

ESPC 6.1	*80% of Europe's remaining high biodiversity production lands (e.g. old growth forest, natural/semi-natural grasslands, arable plant-rich areas, High Nature Value farmland) managed consistent with conservation of plant diversity through traditional management and other mechanisms* *(High Nature Value Farmland 15-25% of total agricultural area; primary forest c.7% of total forest area of Europe (excluding the area of old growth forest in the Russian Federation)*	*Lead & Contributing organisations:* **BirdLife International, PEBLDS Secretariat, European Topic Centre on Biodiversity, FERN** The Planta Europa Secretariat & Network will work to increase their capacity to engage more fully in the implementation of this target
ESPC 6.2	*20%* of production lands managed to maintain and restore plant diversity, reduce fragmentation, and mitigate effects of climate change within the wider landscape* (20% of those production lands not already included in the calculation for target 6.1)	*Lead & Contributing organisations:* **BirdLife International, PEBDLS Secretariat, European Topic Centre on Biodiversity, FERN** The Planta Europa Secretariat & Network will work to increase their capacity to engage more fully in the implementation of this target
ESPC 6.3	*100% of East European countries have mechanisms (lobbying information, case studies, biodiversity/economic benefit studies) to promote the urgent need for and the benefits of plant conservation in production lands.*	*Lead & Contributing organisations:* **IUCN-CIS, BirdLife International**
ESPC 6.4	Ensure biodiversity risk assessments are a mandatory element of national and EU biofuel/biomass and development plans (to ensure that conversion of land to new uses such as urban development, infrastructure and biofuel production should only occur on low biodiversity land and should not impact connectivity functions)	*Lead organisations:* **Planta Europa** in partnership with organisations such as BirdLife International, ECNC, IFOAM, EEB and national organisations
European Actions		
ESPC 6.2 & 6.3 Conservation in production lands		
1. Liaise with existing certification organisations and indicator schemes and where appropriate develop working group/conference with the aim		*Lead organisations*: **Planta Europa Secretariat** or **Planta Europa Member**

of including plant conservation concerns and expertise into agri-environment planning, indicator (SEBI2010) and certification schemes (such as FSC, IFOAM, FairTrade) to ensure they are plant diversity friendly inside and outside of Europe.	organisation to liaise with existing certification organisations
2. Develop a project to assess the effectiveness of current agri-environment for plant diversity (e.g. 4 countries inside and outside of EU) to advocate changes which improve plant diversity in 2008 health check of Agri-environment and beyond, including the use of the BIOSCORE and ENRISK biodiversity indicators	*Lead organisations:* **Plantlife International, BirdLife International** with reference to information from ECNC
3. Promote the use of the BIOSCORE and ENRISK biodiversity indicators developed as a tool to assess the impact of the European Community policies on Biodiversity	*Lead organisations:* **Planta Europa Secretariat** via the Planta Europa website-based on information from ECNC, BIOSCORE and ENRISK
4. Promote case studies showing plant conservation benefits of rural development plans	*Lead organisations:* **Planta Europa Secretariat** based on information from Planta Europa members and relevant organisations
5. Promote the use of "improved biodiversity indicators for sustainable forest management" and promote the uptake of FSC certification.	*Lead organisations:* **Planta Europa Secretariat** to liaise with Ministerial Conference on the Protection of Forest in Europe, FAO and FSC – and to publicise the latest information and results via the Planta Europa website
6. Investigate using carbon-offsetting to fund plant biodiversity projects in production lands and ensure plant diversity concerns are included in national/regional carbon-offsetting planning	*Lead organisations:* **Planta Europa Secretariat** to disseminate available information via the Planta Europa website
7. Advocate the benefits of maintaining wetland habitats, flood plain forest and other relevant habitats to aid in flood prevention and security of water supplies via relevant fora	*Lead organisations:* **Planta Europa Secretariat** based on information from relevant organisations and individuals
ESPC 6.3 Agri-environment in Eastern Europe	
8. Advocate increased EU funding for agri-environment measures outside of EU	*Lead organisations:* **Planta Europa Secretariat** to ask to IEEP/ECNC for advice or funding for this type of project and for possible lead partners
9. Develop report (case study of good practice examples) which can be used for advocacy of agri-environment (or equivalent) measures in the Eastern European Region	*Lead organisations:* **Planta Europa Secretariat** to ask to IEEP/ECNC for advice or funding for this type of project and for possible lead partners

Case study: A database of the natural and semi-natural grasslands of Slovakia has been compiled and the data used to target conservation action at specific sites and to influence Natura 2000 and Rural Development Policy. A series of seminars and online material aimed at explaining the benefits of agri-environment schemes have been developed for farmers. At specific sites, research has been initiated into sustainable use, demonstration projects of restoration and management methods, and vegetation dynamics.

Coordinators: Daphne Institute of Applied Ecology
Funders: Global Environment Fund (GEF)

GSPC target 7: 60 per cent of the world's threatened species conserved *in situ*.

GSPC information: Conserved *in situ* is here understood to mean that populations of the species are effectively maintained in at least one protected area or through other *in situ* management measures.

ESPC information: In Europe this target is currently being implemented in some countries through regional and national legislation (EC Habitats and Species Directive, the Bern Convention and national biodiversity strategies and action plans, BAPs). More successful delivery of plant and fungal species conservation in Europe would be greatly assisted by the production of a European Red List. Planta Europa recognises that due to the widely varying numbers of species present in different European countries, it is difficult to assess the percentage of species conserved in the region as a whole, however believes there is a great need to focus resources on countries with many threatened species and lower capacity. The EC-funded PGR Forum project developed methods and strategies for conserving crop wild relatives and other socio-economic plants *in situ*. These methods are being tried and tested by the EU AGRIGENRES project, AEGRO (http://aegro.bafz.de/)

In the context of this target the term 'species' is taken to cover taxa, i.e. subspecies should be counted in assessments of progress.

Actions to mitigate the effects of climate change: national and regional strategies to identify species particularly at threat from the effects of climate change and to develop methods for conserving them *in situ*

ESPC 7.1	*60% of species of European conservation priority* plant and fungal species, including crop wild relatives, conserved in situ by 2014 through the implementation of national strategies for conserving priority species* (*prioritised according to their inclusion in regional and national legislation, including the EC Habitats and Species Directive, the Bern Convention and IPA programmes, and with reference to European Red Lists for all taxonomic groups as they are developed)	*Lead & Contributing organisations:* **National conservation agencies, Planta Europa members, Botanic Gardens, ECCF, ECCB, IUCN** expert groups in Europe, **Council of Europe and the Bern Convention Group of Experts, and ECPGR *in situ* group**, based on information from the Red Listing lead partners in target 2.1
ESPC 7.1a	*Prepare information on plants (including vascular plants, bryophytes, algae, fungi) in readiness to contribute to any scientific update of the 2010 Biodiversity target in relation to:* • *Annexes (II, IV and V) of the EC Habitats and Species Directive* • *Appendix I of the Bern Convention* • *Priority species lists associated with of relevant national biodiversity legislation*	*Lead & Contributing organisations:* **ECCF, ECCB, IUCN expert groups** with support from **Planta Europa members,** and **EHF**
ESPC 7.1b	*Promote the development of 20 trans-boundary or multi-country species recovery projects (including cryptogamic species and fungi) to develop Pan-European cooperation and to develop methods for coping with climate change and connectivity issues* (see also the activities under target 8)	*Lead & Contributing organisations:* **Botanic Gardens, ECCF/EMA, ECCB**
ESPC 7.2	*Develop database of plant micro-reserves and genetic reserves for crop wild relatives and, where relevant, other small in situ protected areas*	*Lead & Contributing organisations:* **Generalitat Valenciana** for micro-reserves, and **ECPGR** *in situ* and on farm groups for crop wild relatives, **Botanic Gardens**

European activities under this target	
ESPC 7.1 Implementation of national strategies	
1. Collate available information on current *in situ* recovery programs in Europe and use to identify species to be considered as priority for	*Lead organisation:* **Planta Europa Secretariat** to publicise all available

recovery programmes and disseminate successful methods and case studies.	information via the Planta Europa website-based on information from Planta Europa members, Botanic Gardens and relevant organisations
2. Develop national strategies across all plant groups	*Lead organisations:* **national conservation organisations** with input from relevant taxonomic expert groups
ESPC 7.1a – Updating legislation	
3. Identify species which should be included on the EC Habitats and Species Directive Annexes (and identify which particular annex (II, IV, V) based on the latest results of the European Red List for vascular plants and Red Lists of other taxonomic groups by 2011	*Lead organisations*: same as for Target 2.1
ESPC 7.1b Trans- national recovery programmes	
5. Promote trans-national programmes for 5 priority species	*Lead organisations:* **Planta Europa Secretariat**
ESPC 7.2 Database of micro-reserves and small sites	
6. Publicise case studies/methods of *in situ* recovery programmes (e.g. the Micro-reserves programme, the AEGRO genetic reserves methods etc) via the Planta Europa website	*Lead organisations:* **Planta Europa Secretariat** via the Planta Europa Website-based on information from relevant organisations
7. Contribute to IUCN guidelines for the management of small plant populations	*Lead organisations:* **Planta Europa members** to contact the IUCN Plant Conservation sub-committee as appropriate

Case study: Lady's-slipper orchid (*Cypripedium calceolus*) is distributed throughout Eurasia, from Britain to the Pacific. In most of its range it is rare with few individuals and locations, which indicates a high extinction threat. Threats include changes in forest regime and water table, closing of forest canopy, soil eutrophication, trampling, grazing, cutting and digging up of bulbs. 8 EU LIFE projects have been targeted at lady's-slipper orchid since 1996 and in the UK ex situ propagation methods were developed and targeted reintroductions have been carried out at 12 sites.

Coordinators: National organisations, Royal Botanic Gardens Kew for ex situ propagation methods

GSPC target 8: *60% of threatened plant species in accessible ex situ collections, preferably in the country of origin, and 10% of them included in recovery and restoration programmes*

GSPC information: Currently, over 10,000 threatened species are maintained in living collections (botanic gardens, seed banks and tissue culture collections), representing some 30% of known threatened species. Within this target it is suggested that priority is given to critically endangered species, for which a target of 90% should be attained. It is estimated that currently about 2% of threatened species are included in recovery and restoration programmes.

ESPC information: A current estimate of the species in the Europe-Mediterranean basin, based on analysis of the Euro+Med Plantbase, is 30,983 species (Kell et al, In Maxted et al., 2008) – however there is no current estimate of the number of threatened species at the European level.

The European Native Seed Conservation Network (ENSCONET) holds a combined list of seed maintained in seed banks in the EU (currently 5200 European taxa), the majority (2729 species/2855 taxa) held by the Millennium Seed Bank at the Royal Botanic Garden Kew. Botanic Gardens Conservation International (BGCI) is assessing information on living plant collections in Europe, available through the PlantSearch website and is compiling a consolidated list of threatened European species as a step towards a formal European Red List. The EURISCO database holds data on national inventories of *ex situ* holdings of plant genetic resources.

Although these collections hold greater numbers of taxa than the 5000 species in target 8.1 they do not necessarily hold the most threatened or species of particular interest. Also these collections do not necessarily hold the associated provenance, ecological and conservation information on the species which are necessary for successful recovery and reintroduction programmes. The publication of a European Red List would make it easier to determine priorities for the

storage of threatened species and taxa and to assess progress with this target. See also Target 9 for information on priority lists for crop wild relatives and socio-economic plants. *Ex situ* conservation and gene banks are taken to include living collections, seeds banks, material in cryopreservation, in vitro culture, tissue culture and other means of conserving vascular plants, bryophytes, fungi, algae and lichens. Institute holding *ex situ* material need to ensure that their living collections of threatened European taxa fully support conservation and research. Consequently, a systematic evaluation of the data quality relating to the most endangered taxa would determine if these accessions were *fit for purpose* (see Maunder *et al*. 2001). [Maunder, M., Higgens, S. & Culham, A. (2001) The effectiveness of botanic garden collections in supporting plant conservation: a European case study, Biodiversity & Conservation 10: 383-401]. In the context of this strategy the term 'species' is used to cover taxa, i.e. this target should include sub-species in the numbers of threatened species. Any assessment of *ex situ* collections of threatened species should where possible include an assessment of the genetic diversity of the species held and additional accessions made where necessary. Collection of critically endangered species should only be considered where collection of *ex situ* material is not detrimental to the conservation status of the species. All transfers of germplasm should be made in line with the access and benefit sharing provisions of the CBD using models such as the IPEN (International Plant Exchange Network) model for acquisition and exchange on living plant material, the International Treaty on Plant Genetic Resources for Food and Agriculture, and the Principles on Access to Genetic Resources and Benefit Sharing. *Actions to mitigate the effects of climate change:* species particularly threatened by the effects of climate change (e.g. certain alpine species) should be identified and targeted for inclusion in *ex situ* collections.		
ESPC 8.1	*Store in gene banks 60% of European threatened species, or species and populations of particular interest (e.g. populations under extreme conditions, or at the edge of their distribution area, species potentially at risk from the effects of climate change, including species with a trans-European distribution) and implement restoration programmes for 50 species*	*Lead & Contributing organisations:* **ENSCONET**, **European Botanic Gardens Consortium**, **BGCI, ECPGR, PlantNetwork, national gene banks**
ESPC 8.2	*At least 10 priority species in each country held in gardens undertaking conservation activities or research institutes active in that country, and research initiated into storage methods, recalcitrant seeds, autecology, propagation methods including germination and cultivation techniques, and re-introduction methods*	*Lead organisations:* **gardens undertaking conservation activities and research institutions including ECPGR**
	European Actions	
ESPC 8.1 Species storage and restoration 1. Evaluate existing *ex situ* collections, to improve their conservation benefit by evaluating the quality of associated data, such as provenance. Priority should also be given to threatened species with little information on their ecology, biology or conservation status.		*Lead organisations:* **Botanic Gardens, BGCI, Relevant research institutes**
2. Lead organisations to share information on *ex situ* collections		*Lead organisations:* **ENSCONET** with support from **European Botanic Gardens Consortium**, **BGCI, PlantNetwork**
3. Encourage Planta Europa members and other relevant organisations to provide case studies of reintroductions for the IUCN Reintroduction Specialist Group newsletter (e.g. The Italian Botanical Society will carryout 30 reintroduction programmes)		*Lead organisations:* **Planta Europa members** and other relevant organisations to provide case studies to IUCN Reintroduction Specialist Group
4. Promote good practice in the transfer of germplasm in line with the access and benefit sharing provisions of the CBD using models such as the IPEN (International Plant Exchange Network) model for acquisition		*Lead organisations:* **BGCI, European Botanic Gardens Consortium, ECPGR, Planta Europa** (via links on the Planta

and exchange on living plant material, the International Treaty on Plant Genetic Resources for Food and Agriculture, and the Principles on Access to Genetic Resources and Benefit Sharing.	Europa website), relevant germ banks and research institutes
ESPC 8.3 – conservation action and research	
5. Promote tested methods for *ex situ* conservation, research and re-introduction case studies (e.g. cryopreservation of bryophytes at Royal Botanic Garden Kew, latest research on seed containers and standards of seed preservation. (This also links to target 3.1)	*Lead organisations:* **Planta Europa Secretariat** via the Planta Europa website-based on information from relevant organisations including **Botanic Gardens and Research Institutes, BGCI, IUCN Reintroduction Specialist Group, ECPGR,** and **PlantNetwork**

Case study: The European Native Seed Conservation Network (ENSCONET) has been set up to coordinate European seed conservation practice, policy and research for native plants. The Programme has four activity areas: collection, curation, data management and information dissemination. The programme currently holds 5,200 European taxa.

Coordinators: Royal Botanic Gardens, Kew

Case study: Methods for the collection, propagation and storage of 12 threatened bryophyte species has been developed. Three collection protocols have been established for different mosses and protocols including limiting the detrimental effects to in situ populations. A standard protocol has been developed for the cryopreservation of protonemal material.

Coordinators: Royal Botanic Gardens Kew

GSPC target 9: *70% of the genetic diversity of crops and other major socio-economically valuable plants conserved, and associated indigenous and local knowledge maintained.*

GSPC information: Theory and practice demonstrate that with an appropriate strategy, 70% of the genetic diversity of a crop can be contained in a relatively small sample (generally less than 1,000 accessions). For some 200-300 crops it is expected that 70% of genetic diversity is already conserved *ex situ* in gene banks. Genetic diversity is also conserved through on farm management. Combining gene bank, on farm, and other *in situ* approaches, this target could be reached for all crops in production, as well as major forage and tree species. Other major socio-economically important species, such as medicinal plants, could be selected on a case-by-case basis depending on national priorities.

ESPC information: The Crop Wild Relative Catalogue for Europe and the Mediterranean provides the essential baseline information on socio-economic plants in Europe. The Catalogue is accessible online via the Crop Wild Relative Information System (CWRIS), which is a unique system and portal for managing and accessing the information needed for effective conservation and utilization of crop wild relatives. The European Cooperative Programme on Plant Genetic Resources (ECPGR) coordinates activities over a wide range of plant genetic resource projects. The European Forest Genetic Resources Programme (EUFORGEN) is a collaborative mechanism across Europe to promote conservation and sustainable use of forest resources. Bioversity International's Regional Office for Europe hosts the Secretariats for ECPGR and EUFORGEN. The EU funded AEGRO project aims to develop and disseminate methods and strategies for creating genetic reserves and national strategies for conserving plant genetic diversity. The EURISCO database holds information on the national inventories of *ex situ* holdings of plant genetic resources.
Many botanic gardens in Europe hold significant collections of ornamental plant species which are of socio-economic importance.
The International Treaty on Plant Genetic Resources for Food and Agriculture provides a legal framework for the fair and equitable availability and transfer of plant genetic resources.

There are many overlaps between this target and target 13, especially in the area of indigenous and local knowledge. *In situ* actions relating to Medicinal and Aromatic Plants (MAPs) are included in targets 11 and 12.

Actions to mitigate the effects of climate change: effective *in situ* and *ex situ* conservation of crop wild relatives and a wide range of socio-economic plants, with associated knowledge systems, will provide a strong basis for adapting to the effects of climate change for the European environment and it's crops

ESPC 9.1	*Establishment of 25 European crop wild relative genetic reserves covering the major hotspots of species and genetic diversity*	*Lead organisations::* **ECPGR *in situ* and on farm Network**
European Actions		
ESPC 9.1 Establishing crop wild relative genetic reserves		
1. Establish baseline of genetic diversity for priority crop complexes of European socio- economically important wild species to assist conservation prioritisation and as a means of assessing genetic erosion.		*Lead organisations:* **ECPGR *In situ* and On Farm Network**
2. Assess genetic diversity change against time for European socio-economically important wild species.		*Lead organisations:* **ECPGR *In situ* and On Farm Network**
3. Develop a preliminary list of crop wild relative *in situ* hotspots of species and genetic diversity at national and European levels		*Lead organisations:* **ECPGR *In situ* and On Farm Network**
4. Prepare a gap analysis review of *ex situ* holdings of European crop wild relative species		*Lead organisations:* **ECPGR *In situ* and On Farm Network**
5. Prepare a European inventory of traditional, local crop landrace varieties		*Lead organisations*: national coordinators supported by the **ECPGR *In situ* and On Farm Network**
6. Prepare a priority list of European crop wild relatives		*Lead organisations*: national coordinators supported by the **ECPGR *In situ* and On Farm Network**
7. Promote the Crop Wild Relative Information System (http://www.pgrforum.org/cwris/cwris.asp)		*Lead organisations:* **Planta Europa** via the Planta Europa Website
Target 9 – conservation of genetic holding of major socio-economic plants		
8. Assess and publicise the holdings of major ornamental species in European botanic gardens		*Lead organisations:* **Botanic Gardens, the European Botanic Garden Consortium, BGCI**
9. Assess the *ex situ* holdings of major Medicinal and Aromatic Plants (MAPs) (initially the 15 species identified in Lange 1998 see target 11) in Botanic Gardens and Gene Banks		*Lead organisations:* Information on national inventories of *ex situ* plant genetic resources available via the **EURISCO** database, information on *ex situ* inventories also available via **ENSCONET, BGCI, European Botanic Gardens Consortium**

Case study: The EC-funded European Crop Wild Relative Diversity Assessment and Conservation Forum (PGR Forum) involved 23 partner institutes in 21 countries throughout Europe. The project created the Crop Wild Relative Catalogue for Europe and the Mediterranean and the Crop Wild Relative Information System (CWRIS – http://www.pgrforum.org/cwris/cwris.asp) for managing and accessing data needed for effective crop wild relative conservation and utilization. PGR Forum also developed methods for crop wild relative threat and conservation assessment, population management, and genetic erosion and genetic pollution assessment.

Coordinators: School of Biosciences, Birmingham, UK

GSPC target 10: *Management plans in place for at least 100 alien species which threaten plants, plant communities, habitats and ecosystems*

GSPC information: There is no agreed reliable estimate of the number of alien species that threaten indigenous plants, plant communities and ecosystems to such an extent that they may be considered 'major'. It is therefore recommended that the target be established for an absolute number rather than a percentage. The 100 alien invasive species would be selected on the basis of national priorities, also taking into account their significance at the regional and global level.

ESPC information: There are many national initiatives for tackling invasive alien species and raising awareness, and a solid framework for European action under the 'European Strategy on Alien Invasive Species', adopted by Recommendation 99 (2003) of the Standing Committee to the Bern Convention (Council of Europe Publishers, Nature and Environment No. 137, 2004) and Recommendation 126 on the eradication of existing alien plants. There are several lists of the worst invasive alien species in Europe: The European Plant Protection Organisation (EPPO) has prepared a list of the major invasive alien plant species in Europe; The DAISIE Programme has a list of the 100 worst alien invasive species (which includes plant species) and the SEBI2010 (Streamlining Biodiversity Indicators 2010) Programme has also developed a list of alien invasive species which includes plants.

A new Group of Experts on Biodiversity and Climate Change has been set up under the Bern Convention, which is addressing impacts of climate change on Bern Convention's species and habitats. The Group of Experts will develop guidance and headline recommendations, as well as common principles, addressed at the Contracting Parties of the Bern Convention so that they can integrate climate change concerns in their implementation of the Convention. The Standing Committee will review and eventually adopt such guidance at its next meeting on 24-27 November 2008.

The European Union is also developing a communication for Invasive Alien species in 2008. There is also a European working group devoted to Invasive Alien Species (NEOBIOTA) and an EU funded information portal for alien species (DAISIE). NOBANIS, the North European and Baltic Network on Invasive Alien Species provides an information gateway to Invasive Species in North and Central Europe. The Global Invasive Species Programme has an interactive global map on which organisations are invited to post details of their current projects and programmes on invasive species.

Actions to mitigate the effects of climate change: Information systems should highlight those alien invasive plants and algae which pose the greatest threat of increasing their range due to the effects of climate change. National and regional strategies should identify and propose strategies for those alien species which are not yet present but are predicted to become problematic due to the effects of climate change.

ESPC 10.1	Action Frameworks developed and implemented for controlling and monitoring the15 most problematic* invasive alien plants in each European region (Mediterranean, Baltic, Alps, South East Europe, East Europe, Atlantic etc) *(*as defined by the latest scientific information, and with reference to the EPPO, the DAISIE Information service, NEOBIOTA and other relevant organisations)*	*Lead & Contributing organisations*: **Council of Europe; NOBANIS; European Botanic Garden Consortium and Botanic Gardens** With reference to the latest information from the EPPO, DAISIE, NEOBIOTA, the Council of Europe
ESPC 10.2	Action Frameworks developed and implemented for controlling and monitoring the10* problematic invasive alien species in each country, with reference to information from other countries and regional initiatives (*This number may be less for the smallest countries in Europe, i.e. those countries with an area of less than 1,000 km²)	*Lead & Contributing organisations*: **National organisations** including **Botanic Gardens**
ESPC 10.3	*The existing EU web-based information system (DAISIE) to include at least 80% of European countries.*	*Lead & Contributing organisations*: **National experts/stakeholders** outside of EU to provide details to the DAISIE Secretariat
ESPC 10.4	The Code of Conduct on Horticultural and Invasive Alien Plants adopted and implemented in at least 10	*Lead & Contributing organisations*: **national and regional organisations** based

	European states.	on information from the Council of Europe and the EPPO
European activities under this target		
ESPC 10.1 & 10.2 – national and regional control mechanisms		
1. Publicise the available lists of European alien invasive species (the EPPO list, the DAISIE list, the SEBI2010 list)		*Lead organisation:* **Planta Europa Secretariat** via the Planta Europa website-based on information from EPPO, DAISIE, SEBI2010
2. Promote the national implementation of the European Strategy on Alien Invasive Species, adopted by Recommendation 99 (2003) of the Standing Committee to the Bern Convention, and the EU communication on invasive alien species (due 2008)		*Lead organisation:* **Planta Europa Secretariat** via the Planta Europa website-based on information from the Council of Europe and the EU
3. Promotion of trans-boundary examples of control (e.g. Croatia)		*Lead organisation:* **Planta Europa Secretariat** via the Planta Europa website-based on information from relevant organisations
4. Exchange of experiences /toolkit/best practice case studies for dealing with invasive species, via the PE website		*Lead organisation:* **Planta Europa Secretariat** via the Planta Europa website-based on information from relevant organisations
5. Promote the aims and the results of the European (and global) organisations working on invasive alien species (the Council of Europe and the Bern Convention, NEOBIOTA, EPPO, DAISIE, NOBANIS, GISP)		*Lead organisation:* **Planta Europa Secretariat** via the Planta Europa website
6. Encourage Planta Europa members to provide information on current programmes and projects for the interactive map of the Global Invasive Species Programme (GSIP) and other relevant invasive species programmes		*Lead organisation:* **Planta Europa Members**
ESPC 10.4		
7. Publicise the Code of Conduct on Horticulture and Invasive Alien Plants		*Lead organisation:* **Planta Europa Secretariat** via the Planta Europa website and the Council of Europe

Case study: The EU funded DAISIE Project aims to provide an alien species 'gateway' to act as a 'one-stop-shop' for information on biological invasions in Europe. The project will provide access to national knowledge bases, information on invasive or potentially invasive species, and will have 4 main outputs – a register of experts, a register of all the known alien species in Europe, species accounts, distribution maps and analysis.

Coordinators: DAISIE (Delivering Alien Invasive Species Inventories in Europe)
Funders: EU Sixth Action Framework Research Funding

OBJECTIVE 3: USING PLANT DIVERSITY SUSTAINABLY

This is one of the most challenging objectives of the ESPC and also the objective that offers the most potential for engaging with a range of stakeholders and new audiences on the need for protecting plant species and the benefits of conserving plant diversity. There are many definitions of 'sustainability' but fewer examples of how to use plants sustainably in practice. Plant conservationists need to work with land managers, farmers and wild plant collectors to develop working methods for managing resources sustainably and to promote those models which have been demonstrated to work.

Target 11: *Trade in wild plants* – the main methods to ensure wild plants are not endangered through trade are through legislation and the implementation of sustainable practices among resource managers, collectors, producers and consumers. CITES and national legislation can be used to deliver these targets although they need strong national implementation agencies. The new International Standard for Sustainable Wild Collection of Medicinal and Aromatic Plants (ISSC-MAP) offers valuable information and methods for all those involved in trade in and management of medicinal and aromatic plants which is important for the delivery of both targets 11 and 12.

Target 12: *Plant based resources from sustainable sources* – There is a need for greater information on the plant resource 'footprint' in Europe, i.e. the sustainability of the plant-based products grown in Europe and those that Europe imports from outside its borders. The methods for assessing and achieving sustainability include certification systems and sustainable, biodiversity-friendly agricultural/forestry management systems. Planta Europa needs to engage with other organisations working in this field to ensure that plant diversity messages are part of sustainability planning, including issues such as risk assessments for biofuels and carbon offsetting.

Target 13: *Plant knowledge for food, health and culture* – The study of how different peoples use plants, ethnobotany, is often seen as an exotic subject more relevant in the tropics than in Europe. Few people in Europe rely on wild foods solely for food or healthcare, but the promotion of ethnobotany and an understanding of the connections between people, place and the plants they use could be one method of reviving interest in plants and engaging more people in the conservation of wild plants.

GSPC target 11: *No species of wild flora endangered by international trade*

GSPC information: This target is complementary to GSPC target 12 but is more specific in that it focuses on the conservation of wild plant species which are actively traded. Species of wild flora endangered by international trade include but are not limited to those listed on Appendix 1 of CITES (The Convention on International Trade in Endangered Species).

ESPC Information: 21,000 plant species on CITES appendices (I-III), 300 of these used medicinally with 64 listed on CITES expressly because of the threat of over harvest for medicinal purposes.
32 plant species on Annex V of the EC Habitats and Species Directive
15 priority wild plant and fungus taxa traded in Europe identified by Lange 1998: *Adonis vernalis* L.; *Arctostaphylos uva-ursi* (L.) Sprengel; *Arnica montana* L.; *Cetraria islandica; Drosera rotundifolia* L. (*D. anglica* Hayne, *D. intermedia* Hudson); *Gentiana lutea* L.; *Glycyrrhiza glabra; Gypsophila* spp., *Ankyropetalum gypsophylloides* Fenzl; *Menyanthes trifoliata* L.; Species of Orchidaceae; *Paeonia* spp.; *Primula* spp.; *Ruscus aculeatus* L.; *Sideritis* spp.
The International Standard for the Sustainable Wild Collection of Medicinal and Aromatic Plants provides guidelines for collectors, traders, producers and consumers.

Actions to mitigate the effects of climate change: Action plans and methods should consider the potential effect of climate change on the species collected for trade and where possible propose solutions or adaptations which could mitigate these effects.

ESPC 11.1	***Action plans implemented and methods disseminated to ensure that 15 priority wild medicinal and aromatic plant taxa traded within Europe are not endangered by trade (based on recommendations in Lange 1998*)*** * **Lange, D. 1998, EUROPE'S MEDICINAL AND AROMATIC PLANTS: THEIR USE, TRADE AND**	*Lead & Contributing organisations:* **TRAFFIC, WWF, Botanic Gardens, National Planta Europa members**

	CONSERVATION . (A TRAFFIC *Species in Danger* Report, June 1998)	
ESPC 11.2	**Ensure that CITES and the EC Habitats and Species Directive are effective in protecting wild plant species from trade through updating of the annexes and appendices of CITES and the EC Habitats and Species Directive Annex V and providing recommendations for effective implementation**	*Lead & Contributing organisations:* **TRAFFIC,** Botanic Gardens and national Planta Europa members with reference to the latest information from CITES
European actions under this target		
ESPC 11.1 Action plans for MAPs		
1. Promote the use of the International Standard for Sustainable Wild Collection of Medicinal and Aromatic Plants (ISSC-MAP) and promote case studies of implementation through the PE website		*Lead Organisation:* **Planta Europa Secretariat** to provide appropriate links through the Planta Europa website
2. Promote best practice for legal instruments for wild flora and MAP trade such as documentation of origin , e.g. Bulgarian passport system through the PE website		*Lead Organisation:* **Planta Europa Secretariat** to provide appropriate links through the Planta Europa website
ESPC 11.2 Implementing legislation		
3. Promote the aims, work programmes, publications and information on wild plant trade of TRAFFIC through the Planta Europa website		*Lead Organisation:* **Planta Europa Secretariat** to provide appropriate links through the Planta Europa website
4. Promote available CITES training materials for plant species, e.g. the Royal Botanic Gardens Kew Publications, through the Planta Europa website		*Lead Organisation:* **Planta Europa Secretariat** to provide appropriate links through the Planta Europa website
Target 11 – lessening threat from trade and collection		
5. Promote good practice models of collection of wild resources for household consumption and trade (e.g. the WWF & Garda de Sus Community *Arnica montana* project) as a tool for awareness raising		*Lead Organisations*: **Planta Europa Secretariat** via the Planta Europa website-based on information from national Planta Europa members and from NGOs which promote local sustainable food & resource initiatives

Case study: Annually more than 400,000 tonnes of medicinal and aromatic plants are traded globally with 80% harvested from the wild. The International Standard for Sustainable Collection of Medicinal and Aromatic Plants (ISSC-MAP) has been developed to provide principles and criteria for resource managers, collectors, producers and consumers, and is available in version 1.0 (2007) at www.floraweb.de/MAP-pro

Coordinators: The process began as a joint initiative of the German Federal Agency for Nature Conservation (BfN), the IUCN Medicinal Plants Specialist Group, WWF Germany and TRAFFIC

GSPC target 12: *30% of plant-based products derived from sources that are sustainably managed*

GSPC Information: Plant based products include food products, timber, paper, & other wood based products, other fibre products and ornamental, medicinal and other plants for direct use.
Sources that are sustainably managed are understood to include: **natural and semi-natural ecosystems that are sustainably managed** (by avoiding over-harvesting of products or damage to other elements of the ecosystem, excepting that commercial extraction of resources from some primary forests and near pristine ecosystems of important conservation value might be excluded; **sustainably managed plantation forests and agricultural land**. In both cases sustainable management should be understood to integrate social and environmental considerations.
Indicators for progress include: direct measures, verification of products (e.g. certification); indirect measures (e.g. assessment of farming systems).

ESPC information: The Planta Europa network decided that all plant-based products used in Europe should be assessed within this target whether they are grown in Europe or elsewhere. The International Standard for Sustainable Wild Collection of Medicinal and Aromatic Plants (ISSC-MAP) is now available in its version 1.0 (2007) and provides a framework of principles and criteria to advise resource managers, collectors, producers and consumers. In Scotland a national 'mushroom collecting code' has been developed. There are numerous national organic agriculture certification schemes in Europe which include some assessment of the benefits for biodiversity, the International Federation of Organic Agriculture Movements (IFOAM) contains a draft Biodiversity and Landscape Standard within its certification system, the European Commission has a new regulation (EC No. 834/2007) on organic production and labelling of organic produce. The Forest Stewardship Council provides a certification of sustainable forestry practices which is recognised throughout Europe and other parts of the world. The Fairtrade certification system ensures basic price and working standards for the producers of certain plant products, many of which are sold in Europe, the certification also includes certain environmental standards for the production of those plant products.

Actions to mitigate the effects of climate change: The review of Europe's plant product footprint should highlight any plant resources or production methods which are particularly at risk from the effects of climate change, or highlight any negative practices for plant diversity which are predicted to increase under the effects of climate change.

ESPC 12.1	***30% of plant-based products derived from sources that are sustainably managed***	*Lead & Contributing organisations:* there are many organisations working on different aspects of this target and no clear identifiable lead. The Planta Europa Secretariat will publicise the latest information from the relevant organisations including: TRAFFIC, WWF, Friends of the Earth, Forest Stewardship Council, International Federation of Organic Agricultural Movements, Fairtrade, FAO, IEEP

European Actions	
ESPC 12.1 Plants from sustainable sources	
1. Develop 5-10 case studies / projects to implement International standards for sustainable collection of MAPs (ISSC-MAP) & disseminate results	*Lead organisations:* **WWF, TRAFFIC** with input from Plant Europa members as appropriate
2. Review & promote results of Europe's plant product footprint, i.e. highest volume (in area of production/land take) of plant based products used (or planned e.g. biofuels) in Europe & how this impacts on plant diversity within and outside Europe	*Lead organisation:* **Planta Europa Secretariat** (depending on capacity) based on information from relevant organisations including: TRAFFIC, WWF, Friends of the Earth, Forest Stewardship Council, International Federation of Organic Agricultural Movements, Fairtrade, FAO, IEEP
3. Liaise with existing certification groups, (Fairtrade, FSC, IFOAM, FairWild) in the first instance and where appropriate develop working group to provide plant specific certification indicators to ensure that existing certification schemes are plant diversity friendly inside and outside of Europe	*Lead organisation:* **Planta Europa Secretariat** to contact FSC, IFOAM, Fairtrade, FairWild etc in the first instance and if appropriate then seek possible funding to develop working group or conference.

Case study: *Arnica montana* is widely used as a herbal medicine and is mainly harvested from the wild. It is in decline and the main causes are loss of habitat, especially mountain meadow, and over-harvesting. A project in the Apuseni Mountains of Romania aimed to develop a sustainable model for production and trade with benefits for biodiversity and trade, with 4 main components – training and capacity building, local resource management and business structures, drying facilities, research.

Coordinators: WWF (WWF UK & Danube Carpathian Programme) with the Garda de Sus community
Funders: The Darwin Initiative (DEFRA – UK)

GSPC target 13: *The decline of plant resources, and associated indigenous and local knowledge, innovations and practices that support sustainable livelihoods, local food security, and health care, halted*

GSPC Information: This target is consistent with the international development target to '*ensure that current trends in the loss of environmental resources are effectively reversed at both global and local level by 2015*'. Relevant plant resources and methods to address their decline are largely site specific and thus implementation must be locally driven.

The scope of the target is understood to encompass plant resources and associated ethnobotanical knowledge. Measures under this target should be implemented consistent with the CBD's Programme of Work on Article 8(j) and related provisions, including the fair and equitable sharing of any profits from plant genetic resources.

ESPC Information: Many activities which refer explicitly to halting the decline of plant genetic resources (including crop relatives and land races) are identified under Target 9. There are organisations for ethonobotanists in Europe including the Society for Economic Botany (SEB) which is establishing a European chapter. The EU recently funded an ethnobotanical research project, RUBIA, which carried out research into circum-Mediterranean traditional technologies, tools, and uses of wild and neglected cultivated plants for food, medicine, textiles, dyeing and handicrafts. Wild plant resources that support livelihoods are found most commonly in South East Europe and the Mediterranean region.

Actions to mitigate the effects of climate change: parts of the proposed projects or case studies could focus on plant species with specific environmental requirements that would be able to adapt to the predicted changes caused by climate change or on communities based in regions already experiencing the effects of climate change as a basis for understanding how human/plants relations might change due to the effects of climate change.

ESPC 13.1	***Projects in place in four European sub regions demonstrating sustainable methods of conserving plant resources (crop wild relatives, land races, medicinal plants, etc) whilst supporting European livelihoods (see also target 9 and associated activities)***	*Lead & Contributing organisations:* *In situ* and On Farm Working Groups of the **European Cooperative Programme for Plant Genetic Resources (ECPGR)** especially the *in situ* and on farm network, and the medicinal and aromatic plants working group**, WWF, Plantlife International, Botanic Gardens**
ESPC 13.2	*Develop a handbook/series of case studies, in local languages, to provide training in methods and demonstrate the value of ethnobotanical projects to individuals, communities, researchers and children, in order to halt the loss of plant resources and local knowledge in Europe.*	*Lead & Contributing organisations:* Currently no lead organisation but the Planta Europa Secretariat will continue to look for potential partners

European Actions	
See also activities under target 9	
ESPC 13.1 Sustainable use projects	
1. Development and implementation of the sustainable use projects including information on how they can be incorporated into national and regional action and policy strategies	*Lead organisations:* **ECPGR, WWF, Plantlife International,** Planta Europa to promote and publicise via the Planta Europa website
ESPC 13.2 Best practice & case studies	
2. Provide information through the Planta Europa website on organisations and research institutes active in the field of ethnobotany, including case studies of good practice.	*Lead organisations*: **Planta Europa Secretariat** with assistance from members and relevant organisations
3. Promote the results and recommendations of the 4 year study of wild plant related livelihoods in the UK carried out by the Centre for Economic Botany, Royal Botanic Gardens Kew – '*Commercial use of wild and traditionally managed plants in the UK'*.	*Lead organisations:* **Planta Europa Secretariat** via the Planta Europa website-based on the information in the RBGK, Centre for Economic Botany publication

Case study: the EU funded RUBIA project aimed to record ethnobotanical field data on plants and their uses within their socio-economic and anthropological context in 12 sites in the Mediterranean, including Turkish migrants in Cologne, and communities in the Northern Albanian Alps, and the evaluation of neglected crops in arid and semi-arid areas in Egypt. The results were disseminated via databases, teaching materials, CDs, and some museum exhibitions.

Coordinators: Wageningen University (Netherlands), Universität zu Köln (Germany)
Funders: EU Fifth Research Framework

OBJECTIVE 4: PROMOTING EDUCATION & AWARENESS ABOUT PLANT DIVERSITY

If we do not engage the interest of a much wider range of people in the value of plants and their conservation we will find it much more difficult to achieve the aims and goals of this strategy. All organisations and individuals working in plant and fungus conservation need effective communication elements to their projects, although this is often the most difficult element to implement. The Planta Europa network has identified different audiences and a series of innovative communication activities which could be applied at the regional, national or local level. Measuring the success of awareness raising targets is extremely difficult but there are two aspirations which we could aim towards: that every child and adult knows at least 10 wild plants from their surroundings, and that every Planta Europa member has a partnership with business that delivers conservation benefit. Botanic Gardens have a particular role as a pivotal point between plant specialists and the general public and are well placed to publicise the aims and activities of the GSPC and the ESPC and to highlight the value and threats to their national flora.

The key audiences are:

- Policy makers
- Children and young people
- Teachers and students on conservation courses
- Land managers and spatial planners
- General public
- Trade, business and tourism sectors

All of these audiences require clear plant conservation messages which are regularly updated and provided in an accessible format for that audience. However each of these groups requires different types of messages.

Policy makers require sound scientific data to influence policy, examples of successes and any economic benefit, and to be challenged when their policies fail plant conservation.

Children and young people need interesting and exciting messages to ignite their interest in plants and their conservation, and teachers require clear, well-researched teaching material.

There is great potential to increase knowledge of the aims and activities of the GSPC and the ESPC by targeting the trainers and teachers of conservation courses in each country.

There are many potential routes to reach the general public including the current debates on how we produce our food, how we use the landscape, and how we engage with climate change.

For land managers, the messages have to focus on emphasising the value of plant diversity of their land, their responsibilities and potential benefits, and providing clear messages on how they can

take action to benefit plant diversity. Spatial planners require easily accessible plant and plant site location, preferably digital GIS data, which requires investment in funding and capacity.

For the trade and business audiences plant conservationists have to provide clear information on how they can operate to benefit plant diversity, including innovative compensatory actions such as green taxes (conserving all plant diversity not just planting trees) and to encourage and acknowledge companies which recognise and implement plant conservation actions. Tourism is a special category which should be targeted for plant conservation awareness raising, both in emphasising the potential economic benefits of plant-rich sites and habitats for national tourism, and to provide clear messages on sustainable tourism.

This strategy also recognises the important role of Botanic Gardens as centres for education and awareness and the potential for raising awareness of the value of plants and their conservation among the tens of millions of visitors they welcome every year. Botanic Gardens could make use of their pivotal role in public awareness to provide information on the Global and European Strategies for Plant Conservation.

GSPC Target 14: *The importance of plant diversity and the need for its conservation incorporated into communication, education and public awareness programmes*

GSPC Information: This target is seen as crucial to the delivery of all the targets.
This target is understood to refer to both formal and informal education at all levels, including primary, secondary and tertiary education.
Key target audiences include not only children and other students, but also policy-makers and the public in general.

ESPC information: There are many, many national and local initiatives, including national competitions to vote for native plant emblems, training materials for teachers (e.g. the British Lichen Society teacher training packs), and a regional approach to introducing plant information into school curricula through botanic gardens, education authorities and teachers (the EU funded Plant Science Gardens Project). There are many other opportunities to increase awareness raising in the more traditional fields of influencing policy and promoting effective methodologies, but also creatively though exhibitions, competitions and awards. The wake up call for wild plants has been initiated with an online voting platform for national flowers. Currently there are 12 participating countries and there is more information on the Planta Europa website.

Actions to mitigate the effects of climate change: Targeted campaign to highlight the effects of climate change on plant diversity and provide clear messages on conservation action. The touring/permanent exhibitions should include information on the threats of climate change and methods to mitigate its effects.

ESPC 14.1	**6 year sequence of targeted campaigns at the Pan-European and regional level (within the EU, within accession countries and in non EU countries), that aim to ensure biodiversity initiatives, actions and incentives deliver sufficient plant conservation (including campaigns on climate change, agriculture, forestry and invasive species).** At least 1 regional campaign for each of the following audience groups at regional level: • Policy makers • Children and young people • Land managers and spatial planners • General public • Trade, business and tourism sectors This target can also be implemented at the national level with national lead organisations	*Lead & Contributing organisations:* **Council of Europe, Planta Europa network, BGCI and the European Botanic Gardens Consortium, Countdown 2010, National lead partners for national campaigns and projects**
ESPC 14.2	***Initiate a wake up call for European Plant Conservation in all European countries***	*Lead & Contributing organisations:* **Planta Europa members** and **European Botanic Gardens Consortium**

ESPC 14.3	***Develop a high quality touring photographic exhibition, with a legacy of permanent exhibitions in public gardens and arboreta. These should be produced in local languages to highlight the plight of plants in Europe.***	*Lead & Contributing organisations:* **European Botanic Garden Consortium** with support from Planta Europa and its members
ESPC 14.4	***50% of botanic gardens in Europe to display information on the GSPC and ESPC by 2010***	*Lead organisation*: **European Botanic Garden Consortium**
European Actions		
ESPC 14.1 Campaigns & clear messages		
1. Ensure Planta Europa website delivers clear communication messages about plant diversity for the different audiences		Lead organisations: **Planta Europa Secretariat** with support from Planta Europa members and other relevant organisations
2. Produce an information report (on the different communication ideas identified at Planta Europa V e.g. national and area flower emblems, Green Awards, flagship species to identify threats) to accompany the new strategy and if funding/lead partner is identified produce communication training materials and launch campaigns		*Lead organisations:* Planta Europa Secretariat with support from Planta Europa members, BGCI & European Botanic Gardens Consortium
3. Planta Europa website to provide links to available training materials for school children (e.g. Plant Science Gardens, British Lichen Society schools packs) and promote case studies where plant diversity is included in national or local school curricula		*Lead organisation*: **Planta Europa Secretariat** with support from Planta Europa members based on information from relevant organisations
ESPC 14.2 Wake up call		
4. Continue to manage and promote the 'Wake up call' for plant conservation throughout the Network		*Lead organisations:* **Planta Europa Secretariat, Planta Europa members, Botanic Gardens**
ESPC 14.3 Exhibition		
5. Investigate the potential for sponsorship of this exhibition and identify key messages for Europe		*Lead organisation:* **European Botanic Gardens Consortium** with support from Planta Europa and its members

Case study: The Plant Science Gardens Project aims to improve plant science education in schools through partnerships with botanic gardens, primary schools, and national school boards. Currently there are 4 countries, with 112 teachers and 60 primary schools involved in the project. Outputs will include teachers' packs, teachers resources, botanic garden activities, and teacher training activities and the topics are threatened species conservation and sustainability, food, plants in art and daily life, and ecology.

Coordinators: Innsbruck Botanic Garden, Austria
Funders: EU Sixth Research Framework

OBJECTIVE 5: INCREASING CAPACITY FOR PLANT CONSERVATION:

This is an essential yet under-resourced element of plant conservation in Europe. Plant conservation needs good field botanists, and skilled conservation practitioners. The former are declining as fast as the threatened plant species they identify. Funding for long term training of specialists and funding for developing and maintaining networks is often low on the list of eligible projects for funders and governments. Without this commitment to training the long term future for plant conservation is unsustainable and plant conservationists working alone cannot hope to influence the many political, social and scientific agendas and initiatives in Europe.

Target 15: *Trained people* - Trained people for plant conservation includes not only field botanists and taxonomists but ecologists, agriculture and forestry specialists, those who engage in policy, education, fund-raising and awareness raising. Fundraising is a necessary part of plant conservation

and in the absence of direct government funding, or NGOs, many plant specialists need to become involved in the process.

Target 16: *Networks* – Planta Europa cannot achieve the targets of this strategy unless it works with other networks and relevant organisations from the fields of agriculture and forestry, wildlife conservation, legislation and policy, plant genetic resources and *ex situ* conservation. In addition Planta Europa members can strengthen national implementation by developing national plant conservation networks or engaging with other national networks and organisations. Certain regions within Europe, such as Eastern Europe, can develop specific responses and solutions which will strengthen the overall effectiveness of a pan-European strategy.

GSPC Target 15: *The number of trained people working with appropriate facilities in plant conservation increased, according to national need, to meet the targets of this strategy*

GSPC Information: In addition to training programmes this target will require long term commitment to maintaining infrastructure. "Appropriate facilities" are understood to include adequate technological, institutional and financial resources.

ESPC Information: Although there are relatively high numbers of plant and fungus conservation experts working in Europe compared with other regions of the world, there are still significant gaps in the training systems and capacity for training the next generation of specialists. As well as the need for sound scientific training of specialists there is also a need to train those who can present effectively the scientific results and messages to different audiences, including, the public, politicians, land owners, businesses etc.

Actions to mitigate the effects of climate change: Present a clear message to politicians and decision makers on the importance of training appropriate specialists in plant conservation to allow Europe to adapt to the changing climate and the effects on Europe's landscape and resource supply.

ESPC 15.1	*A measurable increase in government resourcing of skill training for plant conservation at national and regional level. Priority skill areas must include taxonomy, ecology, policy and advocacy, all-age education, marketing and volunteer development.*	Lead organisations: **National Planta Europa members** and **Botanic Gardens**
ESPC 15.2	*Identify and engage key partners to resource production of priority tools for building the capacity to deliver plant conservation at a national level. Priority tools are field guides in national languages, national Red Books or Red Lists, habitat and vegetation type maps.*	Lead organisations: **National Planta Europa members** and **Botanic Gardens**

European Actions	
15.1 Resourcing	
1. Publicise available information on the economic consequences of the plant conservation skills gap in the context of climate change to encourage national and regional decision makers to fund adequate skills training	*Lead organisations*: **Planta Europa Secretariat** to contact EDIT and IEEP in the first instance for available information and potential funding sources
2. Planta Europa members compile broad range of best practice examples of skill training and capacity building, to be publicised via the PE website	*Lead organisations*: **National Planta Europa members** and **Botanic Gardens**
3. Planta Europa and Botanic Gardens provide information on available plant conservation training in their country which can be publicised via the PE website	*Lead organisations*: **National Planta Europa members** and **Botanic Gardens**
15.2 Priority tools	
4. Each Planta Europa member from a European state with significant publishing facilities (commercial/academic) to establish link to explore options for production/translation of regional and national field guides	*Lead organisations*: **National Planta Europa members** and **Botanic Gardens**
5. Use planned PE Electronic Information Exchange platform to be a node for European funding information for plant conservation.	*Lead organisations*: **Planta Europa Secretariat**

6. Planta Europa members to explore best approach at national levels to develop corporate support relationships	*Lead organisations*: **National Planta Europa members** and **Botanic Gardens**
7. To share experience, information and skills gained in awareness raising within big projects (such as LIFE, Darwin, GEF, etc)	*Lead organisations*: **Planta Europa** to provide links and promote case studies provided by relevant sources via the Planta Europa website

Case study: The NGO Floron has a network of over 1000 amateur botanist volunteers who carry out fieldwork and collect data for applied research, conservation actions (Red Lists and species recovery plans), and policy making. The volunteers come from a wide range of backgrounds and the network is coordinated through volunteer regional coordinators, who organise excursions, help with identifications and publish a regional newsletter.

Coordinators: FLORON (the Netherlands)

GSPC Target 16: *Networks for plant conservation activities established or strengthened at the national, regional and international level*

GSPC Information: Each of the contracting parties to the CBD have been strongly encouraged to nominate a national point for the implementation of the Global Strategy for Plant Conservation (Information on national focal points can be found at http://www.cbd.int/doc/lists/nfp-cbd-GSPC.pdf). In addition there is a Global Partnership for Plant Conservation (GPPC) which brings together NGOs and plant conservation organisations across the world to implement the GSPC, the Secretariat is hosted by Botanic Gardens Conservation International

ESPC Information: There are several plant and fungi conservation networks in Europe, including Planta Europa, the European Botanic Gardens Consortium, the European Committee for the Conservation of Bryophytes (ECCB) and the new Bryological Association for South East Europe (BASEE), the European Mycological Association (EMA) and its conservation body the ECCF (the European Council for the Conservation of Fungi), the Federation of European Phycological Associations (FEPS) and several national networks such as Plantlink and PlantNetwork in the UK and the German Network for Plant Conservation.

This strategy also recognises the value of sub-regional networks within Europe, such as an East European Plant Conservation Network, which can work to address conservation issues particular to the different regions of Europe.

Actions to mitigate the effects of climate change: Plant conservation networks need to work in partnership with other specialist networks to identify developing conservation problems due to the effects of climate change, to develop practical solutions, and to present clear messages to the public, politicians and decision makers.

ESPC 16.1	*Ensure ESPC targets are communicated, understood and promoted through network partnerships at national, regional and international levels*	*Lead organisations:* **Planta Europa Members, Steering Committee and Secretariat; European Botanic Gardens Consortium**
ESPC 16.2	*Identify national plant focal points to develop/support development of plant conservation networks that facilitate sharing of skills and information at the national level.*	*Lead organisations:* **Planta Europa members, European Botanic Gardens Consortium, National focal points for plant genetic resources and national ECPGR focal points**
ESPC 16.2a	*Network of national coordinators (or focal points) for Eastern Europe for realization of the new European Strategy for Plant Conservation.*	*Lead organisations:* **Planta Europa members in Eastern Europe**
ESPC 16.3	*Increase the number of ESPC projects which engage organizations from in situ and ex situ conservation, plant genetic research, wildlife conservation and sustainable use.*	*Potential organisations which could be involved in partnership projects*: Planta Europa; ECCB, ECCF/EMA, FEPS, BGCI, European Botanic Gardens Consortium; ECPGR; BirdLife International, WWF, Butterfly

		Conservation in Europe, European Herpetological Association, FERN, IFOAM, Forest Stewardship Council, Earthwatch, Fairtrade etc
European Actions		
16.1 Promote ESPC		
1. Identify priority network partnerships and promote the strategy (*e.g.* landuse networks/organisations working in agriculture, forestry, marine industry, tourism)		*Lead organisations:* **Planta Europa members** and the **European Botanic Gardens Consortium**
2. Translate European strategy into the languages of the PE Network		*Lead organisations:* **Planta Europa members** and **European Botanic Gardens Consortium**
3. Member get member by 2014 – each member recruits another member of Planta Europa		*Lead organisations:* **Planta Europa members**
16.2 Plant focal points		
4. Identify national Planta Europa focal points for each country who will be encouraged to develop/support development of plant conservation networks		*Lead organisations:* **Planta Europa members**
5. Planta Europa members to promote the European Strategy for Plant Conservation to government GSPC focal points		*Lead organisations:* **Planta Europa members**
6. Planta Europa Members and Botanic Gardens provide details of the plant conservation organisations working within their country which can be publicised via the Planta Europa website		*Lead organisations:* **Planta Europa Members** and **Botanic Gardens.**
7. Facilitate sharing of skills and information at national and regional levels through search engine/website for plant conservationists to match skills and conservation needs 8. Develop tools for financing and involving of non-EU countries in Pan-European and regional projects.		*Lead organisations:* **Planta Europa Secretariat (**dependent on capacity), **national Planta Europa members** and **Botanic Gardens** *Lead organisations:* **Planta Europa Steering Committee & Secretariat** to ask advice from different funding sources, and organisation such as ECNC
16.2 sub target a)		
9. Organise Eastern European regional workshop (Conference) in 2008-2009 for development of the regional Plant Conservation Strategy and detailed action plan for implementation of the new ESPC		*Lead organisations:* **IUCN-CIS, Botanical Garden of Kiev University, Planta Europa Members**
16.3 Partnerships for plant conservation		
10. Planta Europa members, Steering Committee and Secretariat identify opportunities for partnerships and joint projects with key *ex situ*, plant genetic resources, wildlife conservation, environmental policy, sustainable use organisations		*Lead organisations:* Planta Europa; BGCI, European Botanic Gardens Consortium; European Cooperative Programme on Genetic Resources; BirdLife International, Butterfly Conservation in Europe, European Herpetological Association, WWF, IFOAM, Forest Stewardship Council, Earthwatch, Fairtrade etc

Case study: In 2004 representatives from the German NGO Nabu decided to try and initiate a network for plant conservation, coupled with a project to implement the GSPC in Germany financed by the Federal Agency for Nature Conservation. A symposium was held in 2005 and the network now has 250 members from NGOs, Federal State authorities for nature conservation, academics, freelance and amateur botanists. The main projects are to establish an internet site, a working group on IPAs, and ex situ conservation in botanic gardens.

Coordinators: German Network for Plant Conservation (www.florenschutz.de)

RELATIONSHIP BETWEEN OLD EUROPEAN PLANT CONSERVATION STRATEGY (2001-2007) AND NEW EUROPEAN STRATEGY FOR PLANT CONSERVATION (2008-2014)

Global Strategy for Plant Conservation targets (basis for new European targets – see summary table at beginning of document)	*Continuing & completed activities from the old EPCS (2001-2007)*
GSPC target 1: A widely accessible working list of known plant species, as a step towards a complete world flora	Completed – checklist of European mosses and liverworts; Continuing checklists of other taxonomic groups (EPCS target 1.01)
GSPC target 2: A preliminary assessment of the conservation status of all known plant species at national, regional and international levels	Completed – revised European Red List for bryophytes (part of target 1.02), single web server for European Red Lists (1.08) hosted by ETC; Continuing – Red List for vascular plants, preliminary Red List for fungi (1.02), list of priority wild crop relatives (1.02a) now under new target 9.
GSPC target 3: Development of models with protocols for plant conservation and sustainable use based on research and practical experience.	Continuing – species and habitat monitoring manuals available on web (target 1.03), manuals for integrated *in situ* and *ex situ* conservation (target 2.07), protocols for *ex situ* conservation of different taxonomic groups (target 2.08), information sheet for engagement in water framework directive (target 2.19-2.20)
GSPC target 4: At least 10% of the world's ecological regions effectively conserved.	Continuing – research into effectiveness of IPA approach (target 1.05); IPA data integrated into PEBLDS, national BAPs, Emerald, Natura 2000, RAMSAR (target 2.14), research into effectiveness of current protected area network for plant conservation and recommendations (target 2.15)
GSPC target 5: Protection of 50 per cent of the most important areas for plant diversity assured by 2010	Continuing – first inventory of IPAs in Europe (target 1.04), Planta Europa to support partners in defence of threatened sites (target 2.17), dissemination of information on micro-reserves programme (target 2.18)
GSPC Target 6: At least 30% of production lands managed consistent with the conservation of plant diversity	Continuing – Plant conservation benefits of Rural Development Plans (including agri-environment) and other relevant benefits promoted in all European countries (target 2.09), Effectiveness of 'improved biodiversity indicators' for Sustainable forest management in 4 regions of Europe (target 1.07)
GSPC target 7: 60 per cent of the world's threatened species conserved *in situ*.	Completed (in part) – Datasheets for fungi, bryophytes, lichen and algae to promote their inclusion in Bern Convention Annexes (target 2.13); Continuing – national programmes for non-Red Listed but rapidly declining species in15 countries (target 2.01), development of recovery programmes across all taxonomic groups (target 2.02), trans-national recovery programmes for 5 target species (target 2.03), existing initiatives on plant diversity in urban and peri-urban areas reviewed in 5 countries (2.16), dissemination of information on the plant micro-reserves programme (2.18), Update the Annexes of the EC Habitats Directive (target 2.12)
GSPC target 8: 60% of threatened plant species in accessible *ex situ* collections, preferably in the country of origin, and 10% of them included in recovery and restoration programme	Completed – 12 priority bryophyte species brought into *ex situ* conservation and methodology promoted (target 2.06); Continuing – Spore bank for pteridophytes (target 2.04), a range of the genetic diversity of 50% of regionally and nationally threatened species stored in gene banks (prioritised by threat) (target 2.05),
GSPC target 9: 70% of the genetic diversity of crops and other major socio-economically	Continuing – management plans for at least 5 endangered crop wild relatives in at least one protected area in each

valuable plants conserved, and associated indigenous and local knowledge maintained.	of 5 or more European countries (target 2.10), 80% of the genetic diversity of 30% of crop wild relatives and other socio-economic plants stored in genebanks (target 2.11)
GSPC target 10: Management plans in place for at least 100 alien species which threaten plants, plant communities, habitats and ecosystems	Continuing – information on European invasive species made available to target audiences (target 2.21), holistic institutional, policy and legislative framework for invasive species control established in 25% of European countries (target 2.22)
GSPC target 11: No species of wild flora endangered by international trade	Continuing - Best practice for conservation and sustainable use of MAPs and other sociologically important plants identified and promoted to decision makers (target 3.01)
GSPC target 12: 30% of plant-based products derived from sources that are sustainably managed	Continuing - Best practice for conservation and sustainable use of MAPs and other sociologically important plants identified and promoted to decision makers (target 3.01)
GSPC target 13: The decline of plant resources, and associated indigenous and local knowledge, innovations and practices that support sustainable livelihoods, local food security, and health care, halted **GSPC Target 14:** The importance of plant diversity and the need for its conservation incorporated into communication, education and public awareness programmes	Continuing - Best practice for conservation and sustainable use of MAPs and other sociologically important plants identified and promoted to decision makers (target 3.01) Continuing – joint public promotion to articulate state of wild plants and their conservation by PE members (target 4.01), identify agencies in each country responsible for national curricula and promote inclusion of plant conservation issues (target 4.02), share experiences and skills from big projects such as Life (target 4.02a) (see also new target 3), to support communication, education and public awareness of value of plants as prerequisite for plant conservation (target 4.02b), bring together those who do information *ex situ* and *in situ* education (target 4.03)
GSPC Target 15: The number of trained people working with appropriate facilities in plant conservation increased, according to national need, to meet the targets of this strategy	Continuing – Increase employed taxonomist supporting plant conservation in each European country (target 5.01), all targets in the ESPC related to existing research projects and gaps identified (target 5.03), increase the number of unpaid public participants contributing data to support plant conservation and promote involvement in conservation projects (target 5.04)
GSPC Target 16: Networks for plant conservation activities established or strengthened at the national, regional and international level	Completed – first European Plant Conservation Strategy included within the Global Strategy for Plant Conservation; Continuing – capacity of Planta Europa to achieve plant conservation enhanced (target 5.06), key conservation messages regularly disseminated to Planta Europa members (target 5.07)

ABBREVIATIONS AND ORGANISATIONS MENTIONED IN THE TEXT

AEGRO – An Integrated European *In situ* Management Plan: Implementing Genetic Reserves and On Farm Concepts (AEGRO)	http://www.bafz.de/aegro/
The Bern Convention The Convention on the Conservation of European Wildlife and Habitats (1979) **BirdLife International** **BIOSCORE** (indicator system as a tool for evaluating European community policies on biodiversity) **Bioversity International** (formerly IPGRI) **BGCI** – Botanic Gardens Conservation International **Botanic Garden of Kiev University** **Butterfly Conservation Europe** **CBD** – Convention on Biological Diversity **CEEWEB** – Central and East European Working Group for the Enhancement of Biodiversity	http://www.coe.int/biodiversity www.birdlife.org/regional/europe/index.html http://www.ecnc.nl/Bioscore/Index_529.html www.bioversityinternational.org www.bgci.org www.bc-europe.org www.cbd.int www.ceeweb.org
CIS – Commonwealth of Independent States	
CITES – Convention on International Trade in Endangered Species	www.cites.org
Countdown 2010	www.countdown2010.net
COE - Council of Europe	www.coe.int
CWRIS – Crop Wild Relative Information System	www.pgrforum.org/cwris/cwris.asp
CWRSG - IUCN/SSC Crop Wild Relative Specialist Group	www.cwrsg.org
DAISIE – Delivering Alien Invasive Species Inventories for Europe	www.daisie.se
Earthwatch Europe	www.earthwatch.org
ECCF – European Council for the Conservation of Fungi – the conservation body of the European Mycological Association (**EMA**)	www.euromould.org
ECCB – European Committee for the Conservation of Bryophytes	www.bio.ntnu.no/ECCB/
ECNC – European Centre for Nature Conservation	www.ecnc.nl
ECPGR – European Cooperative Programme for Plant Genetic Resources	www.ecpgr.cgiar.org/
EEA – European Environment Agency	www.eea.europa.eu/
EEB – European Environmental Bureau	www.eeb.org
EHF – European Habitats Forum	http://www.iucn.org/places/europe/rofe/rofe_at_work/ehf.htm
EMA – European Mycological Association	www.euromould.org
Emerald Network – ecological network of nature conservation sites identified under the Council of Europe's Bern Convention	www.coe.int/t/e/cultural_co-operation/environment/nature_and_biological_diversity/ecological_networks/The_Emerald_Network/
ENSCONET – European Native Seed Conservation Network	www.ensconet.eu
EPPO – European Plant Protection Organisation	www.**eppo**.org
ESPC – European Strategy for Plant Conservation	www.plantaeuropa.org
ETC – European Topic Centre on Biodiversity	http://biodiversity.eionet.europa.eu/
EURISCO national inventories of *ex situ* holdings of plant genetic resources	
Euro+Med PlantBase	http://www.emplantbase.org/home.html
European Botanic Gardens Consortium	www.bgci.org
EUROSITE	www.eurosite.org
Centre for Economic Botany, Royal Botanic Gardens Kew	www.kew.org/scihort/ecbot/index.html
Fairtrade Foundation	www.fairtrade.org.uk
FAO – Food and Agricultural Organisation of the United Nations	www.fao.org
FEPS – Federation of European Phycological Societies	Website under construction information on the British Phycological Society website

	www.brphycsoc.org
FERN - Forests and the European Union Resource Network	www.fern.org
FOE - Friends of the Earth Europe	www.foeeurope.org
FSC – Forest Stewardship Council	www.fsc.org
GBIF – Global Biodiversity Information Facility of the CBD	www.gbif.org
GSPC – Global Strategy for Plant Conservation of the CBD	www.cbd.int/programmes/cross-cutting/**plant**/default.asp Available to download as pdf at www.**bgci**.org/files/Worldwide/GSPC/**globalstrategy**eng.pdf
HNV – High Nature Value Farmland	http://eea.eionet.europa.eu/Public/irc/envirowindows/hnv/information
IAL – International Association of Lichenologists	www.botany.hawaii.edu/cpsu/ial.htm
IEB – Institute of Experimental Botany, Belarus Academy of Sciences, Minsk	http://www.ac.by/organizations/institutes/inobio.html
IEEP – Institute of European Environmental Policy	http://www.ieep.eu/
IFOAM – International Federation of Organic Agriculture Movements	www.ifoam.org
ISSC-MAP – International Standard for Sustainable Wild Collection of Medicinal and Aromatic Plants	www.floraweb.de/MAP-pro
IUCN – the World Conservation Union	www.iucn.org
IUCN-CIS – World Conservation Union of Russian and the Commonwealth of Independent States	http://www.iucn.ru/
IUCN-Med (IUCN Mediterranean Programme)	http://iucn.org/places/medoffice/en/index.html
IUCN Medicinal Plants Specialist Group	http://www.iucn.org/themes/ssc/sgs/mpsg/
IUCN Reintroduction Specialist Group	http://www.iucnsscrsg.org/
IUCN Species Survival Committee	http://www.iucn.org/themes/ssc/
IUCN-WCPA – IUCN World Commission on Protected Areas	http://www.iucn.org/themes/wcpa/
JNCC – Joint Nature Conservation Committee, advisor to the UK Government	www.jncc.gov.uk
MAPs – medicinal and aromatic plants	
MCPFE – Ministerial Conference on the Protection of Forests in Europe	www.**mcpfe**.org
Natura 2000 – ecological network of nature conservation sites identified under the EU Habitats & Species Directive	http://www.natura.org/
NEOBIOTA Working Group on Biological Invasions	http://www2.tu-berlin.de/~oekosys/e/neobiota_e.htm
NOBANIS North European and Baltic Network on Invasive Alien Species	http://www.nobanis.org/
Nordic Council of Ministers	www.norden.org
PE – Planta Europa	www.plantaeuropa.org
PEBLDS - Pan European Biological and Landscape Diversity Strategy	www.peblds.org
PEEN – Pan-European Ecological Network of the Pan-European Biological and Landscape Diversity Strategy (PEBLDS) **PGR Forum** – European Crop Wild Relative Diversity Assessment and Conservation Forum	http://www.coe.int/t/dg4/cultureheritage/Regional/EcoNetworks/PEEN_en.asp#TopOfPage http://www.pgrforum.org/
PlantNetwork	www.plantnetwork.org
SEB - Society for Economic Botany	www.econbot.org
Societas Europaea Herpertologica	www.gli.cas.cz/SEH/
Soil Association (UK)	www.soilassociation.org
SBI – Società Botanica Italiana (Italian Botanical Society)	www.societabotanicaitaliana.it
TRAFFIC – wildlife trade monitoring network	www.traffic.org
WWF – Europe – World Wild Fund for Nature Europe	www.panda.org/about_wwf/where_we_work/europe
WWF Germany – World Wild Fund for Nature Germany	www.wwf.de