Number 23 – December 2007

NATURA 2000

natura 2000

ISSN 1026-6151

EUROPEAN COMMISSION DG ENV NATURE NEWSLETTER

Life

ENDANGERED PLANTS

Natura 2000 managing plant diversity

IN FOCUS

- Europe's wild plants under threat

ON SITE

- LIFE-Nature and plant conservation

MAMMALS IN EUROPE

- One in six species threatened

nature

EUROPEAN COMMISSION

environment

Europe's plants: status and threats

Plants are essential to life on the planet: without them there would be no other dependent species. They are a key element of biodiversity and provide many of our basic needs, including food, fibres, medicines, fuel, shelter, clothing and even the air we breathe. Plants are also the primary constituent of habitat infrastructure for many ecosystems and the key to the Earth's essential environmental equilibrium and stability. The disappearance of so many of them sets one of the greatest challenges for the European Union.

In Europe, Natura 2000, the cornerstone of EU nature conservation policy, is the key legal instrument that aims to effectively protect European biodiversity and thus endangered plant species. A clear commitment to halting the loss of biodiversity in the EU and to restoring habitats and natural systems has also been identified in the Commission's recent Communication on "Halting the Loss of Biodiversity by 2010 – and Beyond" [COM(2006)216] see p.4.

Europe's varied geography and climate provides a vast range of habitats supporting over 12,500 vascular plants (flowering plants, conifers and ferns). Centres of particularly high plant diversity include the mountainous areas around the Mediterranean and the Black Sea with the floras of Spain, Greece, Italy, Bulgaria and Romania supporting the highest numbers of both endemic and endangered plant species.

Europe's flora is one of the best known in the world and has been shaped by human intervention for many hundreds of years. However, an accelerated pace of industrialisation in recent decades, together with major land-use changes have resulted in European plants today being considered among the most threatened globally. According to the World Conservation Union (IUCN), some 21% of Europe's vascular plant species are classified as threatened and half of the continent's 4,700 vascular plant endemics are in danger of extinction. In a number of European countries more than two thirds of the existing plant habitat types are endangered.

The main factors that have contributed to the progressive decline of European plant diversity are major land-use changes from agriculture and forestry, habitat destruction, fragmentation and degradation, direct impacts by economic activities and the introduction of non-native invasive species (see "Invasive plant species" box p.4).

More recently, Europe's plants are facing an unequivocal warming of the climate. According to the latest projections more than half of the plant species assessed could be vulnerable or threatened by 2080[1]. The impact of climatic changes on European

1 Thuiller W. et al. (2005) "Climate change threats to plant diversity in Europe".

Very endangered orchid Cephalanthera cucullata*, Crete, 'caged' to protect against grazing*

Photo: Costas Thanos - LIFE04/NAT/GR/000104

flora, such as changes in the distribution of species, flowering times etc., are forecast to be most pronounced in mountainous areas and in the Mediterranean and Pannonian biogeographical regions. Climate change poses an enormous challenge to the conservation and management of the plant species and habitats both within and outside the Natura 2000 network (for further information, see the June 2007 issue of this newsletter - Issue 22 "Biodiversity and Climate Change").

Photo: P. Pinoch - LIFE02 NAT/IT/008574

Photo: Martin Olsson

*Plant goods and services: wolf's bane (*Arnica montana*) - left - a medicinal plant and cork oak (*Quercus suber*) a multiuse natural resource*

Importance of plants: their goods and services

Plants are universally recognised as an essential part of biological diversity and a vital resource (i.e., in maintaining carbon dioxide and oxygen equilibrium in the atmosphere). In addition to the small number of crop plants used for basic food and fibres, many thousands of wild plants have considerable economic and cultural importance and potential, providing food, fuel, clothing, shelter and medicine.

An estimated 50,000 - 70,000 plant species are used in medicines throughout the world. These species make an essential contribution to healthcare, and provide an important source of income in rural areas.

The vast majority of medicinal and aromatic plant species used today are collected from the wild. Unfortunately, this can sometimes result in unsustainable collection practices. For example wolf´s bane (*Arnica montana*), used to treat sprains, bruises, and muscle aches, and great yellow gentian (*Gentiana lutea*) are harvested throughout Europe (especially in Bulgaria and Romania) and are included in Annex V of the Habitats Directive (92/43/EEC), which identifies plants (and animals) requiring management measures because of exploitation concerns.

European Biodiversity Policy and plant conservation

European heads of State agreed at the 2001 summit in Gothenburg to halt all biodiversity loss by 2010. The following year, the parties to the Convention on Biological Diversity (CBD) and some 130 world leaders committed themselves to a significant reduction in the rate of biodiversity loss by the same target date (see "CBD – global and European strategy for plant conservation" box p.5). Europe's commitment to implementation of the CBD was reconfirmed in May 2006, with the Commission's Communication on halting the biodiversity loss by 2010 and beyond.

Two particular threats to EU biodiversity are highlighted in the Communication. First, that of spatial development: Member States have particular responsibility, through improved planning, to reconcile development needs with the conservation of biodiversity and maintenance of ecosystem services. Secondly, the potential impact of climate change, where rising temperatures are already having a biological impact, including earlier timing

Invasive plant species

Invasive alien species are acknowledged as one of the major threats to biodiversity, together with habitat loss and fragmentation. Reducing the impact on EU biodiversity of invasive alien species is one of the key policy areas identified for action for the 2010-2013 period in the European Commission's Communication on Biodiversity.

Native species throughout Europe are under assault from invasive alien plant species (IAS) – non-indigenous plants introduced deliberately or unintentionally outside their natural habitats that have the ability to establish themselves, invade, out-compete natives and take over the new environments and in so doing, adversely affect biological diversity. Particularly vulnerable are European island ecosystems (especially in the Macaronesian and Mediterranean biogeographical regions), due to their historic isolation.

The problem of invasive species was specifically addressed in a LIFE-Nature project in Madeira, Portugal, which involved the removal of over 850 tons of Kahili ginger (*Hedychium gardnerianum*) plant material from an area covering 165 ha. The ginger is an ornamental plant introduced to local gardens in Madeira in the 1930's, but which now runs wild throughout the island, displacing the native Macaronesian laurel forest, a priority Natura 2000 habitat. Like the Kahili ginger, the sour fig (*Carpobrotus edulis*) from South Africa, with its beautiful flowers, was planted in gardens very far away from its native soil. The diverse coastal plant habitats of Minorca, Spain have been particularly hard hit by this uncontrolled IAS. Thanks to a Spanish LIFE-Nature project, however, the sour fig is being eliminated from the island.

*Sour fig (*Carpobrotus edulis*)*

Photo: LIFE00 NAT/E/7355

Project reference:
LIFE97 NAT/P/004082
Website:
www.pnm.pt

Project reference:
LIFE00 NAT/E/007355
Website:
http://www.cime.es/lifeflora/

of spring events, and poleward and upward shifts in ranges in plant, as well as animal species (see: Natura 2000 Issue 22 p.4).

The EU approach recognises that biodiversity is not evenly spread, and that certain species are more at risk than others. Consequently it affords special attention to the protection of sites of highest nature value and species most at risk included in the Habitats and Birds directives. However, this approach also recognises that much biodiversity resides outside these sites, and that effective conservation and sustainable use of biodiversity, and the maintenance of essential ecosystem services, also requires action in the wider countryside. For plants, this is provided for by specific requirements in the Habitats Directive and more generally by the integration of biodiversity concerns into agricultural and other policies.

The 2001 Biodiversity Action Plan for Agriculture (COM/2001/0162) aims to reduce the negative impacts of farming practices by promoting the sustainable use of biological resources. It is one of the four biodiversity action plans, covering 1) conservation of natural resources, 2) agriculture, 3) fisheries, and 4) economic and development co-operation outside Europe, included in the EU's Sixth Environmental Action Programme (6th EAP), approved by the Council of Ministers in 2001, and also with the goal of stemming biodiversity loss by 2010. Many of the biodiversity-rich habitats in need of conservation are situated in, or close to, agricultural land, where inappropriate agricultural practices have reduced biological diversity. The presence of some plant species and habitats that are dependent on extensive farming, for example, has declined in recent decades.

Photo: Josip Otopal - LIFE02 NAT/SLO/008587

Many biodiversity rich habitats in need of conservation are situated in, or close to, agricultural lands for example the grasslands of Karst Edge in Slovenia

EU Rural Development Policy (Council Reg (EC) No.1257/1999) aims to reconcile agriculture with the objectives of the EU nature conservation policy. This is achieved by financing agri-environmental measures that go beyond the usual good farming practices and that have a direct impact on the conservation of European flora, particularly through the maintenance of extensive systems and support for agriculture in Natura 2000 zones.

The recent reforms of the Common Agriculture Policy (CAP) have also enabled further integration of biodiversity concerns into agricultural policy and the 2008 review of the CAP provides an important opportunity to further strengthen and support measures for farmland and forest biodiversity. For example, national statutory requirements derived from EU directives covering birds, habitats, nitrates and pesticides are now included in the accepted standards for good farming practices.

Natura 2000 network and plant conservation

The main focus of the Habitats Directive has been on the requirements that Member States establish a network of special areas of conservation (SACs) that, together with the special protection areas (SPAs) designated under the Birds Directive (79/409/EEC), make up the Natura 2000 network.

Annexes I (natural habitat types of Community interest) and II (animal and plant species of Community interest) to the Habitats Directive list the habitats and species whose conservation

CBD – global and European strategy for plant conservation

In 1992, at the Rio de Janeiro Earth Summit, world leaders adopted the Convention on Biological Diversity (CBD), committing governments around the world to develop national strategies for the conservation and sustainable use of biological diversity.
Ten years later, the Conference of the Parties of the CBD adopted the Global Strategy for Plant Conservation (GSPC) that aims to put an end to the reduction in plant diversity. Within the framework of the GSPC, in 2002 a European Plant Conservation Strategy was set as a joint initiative of the Council of Europe and the NGO Planta Europa with the following major objectives: documenting and conservation of plant diversity; sustainable plant use; awareness raising and conservation capacity building.
One of the contributions to the European Plant Conservation Strategy is the production of an inventory of Important Plant Areas (IPAs) in Europe. IPAs are natural or semi-natural sites exhibiting exceptional botanical richness, or supporting rare, threatened or endemic plant species or vegetation of high botanical value. Today the inventory covers IPAs in most of Eastern Europe and the UK (150 areas). The IPAs along with BirdLife Important Bird Areas (IBAs) provide a valuable reference for the implementation of the Natura 2000 network sites of Community importance, especially in new Member States.
The IPA programme in Europe is co-ordinated by Plantlife International, a UK-based environmental NGO, in partnership with the IUCN.
For more information on the Global Strategy for Plant Conservation (GSPC), visit: http://www.cbd.int/gspc/default.shtml.

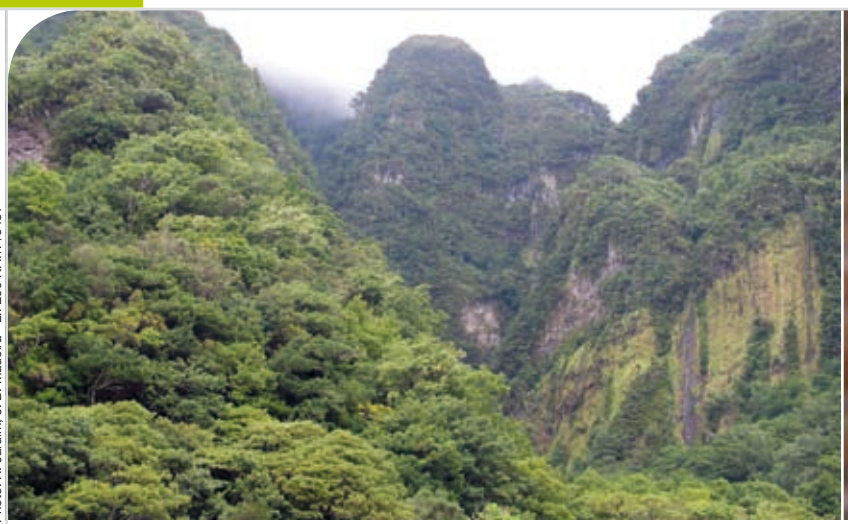


Photo: R. Jardim, J. B. Madeira - LIFE99 NAT/P/6431

Photo: João Pedro Silva

Macaronesian laurissilva forests (left) and Asphodelus *bento-rainhae (right) a priority, Annex II plant species of the Mediterranean biogeographical region*

requires the designation of SACs. Some of them are defined as "priority" habitats or species (in danger of disappearing).

Annex II identifies 324 animal species whose conservation requires the designation of SACs. However, the number of plant species listed is much higher – 587, or 64%, of the total (see Fig.1). Moreover, some 204 (80%) of listed plant species are priority – compared with just 51 for animals.

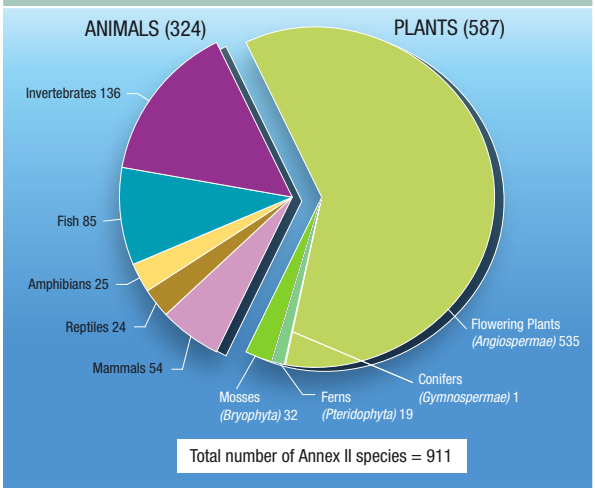
The distribution of plant diversity across Europe is not even. A full 60% of the plant species included in Annex II are found within the Mediterranean and Macaronesian regions, according to the reference lists for biogeographical regions (EU-25), see Fig. 2.

As well as the plant species included in Annex II of the directive, there are habitats that are characterised by high rates of endemic plants, which are normally found in restricted areas. These tend to be dominated by a particular plant species and often are classified as "priority natural habitat types" under the directive. For example, the endangered golden oak *(Quercus alnifolia*) is the main species within a Cyprus Annex I priority habitat - scrub and low forest vegetation with *Quercus alnifolia* (9390*); the rock rose (*Cistus palhinhae*) is the main species within maritime wet heath formations (5140*) in the southwest of Portugal; and sea grass (*Posidonia oceanica)* is the main species within Mediterranean sea grass habitats (1120*).

Other habitat types with broader distribution are also very important for some plant species such as orchids. The dry to semi-dry calcareous grasslands habitat (6210), which is widely distributed around Europe, can be host to important populations of rare orchid species. Where this is the case, the habitat is considered a priority for conservation. For example, important endangered orchid species (e.g., genus *Ophrys*) are dependent on calcareous substrate semi-natural dry grasslands or forests (e.g., *Cypripedium calceolus*).

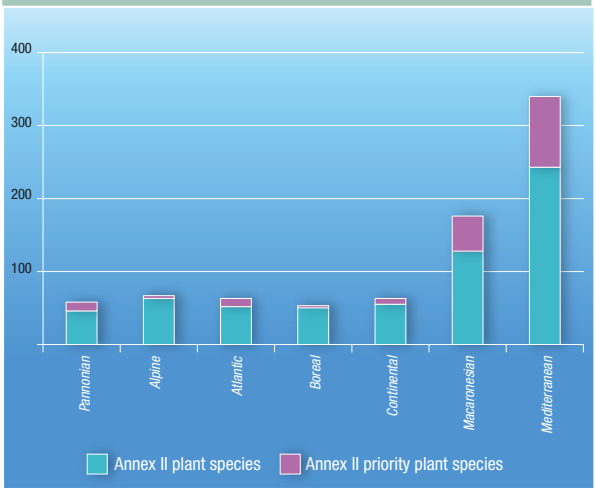
Finally, Article 13 of the Habitats Directive requires that Member States should also establish both within and outside the Natura 2000 network, a system for the strict protection of endangered plant species included in Annex IV (b) by prohibiting the "deliberate picking, collecting, cutting, uprooting or destruction" of such plants in their natural range in the wild; and the "keeping, transport and sale or exchange" of specimens of such species taken in the wild.

Fig.1: **EU-27 plant and animal species listed in Annex II of the Habitats Directive**



Source: European Topic Centre for Biodiversity (ETC), 2007

Fig.2: **Annex II plant species by biogeographical region**



Source: ETC, 2004 - excludes Black Sea & Steppic regions (Bulgaria, Romania)