



*A thematic contribution to the*

# National Biodiversity Strategy

## Mapping the *Important* *Plant Areas* in Italy



# *A thematic contribution to the* National Biodiversity Strategy Mapping the *Important Plant Areas* in Italy



MINISTERO DELL'AMBIENTE  
E DELLA TUTELA DEL TERRITORIO E DEL MARE



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Front cover:

*Pulsatilla alpina* (L.) Delarbre subsp. *apiifolia* (Scop.) Nyman. PHOTO L. Rosati

Attached CD-ROM: Map of the Important Plant Areas (IPAs) in Italy

# The *Important Plant Areas* in Italy project

A growing awareness of the loss in biodiversity at a global level led to the World Summit on Sustainable Development, held in Johannesburg in 2002. A commitment was made at that summit to reduce the rate at which biodiversity is being lost by 2010 (target 2010, UNEP).

Biodiversity is currently threatened by three main factors: habitat fragmentation, agricultural and forestry policies and practices, and the impact of non-native species. Each of these factors represents a challenge for the conservation of plant diversity at a national, regional and global level.

An Important Plant Area (IPA) is defined as “a natural or semi-natural site exhibiting exceptional botanical richness and/or supporting an outstanding assemblage of rare, threatened and/or endemic plant species and/or vegetation of high botanical value.”

The identification and mapping of IPAs can make a major contribution to the global strategy for plant conservation, even within the context of “ecological connectivity” and “land ecological network”

The Important Plant Areas in Italy project, promoted by the Italian Ministry for the Environment Land and Sea Protection - Nature Protection Directorate, through a programme aimed at mapping the IPAs, is the first important contribution to the planning of strategies designed to enhance biodiversity conservation; at the international level, Italy is the first country in western Europe to have completed the IPA programme.

The national working group, coordinated by the Inter-university research centre for “Biodiversity, Plant sociology and Landscape Ecology” of the Sapienza University of Rome, was composed of a network of 100 botanical experts who work in universities, public and private institutions and other related professions.

A total of 320 IPAs, including 8 sites of algae communities of interest, corresponding to 15% of the overall area of the country, were identified in Italy.

As expected, approximately 83% of the IPAs are included in the National Parks and/or Natura 2000 Network. An extraordinary number of new species and habitats of conservation interest were brought to light by this project. Indeed, the results yielded more than 10,000 new records of species, approximately 2,500 new habitats, over 100 habitats of community interest, as well as 50 new habitats of conservation interest, which is a particularly noteworthy finding in view of the approaching Habitats Directive deadline.

Besides fulfilling the international commitments made, the data collected may prove particularly useful to draw up a national strategy designed to integrate all the initiatives in the field of biodiversity conservation and sustainable management, such as Natura 2000, High Nature Value Farmland, the Emerald network and the Pan-European Biological and Landscape Diversity Strategy.



*Stefania Prestigiacomio*

Minister of Environment, Land and Sea Protection

*A thematic contribution to the*  
National Biodiversity Strategy

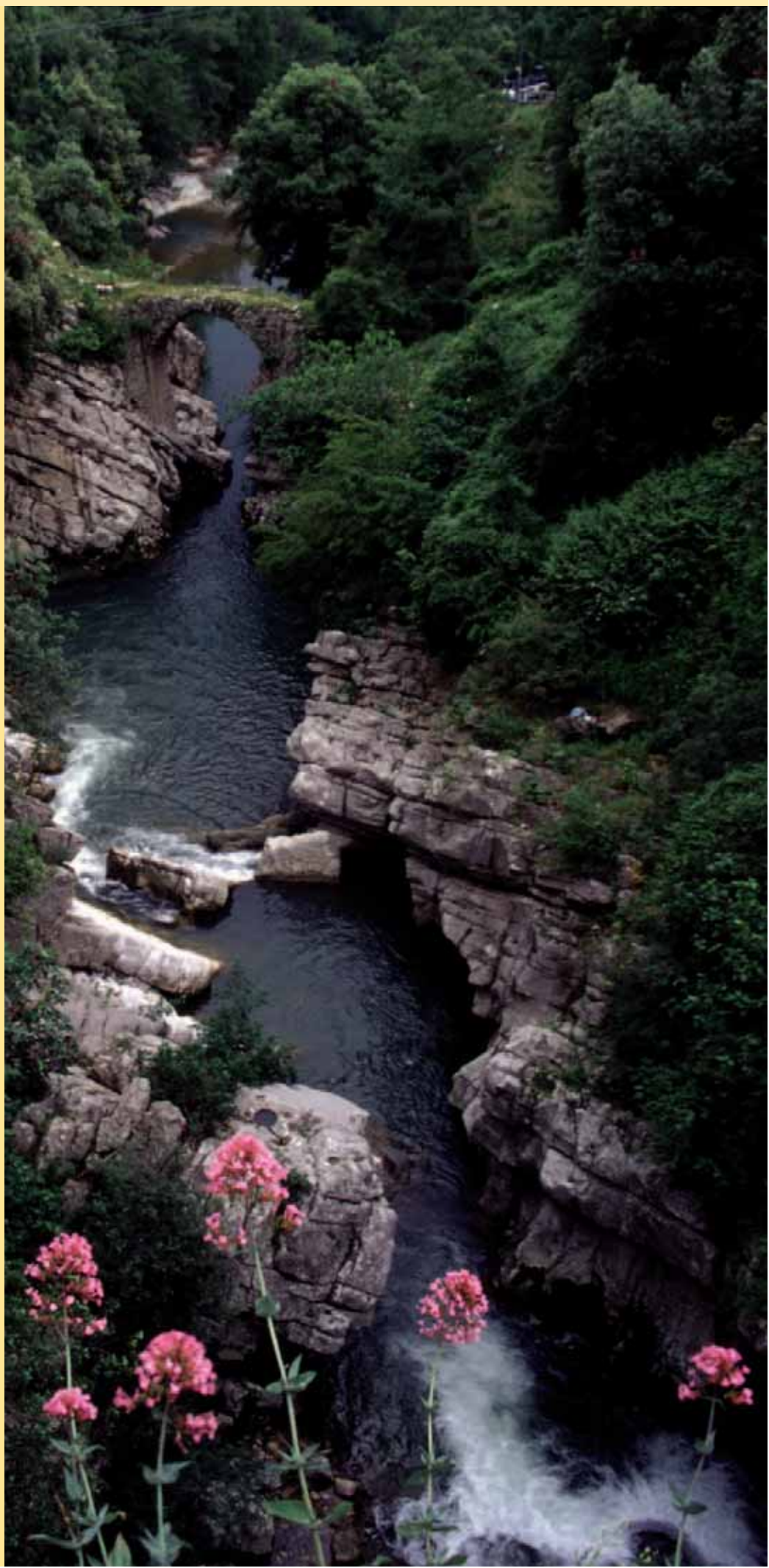


*Anemone apennina L.* Photo Luciana Massaro

Cilento National Park, Calore River.  
Photo Leonardo Rosati

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*A thematic contribution to the*  
**National Biodiversity Strategy**  
*The Important Plant Areas*  
*in Italy project*



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Plantlife International congratulates the Inter-University Research Centre for Biodiversity, Plant Sociology and Land Ecology" at "Sapienza" University of Rome, the botanical network and the Italian Ministry of the Environment on the identification of the Important Plant Areas of Italy. In doing so Italy has recognised the importance of conserving her 'green jewels' for future generations. The inclusion of mosses, algae and fungi is especially welcome, as the fundamental importance of these groups in maintaining healthy ecosystems is often ignored. It is testament to the plant conservation already being undertaken in Italy that 83% of these IPAs are already included in the Natura 2000 network and/or Natural Parks– we urge the Italian government, the botanical networks and civil society to keep up the good work, and seek to ensure the conservation of all IPAs in Italy over the coming years.

*Elizabeth Radford*

Global Programme Manager, Plantlife International



## Executive *summary*

**R**educe the rate at which biodiversity is being lost by 2010 (target 2010, UNEP) is a commitment made at the World Summit on Sustainable Development (Johannesburg, 2002). As the 2010 deadline approaches, the international scientific community and institutions are being called upon to respect this commitment. The in situ conservation of plant species, populations and communities is essential if the goals set for 2010 are to be achieved: the identification of areas that may play an important role in the conservation of plant diversity is urgently needed, even for “ecological connectivity” purposes.

The IPA programme is supported by the Convention on Biological Diversity within the Global Strategy for Plant Conservation (CBD-COP VI/10. Target 5: Protection of 50% of important plant diversity areas by 2010).

The Important Plant Areas in Italy project, promoted by the Italian Ministry for the Environment, Nature Protection Directorate through a programme aimed at mapping the IPAs, is the first important contribution to the planning of strategies designed to enhance biodiversity conservation.

The national team, coordinated by the Inter-university research centre for “Biodiversity, Plant Sociology and Land Ecology” of the “Sapienza” University of Rome and composed of a network of 100 botanical experts was set up to obtain original information and draw up a detailed, nationwide picture of the situation in Italy. IPAs were



identified on the basis of a range of taxonomic groups, such as vascular plants, bryophytes, lichens, freshwater algae and fungi, in order to promote an integrated model of knowledge for the conservation of plant diversity.

A total of 320 IPAs were identified in Italy (including 8 algae community sites), covering approximately 15% of the country. The results indicate that it is possible to achieve the goal set for 2010 and protect 50% of the IPAs that have been identified in Italy: indeed, almost 83% of the IPAs are included in the National Parks or within the Natura 2000 Network.

Information was collected on 1,393 species of vascular plants, with a total of 9,745 recordings. A total of 1,087 records of species and sites of interest were provided for bryophytes, lichens, freshwater algae and fungi, with 182 overall species. With 13,979 confirmed records, regarding 167 different types, the habitats provide, together with the vascular species, the most important database for the identification of IPAs; 49 new habitats of conservation interest were identified, 4 of which classified as being of community interest for the first time, and a total of 2,448 sites that are representative of all 167 habitats considered in the project.

The aim of the IPA programme in Italy was to identify the most important sites for wild plants and provide a framework for plant conservation research and policy implementation, both inside and outside protected areas.

Monti Sibillini National Park, Pian Grande.  
Photo Michela Marignani



Asinara National Park.  
Photo Leonardo Rosati



# Background

**B**iodiversity is currently threatened by three main factors: habitat fragmentation, agricultural and forestry policies and practices, and the impact of invasive non-native species. Each of these issues represents a challenge for the conservation of plant diversity at a national, regional and global level. The in situ conservation of plant species, populations and communities is essential if the goals set for 2010 are to be achieved: the identification of areas that may play an important role in the conservation of plant diversity is urgently needed, even for “ecological connectivity” purposes.

In 2002, the Conference of the Parties (COP) at the Convention on Biological Diversity (CBD) adopted the Global Strategy for Plant Conservation, comprising 16 global targets set for 2010: for the first time the objectives of the CBD in preserving biodiversity can be measured against targets and the progress made in achieving them assessed.

As primary producers and the providers of ecosystem goods and services, plants are fundamental to life on earth. Target 5 of Global Strategy for Plant Conservation calls for the protection of 50% of the most important areas for plant diversity by 2010.

The IPA programme provides a framework for identifying those important areas for plants in order to protect them. This contributes to the global objectives to be implemented according to national priorities and capacities, taking into account differences in plant diversity between countries.

The IPA project was conceived in Europe in response to the increasing rate of loss of the irreplaceable wealth of wild flowers and habitats through rapid economic de-

velopment, urbanisation and habitat destruction. The IPA programme is a means of identifying and protecting the most important sites for wild plant and habitats. In addition to the protection this will offer to threatened habitats and species (higher, lower plants and fungi), IPAs will also offer protection to a wide range of species, including medicinal plants, relatives of crop plants, veteran trees and many common but declining species

“Failure to conserve and use biological diversity in a sustainable manner would result in degrading environments, new and more rampant illnesses, deepening poverty and a continued pattern of inequitable and untenable growth”

*United Nations Secretary-General Kofi Annan - August 2005*



The aim of the Important Plant Areas (IPAs) programme is to identify a network of the best sites for plant conservation using consistent criteria.

The first phase of the programme consists in identifying the most important plants areas, while the second phase consists in ensuring they receive proper protection and management. The IPA project will also develop programmes and protocols for monitoring IPAs.



*Orchis italica* Poir.  
Photo Michela Marignani

Turano Valley, Rieti.  
Photo Leonardo Rosati

IPA identification provides the framework for governments throughout the world to achieve Target 5 in the CBD Global Strategy for Plant Conservation (GSPC). IPA identification is also intended to provide specific plant data that may be used in other existing European and global conservation legislation and programmes. In particular, IPA identification provides essential information for the Natura 2000 network of the EU Habitats Directive, the Emerald Network of the Bern Convention and the Pan-European Ecological Network (PEEN) of Pan-European Biological and Landscape Diversity Strategy (PEBLDS).

The IPA database acts as a focal point for collating data on the conservation status of higher and lower plants and fungi. These

data can be used as a source of information for organisations preparing lists of species and habitats of conservation, such as the IUCN global/European Red list, and the Habitats Directive and Bern Convention Annexes.

The programme provides opportunities for decision makers and scientists to work more closely together to develop conservation policy and the institutional capacity needed for improving plant conservation within and between countries.

In response to habitat fragmentation, conservation interventions should not only protect important plant sites, but also increase connectivity by providing viable habitat corridors for dispersal in response to a range of factors, including climate change.

### Connectivity and ecological networks

Landscape patterns that promote connectivity for species, communities and ecological processes are a key element in nature conservation.

Increased connectivity is required to protect core areas of plant diversity. To contrast the effects of fragmentation, it is essential to sustain ecological networks, buffers, linkages between sites and enlargement, as well as newer concepts such as 'zones of opportunity' for restoration.



The objectives of the UNEP **Convention on Biological Diversity** (CBD) are the conservation of biological diversity, the sustainable use of its components and the fair and equitable sharing of the benefits arising out of the utilization of genetic resources.



**Natura 2000** is an EU wide network of nature protection areas



established under the 1992 Habitats Directive. The aim of the network is to assure the long-term survival of Europe's most valuable and threatened species and habitats. The establishment of this network of protected areas also fulfils a Community obligation under the UN Convention on Biological Diversity.

**The CBD Global Strategy for Plant Conservation's** long-term objective is to halt the current and continuing loss of plant diversity, taking into consideration sustainable use, benefit-sharing and sustainable development (CBD VI/9). The Strategy comprises 16 outcome-oriented global targets set for 2010. IPA data achieve the following:

**GSPC target 1:**

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

**GSPC target 2:**

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

**GSPC target 4:**

At least 10% of the world's ecological regions effectively conserved

**GSPC target 5:**

Protection of 50 per cent of the most important areas for plant diversity assured by 2010

**GSPC target 7:**

60 per cent of the world's threatened species conserved in situ

All governments and members of civil society, at every level, have taken the necessary actions to halt the loss of biodiversity by 2010. **Countdown 2010** helps them move from words to action. The 2010 biodiversity target is integrated into the framework of the Millennium Development Goals.



Monte Conero Regional Park.  
Photo Leonardo Rosati



# What are IPAs?

The aim of the IPA project is to identify and protect a comprehensive network of IPAs. The number, size and range of IPA sites is, however, decided at a national level according to the constrictions of the existing criteria and the knowledge, resources and experience of national IPA groups within each country.

The word "plant" encompasses algae, fungi, lichens, liverworts, mosses, and wild vascular plants.

An Important Plant Area is a natural or semi-natural site exhibiting exceptional botanical richness and/or supporting an outstanding assemblage of rare, threatened and/or endemic plant species and/or vegetation of high botanic value



*Cratoneurion*. Photo Leonardo Rosati



*Cortinarius preastans* (Cordier) Gillet. Photo Claudia Perini



*Chara* sp. Photo Leonardo Rosati



*Ochrolechia balcanica* Verseghy. Photo Pier Luigi Nimis



*Ophrys apifera* Huds. Photo Mattia Azzella



Pilato Lake, Sibillini National Park. Photo Leonardo Rosati



Diaccia Botrona, Grosseto. Photo Leonardo Rosati



## Three Basic Principles of IPA Identification

(Anderson S., 2002 - Identifying Important Plant Areas. Plantlife International)

### Criterion A

The site holds significant populations of one or more species that are of global or European conservation concern

### Criterion B

The site has an exceptionally rich flora within a range of defined habitat types, in relation to its biogeographic zone

### Criterion C

The site is an outstanding example of a habitat type of global or European plant conservation and botanical importance



*Geranium versicolor* L. Photo Mattia Azzella

Gran Paradiso National Park. Photo Leonardo Rosati

Many IPA initiatives are under way in Europe. A number of Important Plant Area project development workshops have been held in Lebanon, New Zealand, Bangkok (for ten countries in the ASEAN region), South Africa (for ten countries in southern Africa), Morocco and Saudi Arabia. ([www.plantlife.org](http://www.plantlife.org))

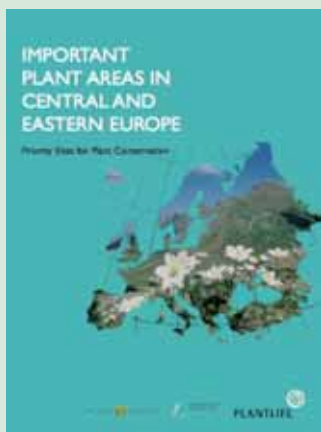
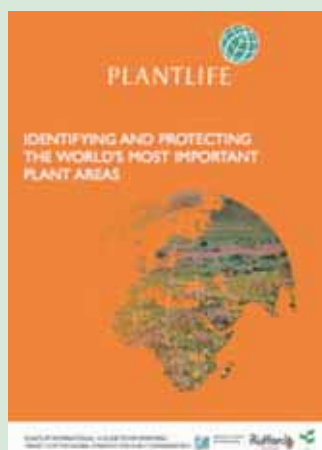


To qualify as an Important Plant Area, a site needs to satisfy one or more of the criteria, i.e. a site qualifies if it satisfies criterion A, B or C, or any combination of these three criteria



Why are IPAs different from other Protected Areas? 'IPA' is not an official designation, nor a protected area. IPAs are areas of great botanical importance for plant diversity that can be identified, protected and managed by means of a site-based

approach to conservation Sites, as opposed to whole regions, that are deemed worthy of protection and management as discrete



entities are selected as IPAs by means of criteria based on the latest data available, supported by expert scientific assessment. The data collected are used to inform and underpin other conservation programmes rather than to compete with them.

*Glaucium flavum* Crantz, Marina di Camerota.  
Photo Leonardo Rosati





# The IPA programme in Italy

The project was sponsored by the Ministry for the Environment and Protection of the Land and Sea through a 2-year programme aimed at mapping IPAs.

The national working group, involving a network of 100 botanical experts who work in universities, public and private institutions and on a freelance basis, was set up to collect original information and draw up a detailed, nationwide picture of the situation. This national team of experts was coordinated by the Inter-university research centre for "Biodiversity, Plant sociology and Landscape Ecology" of the "Sapienza" University of Rome.

The IPA project in Italy did not focus exclusively on vascular plants, but included various taxonomic groups, such as bryophytes, lichens, algae and fungi, in order to provide an integrated model of knowledge for the conservation of plant diversity.

Particular emphasis was placed on the role of habitats in Italy because conservation interventions have shown that the most effective means of protecting species is by safeguarding the habitats in which they reproduce. The habitat affords the best opportunity to fully exploit the data available on the various taxonomic groups (vascular plants, bryophytes, lichens, algae and fungi), which are presented in various formats and scales, even for IPA mapping purposes. This approach is in keeping with the strategy proposed in the Habitats Directive, and confers continuity to that directive by em-

phasising the fact that single populations cannot be considered independently of the habitats to which they belong.

The aim of the IPA programme in Italy was to identify the most important sites for wild plants and provide a framework for plant conservation research and policy implementation, both inside and outside protected areas.

The Italian IPA project is the first important contribution, on a national scale, to interventions aimed at conserving biodiversity in this country.



Chianti countryside,  
Siena.  
Photo Leonardo Rosati



Casentinesi Forests  
National Park.  
Photo Leonardo Rosati

# Data

The national experts selected the vascular plants, bryophytes, lichens algae and fungi: the list of species that satisfy criterion A was based on their presence in the IUCN Global Red List, in Annexes II and IV of the Habitats Directive, in Annex I of the Bern Convention, in the European Red List as well as in the national red list, which includes other existing lists considered “unofficial red lists”. Some vascular species deemed to be of national interest were also selected by the team of experts. The habitats selected were those included in the Habitats Directive, as well as any deemed to be of national interest by the team of experts.

Red List is a comprehensive inventory of the conservation status of species. It uses a set of relevant criteria to evaluate the risk of extinction of species and based on a strong scientific base (IUCN Species Survival Commission)



Camerata vecchia, Simbruini Mountains.  
Photo Leonardo Rosati

Apennine beech forests with Taxus and Ilex (9210),  
Priority threatened habitats.  
Photo Riccardo Copiz



*Centaurea horrida* Badarò, European threatened species.  
Photo Leonardo Rosati



*Tortula revolvens* (Schimp.) G. Roth, Near endemic/limited range  
threatened species. Photo Michele Aleffi

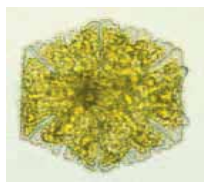


*Pleurotus nebrodensis* (Inzenga) Quél.,  
Globally threatened species.  
Photo Giuseppe Venturella



*Teloschistes chrysophthalmus* (L.) Th.Fr., European threatened species.  
Photo Valerio Genovesi

*Microsterias americana* (Ehr.)  
ex Ralfs (*Desmidiaceae*).  
Photo Nadia Abdelahad





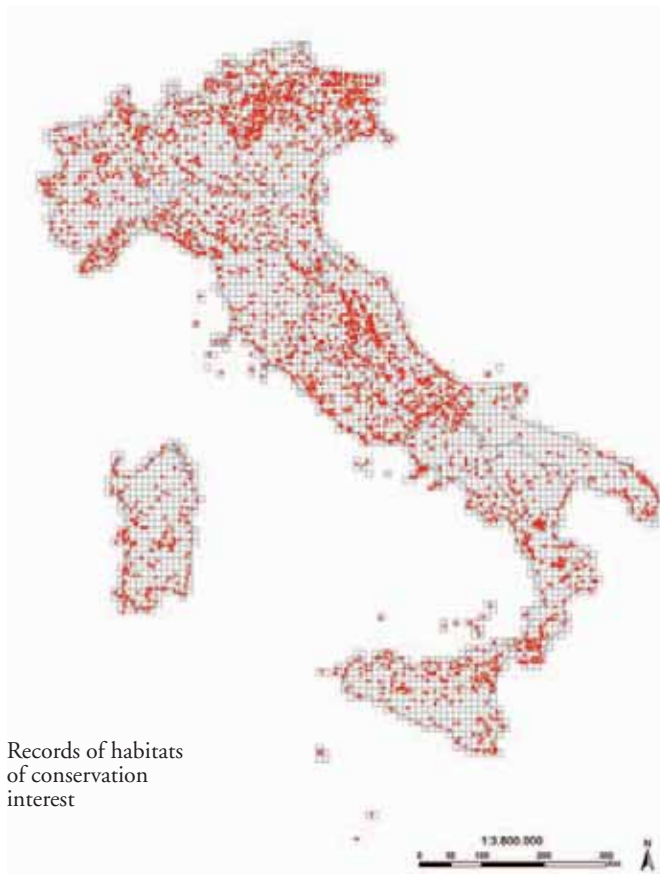
*Dinobryon sertularia* Ebr. (Crisophyceae).  
Photo Nadia Abdelahad

A total of 42 biotopes of freshwater algae were identified as IPA sites. The 400 species they contain, comprising 344 Desmidiaceae and 56 Diatomeae, are all potential candidates on an Italian red list; this result is particularly noteworthy because it is the first time an attempt has been made to draw up a national red list of freshwater algae. Indeed, no freshwater algae red list yet exists either at the national or European level.

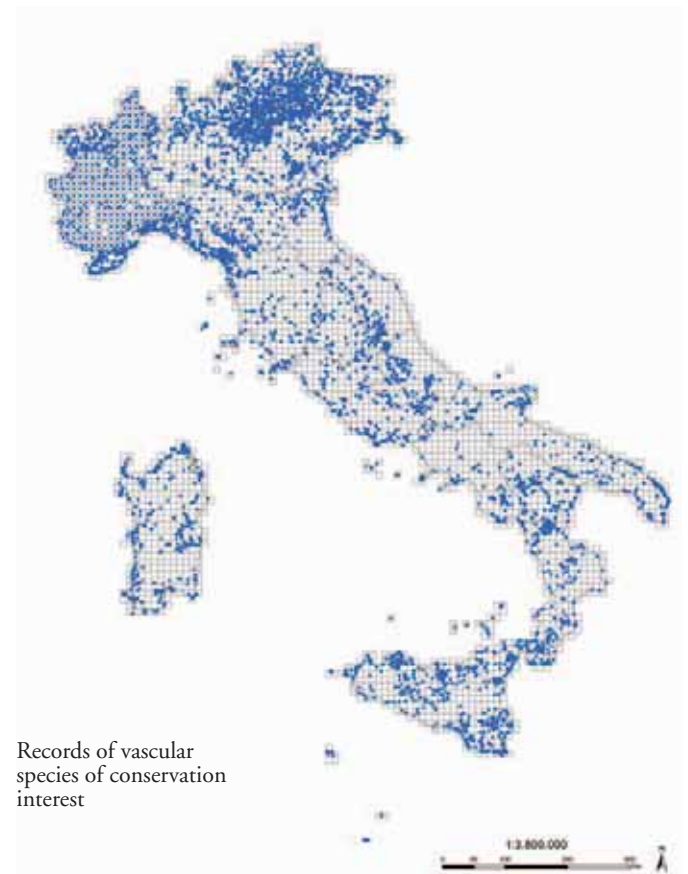
Further sites that should, according to the experts' knowledge, become IPAs, were also proposed.

The data collected throughout Italy by the national network of experts on the present-day distribution of vascular plant species and habitats were used to integrate the process of identifying the IPAs. Regional experts assigned to vascular plant species and habitats a regional conservation value.

The data collected by the team of regional experts on the vascular plant species, habitats and IPAs make an important contribution to future updates of the Habitats Directive and improve our knowledge of communities of conservation interest at both the regional



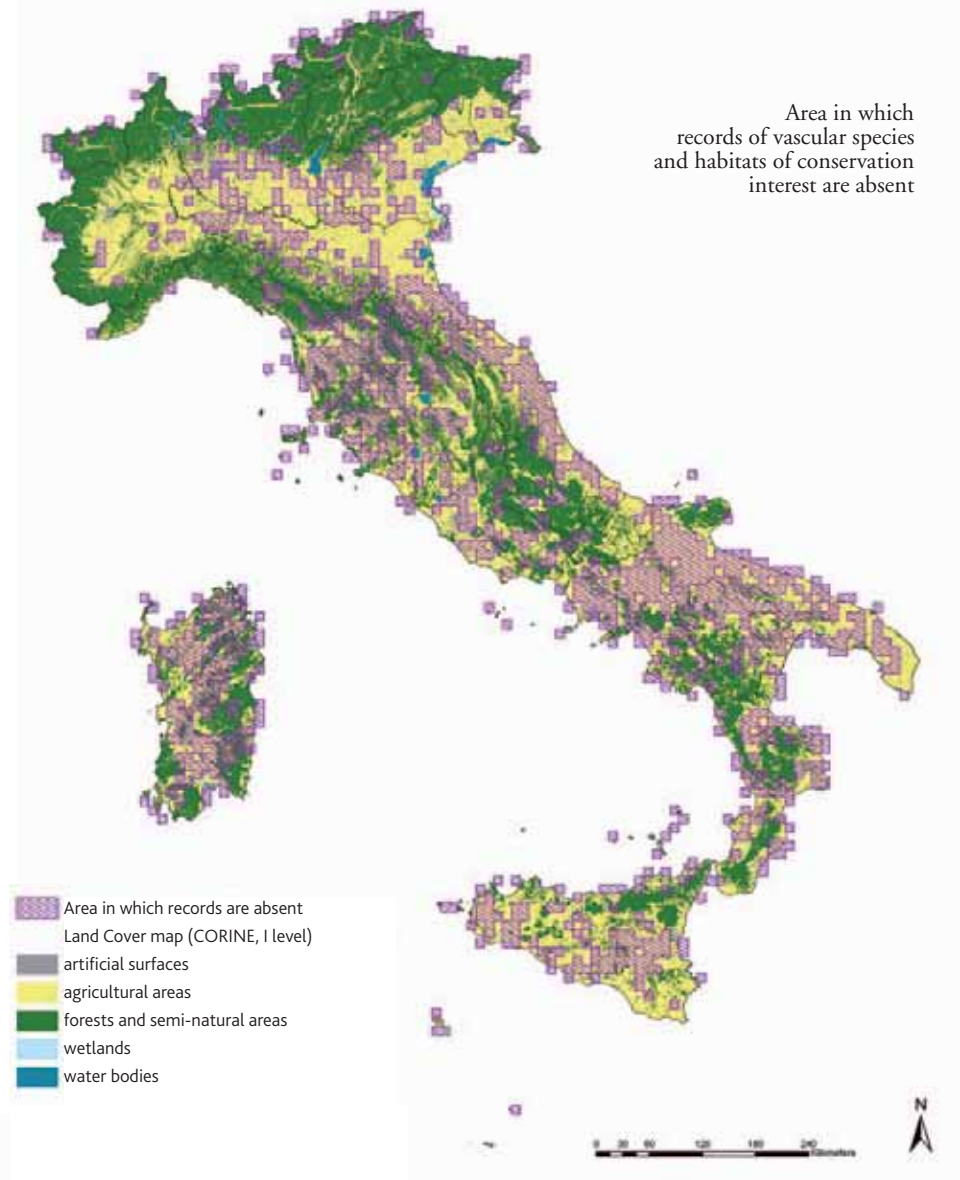
Records of habitats  
of conservation  
interest



Records of vascular  
species of conservation  
interest

and national level. Moreover, the analysis of the data may yield new criteria for the selection of habitats and species that could be extended to the European level. The information on species and habitats were collected in a geographic database designed for this purpose. Data collected at the regional level have considerably enhanced knowledge of the state of vascular plants and habitats throughout the country; they have, in particular, resulted in a marked increase in the number of georeferenced data of the vascular plants and habitats selected for the project itself.

Information was collected on 1,393 species of vascular plants, with a total of 9,745 recordings. A total of 1,087 records of species and sites of interest were provided for the other taxonomic groups, with 182 overall species. With 13,979 confirmed records, regarding 168 different types, the habitats provide, together with the vascular species, the most important database for the identification of IPAs. A further 2,213 records of new sites for 119 habitats of community interest integrate the Natura 2000 Network data (October 2006); moreover, 49 new habitats were identified, 4 of which classified as being



Area in which records of vascular species and habitats of conservation interest are absent



Records of fresh water algae, bryophytes, lichens and fungi species of conservation interest

To process the records of vascular plants and habitats, Italy was subdivided into 3,500 square cells, whose sides measure 10km. The absence of data in approximately 27% of the cells may be due to various causes, such as the presence of areas in which human activity has drastically reduced the presence of natural and semi-natural areas, the concentration of data in well-known areas (e.g. only in protected areas), or simply a lack of information.

of community interest for the first time, together with 302 records and a total of 2,448 sites that are representative of all 168 habitats considered in the project. A total of 172 sites of regional interest were recorded.

Twenty-one sites were identified for lichens, 8 for fungi, 42 for freshwater algae and 19 for bryophytes. As detailed habitat maps were not available for each of the Italian regions, habitat records were based on the habitat centroids present in the Natura 2000 Network.

## IPAs data in brief

Taxonomic Group	number of species	georeferenced records
<b>Vascular plants</b>		
Species selected according to International criteria (A)	320 (310)	3149
Species of National interest	257 (244)	3904
Species of Regional interest	839 (839)	2692
IPA sites for vascular plants	172	
<b>Bryophytes</b>		
Mosses and liverworts	109 (78)	375
IPA sites for bryophytes	19	
<b>Fresh water algae</b>		
Desmidiaceae	344	-
Diatomeae	56	-
Charophyceae	30	-
IPA sites for fresh water algae	42	
<b>Lichens</b>		
Species selected according to International criteria (A)	72 (68)	238
IPA sites for lichens	21	
<b>Fungi</b>		
Macrofungi	42 (36)	394
IPA sites for fungi	8	
<b>Habitats</b>		
Natura 2000 habitats	122	13732
Habitats of National interest	45	247

In brackets the number of species with georeferenced data

*Monotropa hypopithys* L.  
Photo Leonardo Rosati



# Methods and criteria adopted to define the Important Plant Areas in Italy

Each of the vascular plants and habitats was assigned a conservation value on a regional basis. The conservation values for both the vascular plants and the habitats indicate the conservation priorities at the regional level: if we assume that the vascular plants and habitats are all of considerable botanical interest at the national level, the regional conservation values are particularly important because they allow the plants and habitats concerned to be appreciated fully in a context that is more suited to their conservation requirements.

As regards vascular plants, records of species of regional interest were also considered, despite the fact that they do not satisfy the standard criteria of the IPA project because their conservation interest is restricted to individual regions (very rare, endemic, at risk of extinction, etc.); they thus indirectly provide information on the state of conservation of the plant community in which they are found and can, consequently, be considered indicators of the floristic richness of the habitats they belong to (criterion B).

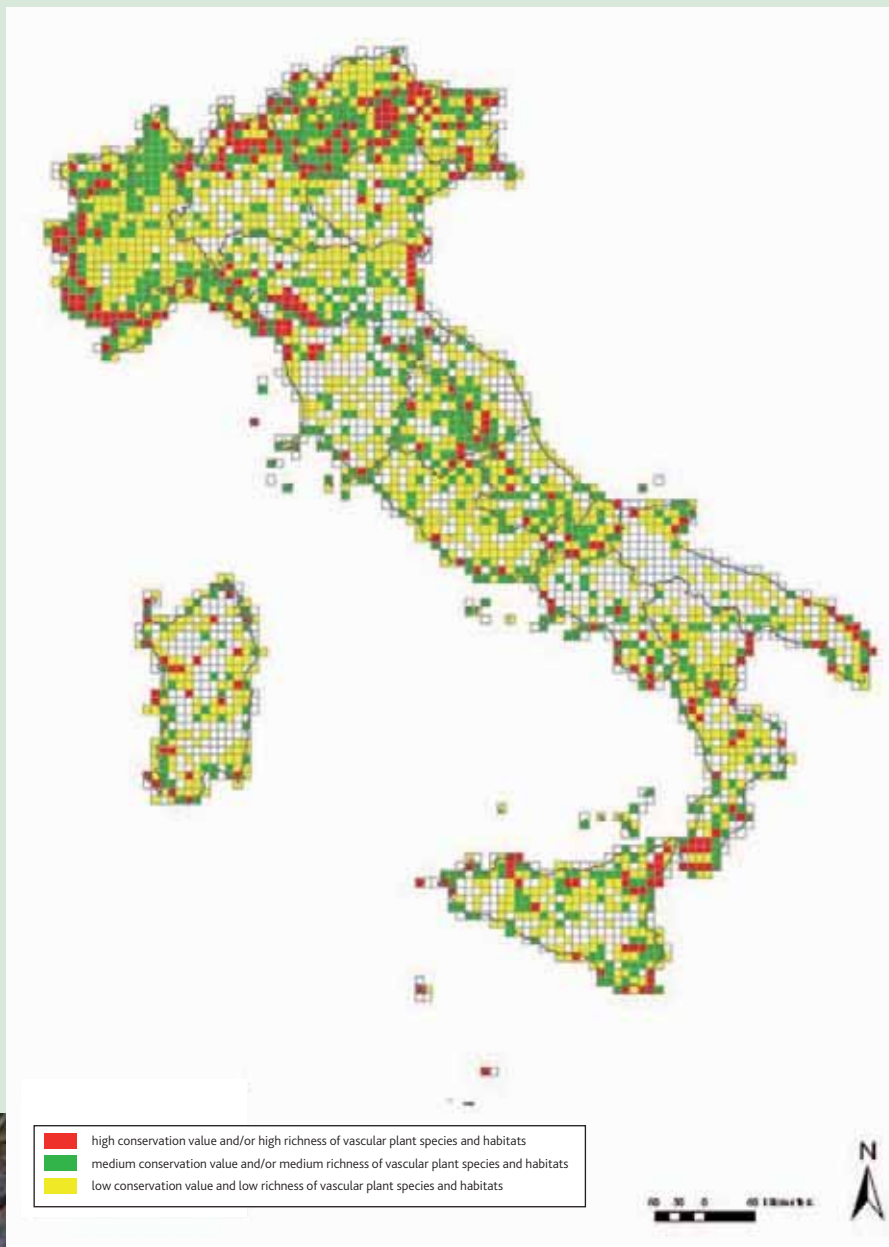
An approach based on the overlapping of the species and habitat maps was used to identify the most important areas for plant diversity and to pinpoint any "hotspots" of richness and diversity.

In order to process the records of vascular plants and habitats and to subsequently identify the IPAs, Italy was subdivided into 3,500 square cells, whose sides measure 10 km. Seventy-three percent of these cells contain at least one record of a vascular plant or habitat of IPA interest (2,545 cells out of 3,500).

Tolfa Mountains.  
Photo  
Emanuela Rosati



Cell classification based on conservation value and /or richness of vascular plants and habitats





**The IPA definition process is composed of two subsequent phases:**

**I. Cell classification at the regional level**

A cell classification was defined at the regional level by considering the total number of vascular species and habitats as well as the number of vascular species and habitats assigned a high regional conservation value by the experts; this classification was based on the cells whose sides measure 10 km.

Two criteria were used to define this cell classification:




**CONSERVATION VALUE CRITERION**

- Criterion A: number of species with a high regional conservation value
- Criterion C: number of habitats with a high regional conservation value

**RICHNESS CRITERION**

- Criterion B: total number of species and habitats

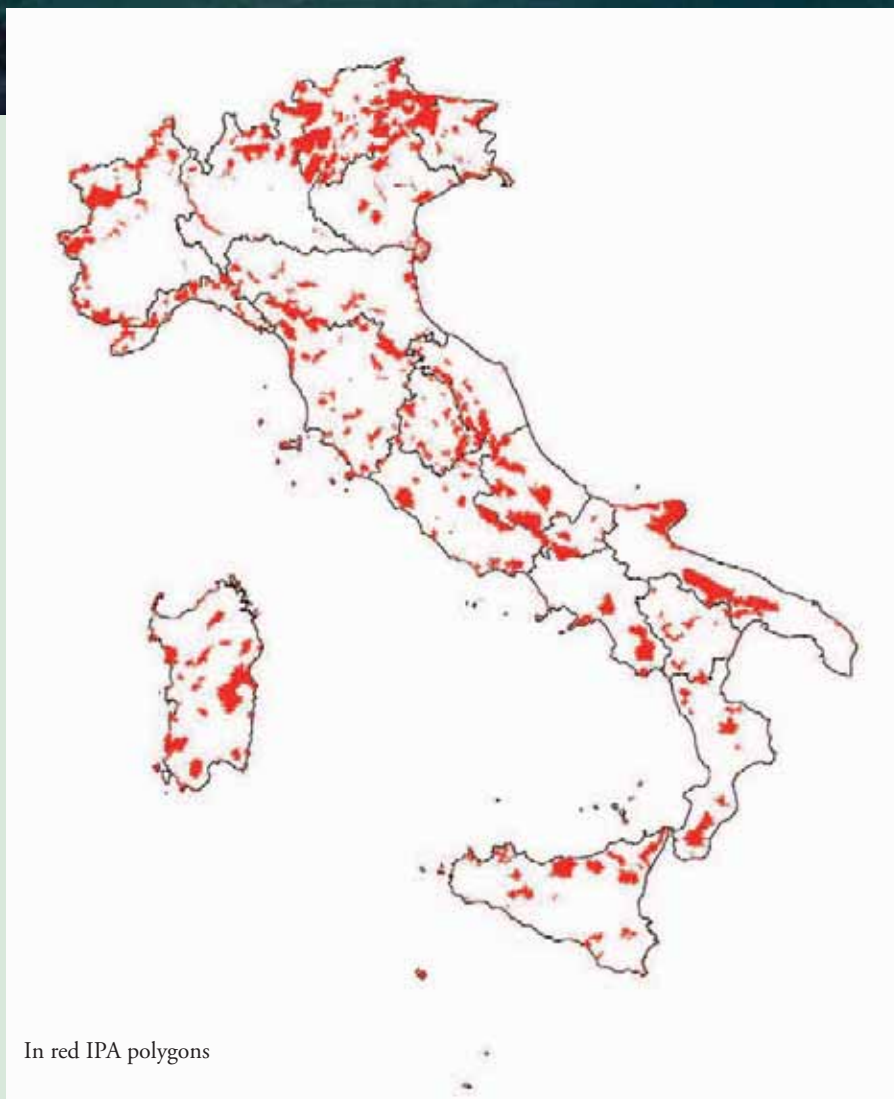
The following final classification of the cells was obtained by integrating the two synthetic values:

-  Cells that are of high conservation value and/or contain high vascular species and habitat richness. High values for either criterion (conservation value and richness) or for both;
-  Cells that are of medium conservation value and/or contain medium vascular species and habitat richness. Medium values for either criterion (conservation value and richness) or for both;
-  Cells that are of low conservation value and/or contain low vascular species and habitat richness. Low values for both criterion (conservation value and richness);

The cells with a high conservation value are therefore those characterised by the highest number of vascular species of high regional conservation value (conservation value criterion) within a given region, and/or by the highest number of vascular species and habitats (richness criterion);



Laga Mountain. Photo Mattia Azzella

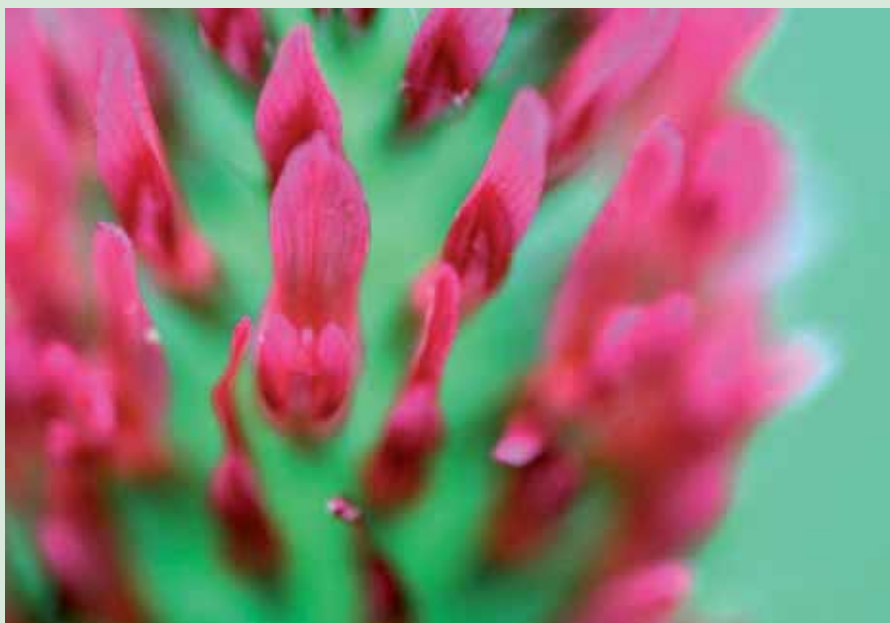




## II. Definition of the IPA polygons

Polygons were defined within the cells of high conservation value and /or containing high vascular species and habitat richness. These polygons were outlined using the data provided by the regional experts on vascular plant species, habitats and other taxonomic groups, as well as the records of important habitat and vascular species sites; the polygons identify the IPAs that are potentially most interesting.

The data for the other taxonomic groups are, if compared with those available for the vascular species and habitats, more limited and distributed less homogeneously throughout the country owing to information gaps; consequently, these groups were omitted from the first phase (cell classification), but were included in the subsequent polygon phase (from grid to polygon) as a means of confirming the value of the IPAs and of integrating the description of the areas.



*Trifolium incarnatum* L.  
subsp. *incarnatum*  
Photo Luciana Massaro

## What's inside Important Plant Areas?

### Name of IPA:

Dolomiti, Valli Talagona e Tovanelle, Dolomiti Friulane, M. Coglians, Creta d'Aip, M. Corona – code ITA 12  
Transregional IPAs, straddling Veneto, Friuli-Venezia Giulia and Trentino Alto Adige.

**IPA dimension:** 243,738 ha

Composed of 7 protected areas, 19 Natura 2000 Sites and areas without any legal protection.

### Data

**85 vascular plants, 13 selected according to International criteria:**

*Botrychium simplex* E. Hitchc.  
*Campanula morettiana* Rchb.  
*Eryngium alpinum* L.  
*Moehringia glaucovirens* Bertol.  
*Physoplexis comosa* (L.) Schur  
*Salix mielichhoferi* Saut.  
*Saxifraga depressa* Sternb.  
*Saxifraga aspera* L. [= *S. etrusca* Pignatti]  
*Sempervivum dolomiticum* Facchini  
*Cypripedium calceolus* L.  
*Iris cengiali* Ambrosi ex A. Kern. s.l.  
*Liparis loeselii* (L.) Rich.  
*Typha shuttleworthii* W. D. J. Koch & Sond.

**2 bryophytes selected according to International criteria:**

*Paludella squarrosa* (Hedw.) Brid.  
*Anastrophyllum assimile* (Mitt.) Steph.

**4 lichens selected according to International criteria:**

*Tuckneraria laureri* (Kremp.) Randlan  
*Usnea longissima* Ach.

*Parmotrema arnoldii* (Du Rietz) Hale  
*Ramalina implectens* Nyl.

**5 fungi selected according to International criteria:**

*Alnicola tantilla* (J. Favre) Romagn.  
*Suillus sibiricus* Singer  
*Entoloma bloxamii* (Berk. & Broome) Sacc.  
*Gomphus clavatus* (Pers.) Gray  
*Inocybe tricolor* Kühner

**1 site selected for fresh water algae:**

Lakes of the Avisio river basin

**47 threatened habitats, 12 priority habitats**

91D0 \*Bog woodland  
7110 \*Active raised bogs  
7220 \*Petrifying springs with tufa formation (Cratoneurion)  
9530 \*(Sub-)Mediterranean pine forests with endemic black pines  
8240 \*Limestone pavements  
7210 \*Calcareous fens with *Cladium mariscus* and species of the Caricion *davallianae*  
8160 \*Medio-European calcareous scree of hill and montane levels  
7240 \*Alpine pioneer formations of Caricion *bicoloris-atrofuscae*  
6230 \*Species-rich *Nardus* grasslands, on silicious substrates in mountain areas (and submountain areas in Continental Europe)  
9180 \*Tilio-Acerion forests of slopes, screes and ravines  
91E0 \*Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (Alno-Padion, Alnion *incanae*, Salicion *albae*)  
4070 \*Bushes with *Pinus mugo* and *Rhododendron hirsutum* (Mugo-Rhododendretum *hirsuti*)



IPA code ITA 12 - Alpine and Boreal heaths  
Photo Riccardo Copiz

# Important Plant Areas *in Italy*

A total of 312 IPAs of national interest, plus 8 sites of freshwater algae, covering 4,476,830 hectares, which corresponds to 15% of the overall area of the country, were identified in Italy.

The mean area of the IPAs is 14,348 ha. The size of the IPAs , however, varies considerably, ranging from a maximum size of 243,738 ha for the IPA coded ITA 12 (Dolomiti, Valli Talagona e Tovanella, Dolomiti Friulane, M. Coglians, Creta d'Aip, M. Corona), which straddles the three regions of Veneto, Friuli-Venezia Giulia and Trentino Alto Adige, to a minimum size of 7,887 ha for the Scogliera dei Rizzi, in Calabria.



Gran Paradiso National Park-IPA code ITA 1  
Photo Leonardo Rosati

## Summary of IPA results

320 sites (8 sites exclusively for fresh water algae)

### CRITERION A: threatened species

68 % of IPAs contain vascular plant selected according to International criteria

84% of vascular plant species have less than ten sites identified

19% of IPAs contain threatened bryophyte species

7% of IPAs contain threatened fresh water algae species

14% of IPAs contain threatened fungi species

12% of IPAs contain threatened lichen species

### CRITERION B: botanical richness

156 IPAs (50%) were assessed for Criterion B, botanical richness.

### CRITERION C: threatened habitats

286 IPAs (92%) contain priority threatened habitats

297 IPAs (95%) contain threatened habitats

2% of Criterion C habitats have only one site recorded

6% of Criterion C habitats have less than ten sites recorded

### PROTECTION

96% of IPA sites have some form of legal protection, either completely or partially covering the site, corresponding to 83% of IPAs area

97% included, either completely or partially, in the Natura 2000 network, corresponding to 78% of IPAs area



Circeo National Park - IPA code ITA 1  
Photo Emanuela Rosati

Global Strategy for Plant Conservation,  
Target 5:  
Protection of 50 per cent of the most  
important areas for plant diversity  
assured by 2010

## Protection of IPAs

The degree of protection afforded to the IPAs identified within this project was assessed by comparing the IPAs identified with the various protection systems currently in use in Italy. Our results show that, at a nationwide level, an IPA protection level of at least 50% can be achieved: indeed, almost 83% of IPAs are covered by protected areas and/or the Natura 2000 Network.

Although fewer than 50% of the IPAs are included in protected areas, only 21% fall outside the Natura 2000 Network; 17% of the IPAs lacks any form of protection by the systems being used.

Although more than 80% of the IPAs currently have some form of legal protection, it should be borne in mind that the degree of protection and conservation management may vary considerably. Indeed, protected area managers may not be aware of the importance of some of the plant species and habitats at that site, or the level of knowledge or amount of funding may be insufficient to conserve those species and habitats adequately. The data collected within this project will be used to prioritise conservation actions and propose appropriate management plans.

In addition, while forests and mountain areas are over-represented in protected areas, other habitats such as the lowlands, hilly areas and coastal plains of the peninsula are under-represented. An assessment of the current level of representation within the different ecological regions is required to achieve the post-2010 target, corresponding to the inclusion of 10% of each ecological region in protected areas or under appropriate management (which could be either passive or active depending on the conservation needs).

*Geranium reflexum* L.  
Photo Leonardo Rosati



## Conclusions

A thorough knowledge of the botanical profile of Italy combined with a consolidated nationwide network of researchers resulted in the IPAs in Italy being mapped in a relatively short period of two years.

Identification of IPA sites not covered by any form of protection and the data collected within this project make a major contribution to the planning of adequate land strategy and management programmes. Indeed, the results yielded by this project may be exploited for interventions of various kinds, ranging from the choice of protected areas to urban planning.

The presence of IPA sites outside protected areas highlights the extent to which nature pervades Italy, a country in which IPAs represent reservoirs of biological diversity that may be used to define ecological networks. Enhanced connectivity between natural habitats and the adoption of a landscape scale approach not only offers species and habitats that are threatened by climate change the possibility to adapt more easily, but also counteracts the isolation effect due to





Badlands of Atri, Teramo  
Photo Mattia Azzella

fragmentation. It is also essential that the landscape mosaic, composed of natural areas and traditional farming areas, satisfy the needs of both agricultural production and biodiversity conservation (High Nature Value farming).

Future goals required to achieve post-2010 global targets of biodiversity conservation and ecosystem services include:

- new basic research projects designed to integrate and update the information currently available on the distribution of plant species (vascular plants, bryophytes, freshwater algae, lichens), fungi and habitats in our country;
- an assessment of the current level of representation within the different ecological regions to achieve the inclusion of 10% of each ecological region in protected areas or under appropriate management (which could be either passive or active, depending on the conservation needs);
- enhanced integration between IPAs and land management strategies to improve both biodiversity conservation and the ecosystem services provided.



Olive groves, Monte Leone Sabino, Rieti  
Photo Leonardo Rosati

An aerial photograph of a rolling green hillside covered with numerous small, dark, gnarled trees, likely oaks, scattered across the landscape. The trees are dark against the vibrant green grass, creating a textured pattern. The lighting is bright, casting soft shadows and highlighting the contours of the hills.

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