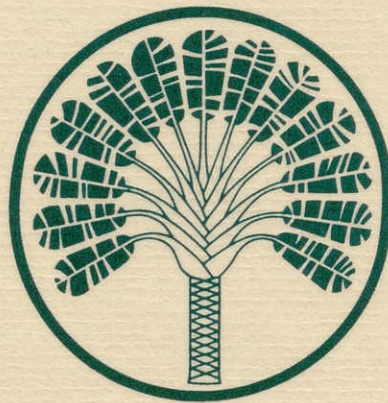




International Union for
Conservation of Nature and
Natural Resources

**BOTANIC GARDENS
CONSERVATION
SECRETARIAT**



A Prospectus



International Union for Conservation of Nature and Natural Resources

The International Union for Conservation of Nature and Natural Resources is the world's largest federation of organisations and individuals devoted to the protection and sustainable use of Earth's living natural resources.

Uniquely, it brings together the skills, concerns and interests of resource managers, scientists, lawyers and other professionals and committed citizens from all parts of the world to focus upon the challenge of maintaining and using properly the plant's living resources. It provides a dialogue between governments and non-governmental groups and it bridges the perspectives of North, South, East and West.

IUCN is a membership organisation. Its members consist of governments, government agencies and non-governmental bodies committed to conservation. Every three years, the members of IUCN come together in a General Assembly to select the officers and council of the Union and to approve its programme and budget. The officers manage the Secretariat of IUCN, in Gland, Switzerland and its Centres, one of which is the Conservation Monitoring Centre in England.

IUCN was founded in 1948 as an initiative of Unesco and the French government. In the early years, emphasis was on exchanging information: perhaps IUCN's best known product, even to this day, is the Red Data Book series.

From the beginning, conservation has been hampered by lack of funds and IUCN was no exception. In 1961, IUCN helped initiate the World Wildlife Fund which has grown out of the IUCN community to become the world's major conservation funding organisation.

In 1980, IUCN, with WWF and UNEP, prepared the World Conservation Strategy. This outlines the basic principles by which conservation and development are dependent on each other and provides the broad framework for IUCN's work and programme. Today IUCN is involved in assisting governments in the preparation of national conservation strategies in 23 countries.

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BOTANIC GARDENS, CONSERVATION AND DEVELOPMENT

Historically, many of the world's botanic gardens have played a significant part in the exploration of the world's plant resources, introducing many economically important species into cultivation for the first time and disseminating them to other countries. Botanic gardens were instrumental in assessment of germ plasm across the world and were the forerunners of today's agricultural experiment stations.

Today a new situation faces us. Agricultural and horticultural crops are well established in the world economy but the number of species involved is small - only about a hundred play a significant part in the world trade and of these fewer than twenty make up the staple crops that feed most of mankind. On the one hand, there is concern that the genetic basis of these staple crops in cultivation is very narrow, often alarmingly so, and that the wild populations of their ancestral species or relatives are rapidly disappearing due to loss of their habitats. On the other hand, there is an increasing interest in introducing into cultivation some of the thousands of species that are so far only used on a local scale and which might provide us with novel crops - for oils, medicines, herbs, fibres, fodder, firewood, ornamentals and so on.

While international organisations within the UN system such as FAO and IBPGR look after the conservation of genetic resources of the staple crop and forestry species and their relatives, the vast majority of wild and potentially economic species are virtually neglected and ignored by the international community. It is here that botanic gardens have an important part to play and to do so effectively they need to mobilize their efforts in a co-ordinated fashion.

Today many natural habitats are being destroyed. Forest cover is diminishing, especially in the tropics, wetlands are receding, islands and coastal ecosystems are being infested with weeds. During the next few decades many thousand plant species will become extinct or their wild populations severely eroded genetically unless preventative measures are taken. And in some cases, it is already too late to ensure the future of viable field populations; *ex situ* conservation is now the only option open to us. Many of the habitats of these potentially important species are at risk and steps need to be taken urgently to preserve both the communities in which they occur or germplasm of them *ex situ* as an insurance or a last resort rescue measure.

The world's botanic gardens are in many ways ideally suited to accept such responsibilities in association with other competent and relevant institutions. Botanic gardens are a unique kind of institution: they form a worldwide network of centres with special skills in the cultivation and propagation of plants. They are also visited by vast numbers of the public - globally around a hundred million a year - and so constitute a ready-made constituency receptive to a well thought out conservation message. The botanic gardens can be viewed as an interface between botanical science and the public.

Today botanic gardens and arboreta are faced with a great challenge if they wish to accept these new responsibilities. Adoption of a conservation programme would, in many cases, provide gardens with a new focus and help justify their future development and funding. Several gardens are already heavily involved in conservation work and many have expressed a strong interest in becoming involved.

These are, then, exciting times for the botanic garden community. The aim of the *IUCN Botanic Gardens Conservation Secretariat* is to provide a means of co-ordination of the various activities needed to carry out urgent tasks in conservation, provide technical guidance and generally assist with information, data and encouragement, and to enable the gardens to meet this challenge in partnership with IUCN.



IUCN AND BOTANIC GARDENS

In 1984, IUCN and WWF jointly launched a Plant Conservation Campaign and Programme - "To save the plants that save us". The Programme had 6 objectives (see box), one of which was to work with botanic gardens in helping them develop their conservation role.

The Objectives of the IUCN/WWF Plants Conservation Programme

1. Spreading the message
2. Building the capacity to conserve
3. Monitoring the decline of plant diversity and efforts to conserve it
4. Conserving plant genetic resources and wild plants of economic value
5. Expanding the role of Botanic Gardens in Conservation
6. Promoting plant conservation in selected countries

So far, 48 projects have been initiated, with a budget of US\$ 2,000,000.

IUCN's association with botanic gardens dates from two conservation conferences at Kew in 1975 and 1978. At the second, IUCN was invited to set up a small informal structure for botanic gardens, principally to carry forward an existing project that was determining which plants threatened in Europe were grown in botanic gardens. This was the beginning of the Botanic Gardens Conservation Co-ordinating Body, which the new Secretariat will now replace.

The 'Body', as it has come to be known, had around 250 gardens that were members or associated with its work. The results were put on computer, and two sets of reports were produced:

- ** Botanic Garden Reports, showing which threatened species in a botanical group or region (e.g. Cycads or India) are in cultivation. Alongside each plant name are the codes for the gardens that cultivate it. Eighteen reports were published, covering most of the temperate zone and subtropics and part of the tropics.
- ** "Garden Printouts", which were sent to each subscriber once a year. These list all conservation plants recorded by that garden, showing for each the full distribution, degree of threat worldwide, the source of the holding, and, most important, the number of *other gardens* who grow that plant. An example is given in Table 1.



PLANTAS DE CONSERVACION DEL JARDIN BOTANICO "VIERA Y CLAVIJO", LAS PALMAS (LPA)

5 noviembre 1986

		Categoria mundial	Origen de las plantas	Registros en otros jardines					Total
				CWUD	C	W	U	D	
CAMPANULACEAE									
<i>Azorina vidalii</i> (H.C.Watson) Feer	Azores	V	CW D	9	2	8	3	19	
<i>Canarina canariensis</i> (L.) Vatke	Is. Canarias	V	W D	9	13	7	4	28	
<i>Musschia aurea</i> (L.f.) DC.	Madera	R	W	9	6	4	3	18	
<i>Musschia wollastonii</i> Lowe	Madera	E	W	5	4	2	2	11	
CAPRIFOLIACEAE									
* <i>Sambucus palmensis</i> Link	Is. Canarias	E	W			1	1	1	
<i>Viburnum tinus</i> L. subsp. <i>rigidum</i> (Vent.) P.Silva	Is. Canarias	nt	W D	4	2	2		8	
CARYOPHYLLACEAE									
* <i>Bufonia teneriffae</i> Christ	Is. Canarias	R	W		1		1	1	
* <i>Cerastium sventenii</i> Jalas	Is. Canarias	V	W		1			1	
* <i>Dicheranthus plocamoides</i> Webb	Is. Canarias	R	W D	1	1		1	2	
** <i>Minuartia platyphylla</i> (Gay ex Christ) McNeill	Is. Canarias	R	W					0	
* <i>Paronychia gomerensis</i> (Burchard) Svent. & D.Bramwell	Is. Canarias	R	W		1	1		2	
* <i>Polycarpaea carnosa</i> C.Smith ex Buch	Is. Canarias	R	W	1	1		1	2	

C: Origen de cultivo conocido; W: origen silvestre conocido; U: origen desconocido; D: plantas disponibles.
Ex: Extinta; E: En peligro; V: Vulnerable; R: Rara; I: Indet.; K: Insuficientemente conocido; nt: No amenazada.

Table 1

As the plan for the Plants Programme developed in the early 1980s, the perception grew that a more democratic, more structured, more interventionist organisation was needed to provide links between gardens, and to help them build their conservation activities. The 'Body' simply did not have the resources to go much beyond the monitoring of *ex situ* collections, useful though that was. In late 1984 the IUCN/WWF Plant Advisory Group discussed what was needed and considered how best to proceed.

Their advice was simple: IUCN should prepare a Strategy to outline what botanic gardens could do for conservation and call a world conference of as many botanic gardens as possible where the Strategy could be debated and the idea of a new organisation considered.

Following generous offers from the Canary Islands Autonomous Government and the Council of Gran Canaria, an IUCN conference on Botanic Gardens and the World Conservation Strategy was held in November 1985 at Las Palmas. Sponsorship by WWF, UNEP and Unesco paid for the travel of delegates who would otherwise not have been able to come, making it the biggest ever gathering of the directors and managers of Botanic Gardens.



A draft of the Botanic Gardens Conservation Strategy, too, was prepared for the conference by Professor V H Heywood (then at the University of Reading); this outlined in a theoretical and practical way precisely what botanic gardens could do for conservation and how gardens could contribute to an international network. For IUCN it is one component towards the implementation of the World Conservation Strategy, the global framework for conservation prepared in 1980 by IUCN, WWF and UNEP. The Botanic Gardens Conservation Strategy drew heavily upon a detailed questionnaire sent to every Botanic Garden, the results of which are also being used to prepare a new edition of the World Directory of Botanic Gardens, in collaboration with the International Association of Botanic Gardens (IABG) with the support of a grant from WWF.

The Canary Declaration

For centuries, Botanic Gardens have been major centres for the scientific study of plant diversity, providing a mechanism for introduction and assessment of plants for agriculture, horticulture, forestry and medicine.

They attract more than 100 million visitors a year, affording havens of beauty and tranquillity for an increasingly urban society, and a spiritual link with the plant world on which we all depend.

They inform and educate; they are showcases for the living world, places where science and people meet.

For historical reasons, most Botanic Gardens are in the cooler, more industrialised countries of the world, but two thirds of all plant species occur in the tropics and subtropics. More than 60,000 species risk extinction within our lifetimes because of the destruction and degradation of the earth's vegetation, which is the basis of human survival. Recently, many of the world's Botanic Gardens have mobilised their resources for conservation action to avert this threat. They are conserving plants in the wild, cultivating them in gardens themselves, and preserving them in gene banks.

Recognising that they can only succeed in achieving these objectives if they work together, Botanic Gardens throughout the world are uniting to apply the *World Conservation Strategy* to the special predicament of plants. Basing their efforts on this global plan for sustainable development and conservation of living resources, they will produce, adopt and implement a *Botanic Gardens Conservation Strategy*.

This declaration is the result of the 1985 Las Palmas Conference on Botanic Gardens and the World Conservation Strategy, involving more than 200 leading specialists from countries throughout the world.

They as a body assert their determination to work together to defend plant life for the benefit of all people now and in the future. They call upon Governments to provide the necessary support and resources, in accordance with their responsibilities.

Las Palmas de Gran Canaria
November 1985



The conference in Las Palmas passed a series of recommendations and prepared the Declaration of Gran Canaria, which was a statement to the world affirming their commitment to implement the Strategy and to work together in the active defence of the plant kingdom. The detailed recommendations, sent in early 1986 to every botanic garden in the world, called for many initiatives, among them a Programme and Secretariat to carry forward the work done at Las Palmas.

During 1986, IUCN started planning the new initiative and meanwhile continued the 'Body' during the year with a slightly expanded programme. Generous grants were promised from four donors, permitting the Secretariat to begin its work in 1987:

R.J. Reynolds Industries, Inc., for the preparatory work of the Secretariat and for continuing the work of the 'Body' during 1986;

An anonymous donor to complete the Botanic Gardens Conservation Strategy;

The Jessie Smith Noyes Foundation, for development of the Secretariat, 1986-1988.

The W. Alton Jones Foundation Inc., for development of the Secretariat, 1987-88.

So, by the end of 1986, the preparatory work was done. The revised Strategy is nearing completion and a database has been compiled on the 1300 Botanic Gardens of the world from which the new World Directory will be made. The IUCN database on threatened plants is highly advanced and ready to be harnessed. A Transfer Format for computerised botanic garden plant records is almost complete. The time has come for the new Secretariat to start operations.

WHAT WILL THE SECRETARIAT DO?

IUCN established the Botanic Gardens Conservation Secretariat on 1 January 1987. It is housed with the IUCN Conservation Monitoring Centre (CMC) at its offices at Kew and run in close association with the Threatened Plant Unit (TPU). This joint operation is under the direction of Professor V H Heywood, Associate Director for Plant Conservation of the CMC.

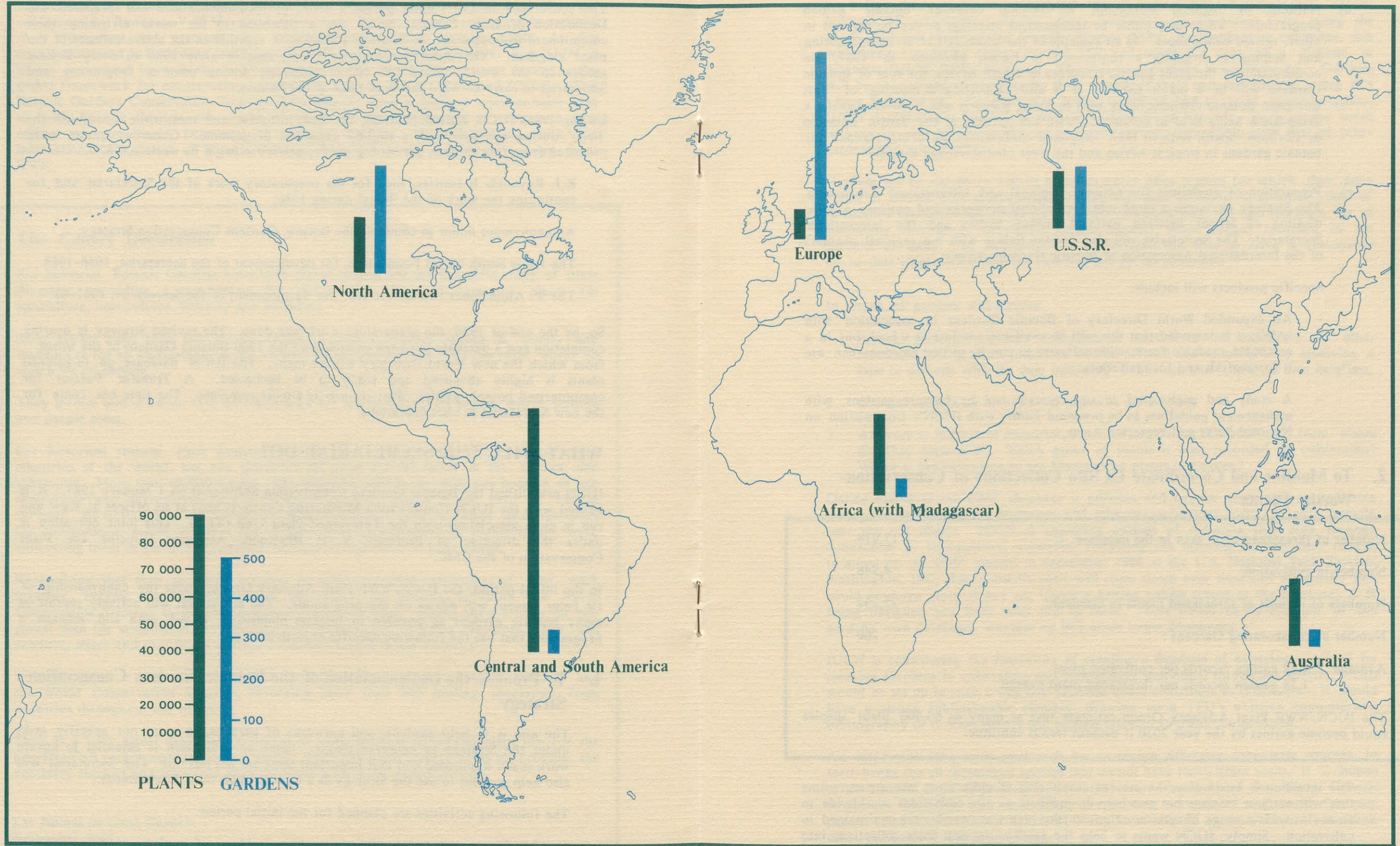
In the initial period, the IUCN/WWF Plant Advisory Group, under the chairmanship of Dr Peter Raven, will advise on the programme. The Secretariat will actively recruit as many botanic gardens as possible to become members. It will plan and manage a programme that has the following specific objectives:

1. To Promote the Implementation of the Botanic Gardens Conservation Strategy

The aim is to help gardens, and networks of gardens, to carry out specific tasks under the Strategy to conserve plants. Some co-ordination is essential to ensure work is not duplicated and that important tasks are not left out. The Secretariat will also help gardens to use the Strategy as a tool for their own development.

The following activities are planned for the initial period:

- a) Missions to selected gardens to explore problems of implementing the Strategy and to formulate plans. The Secretariat will not employ a large staff itself, but will seek to find highly qualified consultants from member gardens to undertake these missions.



World Distribution of Plant Species and Botanic Gardens



- b) National or regional workshops to develop coherent botanic garden programmes. These may either be independent meetings or can be sessions in other, related conferences. As an example of the latter, IUCN is co-sponsoring and helping to organise a conference in Rabat, Morocco, in 1987, on conservation of the plant genetic resources of North Africa; the role of Botanic Gardens will be a major theme. It is also supporting a meeting of East European Botanic Gardens being held in Sofia, Bulgaria and is co-sponsoring a Symposium being held in connection with the opening of the Jardín Botánico de Córdoba, Spain, both in 1987. Regional conferences are being planned for botanic gardens in tropical Africa and the West Mediterranean littoral.
- c) Preparation of guidelines for national, regional and international networking. The Strategy envisages a large role for national networks and outlines a clear division of labour between national linking bodies and the international Secretariat. The Secretariat will also develop liaison with the regional chapters of the International Association of Botanic Gardens (IABG).

Specific products will include:

- An expanded World Directory of Botanic Gardens in association with IABG; it is intended that this will be available not just as a book but in a computer-readable form, with software to run it, so that Gardens can use it for analysis and for mail shots.
- A study and analysis of *in situ* reserves run by botanic gardens, with management guidelines to be prepared jointly with IUCN's Commission on National Parks and Protected Areas.

2. To Monitor and Co-ordinate Ex Situ Collections of Conservation-Worthy Plants

Number of threatened plant taxa in the database:	17,914
Number in cultivation:	4,946
Numbers of records of threatened plants in Gardens:	22,232
Number of collaborating Gardens :	260
Average: 4.49 garden records per cultivated plant 1.28 garden records per threatened plant overall	

The IUCN/WWF Plant Advisory Group estimate that as many as 60,000 plant species could become extinct by the year 2050 if present trends continue.

The intention is to develop the present monitoring of collections into a programme that will not just monitor but also help co-ordinate *ex situ* collections worldwide to ensure as wide a range of conservation-worthy plants as possible are maintained in cultivation. Simply, IUCN wants to help the gardens develop their collections into one international network where excessive duplication is avoided, although with a sufficient geographical spread to act as a safeguard, and with all the relevant species covered.



As before, each garden in the scheme will be expected to contribute data on its holdings of conservation-worthy plants, preferably in electronic form using the newly designed International Transfer Format (ITF). For gardens on computer, this will mean converting their file into ITF and sending a copy on a diskette or magnetic tape to IUCN each year. Physical compatibility is not required. Gardens will be encouraged to computerise their records in their own institutions, using PCs where appropriate. To encourage better recording and to assist computerisation, IUCN is planning a Manual on Botanic Garden Plant Records. Each garden needs to have its own effective data management system, compatible with that of other gardens and with IUCN.

Gardens *not* on computer will be asked to select those regions for which they have plants of known wild source origin. They will then be asked to annotate lists of threatened plants for these regions with their holdings; they will also receive a list of commonly cultivated, threatened species, namely those already recorded in ten gardens or more. In this way, the Secretariat will aim to have a reasonably up-to-date information base for Gardens not yet on computer.

In return, all gardens will receive:

1. Annual printouts of their collection in relation to the collections of other members. Gardens on computer will be offered the option of also receiving a tape or diskette with the data included, so they can add it to their own datafiles.
2. General reports on the status of plants in cultivation;
3. Answers to individual enquiries, e.g. Who is growing this plant and from where did they acquire it? Which group of plants is least recorded in cultivation? Where is the best place to see Madagascan plants in Europe?

Online access to the CMC database is possible and can be negotiated at an extra price, but at present the hardware and telecommunications costs for each remote user are not cheap. IUCN is exploring options of reducing this cost through connection to international networks, following the opening of the first remote terminal on the CMC system in September 1986 at the U.S. National Park Service, Washington, D.C. Undoubtedly costs will come down over time and eventually one could envisage most, if not all, Gardens having online access to the database; it is being designed and built with this in mind. This would be in addition to the gardens' own databases, whether on PCs or on larger computers.

IUCN is considering the feasibility of creating a database of experience gained by member Gardens in cultivating and propagating individual threatened species. This would be set up in such a way that Gardens could contribute to it directly. It would have a strong bibliographic element, drawing upon TPU's existing computerised bibliography of c. 9000 papers and reports relevant to plant conservation.

An important long-term goal will be to secure effective long-term storage in seed-banks for all threatened species that do not have recalcitrant seeds. It is hoped to do this in close collaboration with the International Board for Plant Genetic Resources (IBPGR), who co-ordinate the existing network of seed banks for crop plants. The Royal Botanic Gardens, Kew, have offered extensive help from their own seed bank at Wakehurst Place.



3. To Develop a Programme for Liaison and Training

One of the most frequent requests received from botanic gardens is for help with training of technical staff and for advice on various aspects of botanic garden operation in respect of conservation activities. Almost as frequent are appeals for general support and encouragement. IUCN feels that this can be most effectively achieved by fostering links at national level and at regional level, and by international co-operation between gardens in the developing world and in the developed countries. The Secretariat plans, therefore, to act as a clearing house for this work and will aim to put those who request assistance in touch with those who might be able to help. It may be appropriate in some cases for a "twinning" arrangement to be made; in other cases a multilateral arrangement involving several gardens may be more suitable. The various ways in which cooperation between botanic gardens can be effected will be the subject of a detailed study and it is planned to prepare guidelines and mechanisms to achieve these goals.

4. To Arrange Botanic Gardens Conservation Congress Every Three Years

The intention is that the next meeting, in 1988, will be held in a tropical Botanic Garden. As with the Las Palmas meeting, efforts will be made to find sponsors who will contribute to the attendance costs of delegates who could not otherwise come. The proceedings will be published. The main theme of the 1988 Congress will be Tropical Botanic Gardens - Conservation and Development.

WHO WILL PAY?

Any organisation requires financial assistance to allow it to become established and we have been fortunate in receiving support from R.J. Reynolds Industries, Inc., The Jessie Smith Noyes Foundation and from The W. Alton Jones Foundation for precisely this. The aim is, however, to make the Secretariat largely self-financing within five years and to cover 70% of the costs within three years. This means that a large part of the running costs of its operations will have to come from within the botanic garden community itself.

Membership will be open to all gardens, arboreta and other interested bodies on an annual subscription basis. The subscription structure will be based on annual operating budgets, as follows:

(a) Patrons: minimum subscription of	£5,000
(b) Gardens with budget exceeding £1.5m p.a.	£500
(c) Gardens with budget between £1m and £1.5m p.a.	£300
(d) Gardens with budget between £0.5m and £1m p.a.	£200
(e) Gardens with budget up to £0.5m p.a.	£100
(f) Gardens in developing countries	£50

Membership of the IUCN Botanic Gardens Conservation Secretariat does not carry with it membership of IUCN itself. The sums above will cover the cost of running the Botanic Gardens Conservation Secretariat and providing its service to members. They do not cover the cost of joining IUCN itself; those organisations interested in applying for membership of the Union should write to Membership Services Unit, IUCN Secretariat, 1196 Gland, Switzerland for the terms and conditions.



BOTANIC GARDENS CONSERVATION SECRETARIAT

Name of Botanic Garden

Address

Responsible Official

We wish to become a full member of the above Secretariat and enclose one year's subscription for the year 1987 *at the level indicated below.*

- | | |
|--|--------|
| (a) Patrons: minimum subscription of | £5,000 |
| (b) Gardens with budget exceeding £1.5m p.a. | £500 |
| (c) Gardens with budget between £1m and £1.5m p.a. | £300 |
| (d) Gardens with budget between £0.5m and £1m p.a. | £200 |
| (e) Gardens with budget up to £0.5m p.a. | £100 |
| (f) Gardens in developing countries | £50 |

Payment to be in sterling or equivalent in convertible currency.

Cheques to be made payable to *IUCN BG Conservation Secretariat*

If you wish to use a Giro Account please ensure that we are notified separately. The origin of Giro cheques can be difficult to establish. *Please do not send direct credits to our bank unless this is the only form of payment you can make and you have previously notified us.*

Signed

Name

Send to: Botanic Gardens Conservation Secretariat
IUCN Conservation Monitoring Centre
Royal Botanic Gardens
Kew
Richmond
Surrey TW9 3AB
England



3. To Develop PARALLEL TO THE BENTLEY

The first of the two parallel lines is to be drawn through the center of the circle, and the second line is to be drawn parallel to the first line, and at a distance of 1/2 inch from it. The distance between the two lines is to be 1/2 inch. The lines are to be drawn in pencil, and the distance between them is to be 1/2 inch. The lines are to be drawn in pencil, and the distance between them is to be 1/2 inch. The lines are to be drawn in pencil, and the distance between them is to be 1/2 inch.

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