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NEWS-LETTER OF THE SOUTH AFRICAN ASSOCIATION OF BOTANISTS
NUUSBRIEF VAN DIE SUID-AFRIKAANSE GENOOTSKAP VAN PLANTKUNDIGES

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THE WILDFLOWER RESOURCE : COMMERCE, CONSERVATION AND RESEARCH (conclusion)

19. Liaison between conservation bodies and landowners is essential but appears to have been lacking to date. The lack of communication is particularly evident in the apparent poor understanding within each group of the other party's objectives and requirements. Conservation bodies need to enhance their credibility with landowners. This may be achieved best by communicating conservation philosophy and policies to the landowners. (See chapter 4).
20. Legislation should be realistic, and not act as a deterrent to the responsible landowner's wish to optimize utilization of his land. The aims and objectives of legislation need to be communicated to landowners, and legislation should be designed and applied in a manner likely to foster support from responsible landowners. For example, why permits are needed to grow and sell cultivars deserves attention and resolution. There is a desperate need for a procedural manual to inform landowners about the permit system. (See chapter 4).
21. For the South African wildflower industry to optimize its use of the natural resource, a clear management strategy must be formulated, backed by the appropriate research. Such a long-term plan would also be consistent with the overall conservation of the unique aesthetic qualities of the fynbos biome, which forms a significant part of the basis for the multi-million rand tourist industry in the south-western Cape. Although it is not possible to plan for the unknown, policies need to incorporate a flexibility which allows, as far as possible, a rapid adjustment to events which alter the underlying knowledge base. (See chapters 1 and 5).

ANNUAL REPORT OF THE BOTANICAL RESEARCH INSTITUTE

1 April 1988 - 31 March 1989

INTRODUCTION

It can be reported with satisfaction that the threat of total dismemberment of the Botanical Research Institute, which would have been the result of the implementation of the Commission for Administration's Report of February 1988, has been averted. The efforts needed to forestall what would have been a disastrous event for botany in South Africa have taken an inescapable toll of day to day activities and the delays in the process of the amalgamation of the Botanical Research Institute and the National Botanic Gardens in addition, have had a strongly negative influence on staff morale.

It is regretted that the BRI has had to sacrifice eight posts to the newly established Pasture Research Centre of the Department of Agriculture and Water Supply, but it is gratifying that the relinquishing of these posts was not accompanied by the loss of any of the botanical functions for which the BRI is responsible. The botanical mandate of the BRI has therefore been transferred to the new organization, as a whole. The new national botanical organization will produce major benefits for all concerned, if managed efficiently and in the national interest. In this context it is important to emphasize that the new organization will have a wider scope than the BRI, including not only research but also relevant aspects of horticulture and conservation. In addition, the education of the public towards the realization of their responsibility and role in maintaining a stable plant environment, has an equal priority. The object of the new organization will therefore be to function as the primary promoter of botanical extension, research and services in the State Sector. This implies that its development programmes will have to be geared towards satisfying the primary needs of the state in the fields mentioned.

The research output of the Institute, in spite of the generally unsettling effect of the amalgamation, remained at a high level, the total of publications by staff being 85 papers of different kinds. The journals published by the Institute appeared on schedule. In the Flora of southern Africa the appearance of the monographic account of the legume genus Aspalathus (Papilionoideae) by the late Rolf Dahlgren set

a standard unlikely to be easily surpassed.

Computers are playing an increasing role in the organization. The use of DELTA, the international computerized system of preparing manuscripts on taxonomic subjects, is gaining momentum in the Institute and is likely to revolutionize the process of writing of flora handbooks. The procurement of this system for the BRI again places it ahead of many other organizations. Generated by the computerized PRECIS data system a list of nearly 750 new names and name changes has appeared in the journal Bothalia. This annual contribution, compiled from information gathered in scanning over 120 journals, updates the List of species of southern African plants (edn 2) announced in the 1987/88 Annual Report, thus extending the usefulness of this standard work. Keeping abreast of name changes remains a problem of considerable magnitude, which is made manageable by the unique service provided to users by the BRI.

The response to the demonstration of the computerization of the curatorial and service functions of the National Herbarium, at the AETFAT Congress in Hamburg in 1988, showed that in this respect also, the Institute has maintained its leading position. The establishment of a database on indigenous southern African food plants promoted during the AETFAT Congress, was also favourably received.

In general the Institute had a good year and it is to be hoped that the large number of new initiatives which are being developed will receive added stimulus once the unsettling effects of the process of amalgamation have abated. We look forward to a bright future.

HERBARIUM DIVISION

For the third successive year, under-staffing and a heavy workload have placed staff of the Institute's four herbaria under considerable pressure, affecting all major functions, namely, curation, research and herbarium services. This situation should improve considerably in the following year, with the introduction of a handling fee for plant identifications and through the selective control of accessions into the National Herbarium.

National Herbarium, Pretoria (PRE)

Curation

Scientific staff continued to scan over 120 scientific journals as well as books for taxonomic and nomenclatural changes covering the Flora of southern Africa region. These contained 172 articles of direct relevance to southern Africa. A total of 744 changes was recorded affecting about 3% of the flora. These included: 412 new names (of which about 293 were new taxa), 205 names reduced to synonymy and 44 orthographic corrections.

An extension of the known distribution area was recorded for 45 taxa, mostly in terms of provincial boundaries (Transvaal 1 new taxon, OFS 3, Natal 4, Cape 18, Transkei 5, Botswana 1 and Swaziland 3) with 10 new records for southern Africa.

Computerization

The in-house herbarium computer system is functioning well and continues to be an important aid, resulting in both improved efficiency and better management. New applications developed on the Burroughs B28 system include: merging outstanding specimen loan data with a standard loan expiry letter and the use of the computer to selectively control the accessioning of specimens into the National Herbarium.

Accommodation

The major disruptive changes that the National Herbarium and Mary Gunn Library underwent, with the installation of fire protection (halon flooding) and air conditioning, came to an end towards the middle of the year, much to the relief of all herbarium staff. This was followed immediately, however, by three further additions to the Herbarium, namely, the installation of three working bays on the south side of each herbarium wing, provision of a special room for decontaminating and drying specimens and a new SEM room and various other rooms adjacent to the Moss Herbarium. All these alterations are now complete and the herbarium is, at last, functioning normally again.

Visitors

In addition to numerous local visitors from various universities, Government institutions, nature conservation departments etc., together

with members of the general public, the herbarium was also consulted by officers and personnel from Lesotho, Botswana, Swaziland, Bophuthatswana, Venda and Transkei.

A number of overseas botanists visited the Institute and Herbarium. These included: Prof. D. Wiens (Utah, USA); Dr C.L. Calvin (Oregon, USA); Miss S. Liede (Hamburg, W. Germany); Prof. and Mrs. D. & U. Müller-Doblies (Berlin, W. Germany); Dr R.N. Lester (Birmingham, England); Prof. J.R. Harborne (Reading, England); Mr and Mrs. Ia Croix (Darling, England); Dr F. Bauman (Amsterdam, Netherlands); Prof. R.M. Schuster (Massachusetts, USA); Dr S.P. Doolan (Oxford, England), Dr D.J. Lehmilller (Texas, USA); Dr M. Hale (Washington, USA); Miss S. Andrews (Kew, England); Dr P. Perrino (Italy); Dr C. Laghetti (Italy); Dr D.A. Preston (Indiana, USA).

Collecting expeditions

Due to financial and other constraints, few collecting expeditions were undertaken this year. Those that were undertaken included trips to Namaqualand (Riccia and general collecting); northern Natal and eastern Transvaal (Vigna and Polygonaceae); eastern OFS (general collecting) and SW Cape (Pentameris).

Herbarium services

Plant identifications numbering 211 batches and 13 229 specimens were undertaken for officers of this Institute, various state departments, provincial administrations, universities and neighbouring States. The major users of the service were: staff of the BRI 26% of the material identified; Universities 20%; nature conservation 16%; museums 16%; botanic gardens 10%; private collectors 5%; agriculture 3%; forestry 2% and others 2%. Identifications for 233 visitors numbered 1 152. Of the specimens received as gifts or part of exchange agreements 1 620 had to be given names or renamed. Seventy-one specimens were identified for Onderstepoort involving stock poisonings. Enquiries received by telephone totalled 978. New accessions to the herbarium numbered 22 886 for southern Africa and ± 6 166 for tropical Africa and other areas.

Specimen loans sent to local and overseas herbaria numbered 85 (comprising 11 046 specimens) with 101 existing loans returned in full

and 31 loans returned in part (8 167 specimens were received back in total). The total number of outstanding loans is 308 (35 425 specimens).

Some 10 930 specimens were despatched as part of exchange agreements and 5 953 were received by PRE. Specimens received as gifts totalled 1 519 while 2 011 specimens were despatched as gifts in return.

Research and related activities

Contributions to the lichen flora (F. Brusse). Six new species were described and ten new combinations made in the genus Parmelia. Two new species were also described for Moronea and Fuscidea, one in each genus. Eight new lichen records were made for southern Africa.

Ricciaceae (Hepaticae) (S.M. Perold). Three papers were published during the year on: Riccia nigrella DC. and R. campbelliana Howe (both new records for southern Africa) and two new species R. argenteolimbata and R. albornata. Two papers are in press involving R. montana and R. alboporosa (new species) and R. albolimbata and the status of R. albosquamata. Four more papers have been submitted for publication. Final drafts of 30 Riccia species have been written up for the revision of the family. Five new species in the section Pilifer are still being investigated. Distribution maps for 35 species are now complete. The artwork for 32 species is also complete.

Contributions to the moss flora (J. van Rooy). The genera Rhachithecium, Rhabdoweisia and Orthotrichum have been completed for the 3rd fascicle of the flora. Three undescribed species and two new records for Africa have been identified in the family Orthotrichaceae. Work on the illustrations and distribution maps for this family is nearing completion. Work on the family Polytrichaceae for the 4th fascicle has commenced.

Revision of Carex (Cyperaceae) (C. Reid). Seventeen taxa have been delineated. Two formerly described species cannot be upheld and one requires further investigation. One putative hybrid has been identified. All loan specimens have been identified and their

qualitative and quantitative characters are currently being measured. Loans from three institutions are awaited. Typification is 75% complete with mainly the cosmopolitan taxa still outstanding.

Polygonaceae (G. Germishuizen). A revision of the genus Oxygonum has now finally been completed and written up in the Flora of southern Africa format. Work on the genera Fagopyrum, Emex and Rumex is still in progress.

Revision of Vigna (Fabaceae) (B.J. Pienaar). This revision is now approaching completion. Thirteen species are recognised for which the descriptive work is largely complete.

Revision of Convolvulaceae (W.G. Welman). Ninety-one descriptions of the Convolvulaceae in Prof. A.D.J. Meeuse's manuscript were shortened to fit the Flora of southern Africa format.

Transvaal Wild Flowers (Vol. 2) (G. Germishuizen). Descriptions were completed for 60 species taking the total to 150. The artist, Mrs. Anita Fabian, has completed illustrations for 350 taxa which means that this component of Volume 2 is 75% complete.

Flora of the Transvaal (E. Retief and P. Herman). This flora is to closely resemble, with some additions, The flora of Natal by J.H. Ross (1972). To date, data sheets have been completed for 73 families, 182 genera and 861 taxa. This is 11,8% of the total number of taxa for the region.

Research support

Scanning electron microscope (S.M. Perold). Some 2 974 SEM micrographs were prepared for the following officers: Dr R. Ellis (grass leaf surfaces); Mr N. Barker (grass caryopses); Dr H. Glen (Aloe leaf surfaces); Mr J. van Rooy (moss leaves and capsules); Mrs. S. Perold (Riccia thalli and spores); Mr G. Germishuizen (Oxygonum); Miss C. Reid (Carex caryopses); Mr F. Brusse (lichen thalli); Mr D. McDonald (Pelargonium pollen); Dr K.L. Immelman (Justicia pollen); Dr B. de Winter (Gorteria) and Miss E. Retief (Cyphostemma leaves). Towards the

end of 1988 the SEM unit was moved to its new premises in the basement next to the Cryptogam Herbarium.

Expansion of collections from poorly represented areas (various contributors). North-western Cape - holdings for the sixteen 1/4° grids visited, increased by 71% from 132 to 447 collections; eastern Transvaal - although most of the twenty-one 1/4° grids visited were fairly well represented in PRE, two were not and increased by 43% from 74 to 126 collections.

Expansion of the fruit, seed and spirit collections (E. Retief and G. Germishuizen). The fruit and seed collections remained unchanged at 4 567 and 4 134 respectively. The spirit collection was expanded from 3 726 and 3 801 collections.

Publications

Seventeen articles appeared in local (15) as well as overseas (2) journals. A further 31 articles are in press awaiting publication.

Natal Herbarium, Durban (NH)

No staff changes occurred during the year. Miss R. Williams continued her good work as Curatrix of the Herbarium closely assisted by Mrs. H.E. Noble and the rest of the herbarium staff.

Mr A.M. Ngwenya attended the 1988 International Diploma Course in herbarium techniques. This was a three month course which was held at the Royal Botanic Gardens, Kew.

A total of 3 101 specimens were identified, 412 visitors were attended to, 838 specimens were sent out on loan and accessions to the herbarium numbered 2 261.

One thousand and fifty-three Dicotyledon specimens from the Cape have been sent to the National Herbarium and 434 to the Stellenbosch Herbarium.

Albany Museum Herbarium, Grahamstown (GRA)

The post of Herbarium Assistant remained unfilled from November 1987 to October 1988 when Mrs. Louise Verwey was appointed. During the

eleven intervening months the herbarium staff, and in particular Mrs. E. Brink, Curatrix of the herbarium, were under considerable pressure trying to deal with the workload due to the vacant post.

Dr Amy Jacot Guillarmod is established in her part-time post as Curator of the Pocock Marine Algae. Mr Neil Abrahams, who has given voluntary assistance in the herbarium for the past 21 years, has become an integral part of the 'family' and is sorely missed whenever he leaves town for commitments elsewhere.

The location of this herbarium within a large Museum is one of the factors which gives a strong bias towards the public service performed by this Unit. It is also clear that Grahamstown's chief 'export', education, plays a role in the community's expectations of the Museum. Action was taken in August to limit the access of visitors to the herbarium, to give staff more time to perform curatorial tasks. Public access to the herbarium is now restricted to between 08h00 and 12h00 on week-days. Although visitors adapted quickly to this change, the actual number of visitors during the year increased slightly to 751.

Other information services also increased for the year with plant identifications numbering 2 440, telephone queries 600 and correspondence 238. Display in the herbarium totalled 39, many of these made possible by material brought in by members of the public. Material displayed in the Museum entrance decreased slightly to six, compared to nine displays last year.

Many of the identifications done were of plant fragments either for the State Veterinarian (seven visits) or the Museum's archaeologist (five visits).

The numbers of specimens mounted (1 507) and accessioned (2 279) differ very little from last year. A backlog, however, does exist that needs attention. Nine loans to other institutions were dealt with, four (393 sheets) were sent out and five (202) were refiled. The herbarium staff continued to assist Mrs. G.D. Court who is busy with the Namaqualand Flora. Eighteen loans (2 616 sheets) were either received or returned on her behalf to other herbaria.

The Grahamstown Nature Reserve was visited 27 times during this year. The Nature Reserve Caretaker is just able to keep the alien infestation at its present level and, alone, is unable to really make any inroads into it. It is much to his credit that the Reserve still shows up clearly against the surrounding weed-infested slope as a

protected area.

Government Herbarium, Stellenbosch (STE)

The herbarium remains in the temporary accommodation provided by the University in the old Carnegie Library. The renovations to the Natural Sciences building are progressing well and the herbarium should move back during the latter half of 1989.

During the year 2 496 specimens were identified for the staff, various government and provincial bodies, and for private firms and individuals. This is less than in previous years and has provided time for staff to do meaningful curatorial work and research. Telephone enquiries during the year numbered 211 with 272 visitors requiring information. Accessions to the herbarium were 2 240 specimens. The recording of identifications and listing of loans is now working well in a microcomputer-based system.

Mr Oliver continued his work on minor genera of the Ericaceae concentrating on an extremely variable complex of four genera with 65 species. He delivered a paper on his generic concepts in the capsular genera at a Heather Symposium held by the Linnean Society of London. Thereafter he worked on the collections at the Royal Botanic Gardens, Kew, and the British Museum. Mrs. Beyers has begun work on the thymelaeaceous genera Lachnaea and Cryptadenia. Mrs. Fellingham has been investigating some problem groups in the genus Cliffortia (Rosaceae).

Collecting trips were mainly confined to local ones in search of research material. However, Mrs. Fellingham spent four days collecting in an undercollected grid area near Sutherland.

FLORA RESEARCH DIVISION

Dr G.E. Gibbs Russell who has led this division since November 1984, left to become Database Co-ordinator of the Flora of North America project at the Missouri Botanical Garden. Dr O.A. Leistner has been temporarily put in charge of the division.

Flora of southern Africa (FSA)

With the aid of the computer-based Register of Southern African Plant Taxonomic Projects, research work of the co-operators and

potential contributors to this huge project has been co-ordinated. Although the Department no longer finances research contracts on this project, taxonomists outside the Institute have continued to support the work. Minor purchases of art work and manuscripts could be made from the divisional budget. The seventh meeting of the FSA working group was held during the Congress of the South African Association of Botanists (SAAB) in Pretoria during January 1989. The Association was requested to support the creation of a fund to finance work undertaken for the FSA. News on the FSA was published in Forum Botanicum, the newsletter of the Association.

Vol. 16,3,6 of the FSA was published. It deals with the genus Aspalathus of the family Fabaceae and comprises 278 species, including A. linearis the Rooibos tea. The work written by the late Prof. Rolf Dahlgren of the University of Copenhagen, Denmark, is illustrated by 146 figures and 123 distribution maps.

Bryophyta: a total of 15 families, comprising 41 genera and 65 species, have been revised and written up in FSA format by Dr R.E. Magill of the Missouri Botanical Garden and Mr J. van Rooy. Five species have been illustrated by Miss G.C. Condy.

Vol. 2: Poaceae - Ehrharteae. Dr Gibbs Russell continued her revision of the genus Ehrharta in co-operation with Dr R.P. Ellis. The Dura group of this genus was published in Bothalia, the Ramosa group was submitted for publication and morphological data for the Capensis group were recorded in the DELTA system for computerizing plant descriptions.

The computerized manual for the grasses of southern Africa, designed as a precursor to Vol. 2 of the FSA, is nearing completion. Generic descriptions were drawn up by Dr G.E. Gibbs Russell from the data base of world grasses maintained at the Australian National University, Canberra. The other members of the group working on this manual are Mrs. L. Fish, Dr H.M. Anderson, Miss M. Koekemoer, Mr N. Barker and Mrs. W.J.G. Roux. Some 700 of the 970 taxa to be dealt with in the work have been written up and illustrations were completed for about 180 genera.

Vol. 5: Liliaceae - Aloinae. The manuscript of Aloe by Dr H.F. Glen and Mr D.S. Hardy has been edited and is almost ready for publication. The possibility of having this genus published by the private sector in a format going beyond that of the normal Flora volumes is being investigated. The manuscript of Kniphofia by Dr L.E. Codd has been edited but the material on Gasteria has been temporarily withdrawn by the author.

Liliaceae - Asparagoideae. Dr K.L. Immelman who took over the incomplete manuscript of Protasparagus from Mrs A.A. Mauve (Obermeyer) has nearly completed the work. She checked all specimens in the National Herbarium and drew up new distribution maps for all the accepted 69 species in the genus.

Vol. 8: Orchidaceae. Except for the revision of the genus Disperis, which is now being undertaken by Mr J. Manning, the manuscript of this family is complete and has been submitted to the editor.

Vol. 9: the manuscripts by Dr K.L. Immelman on the families Salicaceae, Fagaceae, Urticaceae and Piperaceae are awaiting publication, pending completion of work on Myricaceae and Moraceae.

Vol. 11: Mesembryanthemaceae. Dr H.E.K. Hartmann of the University of Hamburg, W. Germany and her students have revised several more genera in the Leipoldtiinae including Cephalophyllum and Pleiospilos.

Vol. 12: Portulacaceae. Dr H.F. Glen and Mr D.S. Hardy have started on a revision of this family for the FSA. A prototype character list for use with DELTA was generated and tested using the data in H.R. Toelken's revision of Talinum. A list of names, types, literature sources and other useful information was drawn up.

Vol. 16: Fabaceae. Mr B.D. Schrire who is preparing an account of the tribe Indigoferae has drawn up a checklist of Indigofera comprising information on almost 300 taxa. A synopsis of the species of the genus is well advanced. Some 40 to 50 new taxa need to be described in the genus. About 140 name changes in Indigofera were entered into

the update of Taxon-PRECIS.

- Vol. 23: Lythraceae, Lecythydaceae and Rhizophoraceae. Except for one uncertain taxon, all taxonomic and nomenclatural decisions have been taken for the revision of the Lythraceae. The treatment of the one species of the Lecythydaceae has been completed. In Rhizophoraceae manuscripts of the three genera with a single species each in the region are largely complete. The fourth genus, Cassipourea, is considered to comprise four species and three subspecies.
- Vol. 24: Prof. E.F. Hennessy at the University of Durban-Westville has continued her work on Combretum and Prof. A.E. van Wyk of the University of Pretoria his work on Myrtaceae and Melastomataceae.
- Vol. 25: Ericaceae. Mr E.G.H. Oliver has concentrated on four of the 'minor genera' in the family and has sunk the southern African members of Philippia under Erica. This brings the number of species in this genus, the largest genus of flowering plants on the subcontinent, to about 660.
- Vol. 26: Convolvulaceae: Miss W.G. Welman has adapted most of the work by Prof. A.D.J. Meeuse to Flora format. Descriptions of ten species not included in Meeuse's revision of 1958 have also been completed.
- Vol. 30: Pedaliaceae - Gesneriaceae. Prof. H.-D. Ihlenfeldt of the University of Hamburg, West Germany and his students have progressed with their work on Pedaliaceae, Martyniaceae and Orobanchaceae.
- Vol. 30: Acanthaceae - Justiciae. The revision of the genus Justicia by Dr K.L. Immelman, for which she was awarded a Ph.D., has been adapted to FSA format and edited. This genus and the other large genus Monechma still await the completion of a few minor genera by researchers outside the Institute.
- Vol. 33: Asteraceae - Inuleae. Miss M. Koekemoer has started on a revision of Disparago. A preliminary analysis has shown that ten taxa can be distinguished of which three are undescribed.

Pretoria Flora

Dr O.A. Leistner completed the family Asteraceae. The last group dealt with was group 8 comprising 36 species of Helichrysum and related genera. All families have now been written up. Some updating of the existing manuscript remains to be done as well as completing the introductory chapter.

Namaqualand Flora

The contract awarded by the Department to Dr C. Boucher of the University of Stellenbosch to produce an identification manual for the flora of Namaqualand was renewed. After some initial technical problems good progress has been made with this project.

Palaeoflora of southern Africa

Dr J.M. Anderson and Dr H.M. Anderson have completed Vol. 2 dealing with the Gymnosperms (excluding Dicroidium) of the Molteno Formation and the work has gone to press. Camera-ready copy of 567 pages has been provided comprising 331 photographic plates (with a total of 3 386 individual photos), 1 107 line drawings, 154 tables and 117 maps. The work deals with 111 species belonging to 23 genera. Vol. 3, which will cover the lower plant groups, including ferns, is in preparation.

Liaison Officer, Kew

Mr B. Schrire ended his term of office and was succeeded by Mr A. Nicholas. They dealt with 178 queries and requests from both South Africa and overseas. Mr Schrire worked out the nomenclature of the estimated 300 species of Indigofera in southern Africa after a study tour of 15 European herbaria. He is writing up this large genus with the aid of the DELTA programme. The research work of Mr Nicholas was mainly focussed on the section Trichocodon of the asclepiadaceous genus Pachycarpus. He also delivered a seminar on the Asclepiadaceae to the School of Botany, Trinity College, Dublin. A selection of tree paintings from the Botanical Research Institute exhibited at a Royal Horticultural Society show in London won a Grenfell Silver-gilt medal.

DATA SUBDIVISION

The subdivision continued to co-ordinate the computer requirements of the Institute. The Institute's present computer systems include two large data storage systems on the B7900 mainframe of the Department of Agriculture (PRECIS and PHYTOTAB), SABINET links to IBM mainframe for the library, as well as numerous smaller PC systems, including a new IBM compatible PC for the vegetation ecology section, which replaces the old Hewlett Packard 9845B. The Herbarium mini system, a Unisys B26, is also linked via a modem to the B7900 mainframe.

PRECIS, at present under the jurisdiction of the Herbarium Division, is managed by Dr H.F. Glen and Mr N.P. Barker, PRECIS has continued to grow, with label information on approximately 18 000 specimens added over the past year. The present number of specimens catered for by the data base totals 661 000.

No fewer than 82 requests for information were received, the majority being from universities (25 requests). Other requests received came from 12 other government departments, nine individuals, eight other botanical gardens and five from overseas. There were also 23 requests from staff of the Institute and Units.

Taxon-PRECIS continues to be updated regularly with new and corrected names, the annual list of which appears in Bothalia. The maintenance of this information, a task co-ordinated by Mrs. B.C. de Wet and Mrs. J.M. Mulvenna, is assisted by the herbarium mini computer which has now been programmed to record all changes in the PRECIS format. This allows the easy updating of PRECIS. It is hoped that a similar system will be programmed in the near future, allowing the label information for specimen labels typed on the Herbarium mini system to be formatted and entered directly into PRECIS-compatible files.

Forty-eight data sets obtained from theses and journals are presently on the PHYTOTAB data base. Data files required for the synthesis of these matrices are being loaded by Mrs. W. Jones. Mr R.H. Westfall and Mrs. B.C. de Wet have refined (PHYTO 00 - key construction) and developed (PHYTO 39 - environmental analysis) programs for the data base.

Smaller systems continuing on the B7900 include the Garden Records system, developed by Mrs. B.C. de Wet and maintained by Mrs. K.P.

Clarke, and the PHOTOS data base maintained by Miss A.P. Backer. The latter system holds information on photographic vegetation records for the Vegetation Ecology Division.

STRUCTURE AND FUNCTION DIVISION

Under the leadership of Dr J.J. Spies and in spite of limited manpower, this division has had a productive year. A total of thirteen articles were published in scientific journals and ten papers, as well as four poster papers, were read at congresses (of these, one paper and one poster were presented overseas). Mesdames H. du Plessis and E.J.L. Saayman shared the prize for the best poster at the Congress of the South African Genetic Society.

Cytogenetics

During August 1988 Dr J.J. Spies undertook a study tour to the USA and Canada where he read a paper and presented a poster at the XVth International Genetic Congress in Toronto. A visit to Dr G. Davidse (Missouri Botanical Garden, St Louis, Missouri) made it possible to complete an article on the genus Ehrharta and to make good progress with two other articles. This co-operation is the result of Dr Davidse's visit as research associate to the BRI in 1987.

Work on the grass tribe Arundineae has progressed well during the past year: three basic chromosome numbers, i.e. 6, 7 and 13, were found and it has been determined that large-scale evolution of the karyotype occurs in this group. This could indicate how the tribe has evolved and how an unfavourable environment may influence evolutionary development.

Mrs. H. du Plessis studied the cytogenetic aspects of the important pasture grass, Heteropogon contortus: the species has a basic chromosome number of 10, both aneuploidy and polyploidy occur and paracentric inversions are found in some specimens. These phenomena explain the tremendous morphological variation in the species and show that any effort to improve the plant should be preceded by a cytogenetic study.

Mrs. E.J.L. Saayman established that the C_3 form of Alloteropsis semialata is diploid and the C_4 form is hexaploid. Further study is needed to determine whether the two forms are merely mimics, whether

the C_4 form is caused by an additional genome or whether pleiotropism and/or multifactorial heredity have caused the evolutionary change.

Mrs. E. van der Merwe's cytogenetic investigation of certain Digitaria eriantha strains selected for breeding better strains, indicates that some strains exhibit abnormal meiotic chromosome behaviour. The associated decline in fertility renders these strains unsuitable for use in breeding programmes. The available commercial strains contain different polyploidy levels. Because diploid plants are usually more fertile than polyploid plants, natural selection against polyploidy occurs. The occurrence of sexual diploid plants entails that seed has to be increased in isolation in order to diminish variation within strains. Here one has to guard constantly against inbreeding.

A study of the tribe Ehrharteae showed that the tribe has a secondary basic chromosome number of $x = 12$. Polyploidy occurs and the highest polyploidy level is decaploid. B-chromosomes occur in some specimens.

Comparative anatomy

Dr R.P. Ellis continued to work with Dr H.P. Linder of the University of Cape Town on taxonomic studies of the genus Pentaschistis. A revision of the genus has been completed. The names of 67 species were typified and 16 new taxa described. The study revealed that, in addition to spikelet morphology, leaf anatomy is very valuable in the delimitation of species. An extensive anatomical atlas of the genus is being compiled, comprising detailed studies of the glands and the general biology of the genus. They will serve as a basis for further research on the delimitation of generic groups in the Arundineae.

Mary Gunn Library

The librarians, Mesdames E. Potgieter and B.F. Lategan, have had a busy year. The demand for library services has increased remarkably. This fact is illustrated by the following figures, with those of the previous year indicated in brackets: books and journals loaned 2 186 (1 750), interlibrary loans handled 2 139 (2 123), enquiries 3 188 (2 629), photocopies 36 236 (28 360), books and journals bound 370

(270), books purchased 96 (224) and journals received 417 (411). Additional manpower is urgently needed to assist with the interlibrary loans and the associated photocopying. Apart from the tasks mentioned above, the entire journal collection was rearranged on new shelves installed to accommodate the anticipated expansion in the next decade.

Photography

Mrs. A.J. Romanovski has once again experienced a very busy year as indicated by the following figures: 1 569 photographs were taken, 785 films were developed and 19 078 prints were made, of which 6 994 were for publication purposes.

VEGETATION ECOLOGY DIVISION

The functions of the Vegetation Ecology Division under Dr J.C. Scheepers are to study the vegetation of South Africa and its ecological relations. This work involves three main aspects: the identification, description, classification and mapping of the various kinds of vegetation; study of the ecological relationships of different kinds of vegetation - with one another and with the environment - and of the various processes and mechanisms that determine the behaviour of plant communities; and the application of such ecological knowledge to the management and utilization of vegetational resources.

Members of the Vegetation Ecology Division had the pleasure and privilege of meeting Professors Sandro and Erika Pignatti of Italy, during a Workshop on the phytosociological processing of large data sets and also during subsequent field excursions during January, 1989.

Transvaal bushveld and forest studies

Mr R.H. Westfall is studying the vegetation ecology of the Sour Bushveld of the Waterberg area of the central Transvaal. He has sampled 63 stands representing about 14 different vegetation types. A new method of illustrating vegetation structure using layer diagrams generated by a portable computer for each stand was developed. This method emphasizes the field layer cover as a proportion of the total

layer cover. In only 12% of the stands sampled was the field layer cover greater than 50%. The method could prove very effective in identifying areas with a high erosion potential.

The vegetation ecology of the Upper Limpopo River Valley in the western Transvaal bushveld is being investigated by Mr J.M. van Staden. Particular attention is being paid to bush encroachment and its effects on the grass cover. In this way, base-line data will also be obtained for monitoring the dynamics of veld condition and trend.

The work of Mr G.B. Deall on the Sabie transect has been completed. A trilogy of definitive publications is in press. A number of other texts is in preparation as unpublished reports and articles for publication.

Coastal studies

With the finalizing of the report on the conservation priorities in the tract between the Mozambique border and Sodwana, Dr P.J. Weisser has completed his coverage of the vegetation of the coastal dunes of KwaZulu. It is intended to publish this report in due course. Other data gathered during the subproject are to be worked up and published as a series of research papers.

The effects of the 1988 floods on the wetlands of the lower 5 km of the Orange River have been investigated by Mr M.G. O'Callaghan. In this area; 320 ha of wetland vegetation was destroyed, owing mainly to the deposition of sand as bedload. Approximately 50 ha of potential wetland area was added. To clarify and authenticate herbarium and other records, over 500 Sarcocornia and Salicornia specimens from various herbaria were identified, necessitating 12 000 anatomical sections. It was found that 2% had been identified as the wrong genus and 30% had been identified as the wrong species. Of the latter, 9,4% were hybrids, whereas 8,4% were previously indeterminate.

Cape fynbos studies

The ecological study by Mr H.C. Taylor of Mountain Fynbos in the Cederberg is well advanced. Field work has been completed for the northern sector. Phytosociological classification of the data by means of the PHYTOTAB program package has been carried to an advanced stage. Apart from two distinct thicket communities, six major fynbos

groupings have become apparent, reflecting the major habitats within the study area. Minor refractory groups are at present receiving closer attention.

Mr D.J. McDonald is making good progress on his ecological study of the fynbos and other vegetation of the Langeberg. Field sampling of the first transect through the Boosmansbos Wilderness Area is complete. Analysis of the data is well advanced and three vegetation types have been identified: Wet Fynbos, Mesic-Arid Mountain Fynbos and Afromontane Forest. Soil samples from selected relevés have been analysed and related to the different vegetation types. Sampling of a second transect at Swellendam is well advanced with 41 relevés completed.

Grassland studies

Field sampling of the grassland vegetation of the Amersfoort area of the Eastern Transvaal Highveld has been completed by Miss B.J. Turner. She experienced much difficulty in the data processing and the interpretation of the results to arrive at a practically useful classification. The data have been analysed and several communities have been distinguished. The report on this work is progressing well and is nearing completion.

Mr P.J.J. Breytenbach has made good progress on his study of the vegetation in the Grootvlei area of the south-central Transvaal Highveld. He has nearly completed the field sampling. Preliminary data processing has yielded very promising results. This study is intended to provide a link between the eastern and the western sectors of the Grassland Biome.

Karoo studies

The reconnaissance study of the Karoo and other vegetation in the Graaff-Reinet and Middelburg areas of the eastern Karoo Region has been completed by Mr A.R. Palmer. Eight manuscripts have been prepared for publication dealing with the syntaxonomy, synecology, plant-soil relationships, phytogeography and mapping of vegetation. The syntaxa are classified into five classes, nine orders and seventeen communities. The classes distinguished are Grasslands, Karoo

Shrublands, Karoo Dwarf Shrublands, Subtropical Transitional Thicket and Riparian Thicket. The distribution of syntaxa corresponds to the steep precipitation gradients encountered in the study area.

Mr J.F. van Blerk has commenced a reconnaissance study of the Succulent Karoo vegetation in the Knersvlakte vicinity of the Van Rhynsdorp-Nuwerus area. This is a daunting task still in the early stages of preparation of field work.

Central technical support services

During the year, 583 references from 1987 and 1988 have been encoded and loaded onto ATMS by Miss A.P. Backer. Several literature searches were undertaken for researchers.

Further progress has been made on the ecological data bank by Mrs. W. Jones. There are 45 data sets available on the computer of which 78% of the species names and 49% of the community names are available. The first retrieval program, viz. PHYTO 200, designed to retrieve species associated in a relevé with a particular species, is running successfully. One enquiry from outside South Africa has already been successfully answered with the aid of this program.

EXPERIMENTAL ECOLOGY DIVISION

The objective of experimental ecology is to provide a predictive understanding of processes at the ecophysiological level of the individual as well as at the population, community and ecosystem levels. To provide focus within this wide hierarchical range of systems, the Experimental Ecology Division, under Dr M.C. Rutherford, has concentrated on problem-related research of critical processes of stressed systems. This has concerned specific problems of the more arid, drought-stressed ecosystems, the alien invasive plant-stressed ecosystems as well as the special stresses that develop in the Fynbos Biome through substrate disturbance.

Various levels of active research liaison continue with the Botany Department of the University of Cape Town, with other researchers within the co-operative Fynbos and Karoo Biome Programmes, and with officers of the Winter Rainfall and Karoo Regions of the Department of Agriculture and Water Supply. In this regard, Dr

Rutherford is now co-supervisor of two Ph.D. degree projects and one M.Sc. degree project whereas Mr G.W. Davis is the convenor of the highly successful Working Group on Commercial Wildflower Resources of the Fynbos Biome Project under the auspices of the Foundation for Research Development. This working group is stimulating effective dialogue between conservation managers (chiefly from forestry and nature conservation bodies), biological researchers (from both universities and state institutions) and commercial wildflower producers to promote far-sighted planning for utilization of fynbos veld as a renewable resource.

Fynbos reproductive ecology

Dr C.F. Musil has found that the post-fire reproductive success, measured in terms of seedling/parent ratios, of lowland fynbos species with small seeds growing in sand plain communities infested by alien Acacia saligna was not significantly different to that in surrounding natural vegetation. Indigenous species with large seeds exhibited a significant reduction in post-fire reproductive success in the alien-infested communities. Efficiency of post-fire vegetative reproduction among indigenous species in alien-infested communities was similar to that in surrounding natural vegetation. Season of burn (autumn or spring) had no significant effect on total, indigenous seedling population densities. However, higher densities of sprouters were found after autumn than after spring burns, which may be related to increased mortalities among sprouters during the dry summer period.

Fynbos transformation studies

An experimental plant community at a mountain fynbos study site, which had been subjected to experimental disturbance by tilling, was shown by Mr G.W. Davis and Mr A.P. Flynn to retain altered compositional characteristics for at least three years following disturbance. Relative to an adjacent undisturbed control, it maintained: poorer species richness; a lower index of diversity (Shannon-Wiener index); and a higher index of dominance (Simpson index). Germination in seeds of the dominant shrub species (Leucadendron xanthoconus) was shown to be affected by ambient

conditions known to be altered by tillage. Germination success under controlled environment conditions was inversely related to water stress, depth of seed burial, and an ambient daytime temperature greater or less than an optimum of approximately 15°C.

Ecophysiology in alien invasive plant-stressed ecosystems

Dr Rutherford's and Mr J. de W. Bösenberg's simulation of Acacia cyclops canopy radiation attenuation by replicated field shade units has started to identify shade-sensitive species in the second year of treatment. It appears that the negative reaction of species, such as Anthospermum spathulatum, to A. cyclops might be attributable to light limitation of obligate heliophytic species. However, several other amensalistic species, relative to A. cyclops, have not yet been adversely affected by one-and-a-half years of strongly reduced light levels, and allelopathic tests are consequently being initiated.

In a comparative study of photosynthetic responses of A. cyclops and of an indigenous colonizer of similar habitats, Leucospermum rodolentum, Dr Rutherford, Mr G.F. Midgley and Mr Bösenberg, have related carbon uptake patterns to photosynthetically active radiation, leaf temperature, vapour pressure deficit, stomatal conductance and xylem pressure potentials. Although the two seedling populations had similar light compensation points, at high light intensities L. rodolentum seedlings had much higher photosynthetic rates and were even less light saturated when compared with the seedlings of A. cyclops. These findings are being related to the patterns of establishment of these species in disturbed habitats.

Nutrient and water relations in Karoo

Mr G.F. Midgley has determined that, in an arid region, success of certain deciduous shrubs relative to evergreens may be determined primarily by soil nitrogen status, with soil water availability a secondary factor. This is possibly explained by deciduous forms having a higher nutrient requirement than evergreens. In a field-simulated drought, succulent plant forms were more negatively affected than were non-succulents. These results suggest that rainfall frequency and soil

nutrient status are important determinants of vegetation composition in semi-arid parts of the western Karoo, and that leaf habit and water storage characteristics may determine the distribution and success of perennial plant forms in these areas.

Plant population response ecology in Karoo

Mr L.W. Powrie has been constructing a computer database of important responses to major events in the autecology of karroid plant populations, using both the formal, scientific and the largely untapped informal, undocumented information sectors. To date he has collected data from 21 agricultural workers in the Karoo for creating the database. There are data on some 226 worksheets, from which 61 partial species descriptions have been entered into the computer database. A list of some 1 250 botanical and common names has been compiled from several sources. The unusual rains, floods and large locust outbreaks during 1988, have provided further opportunities for observing responses of Karoo plants.

PLANT EXPLORATION DIVISION

The division, under Mr M.J. Wells continued to concentrate on problem plants and food plants, but the loss of research staff resulted in greater emphasis being placed on the scientific information and garden utilization services.

Conservation of germ plasm

With the field work on Mr T.H. Arnold's investigation of tribal crop plants having been completed, no more seed samples were forthcoming from this source. Seed previously collected was distributed: 10 samples of Vigna unguiculata and six of Voandzeia subterranea to France. Mrs. H. Joffe collected 84 seed and 23 vegetative samples for distribution to local nurseries, in order to encourage cultivation of indigenous plants.

Indigenous food plants

Mr A.A. Balsinhas abstracted information from 60 publications, bringing the references consulted for the national food plants data bank to a total of 284. The newly consulted references contributed information about 2 354 species and resulted in the addition of 96 new names to the list of southern African food plants which now includes 1793 species.

Miss S.E. Chadwick prepared a manuscript on Tylosema esculentum, the 10th of 14 priority food plants of the veld that are being studied. Photographs and diagnostic descriptions are required before these texts are ready for publication. She also prepared the text for a plate in The Flowering Plants of Africa on another plant with edible seeds - Citrullus ecirrhosus.

Primitive crop plants of African origin

Mrs L.D. Jacobs completed the preparation of material resulting from the previous year's field trips. This included 56 tannin tests and 250 colour tests on Sorghum seed, and the completion of 215 data sheets on Pennisetum. She also dissected and prepared slides of spikelets from 61 collections of Sorghum and Pennisetum.

Data was prepared for a paper to be entitled 'A survey of frequency of and preference for primitive crops' in five ethnic regions (KwaZulu, KwaNdebele, Bophuthatswana, Caprivi and Kavango). This will complement a survey, previously completed, on other ethnic regions. In addition maps were prepared of the occurrence (and preference ratings) for all regions of the following crops: Sorghum, Pennisetum, Zea, Citrullus, Cucurbita, Legenaria, Voandzeia, Vigna, Arachis, Phaseolus and Cajanus.

Catalogue of problem plants

More information about listed and additional species was filed by Mr Wells for possible future editions of the catalogue. The existing catalogue, despite its incompleteness, continues to be invaluable in answering queries regarding weeds and invaders.

Plant invaders

A series of 14 radio talks on the introduction of invader plants was prepared and recorded by Mr Wells. Mrs. D.M.C. Fourie also recorded radio talks on our publication 'Declared weeds and invader plants'. Although Miss L. Henderson (of the Plant Protection Research Institute) is no longer on our staff we continue to assist her with her plant invader surveys, where possible, and Mrs. H. Joffe accompanied her on a field trip to the eastern Cape.

Garden utilization

Mrs. H. Joffe continued to increase the level of garden utilization. She made 430 seed collections of which 150 were to meet requests from researchers, 91 were for the herbarium's carpological collection, 82 for the spirit collection, and 23 were channelled back to the nursery for propagative purposes. She also made 380 collections of flowering or vegetative material, of which 57 were to meet requests from local or overseas researchers, 202 were added to the herbarium spirit collection and 42 were channelled back to the nursery for propagative purposes. Eleven collections were made for the artist to figure. Colour slides taken, annotated and filed totalled 450. Some 130 herbarium specimens were made, mainly as vouchers for plants that were photographed or from which seed or other collections were made.

Scientific information services

Mrs. D.M.C. Fourie handled 286 written and 143 telephonic requests for material and information, and dealt with 32 visitors and four groups. She also catalogued and filed 442 articles and letters in our special information files, in preparation for future enquiries.

Among the requests dealt with were advice on new stamp issues and texts for stamps illustrating indigenous plants.

A layman's guide to botanical publications

The draft list was circulated to publishers and to botanical organizations for comment and suggested additions. Response was good

and about 100 references were added, bringing the total to 455. The list can now be finalized and the references classified.

A survey of cultivated plants in South Africa

Ms Susyn Andrews, horticultural botanist from Kew, was assisted in making contacts with local horticulturalists. Her survey, when completed, will be of great assistance in identifying and naming cultivated plants. She has already shown that many names in use in the trade are incorrect or out of date.

History of the Botanical Research Institute

Mrs. Fourie, who has been gathering historical material from Miss M.D. Gunn and others, completed the history of the Institute up until the end of Dr Pole Evans' tenure (1939). A talk entitled 'The early years' was given to staff members and a few invited guests. She has been fortunate in being able to assemble a fascinating photographic record. Work will now begin on the next period, and ultimately the completed work will be published.

Liaison services

In the absence of a liaison officer Mrs. Fourie accepted visits of a few groups that she felt merited special assistance, e.g. black school teachers and overseas conference delegates. Mr Wells also organized visits from delegates to the congress of the South African Association of Botanists. Mrs. Joffe assisted a few garden tours, but many requests for tours of the Institute and garden had to be turned down.

PRETORIA NATIONAL BOTANICAL GARDEN

Under the direction of the curator, Mr D.H. Dry, the garden staff were able to continue with new developments, despite increased garden maintenance needs that resulted from heavy rains. Coping with aggressive weed growth was a particular problem.

A field trip to the northern Transvaal, undertaken by Mr D.S.

Hardy and Mr D.J.F. Strydom added valuable live and herbarium material, as well as seeds to the existing collections. Mr N.F. van Zyl accompanied by Dr D. Lehmler, an American Crinum enthusiast, managed to collect live material of all Namibian Crinum species bar one elusive species. Mrs. K.P. Clarke, the garden records officer, recorded 647 new accessions to the garden, of which about 100 are classified as rare or endangered species.

Messrs Strydom and N.A. Klapwijk sealed three of the four earth dams in the general section of the garden with bentonite clay. The pond in front of the main building was also sealed and the fountain made operative. The area around the entrance gate to the main building was landscaped by using boulders as the main feature. The fountain and the boulder 'koppie' greatly improve the approaches to the building.

In the Coastal Forest Biome near the Silverton gate, two new plant beds were made, while additional plantings were made to other existing beds in the Biome. Mr L.C. Steenkamp, who recently turned 73, and his team of workers paved 480 m of new nature trails.

The old extractor fan and obsolete wet wall of the orchid house were renovated by Messrs Klapwijk and Van Zyl and installed in the smaller ornamental glasshouse where they function very well.

Mr Hardy was sponsored to attend the International Symposium on Bulbous & Cormous Plants, arranged by the American Plant Life Society at the Irvine campus of the University of California. He also delivered eight talks on South African succulents at various venues in the USA.

Mr Van Zyl resigned from the Institute at the end of February 1989: unfortunately staff with experience in our garden seem to be very sought after!

BIOSYSTEMATICS DIVISION

This division, under the direction of Dr O.A. Leistner, has devoted itself largely to the editing and typesetting of the publications of the Institute. Mrs. E. du Plessis assisted with editing The Flowering Plants of Africa and Flora of Southern Africa and undertook most of the translation work for the Institute. Mrs. B.A. Momberg assisted with editing Bothalia and Memoirs of the Botanical Survey of South Africa. An increased amount of typesetting

was done in-house by Mrs. S.S. Brink.

Bothalia

Numbers 1 and 2 of Vol. 18 and the index to Vol. 17 were published.

Flora of southern Africa (FSA)

Vol. 16,3,6 dealing with the 278 species of Aspalathus of the Fabaceae was published.

The Flowering Plants of Africa/Die Blomplante van Afrika

As mentioned in the introduction a new green cover was designed for this journal with a reduced print of one of the plates in the journal on the front. Beginning with volume 50,1 which was published during the year, each volume will consist of 2 numbers with one number containing 20 plates published per year.

Memoirs of the Botanical Survey of South Africa

No. 57, the third edition of John Acocks's classical work Veld types of South Africa was published. Plant names have been updated and minor adjustments and corrections made in the text. The text was set at the Institute. Many new and more relevant photos were chosen to illustrate veld types.

SEMINARS

The seminar committee, under the chairmanship of Dr J.J. Spies organised the following lectures:

1988-05-20

Mr J. van Blerk (BRI): Die verwerking van Acocks se ongepubliseerde velddata met behulp van moderne rekenaarmetodes.

1988-05-26

Dr D.J.B. Killick (BRI): Linnaean typification.

1988-05-26

Mr T. Arnold (BRI): Computerization of curatorial and plant identification functions of the National Herbarium.

1988-08-25

Prof. D. Wiens (Department of Biology, University of Utah, Salt Lake City, Utah 84112, USA): Reproductive failure in plants: a genetic hypothesis for extinction.

1988-09-15

Dr C.L. Calvin (Department of Biology, Portland State University, Portland, OR 97207, USA): A quantitative approach to studying endophytic system development in mistletoes.

1988-11-18

Mrs. H. du Plessis (BRI): Die gebruik van sitogenetika in die taksonomie van Tribolium.

1988 12-01

Mrs. D. Fourie (BRI): The history of the BRI: the early years.

1989-02-17

Dr H. Anderson (BRI): The palaeoflora of South Africa - past, present and future.

VI MEDECOS CONFERENCE AUTUMN 1991, GREECE

'Plant-Animal Interactions in mediterranean-type ecosystems'

Previous MEDECOS Conferences have dealt with topics related with either the primary producers of the mediterranean-type ecosystems - MTE's (such as photosynthesis, primary production and water stress) or with broader ecosystem level processes (such as adaptations towards fire and nutrient relations).

The participants of the Vth MEDECOS Conference at Montpellier (1987), realized that (i) research on animal ecology in MTE's is underdeveloped compared to research in plant ecology, (ii) more emphasis should be given to plant-animal interactions. Issues such as herbivory, pollination, seed dispersal, trophic relations, co-evolution etc, have not been brought to the agenda of the MEDECOS Conferences, or if so, not as extensively and at the same depth as the plant related topics. This fact may reflect the lack of such research but, more likely, the lack of inter-linking among the different starting points in these two trends of research. These considerations have led to the formulation of the subject of the forthcoming VI MEDECOS Conference: 'Plant-animal interactions in mediterranean-type ecosystems', which is to be held in Greece.

The scientific framework of the conference will include research papers and reviews on plant-animal interactions in the terrestrial environment of the mediterranean-type climate at every level of organization (molecular, biochemical, organismic, population, community, ecosystem); it will aim to tackle these problems both as they have naturally evolved and are encountered and as a result of human activities.

Any suggestions on the final shaping of the scientific programme would be most welcome.

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NATURE AND DYNAMICS OF FOREST/SAVANNA BOUNDARIES

Arrangements have been made to hold a Symposium on Nature and Dynamics of Forest/Savanna Boundaries at the University of Glasgow from 4 to 6 January 1990. The Symposium is being organized jointly by the British Biogeography Study Group and the British Ecological Society and it is intended to publish the contributions soon after the meeting.

The organisers, who will also act as editors for the subsequent publication, are Peter Furley (University of Edinburgh), John Proctor (University of Stirling) and James Ratter (Royal Botanic Gardens, Edinburgh).

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