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

BOTANICAL RESEARCH INSTITUTE: The Annual report of the Institute for the period April 1980 to March 1981 follows:-

Progress with the important Flora of Southern Africa project gives cause for satisfaction, in spite of the limited manpower available. Particularly gratifying was the progress with taxonomic research on the mosses, pteridophytes and fossil plants.

As in past years the publication effort of the Institute was substantial — a total of 95 individual publications. Apart from scientific publications, pamphlets on 18 of the most important waterweeds were published in both Afrikaans and English. The National Weeds List comprising some 1 600 species is almost ready for publication.

Two important ecological projects were started, namely a survey of the Transvaal forests and a study of 35 Cape estuaries.

HERBARIUM SERVICES SECTION: The four herbaria of the Institute continued to identify plants and provide information for a wide range of people including officers of the Institute, various State and Provincial Departments, universities and the public both in South Africa and its neighbouring states.

National Herbarium, Pretoria (PRE)

A total of 14 395 specimens was named and 519 visitors dealt with. Accessions to the herbarium numbered 14 357. During the year 41 loans (4 775 specimens) were sent out to other Institutes while 34 loans (2 620 specimens) were received for study. A total of 61 loans (9 027 specimens) was returned to PRE by borrowers. We received 663 specimens on exchange and 6 465 as gifts but did not distribute any duplicates during the year.

Once again due to lack of rain in the western half of the country no major expeditions were undertaken. However, the good late rains localised in the

southern Orange Free State and adjacent northern Cape produced some good collections especially new records for grasses.

Expansions of the herbarium is taking place rapidly. To house the ever-increasing number of specimens 150 of the modular steel cabinets are on order for delivery in mid 1981.

The herbarium's data bank system, PRECIS, which has been partially in operation this year, has proved to be too cumbersome and costly in its operation. The whole matter of herbarium maintenance, data bank operation and information retrieval are being carefully re-examined. A simplified and more manageable data bank system, PRECISELLA, is being planned and hopefully should be in operation by the end of 1981.

Among the numerous visitors who came to consult the collections and staff were the following: Prof. D and Dr U Müller-Doblies (Berlin), Prof. H-D Ihlenfeldt and party (Hamburg), Dr C Puff (Vienna), Dr Juliet Prior (London: Swaziland Archeological Association), Mr P Karis and Miss B Nilsson (Stockholm), Mr L C Leach (Salisbury, Zimbabwe).

Wing A: Mrs van Hoepen continues to control the Wing in a part-time capacity while controlling the information and identification service.

Miss Reid is continuing with a preliminary revision of the genus *Tetraria* (Cyperaceae).

Miss Smook is continuing to co-operate with overseas researchers on a revision of *Vulpia*. The work of the late Dr Auquier of Liege has been taken over by Dr Stace of Leicester. She is also planning under the guidance of Dr Gibbs & Russell, a booklet on the grasses of the Transvaal. She has also begun to make a record of all the common names applied to grasses.

Wing B: Mr Germishuizen should complete his revision of the southern African members of the Polygonaceae by the end of 1981. All the text for the new book on Transvaal Wild Flowers with paintings by Anita Fabian was completed. The book should appear in print by the end of the year.

Mrs du Toit joined the herbarium during the year and is currently working herself into the early families of dicotyledons. She replaced Mr Schrire who had been transferred to Durban.

The herbarium's data bank encoders are housed in this wing. Their work involves the encoding of accessions and the checking of computer entries and

printouts. The spirit collection of 3 050 bottled specimens is also housed in this wing.

Wing C: Miss Retief is continuing her research in the Campanulaceae with a revision of *Lightfootia* and *Wahlenbergia*.

Mr Herman should complete his anatomical investigation of *Pavetta* (Rubiaceae) by the end of 1981. This will assist the research team at the University of Pretoria with its revision of the southern African species. He is also continuing with his investigations in the seed and fruit collection towards a long-term project aimed at an identification guide to the seed and fruit types found in southern Africa. Miss Retief and he are jointly producing a poster paper on this subject for the AETFAT Congress.

Mr Oliver continues to work on the Ericaceae inbetween his administrative duties and is preparing a paper on a reassessment of the subfamily Ericoideae for the AETFAT Congress.

Mr Hildyard is currently doing his 3rd year botany course for his B.Sc. degree at the University of Pretoria.

Wing D: Miss Welman continues as the regional extractor for Exerpta Botanica (Taxonomica) and with various administrative duties.

Mrs Smithies has assisted at various times with literature work for the palaeobotanical section due to her expertise in the subject.

Mrs Kleynhans left the herbarium in January 1981 and was replaced by Mrs W la Grange.

Cryptogams: The establishment of the separate cryptogamic wing in the basement has proved very successful not only for the additional space and facilities but also for the consolidation of the collection in the packeted system in roll-out cardindex cabinets. Repacketing of the whole collection will soon be complete with the last stages of repacketing of lichens taking place. The lichen collections on rocks will be housed in the herbarium cabinets which were redesigned for the fossil collection. These should arrive in mid 1981.

A total of 4 009 moss specimens was sent out on exchange and only 248 specimens were received. Loans sent out consisted of 89 specimens and loans received for study of only 41 specimens.

Dr Magill completed the first fascicle of the volume on Bryophyta for the Flora of Southern Africa. The manuscript includes an introduction on the mosses, a glossary and the text that treats 191 species in 60 genera and 12 families. Research on the second fascicle is well advanced. His goal is to have this fascicle in press by the next annual review. Only preliminary research has so far been undertaken on the families in fascicles 3 and 4. Only provisional identifications are presently done for specimens collected for these groups.

Dr Magill is assisted by Mr van Rooy who is finalising his revision of *Bryum*. He should also obtain his B.Sc. degree through the University of South Africa by the end of 1981.

Mr Brusse has spent most of his time curating the lichen collection. He went on a short field trip to the northern Transvaal and at the end of the period was accompanied by Dr Knox of the University of the Witwatersrand on a month's collecting trip to the drier parts of the south-western Cape. Mr Brusse obtained his M.Sc. degree from the University of the Witwatersrand for his thesis on *Xanthoparmelia*.

Services: Mrs Perold has been operating the Hitachi SEM in the examination of plant material for several taxonomists. She also assists Dr Magill with bryophyte research.

Mrs Radmacher was engaged in the determination and plotting of grid references for some 1 935 species of the Cape flora using records from all the major herbaria. For this purpose Miss Frost and Mr Linder Snr were employed in Cape Town. The distribution patterns will be analyzed by computer for a paper to be presented to the AETFAT Congress by Mr Oliver, Mr Linder Jnr and Dr Rourke of Kirstenbosch. This work is the beginning of a long-term project to record the distribution of all taxa occurring in the Cape floral region.

Natal Herbarium, Durban (NH)

A total of 1 127 specimens was named and 391 visitors dealt with. Among the latter were student and school groups. Accessions to the herbarium numbered 967. Some 1 495 specimens in 8 loans were sent out for study.

Mr Schrire was transferred to the herbarium from Pretoria at the beginning of the period. He and Mrs Pienaar and Mrs Nichols spent much time in updating the herbarium. He also saw to the cleaning up of the rather overgrown garden area. He began investigating the Desmodieae (Fabaceae) for a thesis to be registered at the University of Durban-Westville for an M.Sc. degree.

Mrs Pienaar concentrated on updating and improving the cultivated exotic collections mainly from the fine neighbouring Municipal Botanic Gardens.

Miss Sassen left after 6 years as the clerical assistant and was replaced by Mrs Young.

Albany Museum Herbarium, Grahamstown (GRA)

A total of 1 686 specimens was named and 498 visitors and 2 groups of 64 students dealt with. The accessions to the herbarium numbered 1 184. Some 11 loans of 333 specimens were sent out, 1 964 donations were received.

Mrs Brink continues to run the herbarium and deal with the information service. Dr Amy Jacot-Guillarmod has been appointed in a part-time capacity to assist with curatorial and information matters.

The staff dealt with 40 botanical displays in the Museum during the year and continued to administer the Grahamstown Nature Reserve.

Government Herbarium, Stellenbosch (STE)

The number of specimens named totalled 5 226 with 350 visitors requiring information. Accessions to the herbarium numbered 4 005. In all 13 loans of 425 specimens were sent out to researchers.

Miss L Hugo continues as curatrix of the herbarium which is experiencing considerable pressure for identifications from the increasing ecological activity in the Cape fynbos.

Mrs van Wyk (née Schonken) completed her revisionary work in *Pelargonium* and obtained her M.Sc. degree at the University of Stellenbosch.

Mr Davies left the herbarium at the beginning of 1981 and moved to the University of Cape Town as a research assistant. His place was taken by Mrs Fellingham.

Much of the routine herbarium procedure has been effectively streamlined by Mrs Wikner.

PLANT STRUCTURE AND FUNCTION SECTION: After 18 months of being understaffed this section once again has a full staff complement with the appointment of Mr J Spies as cytogeneticist and the return of Mrs R Botha (née Manders) after secondment to university and the Data Processing Section. In addition

Miss H Botha and Miss A Alberts have been appointed to provide technical assistance in the laboratory.

Comparative grass leaf anatomy: The project has progressed satisfactorily and Mr R Ellis concentrated on the eragrostoid grasses. Successful collecting trips were undertaken to Zululand, the Kalahari and the Kruger National Park where rare grasses such as *Schoenefeldia transiens*, *Lintonia nutans*, *Heterocarpha schiemaniana* and *Alloteropsis papillosa* were found. The anatomy of these and other eragrostoid species indicate that several species and genera in this sub-family appear to be incorrectly classified and several taxonomic adjustments may be necessary to reflect relationships more accurately.

Grass identification by epidermal structure for herbivore food preference studies: Mrs R Botha has initiated this study in an attempt to quantify the diet of grazing herbivores. Factors that affect this quantification will be examined and for this purpose samples of three widespread grass species (*Themeda triandra*, *Brachiaria serrata*, *Eragrostis capensis*) have been collected at different localities in South Africa. Various anatomical epidermal characteristics, as well as possible differences in digestibility, that may be influenced by environmental factors, are being studied.

Cytogenetics: Mr J Spies, whose main interest lies in the cytogenetics of the genus *Sorghum*, recently joined this section. He has recently undertaken a short study to determine whether a correlation exists between the surface area of the stomatal complexes and the chromosome number in *Eragrostis curvula*. The results were interesting in that an increase in chromosome number was found to be positively correlated with an increase in stomatal surface area. These results imply that this method of measuring stomatal areas can be applied to the identification of diploid *E. curvula* plants. These diploids are rare, sexually reproducing plants that may represent ancestral populations and they are essential for any breeding programme that may be contemplated.

FLORA RESEARCH SECTION: The section encompasses taxonomists and palaeobotanists with assistants and artists. Its major task is the production of the Flora of Southern Africa, the Palaeoflora of Southern Africa as well as regional floras.

Flora of Southern Africa: Two works are in press and are expected to appear during 1981. The first of these is an introductory volume written by Miss M D Gunn and Dr L E Codd with the title Botanical Exploration in Southern Africa. It consists of two parts, the first dealing with botanical explora=

tion from early historical times to the middle of the 18th century, while the second part is an encyclopedia of past and present plant collectors who have worked on the subcontinent. The second work in press is a fascicle in the Cryptogam series dealing with the families Sphagnaceae to Grimmiaceae of the mosses written by Dr R E Magill.

Good progress was made in the following volumes by members of staff. Work by other taxonomists submitted to the editor is also mentioned.

Vol. 2: In the course of preparing this volume on the estimated 1 000 species of grasses Dr G E Gibbs Russell is well advanced with a register of names and types of Poaceae. Currently there are about 3 000 names in the register and it is estimated that a further 1 500 will be added. Keys to the species of 11 tribes, including Andropogoneae have been completed and the write-up of the small tribe Meliceae was finished. The genus *Ehrharta* was sorted into taxa.

Vol. 3: For this volume on Cyperaceae Mr T A Arnold and Miss C Reid have continued their studies on the large genus *Ficinia*.

Vol. 4: Mrs A A Mauve put finishing touches to the 42 species of the families Xyridaceae, Eriocaulaceae, Pontederiaceae and Juncaceae. The sculpturing of the seed surface provided taxonomically important characters. Apart from a revision of the genus *Aneilema* in the Commelinaceae work on the second fascicle of this volume is now complete.

Mr H P Linder who is stationed at the Bolus Herbarium of the University of Cape Town has begun work on the family Restionaceae which will form the first fascicle of this volume.

Vol. 5: Liliaceae. The genera *Urginea* and *Drimia* of the tribe Urgineae are being revised by Mrs A A Mauve. In most members of these genera leaves and flowers are produced at different times of the year. Consequently most specimens, including the types, are incomplete. The two genera together will probably account for about 35 species of which about 10 are new. The four species of the genus *Tenicora*, formerly called *Sypharissa*, were written up for *Bothalia* by Mrs A A Mauve who also prepared a short note on some members of the genus *Bulbine*.

Vol. 6: Amaryllidaceae. Mrs A A Mauve worked on some problems in the genus *Cyrtanthus* and described a new species of *Strumaria*.

Vol. 7: Iridaceae. Prof. M P de Vos of the University of Stellenbosch has adapted her revisions of the genera *Romulea* and *Syringodea* to Flora format and has submitted them to the editor. Mrs A A Mauve described a new species

of *Gladiolus*, a genus of which she published a complete Southern African revision some years ago.

Vol. 8: Orchidaceae. Mr H P Linder prepared revisions of several genera including *Disa*, *Herschelia* and *Monadenia* for publication in Contrib. Bolus Herb. and Bothalia. The published revision of *Eulophia* by Dr A V Hall of the Bolus Herbarium is being converted into Flora format.

Vol. 10: Mr G Germishuizen has completed the taxonomy of the 18 species of *Polygonum* in the region.

Vol. 11: Dr H F Glen, the present Liaison Officer of the Royal Botanic Gardens, Kew, has continued his studies of *Ruschia* and *Apatesia* and of the type specimens of other genera of the Mesembryanthemaceae.

Vol. 14: Crassulaceae. Dr H R Tölken, formerly of the BRI, now at Adelaide, South Australia, has made progress in adapting his *Crassula* revision to Flora format.

Vol. 15: A revision of the genus *Rubus* (Rosaceae) by Mr C H Stirton is more than half completed.

Vol. 16: For part 3 of this volume on Fabaceae a revision of *Eriosema* was almost completed for publication in Bothalia by Mr C H Stirton, and 27 species of *Psoralea* were written up and a revision of *Rhynchosia* is well under way. Mr B D Schrire has begun studies in the tribe Desmodieae.

Vol. 18: Revisions of the genera *Kirkia* (Simaroubaceae) and *Triaspis* and *Acridocarpus* of the Malpighiaceae were completed by Miss K Immelman. *Triaspis* was reduced from eight species to two, one with three subspecies.

Vol. 21: Dr I C Verdoorn has prepared *Melhania* and *Dombeya* (Sterculiaceae) for publication in Bothalia.

Vol. 25: Ericaceae: Mr E G H Oliver rounded off a revision of *Philippia* for publication in Bothalia.

Vol. 28: Dr L E Codd described two new species of *Plectranthus*.

Vol. 30: Miss K Immelman has started on a revision of *Justicia* (Acanthaceae).

Vol. 32: Miss E Retief has continued her studies of *Wahlenbergia* and *Lightfootia* (Campanulaceae).

Algae: A catalogue of green, brown and red marine algae completed by

Prof. S C Seagrief of Rhodes University, Grahamstown is being edited for publication as an ancillary volume.

Bryophyta: Dr R E Magill has begun work on fascicle 2 of part 1 of his account of the mosses.

Pteridophyta: Prof. E A Schelpe of the Bolus Herbarium, University of Cape Town, is preparing a volume on the 250 species of ferns and fern-allies found in the region. He has submitted texts of 180 species including some of the larger genera such as *Asplenium*, *Marsilea* and *Cheilanthes*.

Palaeoflora of Southern Africa: Two collecting trips to important localities in the Molteno Formation were undertaken by Drs J M and H M Anderson. One-and-a-half tons of fossiliferous shale were collected and processed. This resulted in nearly 2 000 catalogued slabs which were added to the Institute's Molteno collection which now totals almost 7 000 specimens. These collections led to significant improvements being made in the revision of the genus *Dicroidium* which is being prepared for the Palaeoflora.

The review of genera of megaplants of the Permo-Triassic which is produced under the editorship of Drs J M and H M Anderson has progressed well. Thirty experts from all parts of the world are contributing to this work.

Register of plant taxonomic projects: The register was updated with the aid of a questionnaire sent out in collaboration with the secretariat of AETFAT (l'Association pour l'étude taxonomique de la flore d'Afrique tropicale).

Southern African Plants — waterweeds: In the series Southern African plants, which is published as a continuation of Farming in South Africa, pamphlets on 18 of the most important waterweeds were published in both English and Afrikaans. Two or more colour photos show the plant in its habitat, from close-by and in detail. A distribution map gives South African records. The text consists of a brief, image-creating description in non-technical language. A paragraph on related species contrasts the species to other members of its genus while a section on distribution discusses briefly distribution and dispersal. A short paragraph on ecology is followed by notes on importance, legislation, control and the origin of the name. A list of publications consulted

concludes each brochure. Species dealt with include kariba weed (*Salvinia molesta*), parrots' feather (*Myriophyllum aquaticum*) and water hyacinth (*Eichhornia crassipes*).

Pretoria Flora: Keys and descriptions of 680 species belonging to 49 families were finalized and typed. Among the larger families dealt with were Cyperaceae (92 species), Orchidaceae (42 species), Euphorbiaceae (44 species), Malvaceae (33 species), and Rubiaceae (32 species). Family descriptions were designed to be, as far as possible, image-creating and diagnostic. A key to all tree species, based on vegetative characters, was largely completed. Copies of many keys were distributed inside and outside the Institute for testing.

Ceropegia and related genera: An account of the genera *Ceropegia*, *Riocreuxia* and *Brachystelma* has been completed by Dr R A Dyer. It covers the same ground as Vol. 27, 4 of the Flora of Southern Africa written by the same author. It is, however, fully illustrated, in some cases by colour plates, provides many distribution maps and is written for both the botanist and the amateur.

Liaison Officer, Kew: The current incumbent of the post, Dr H F Glen, continued to provide information services to the BRI and to other institutes and researchers in many parts of the world. His research was mainly directed towards the genera *Ruschia* and *Apatesia* of the Mesembryanthemaceae. Particular emphasis was placed on numerical taxonomy.

21ST INTERNATIONAL HORTICULTURAL CONGRESS: The International Society for Horticultural Science (I.S.H.S.) invites all scientists who are engaged in research into horticultural matters and problems to attend the 21st International Horticultural Congress 1982 in Hamburg.

The congress will cover the following range of horticultural commodities:

Temperate zone fruits incl. small fruits and grapes - Citrus and other evergreen fruits - Tropical horticultural production - Vegetables - Floriculture - Woody ornamentals - Mushrooms and other lower plants - Medicinal and spice plants - Combined commodities.

For each of the listed subject matters and - if desired - additional ones there will be sessions for specific commodities as well as joint sessions dealing with horticultural and ecological problems commonly related to different crops, for example:

Growth and development, e.g. Interactions with environmental conditions; Improving photosynthetic efficiency; Application of growth regulators: timing and techniques; Dormancy and hardiness; Crop regulation, ecological requirements.

Genetics and breeding, e.g. Breeding for low energy requirements; Use of gene resources; Seed production in the tropics.

Propagation, e.g. Tissue culture techniques in horticultural research and production; Production of cuttings, environmental control.

Plant protection, e.g. Integrated pest control; Plant sanitation; Weed control; Ecological implications.

Nutrients and water, e.g. Controlling nutrient and water supply of plants; Analytical procedures as a basis for mineral fertilization; Water and nutrient recycling, ecological implications; Irrigation, leaching, drainage, and salinity.

Soils and substrates, e.g. Soils and soil management, especially in tropical and subtropical horticulture; Soilless culture.

Harvest and postharvest problems, e.g. Mechanical harvesting; Tissue conditioning of stored produce; Innovations in prolonging storage life; Horticultural production for processing.

Production methods, e.g. Plant spacing; Pruning effects; Crop timing.

Horticultural engineering, e.g. Greenhouse design and environment; Horticultural machinery; Climate and climate control; Energy saving and alternative energy.

Pollution and environment, e.g. Effects of pollutants on horticultural plants; Neighbourhood of horticulture and industry; Tolerance of plants to pollutants.

Quality, ingredients, residues, e.g. Quality requirements for produce; Residue breakdown on fruits and vegetables; Herbicide residues in soils.

Economics, e.g. World trade; Market research; Farm planning and management techniques.

Methodology, e.g. Production models; Phytotrons; Biometrics and econometrics; Computer simulations

Localisation, e.g. Climatic and ecological relationships; Horticulture in areas with high population density; Market distance and transportation; Adaptation of crops to marginal environments; Reclamation and revegetation of derelict lands.

Nomenclature and taxonomy

Botanic gardens, e.g. Current developments of concepts; Scientific documentation and public information; Protection of native and introduced species.

Amateur horticulture, e.g. Organizations and their tasks; Interrelations to professional horticulture; Leisure gardens.

School gardens and biological centers, e.g. Function of models for education and therapy; Gardening with native plants; Environmental education.

Communication, teaching, training, e.g. Horticultural job training systems; The interface between science and the horticultural industry.

Pre- and post-congress tours to several other European countries will be arranged. Brief local excursions in and around Hamburg will be offered.

For further information contact:

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21st International Horticultural Congress

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