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

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BOTANICAL RESEARCH INSTITUTE, PRETORIA: This review covers a nine-month period, from 1 July 1979 to 31 March 1980.

The need for botanical research to supply answers to problems in connection with the management, optimal utilization and conservation of the plants and vegetation cover of Southern Africa is becoming more evident as environmental problems increase. For this reason a greater concentration of manpower on taxonomic and ecological research has proved to be necessary. In the ecological field priority areas receiving much attention were the fynbos of the winter rainfall area of the Cape and the coastal aquatic and adjacent terrestrial habitats. The difficult field of rootgrowth research yielded some interesting results but will need a great deal of further effort. More research on ecophysiology and the dynamics of vegetation have become essentials for progress.

The venture by the Institute into palaeobotanical research, even though a new departure, is a natural extension of the series of botanical inventories for different plant groups represented by the Flora of Southern Africa.

A highlight of the year was the declaration of the Pretoria Botanic Garden as a National Monument, an indication that it is recognized as a valuable asset as well as an indispensable part of the research organisation of the Department of Agriculture and Fisheries.

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 neighbouring states.

National Herbarium, Pretoria (PRE): A total of 13 285 specimens was named and 430 visitors dealt with. Accessions to the herbarium numbered 19 377. During the year 37 loans (7 498 specimens) were sent out to other institutes and 18 loans (1 820 specimens) were received. We received 1 055 specimens on exchange, but did not distribute any duplicates during the period.

Due to the lack of rain in the western half of the country, no major expeditions

were undertaken. Several minor collecting trips were made in the eastern Transvaal, northern Natal and eastern Orange Free State. Problems were again experienced with organising a major expedition to Lesotho. This was again cancelled at the last moment.

A reorganisation of the herbarium took place with the establishment of a separate cryptogamic herbarium. The collections were moved to accommodation vacated by workshops in the basement. The establishment of a fossil herbarium in the garages under the Library has been necessitated by the rapidly expanding activities and collections in the palaeobotanical field. Our modular steel cabinets were re-designed internally to accept 40 removable trays to carry the fossil specimens.

Among the numerous visitors who came to consult the collections and staff were the following: Dr Fred Hoener (Lesotho: American Peace Corps), Prof. D. and Dr U. Müller-Doblies (Berlin), Dr Juliet Prior (London: Swaziland Archaeological Association), Mr B.K. Simon (Queensland, Australia), Dr M. Schrieber (Regensburg), Mr R.B. Drummond and Mr L.C. Leach (Salisbury).

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

Miss C. Reid is co-operating with Mr T.H. Arnold in the preparation of a preliminary revision of Ficinia (Cyperaceae), which is required for ecological research in the Fynbos Biome Project.

Miss L. Smook and Dr G.E. Gibbs Russell are continuing with sorting and re-evaluating the data bank records for Poaceae.

A fair amount of expansion was possible in the Wing due to the removal of the cryptogamic collections.

Wing B: Mr G. Germishuizen is nearing completion of his revision of the southern African members of Polygonaceae, which will be submitted as an M.Sc. thesis to the University of Pretoria. He has completed the botanical text for a book on medicinal and edible plants and is currently doing the text for an illustrated book on the Wild Flowers of the Transvaal with paintings by the artist Anita Fabian.

Mr D.A. Davies was transferred to the regional herbarium in Stellenbosch to assist with the herbarium work. His place was taken by Mr B.D. Schrire who has been transferred to Durban.

Wing C: Miss E. Retief is continuing her revision of Campanulaceae. She has been involved with Mr P.P.J. Herman in a survey of the seed samples in the seed collection using the scanning electron microscope. She presented a poster paper on the subject in conjunction with Mr Herman at the S.A.A.B. Congress in Pietermaritzburg in January.

Mr Herman is nearing the end of his work on Pavetta.

Mr C. Hildyard completed successfully his first year courses for his B.Sc. degree at the University of Pretoria.

Wing D: Mr G.J. Goosen left at the beginning of the year to take up a post with Nature Conservation at the Etosha Pan Game Reserve.

Miss W.G. Welman continues as the regional extractor for *Excerpta Botanica* (Taxonomica).

Cryptogams: The establishment of the cryptogamic herbarium in the basement is very welcome. The change-over to the vertical packeting system and the roll-out card index cabinets has been a great improvement in respect to space saving and ease of handling. The repacketing of the mosses and liverworts is now complete.

A total of 2 971 specimens was identified and 3 604 were added to the collection. Only 8 specimens were sent out on loan. Exchanges amounted to 3 038 sent out and 484 received.

Dr R.E. Magill attended the International Bryological Congress in Geneva in September chairing several sessions. Thereafter he visited Paris, Kew and the British Museum in search of types. He recently completed his treatment of 200 species for the Flora.

Mr J. van Rooy is continuing with his revision of Bryum for the Flora. He should obtain his B.Sc. degree at the end of 1980.

Mr F.A. Brusse joined the herbarium in February to work on Lichens. His M.Sc. thesis on Xanthoparmelia has been submitted to the University of the Witwatersrand. He is presently checking the whole collection and supervising its repacketing and reorganisation.

Natal Herbarium, Durban (NH): A total of 1 318 specimens was named and 725 visitors dealt with. Among the latter were student and school groups. Accessions to the herbarium numbered 1 980. Some 1 667 specimens in 5 batches were sent out on loan to various institutes.

Mr P.V.C. du Toit left the herbarium at the end of the period on transfer back to the Pasture Research Section of Natal Region of the Department of Agriculture and Fisheries at Cedara. He joined the staff of the Institute in 1972 and took charge of the Natal Herbarium in 1976.

Mrs B.J. Pienaar returned to the herbarium after a 6 months training period in Pretoria.

Miss A. Wright left in January to continue her studies at University. She was succeeded by Mrs L. Nichols who for a number of years had worked in the Compton Herbarium, Kirstenbosch.

Albany Museum Herbarium, Grahamstown (GRA): A total of 2 012 specimens was named and 522 visitors dealt with. Accessions to the herbarium numbered 1 276. Some 381 specimens in 15 batches were sent out on loan to various institutes.

Among the visitors who came to the herbarium were Prof. D. Müller-Doblies (Berlin), Dr C. Vosa (Oxford). Dr Sylvia Earle (California) and Dr W. Farnham (Portsmouth, England) consulted the Pocock algal collection.

Mrs E. Brink continues to run the herbarium with Miss A.V. Britten, now in a morning post, to assist her. No one has been appointed to the vacant technical assistant post.

A brief training course has been instituted for the African assistants in the local section of the Provincial Department of Nature Conservation. This has been done mainly by Alfred Booï, the herbarium's African assistant, who produced some training manual in the vernacular for the purpose.

Government Herbarium, Stellenbosch (STE): The number of specimens named totalled 3 210 with 178 visitors requiring information. Accessions to the herbarium numbered 1 204. In all 21 loans of 2 672 specimens were sent out.

Mrs M.F. Rand left the herbarium at the end of December for maternity reasons. She started work in the herbarium in January 1965 and much of the credit for the building up of the herbarium to its present state must go to her. She hopes to continue her research on Hypoxidaceae at the Compton Herbarium, Kirstenbosch.

Miss L. Hugo assumed duty as Curator. She will soon begin revisionary work on Tetraria (Cyperaceae). Mr D.A. Davies was transferred down from Pretoria in February to assist with the curating and identification service. Miss M. Schonken began work in the herbarium in March. She is currently completing her research on a group of species in Pelargonium for her M.Sc. degree at the University of Stellenbosch. The increase in staff is as a result of the increasing demands on the identification service made by the Fynbos Ecosystem Project of the CSIR. A quick turnover in technical assistants has taken place during the last few years. The present incumbent Mrs R. Wikner is proving invaluable.

S.W.A. Herbarium, Windhoek (WIND): This herbarium which was a regional herbarium of the Botanical Research Institute from 1954, was eventually transferred to the Administration of S.W.A./Namibia. It is now an independent herbarium in southern

treatments of the family presently being prepared for the Flora Zambesiaca and the Flora of Tropical East Africa.

Vol. 18, 3: This fascicle will comprise Simaroubaceae to Malpighiaceae, a total of 45 species. Prof. J.J.A. van der Walt of Stellenbosch University is adapting his publication on Burseraceae to Flora format and Mr F. White of the Forestry Herbarium, Oxford, will do the same for his publications on Meliaceae and Pteroxylaceae. The other families are being written up by Miss K. Immelman.

Vol. 21: Tiliaceae by Prof. H. Wild is being edited. Most parts of Sterculiaceae prepared by Dr I.C. Verdoorn are being published in Bothalia. The major part of Hermannia has already appeared.

Vol. 28: Dr L.E. Codd has completed most of the work on a fascicle of the Lamiaceae, a family comprising about 250 species.

Brief mention can be made of some volumes on which active research is in progress in the Institute:

Vol. 2: Poaceae (Dr G.E. Gibbs Russell)

Vol. 5: Liliaceae (Mrs A.A. Mauve)

Vol. 10: Polygonaceae (Mr G. Germishuizen)

Vol. 11: Mesembryanthemaceae (Dr H.F. Glen)

Vol. 15: Rosaceae - Rubus (Mr C.H. Stirton)

Vol. 16: Fabaceae - Eriosema (Mr C.H. Stirton)

Vol. 25: Ericaceae (Mr E.G.H. Oliver)

Palaeoflora of Southern Africa: A revision of the genus Dicroidium (extinct seed ferns) comprising some 20 species is being prepared as Volume 1 of the Palaeoflora series by Drs John and Heidi Anderson. Material was largely derived from 45 localities spread throughout the Molteno Formation. The 50 mosaic photographic plates illustrating the reference populations have been prepared and the text is two-thirds completed.

A Palaeobotanical Herbarium has been established at the Institute and the fossil collections are now housed in 20 specially designed cabinets. The collection has been recatalogued with the prefix PRE/F and comprises some 5 000 specimens to date.

Register of plant taxonomic projects: A new edition of this register, listing more than 300 current projects on African plants, was completed and distributed world-wide in microfiche form.

Botanical collectors in Southern Africa: The initial write-up of this work, which is being written by Miss M.D. Gunn and Dr L.E. Codd, is complete. Part 2 of the work (Dictionary of Botanical Collectors) is being set up for the publisher on an IBM compositor. The text of Part 1 (Historical introduction) is being revised in places.

Southern African Plants: Brochures on 20 of the most important water plants are in press. Proofs of the text have been read and publication of all brochures is expected before the end of 1980.

Pretoria Flora: Texts of 195 species (including the family Fabaceae) were typed. Material of a further 120 species is ready for typing. Texts of 291 species were re-written and are almost ready for typing. Five artists and twelve researchers of the Institute have contributed to the work.

Liaison officer, Kew: The former incumbent, Mr C.H. Stirton, continued with research on the taxonomy of Rubus, Lantana and various genera of Fabaceae. In addition, he checked on the nomenclature of the species to be included in the National Weed List and dealt with numerous queries from the Institute and from universities and other institutions, both in the R.S.A. and overseas. He has since been succeeded by Dr H.F. Glen.

PLANT STRUCTURE AND FUNCTION SECTION: Until recently the disciplines of plant anatomy and cytogenetics were the responsibility of the Flora Research Section. These functions have now been accorded sectional status and, together with the envisaged development of plant physiological studies and facilities at the Botanical Research Institute, should form the basis of expanding applied taxonomic and biosystematic studies.

Plant Anatomy: The grass leaf anatomy project, the main project being undertaken by Mr R.P. Ellis, continued to yield interesting results in the genus Merxmullera (= Danthonia) where the comparative anatomy of the summer rainfall species has been completed. These studies have clearly shown that in the Drakensberg region there has been extensive diversification of this genus with the basic M. stricta and M. disticha lines showing parallel anatomical and ecological adaptations to the various habitats inhabited by these species in this area. From the results of this study it appears as if several taxonomic adjustments are needed to the current classification of these Merxmullera species.

During 1979 Miss Riana Manders was seconded to the University of Pretoria where she was awarded her B.Sc. Hons. degree. After relieving in the Data Processing Section for six months she will concentrate on the applied aspects of grass leaf anatomy, particularly dietary studies in grazing herbivores using histological analysis.

Cytogenetics: The major research conducted during the review period has been undertaken by Mrs Wilma Gaum of the Plant Exploration Section as part of the weed research programme of the Institute. Her cytogenetical studies have been concentrated on Lantana camara and the genus Rubus and form part of detailed

bio-systematic studies being co-ordinated by Mr C.H. Stirton. Results have confirmed that Rubus forms a polyploid series with the basic chromosome number of  $x = 7$ . The diploid species exhibit normal meiotic chromosome behaviour which indicates that they are completely fertile - a fact confirmed by embryo sac analysis. Many of the polyploids, on the other hand, display relatively abnormal meiosis.

The cytogenetical aspects of the cytotaxonomic study of the Eragrostis curvula complex have been completed. Seed of all the specimens examined cytogenetically in this project has been lodged with the Seed Bank of the Plant Protection Research Institute. This project has been written up in the form of a thesis for which Mr T.B. Vorster has been awarded his D.Sc. degree.

ROYAL HORTICULTURAL SOCIETY'S MEDAL: The Botanical Research Institute, Pretoria sent an exhibit of 29 watercolour paintings to the Royal Horticultural Society Show in London on 18th and 19th November 1980.

The title was 'Succulents of Southern Africa', which included species of Aloe, Euphorbia, Crassula, Dinteranthus, Stapelia and Adromischus. The paintings were executed for the journal 'Flowering Plants of Africa'.

There were several artists represented, namely, Cythna Letty, Rhona Collett, Marguerite Scott, Rita Weber, D. Ward-Hillhorst, H. March and A. van der Merwe and the two present botanical artists, Rosemary Holcroft and Claire Smith.

The paintings were mounted, labelled and hung in two rows. The exhibit was awarded a Gold Medal for exhibits of special excellence.

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