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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 survey of the activities of the Institute is continued with accounts of the Botanical Survey and Economic Botany Sections (see July, 1973).

Botanical Survey Section:

Dr. D. Edwards who is now Assistant Director, is still in charge of this Section. Mr. J.W. Morris has been nominated to succeed him. In addition to coming with administrative and counselling activities within the Section, he was leader of the South African component of the South African-Botswana international team asked to report on the problems of aquatic weeds in the Chobi-Linyanti Rivers and swamps of Botswana and eastern Caprivi. Following on the preparation of the IBP/CT report of the general conservation status of South African veld types, he has prepared a report with the assistance of Mr. H.R. Tölken and various colleagues on the conservation of the Richtersveld, an area where conservation efforts are badly needed. As a principal investigator on the ERTS Programme, he has been actively involved in interpreting satellite photographs, particularly of the Tugela Basin.

Mr. J.P.H. Acocks is continuing with his revision of "Veld Types" and it is hoped that sections of this work will be published separately in the Memoirs of the Botanical Survey of South Africa series. Meanwhile, the original work with the names updated is being reprinted.

Mnr. O.J.H. Bosch het onlangs by die Botaniese Opname Seksie begin werk. Hy is vir twee jaar vanaf Glen, O.V.S.-streek, gesekondeer om die statistiese verwerking van ekologiese data wat hy in die *Themeda-Cymbopogon*-veldtipe van die

Bo-Oranjerivier opvanggebied (Zastron- en Wepener-distrikte) ingesamel het, af te handel. Die hoofdoelstelling van sy navorsing is om deur middel van plant-habitatverwantskapstudies, 'n direkte basis te verskaf vir ekstrapolasie en om daardeur die toepasbaarheid van weidingsnavorsingsresultate op plaasvlak, op 'n wetenskaplike grondslag moontlik te maak. Sy navorsingsprojek is dan ook sodanig beplan dat dit die basis vorm van 'n weidingsprojek van die O.V.S.-Landboustreek, waarin norme vir weiveldpotensiaal bepaal word.

Mr. B.C. Coetsee. A phytosociological study of the Jack Scott Nature Reserve, situated in Acocks' Bankenveld near Krugersdorp, has recently been completed by Mr. Coetsee. Normal association analysis was used to classify quadrats. Species were classified following the Braun-Blanquet Method and association analysis and groups were re-arranged according to their affinities as determined by the Braun-Blanquet approach. In this way recognizable species combinations for stands that are typical of classes were found. The Braun-Blanquet approach served in a non-statistical manner, the purpose of inverse and nodal analysis, which were originally designed to supplement normal analysis. A semi-detailed scale survey of the Rietvallei Nature Reserve on the Magaliesberg near Rustenburg is in progress. The data will be synthesized by the Braun-Blanquet Method, but is being collected so as to be available for statistical methods of synthesis as well. A project aimed at producing a reconnaissance map of the Northern and North Western Transvaal Bushveld at a 1 : 500 000 scale, is being planned as an extension of the Rietvallei work.

Mr. N.G. Jarman is occupied with writing up a survey carried out in the South-Eastern Orange Free State districts of Ficksburg and Clocolan. This was in the nature of a technique study, assessing the applicability of colour aerial photographs to vegetation analysis in a predominantly grassland area and comparing them with black and white and monochrome prints of differing scales. It involved ground control test areas and check areas, measuring basal cover and dominant species by means of the Tidmarsh wheel, and subsequent extrapolation. There appears to have been a measure of success in linking specific colours to specific dominant species, but this will have to be confirmed by extrapolation and subsequent checking. He is convinced that aerial photography in general and colour aerial photography in particular is an extremely useful tool in vegetation surveys, particularly in a country where so much

basic survey work still has to be carried out. He is also involved in aerial photography of another type, namely, the ERTS-1 satellite programme, and has been examining 'positives' on a Mini-addcol additive viewer in conjunction with field checking of 'boundaries' seen on the satellite imagery.

Mr. J.W. Morris has recently returned from an extended overseas tour (see separate report). He has applied the Ecological Profiles technique to quadrat data collected at Lichtenburg in the Western Transvaal and hopes to use other French synthesis methods on the same data matrices. The current endeavour is part of the Highveld Ecological survey. The Lichtenburg and Maquassie key areas, which have been surveyed already, will be the basis for extrapolation into the Western Transvaal region.

Mr. J.C. Scheepers is currently engaged on an ecological survey of the Central and Eastern Highveld Region. The association-analysis classifications of the Central (Kroonstad) and Southeastern (Bethlehem) Subregions appear to dovetail accordantly in the vicinity of the 1 500 m contour. The Northeastern Subregion (Grootvlei key area) remains to be surveyed and the applicability of the resultant classification and its relationship to the veld classifications of the Kroonstad and Bethlehem key areas remains to be assessed.

Dr. M.J.A. Werger. The valley of the Upper Orange River from the South African/Lesotho border down to the Orange-Vaal confluence has been surveyed by Dr. Werger using the Braun-Blanquet method. He found that the method proved to be efficient both in respect of effort expended and results obtained by the survey. A considerable number of associations and other syntaxa were described by him and their habitat characteristics discussed. Based on the results of this Upper Orange River survey and several smaller surveys in other parts of the country, in which the Braun-Blanquet method was also used, he concludes that this method leads to good results at a detailed and semi-detailed scale in regard to classification of the various types of vegetation in South Africa. He, therefore, considers that more surveys should be undertaken using this method in order to provide a useful general hierarchical classification of South African vegetation. Dr. Werger returns to Holland towards the end of the year.

Mr. H.C. Taylor has completed preparing his thesis, "A vegetation survey of the Cape of Good Hope Nature Reserve" (1969) for publication as a Botanical Survey Memoir and is in the final stages of editing a check list as part of the publication.

He is continuing with IBP/CT surveys of nature reserves, having recently completed reports on Ebb and Flow Nature Reserve near Wilderness and the Bontebok National Park near Swellendam. He has drawn up proposals for a reconnaissance survey of the mountain fynbos of the Winter Rainfall Region and is gathering background data for this much-needed project.

Mr. C. Boucher has recently completed his M.Sc. project titled "The vegetation of the Cape Hangklip area". He is at present completing a survey of the vegetation of the $\frac{1}{4}$ degree square map Simonstown 3418 BD and the remaining part of the Kogelberg State Forest. Growth and phenological measurements of *Orothamnus zeyheri* are continuing for the study of the regenerative capacity of this species.

Mr. C.F. Musil. Ecophysiological studies are presently being conducted on *Eichhornia crassipes* with special reference to those factors enhancing the rate of vegetative growth and offset production. The growth curve characteristics morphological response and chemical uptake of individual plants of *Eichhornia crassipes* are being investigated in response to temperature, pH, but primarily various nutrient conditions i.e. NO_3 , PO_4 , SO_4 , K, Ca and Mg. Plants are being investigated both under standard laboratory conditions of nutrient, temperature and photoperiod and under field conditions.

Report on overseas tour: Mr. J.W. Morris recently returned to Pretoria after an 18-month tour of Britain, France, Holland and North America which was sponsored by the Department of Agricultural Technical Services.

The two main aims of the tour were to study the latest advances in ecological survey technique (principally in Britain and France) and to study the use of computers in biology and in herbaria and botanic gardens in particular.

Most of the latter studies were to be done in the United States.

At Merlewood Research Station where he started his tour, he learnt to put multivariate techniques like principal components and canonical variates analyses to

better use. In addition, he learnt to use the technique called trend surface analysis which promises to be of great use to the Botanical Survey Section. Computer programmes for a number of techniques were collected and some are already operational on the Departmental computer.

At Southampton, after spending a month in Cambridge studying the key-generating programme of Mr. R. Pankhurst and the computerised information system being developed by Dr. J.L. Cutbill, some novel methods for classifying vegetation were investigated. Although they have been found to give a 'better' classification their application in South Africa will be limited by the excessive computer time required for their execution.

His visit to France was most profitable in that he was able to obtain details of the Ecological Groups method, amongst others. The computer programme is already operational in Pretoria and prospective users should contact Mr. Morris. It has already been used on data from Lichtenburg and will be applied to data from the Orange River Valley shortly. He considers that the technique has a very promising future in South Africa.

Mr. Morris found that herbarium data processing is well established in America. Prof. T.J. Crovello has probably achieved most in this field although he stands by no means alone. In addition to established projects such as that of Flora North America, new ones are being started as, for example, by the New York Botanic Garden. In other botanical fields like ecology, arboreta and botanic gardens, he found the computer being used routinely for data capture, storage and retrieval.

Economic Botany Section:

Nasella survey (Mr. M.J. Wells). A year ago a survey of the present and potential distribution of *Nasella trichotoma* in South Africa was undertaken. The field work and collection of literature for this survey has now been completed and a report will be submitted within the next few months to the Department of Agricultural Technical Services. During the survey, use was made of a S.A.A.F. helicopter.

N. trichotoma or "*Nassella* tussock", is a native of Argentina, that has spread

to Australia and New Zealand, where its control costs the equivalent of millions of rand annually. It is a valueless tussock grass that invades high rainfall, high production grasslands, eventually taking them over completely and rendering them valueless. *Nassella* differs from native tussock grasses such as *Danthonia* and *Festuca* in that, once established, it is not susceptible to good pasture management measures.

The great danger of *Nassella* lies in its propagation potential: each tussock may produce up to 100 000 seeds annually, with a viability of \pm 20 years. Whole seed heads break off and are wind blown for up to 20 miles (or more). At present *Nassella* is causing concern in the Somerset East, Hogsback and Barkly East areas of South Africa, and a number of new localities have been discovered recently.

Gifplante (Mnr. J. Vahrmeijer). Goede vordering word gemaak met die opstel van 'n boek oor die identifikasie van gifplante. Ongeveer 70 bekende gifplante wat vergiftiging veroorsaak word behandel. Kleurfotos van al die plante is reeds geneem en die plantkundige beskrywings feitlik afgehandel. Daar word beoog om die manuskrip teen die einde van die jaar persklaar te kry.

Ondersoeke na die oorsaak van onbekende vergiftigings onder vee word in samewerking met die toksikologiese afdeling van Onderstepoort onderneem. Uitstekende vordering is gemaak met die sg. "Maldronksiekte" in Noordwes-Transvaal, terwyl die verkleuring van skaap- en beeskarkasse in die oostelike Kaap-provinsie nog sterk onder die soeklig is.

Oorlewingsstudies (Mnr. J. Vahrmeijer). Navorsing en aktiwiteite met betrekking tot oorlewing in die veld, neem al hoe groter afmetings aan. Lesings word opgestel en praktiese oorlewingsoefeninge word saam met eenhede van die weermag onderneem.

Survey of *Opuntia* species in South Africa. Work on this project is continuing in collaboration with the Plant Protection Research Institute.

Kankernavorsingsprojek (Mnr. J.F. van Graan). 'n Projek wat deur die Verenigde State van Amerika gefinansieer word, waar plante vir kankerwerende en ander

medisinale eienskappe getoets word, is op 'n wêreldwye basis aangepak. Die Navorsingsinstituut vir Plantkunde is verantwoordelik vir die versameling van plantmonsters vir die navorsingsprojek in die Republiek van Suid-Afrika en Suidwes-Afrika. 'n Groot aantal monsters is alreeds versamel deur mnr. Van Graan en kol. R.D.A. Bayliss en na die V.S.A. vir ontleding gestuur. Goeie resultate, wat kankerwerende eienskappe betref, is alreeds behaal en her-versameling in groot maat van sommige plante is alreeds deur die navorsers in die V.S.A. aangevra.

HUNT INSTITUTE FOR BOTANICAL DOCUMENTATION (Carnegie-Mellon University, Pittsburgh, Pennsylvania): Many scientists disparage the significance of their own work to the history of their science. They mistakenly believe that their correspondence, unpublished research notes, and other personal records are of little value to the history of their discipline and the history of science in general. To the present and future historian of botany and of science, letters, field notes, manuscripts, and journals can be of enormous importance, both in chronicling the development of an aspect of botany and in reconstructing the life of a scientist, the activities of his colleagues, the institutions with which they were associated, and the social and intellectual milieu which both shaped and reflected their work.

This notice is an appeal to individuals working in the plant sciences to preserve such archival materials and ultimately to insure their deposit in some appropriate repository. The Hunt Institute for Botanical Documentation serves as such an archives and welcomes inquiries from individuals in the plant sciences whose papers might contain material of historical value.

The archives of the Hunt Institute are open to all researchers and are particularly used by those interested in botanical biography and bibliography, the history of the science, and handwriting identification. Because of the scope of the archival collections and the wide activities of their subjects, there is also much material which could be used by nonbotanical researchers. Topics which have been or could be investigated include travel and exploration in various areas from the 1700s to the present, education in the nineteenth-century United States, United States government-sponsored scientific expedi-

tions, early medicine, social commentary, the sociology of science, and the diffusion of knowledge.

The biographical collection currently provides more than 100 000 citations to published and unpublished accounts of botanists, horticulturists, and botanical artists; about 10 000 of the accounts cited are in the institute's collection. The iconographical collection holds the portraits of more than 11 000 such persons. The manuscripts collection contains more than 2 000 letters by 900 botanists, horticulturists, and naturalists, mainly of the eighteenth and nineteenth centuries, as well as approximately 180 collections of personal and professional papers of eighteenth-, nineteenth-, and twentieth-century plant scientists of various nationalities. Included in this last category are letters, manuscripts, notes, lectures, and other papers of the French botanist Michel Adanson (1727-1806), author of Familles des Plantes, and a volume of botanical letters received between 1797 and 1828 by the German botanist Franz Carl Mertens (1764-1831), written by 155 different contemporary botanists of Europe and America. Among the holdings of more recent origin are research notes used in preparation for books, including Herbals: Their Origin and Evolution, by the British morphologist, botanical historian, and philosopher Agnes Arber (1879-1960), as well as some of her correspondence, and papers documenting the lives and work of plant explorers William Andrew Archer (1894-1973) and Joseph F. Rock (1884-1962) as well as the early life of mycologist and plant physiologist Benjamin M. Duggar (1872-1956), whose later research resulted in the isolation of aureomycin. In addition, the archives include photocopies of relevant material at a number of European repositories and a series of oral history interviews with botanists.

The institute also has a library of over 19 000 titles, with major strength in works published between 1550 and 1850; conducts extensive bibliographical research on works published in botany and horticulture between 1730 and 1840; has more than 16 000 botanical prints and paintings, which are used for exhibits here and elsewhere; maintains a bindery for the conservation and restoration of books and manuscripts; undertakes publication of a facsimile series and monograph series; and has recently opened its collection of Linnaena, consisting of all books and papers written and published by the

famous Swedish naturalist and physician Carl Linnaeus (1707-1778) in every known edition and translation, and the largest known assemblage of books and material concerning him. (Abby Levine, Archivist, Hunt Institute for Botanical Documentation).

SURVEY OF ECOLOGISTS IN SOUTH AFRICA: Another survey of ecologists (see Forum Botanicum, Jan. 1970) is being planned for later this year. All botanists who wish to be included, should write to the Director of the Botanical Research Institute, Private Bag X101, Pretoria, (attention Mr. J.W. Morris) giving full name, title, address, principal interests and secondary interests in the ecological field as soon as possible.

MRS. ETHEL PEARSON died on 24th September in Cambridge, England, at the age of 98. She was the widow of Prof. Harold Pearson F.R.S., founder and first director of the National Botanic Gardens, Kirstenbosch. She married him just before he left Cambridge in 1903 to take up the post of Harry Bolus Professor of Botany at the South African College (later University of Cape Town). Pearson died in 1916 at the age of 46.

INTERNATIONAL BIOLOGICAL PROGRAMME, PRODUCTION PROCESSES (IBP-PP): The final synthesis meeting on nitrogen fixation organised by the IBP-PP Section was held in Edinburgh at the end of September.

Prof. N. Grobbelaar, head of the Department of Plant Physiology and Biochemistry, Pretoria University, who was chairman of the South African IBP-PP and Dr. B.C. Strydom of the Horticultural Research Institute at Roodeplaat, Pretoria, both attended the meeting and presented papers.

RHODES UNIVERSITY: A brief course in the "Identification of Higher Plants (ferns to flowering plants)" was given in the Herbarium of the Botany Department from 17-20th September by the Curator, Dr. Amy Jacot-Guillarmod. The course was fully subscribed a month beforehand and proved very popular.

VACANCY, NATIONAL BOTANIC GARDENS: Professional Officer, Compton Herbarium, Kirstenbosch. This post is primarily intended for graduates interested in taxonomy.

Minimum qualifications: B.Sc. with Botany as a major subject.

Salary Scale: R2 700 x 150 - 4 200/4 200 x 150 - 4 800 x 300 - 5 400.

At whatever notch the appointment is made, a 15% pensionable allowance must be added.

A detailed memorandum setting out conditions of service, details of duties, leave privileges etc. is obtainable from the Director, National Botanic Gardens of S.A., Kirstenbosch, P.O. Newlands, C.P., to whom applications should be directed.

Closing date for applications: November 26, 1973.

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