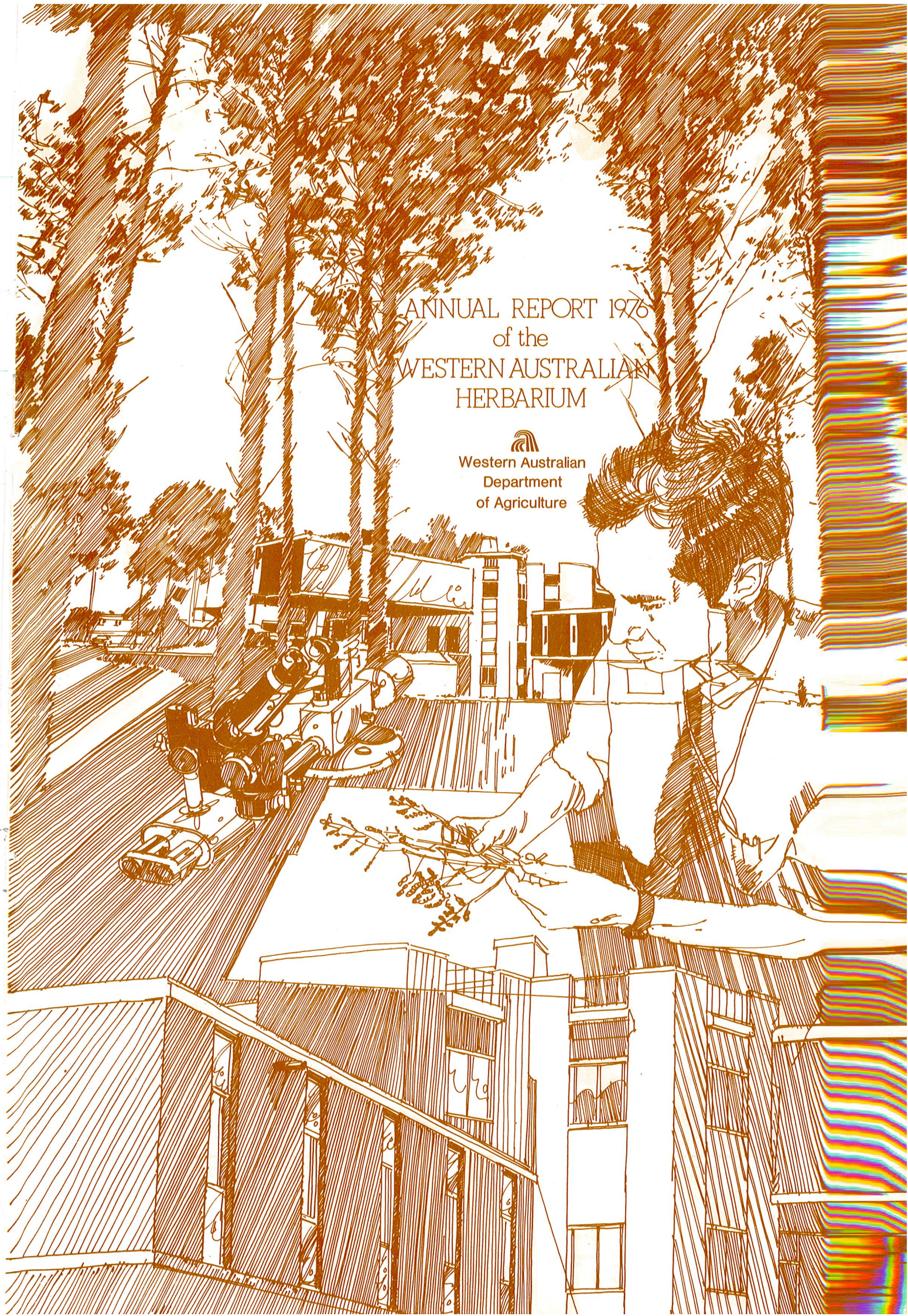
ANNUAL REPORT 1976
of the
WESTERN AUSTRALIAN HERBARIUM



Western Australian
Department
of Agriculture

COVER

The Western Australian Herbarium is recognised as being one of the most up-to-date in the world. It houses, under ideal conditions, botanical resource material used in taxonomic and ecological studies on the flora and vegetation of Western Australia.

The cover design, by Department of Agriculture graphic designer Keith Burton, illustrates the Western Australian Herbarium opened in March, 1970.

CONTENTS

SUMMARY

The Western Australian Herbarium has continued to conduct taxonomic and ecological research, develop its plant collections and give botanical advice on request.

Staff members published five research papers and 11 technical bulletins, working papers and reports. A large number of visiting botanists used the Herbarium for research purposes, and several accompanied staff members on field expeditions. Staff were active on scientific committees of international, national and local bodies. A series of six seminars was arranged at the Herbarium while four seminars were presented elsewhere by staff members. Research topics were principally taxonomic, biosystematic and ecological. Noteworthy was a major revision of the genus *Maireana* (Chenopodiaceae) by P. G. Wilson.

Some 10 000 pressed specimens were added to the collection of higher plants. The total size of the collection is now estimated as 200 000, of which some 20 per cent are as yet to be mounted.

Considerable progress has been made in building up collections of lower plants, principally algae, mosses, liverworts and lichens, partly as a result of voluntary curatorial assistance. Field expeditions to the far north yielded valuable material, including 32 species and six genera of higher plants new to the State. The eminent fern taxonomist Dr. R. E. Holttum, on a visit to Perth, identified among the collections eight fern species previously unrecorded for the State.

Requests for botanical advice increased considerably during 1975/76 because of an increasing public interest in environmental matters affecting the native flora and an extraordinary upsurge in drug cases. In partial compensation, a streamlining of the identification procedures reduced the workload in that area.

A new organisational structure within the Herbarium included the establishment of an advisory Botany Council with subcommittees on research, buildings and grounds. Informal work units were established with particular areas of responsibility. The new arrangement facilitated discussion and the interchange of information on scientific, technical, financial and administrative matters.

The following staff vacancies were filled during the year: Curator, Dr. J. W. Green; Ecologist, Dr. R. J. Hnatiuk; Laboratory Attendant, Mrs. J. W. Lee-Frampton. No additional staff positions were allocated.

Dr. J. W. Green (left), Curator of the Herbarium, and Dr. N. G. Marchant examine *Eucalyptus macrocarpa*, a member of the Myrtaceae, grown in the Herbarium grounds. Both have research interests in this plant family.

Mr. P. G. Wilson measures the height of a plant of *Tecticornia arborea*, a member of the Chenopodiaceae. Mr. Wilson is currently studying this plant family. *T. arborea* is unique in being the only plant known to have been cultivated by the Australian aborigine.

Mr. B. R. Maslin examines seedlings of *Acacia* for part of his studies on this genus. Mr. Maslin is Australian botanical liaison officer designate, Royal Botanic Gardens, Kew, for 1977-78. (Photo W.A. Newspapers Ltd.)

RESEARCH

An important function of the Western Australian Herbarium is to conduct research, and to collaborate in research on taxonomic, ecological and environmental aspects of the flora and vegetation of Western Australia.

OBJECTIVES

- To conduct fundamental research on the flora and vegetation of Western Australia, leading to the production of revisional treatments, keys, handbooks and manuals for use by botanists and the public.
- To develop and curate collections of botanical resource materials for the above and other scientific purposes.
- To develop a comprehensive botanical information centre, within the general area of the flora and vegetation of Western Australia.

FUNDAMENTAL STUDIES

Research continued principally in the fields of classical taxonomy and biosystematics. Several new projects were begun (marked with an asterisk below) and some involved joint studies with botanists and scientists in other disciplines, both within Australia and in other countries.

Research findings of particular interest included the discovery of a bizarre new genus of Restionaceae, named *Alexgeorgea* by Dr. Sherwin Carlquist of California, and the transfer by P. G. Wilson of all of the Australian species of *Kochia* to *Maireana*.

Taxonomic studies

Acacia (Mimosaceae), B. R. Maslin, D. J. E. Whibley (South Australia) and M. D. Tindale (New South Wales); *Arthrocnemum* (Chenopodiaceae), P. G. Wilson; **Baeckea* (Myrtaceae), M. E. Trudgen and P. G. Wilson; *Banksia* (Proteaceae), A. S. George; *Darwinia* and *Chamelaucium* (Myrtaceae), N. G. Marchant and G. J. Keighery (Kings Park and Botanic Garden); *Drosera* (Droseraceae) and *Xyris* (Xyridaceae), N. G. Marchant; *Logania* and *Mitrasacme* (Loganiaceae), G. Perry; Pittosporaceae, E. M. Bennett (associate part-time worker); **Setaria* (Poaceae), T. E. H. Aplin; *Stylidium* (Stylidiaceae) and *Halgania* (Boraginaceae), K. F. Kenneally; **Thryptomene* and *Micromyrtus* (Myrtaceae), J. W. Green.

Floristic studies

Kimberley Region

Drysdale River National Park, A. S. George and K. F. Kenneally. Biological survey in conjunction with Department of Fisheries and Wildlife.

Mitchell Plateau, K. F. Kenneally and R. J. Hnatiuk. Botanical survey.

Check list of plant species, A. S. George and K. F. Kenneally.

Desert Region

Check list of plant species, A. S. George.

Perth Metropolitan Region

Check list of plant species, N. G. Marchant.

Dirk Hartog Island

Check list of plant species and vegetation description, A. S. George.

Biosystematic studies

Acacia (Mimosaceae), B. R. Maslin and Ph. Guinet (Montpellier), palynology; B. R. Maslin and J. Vassal (Toulouse), seed and seedling morphology; B. R. Maslin and D. M. Anderson (Edinburgh) chemistry of Acacia gum.

Darwinia and *Chamelaucium* (Myrtaceae), N. G. Marchant and G. J. Keighery (Kings Park and Botanic Garden), cytotaxonomy.

Drosera (Droseraceae) and *Xyris* (Xyridaceae), N. G. Marchant, cytotaxonomy.

**Thryptomene* and *Micromyrtus* (Myrtaceae), J. W. Green and P. M. Jeffrey (University of Western Australia), chemotaxonomic study.

Ecological studies

**Sandplains*

A study of the vegetation of Western Australia, with particular attention directed to the sandplain communities, R. J. Hnatiuk.

Aquatic plants

The compilation of a check list of the aquatic plants of Western Australia and the collection of ecological data on aquatic plants, N. G. Marchant.

**Rehabilitation studies*

An environmental study on the regeneration of vegetation after mineral sand mining, R. J. Hnatiuk, in association with natural resources consultants.

Wongan Hills

A study of the flora of the Wongan Hills, an area of remnant wheatbelt vegetation, K. F. Kenneally.

Cephalotus

A study of the flora of a *Cephalotus* swamp, Mt. Barker, K. F. Kenneally.

Economic botany

Check list of the naturalized flora of Western Australia, and collection of data on the ecological and economic aspects of alien plant species, T. E. H. Aplin and G. Perry.

EXPEDITIONS AND COLLECTING TRIPS

Drysdale River National Park, A. S. George and K. F. Kenneally.

Mitchell Plateau, K. F. Kenneally, R. J. Hnatiuk and B. C. Haberley.

Dorre Island, Shark Bay, K. F. Kenneally, B. C. Haberley and R. Prince (Department of Fisheries and Wildlife).

Fitzroy River, R. J. Hnatiuk.

Augusta-Albany; Wongan Hills; Ravensthorpe-Bonnie Rock; Albany-Ravensthorpe; Brookton-Wongan Hills; Coorow-Merredin; Bruce Rock-Quairading (with Norman Hall); Kangaroo Island (South Australia), B. R. Maslin (*Acacia*).

Dandaragan, T. E. H. Aplin (*Gastrolobium*).

Paynes Find-Wiluna, T. E. H. Aplin (Poaceae).

Augusta-Albany-Stirling Range, A. S. George and D. F. Blaxell (National Herbarium of New South Wales) (Orchid collecting trip).

Northern areas of south-western Australia; southern areas of south-western Australia, A. S. George and D. J. McGillivray (National Herbarium of New South Wales). (*Grevillea*).

Lake King to Hyden; Jurien Bay, G. Perry (*Logania*).

Great Victoria desert and northern Nullarbor, N. G. Marchant, B. C. Haberley and G. J. Keighery (Kings Park and Botanic Garden). (Phytogeographical survey and collecting trip).

Barrow Island, N. G. Marchant and A. Hopkins (Department of Fisheries and Wildlife) (Vegetation studies).

Perth environs, N. G. Marchant (*Drosera*).

Tasmania (49th ANZAAS Congress); Eneabba; Albany, A. S. George (*Banksia*).

Ravensthorpe-Albany, J. W. Green (*Thryptomene-Micromyrtus*).

Wongan Hills, K. F. Kenneally (Floristics Survey and *Halgania*).

Mt. Barker, K. F. Kenneally (Floristic Survey of a *Cephalotus* swamp).

Wongan Hills; South Stirlings, P. G. Wilson (*Arthrocnemum*).

Discoveries of particular interest included 32 species which were unpublished records for Western Australia. Six genera had not previously been found in the State. They were *Homalocalyx*, *Metrosideros*, *Plagiocarpus*, *Pseudopogonatherum*, *Rapanea* and *Syzygium*.

Eight species of ferns new to the State were determined among the Herbarium collections by R. E. Holttum of the Royal Botanic Gardens, Kew.

Mr. A. S. George (right) shows Dr. R. E. Holttum, the eminent fern taxonomist, a specimen of *Christella dentata* which he collected in the Drysdale River National Park in the Kimberley region. *C. dentata* is a fern that is common to Australia and Malaysia.

CURATORSHIP

The Herbarium acquired some 10,000 specimens, including about 5,000 specimens received as donations from other herbaria. About 4,000 named specimens were donated to other herbaria.

A grant received from the Australian Biological Resources Study Interim Council was used to employ a temporary assistant to help curate the carpological collection.

Mrs. Jane McCarthy, a botany graduate from Melbourne University, curated the moss and liverwort collections on an honorary part-time basis.

COMMITTEES

Members of the Western Australian Herbarium sat on the following committees:

Committee of Heads of Australian Herbaria; Western Australian Wildlife Authority; Herbarium Committee (J. W. Green).

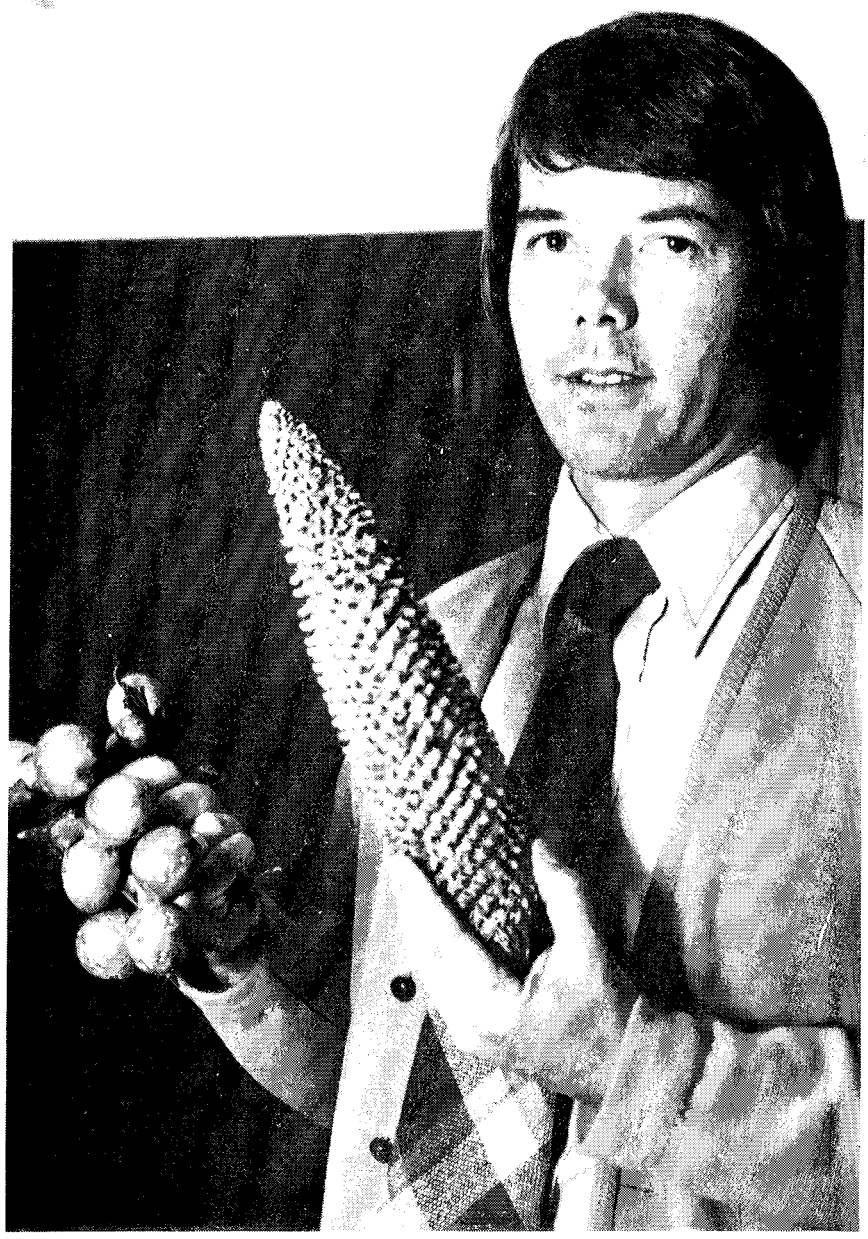
Subcommittee for family names of spermatophyta set up by International Botanical Congress, Leningrad, 1975; Committee on Stabilization of Plant Names set up by I.B.C. Leningrad, 1975; Nomenclature Committee, International Seed Testing Association; Australian Biological Resources Study Interim Council; Flora of Australia Committee; Chairman, Taxonomic Publications Committee, Australian Systematic Botany Society (P. G. Wilson).

Australian Systematic Botany Society Council (A. S. George).

Australian Systematic Botany Society, Convenor, Western Australian Chapter; Society for Growing Australian Plants, Vice-President; Western Australian Wildflower Society, Vice-President (N. G. Marchant).

Royal Society of Western Australia, Joint Honorary Secretary (G. Perry).

Naturalists' Club of Western Australia, Vice-President; W. A. Gould League Council (K. F. Kenneally).



Mr. K. F. Kenneally holds the male and female strobili of *Cycas basaltica* which he collected near Port Warrender in the Kimberley region. (Photo W.A. Newspapers Ltd.)

SEMINARS AND SYMPOSIA

Herbarium seminars

The work of the Committee on Stabilization of Plant Names and the Nomenclature Committee of the International Seed Testing Association, P. G. Wilson.

A study on the regeneration of vegetation after fire on Dorre Island, K. F. Kenneally.

Preservation of plant material, H. F. Steedman, University of Bath.

Recent advances in the taxonomy of the ferns, R. E. Holttum, Kew.

The future of economic botany in Western Australia, T. E. H. Aplin.

Biogeography of Banksia, A. S. George.

Aldabra atoll, R. J. Hnatiuk.

Ecology of mangroves, V. E. Semeniuk, University of Western Australia.

Outside seminars

Lakeland plant ecology, seminar on the Peel-Preston Lakelands, University of Western Australia, N. G. Marchant.

Consequences of variations of water table level on the vegetation and flora of the Swan Coastal Plain, symposium on Groundwater Resources of the Swan Coastal Plain, Murdoch University, T. E. H. Aplin.

Biogeography of *Banksia*, Systematic Botany Session, 49th ANZAAS Congress, Hobart, A. S. George.

The role of the taxonomist in experimental biology, seminar, Botany Department, University of Western Australia, J. W. Green.

VISITS AND VISITORS

B. R. Maslin visited 19 overseas herbaria in Great Britain, Europe and the United States in connection with his studies on *Acacia*. He also visited Adelaide, Melbourne and the three Canberra herbaria.

N. G. Marchant visited the Sydney and Melbourne herbaria to study material of *Drosera*, *Xyris*, *Darwinia* and *Chamelaucium*. He also attended a symposium on the biology of native plants held at Hawkesbury Agricultural College.

A. S. George visited the Melbourne herbarium, attended the 49th ANZAAS Congress at Hobart and the herbarium at Hobart in relation to his work on *Banksia*. In Melbourne he also visited Monash University to advise on the preparation of a fine art work on *Banksia*.

K. F. Kenneally visited herbaria in Great Britain and Europe in connection with studies of *Halgania*, *Stylidium* and tropical (Kimberley) flora.

J. W. Green attended the Heads of Herbaria Committee Meeting at Melbourne and visited the Melbourne Herbarium in connection with his studies on *Thryptomene* and *Micromyrtus*.

P. G. Wilson attended several meetings of the Australian Biological Resources Study Interim Council at Canberra. He visited the Melbourne, Sydney, Adelaide and Berlin herbaria as well as several herbaria in Great Britain in relation to a number of taxonomic matters including his studies on the Chenopodiaceae.

Sixty-five local and visiting botanists, including several post-graduate university students, used the botanical resource material and library facilities of the Herbarium during the year. They included B. J. Grieve, R. E. Holttum, D. F. Blaxell, D. J. McGillivray, N. Hall, M. I. H. Brooker and J. B. Williams.

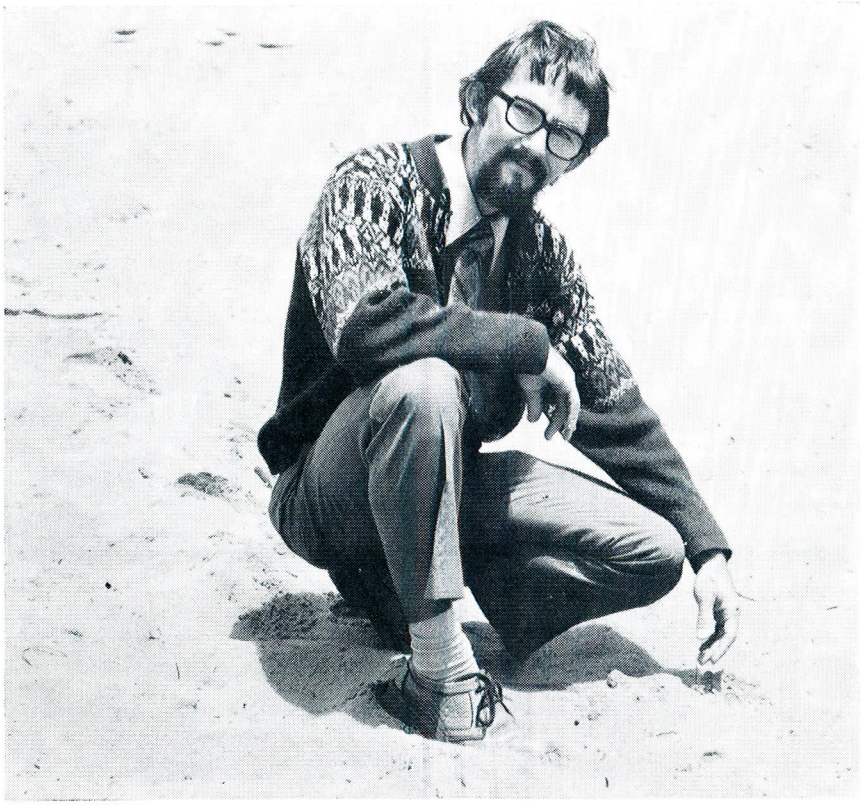
PUBLICATIONS, REPORTS AND WORKING PAPERS

T. E. H. Aplin (1975). Consequences of variations of the water table level on the vegetation and flora of the Swan Coastal Plain, Working paper for Symposium on Groundwater Resources of the Swan Coastal Plain, Murdoch University.

J. W. Green (1976). Genetic variation of *Eucalyptus obliqua* in field trials. New Phytol. 77:191–211 (with A. G. Brown, K. G. Eldridge and A. C. Matheson).

A. S. George (1976). The Biogeography of *Banksia*. Working paper for systematic Botany Session. 49th ANZAAS Congress Hobart.

Mrs. Wendy Lee-Frampton incorporates botanical resource material into compactus units. Plant specimens are stored in ideal conditions. Precautions against fire and insect depredation are maintained.



Dr. R. J. Hnatiuk inspects an area denuded of native vegetation. Dr. Hnatiuk has a research interest in the rehabilitation of vegetation on areas stripped by mining or other activities.

N. G. Marchant. Lakeland plant ecology, in P. Sieman (Ed.) (1975), Peel-Preston Lakelands, University of Western Australia Extension Service.

B. R. Maslin (1976). Studies in the genus *Acacia* (Mimosaceae) 5. Miscellaneous new phyllodinous species Nuytsia 2(2): 96–102.

Mary D. Tindale and B. R. Maslin (1976). Two new species of *Acacia* from Western Australia. Nuytsia 2(2): 86–92.

P. G. Wilson (1975a). A Taxonomic Revision of the genus *Maireana* (Chenopodiaceae). Nuytsia 2(1): 2–83.

P. G. Wilson (1975b). Two name changes for Western Australian Boronias. Austral. Pl. 8(65): 200-201.

ADVICE AND ASSISTANCE

The Herbarium provided advice and assistance to many organisations and individuals on taxonomic, environmental and economic aspects of the flora and vegetation of Western Australia.

ENVIRONMENTAL STUDIES

Mining rehabilitation

Several workshops were held with consultants to companies mining sands for heavy minerals near Eneabba. These sessions complemented formal meetings, convened by the Department of Industrial Development, at which the Herbarium was represented. Experiments were devised to evaluate the rehabilitation of mined areas in a flora conservation reserve.

Dr. N. G. Marchant examines a living specimen of *Oxylobium racemosum* in the poison plant section of the Herbarium grounds. Native poison plants cause considerable economic loss to graziers and pastoralists through livestock mortalities. (W.A. Newspapers Ltd.)

Salvinia

The Herbarium was represented on the Salvinia Advisory Committee, convened by the Department of Conservation and Environment, and the Salvinia Control Committee of the Swan River Conservation Board. The Salvinia problem was assessed with regard to the impact of control measures upon the environment.

Algae odour

The Herbarium was represented on the Algae Odour Control Working Group which established that pesticide-like odours produced in certain metropolitan lakes were caused by dense blooms of blue-green algae, particularly *Anacystis cyanea* and *Anabaena circinalis*. A report setting out recommendations for further action was submitted to the convening body, the Department of Conservation and Environment.

Wetlands

Herbarium representation on the Wetlands Advisory Committee provided botanical information needed for assessing the conservation status of the rapidly diminishing wetland resources of the Swan Coastal Plain of Western Australia.

Conservation through reserves

The Herbarium was represented on the Technical sub-committee of the Conservation Through Reserves Committee and the Review Committee, Systems 1 and 2 of the C.T.R.C. Report. A report on System 7 (Kimberley) was prepared. The report reviewed recommendations for Systems 1 and 2 and was submitted to the Environmental Protection Authority.

Other environmental matters

The Herbarium provided advice and assistance on matters relating to the environment to:

National Parks Board of Western Australia (Biological surveys), Main Roads Department (Freeway alignment, conservation of flora, landscape design), Public Works Department (dam sites, aquatic flora), Department of Town Planning (Conservation of flora, ecology), Public Health Department (algae, aquatic flora), Department of Industrial Development (mineral sands mining, landscape design), Department of Conservation and Environment (algae, wetlands, conservation of flora, aquatic flora), Department

of Fisheries and Wildlife (conservation of flora, biological surveys, wetlands, fauna habitat), Department of Lands and Surveys (conservation of flora), Education Department (publications, education), Swan River Conservation Board (algae, aquatic flora), Metropolitan Water Supply, Sewerage and Drainage Board (algae), Agriculture Protection Board (weeds, fauna habitat), Western Australian Museum (biological surveys), other Divisions in the Department of Agriculture (naturalized flora, economic botany, soil conservation, conservation of flora); Commonwealth Government organisations and Departments such as the Commonwealth Scientific and Industrial Research Organisation (conservation of flora, fauna habitat, ecology), Department of Science (biological surveys) and Department of Army (environmental impact studies); to private consultants including Blackwell and Cala (rehabilitation), J. Verschuer (landscape design), P. and M. Tooby (landscape design) and WAIT-AID (rehabilitation); and to mining and other companies such as Mt. Newman, Western Titanium, Texasgulf, Greenbushes, Western Mining and Hamersley Iron.

Mrs. Gillian Perry examines an introduced plant, *Taraxacum officinale*. Naturalized alien species make up about ten per cent of the State's plant species.

TOXIC PLANTS AND ECONOMIC BOTANY

The Western Australian Herbarium, which is represented on the consultant Panel of the Poisons Information Centre, received an increasing number of queries on plants harmful to man. Reports of note received during 1975/76 related to the flowering plants *Marsdenia cinerascens*, *Campsis radicans*, *Euphorbia terracina* and *Synadenium grantii*.

Collaborative studies with the Animal Health Laboratories have shown that some plants were for the first time incriminated in stock losses in Western Australia. They included the blue-green algae, *Anabaena circinalis*, as well as several flowering plants, such as *Phalaris minor*, and an undescribed species of *Gastrolobium*. The toxic algae were of particular significance because they are manifestations of the degrading effects of certain forms of farm management upon farm water supplies. Toxicity due to *Phalaris minor* was the result of an unusually high incidence of this species in one particular paddock on a farm near Bruce Rock; normally this species is of little consequence as a pasture plant in Western Australia.

Data on the toxicity and ecology of poisonous plants and on ecological and economic aspects of native plants are being compiled through collaborative studies with officers in other Divisions of the Department of Agriculture and with scientists in other institutions.

A toxic plant garden at the Herbarium was further developed to demonstrate living toxic plants to the public. Some 80 plants were established in the following sections: (1) algae, ferns, cycads and monocots; (2) *Oxylobium;* (3) Darling district; (4) Avon district; (5) South coast; (6) legumes; (7) Irwin district; (8) varieties of *Gastrolobium spinosum* and *Oxylobium parviflorum;* (9) Solanaceae; (10) Exotics; (11) Mimics.

A check list of naturalized alien species in Western Australia is being compiled and involves authentication of a number of doubtfully determined taxa. Many of the plants are of economic importance in the State. Advice and assistance was provided to Government Departments and to the general public on various topics relating to poison plants and other economic plants in Western Australia.

Assistance was provided in the compilation of a revised edition of the C.S.I.R.O. publication "Standardized Plant Names in Australia". Many Western Australian plant species not previously included were submitted for inclusion.

ADVISORY COMMITTEES

The Herbarium was represented on the following advisory committees and study groups:

Road Verge Conservation Committee; Pinnaroo Valley Memorial Park Advisory Committee (P. G. Wilson).

Poisons Information Centre Consultant Panel; Chairman, Algae Odour Control Study Group (T. E. H. Aplin).

Conservation Through Reserves Committee, Technical Subcommittee; Royal Society of Western Australia, Publications Committee; Fortescue Dam Study Committee (A. S. George).

Wetlands Advisory Committee; Salvinia Control Committee; Chairman, Salvinia Advisory Committee (N. G. Marchant).

Committee on Flora Rehabilitation after Sand-mining (R. J. Hnatiuk).

EDITORSHIP

The Western Australian Herbarium edited and produced two numbers of "Nuytsia", an internationally distributed journal which publishes taxonomic papers relating to the flora of Western Australia. The distribution list now totals more than 430.

The Herbarium provided referees for articles in various journals and provided editorial assistance to the Information Section, Department of Agriculture, a number of outside institutions and organizations such as the Commonwealth Scientific and Industrial Research Organization, Royal Society of Western Australia, Naturalists' Club of Western Australia, Department of Fisheries and Wildlife, Department of Conservation and Environment, the Education Department and private publishers.

OTHER HERBARIA

The Western Australian Herbarium provided taxonomic assistance to district herbaria of the Department of Agriculture and to reference and teaching herbaria in other organizations and institutions in Western Australia. These included the University of Western Australia, Murdoch University, Western Australian Institute of Technology, Department of Fisheries and Wildlife, Forests Department, King's Park and Botanic Garden and Division of Wildlife Research, C.S.I.R.O. Encouragement has been given to the development of local reference herbaria rather than to the often repetitive and unwarranted use of the central facilities of the Western Australian Herbarium which are primarily for research purposes.

REPORTS

T. E. H. Aplin (1976). Report on the Algae Odour Control Working group. Mimeographed report.

A. S. George, Contributor (1976). Conservation Through Reserves Committee. Report on System 7.

A. S. George, Contributor (1976). Report of Environmental Protection Authority Committee reviewing Systems 1 and 2 of C.T.R.C. Report.

A. S. George (1975). Department of Conservation and Environment, Reports on Reserves 26248 and portion of 24496.

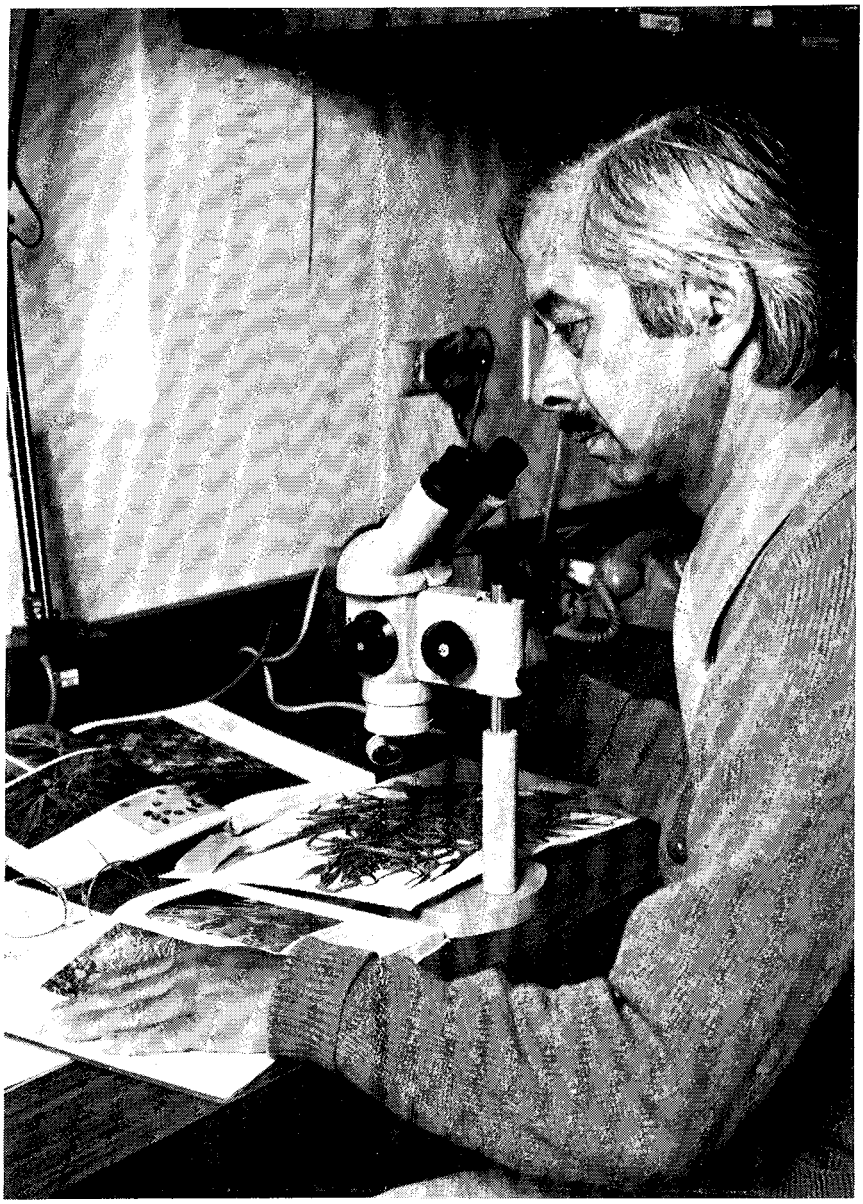
EXTENSION

The Herbarium disseminated information on various aspects of the flora and vegetation of Western Australia to as wide an audience as possible.

TALKS, LECTURES AND PRESS INFORMATION

Radio broadcasts were given on garden and native plants harmful to man, aquatic plants in farm dams and on the need to identify weeds.

Lectures and talks on the native and naturalized flora of Western Australia and on various aspects of botany, and more particularly those concerned with the activities of the Herbarium, were given to the Western Australian Wildflower Society,



Mr. T. E. H. Aplin examines plant material of *Cannabis sativa* under a dissecting microscope. Members of the Herbarium staff are spending an increasing amount of time on forensic studies.

Western Australian Naturalists' Club, Camboon Primary School, Lesmurdie Primary School, Gould League, Science Teachers Association, Manjimup Natural History Society, Albany Wildflower Society, Gosnells Horticultural Society, Police Lecturing Branch and the Australian Forensic Society (Western Australian Branch).

At least 14 articles on some aspect of the work of the Herbarium appeared in metropolitan newspapers, in addition to those in the rural press.

Television coverage was provided for at least three aspects of the Herbarium's activities.

TOURS

Parties shown through the Herbarium included the Junior, Intermediate and Senior groups of the Naturalists' Club of Western Australia, members of the Wildflower Growers Society, students from Murdoch University, Western Australian Institute of Technology, Mount Lawley Technical College, University of Western Australia, North Lake Senior High School, Penrhos College, Forest Rangers School and Ngal-A Mothercraft Training Centre.

PUBLICATIONS

T. E. H. Aplin (1975). The Vegetation of Western Australia. Official Year Book of Western Australia, 1975, No. 14 (New Series): 66–81.

T. E. H. Aplin (1976). Poisonous Garden Plants and other Plants Harmful to man in Australia. W.A. Dept. Agric. Bull. 3964. 58pp.

T. E. H. Aplin (1976). Cyanogenetic Plants of Western Australia. W.A. Dept. Agric. Bull. 3967. 14pp.

T. E. H. Aplin (1976). Plants in Australia which when eaten produce photosensitization in livestock. W.A. Dept. Agric. Bull. 3980. 13pp.

Miss Kerry Ward uses the microfiche/microfilm reader-printer. The library is building up, in microfiche form, many volumes of considerable value to taxonomic research, not normally available in conventional form.

SCIENTIFIC SERVICES

The Herbarium performed a large number of routine plant identifications for officers of the Department of Agriculture, other government institutions, university research workers, industry and the general public.

NATIVE PLANT IDENTIFICATIONS

The plant identification service has been critically examined and streamlined procedures have resulted in some reduction of the large backlog of plant specimens requiring determination.

Plant specimens submitted for identification related to domestic, commercial, rural and scientific aspects of botany.

FORENSIC BOTANY

In 1975/76, 105 identifications were undertaken on behalf of the Western Australian Police Department and the Commonwealth Narcotics Bureau, most of them in regard to the identity of *Cannabis sativa*. Botanists were required to attend court for 75 contested cases, involving usually more than four hours per case. In one particularly lengthy case the botanist spent five full days in court. In about 10 of the contested cases botanists had to attend court on more than one occasion. On several occasions botanists were obliged to attend court at country centres, involving considerable travel and an occasional overnight stay.

During 1974/75 the number of identifications undertaken in forensic botany was 13, while in the 1970–75 period the average number of forensic identifications was five per year. The 1975–76 figure thus represented a very considerable increase in time spent by the Herbarium staff in forensic work. It has been estimated that this work involved the equivalent of an entire professional staff position.

SUPPORTING SERVICES

The scientific work of the Western Australian Herbarium used supporting services to provide assistance in

the conduct of research and extension activities and in developing and curating collections of plant specimens, botanical literature and other information stored in the Herbarium.

LIBRARY

The library expanded steadily with the addition of purchased items and items donated or received on exchange. Accessions included 165 books, 11 new periodical titles, 236 periodicals, 36 additions to series and 300 reprints, while 69 volumes were bound.

TECHNICAL

Technical assistance was provided on four botanical collecting trips and for experimental work in the shadehouse. Technical assistance provided in the Herbarium was concerned mainly with pressing, drying, fumigating, mounting, labelling and incorporating plant specimens, the care and maintenance of other botanical resource material, receipt and despatch of donations and loans.

Plant specimens were fumigated with methyl bromide before being incorporated into the Herbarium. The building was also fumigated during the year with Fumigas 10 (Commonwealth Industrial Gases Ltd.). These treatments, combined with strict hygienic procedures, have allowed the former mercuric chloride treatment of plant specimens to be discontinued.

Approximately 15,000 plant specimens were mounted during 1975/76, including about 8,000 specimens from the C. A. Gardner collection. Labels were prepared for about 5,000 sheets. About 20,000 specimens, including many returned loans and donated material, were incorporated.

As part of the curatorial activities some 1,000 folders were stencilled and the herbarium index kept up to date. Some 1,160 carpological specimens, mostly *Banksia* fruits, and a large number of moss and liverwort specimens were incorporated.

CLERICAL AND TYPING

Increased output from all activities of the Herbarium placed an increasingly heavy demand on the typing service. This has been offset to some degree by the use of a standard reply form for plant identification requests.

The Herbarium has been fortunate to continue to have the service of Mr. J. Eygenraam for typing on a part-time basis.

ADMINISTRATION

ORGANISATION

The Western Australian Herbarium Committee, under the Chairmanship of the Deputy Director of Agriculture, and composed of representatives of the Universities, Kings Park and Botanic Garden, National Parks Board, Western Australian Museum, Forests Department and the Department of Fisheries and Wildlife, advised on the functions and administration of the Herbarium as well as on the development of botanical services in the government and related organisations.

Within the guidelines established by the Herbarium Committee, the needs and priorities for all areas of responsibility within the Herbarium were assessed by the Herbarium Council, composed of staff members under the Chairmanship of the Curator.

The activities of the Herbarium were organised on an informal basis into six interacting groups each with its particular area of responsibility.

These groups were:

- Taxonomy group, responsible for research in classical taxonomy leading to the preparation of revisions and monographs.
- Regional floristics group, responsible for mounting botanical expeditions; and compiling floristic lists for certain regions of the State.
- Biosystematics, cryptogamic botany and plant ecology group, responsible for the conduct of research in fields of botany related to taxonomy and for the development of special reference collections.
- Extension group, responsible for research in economic aspects of the flora and vegetation of Western Australia, for the advisory and extension services of the Herbarium, for the preparation of technical and popular articles, and for the dissemination of information through the various media.
- Supporting services group, responsible for the preparation and maintenance of materials in the Herbarium, and the provision of library, technical, clerical and typing services.
- Administration group, responsible for functioning of the Western Australian Herbarium, control of financial affairs and the establishment of the needs and priorities of all activities within the Herbarium.

FINANCE

The resources of the Herbarium were directed mainly to funding research activities and for the purchase of new items of equipment. Research funds were devoted largely to botanical collecting trips and to study tours to other herbaria. New items of equipment purchased included a stereo-microscope with drawing attachment, a microfiche/microfilm reader-printer and a photocopier. The balance of the budget, roughly one quarter of the total, was devoted to extension and supporting services.

ACCOMMODATION

Certain items of furniture and materials were rearranged to facilitate the efficient use of resources and space in the Herbarium. The carpological collection, which was expanded and developed under an Australian Biological Resources Study Grant, is now housed in special fixtures in the Herbarium wings. The special collections room was rearranged to house the cryptogamic, fluid, seed, pollen and colour transparency collections, and to provide office accommodation for the biosystematist, and visiting botanists.

The overflow of botanical resource material into non-storage areas created a fire hazard which was alleviated to some extent by the acquisition of storage space elsewhere in the Department.

STAFF

The Curator, Dr. J. W. Green, took up his appointment early in the year, replacing Mr. R. D. Royce who had held the position of Curator since 1961. Dr. Green was previously at Laurentian University, Sudbury, Ontario, Canada where he was Chairman, Department of Biology.

Dr. R. J. Hnatiuk, Plant Ecologist, and Mrs. J. W. Lee-Frampton, Laboratory Attendant, took up their appointments during the year. Dr. Hnatiuk was formerly Director and Senior Staff Scientist at the Royal Society Aldabra Research Station. Mrs. Lee-Frampton had been employed temporarily in the Herbarium, under an Australian Biological Resource Study Grant awarded to Mr. A. S. George, to help curate the carpological collection.

Mr. B. R. Maslin was recommended as Australian Botanical Liaison Officer, Royal Botanic Gardens, Kew, for 1977–78. Mr. Maslin was a recipient of an A.B.R.S. Grant for his work on *Acacia*.

Mr. P. G. Wilson was elected by the International Botanical Congress,

Leningrad, 1975, to the Subcommittee for Family Names of Spermatophyta and to the Committee on Stabilization of Plant Names.

Dr. J. W. Green was appointed to the Western Australian Wildlife Authority.

Dr. R. J. Hnatiuk received his Ph.D. Degree in biogeography from the Australian National University.

Members of staff, as at 30/6/76, with main areas of responsibility.

Dr. J. W. Green, Curator, administration, taxonomy

Mr. P. G. Wilson, Botanist level 3, taxonomy

Mr. T. E. H. Aplin, Botanist level 3, extension

Mr. A. S. George, Botanist level 3, regional floristics

Dr. N. G. Marchant, Botanist level 2, biosystematics

Mr. B. R. Maslin, Botanist level 2, taxonomy

Dr. R. J. Hnatiuk, Botanist level 1, plant ecology

Mrs. G. Perry, Botanist level 1, taxonomy

Mr. K. F. Kenneally, Botanist level 1, regional floristics

Mr. R. A. Saffrey, Laboratory Technician Grade 2, supporting services

Mr. M. E. Trudgen, Laboratory Technician Grade 2, supporting services

Mr. B. C. Haberley, Laboratory Assistant, supporting services

Mr. M. L. Clark, Laboratory Assistant, supporting services

Mrs. J. W. Lee-Frampton, Laboratory Attendant, supporting services

Miss V. L. Hamley, Typist, supporting services

Miss K. A. Ward, Assistant Librarian, Library, Department of Agriculture, attached to Herbarium

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