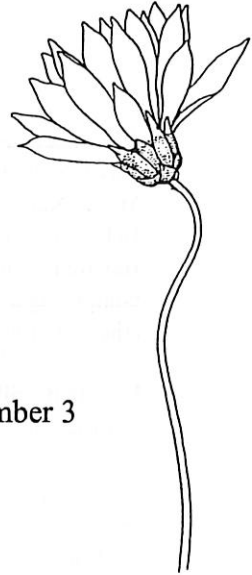




THE WILDFLOWER PRESS



Newsletter of the Western Australian Herbarium Volunteers
Department of Conservation and Land Management
PO Box 104, Como, Western Australia 6152

August 1992

Number 3

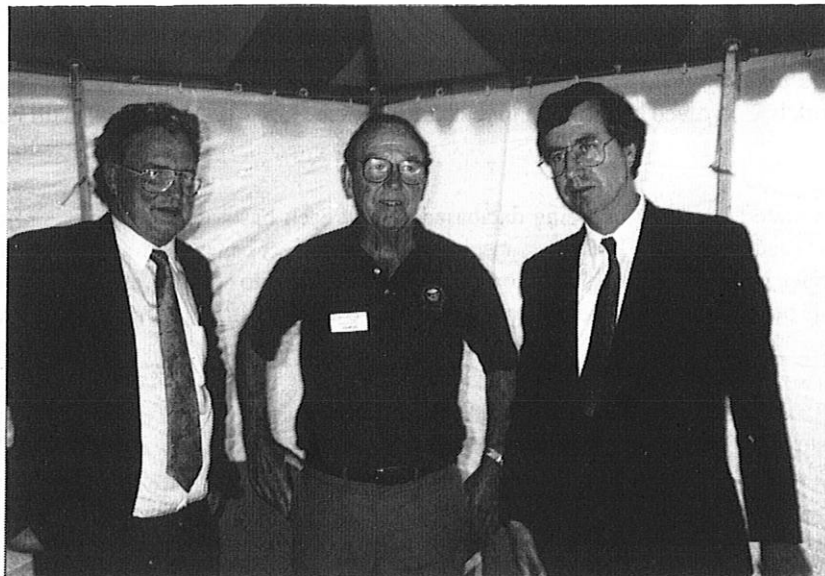
CALM VOLUNTEERS "THANK YOU" RECEPTION

On April 10, 1992 a party of 25 Herbarium volunteers joined some 200 other CALM volunteers at a reception held at Matilda Bay Reserve, Crawley, to present Volunteer Certificates. The reception was hosted by CALM's Executive Director Dr Syd Shea and the Minister for Conservation Mr Bob Pearce. As usual, Herbarium volunteers stole the show when the Evans twins wandered in late, just as the Minister was about to speak. This assured that they received the Minister's undivided attention and a huge round of applause from the other volunteers.

In presenting the awards Mr Pearce said "People do not volunteer in order to win awards or receive recognition, but it is vital that we recognise the very valuable contribution they make to the community. I am sure volunteers derive a tremendous amount of enjoyment from what they do and a great sense of satisfaction. It also attracts the type of person who wants to do something worthwhile in areas that concern them". The Herbarium joins with the Minister in recording our gratitude to our diligent and enthusiastic team of volunteers.

By volunteering their time and considerable expertise, Herbarium volunteers play a significant role in conserving the State's wildlife for future generations. Here is an example of positive co-operation and interaction between community members and a government department, one in which the public is directly involved in work that helps promote an awareness of the need to protect and manage the conservation estate for the benefit of all.

The awards presentation also allowed the opportunity for Herbarium volunteer Harry Bennett to catch up with the Minister. It appears that Harry and Bob Pearce served together on the executive of the Teacher's Union as President and Vice-President respectively.



Herbarium volunteer Harry Bennett (centre) caught up with former teaching colleague Bob Pearce, Minister for the Environment (right) and CALM's Executive Director Dr Syd Shea at the awards presentation.

WORKSHOPS FOR HERBARIUM VOLUNTEERS

Volunteer co-ordinator Kevin Kenneally welcomed volunteers at two workshops held so far at the Herbarium this year. The first workshop in February introduced volunteers to Dr Barry Conn, a taxonomic botanist with the New South Wales National Herbarium, Royal Botanic Gardens, Sydney. Dr Conn was visiting Western Australia to carry out field work on the genus *Logania* and used this opportunity to explain to the volunteers the many varied aspects of his research. The second speaker was Alex Chapman, the Herbarium systems administrator who explained the various computing systems presently being utilised, as well as systems proposed for the Herbarium. He outlined WAHERB (the specimen database), WACENSUS (a listing of the native and naturalised flora of the State) and HERBIE (an electronic collecting book for label data generation). Alex briefly mentioned DELTA as well as some of the interactive keys that will become available on computer in the Reference Herbarium. These include a key to the Angiosperm families of WA (and the world), grass genera of WA (and the world) and the genus *Eucalyptus*.

The second workshop was held mid March. Jan Gathe gave a short talk on her role as a consultant botanist employed to database the Reference Herbarium, with assistance from Francine Howl and a team of volunteers led by Bob Backhouse. Because the Herbarium has a statutory duty to manage the State's flora collection, there is a great demand placed on it by CALM, other government departments, and the community in general. To meet the need for native and naturalised plant identifications the Herbarium has a reference collection which is available to CALM staff members, environmental consultants and the public.



Volunteers attending a Herbarium workshop.

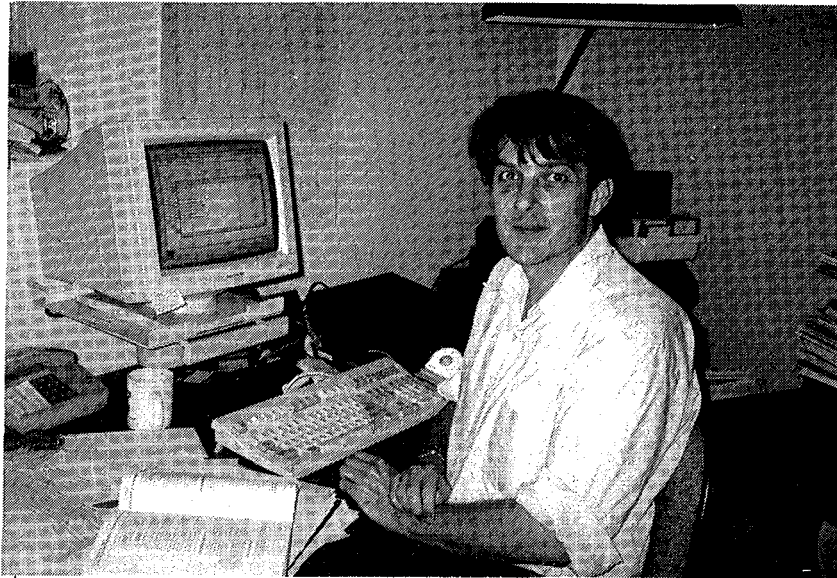
Herbarium volunteers play a crucial role in helping to maintain both the content and accuracy of the Reference Collection. Their work has involved helping Jan to match Reference Herbarium specimens with vouchers in the State flora collection.

All specimens in the State collection are being databased so that each has a unique bar-code number. Jan and the volunteers ensure that each Reference Herbarium specimen has the correct bar-code number, so that any changes made on the voucher specimen in the State flora collection can be easily applied to its duplicate in the Reference Herbarium. The data processing is being done by Meriel Falconer and some 6 300 specimens have so far been processed. A lunch was held on 12 June 1992 to celebrate the excellent effort of all concerned in the completion of the project

The next speaker was Dr David Coates, the leader of the Flora Conservation program, which now includes the former plant diseases programme. David pointed out that most of his research covers rare and threatened flora and he is involved in rare flora surveys. Public education about rare and threatened flora can be of great benefit and enthusiastic volunteers can help speed the collection of data during rare flora surveys. If CALM is to meet the challenge of managing the vast conservation estate of such a large State as Western Australia, while at the same time raising public awareness, it will need all the support and help from the community.

The volunteers were taken on a tour of the Herbarium laboratory where Vicki Hamley and Steve Carstairs demonstrated the technique of allozyme electrophoresis used for investigating genetic variation within and between plant populations and between taxa.

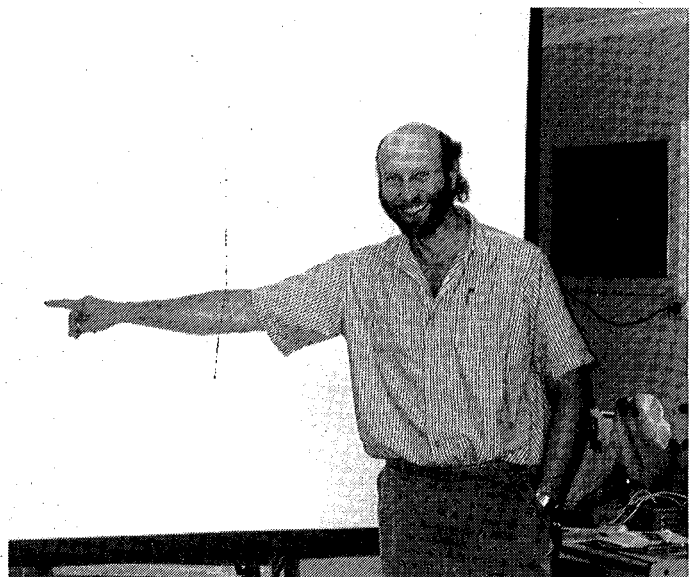
A final question and answer session was held in the Reference Herbarium and Alex Chapman was invited to attend and respond to questions about the structure and operation of the WAHERB database.



Herbarium systems administrator Alex Chapman.



Consultant botanist Jan Gathe was employed to oversee databasing the Reference Herbarium.



David Coates explaining the role of the Flora Conservation program.



Vicki Hamley at the volunteer workshop demonstrates to volunteers one of the processes for investigating genetic variation between plants.



Meriel Falconer has been responsible for databasing over 6 300 Reference Herbarium specimens.



Volunteers Barbara and Bob Backhouse processing specimens for the Reference Herbarium.

RE-TRACING THE VOYAGE OF H.M.C. MERMAID

To follow in the footsteps of our heroes Lieut. Phillip Parker King and his botanist-explorer Allan Cunningham was the chance of a lifetime for Kevin Kenneally and myself. We were invited to join an expedition organised by Coate's Wildlife Tours and led by our friend and colleague Kevin Coate in the 20 m North Star IV. She would navigate for 14 days from Broome past 4000 km of spectacular coastline weaving her way between mysterious lonely islands all the way to Wyndham.

Having spent many long hours with Kevin Kenneally (including considerable help from volunteers Jan Gordon and Ursula Preston) transcribing Cunningham's unpublished diary, we were anxious to utilise new information in locating two rare plants that had never been re-collected since his first visit in 1819, the so-called *Pittosporum resinsum* and *Xanthostemon umbrosus*, both described from collections made in the Hunter River.

First Kevin Coate wanted to visit the lonely, isolated Adele Island, 100 km north of Cape Leveque to count the numbers of Masked Boobies and the rare (in W.A.) Red-footed Boobies. This low sandy cay is their only breeding site in the State. We counted 45 Masked Boobies on eggs or with young and 11 Red-footed Boobies on raised nests on *Abutilon indicum* shrubs, plus one young adult. We found it much more difficult to leave the island in an over-crowded dinghy against a fast incoming tide than we had to land. At one stage we thought we might have to return to the island to spend the night with just the birds and the lonely automatic light tower for company.

Next we braved the raging tide rushing through Yule Entrance creating enormous whirlpools in the vast, shallow Walcott Inlet. Here we took to the dinghies to explore and collect on the rugged banks of the Isdell River.

Then followed a brief visit to Kuri Bay, a modern pearl farm, before we steamed into St George Basin and the scenic Prince Regent River to anchor 27 km upstream under the waterfall of King Cascade. We topped up our depleted fresh water tanks and enjoyed washing our bodies and clothes in the soft, clear water, so different from the deck hose spewing hard sea water! Feeling daring and brave, we clambered up the slippery wet rocks of the cascade to explore the creek feeding it from above, collecting ferns and mosses as we went. To return we had to stumble through a bank of soft black mud left by the receding tide. This necessitated a brisk hose down in the dinghy as the skipper would not allow us on board with muddy bodies!

In Port George IV was anchored a pearling pontoon of two stories, being living and working quarters for up to 15 people working the pearl farm nearby. They had a de-salination plant, air-conditioning and all mod. cons. We went aboard and met the crew while our boat refuelled. What an interesting life. They work for two weeks then are flown to Broome by seaplane for two weeks recreation.

We decided that King was definitely a Royalist judging by the names he bestowed throughout this area. Before leaving St George Basin, we circumnavigated the spectacular St Patrick Island where some members of the party had met Dick Smith in 1984. He saw us camped on the beach and landed in his helicopter to see what we were doing there and say "Hello". The red cliffs were glowing in the late afternoon light and the cameras worked overtime.

Our next haven was Prince Frederick Harbour where we anchored off Naturalist Island so that some people could go ashore to sleep on the beach after a barbecue. The botanists stayed on board to catch-up on the never-ending task of pressing and paper changing. The cramped space on the boat made us appreciate the difficulties under which Cunningham must have worked.

Now we were near the mouth of the Hunter River where Cunningham had collected his two rare trees, so this was an exciting time travelling first up Porosus Creek (called after *Crocodylus porosus*, the dangerous estuarine crocodile) in dinghies with extreme caution in case we encountered any of the ancient reptilian monsters. This was extremely rugged sandstone country dotted with gardens of large, clear quartz crystals which were collected by one and all. Kevin Coate thought he had found the *Pittosporum*, but it turned out to be excellent flowering and fruiting material of *Emmenosperma cunninghamii*, first collected by Cunningham at Port Warrender and named for him by the famous English botanist George Bentham. We began to think that maybe Cunningham's plant collections had become confused and that the *Pittosporum* might have been collected from the Hunter River in NSW. Further searching is required to solve this botanical mystery.

The following day we journeyed up the Hunter River, leaving the dinghies at the confluence of the tidal and fresh water to battle our way across the huge boulders like rock-hopping penguins. We collected *Xanthostemon eucalyptoides*, quite a common and large tree here but in fruit only, but no sign of *X. umbrosus*.

All our activities were completely dependent on the tides which rise and fall so dramatically twice a day, sometimes as much as 11 m at springs.

Bigge Island is famous for its extensive galleries of aboriginal rock paintings so for this spot we coined the name Gallery Bay where we stayed for over an hour admiring and photographing wandjinas, sailing boats and even men smoking pipes.

West Montalivet Island is the site of a World War II long range navigation station so we landed here to see how much of the ruins and relics are still in evidence. We found water pipes, fuel drums and kerosene tins but little else to indicate the size and extent of wartime habitation.

Vansittart Bay off the Anjo Peninsula was our next anchorage. Here we walked 4 km across to the Truscott air base of World War II fame, but still being used as an airstrip and helicopter pad for the Santos oil rigs out at sea. It was incredible to find wide paved roads and airfields in such good condition after 50 years, in this uninhabited and isolated Kimberley country.

We steamed out of this huge bay at night into very rough weather in the Timor Sea. Sleep was impossible as we were tossed around in our bunks, but eventually we anchored in the calm waters of Geranium Harbour in the lee of Sir Graham Moore Island. Finally, after another rough trip around Cape Londonderry, the northernmost point of the Kimberley coast, we reached the King George River and its famous falls. This was the most spectacular river of all, with the highest, reddest cliffs enclosing the deep blue river, but unfortunately with very little water coming over the falls after a poor wet season, however sufficient to bathe under and top up tanks again. After climbing to the top of the sheer 100 m cliffs we obtained magnificent views of the tiny boat anchored in the basin and the dinghy executing daring manoeuvres for our photography. The echo sounder measured 53 m below us; what a deep chasm in this rugged sandstone plateau, worn down over eons of time by the fast-flowing water.

The last of our five rivers to explore was the Berkeley which none of us had ever seen before. It flowed past the prominent landmark of Mt Casuarina, a huge 221 m flat-topped mesa rising from the surrounding plain and named by the French captain Baudin in 1801 after one of his ships.

On we sailed to the vast Cambridge Gulf to land on Lacrosse Island where Cunningham had explored in his search for plants and water, then on to Adolphus Island where their seaman William Nicholls was buried in an unmarked lonely grave, near a point which commemorates his name.

Finally we berthed at the Port of Wyndham to complete our fascinating voyage. We had landed on and explored ten different islands, travelled up five different rivers and investigated the mainland at five different sites in our busy two weeks of botanical explorations, to collect 250 plant specimens. Truly a memorable experience.

Daphne Choules Edinger



Volunteer Daphne Edinger with a historical plant specimen collected by Allan Cunningham in the Kimberley and donated to the Western Australian Herbarium by the Royal Botanic Gardens, Kew, England.

NATIVE WILDFLOWER GARDEN FOR CHILDREN'S HOSPITAL

Volunteers from CALM's Herbarium recently donned gloves and picked up shovels to plant a special wildflower garden at Princess Margaret Hospital. Kevin Kenneally co-ordinated the volunteers - many of them WA Wildflower Society members - to plant the garden in the hospital's child care centre. It will be a respite for the brothers and sisters of sick children in hospital, and for children whose families are experiencing an emergency.

The volunteers were joined by centre management committee members and interested parents, co-ordinated by the hospital's child care centre director Rae Young. More than 200 native plants - including various tree species - were donated by Lullfitz Nursery for the garden. Following the planting, rain fell for several days, and few plants were lost. The centre's children, supervised by staff, have since nurtured the plants and watched their progress. Many of them were flowering one month later. The official opening of the garden was on World Environment Day - which is also Arbor Day.

Tanya Maxted



Kevin Kenneally digs in at Princess Margaret Hospital with (from left) Melissa Cawley, Herbarium volunteers Honor Venning and Dorothy Perret from the Wildflower Society and Robert Sydenham.

MOSS MAN'S MAGNIFICENT MICROCOSM

Brian Best our bryophyte (moss and liverwort) expert had not been out in the field since he arrived in Western Australia from Zimbabwe (formerly Rhodesia) in 1990 having previously worked as a volunteer at the Harare Herbarium. His work in the WA Herbarium had mainly been with the dried collections and with specimens brought in to him for identification.

With the winter rains and moss season beginning, I thought it a great opportunity for Brian to see our mosses *in situ* and for myself to gain some first hand experience in collection and identification techniques. With the current emphasis on dieback and its control, it seems timely to take a closer look at all aspects of our State's forest flora. Together we planned a trip to look at the moss swards which dominate the granite outcrops along the Brookton Highway.

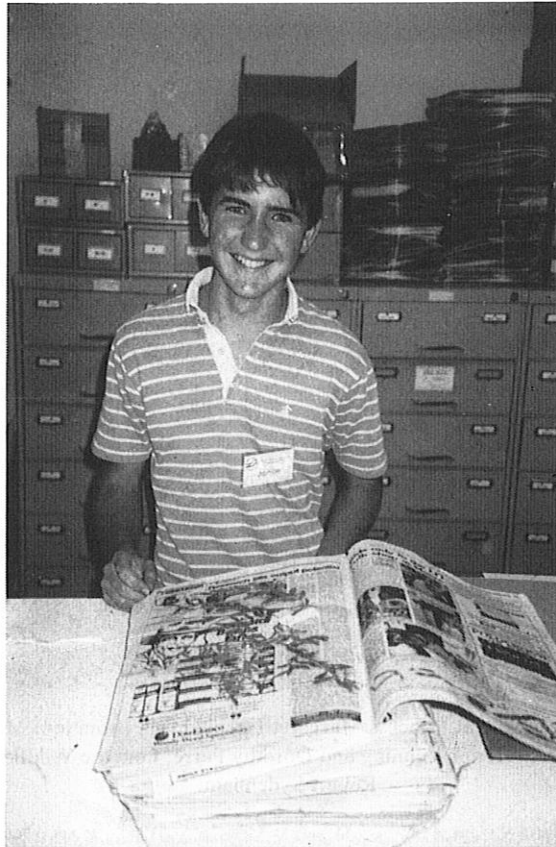
We made some 34 collections comprising 22 species, 15 of which are new records for the area. Brian was particularly thrilled to find a moss species, *Campylopus introflexus* with sporophytes (capsules or fruiting bodies). This world-wide species appears to only produce sporophytes in Australia and this was the first time Brian had seen them.

Brian would like to make further trips in other seasons to the same areas to add to his knowledge of these species. He is also particularly keen to find aquatic mosses as these are not commonly recorded for WA.

Cheryl Parker

STARTING YOUNG

Enthusiastic amateur botanist Russell Barrett first met volunteer co-ordinator Kevin Kenneally when attending a natural history camp for 11 year olds organised by the W.A. Gould League. Russell was then living and being educated on his parents cattle station, Beverley Springs in the Kimberley. Russell, now 15 and a boarder at Wesley College in South Perth has retained his interest in the flora. During school holidays he returns to Beverley Springs Station and has been making valuable plant collections. Russell has been concentrating on collecting pressed, preserved and living material of triggerplants (*Stylidium*) and sundews (*Drosera*) for carnivorous plant specialist and author Allen Lowrie. Specialist collections such as these from remote areas of the State have high scientific value leading to a greater understanding of their biology and eventually a wider appreciation of their value to the community



Young Kimberley plant enthusiast Russell Barrett processes specimens he has collected from Beverley Springs Station.

GETTING INTO THE SPIRIT

One of the lesser known, but vitally important, collections held by the Herbarium is the spirit or wet collection. This is a collection of plant specimens, often flowers or fruits, preserved in fluid. Traditionally the fluid used has been a combination of formalin, alcohol, and acetic acid - generally known in botanical circles as FAA - a suitable medium for fixing plant material prior to wax embedding and tissue cutting for anatomical and other studies. Modern safety studies have shown that formalin can be particularly injurious to health. The Herbarium has now changed to using Copenhagen mixture consisting of 70% alcohol and 5% glycerin as this is considered both a satisfactory storage chemical and far safer to work with. With all alcohol based storage there is evaporation and the bottles must be topped up to prevent drying out and the subsequent loss of the plant material. One of our volunteers Mr Skantha has taken on that role as well as carrying out an inventory of the spirit collection. When he has completed this task the spirit collection will be databased in line with the other Herbarium collections.

MOSES ON THE MOVE

Melissa Hudson and Karin Jackson are two recent volunteers. Both are studying environmental science at Murdoch University and are gaining practical botanical experience by donating a day a week to assist staff member Cheryl Parker to re-organise storage facilities for the Herbarium's 5 000 moss specimens to meet international scientific standards. This work involves transferring specimens from a range of packet sizes to a standard sized envelope indicating the State of origin and adding the database bar-code number. The moss collection represents a third of the total of the cryptogamic collection which also includes the fungi, algae and lichens. All of the cryptogamic plants are considered to be important ecological indicators and their status is becoming more important in current biological surveys.



Karin Jackson and Melissa Hudson curating the moss collection.

WORKING TOGETHER

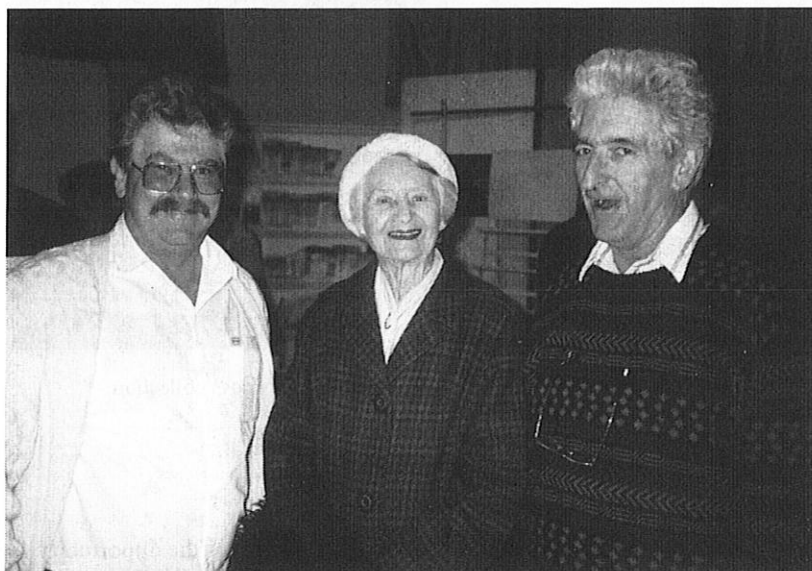
One of the less obvious advantages of being a CALM Herbarium volunteer is the opportunity for retired couples to work together on projects that interest them. There are three husband and wife teams presently working in the Herbarium. Beside the obvious economical advantages in saving petrol they all agreed that community volunteering satisfied an urge to continue to make a contribution after retirement. Some choose to work together and others are involved in different tasks. This they said gave them scope to develop their own interests while at the same time enjoying the company of other workers.



Volunteer husband and wife teams (from left back) Gwen and Jack Abbott, Barbara and Bob Backhouse, Nora and Brian Best.

A FASCINATION WITH FLORA

Volunteering with the Herbarium takes in many activities. Allen Lowrie is a self-confessed addict of carnivorous plants and this inspired him to write two books on the subject published by University of WA Press. An enthusiastic amateur with specialist knowledge Allen has been adding specimens and information to the Herbarium databases. He has now expanded his studies to triggerplants and is working closely with volunteer co-ordinator Kevin Kenneally on their taxonomy and with Dr Syd James of the Botany Department, University of WA on genetic studies of the genus. Much of the current work presently being undertaken is based on the pioneering publication *Triggerplants* published by a much respected friend of the Herbarium Dr Rica Erickson.



Triggerplant experts (from left) Allen Lowrie, Dr Rica Erickson and Dr Syd James.

RE-ORGANISATION OF THE RESEARCH DIVISION

Following the appointment of Dr Jim Armstrong as Director, the former Research Division (which encompassed the Herbarium) has been re-named the Science and Information Division. Dr Neville Marchant will be the Acting Director of the WA Herbarium which houses the Plant Science Group. Staff transferring to the Herbarium over the next few weeks will include John Dorlandt (Administrative Assistant) from Como, and Dasha Minarovic (Librarian) and Christine Farrell (Administrative Assistant) from Woodvale.

WELCOME

We would like to extend a warm welcome to Elisabeth Owles and Lois Sharpe who have recently joined the volunteer team. We wish them every success and enjoyment in their volunteering.

THANK-YOU

We would like to thank volunteer Elizabeth George for her outstanding effort in curating the *Verticordia* specimens in the main collection and Reference Herbarium. This has been a mammoth task involving many days work and will result in all the specimens being databased under their correct names.