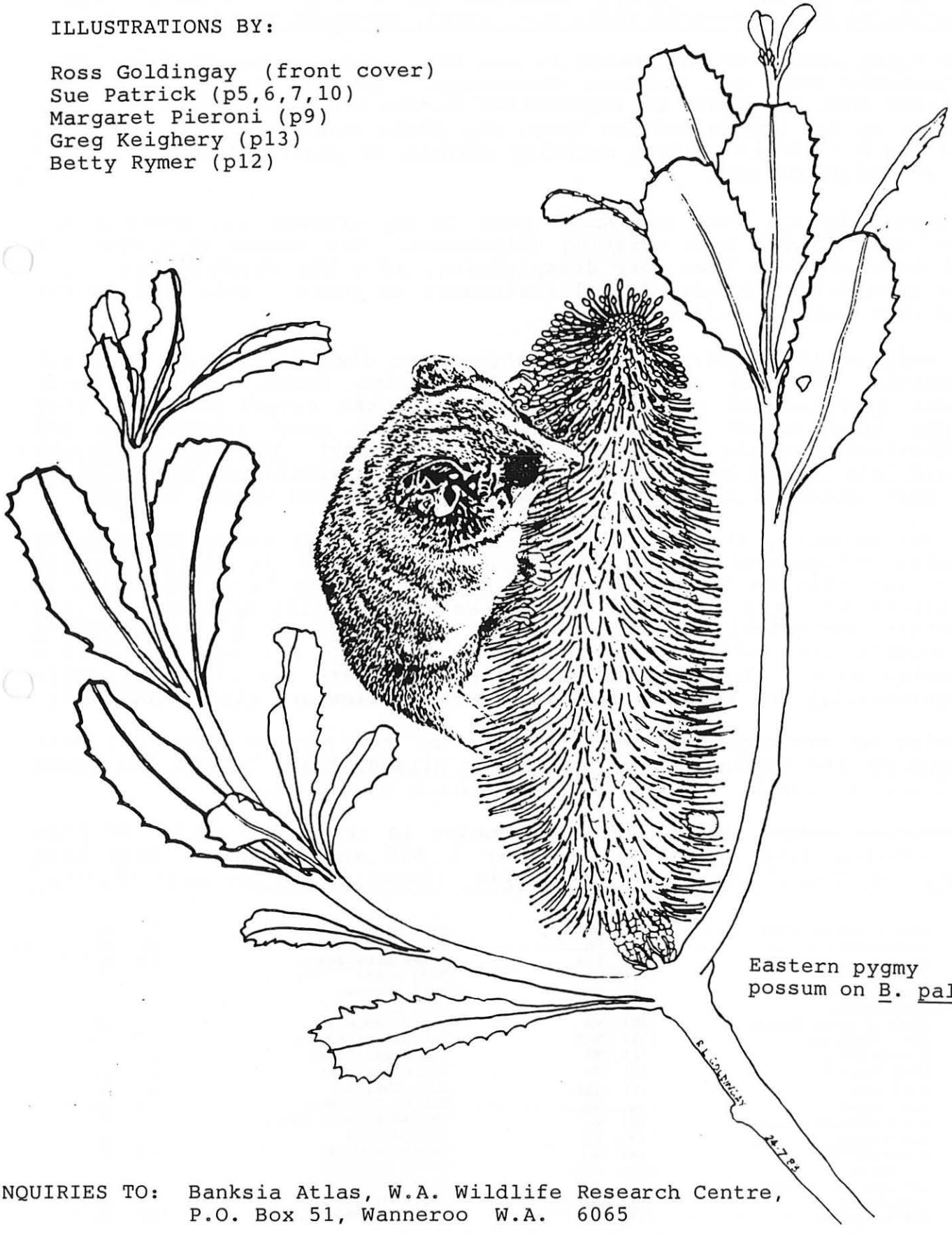
JOURNAL
BANKSIA ATLAS NEWSLETTER

(3) Jun 1985

EDITED BY: Anne Taylor, June '85

ILLUSTRATIONS BY:

Ross Goldingay (front cover)
Sue Patrick (p5,6,7,10)
Margaret Pieroni (p9)
Greg Keighery (p13)
Betty Rymer (p12)



Eastern pygmy possum on B. paludosa

ENQUIRIES TO: Banksia Atlas, W.A. Wildlife Research Centre,
P.O. Box 51, Wanneroo W.A. 6065

REPORT ON BANKSIA ATLAS , JAN - JUN ' 85 by Anne Taylor

This third newsletter sees me back in Perth after extensive travels through New South Wales, Tasmania and Queensland (hence the newsletter's delay). As a result of these trips, numbers of volunteers in each of these States has more than doubled. At time of writing (mid June 1985) numbers for each State are as follows:

A.C.T. (50), N.S.W. (171), Tasmania (30), South Australia (10), Queensland (88), Victoria (53), W.A. (418), Northern Territory (5).

The total number of volunteers is now 825. Welcome to the first five volunteers from the Northern Territory. Now B. dentata can rest assured that it should be represented on the distribution maps! Many thanks to Alf Salkin and Les Gray, the State coordinators of Victoria and South Australia, whose untiring efforts at publicising the Banksia Atlas are paying off.

A memorable and very enjoyable part of my travels was meeting and sometimes staying with existing volunteers. Two months of staying in motels would have been very disspiriting, so a big thank-you to those who provided accommodation and sustenance en route. Your hospitality was very much appreciated.

As well as 19 illustrated talks, there were also field trips whenever possible, enabling volunteers to familiarize themselves with their local banksias and to practise filling in the record sheets. I've happy memories of banksia hunting with so many interesting and enthusiastic people - sometimes almost too many! The Blue Mountains field trip looked more like a car rally than a wildflower excursion as 24 cars proceeded slowly up the winding dirt road to Newnes Plateau.

As for banksias, I'm now well aware of the problems facing you eastern states volunteers! There is far more variation in eastern states banksias than in W.A. ones. The eastern states have more diverse habitats and it's suggested that banksias are still evolving to fill certain ecological niches. The B. spinulosa and B. integrifolia complexes are certainly working hard at it! Not only does each species have 3 known varieties, but each variety can also vary quite considerably, and intermediates between varieties are also recognised.

During my prolonged absences from Perth, the project has been kept going by the staunch efforts of Sally Wilson, Karen Palmer and Scott Wilson. My thanks to these 3 people cannot be overstated.

Completed record sheets have been coming in at a fast rate. At time of writing (end June '85), another 1 810 record sheets have been received from the following 178 people (including 117 new contributors).

Joan & Laurie Adams	(20)	NSW
John Adams	(4)	WA
Norma Ali	(6)	TAS
Jennie Allen	(22)	WA
Eric Anderson	(4)	QLD
Beth Atkins	(7)	WA
Geoff & Beryl Austin	(20)	WA
Gary Backhouse	(11)	VIC
Dianne Baker	(2)	WA
Greg Barrett	(9)	WA
Tony Bean	(7)	QLD
Jeff Beard	(5)	WA
Don & Barbara Bellairs	(2)	WA
David Bennett	(2)	WA
Elsie Bishop	(4)	WA
Jo Benyon	(10)	ACT
Doris & Vic Blampey	(23)	WA
John Boyle	(12)	WA
Keith Bradby	(37)	WA
Mary Bremner	(12)	WA
Reg & Ruth Brian-Davis	(5)	WA
Clive Brownsea	(7)	VIC
Dick Burns	(21)	TAS
Neil Burrows	(3)	WA
Clem Campbell	(2)	QLD
Jason Campbell	(1)	NSW
Racquel Cavallaro	(2)	WA
Ian Chamberlain	(1)	QLD
Bruce Champion	(33)	TAS
John Chilvers	(15)	WA
Mrs H. Chinchen	(1)	NSW
Desrae & Wayne Clark	(1)	WA
Lynn Clarke	(2)	WA
Jeanette Closs	(3)	TAS
Diana Cordiner	(1)	NSW
Doug Coughran	(3)	WA
Gay Crowley	(3)	QLD
Eileen Croxford	(20)	WA

Rosemary Cugley	(3)	WA
Alan Danks	(10)	WA
Denmark Wildflower Group	(1)	WA
Doreen Davidson	(10)	WA
Jenny Davies	(2)	WA
Steve Dawson	(4)	WA
Peter Donan	(2)	QLD
Greg Drake	(2)	NSW
Jennifer Duwing	(13)	WA
Lynn Dyason	(3)	QLD
Graham Edwards	(14)	WA
Barbara & Margaret Evans	(7)	WA
Peter Engler	(6)	WA
Lalage & John Falconer	(4)	WA
Ian & Gwynneth Fardon	(1)	NSW
Lee Fernie	(6)	WA
Howard & Dorrie Gibbs	(2)	WA
Anne Giblin	(2)	NSW
Grace Gibson	(6)	NSW
Lloyd Gibson	(10)	ACT
Brendon Gill	(1)	NSW
Ross Goldingay	(3)	NSW
Peter Golos	(6)	WA
Chris Goodsell	(19)	WA
Mal Graham	(5)	WA
Les Gray	(77)	SA
Richard Gregory Smith	(3)	ACT
Lois Grover	(3)	WA
Murray Haby	(50)	VIC
Mr & Mrs Hackling	(5)	WA
Roger Hall	(7)	WA
Annette Hallpike	(81)	VIC
Brenda Hammersley	(8)	WA
David Handscombe	(1)	VIC
Janet Hauser	(2)	QLD
Jan Hay	(2)	WA
Grant Hewett	(15)	WA
Roger Hnatiuk	(11)	ACT
Harald Hoffman	(18)	WA
John Howard	(6)	NSW
Bert & Alice Humphreys	(1)	WA
David Hutchison	(8)	WA
David James	(6)	WA
Rhoda & Harry Jeavons	(2)	NSW
Lawrence Johnson	(18)	NSW
Brendon Johnstone	(1)	WA
Pat Jordan	(4)	NSW
Wendy Kappelle	(9)	WA
Ian Kealley	(27)	WA
R. Kefford	(5)	NSW
Margaret Kelly	(1)	QLD
Linda King	(1)	NSW
Matthew Kirwan	(5)	VIC
Maryanne Larkin	(34)	NSW
Stephen & Meg Le Fanu	(4)	WA
Pattie Leighton	(7)	WA
Malcolm Lewis	(4)	WA
Noni Mammatt	(2)	WA
Michael Marmach	(7)	VIC
Family Marrie	(1)	QLD
Cyril Marshall	(4)	NSW
Bill Martin	(7)	QLD
Peter Mawson	(17)	WA
Marjorie May	(13)	ACT
Ross & Bev Mcguiness	(9)	WA
Donna McDuff	(1)	QLD
Robert McLure	(3)	VIC
Graham Mee	(1)	NSW
M. Melkman	(2)	QLD
Michael Merrony	(6)	ACT
Kevin Mills	(113)	NSW
Irene Morcombe	(1)	WA
Mr & Mrs Alan Moore	(12)	WA
Noel Moore	(2)	NSW
Gary Muir	(9)	WA
R.W. Mumford	(6)	WA
Anna Napier	(19)	WA
Clive & Wendy Napier	(7)	WA
National Parks & Wildlife Service, NSW	(4)	NSW
Flora Nichols	(4)	WA
Michael & Karin Palmer	(14)	WA
Rodney & Rae Papenfus	(4)	WA
Marlene Paterson	(6)	WA
Tony Phillips	(3)	VIC
Mr E. Pickering	(9)	ACT
Pat Plozza	(1)	WA
Jammes Plummer	(3)	SA
Lois Prictor	(17)	VIC
Beryl Rainer	(1)	QLD
Martin Roberts	(9)	WA
William Roberts	(6)	NSW
Victor Roberton	(4)	QLD
Jim & Pearl Rogers	(5)	WA
Alf Salkin	(201)	VIC
Pam Sanderson	(3)	WA
Paulette Savage	(1)	WA
Mr R.K. Shoosmith	(5)	WA
Dave Sieber	(49)	WA
Ed Smidt	(3)	WA
Mr & Mrs B.H. Smith	(9)	WA
Margaret Smith	(1)	NSW
Ralph Smith	(3)	WA
Andrew & Lois Sourry	(7)	NSW
Mick & Helen Statham	(5)	TAS
Jim Steenson	(1)	NSW
Trevor Stoneman	(2)	WA
Philip Strong	(6)	NSW
Donna Summers	(5)	WA
Tim & Elizabeth Swainson	(6)	WA
Janet Tallon	(2)	QLD
Anne Taylor	(30)	WA
Paul Taylor	(10)	QLD
Helen Taylor	(9)	WA
Neville & Rosemary Thorn	(1)	WA
Ron Tompson	(4)	NSW
Doug Twaits	(45)	VIC
R. Vallak	(7)	NSW
Honor Venning	(8)	WA
Brian Walters	(8)	NSW
Mrs & Mrs B. Ward	(6)	NSW
Peter & Carolyn Wardle	(4)	WA
Ross Weaver	(4)	WA
Rawleigh Webb	(9)	WA
Stan Webster	(5)	WA
Bob Weston	(5)	ACT
A. Wheeler	(5)	NSW
B. Whelan	(2)	NSW
Don & Joy Williams	(10)	WA
Keith Williams	(4)	WA
Eric Williamson	(9)	QLD
Mae Willmot	(1)	NSW
Scott & Carolyn Wilson	(4)	WA
Bob Wiltshire	(2)	WA
Meri Wood	(2)	NSW
Jack & Maxine Woodhouse	(4)	WA
Tony Woolford	(34)	TAS
Observer CBA (person unknown as using wrong code - please let us know who you are!)	(27)	NSW

The total number of contributors (people who have sent in at least one record sheet) now stands at 204.

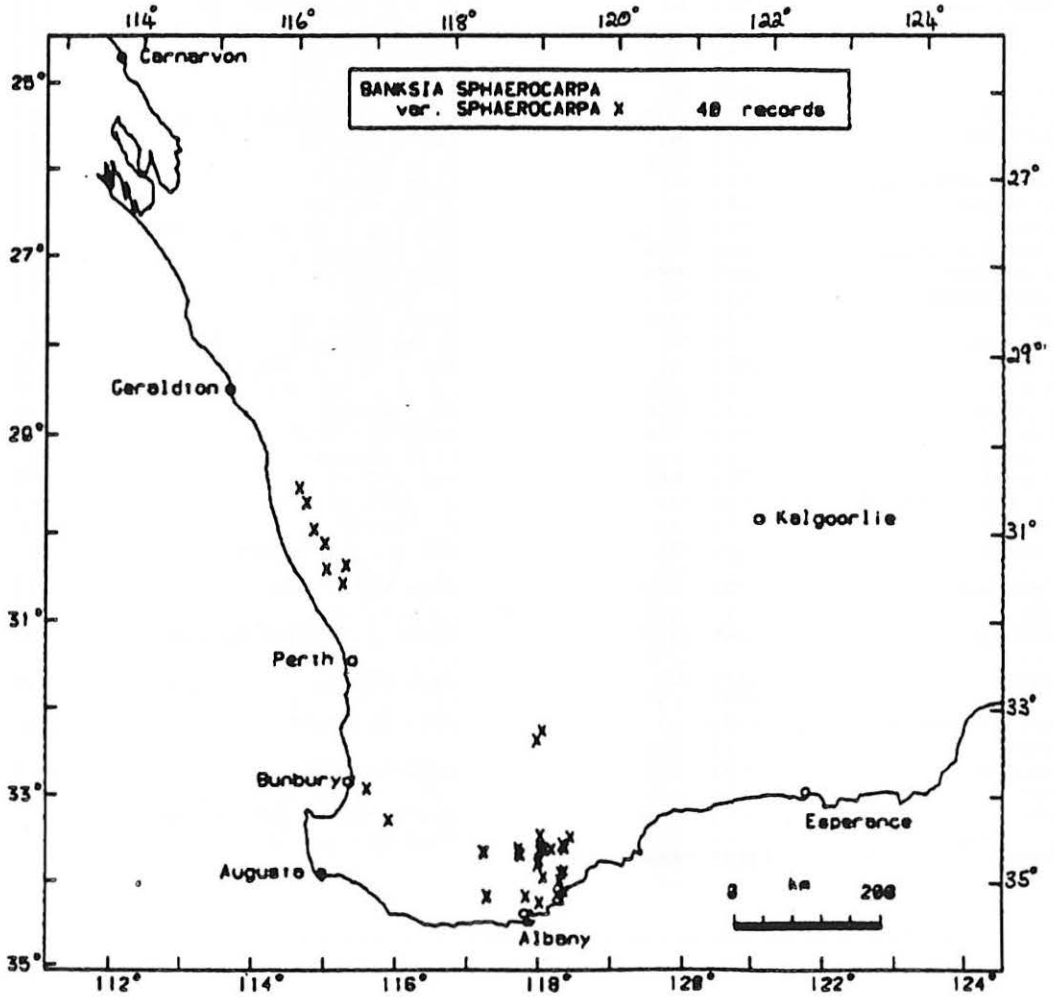
There is not an enormous amount of time left for filling in sheets. The project is funded until Feb. 1987 but the last 5-6 months will be needed to produce the final publication. The last date for record sheets to be received at Wanneroo will be set at 1st Sept. 1986, so there is only just over a year left for filling in record sheets.

INTERIM DISTRIBUTION MAPS

A complete set of Banksia Interim Distribution Maps has now been printed. It represents records received at Wanneroo before Mar. 1st 1985. The complete set is being sent to all contributors (volunteers who've sent in at least one record sheet). For the rest of you who haven't yet cracked the 1st record sheet barrier, a sample of the distribution maps is shown below. The plotter currently in use is to be replaced very soon by an improved model. Future maps will have much better clarity and can also be printed in colour. They should also be more up to date! In the last few months we have experienced numerous teething problems on the computer side of things. Hopefully, these have now all been overcome.

The first interim analysis of habitat and biological information from the sheets should be available towards Dec. '85. Again, it will be sent only to contributors.

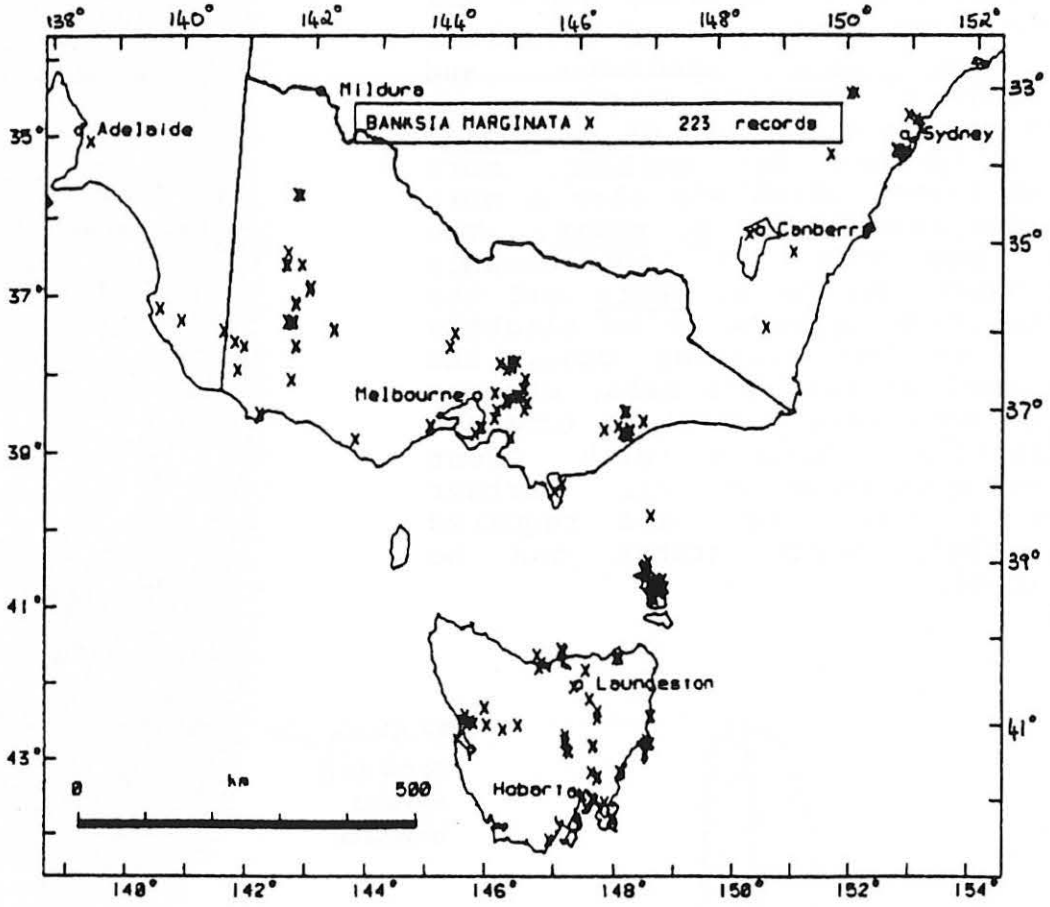
Any contributor requiring a more detailed map of any particular area, please let me know and I will be happy to send you one. Work out the boundary of the area you are interested in, and send me the relevant lat. and long. coordinates.



B. sphaerocarpa var. sphaerocarpa - three apparently disjunct populations. (1) - the southern group extending from Denmark (M. Bremner) to Cheyne Beach (J. Chilvers) and inland to the Stirling Range (R. Hall) and Greaves Hill (C. Napier). (2) - the northern group extending from near Eneabba (H. Hoffman) southwards to Moore River National Park (D. Coughran). (3) - S.E. of Bunbury are two sight records from Boyanup and Greenbushes (both H. & D. Gibbs).

Herbarium records indicate many more localities between Gingin and Whicher Range (south of Busselton), mostly on the Darling Plateau. Such records would link populations (2) and (3). Volunteers please investigate.

The identity of the two isolated records from the central wheatbelt (Tarin Rock Reserve) has yet to be confirmed. If correct, this will be a very large range extension.



B. marginata - A good number of sight records extending from Kangarilla, S.A. (A. Moore) through Victoria to Ku-Ring-Gai Chase, N.S.W. (J. Steenson, M. Wood). Inland, it extends to Wyperfield National Park, W. Victoria, (C. Brownsea) and Lithgow, N.S.W. (E. Williamson). Herbarium records indicate that B. marginata occurs considerably further inland and almost to the Queensland border - volunteers please investigate. Of the 223 records illustrated above, 105 are from Tasmania.

MISSING PERSONS

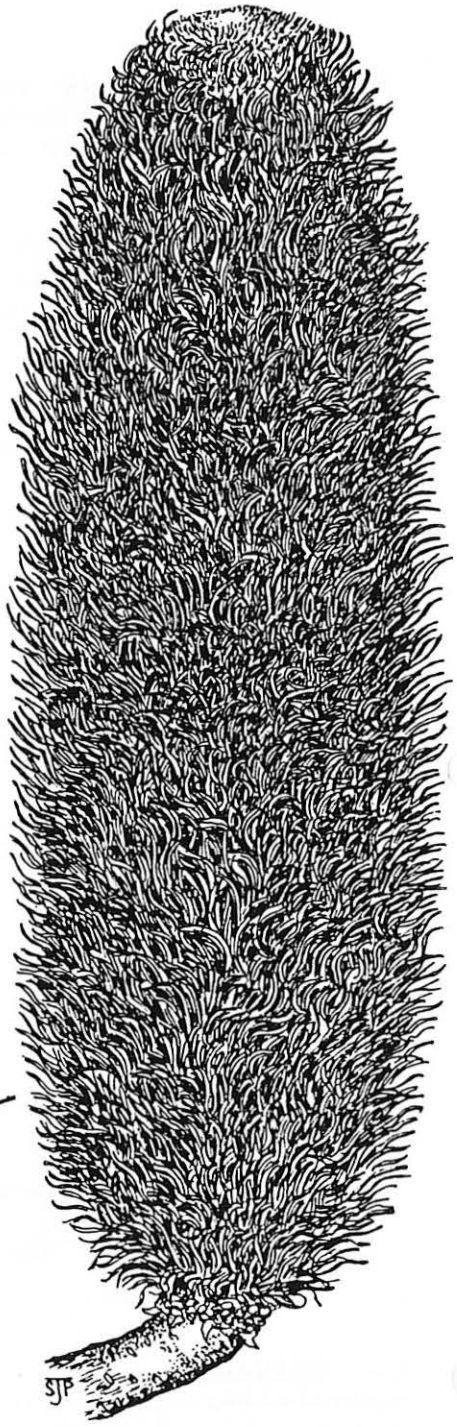
Does anyone know of the whereabouts of the following people, whose addresses have either changed or are inadequate?

Mrs P. Connoley	40 Oakover St, East Fremantle 6158
Mr M. Bryant	Unit C, 14 White St, Bunbury 6270
Gary Muir	Manjimup - address unknown - has sent in record sheets and needs a reply

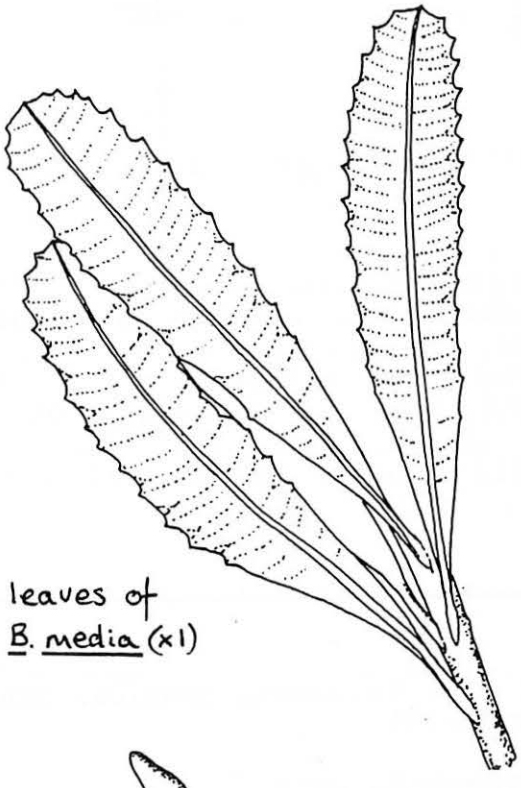
ERRATA. The illustration on page 4, Newsletter No. 1 is of B. caleyi not B. lemmaniana.

INTERESTING AND UNUSUAL BANKSIA REPORTS

A New Banksia from the Nullarbor? Lalage and John Falconer (WA) have made a very exciting find just west of Point Culver. B. media had already been recorded from the area, which was just about its most eastern location. They have sent specimens and photographs of what is either a new species or a new variety of B. media. The new banksia has smaller, more truncate leaves which are also a more blue-green colour than B. media. The pollen presenter is considerably longer than that of B. media and the flowering time appears to be slightly later. On the fruiting cone, the styles curl against the axis, whereas B. media they remain straight (compare illustrations opposite with front cover of Newsletter No. 2). Further studies of the plants are required before their exact status can be ascertained.

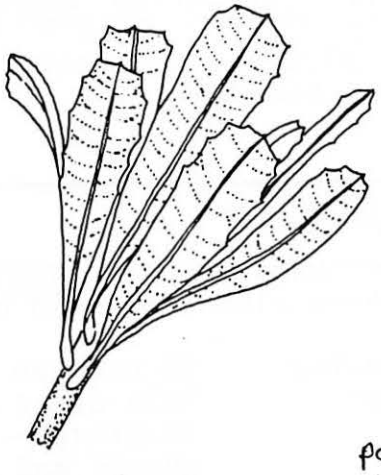


Fruiting cone (x1) of new banksia



leaves of B. media (x1)

pollen presenter B. media (x10)



leaves of new banksia (x1)

pollen presenter of new banksia (x10)

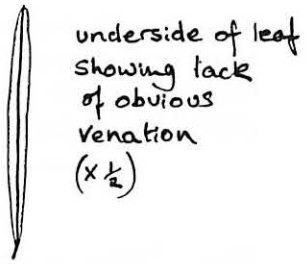
B. conferta var. conferta - Response to Fire. In "The Banksia Book", Alex George states that B. conferta var. conferta is "probably fire tolerant and sprouting from the trunk, but not yet verified". We now know that this is not the case at least with the population growing on the summit of Mt Tibbrogargan (QLD). Tony Bean was there a few months after a severe fire in 1980 and found that "B. conferta had been killed in every case. Fortunately regeneration from seed was more than adequate and the first flowering of the new generation occurred in 1984." During my recent visit to Queensland I was lucky enough to visit this site and found that many more seedlings had germinated within the last two years.

A prostrate form of B. ornata - observed by Clive Brownsea in Little Desert National Park, Western Victoria. It is only 0.3 m high, and spreads to 2.5 m wide.

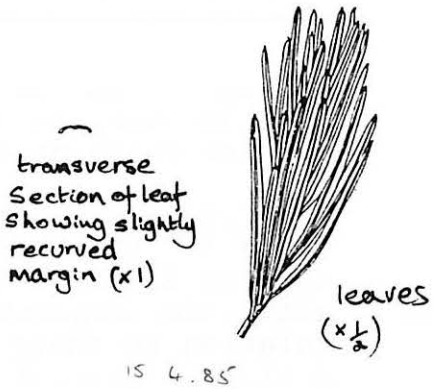
An inland population of B. aemula. This banksia is usually restricted to coastal sandy areas but Brian Walters has found it growing 60 km inland at Agnes Banks Nature Reserve, near Richmond NSW. Unfortunately, sand mining is threatening the area. The NSW National Parks and Wildlife Service is being approached in an effort to extend the boundaries of the existing Reserve.

B. praemorsa giants! Most books describe this species as a shrub to 4 m. However, Ed Smidt has found trees 6-7 m high with single trunks 30-40 cm in diam. They occur at Two Peoples Bay Nature Reserve, WA.

B. spinulosa var.? There may be a new variety of B. spinulosa growing in northern NSW. Whilst in New England area recently I noticed an unusual B. spinulosa in New England and Cathedral Rocks National Parks. Most leaves have no serrations at all - only a truncated, mucronate tip. They are up to 6.5 cm long, 0.5 cm wide, flat but with slightly recurved margin. There are no lateral veins evident on the undersurface of the leaves.



On leaves alone the plants would be identified as var. cunninghamii but there are two things wrong - 1. these banksias have a definite lignotuber (var. cunninghamii identified by its lack of a lignotuber). 2. these banksias grow as shrubs up to 1.5 m high. (B. spinulosa var. cunninghamii is known for its tree like habit.)



Alf Salkin tells me that he has found similar plants in Gibralter Range National Park.

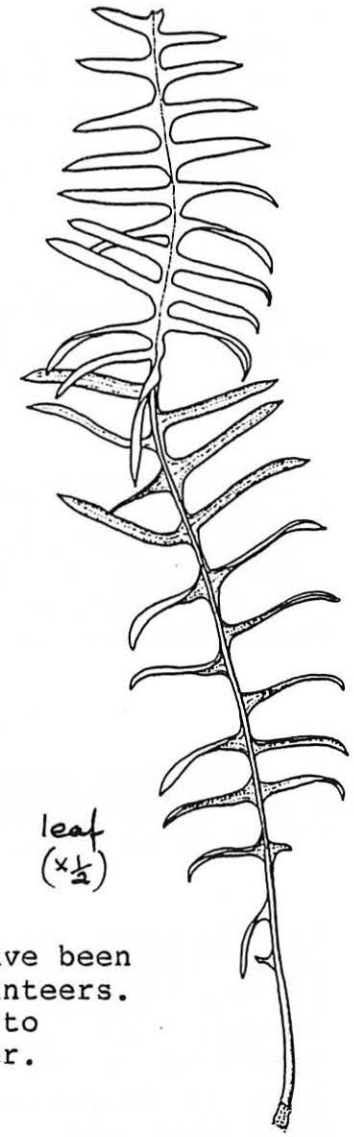
IS 4.85

B. integrifolia forms intermediate between var. integrifolia and var. compar.

Alex George states in Nuytsia Vol 3. No. 3 (1981) that south of Keppel Bay, Queensland, B. integrifolia var. integrifolia is always coastal whereas var. compar occurs further inland and on the hills. He also states that "some populations in northern NSW and south east

Queensland are intermediate between the two". Well, it now seems that these forms may occur elsewhere. A recent collection from Wiseman's Ferry area (NSW) by Andrew and Lois Sourry is thought to represent similar intermediate forms.

B. blechnifolia? An interesting prostrate banksia found by Harald Hoffman near Jerramungup, W.A. The very linear leaf lobes with 3 prominent veins on the undersurface resemble Dryandra pteridifolia. Amongst banksias they are more like that of B. chamaephyton than B. blechnifolia, as is the fruiting cone. However, B. chamaephyton is only known from the heathlands north of Perth, a long way from Jerramungup. Flowering season is keenly awaited to check on the flower colour of this Banksia.



A new and very welcome aspect of this newsletter have been the following contributions sent in by Banksia volunteers. Many thanks to all these people and I look forward to receiving more contributions for the next newsletter.

THE EFFECTS OF FIRE ON 4 SPECIES OF BANKSIA

by Lois and Andrew Sourry

At least some of those people involved in the National Banksia Atlas must by now, have encountered a landscape, wherein fire has ravaged part or whole of an area of Banksias.

Bushfires are of frequent occurrence in the part of the east coast where we live and it was inevitable that a fierce fire which swept through Kendalls Glen Reserve, Ourimbah NSW late spring of 1983 would alter the vegetation patterns. We decided then to monitor these in relation to their response to fire. Since then we are involved in the National Banksia Atlas. Thus, the information gathered will be useful, considered in the context of the adaptive responses of Banksias to fire in the Reserve.

Of the four species of Banksia present before the fire, nearly all B. ericifolia var. ericifolia were killed outright at the time of the fire. Now, 18 months on and following heavy autumn rain a proportion of seed has germinated and post fire emergence of seedlings is evident under some dead parent trees. Banksias like many other native plants shed their seed after fire and at a faster rate when fire is of high

intensity. If they mature, these new plants will produce seed again after 5 to 6 years. We hope a second fire will not occur within 5 years, otherwise this species could be lost in this area.

Two other species B. spinulosa var. collina and B. oblongifolia, which were burnt to ground level, are now flourishing, multi suckering being very evident from lignotubers, that woody swelling at the base of the stem, which contains buds and food reserves.

B. serrata although mostly senescent before the fire are still carrying mostly burnt leaves. Nevertheless, a few are showing new growth from epicormic shoots on their trunks.

This sequence of events is both striking and familiar, a dramatic decline in population of one species B. ericifolia var. ericifolia, reduction in vigour of another namely B. serrata, while the two fire tolerant species, namely B. spinulosa var. collina and B. oblongifolia rise like the phoenix from the ashes.

MARCH FIELD TRIP TO CRANBOURNE by Alf Salkin (Vic)

Fourteen people attended the field trip to the annexe of the Royal Botanic Gardens at Cranbourne and a number of them had their first chance of mapping banksias in the natural coastal heath-woodland which is a very important feature of this annexe. The rest of the excursion was taken up with examining the extensive collection of eastern banksias and noting the differences in the Banksia spinulosa complex, the four forms of B. canei and the subtle difference between B. serrata and B. aemula. A visit was also made to the southern research zone to see the western banksias, many of them in flower and the other members of the Proteaceae. Of special interest were the Lambertia spp. many of which were flowering magnificently.

APRIL FIELD TRIP TO BADGINGARRA - JURIEN AREA by Pat Plozza (W.A.)

B. Grossa illustration by Margaret Pieroni (WA)

About 20 banksia enthusiasts from Perth and the Lesueur Branch W.A. Wildflower society met at Don and Joy Williams Badgingarra property.

After a very welcome 'cuppa' we travelled in 4WD vehicles to three sites on the property where we recorded B. lanata, B. grossa, B. incana, B. sphaerocarpa, var. sphaerocarpa, B. candolleana, B. menziesii, B. attenuata and B. chamaephyton. En route, Don pointed out some of the other rare and endangered plants that grow on their property - Hakea neurophylla, Eucalyptus suberea, E. leprophloia, E. lateritica. Later on in the afternoon we practised working out the latitude and longitude of the sites from our maps. At the end of the day a small group travelled the long way to near the junction of Coorow Rd and Brand Highway to record B. micrantha. Saturday evening was spent at Apex Camp Jurien viewing slides of local banksia and the Banksia Atlas video. Anne then had us all filling out Sight Record Sheets. Sunday morning at Drover's Cove National Park B. leptophylla, B. prionotes and B. attenuata were recorded.

Many thanks to Don and Joy Williams for their hospitality. Their obvious affection and enthusiasm for native plants was highly contageous and contributed to a very enjoyable weekend.

BANKSIAS AND DRYANDRAS

by Steve Dawson
illustrations by Sue Patrick

Banksias and dryandras are closely related members of the family Proteaceae. The Proteaceae take their name from the sea god Proteus, who could change his shape at will. Not surprisingly, members of this family exhibit a vast array of different shapes and forms, such as hakeas, grevilleas, coneflowers, dryandras and banksias.

Dryandra is a genus of over 60 species, restricted to the SW of Western Australia. They are sometimes confused with banksias but can be easily distinguished by the following characteristics:

1. Dryandras have flowers arranged in a rosette or as a dome shaped head. With most banksias the flowers arise from a cylindrical, or sometimes spherical spike. There are three exceptions to this general rule, all in WA. B. ilicifolia, B. cuneata, and the new, as yet unnamed banksia have heads of flowers similar to Dryandras.

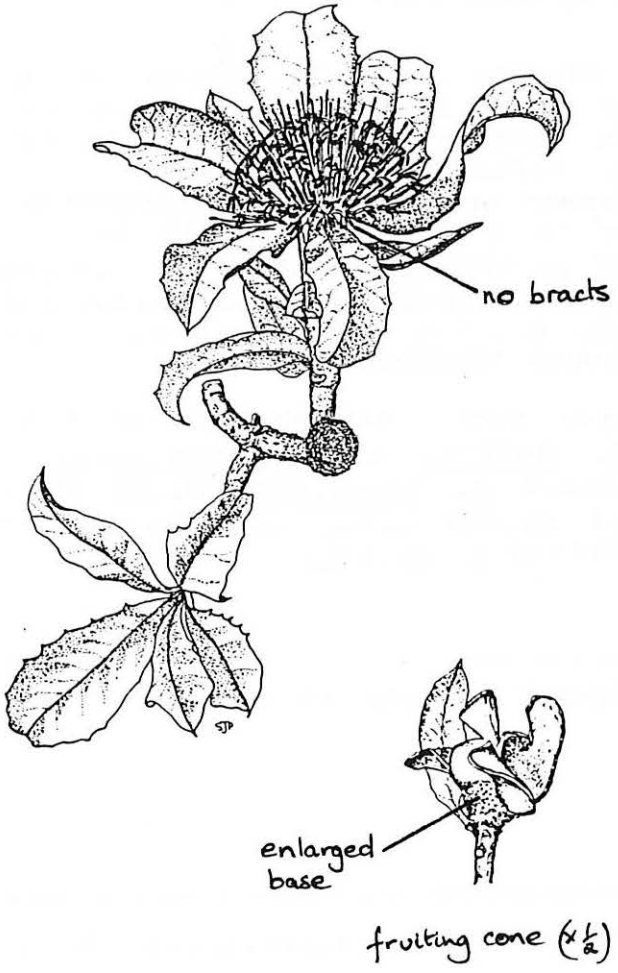
2. Dryandras have a circle of prominent bracts surrounding the head of flowers.

3. Fruiting cones of dryandras do not have the "woodiness" of banksias. Seed follicles arise from a flattish plate. In contrast, the seed follicles of a banksia always arise from an enlarged base. This was the original flower spike and is generally cylindrical or spherical. With B. ilicifolia, B. cuneata and the new banksia, the spike is foreshortened to a small rounded dome.

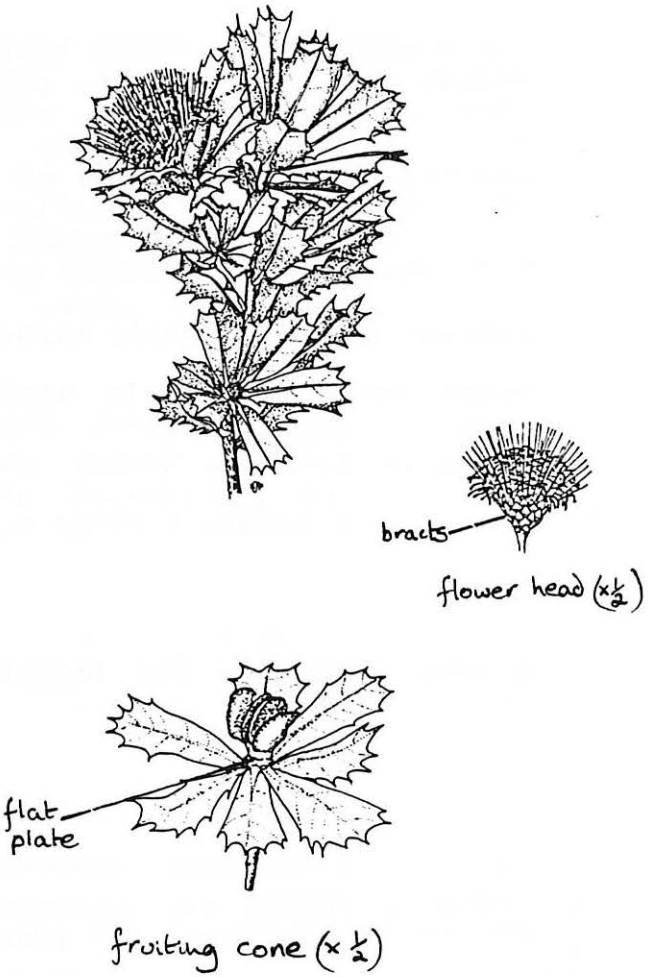
4. Dryandras possess very tough, hard and sharp leaves. Banksia leaves are, relatively speaking, softer to the touch. Dryandras are one of those shrubs that make life prickly in the WA bush.

The two most commonly confused species are B. ilicifolia (holly-leaved banksia) and Dryandra sessilis (parrot bush). Both are found in coastal parts of West Australia. In the following illustrations, the differences between banksias and dryandras can be clearly seen.

BANKSIA ILICIFOLIA



DRYANDRA SESSILIS



BANKSIA POLLINATORS

by Ross Goldingay (NSW)
accompanied by illustration on front cover

One of the many categories on the Banksia Atlas record sheet concerns the observation of animals visiting the inflorescences of Banksias and in so doing, acting as pollinators. However, to be effective in this task, the animal must come into contact with the tip of the style where the pollen is presented and later received (see illustrations page 24, Banksia Atlas Instruction Booklet and Supplementary Field Guide).

In general, Banksia flowers are adapted for visitation by large animals (i.e. birds and mammals). However, these animals are not easily observed on the inflorescences by big, noisy humans. Patient waiting will often be rewarded with the sight of a honeyeater visiting and probing on Banksia inflorescences but the mammals are mostly nocturnal and difficult to observe.

In Western Australia, it has long been known that Banksias are visited by mammals such as the Honey Possum. Only relatively recently has the importance of mammal pollination to Banksias been recognised. Dr Rob Whelan and I have been investigating the role of pollinators to several species of Banksia at Barren Grounds Nature Reserve, NSW, during the past two years. Our initial research required placing fibreglass-netting bags around inflorescences hoping to exclude birds and insects. However we did not recognise the small mammals in our study areas as important pollinators or their determination to do their 'job'. This determination (actually to feed upon the abundant nectar) resulted in these mammals ripping holes in our bags. Subsequent trapping in these areas revealed that the Brown Marsupial Mouse (Antechinus stuartii) was the main culprit but Bush Rats and Eastern Pygmy Possums have also often been captured visiting inflorescences, sometimes at heights of more than 2 m.

Our research has shown that these mammals do carry pollen on their snouts and are in fact, pollinating these Banksias. But how can a Banksia Atlas volunteer record such nocturnal visits? Well, often while these mammals are visiting inflorescences they defaecate, leaving a tell-tale sign of their former presence. The inspection of many nectar-secreting inflorescences in a given area will generally reveal the odd faecal pellet adhering to them if mammals are visiting. This can then be recorded as a pollinator observation (A. Taylor pers. comm.). The three species of mammal mentioned above produce faeces similar to but slightly larger than mouse 'droppings'.

Other small marsupials visit Banksias too! Rob Whelan and I have observed Sugar Gliders visiting B. serrata and B. marginata; in Victoria Vivienne Turner has identified B. spinulosa pollen in the diet of the Feathertail Glider and Steven Craig has observed the magnificent Yellow-bellied Glider visiting B. serrata.

A good reference for identifying mammal pellets is Barbara Trigg's, "Mammal Traps and Signs".

GRATEFUL THANKS for assistance with newsletter distribution to Joan Hegarty and Marjorie May (Canberra).

BICENTENNIAL BANKSIA DISPLAY

by Betty Rymer, Society for Growing Australian Plants NSW Ltd

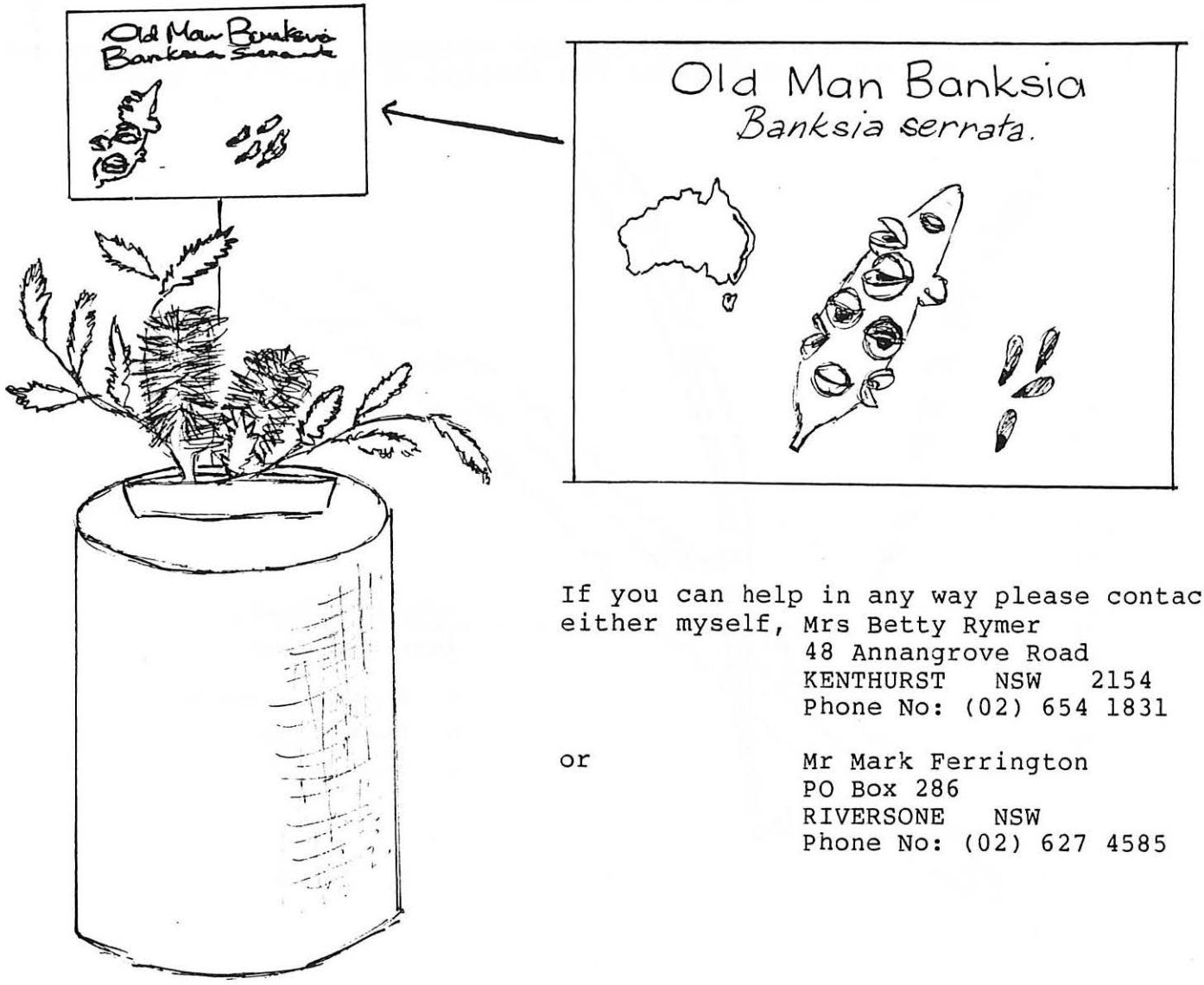
As part of the Bicentennial celebrations we are planning a display of Banksias in April, 1988.

At this time of the year, most of our Eastern Banksias will be in bloom, something we never see in our Spring shows. Also many Western ones that we folk in the East never see in bloom.

Joseph Banks aboard the Endeavour sailed into Botany Bay on April 29th 1770, just when the Banksias were in full bloom. This historic connection with Joseph Banks, the botanist with Captain James Cook, seems another good reason for using Banksias for display in a bicentennial year.

We are planning to display each species as a small individual display together with information about the species, the whole being co-ordinated in some way. We expect the preparations of this to be an on going process over the next three years.

One idea already in draft form is a board as shown in the diagram below. For this we need at least three cones, if possible, of every species displayed, maybe at different stages of development, also one that we can extract the seed. We ask if anyone can help us with the collection of these cones, especially those growing long distances from the Sydney area. We would also be appreciative of any suggestions that may help make this display an overwhelming success.



If you can help in any way please contact either myself, Mrs Betty Rymer
48 Annangrove Road
KENTHURST NSW 2154
Phone No: (02) 654 1831

or Mr Mark Ferrington
PO Box 286
RIVERSONE NSW
Phone No: (02) 627 4585

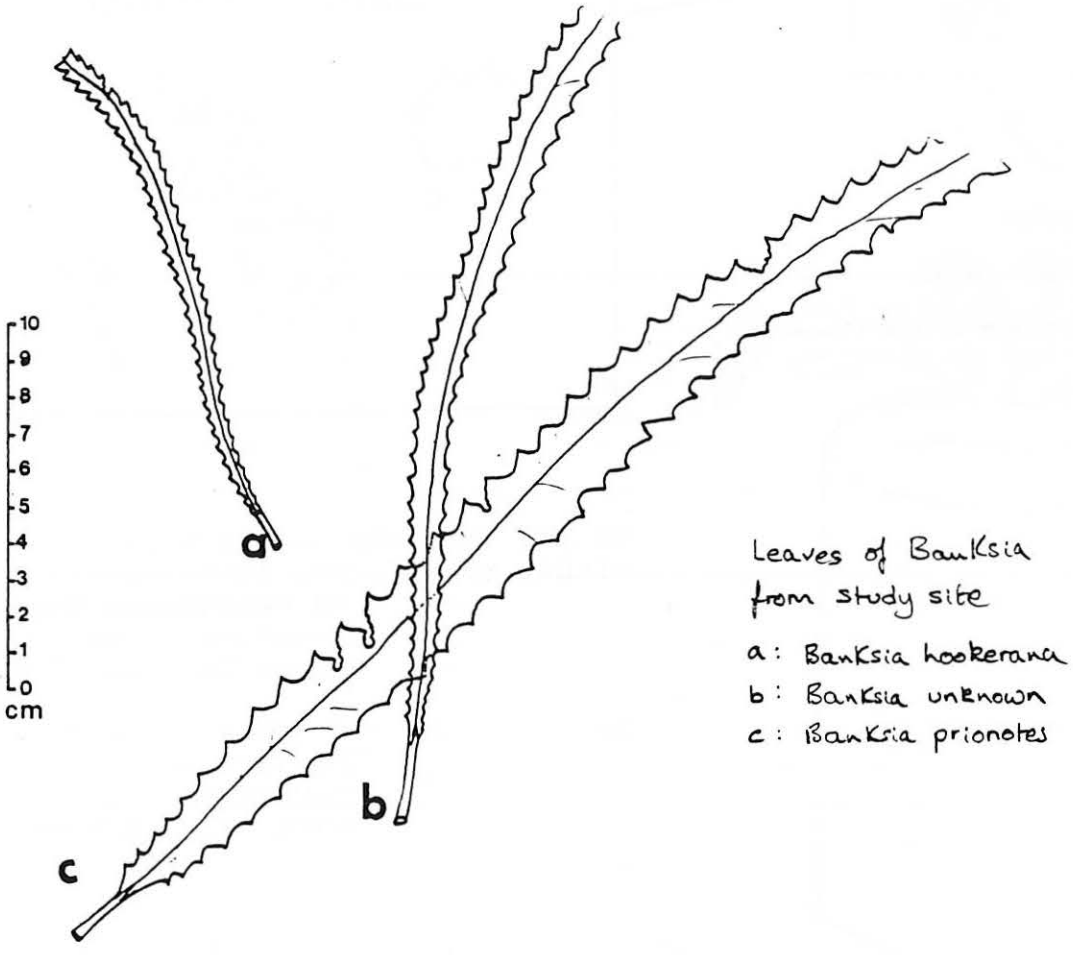
AN ENIGMATIC BANKSIA POPULATION by Greg. Keighery (WA)

Analysis of a distinctive group of Banksia shrubs near Lake Indoon, West Australia, suggests that they may be hybrids between B. hookerana and B. prionotes. The suspected hybrids occur on the property of Mrs Pat Plozza, a banksia volunteer. They are 5 large dome shaped plants to 3 m x 3 m, quite unlike the normal tree shape of B. prionotes present in the area, because branching occurs from near the base of the trunk. The habit is more like that of a gigantic B. hookerana. However, the smooth, grey, mottled bark is similar to that of B. prionotes. The 5 plants occur at the base of the eastern side of a large stable sand dune. B. prionotes is commonly found on the top and higher slopes of the dune. B. hookerana is found on the flats to the east of the dune. Therefore both species are in close proximity to the supposed hybrids.

The leaves, inflorescences and fruits appear intermediate between B. prionotes and B. hookerana. Inflorescence shape is similar to B. prionotes, but longer than B. hookerana. Fruiting cones are similar in size to both B. prionotes and B. hookerana, but have persistent old flowers which is a characteristic of B. hookerana only. Leaves of the two named species and the unknown banksia are illustrated below.

The characteristics already mentioned are highly suggestive of a hybrid origin for the unknown Banksia. A puzzling feature though is the very high pollen fertility levels of all 5 plants (over 95%). This is unusual as most hybrids are characterised by a high incidence of pollen sterility. also, seedlings germinated from the 5 plants are uniform, showing little sign of the usual hybrid variation due to segregation of parental characteristics.

I attempted to artificially cross the species, but was unsuccessful. Resolving this enigma must await the raising of artificial hybrids.



RECORD SHEETS by Anne Taylor

A few points to mention:

1. Availability of 1:100 000 Natmaps. Apologies to anyone who has been chasing these maps but has been unable to locate them. My recent travels have revealed that this series is widespread in Queensland, non-existent in Tasmania (replaced by State 'Tasmaps'), and hard-to-come-by in New South Wales. The maps can be obtained from each state's mapping authority, sometimes from local suppliers, and always from the Natmap headquarters in Canberra.

Natmap Sales Office	For Mail Orders
Ground Floor, Unit 3	Natmap Sales
Cameron Offices	Division of National Mapping
BELCONNEN 2616	PO Box 31
Tel (062) 526383	BELCONNEN 2616

For mail orders you will need to state the individual map number. This is easily worked out from the index leaflets available from Canberra or the State mapping authorities.

2. USE OF REVISED FLOWER CODES. For those who didn't notice them in the 1st Newsletter, here they are again.

B	=	majority in bud
F	=	majority in full flower
A	=	recently finished flowers (still with some colour)
C	=	flowers absent - old fruiting cones present
N	=	neither flowers nor cones present.

A number of record sheets are still coming in with the old flower codes being used. The difference between the two 'no flower' codes is as follows. 'C' refers to mature plants which are not flowering because its the wrong season, whereas 'N' describes plants which have not yet reached flowering stage (ie. too young). 'N' is most likely to be recorded after a fire, where the new seedlings or re-sprouts have not yet reached flowering stage.

3. State Codes. Remember, the appropriate State code to use is the State in which the record sheet is being completed, not the State in which you live.

4. Handwriting! A plea for good handwriting has become necessary. The last batch of record sheets that went to the punch card operators caused more than 600 errors in the entry of those data on to computer. And this was after they'd been thoroughly checked by us! Most of the mistakes were due to typists misinterpreting your writing!

5. Recording Hybrids and Intermediate Forms. My recent experiences in the eastern states have highlighted the problems facing volunteers in identifying certain banksias (particularly varieties of B. spinulosa and B. integrifolia). It is possible that you may come across either hybrids or intermediate forms.

Please record any suspects in the following way:

	Name	Species Code	Shrub/ Tree	
O B	B. spinulosa intermediate var. collina + var. spinulosa)	S P I	S	... etc ...
O B	B. robur x oblongifolia		S	... etc ...

The appropriate codes will be filled in when the sheets arrive at Wanneroo. Under 'Additional Remarks' state whether both presumed parents are present or not and also your reasons for calling the plants hybrids or intermediates eg. relevant measurements of leaves, inflorescences, fruiting cones etc.

Alex George would like to receive samples of any hybrids or varietal intermediates. Send samples of (1) the suggested hybrid or intermediate (2) both presumed parents if present (3) completed record sheet, to Alex George, Bureau of Flora and Fauna, GPO Box 1383, Canberra 2601. He will always confirm identification with you and return the samples if requested.

6. Recording Large Areas. A question I am frequently asked is "what's the procedure for filling in record sheets when the same banksia(s) occur over large areas?" I suggest that you try to record the boundaries of the species in question and on each sheet make a note under 'Additional Remarks' that this same species and habitat are constant between two stated record sheets. To refer to an individual sheet use the combination of letters and numbers in the top right hand corner eg. the first sheet filled in by myself today (June 19th) would be referred to as ATAWA8506191.

7. When "locality no for day" exceeds 9. The single box available only allows for 1-9 record sheets to be filled in in one day. when designing the sheet I obviously under-estimated the enthusiasm of certain volunteers! Instead of recording 10, 11, 12 etc. please substitute A, B, C etc as follows: 10 = A, 11 = B, 12 = C, 13 = D, 14 = E and so on.

Dates for the Diary

In early September I will be in south east South Australia and western Victoria. Tentative dates for meetings are as follows:

		Contact person for further details
Thurs. Sept. 5th	Mt Gambier S.G.A.P. (evening meeting)	Pat Woods (087) 254331
Tues. Sept. 10th.	Kowree Field Nats. at Edenhope (Vic) (day time meeting)	Judy Berkin (055) 851491
Thurs. Sept. 12th	Tintinara S.G.A.P. (S.A.) (evening meeting)	Marlene Cavanagh (087) 562731
W.A.		
Wed. Oct. 9th.	Busselton Field Nats. (evening)	Sandra Rains (097) 554344
Sat. Oct. 12th.	Denmark Wildflower Group	Lola Broadhurst
Sun. Oct. 13th.	(Sat. evening Sun. field excursion)	(098) 481257

And finally the last word from Rosemary Opala (Qld) "Thanks to your programme, this "Banksiaholic's" life has a new dimension. I've drawn and painted them, sewn them on tapestry, made them out of clay, talked to them, wept over bulldozed serrata's, and now I'm counting them! Fortunately my husband shares my fixation!"