

ASSOCIATION OF SOCIETIES FOR GROWING AUSTRALIAN PLANTSTHE AUSTRALIAN DAISY STUDY GROUP NEWSLETTER NO.30

Dear Members,

I'm writing this on Good Friday and by the time you read it I'll have just returned from California and beyond. Alf and I needed little encouragement to join a Rodger Elliot tour to attend a Symposium on Australian Plants at the Arboretum at Santa Cruz. We'll also have the opportunity to see their local flora in its natural setting, their gardens and, from all accounts, to enjoy their wonderful hospitality. Alf and I will be staying on a little longer to satisfy my 'travel bug'. The Study Group will scarcely notice my absence and will be in the capable hands of the 'Melbourne Co-operative'.

By now you will have received your 'Special Delivery' and sown one packet of each species sent. We aimed to give each of you a species that was either easy to germinate or would have been of interest to you. With some members our aim was specific; we wanted to find out if you could raise seed and cultivate plants we have found difficult to germinate. We also wanted to trial a few species under diverse conditions and aspects.

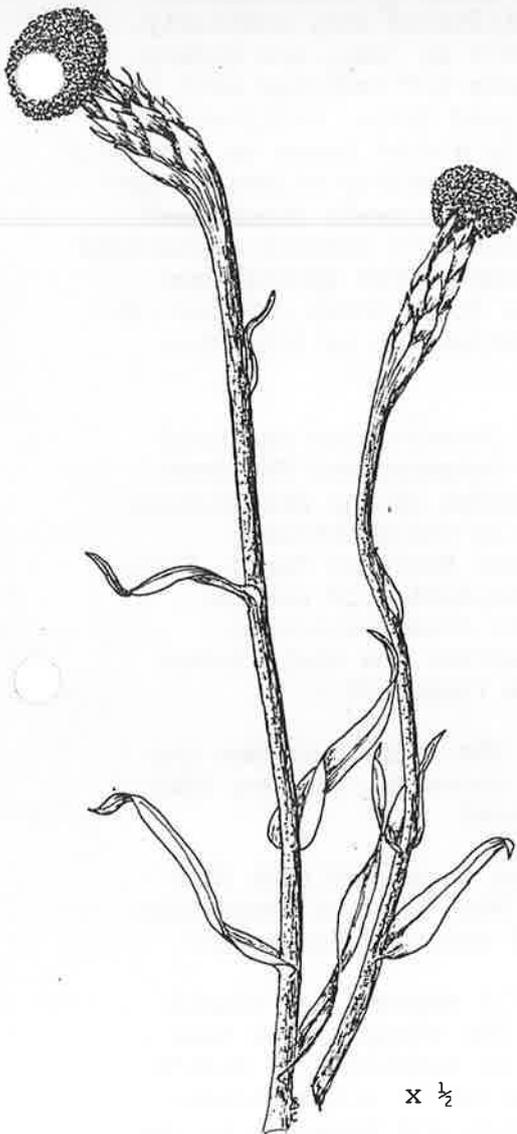
Remember, use your own tried methods and PLEASE label your result forms accurately with the species name and additional information exactly as on the seed packet (that is, include all abbreviations, etc.). For example, B.parvula var. parvula (P) ex Pt.Campbell 3/91 means seed was collected in my garden at Pinewood in March '91. Original seed (the provenance) was Port Campbell, Victoria.

We would have preferred to give you a larger seed sample, but we just didn't have enough seed - especially 'wild' seed.

Care was taken to count seed accurately, but any errors are entirely mine, and due to haste in counting seed for seventy plus members as well as organising Daisy and personal matters prior to our jaunt overseas. Also please note that some seed is small; take care to make sure that it has all come out of the packet.

Thanks for your help with the project.

Early in March Alf and I attended a conference in Canberra organised by the Australian National Botanic Gardens on "Ex Situ and In Situ Conservation of Native Plants." It brought together eminent representatives in the international field, delegates from Indonesia and Pacific countries (including New Zealand), directors of Botanic Gardens, delegates from Zoos, National Parks and Wildlife Services, the Forestry, Mining and Nursery industries, research organisations, etcetera. As well, there were many delegates designated as 'Volunteers',



x 1/2

Podotheca gnaphaloides

ation of Native Plants." It brought together eminent representatives in the international field, delegates from Indonesia and Pacific countries (including New Zealand), directors of Botanic Gardens, delegates from Zoos, National Parks and Wildlife Services, the Forestry, Mining and Nursery industries, research organisations, etcetera. As well, there were many delegates designated as 'Volunteers',

representing organisations such as Friends' Groups, local arboreta and, of course, SGAP. and Study Groups.

The urgency of the genetic conservation of wild plant resources world wide as a priority was stressed. How this could be instituted in a co-ordinated and co-operative way was the subject of many papers on diverse but related topics. These culminated in workshops and recommendations yet to be finalised.

Of interest to Study Group members was the role of SGAP. in this process. This was introduced by Gwyn Clark (SGAP. Canberra Region). Later Rodger Elliot's paper noted the contribution not only of contemporary private growers, but also the debt we owe to pioneer native plant enthusiasts. Early in the century they were promoting the indigenous flora, setting up invaluable collections in gardens and arboreta, as well as establishing specialist nurseries and seed services.

Peter Olde, Leader of the Grevillea Study Group, spoke with great verve of the contribution and commitment of a Study group, and of the evolution of considerable expertise and knowledge. The achievement of that Group is commendable. Only 40 of the 250 Grevillea species have not been cultivated and, similarly, only 17 of 111 species listed in Briggs and Leigh (1988) as 'Rare and Endangered' have not been cultivated. To those in the audience not familiar with the functioning of a Study Group Peter pointed out that Field Trips, cultivation of species, holding of Living Collections was primarily a cost borne by enthusiastic members. With time running out his series of high quality slides illustrating the beauty and form of many 'Rare and Endangered' or newly discovered species (and the rapid fire commentary to beat the Chairman's buzzer) emphasised the Leader's passion for his topic. Peter's paper brought forth spontaneous applause and illustrated significantly what a well run Study Group can contribute. Incidentally, the development of the Grevillea Collection in Illawarra looks impressive.

The final paper by Dr. James Armstrong, Department of Conservation and Land Management WA, was provocatively titled 'Genebanks or Genemorgues? The Need for a National Plant Germplasm Program'. He showed a video of the devastation caused by 'Dieback' in much of the natural vegetation in the south-west province of Western Australia, particularly in prominent National Parks. This, together with soil erosion and salinity caused by exploitation of natural resources, dramatically pointed to the need for ex situ conservation to complement existing in situ reserves. This paper summarised the whole issue of the conference. What is to be done? How is it to be financed?

As a 'volunteer' on the fringes I can only say I left the conference not too optimistic about outcomes, and I endorse the views of those who believe that the nexus between in situ and ex situ cannot be separated.

As active conservationists in the broadest sense it was suggested that SGAP members needed a Code of Practice. What do you think? What are our responsibilities in the maintenance of the genetic diversity of natural vegetation?

Before the editor applies the red pencil vigorously I'll express our thanks to the organiser for a great conference and much food for thought, the tour around the Botanic Gardens just on dusk, and the trip to Kosciusko. I didn't keep up with the party setting off to look at revegetation of eroded areas. Instead, the excuse to eat lunch looking over Hedley Tarn and botanise in the now dried up gravelly pools masked poor physical fitness. I had my reward though - some excellent colonies of Brachyscome stolonifera.

Regards,

Esma.

P.S. Subs are now due. The LARGE RED CROSS is there to remind you.

SPECIES OR FORMS NEW TO THE GROUP

Helichrysum purpurascens (DC.) W.M.Curtis

Purple Sunbush (Tasmania)

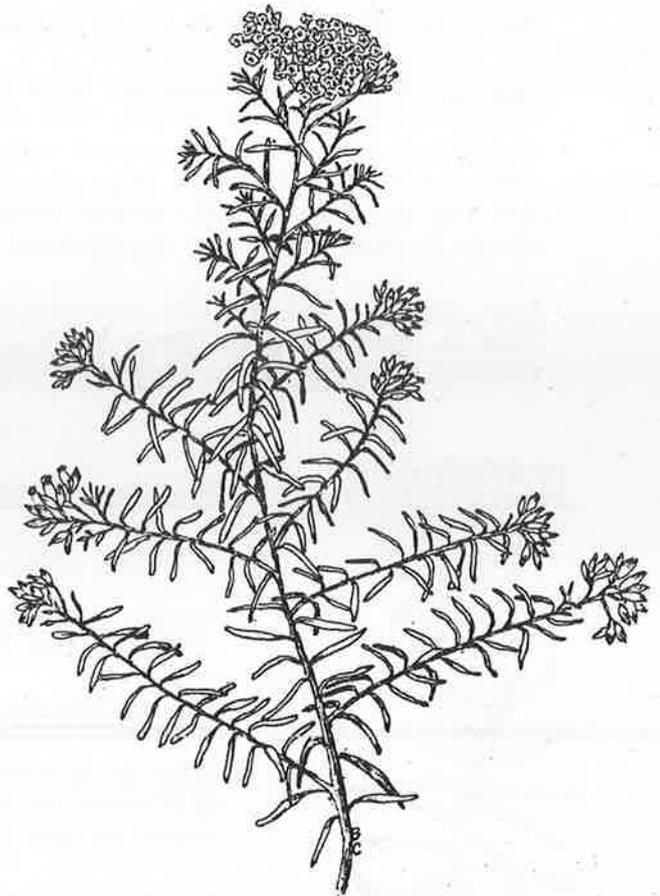
purpurascens = purplish or turning purple and refers to the purplish pink outer bracts.

W.M.Curtis lists the following synonyms in The Student's Flora of Tasmania:-

H.ledifolium ssp. purpurascens N.T.Burbridge and reflexum N.T.Burbridge,
Ozothamnus purpurascens DC.,
O.rosmarinifolius var. ericifolius Rodw.

We all admired this compact, columnar shrub when Maureen acquired it from David Jones in '85 or '86. It resembled H.diosmifolium a bit and at first we thought that was its identity, but the foliage is more dense and the flower buds are deeper pink. I have put many plants in many places since, but have found it disappointingly short-lived.

H.purpurascens, a Tasmanian endemic, is a shrub of 1-2m. It occurs on the coast or inland (below 250m) in dry eucalypt woodland. In this habitat it usually flowers in late December/January.



Helichrysum purpurascens x 2/3

My best garden effort was a closely planted pair which grew 1.1m high by 0.8m wide after two years. It seemed to like the position which was open, but sheltered on the north side by a large Correa 'Marion's Marvel' and on the east and west sides by very large raised pots. In October last year clusters of buds appeared all over the plants. The buds were small and pointed, deep rose-pink, and the clusters were 2.5 to 3cm across. After a month the heads were just beginning to open and the clusters became pale pink as the inner rows of white bracts began to fold out.



x 4

Finally, the heads all opened to white with just a hint of pale pink. As the two inner rows of bracts radiated the effect was of many tiny double flowers. The plants were very pretty indeed and much time was spent just gazing with pleasure. Ah, me! By December they were still in flower in parts, but beginning to set seed. The dry, fluffy appearance became more and more marked until one day in January the plants looked dead - and were.

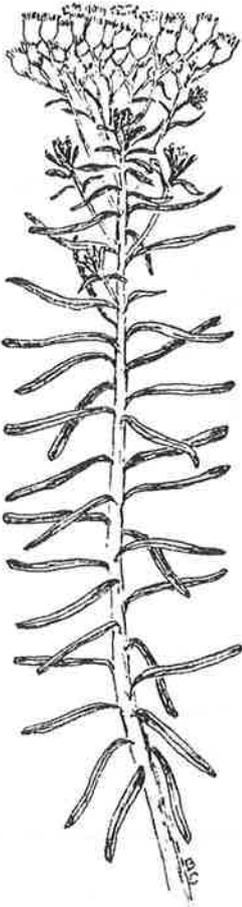
Simultaneously, a large plant in a big pot (which had also flowered and seeded profusely) shuffled off this mortal coil. Don't ask me why they died. They could not have been better tended or more appreciated. Perhaps the tending was too stifling because I have two plants fending for themselves in hard, coastal conditions, one of which is still flourishing. Just to make a good job of it none of my cuttings struck. I was inconsolable, but kind Esma has given me a pot from Canberra.

The leaves are small, stalkless, linear, usually standing out at right angles from the pale, woolly stems. They measure 5-11mm x 1-2mm, are dark green (almost glabrous) above and white woolly beneath, with margins turning under. The foliage is very aromatic.

Propagation: It should grow from seed, but we have not had any. I am trying the seed collected over December/January. Cuttings root sometimes for me - with a better strike rate when they are taken in December or January than in March or April. I have found branched cuttings are more successful.

Drying: A number of bunches were picked on the same day and dried by different methods; one was air-dried, one was painted with clear polyurethane and then air-dried, one was glycerined overnight and air-dried and the last was glycerined for two nights and then painted. In my opinion the simply air-dried one and the painted and air-dried ones are the best. The glycerin seems to have slightly coarsened the appearance of the dainty heads.

Name change: The shrubby helichrysums will in future be called Ozothamnus. Arne A. Anderberg in Opera Botanica (1991), Number 104, p.89 has listed this species as Ozothamnus purpurascens DC.



Helichrysum costatifructum R.V.Smith

Synonym: Helichrysum buftoni Burb.

(Opera Botanica has it listed as Ozothamnus costatifructus (R.V.Smith) A.Anderb. comb. nov.)

costatifructum = ribbed fruits

This is another Tasmanian endemic which is also fairly difficult to grow in Melbourne. It is a shrub, 1-3m tall, found on the coast in southern and eastern Tasmania.

Aromatic, grey-green leaves, 1.5-3.0cm long and 0.25-0.4cm wide, are held at right angles to the stems, although the older leaves often bend back towards the stem. The mid-vein is depressed on the upper surface, the tips are blunt and the margins turn under. The lower surface is very white woolly, as are the stems.

White buds are produced in profusion in November/December and have a fine woolly appearance. The buds are held erect in tight clusters, 2.5-4.0cm across, and are cylindrical or vase-shaped. The inner bracts do not usually radiate.

Esma collected seed from Bicheno to Apsley Gorge turn-off in March '88. It was sown in April '88 and germinated very well in 20-30 days.

H.costatifructum x 2/3

Plenty of seedlings resulted, but did not do well in my garden at Hawthorn, nor in large containers. Aphid attack may have been responsible for the poor, straggly growth or

the fact that the containers were in a fair amount of shade. At the time I was not impressed with their potential, but have since noticed that at least one plant is growing very sturdily in our coastal garden, where it is looking quite handsome and flowering with abandon. After two years it has grown 1m high and 0.8m across. I get the definite impression that it relishes an open, airy position. The Encyclopaedia of Australian Plants, Vol.5, by Elliot and Jones tells us that H.costatifructum needs good drainage and some shade, and does not thrive if subjected to long, dry periods.

H.costatifructum resembles another Tasmanian endemic, H.reticulatum somewhat, but the latter has bigger leaves and the upper surfaces are wrinkled. The hairs on leaves and stems are cobwebby and the fruits are densely hairy, whereas

H. costatifructum has crisped woolly hairs and glabrous fruits.

Drying: In mid-December I picked some flowers and glycerined them for one night before air-drying. Esma air-dried her bunches. They looked whiter and prettier in my opinion, but the leaves of the glycerined ones are more life-like.

Although this shrub is not a knock-out it might be worth trying in a few more places.

Judy Barker.

Brachyscome tetrapterocarpa

It frequently is the case that one sees what one wants to see. In the spring of 1989 I had just discovered Brachyscome curvicarpa (yellow form) on the Quilpie Road near Charleville in south-western Queensland. It was growing on the roadside verge just beyond areas still inundated with flood waters. So when I found a species of similar appearance with concave fruit I thought, "Ah, the white form of B. curvicarpa."

Never mind that the fruit was black and not brown, and the leaves so hairy that red clay particles stuck to the glandular hairs - thus spoiling the quality of the herbarium specimen. Here was another to strike off the 'Wanted List'.

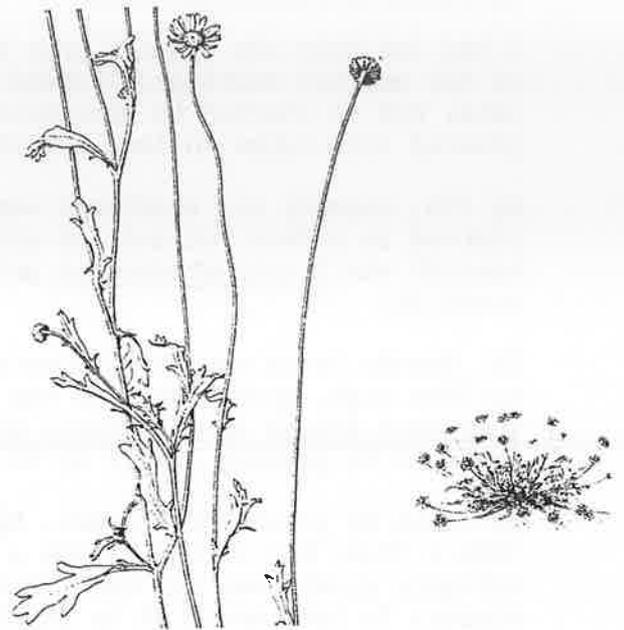
This white form also favoured the moist conditions of creek flood plains and roadside run-off, etcetera. In good conditions it was quite a robust plant spreading to more than 30cm and almost as high. White flowers were at the ends of stout, leafy, ascending stems. The soil was red clayey sand, whereas the yellow form was found on the brown heavy clays of the riverine flood plains.

We were on our way to examine flood plains associated with the upper reaches of the Wilson River beyond Eromanga in a vain attempt to find B. rara.

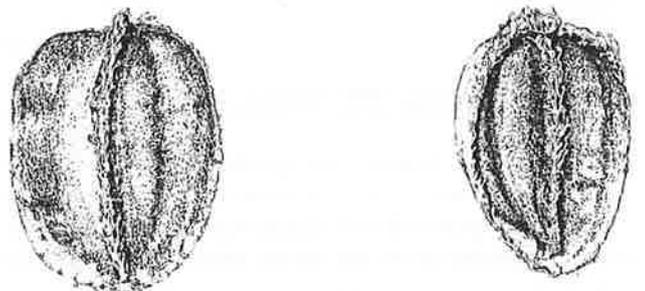
In defence of myself my notes of the day stated, "... had numerous stops and the 'find of the day' - B. curvicarpa (white form) ... looked quite different from the yellow form ... will check the specimen ... as from memory the leaves (of the yellow form) were glabrous". But I didn't check it.

The determination came back from Dr. Philip Short - Brachyscome tetrapterocarpa! This was a species new to me. I rushed to look at the fruit under the microscope. Why hadn't I noticed the difference! What a beautiful fruit, with a central hairy fold at the base of the concave fruit.

I sowed some of the seed collected from my herbarium specimen in March '90 using the Bog Method. Germination occurred in 16 days with germination rates of 20%.



B. tetrapterocarpa x 1/2



x 13

It is too soon to assess its horticultural potential as I've only grown it in a large pot. As with many arid area plants growth, flowering and seed development is rapid, lasting only a few weeks. Flowering stems, because of their ascending nature, are brittle and break easily. It is a very floriferous species, however, and eye-catching in full bloom in its natural habitat. Seed from this cultivated plant is yet to be sown.

Esma Salkin.

Brachyscome tetrapterocarpa in cultivation.

I had let this new species pass me by until Esma waxed enthusiastic at one of our monthly meetings. I sowed seed on 1/9/90 thinking it might be too late, but it started to germinate in 14 days and six seedlings were transplanted into tubes in late November.

By 7th. January the seedlings were already in flower so three tubes were planted in a 34cm pot and the growth was cut back. At this stage we knew the species was B.tetrapterocarpa and we were extremely keen to find out all about it.

Dr. Gwenda Davis described plants as ... "Ascending glandular-hairy herbs up to 30cm high, branching from the base." We didn't know whether this meant they were annual or perennial, but now we are growing it B.tetrapterocarpa seems to be proving itself to be an annual.

At first my plants grew erect. By late February the clump of three measured 30cm x 75cm, but it had become a bit straggly on one side. In late March the straggly growth was cut back, but it seemed to be yellowing and losing its vigour. In late April it is still going (just) but it is a shadow of its former self. Obviously, suitable conditions extend the growing period.

The heads are a good, pure white, at first 16-20mm across, but increasing to 20-24mm at their peak. They are held conspicuously on flowering stems 12-20cm long. There were 16-25 ray florets on these plants, but there can be up to 34.

The leaves are mid-green, 10-45mm x 4-10mm, sessile, irregularly toothed (with 7-10 lobes). Leaves and stems are very glandular-hairy.

As soon as there were any suitable heads they were rubbed together. This was in late January. On February 9th. the first seed was collected. The fruit looked mature, but was brown or cream. By mid-February the seed was quite black. Seeds were easy to see, but hard to collect; the slightest bump dislodged them. Seed collected this year was sown in autumn, but has not germinated yet.

As Esma observes it is too early to assess the potential of this species, but experience so far suggests it may be a bit straggly and fragile in my garden. It can't compete with B.bellidioides (another white annual) for form or profusion of flower, or with B.halophila for that matter.

Judy Barker.

INVOLVING THE WHOLE FAMILY IN THE PURSUIT OF DAISIES

by Esma Salkin.

Colin Jones, an enthusiastic daisy member, believes in getting the family involved. Not content to cultivate daisies in Ringwood and now in Orange, he has persuaded daughter, Linda Harrison, to try daisies at Pyramid Hill in Victoria - an area with a very dry climate.

Not only was she to grow daisies in the garden, but she had strict instruct-

ions to rub 'heads' together and collect the seed. Well, Linda followed her instructions dutifully and capably because we've just received a packet of Helipterum polygalifolium from her garden. We hope and expect that seed from these cultivated plants will germinate easily and we can introduce this bright yellow annual to our gardens.

A BASIC PROCEDURE FOR PRODUCING AND DEALING WITH HYBRIDS

by Dr. Philip Short.

It is evident from the last newsletter (29) that a considerable number of hybrid brachyscomes are being found by members. This is only to be expected when many species which seem to readily outcross with each other, are being cultivated in the one garden. In such cases, should a striking hybrid suitable for introduction to the trade be produced, it may be possible to mass-produce the plant from cuttings, trial it under different conditions, and introduce it into the trade. This may be a very satisfying pursuit but unless good experimental procedures are used, and good records are kept, it subsequently may be extremely difficult to ascertain the parental species. This would be a problem in the event that the cultivar was lost to the nursery trade but was still desired for gardens.

From the viewpoint of scientific research it is also extremely beneficial if records are kept. I have recently commenced a taxonomic revision of Brachyscome and am working in conjunction with Professor Kuniaki Watanabe of Kobe University, Japan. My colleague, who answers to "Nabe", is a cytologist (i.e. he studies chromosomes) and during the early 1970s he worked with Professor Spencer Smith-White. The latter, known to all and sundry as "Spinny", is now in his eighties and pioneered plant cytological studies in Australia. He discovered, among other things, that a "form" of B.lineariloba, now known as B.dichrosomatica, has only two chromosomes - one of just three plant species in the world with such a low number. Spinny's research work took him to Japan and I gather he came to know Nabe due to the latter's ability to germinate seed of B.lineariloba and its allies. He achieved this, and still does it so, by soaking the fruit and carefully removing the outer wall. It is this outer wall (the pericarp) which apparently contains the inhibitors to germination. Because they could now readily grow material of B.dichrosomatica and other members of the B.lineariloba complex, Nabe, Spinny and others intensified their studies of the cytology of this species group. They produced artificial hybrids and examined their chromosomal complement. This resulted in a better understanding of the evolutionary relationships of the component taxa of the B.lineariloba complex. After a lapse of some years, Nabe has recommenced this work, expanding it to cover all species of Brachyscome. These studies will, and already have, shed a great deal of light on the taxonomy of Brachyscome. For example, Nabe has managed to produce artificial hybrids between B.dichrosomatica and B.goniocarpa. The current classification, i.e. that by Gwenda Davis, suggests that a close relationship between these two species is unlikely. Nabe's results suggest otherwise.

Thus, studies of hybrids can benefit taxonomic studies and are important in leading to a greater understanding of the evolution of plant groups. And, by keeping records, cultivators of brachyscomes can help in this pursuit at the same time as they are investigating plants for horticultural potential. What records and procedures are desirable to do this? I suggest the following:-

1. Only grow plants that are collected in the field and for which dried voucher specimens (for the study group herbarium and the National Herbarium of Victoria) are kept.

This means that there is little risk of you having obtained hybrid seed - which is always possible if seed has been gathered from a friend's garden where a number of species are cultivated. Just as importantly, by collecting

a herbarium voucher it will be possible to have the identification of the specimen checked by a botanist. At this stage don't expect a cut-and-dried answer for many of the species! Identifications are still primarily based on the revision by Davis and, quite clearly, her concepts are often in need of refinement. Not that Davis is the only one at fault, e.g. it seems to me that botanists have for many years misapplied the name B.angustifolia var. heterophylla to plants from south-eastern Victoria that have close affinities to B.formosa and its allies. Judy Barker (Newsletter 29:10-13) has usefully documented some of the problems with this complex.

2. When growing plants from the known seed source place each plant in its own pot. Before the capitula have quite opened isolate plants from each other (to stop any promiscuous pollination by insects) by placing each pot in a cage or by bagging each capitulum which is to be cross-pollinated. Apparently old nylon stockings are good for making cages: i.e. make up a wire frame to fit over a plant and stretch the stocking over the frame. I gather cheese cloth is also very good and individual capitula can be satisfactorily isolated in bags constructed from a rectangle of glassine paper edged with double-sided adhesive.

If you only have a few species then you could isolate the two you are trying to hybridize from other plants by simply locating them in a different part of the garden. But I suggest you are likely to obtain more seed by hand pollination. Furthermore, there is no guarantee that wide-ranging bees will still not effect unwanted pollination.

3. Once the capitula have opened and the disc florets are clearly producing pollen attempt to obtain hybrids by making deliberate crosses. To make the crosses simply remove a capitulum from one species and gently rub the pollen-producing florets over the florets (in the other capitulum) with freshly exerted styles.

This is no different from pollinating a pumpkin, just a bit more fiddly.

The above is rather a crude method of effecting cross-pollination and it would be better to remove the pollen from one species with a fine paint brush and place it directly onto the styles protruding from the florets of the other capitulum. If the species are self-incompatible (i.e. must be cross-pollinated to produce seed, and it is probably safe to assume that this is the case for most of the showy species of Brachyscome with horticultural potential) then it won't matter whether you put the pollen on the recently produced and apparently receptive stigmatic surface of the disc florets or the ray florets. (If plants can "self" then you are more likely to effect successful crosses by applying the pollen to the ray florets. In such cases it would also be sensible to remove the pollen-producing disc florets from the capitulum.) Note that the stigmatic surface is not at the apex of the style branches but on the inner surface of the two arms of the style.

4. Keep the plants isolated from one another (i.e. still in their cages) to prevent the chance of unwanted cross-pollination. Allow capitula to mature and collect any seed that is produced.

Note that the mature seed will look like that of the maternal (seed-producing) parent.

5. Sow the seed and examine the resulting progeny to see if they look like the maternal parent (hybridization unsuccessful) or whether or not they display a different morphology (hybridization successful).

(Hybrids may resemble one or other of the parents quite closely but it is perhaps more likely that they will display attributes exhibited by both parents.)

Collect material that is suitable for a herbarium specimen, i.e. stem, leaves, capitulum and any mature fruit that may be present. But make sure that you keep adequate cutting material for propagation!

Having written the above I should make it clear that I've never done any of this sort of work! But I think these rather basic guide-lines should work quite well and not be too difficult to implement.

Incidentally, members who have had apparent hybrid taxa growing in their gardens for several years and are wishing to identify the parental taxa may find this an extremely difficult task if they grow a number of different species. Thus, you may not be simply looking at first generation (F1) hybrids but plants produced as a result of good species crossing with F1 hybrid taxa. It can be extremely difficult to trace the origin of such hybrids. Which is yet another reason why it is best to cultivate plants from wild collected seed and keep notes and herbarium vouchers.

"O, what a tangled web we weave" ... (not that we are practising to deceive!)

by Mary McKay and Judy Barker.

On 19/2/91 Mary McKay wrote from Fitzroy, South Australia:-
"Just a few lines on my favourite daisy of the moment, Brachyscome stuartii. It has given me a lot of pleasure over the past few weeks since Christmas, flowering profusely and not affected by the high temperatures we've had over that period.

Apart from the many white and an odd mauve flower on each plant there have been lots of soft yellow flowers which make a lovely combination. I have plants in pots and also in the ground - the latter seem to have more yellow flowers than the ones in the pots.

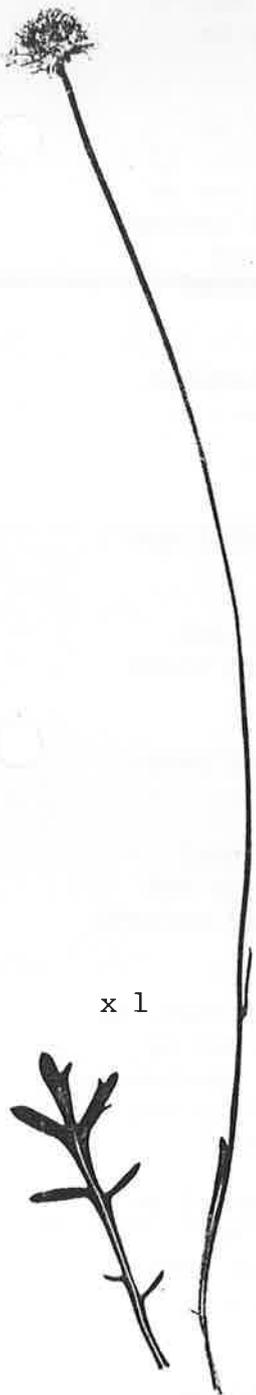
I'm hoping, as Maureen mentioned in Newsletter No.21, that it is a perennial."

(So far as we know B.stuartii is a perennial with mauve, white or pale blue heads. In response to an astonished query Mary replied on 26/2/91 and enclosed a pressed leaf and stem.)

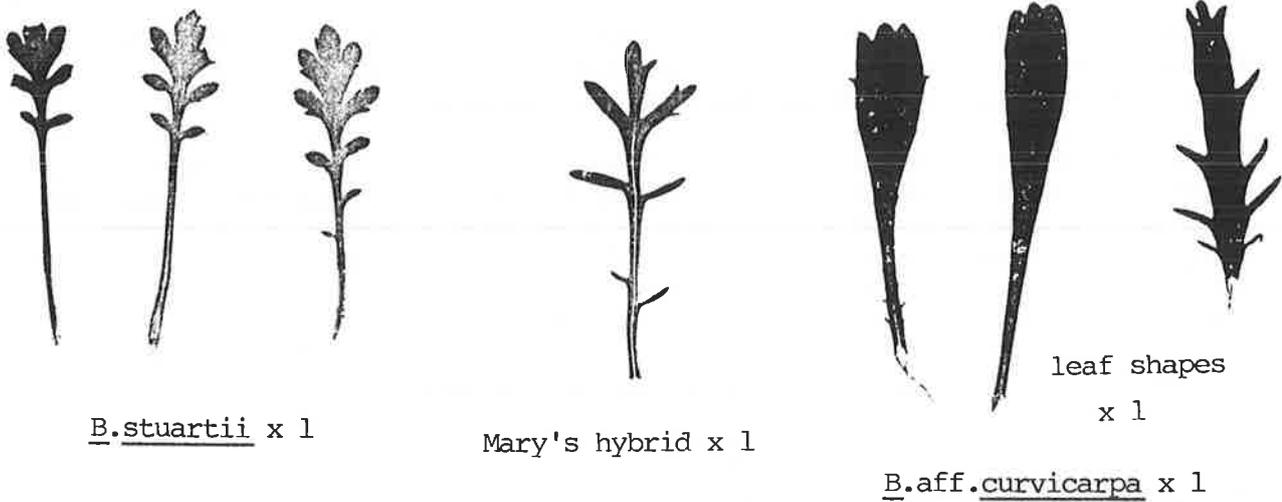
"When I received your letter yesterday I went out and counted 10 flowers (yellow) on one plant in the ground plus 2 or 3 mauve heads. As you see it is the ray florets which are soft yellow. Do you think the leaf is similar to that of the usual B.stuartii?

Our soil is alkaline here, so for lots of plants I have to add sulphate of iron or iron chelates (when I get around to it)."

(Mary had sown seed of "B.stuartii" from the AD SG seed bank, so the female parent of these hybrids must be B.stuartii. From the yellow heads we are guessing it has crossed in the donor's garden with B.aff.curvicarpa (yellow ray florets) - the only yellow brachyscome we have grown for some years. We have asked Mary to collect seed from the hybrids (if any) and to try to recall where that particular seed was collected. Meantime, Maureen has remembered growing the two species we suspect side by side in her front garden, and she collected seed to donate to the seed bank. She did not sow it herself last year or we may have heard about it before this. Colin also donated seed of B.stuartii which grew in his front garden with white and mauve brachyscomes:- aculeata, scapigera, spathulata, diversifolia, ciliaris and multifida (Grampians). B.aff. curvicarpa (yellow) grew in his backyard.)



x 1



As to leaf shapes, the B. stuartii leaves have broader segments than Mary's hybrid. I suppose it is possible to imagine that the hybrid leaf may be intermediate between the two species above.

As Philip has clearly explained in his article it could be difficult to delve into the murky past to try to establish who was the father. Also, if I have my facts right, the "B. stuartii" seed may have been collected from an F1 hybrid. If we are right about these two species being the parents perhaps we should follow Philip's methods using B. aff. curvicarpa (yellow) and B. stuartii (wild seed of both) and compare the results of the controlled experiment with the accidental hybrid.

As far as hybrid production for the trade is concerned Philip's procedures have a ring of certainty about them which we would do well to follow.

There are some problems involved:-

1. We must find means to store our wild seed in such a way that it will not lose viability.
2. The size of our gardens (as well as the level of activity of bees and other pollinators) may limit our ability to isolate plants or even house a number of individual pots.
3. Availability of nylon stockings; I (at least) will have to beg for cast-offs from my more social daughters, or else resort to cheesecloth.

I must own that I would be sorry to discard these fascinating accidental hybrids - especially if they knock out the eye. Until this season none had arisen at 9 Widford Street and, when they did, I felt as though I had brought forth another crop of children or grandchildren.

On a slightly different subject, many members have expressed concern that, in growing all these species together and extending their flowering period by providing luxurious conditions, we are in danger of losing the pure species. This is true. (It is probably also true that the average gardener, shopping in nurseries, has not been educated to give a hoot about this problem.)

But we cannot hope to trial species for horticultural potential (even if we had space) in pots. They must withstand garden conditions. Again, the proper storage of wild seed is essential, but as a study group we may also have to give more weight to vegetative propagation - especially where dealings with the horticultural trade are concerned.

These are preliminary reflections prompted by Philip's excellent article. Please think about our future proceedings and write to express your ideas.

NATIVE SNAILS and FISH POOP

by Bev Courtney

I should learn to keep my big mouth shut at Study Group meetings! While I am happily holding forth on some topic which I hope will be of interest to fellow members, I fail to notice the gleam in the eye of the newsletter editor, and suddenly, -- pounce!, "I'll have an article on that for the newsletter". The following is the result of two recent pounces, one while suffering a badly bruised knee as a consequence of falling off a ladder! (Not me, the editor!)

First, the snails. I had noticed that snail bait was attracting and killing some tiny snails with flattened spiral shells which I took to be ordinary introduced garden snails. Then I remembered an article by Sydney naturalist Densey Clyne about native snails which are carnivorous. She said that they had flattened spiral shells and not the rounded, 'humped' shells of the introduced variety. It seemed a good idea to have a snail which not only doesn't eat plants, but which actually eats the snails that do, so I didn't particularly want to be killing them. In order to find out if these were the good kind of snail I had to find out what they ate.

I collected a half dozen or so from under pots and put them into a small terrarium with some garden soil and a nice rock. Being daytime they weren't too happy about being out and promptly disappeared under the rock. I kept them in our spare bathroom, (much to the disgust of 'him indoors'). At night they were very active, so I provided them with a square inch of fresh lettuce and some succulent brachyscome leaves. Next morning they were all back under the rock, probably somewhat hungry because none of the greenery had been touched. So it was off to the compost heap to find some meat! I gathered a few slaters, (dotted them on the head to stop them moving), and some of those jumping things which the blackbirds dig for. That evening there was a different scene! Six hungry little snails fought and clamoured around the forlorn pile of dead bodies. In the morning there wasn't a bone to be seen. It seemed as though I had found the carnivorous species alright. I had thoughts of allowing them to breed and filling the garden with thousands of snail-eating snails, but after a week of dotting slaters on the head to provide their nightly meal, I got tired of the whole exercise and returned the captives to the garden (well away from baited areas).

The next pounce was occasioned by Maureen saying that as soon as seeds germinated she put Osmocote on them and that many of them died. I used to put IBDU and Osmocote on seedlings as soon as they were pricked out and found that I also lost quite a few. I put it down to the fact that they can be easily burnt by fertiliser when so young and tender. Now, I don't put any slow-release fertiliser on them until they are about an inch or so high and much stronger. What I do is water them in (at pricking-out stage) with 'special water'. This comes out of our fish pond and makes seedlings so green that I feel it must be especially rich in nutrients, particularly nitrogen. With twenty fish 'pooping' away all day who can wonder? I also use it to water in plants when planting out. Topping up the pool with fresh water each day saves me a major yearly clean-up and the plants get a good start in life. I sometimes water newly-emerged seedlings with fish pond water, but generally find that they are ready to prick out before they need feeding anyway.

If you haven't got a fish pond and don't want to put one in just to water daisy seedlings, then I suggest weak Aquasol or something similar. My watering bottle is a Maxicrop bottle (500ml), with a small hole punched in the top. The sides are flexible enough to enable it to be used as a squeeze bottle and it's very useful for watering small seedlings and cuttings.

HELP HELP!!!

by Esma Salkin.

1. We need seed of Brachyscome microcarpa, seed from cultivated plants and wild seed from known provenance.
2. We need Brachyscome tatei, cultivated plants.

RICE FLOWER Helichrysum diosmifolium

by Esther Cook.

We have been excited by the germination of Rice Flower seedlings using the recommended Bog Method. I soaked some seeds for 48 hours in water, stirring occasionally to disturb the mucilaginous material from the seed cases, then draining off the murky water and replacing it with clean water. I sowed this soaked seed by pouring the water over a ridged soil surface, as water runs on some of the disturbed areas where the seed germinates naturally. The second half of the tray was sown by simply sprinkling the seed - chaff and all - on the surface and pressing it in lightly.

The soaked seed began to germinate first, with 4 seedlings in 7 days. However, both halves of the tray then began to germinate together. We had more than 40 seedlings when two disasters struck. One was our grand-daughter; the other was an infestation of dung beetles which descended one night when a nearby light was left on for several hours. By the time we discovered them the next morning literally hundreds of beetles had dug in. The only way we could remove them was to immerse the tray in water and skim the beetles off as they surfaced. As each beetle is many times bigger than a seedling, there was considerable upheaval of the soil, and some loss of seedlings.

We have over 30 seedlings again now and, while the rate has slowed, it has not yet stopped (22 days). The seedlings are so tiny I dread potting them on. I will use the fibre pots which should not restrict the roots in any way.

Our cuttings currently being propagated by Gatton College are in these same pots and will be hardened off and planted out as soon as the roots begin piercing the fibre. The College is also propagating the seed of H. elatum and H. cuneifolium sent by Esma. Hopefully, by the time they have seeds we will be able to do it ourselves with more confidence.

Tissue culture is being used with Rice Flower, e.g. IHM offered to tissue culture our best stock, providing us with some plants in return for rights to the rest. We didn't accept their offer, partly for commercial reasons and partly because it could lock producers into one type. This happened a few years ago, when any number of Rice Flower plants could be bought from nurseries - all the one type (the woody, wider leafed "coastal" form). We had three plants of this type among our 30-40 original types, but never even bothered harvesting them as they were so inferior to our best ones. They were among the first to succumb to root disease.

We are currently propagating from six good types with good disease resistance. There must be many more types in the bush, since each of our distinct types came from a different locality, and there is considerable variation within each type. Gatton College was very pleased with the quality of the cuttings we supplied.

(Esther is a new member from Helidon, Queensland. This lies west of Toowoomba, between Gatton and Toowoomba.)

FIELD TRIP TO MOUNT BAW BAW - 23/2/91 to 25/2/91

by Esma Salkin.

Participants: Val and Ted McConchie, Faye and Bruce Candy, Maureen and Vic Schaumann, Natalie Peate, Esma and Alf. Brian and Mary Dacy bunked in their Toyota Campervan in the car park opposite and the four Cooks joined the party on Saturday.

Accommodation was good for a weekend trip, but as Fred, the caretaker, did not appear until late Saturday afternoon at one stage it looked like candle and gas lamp power. Fortunately we had some who were wise to ways of hiding keys and found how to get the generator going. Getting the thing turned off

was another matter. We left Fred to sort that out.

Spring flowering had finished. There was plenty of seed if you knew what you were getting. The number of Asteraceae on the Baw Baw Plateau is low. Why? Heaths and sphagnum bogs were rich in species, with a large variety of prostrate species. In particular there was a prostrate Exocarpus nana with yellow-tipped red drupes. We thought this was gorgeous hugging the granite rocks.

I'm not so sure of the 'sensational views of the Latrobe Valley', perhaps mystic lakes was what was meant.

The walking was an easy stroll. The energetic headed towards Mt. Phillack; the botanisers collected and sprawled on the grass. The Mt. Phillack Track is poorly marked now. It was better in the late 1960's.

List of plants seen:-

Asteraceae - alpine

Brachyscome obovata, a good colony on Baragwanath Flat and en route to Mt. Phillack. Seed prolific.

Celmisia asteliifolia (broad leaf), up to 40cm high, 99% in seed.

Celmisia sp. (fine leaf), 15cm high.

Erigeron pappocroma, seeding.

? Gnaphalium sp.

Olearia algida, seeding.

O. phlogopappa, seeding.

Ozothamnus secundiflorus, flowers and seed.

Senecio lautus, broad serrated leaf.

S. pectinatus, flowers and seed, not widespread.

(B. tadgellii, not found.)

- subalpine

Cassinia aculeata, flowers.

Helichrysum scorpioides, Tanjil Bren area. Beneath dust!

H. semipapposum, " " " " "

Olearia argophylla, seed.

Ozothamnus thyrsoideus, seed.

Other species

Coprosma spp. (three), berries.

Correa lawrenciana

Exocarpus sp., lovely stands.

Gentiana diemensis

Geranium sp.

Orites lancifolia

Sun Orchids, seeding.

Persoonia arborea, flowers, green seed.

Prostanthera cuneata, white.

P. lasianthos,

Ranunculus sp.

Viola hederacea

Wittsteinia vacciniacea

Leek Orchids, flowers.

COLLECTION OF BRACHYSCOME SEED

by Judy Barker.

We have described how to collect seed of brachyscomes in our book. We may have neglected to mention that different species vary in ease of collection.

One of the easiest species is B. melanocarpa. In this case the seeds are big, black and very conspicuous. The whole head may turn black or heads may start to shed seed soon after the peripheral seeds turn black. This is a good time

to collect as many of the green seeds mature rapidly.

B.multifida also has black seeds if you keep looking at the right times. In Melbourne seed is produced in November/December and again in late January to early March. The long black seeds seem to lie in the base of the open involucre bracts when they are fully developed; all the other seed has usually gone. At an earlier stage the black tip of a mature seed can be seen at the edge of the cream coloured undeveloped seeds. From memory, even at the height of the right season, only about 1 in 40 heads contain mature seeds, so it is not as prolific as B.melanocarpa.



x 2

B.tetrapterocarpa displays conspicuous black seeds around the periphery like B.melanocarpa, but the lightest touch will send them flying. B.melanocarpa has seed a bit harder to dislodge.



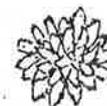
x 2

B.angustifolia var. angustifolia. The involucre of this species are generally small and the fruits hard to collect. If the seed looks uniform after the crumpled corollas have fallen off it will probably be immature. Mature seed is usually red (turning brown) and sticks out at right angles to the periphery even before the corollas have dropped off. Keep a close eye on it because it does not hang on there long. Variety heterophylla ('Tea Gardens') has very similar fruits.



x 2

Most of the B. aff. formosa forms have cream fruits which darken a bit with time. There are usually more per head than is the case with B.angustifolia, and they are held upright for longer within the bracts.



x 2

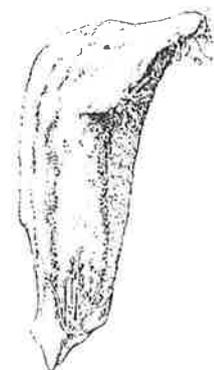
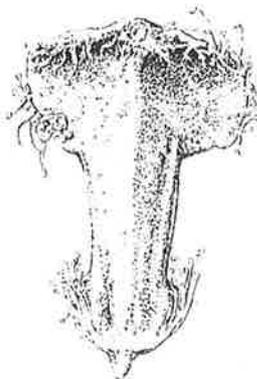
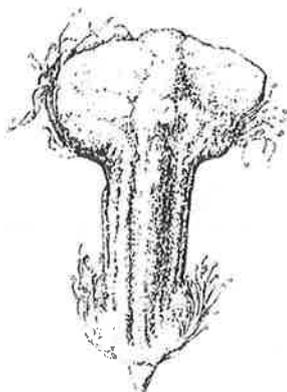
B.sp. aff. campylocarpa has hard, cone-shaped heads with seed packed in tightly. After some time a number of seeds around the periphery become darker brown, but the seed remains in the head until (as Gloria Thomlinson observed in NL29,p.17) the head seems to elongate, and then the seed disperses easily. Another hard-headed species is B.lineariloba, but in this case the seed remains in the head even longer.



x 2

Brachyscome sp. aff. campylocarpa or B.campylocarpa sp. C

B. sp. aff. campylocarpa is one of the new, undescribed species collected by Esma around south-western Queensland and identified for us by Dr.Philip Short. We now know that this is the identity of the seed sent to us by Bill Mulham in 1985 and is therefore the identity of the species described in NL16,p.25 as B.campylocarpa. This species is quite common around southern Queensland and New South Wales. True B.campylocarpa occurs in SW Queensland and NE South Australia (Pers. comm. by Dr.Short).



Fruits of B. sp. aff. campylocarpa x 20

Note the two tufts of hair at the base. Fruits are dark brown to black.

MEMBERS' REPORTS:-

Shirley Dixon has recently moved from Shepparton in Victoria to Tura Beach, NSW. She writes (9/3/91):- "The only daisy in this area that I've stopped and looked at is Helichrysum viscosum, which is very similar to the form growing around Shepparton.

At the moment I am growing the ever reliable B. multifida (blue and white), B. angustifolia, B. diversifolia which has flowered continuously since Christmas in terracotta pots and was much admired by all my visitors, and B. segmentosa also in a pot.

My brother has B. formosa (very close to the ocean) and it is just holding its own. Perhaps as the bushes grow and there is more protection it will improve. I have cuttings but no plants yet.

Soon after I arrived I planted three B. aff. curvicarpa (yellow rays), two survived and both have flowered well during January and February, and are still looking good now. I try to get plants into the ground as there are many ants and a number of the plants had root aphids. They seem to be growing well now in spite of this. As yet I haven't grown anything out of the ordinary."

Christina Leiblich from Kimba, South Australia has been out hunting for seed for the Group. She writes (26/3/91):- "Sorry to say I was too late for most of the seed required, such as Helichrysum semifertile and Helipterum jessenii. I did go hunting last November and found I was a bit late, however I have enclosed seed of Helichrysum apiculatum and H. semipapposum for anyone studying them. They were collected from the Mosley Knobs area, which is an interesting place to wander around and also, in one part, a favourite picnic ground. The form of H. semipapposum from the Mosley Knobs appears to be finer in stem and flower than that from near our farm.

I scratched around looking for Helipterum jessenii seed as it appeared to be all gone. It also looked, to my untrained eyes, that H. jessenii and H. hyalospermum might grow together there - two slightly different heights and forms - so scratched around on my hands and knees (much to the interest of some little wrens) and found a few seeds which I hope are H. jessenii.

The Podolepis sp. (which I have not identified) had also finished. These plants were on the lower slopes last year, whereas the previous year they were flowering all over the stony hill. There is also a small colony on the roadside a bit further out north. It is about 60cm high and could be an interesting thing to try in the garden.

Mosley Knobs covers quite a reasonable area. It has been used as a catchment area for the Pile-pudla Dam and, although grading for water catchment was once done in one particular area, the rest is natural scrub with an interesting variety of trees and shrubs and quite a few members of the daisy family scattered throughout.

Regarding Helichrysum semifertile, in a good wet year you could possibly find them on the roadsides north of the Iron Knob turn-off as you come down from Port Augusta, and also perhaps not far along the Iron Knob turn-off. So keep an eye open when travelling through at the appropriate time, and hope for a wet winter."

Colin Jones from Orange, NSW, writes (11/3/91):- "The fibreglass for the glasshouse arrived this morning so I'm working furiously to finish it. Within a couple of days I'll have those seeds reposing in punnets.

B. melanocarpa - nothing in my garden, but am going to include it in my sowing this week. Note, my plants were in full sun, well drained and well watered.

My B. radicans ex Esma was on the south-west corner of the house, that is it was in shade for a fair part of the day. The soil has been kept moist to wet.

(Speaking of B. aff. formosa) The Neville form appears to be similar to plants from Trunkey and Killawarra. All are sensitive to the amount of moisture available and possibly the amount of sun. Killawarra definitely needs shade."

Barbara Buchanan from Myrree, Vic, writes (25/1/91) that Julie Strudwick's B. parvula, growing in sun, is more compact and colourful than her own which grows under shade. Julie had been thrilled with her B. melanocarpa, but it was now finished.

She writes:- "I had wondered why B. nivalis in a raised bed had been well below last year's standard. There has been trouble getting and keeping the bed moist. I dug the clump and found root aphids. I had not thought the aphids continued to be a problem in the ground, but I know they are often on the clover. B. graminea is really growing and coming into flower. Unfortunately it can look like sorrel, one of our worst enemies, but the main clump swamps the sorrel. B. rigidula reappeared to my delight and is just opening too. I get the feeling that having passed the longest day has switched a lot of plants into flower - grevilleas, croweas, but this is probably a great simplification.

I have been able to put out a decent sand mulch and this seems very beneficial."

Colleen Simpson from Hope Valley, SA, writes (19/3/91) that, for her next trick, she will try to germinate Myriocephalus guerinae (which none of us have done so far) and Brachyscome lineariloba (which we can sometimes do).

She says Brachyscome parvula seed sent her in 1990 has proved very suitable for her conditions and she is now beginning to propagate it to get it into circulation. It has large pinkish-mauve heads and flowers most of the year.

She also has a lovely Brachyscome multifida with white, pink, mauve and blue flowers - all on the one plant.

Bob Magnus from Woodbridge, Tasmania writes (25/4/91):- "... sowing one's own seed is the answer. I'm sending you a splodge of H. roseum 'Tetred'. (It's the dark pink with a black centre.) It came originally from U.K., but is now my third generation. I harvested heaps and it germinates like anything. I put potting mix in punnets, then lcm compost on top, then I spread seed thickly on top and press it lightly in. Kept moist it germinates in about one week. When about 2-3cm high I break each punnet into about six bits. This way I've had H. roseum all year and even have a row just starting into flower now. Spread this seed around to members and emphasise that generous sowing is the secret.

I do have Helichrysum papillosum. It certainly looks beautiful but is so shy in its beautiful flowers I've all but given up on it. I'll try your seed, however, because yellow is no disadvantage. We all love yellow here though we do have lots. We love pale, watery yellows. They seem to combine with all colours, tone down the hot colours and lift the bland ones. Lime yellow we love too, but find it seldom.

One year I had terrific success with Helipterum humboldtianum, probably from Nindethana before I knew about the Group, but never since. I will try again."

(After Bob's article (NL29, p.7) I sent a packet of H. papillosum. Normally white flushed pink, this seed from Colin's garden had obviously crossed with H. bracteatum to produce some plants with yellow/red bracts. — Judy)

MARCH MEETING REPORT

VARIETIES OF BRACHYSCOME MULTIFIDA

B.multifida has been divided into two varieties, var. multifida and var. dilatata. We have dealt with the differences between them in our book and in NL7,p.1, but it is sometimes hard to put theory into practice. At the March meeting we examined many specimens of both varieties to see if we could sort them out satisfactorily.

In her revision of the genus Brachyscome Dr. Gwenda Davis states:-

Key to the varieties

- 1. Leaf-segments narrow linear-subulatevar. multifida.
- Leaf-segments broad-linear oblanceolate or cuneate var. dilatata.



Dr. Davis goes on to say:- "The two varieties can be distinguished by the fact that the leaf-segments of var. multifida are always relatively long and narrow-linear, tapering imperceptibly to an acute apex, while those of var. dilatata, though very variable in relative proportions, are comparatively broad proximally and abruptly tapered distally."

The usual form of var. multifida in gardens is mauve-flowered, but members are also growing a tough pink form from Mt.Kaputar (NSW), a low growing, very pale mauve form which may have arisen as a seedling, and a white form from Gilgandra.

Variety dilatata has more colour forms and is grown more often. There are many shades of mauve from pale to the dark mauve of 'Breakoday' form and the mauve-purple of 'Amethyst'. There is the usual small mauve cushion form, and Bev Courtney has propagated another small cushion form with dark mauve heads. This has been registered with ACRA as B.multifida 'Evan'. There is a good white form (originally from Blackwood, Vic.) and two pink forms. A pale pink form was propagated by Maureen from a nursery in Merimbula and a bright pink-mauve form from Karwarra Gardens at Kalorama, Vic. A number of very large-flowered forms (either mauve or lilac) came originally from Cape Conran and Loch Sport in Gippsland and from Mt.Cole near Ballarat.

Some of these forms are easier to grow than others although they all cope reasonably well in pots. The Karwarra pink does not last in my garden, but seems to do better in slightly cooler climates. In my opinion var. multifida forms are tougher and flower longer than var. dilatata forms.

If members are still unsure which variety they are growing it may help to know that in Students Flora of North Eastern New South Wales (1980), p.633 by N.C.W.Beadle the distinction is made that the leaf-segments of var. multifida are about 1 mm broad, while those of var.dilatata are more than 1mm and are usually 2mm broad.

MEMBERS' OBSERVATIONS

Dart butterflies are pollinating daisies in February/March. They are brown and orange, small and (when stationary) have two pairs of wings, one vertical and one horizontal. Beth Armstrong.

Other pollinators in February/March are wispy, small, grey-blue butterflies called Grass Blue Butterflies (so Mary White from Angair tells me). Bees, grey and black Hoverflies with parallel banding and small insects like flies but thinner and with hinged abdomens were also active at that time. Judy.

SEED LIST:

ADDITIONS * denotes garden or commercial seed.

Brachyscome obovata
Helichrysum apiculatum (Mosley Knobs). semipapposum (Mosley Knobs, SA, Stanley)
Helipterum roseum 'Tetred'; stuartianum (Mootra Reservoir, SA)
Podolepis sp. (Mosley Knobs)

All correspondence and requests for seed (**ENCLOSING A LARGE, STAMPED, SELF-ADDRESSED ENVELOPE**) should go to Esma Salkin, 38 Pinewood Drive, Mount Waverley, 3149.

Seed is for sale to non-members at 50c per packet plus postage. Larger amounts of seed can be bought by arrangement. Most seed for sale has been collected from cultivated plants or bought in for the convenience of the members.

SEED DONORS:

We are very grateful to the following for their donations of seed:-
Beth Armstrong, Judy Barker, Barbara Buchanan, Betty Campbell, Joy Cook, Kay Christie, Brian Dacy, Joy Greig, Colin Jones, Val McConchie, Bob Magnus, Natalie Peate, Esma Salkin, Maureen Schaumann, Julie Strudwick.

NEW MEMBERS:

Some of the following have been members for some time, but seem to have slipped through our welcome net. A warm welcome to you all:-

Esther and Graham Cook, Mail Service 464, Helidon, Qld., 4344.

Christina Leiblich, Box 15, Kimba, SA., 5641.

Kaye McLennan, P.O. Box 109, Yarloop, WA., 6218.

Dorothy Stanley, Box 108, Auburn SA., 5451.

Brian Walker, 28 Rutherglen Ave, Valley View, SA., 5095.

Helen Ward, 585 Cherry Gardens Road, Cherry Gardens, SA., 5157.

Pam Welman, 121 Denne St., Tamworth, NSW., 2340.

SUBSCRIPTIONS:

Subscriptions are \$5.00 per year or \$10.00 for overseas members. Cheques should be made payable to the Australian Daisy Study Group and forwarded to the Leader. **FEES ARE DUE ON 30th JUNE, 1991. THIS IS YOUR SECOND AND LAST WARNING. A LARGE RED CROSS MEANS YOU ARE OVERDUE** (or within about fifteen days of being overdue). X

NEWSLETTER DEADLINE

The deadline for the NOVEMBER NEWSLETTER is OCTOBER 1st. Although some members make me out to be a tyrant and spoiler of sport it is not really so. I am excessively grateful for your contributions, as are all the members, for the facts, information and new ideas within your articles, and for the beautiful illustrations. They are beyond value. Judy.