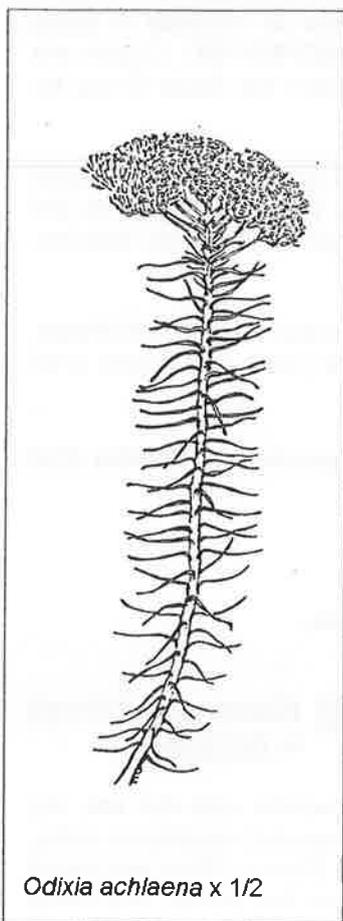


ASSOCIATION OF SOCIETIES FOR GROWING AUSTRALIAN PLANTS

THE AUSTRALIAN DAISY STUDY GROUP NEWSLETTER NO.36

Dear Members,

We seem to have leapt into frenetic activity since AD SG meetings began again in February — talks, Book Meetings, seed sowing, displays and plant sales. Judy has again put on a stunning display of daisies. Visitors to the Aussie Flower Spectacular at the Herbarium on April 3rd/4th were agog at the variety, and full of praise. "I didn't know there were so many different daisies" was the most common comment. "Do they keep their colour?" was another, but we were silently indignant when asked "Are they dyed?"



Odixia achlaena x 1/2

Thanks to Lee, who made display shelves and assisted with transport, and to John Armstrong, who arrived at an opportune moment to drape, fold and tuck the hessian covering for the trestles. Thanks also to Maureen and Co. for handling the plant sales, and to all who helped or lent display material. This will be our last display for a while. Much physical and nervous energy is expended over three days, not forgetting the preparation of new labels with new names, preparation of the Seed Bank, sorting display material, preparing potted plants and packing it all away when it's over.

A number of Study Group members and many others have recognised Gloria's artistic talent, and have admired the beauty and botanical accuracy of the pen and ink illustrations she has prepared for the Study Group. We were delighted to hear that she received high praise for a selection of the drawings she is doing for our *Brachyscome* Book at an Illustration Day organised by the Friends of the Royal Botanic Gardens. Best wishes, Gloria. We know your talents are opening up new fields and you will enjoy the interaction with those of similar skills.

Newsletter

We appreciate your articles, letters and comments very much. We also believe that your experiences will benefit other members. Rather than have our busy editor contact you every time she wishes to publish extracts from your letters, please indicate any details or comments you do **not** want published. We have also had a number of articles on hybrids. We welcome your comments but, as we have other topics awaiting publication, the last articles on this subject appear in this newsletter. We discussed this issue at our November (1992) Meeting and members present unanimously agreed that the Study Group should concentrate on species collected in the wild and leave development of hybrids to the horticultural industry. This is not a

criticism of those interested in hybrids as garden plants or of those pursuing this activity to sort out complexes in a genus, but it is very easy to be side-tracked. On this issue I believe it is pertinent to re-read Dr. Philip Short's excellent article "A Basic Procedure For Producing And Dealing With Hybrids" in NL30, pp.25-27. I am using isolation and hand-pollination techniques to prevent unwanted pollination. To collect and collate basic information on all species in a genus is a daunting task. I believe this is the Study Group's primary task. I also consider this task to be urgent given my own observations of habitat loss. It is also an exciting and stimulating challenge with infinite rewards and friendships I value.

Please note we still need information on locations of *Brachyscome angustifolia* var. *angustifolia* probably in south-eastern New South Wales, and *B.diversifolia* var. *dissecta*, northern New South Wales and southern Queensland.

Asteraceae Research Fund

We are hoping to use the royalties raised from the sale of the PVR protected *Rhodanthe anthemoides* 'Paper Cascade' to assist Dr. Philip Short with cladistic analyses of Asteraceae, an aspect of taxonomic revision. This project has only been made possible by the generosity of Natalie and Roger Peate of Plant Growers Australia Pty. Ltd., who have promoted and distributed this plant. I would also like to thank Sandy Salmon for his horticultural expertise in the finalising of the PVR paperwork. The Study Group has appreciated his scientific knowledge, his enthusiasm for daisies and his amiable presence. We are indeed encouraged to see a young horticultural graduate choosing Asteraceae for his postgraduate studies.

The Brachyscome Project

The Study Group appreciates Bev's excellent analyses of your results. We value her professional approach to our activities. Just under half of the individual members who were sent seed participated, and I think that is probably a good response to such an exercise. Only two out of seventeen Regional Groups sent in any sort of reply.

North-eastern Victorian Weekend, October 29th to 31st, 1993

Details and venue on p.35. We are especially keen to meet new and interstate members.

Our first book, "Australian Daisies for Gardens and Floral Art", is not out of print as reported in some quarters, but we are approaching the end of the print run and **IT WILL NOT BE REPRINTED**. Copies are available from the publisher, Lothian Publishing Co. Pty. Ltd. It is also available from the Study Group for \$16.00 plus postage and packaging (weight 500gm).

The Study Group has donated forty-eight packets of provenance seed from arid areas to the Sunraysia Oasis Botanical Gardens, Mildura. We have also sent Asteraceae seed for a massed display at the National Botanic Gardens, Canberra, as well as seed of the 'Rare and Endangered' Victorian species, *Brachyscome obovata*.

We were also able to assist the Horticultural Research Section at Mount Annan Annexe, New South Wales, with germination results of *Rhodanthe floribunda* and *Myriocephalus stuartii* (results poor), and supply seed of *R.floribunda* (three provenances) and *M.stuartii* (four provenances).

Subscriptions are due on June 30th. Please remember it is \$7.00 per year. Non-payment by October 31st means deletion from the mailing list. My thanks to all who have already paid.

Regards,

Ema

RHODANTHE ANTHEMOIDES (syn. HELIPTERUM ANTHEMOIDES) (Queensland form) by Pat Shaw.

Rhodanthe anthemoides grows well here in the sandy loam during the cooler months until the hot, dry weather really sets in, when it gets rather tatty. Two plants growing very close to imported sandstone rocks, however, have remained bushy and lush-looking all year round. At present they are 75cm x 75cm and about to burst into full flower. The rocks are obviously providing a cool root run and these two plants, like many other Australian plants, are enjoying these conditions.

SOWING SEED IN A PETRI DISH

by Esma Salkin.

This is a simple method which is applicable for seed difficult to germinate using conventional methods. It is, however, impossible for members to run a trial sequence under controlled conditions. I have tried this method and related my initial foray into germinating Asteraceae seed in NL6, pp.2-3. I sterilised petri dishes by boiling in water and used boiled water to moisten the paper on which I placed the seed – in this case I used Kleenex tissue. I did not attempt to sterilise the seed with a weak solution of bleach.

The petri dishes were placed on the window sill of an easterly facing bedroom window. I had no control over temperature, humidity or light. It depended on what the days brought forth.

Results were excellent for seed that germinated within 14 days. After that fungal infestation set in. The main advantage of this method is that you can see it happening and examine seed that fails to germinate. In some cases merely splitting the pericarp induced germination. In other cases examination of seed showed that there was either no embryo, a dead embryo, or evidence of fungal attack, that is brown spotting where the root emerges.

At a later date I decided to use a higher temperature regime and set up trials in a north facing sunroom. I now had a good supply of plastic petri dishes and filter paper. These trials were a spectacular failure. All the moisture settled on the lid, and filter paper and seed dried out. I had used glass petri dishes in the first trial and consider that they are superior. They are also deeper.

For a beginner this method is very instructive, but where conditions cannot be uniform no positive conclusions can be drawn. This applies to any conclusions drawn from seed trials run in the backyard. You can merely indicate a direction your research can take. Nevertheless, I am still testing the viability of seed over time. When I have difficult seed or a limited amount of seed I have found it wiser to ask a friend to try tissue culture.

SPECIES AND FORMS NEW TO THE GROUP

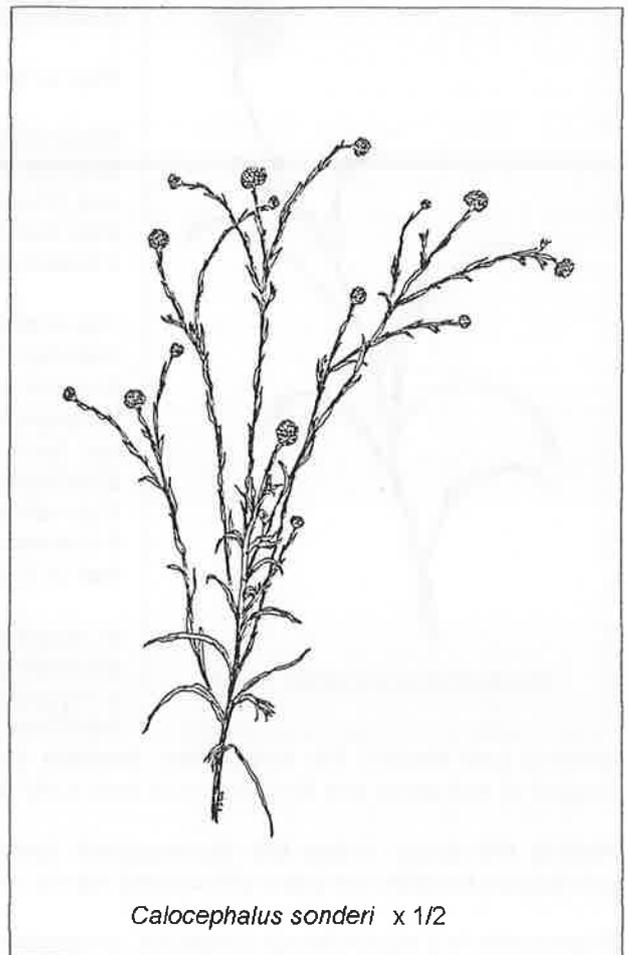
Calocephalus sonderi F.Muell. (Q, NSW, Vic, SA)

(*sonderi*, after O.H.Wilhelm Sonder (1812–1881), a German apothecary who devoted much of his time to botany, specialising in the study of algae. Von Mueller sent him many collections of Australian algae.)

Pale Beauty-heads, Yellow Poverty-weed

This species is not exactly new to the Group because we have been buying dried bunches of it from florists' suppliers for some years. We have never grown it ourselves, so it was pounced upon when Colin sent us seed collected near Kerang, Victoria. *C.sonderi* is described as an annual, 20–45cm high and 15–30cm wide. In the wild the species grows upright and is often regarded as an indicator of poor soils.

Seed was collected on 5/4/91, sown on 5/6/91 and germinated in profusion in 12 days. By August 11th only 11 seedlings remained and they were transplanted to forest tubes. The disappearance of the seedlings could mean that this is another name to add to our list of species needing winter protection in Melbourne. In September two were planted in a 25cm pot where they were in sun for half the day. Later four were planted in the garden where they received sun for about one third of the day.



Calocephalus sonderi x 1/2

In cultivation individual plants are 20cm high and 70cm wide. There is no doubt that the potted plants fared best — perhaps those in the garden needed more sun. In pots the habit is open. Branches grow upright at first but gradually the weight of the heads bends the stems down. In the garden the plants flowered but became very straggly. Plants may need constant nipping back until they are bushy.

The grey-green leaves are 0.5–2.5cm long and 0.1–0.3cm wide, sessile, stem-clasping, sometimes with a wavy margin. The upper leaves are often pressed against the stem and have decurrent bases which gives the stems an angular appearance. Both sides of the leaves as well as the stems have a thick cover of long white hairs. The heads are only small, 6–7mm in diameter, but there are 10–20 of them tipping every

branchlet and hundreds on each plant. The lime-yellow globular heads and the grey-green leaves and stems make a subtle colour combination.

Plants began to flower in December. When stems were picked in January fresh, upright growth was produced and this flowered again in March. I had hoped *C.sonderi* might be perennial, but it died in mid-April.

Stems were glycerined for 48 hours before air-drying, but the result is only marginally better than straight air-drying. Perhaps the leaves are more flexible. The bought dried specimens have more heads and growth seems denser.

I decided to try *C.sonderi* again this year. The same seed (stored in a glass jar in the frig.) germinated in 7 days when sown on 22/3/93. This time I'll put it in a sunny spot and give it a hard time.

This is a pleasant plant; perhaps not a knockout, but its muted colours and graceful curves are quietly attractive.

by Judy Barker.



Brachyscome graminea (Labill.) F.Muell.

Grass Daisy

This is the last of the series on alpine brachyscomes.

Brachyscome graminea is not strictly an alpine brachyscome, but reaches the limit of its altitudinal range in Snow Gum woodland and Snow Grass plains in parts of Kosciusko National Park. It is also found elsewhere along the Divide and at the coast, so it is an interesting species.

I have observed this species at various locations in the Kosciusko National Park when looking for *B.radicans*. These two species are found in similar habitats, that is in wet, swampy ground. Except for the population of *B.graminea* in Snow Grass, plants in the alps do not form large clumps and tend to exist as isolated plants. *B.radicans*, as noted in NL31, pp.39-42, is a vigorous coloniser. You can separate these two species initially on the character of the leaves — feel them! *B.radicans* is fleshy and rigid whereas the leaf of *B.graminea* feels 'thinner' and more pliant.

In swamps and on banks of streams at the beach weakly ascending stems grow up through grass and reeds, and can reach a height of 70cm. In these situations leaves can be very long, 14-17cm, with petioles to 10cm. At the beach plants were

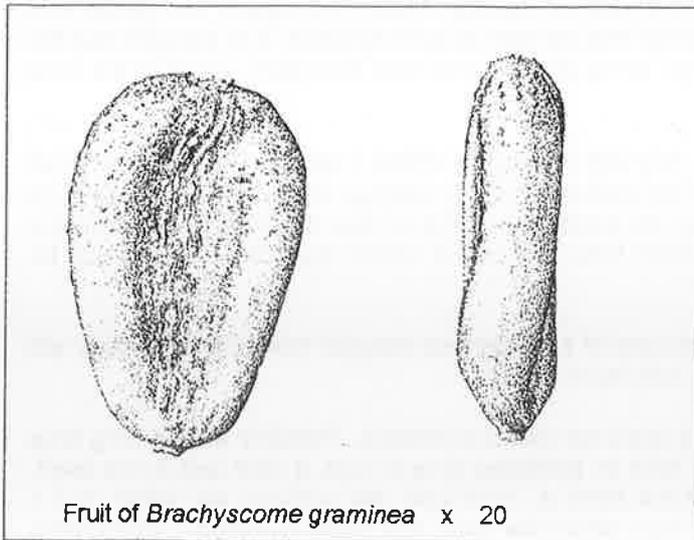
growing just beyond the halophytes, beneath the shelter of *Melaleuca armillaris*. The vegetation was subject to salt spray and the sandy soil was 'salty' to the taste.

Among the Snow Grass the brachyscome formed a compact plant about 0.5m across, with leaves compacted towards the base of flowering stems. Flower-heads reached a height of 14cm.

B.graminea is a stoloniferous perennial, ascending to erect, reaching 70cm where stems are supported by associated vegetation. Leaves are 3-17cm long and 2-10mm wide, entire, linear to oblanceolate, narrowed to the base and with an acute tip. They are crowded at the base of the plant and more widely spaced on the ascending stems. Leaves are papillose to sparsely glandular. Stems are sparsely glandular to densely glandular in the upper reaches. Involucral bracts are densely glandular. Rays are mauve or white, often with mauve reverses, and the flower-head is about 2-2.5cm across.

Under cultivation I find this species difficult to raise, whether from alpine or coastal provenance. It is attacked by snails and slugs voraciously. Cats also find it is an ideal sleeping mat.

Some nurseries have been known to sell a form of *B.angustifolia* var. *angustifolia* with very pale pink rays as *B.graminea*. Be suspicious if your plant has a long flowering period and examine the fruit. The fruit of *B.angustifolia* has a small wing, papillae on the central faces and an easily seen pappus.



Fruit of *Brachyscome graminea* x 20

The fruit of *B.graminea* is distinctive. It is sticky, light brown, flattened, broad, about 2mm long, with a smooth wide turgid margin. The central region is depressed and both faces of the fruit are smooth. The pappus consists of a ring of papillae only seen microscopically.

B.graminea occurs in Queensland, New South Wales, Victoria, Tasmania and South Australia.

by Esma Salkin.

QUESTIONS AND COMMENTS ON PROPAGATION AND HYBRIDIZATION

from Jeff Irons

I would like to offer a few heretical comments about seed growing and vegetative propagation. I do understand that a number of members (particularly country members) have to use materials that can be obtained locally. My main points, however, are that one should not simply accept statements that are made, but should ponder on them, and examine them critically: also that there is more than one way of doing things. Too often in gardening things are said, written down and reiterated until they become part of lore. A good example is the custom of crocking pots. It is said to improve drainage. In actuality it impedes drainage, yet 'experts' still recommend it.

The last newsletter observed that "toxins can develop from fertilizers". That kind of statement crops up frequently. It is never qualified. People do not say why, neither do they say what the toxins are. I do not believe these statements.

I can understand that if compost is stored anaerobically Iron III will be reduced to Iron II; but that change can be reversed by sieving the compost, i.e. by aerating it. I can understand that under anaerobic conditions nitrate can be reduced to nitrite, or even broken down completely. That can be rectified by adding more nitrate. I can understand that organic matter can be broken down on storage. If there is anything else that can happen — what is it? What are the claimed toxins? How do they form? I have heard it said that the toxins arise from pine bark. However, the story that toxins develop in shred compost was around long before pine bark began to be used, and I cannot conceive what harmful products can be formed. Neither can professional gardeners and 'practical' botanists that I have asked.

So what about the compost? Again I believe that a lot of twaddle is written. The prime need is for a well aerated mix, with an oxygen content close to that of air. A mix of 1:1 peat:perlite will give that. In a mist unit I would use 1 peat :2 perlite. Rooting takes place only in the aerated part of the compost, and I see no point in inserting a cutting to a depth greater than that required to keep the cutting upright. If one does, the lower part may rot.

Leaves — everyone recommends removing leaves. Why? If you remove a leaf, you have created a wound, through which infection can enter. I do not bother. The cutting will transpire water, so you have to ensure a saturated atmosphere. You do this by avoiding temperature fluctuations. The more leaves there are, the more equipment the plant has with which to make roots. I do not remove the growing tip, for this sends signals down to the base of the cutting that it needs food and that to get the food it must make some roots. Flower buds I do remove. The prime objective has to be to encourage the cutting to make roots. Consequently one does not want a high salt concentration in the cutting mix. I get over this by putting prills of slow release fertilizer at the bottom of the cutting pot. That way food is available for the developing

cutting. If a cutting is rooted poorly, it should be potted into a mix the same as the one from which it came. Otherwise it can go into something more meaty.

Not one of the pieces in the Newsletter mentions the type of cutting. Here in England we prefer thin cuttings. We find that fine looking, robust cuttings do not root as well as spindly ones. It is thought that the lesser proportion of stem to leaf results in more energy being available for root formation. What is the view in Australia?

It is vitally important to minimize stress in the cutting. Any wilt will cause stress. I usually put a cutting in as soon as it is taken. If more than one donor plant is to be visited, I put the cuttings in a plastic bag (which is wet inside) while going round the garden. If stress can be avoided the time of year the cutting was taken is immaterial. If you can keep a cutting green, then at some time in a twelve month cycle conditions must be right for rooting to occur.

Wilted cuttings rarely root for me. This is quite the opposite of conventional thought here. Some people wilt cuttings deliberately. They believe that wilted cuttings root more easily.

A mist unit leaches cuttings. However, in practice this does not cause problems. Possibly after a long time a foliar feed would be necessary, but if cuttings are to take an extended time to root, a mist unit is not used. They are placed in a sealed plastic bag. Since I do not have a mist unit, my cuttings are taken in 1:1 peat:perlite, and the pot is covered with a PET bottle from which the base has been removed. I experiment to find the best time of year for each plant. Surprisingly often mid-winter is a good time! My cuttings (and seeds) are in a frost free, but otherwise unheated, greenhouse.

There are references in *Australian Plants* — see September, 1985, Vol.13, No.104, p.161, and September 1991, Vol.16, No.128, p.163.

Seed and Potting Mixes

The variety of mixes being proposed by DSG members indicates that there is no one 'proper' mix. I wonder whether my own thoughts on the matter will be of use?

First I ask what a root does? To me, neither a botanist nor a horticulturalist, it seems that a root is simply a plant anchoring device which incorporates a victualling system. All a compost has to do is to satisfy those two needs. Seeds contain a 'starter' pack of food, so a seed compost need not supply food, only water. My experience is that Australian plants like a high Air Filled Porosity, so the mix should supply that. Potting composts should be tailored to each plant's specific requirement.

That is where I begin to run into trouble. Each grower will have a different watering regime. Their compost will be tailored to that, and to the climate in their locality. Rarely will composts be transferable. The recipes given in the DSG newsletters are not usually specific. As an example, one in the last newsletter specified 'Creek Sand'. Sand is a very variable substance. The compost cannot be reproduced unless the fractions on different screen sizes, and the grain angularity are known.

So, I don't think that compost is very important! What does seem important is pre-germination conditions. The period before germination must be a time of intense activity in a seed. Germination inhibitors will be broken down, growth promoters will be formed. All kinds of things will be happening. What makes them happen?

This is an area where research is needed. Perhaps it has been, or is being, done. Amateurs need to know what happens and what the consequences are for the way they treat seeds. If the research has been done, then its results should be passed on to non-professionals.

So what do I do? Everything except Proteaceae and Epacridaceae is surface sown on a 1:1 mix of fine milled peat and seed grade perlite. After watering, the pot is placed in a plastic bag and sealed with a tie. The plastic used is a stiff crinkly, clear one — actually comes with 'Ladies Hose' inside. I use it because, unlike polythene, it is a good barrier to water vapour. Possibly it is a polyester, possibly a laminate. The pots go into an uncontrolled environment and are left. I used to discard after two years, but have now decided to treat Australian seeds like others, and keep them for at least five years.

The U-C mixes given in Elliot and Jones have not found favour in Britain. They do not perform well. I asked Ness Gardens about composts. Like me, they use 1:1 peat : perlite for all cuttings and nearly all seeds. A

few seeds are sown using perlite only. A gardening friend of mine says that when he buys plants from a nursery in the south-east of England they are always repotted into a more open mix, i.e. into a mixture which suits our weather and his watering regime.

An Australian nurseryman known to me always inserts his cuttings in clay pots. He says that they root more readily than when put into plastic pots. Recently an English professional horticulturalist showed me two pots. Both had been sown with seed of the New Zealand *Ranunculus crithmifolius* last autumn, and placed outside to overwinter. One, a clay pot, was full of seedlings. The other, a plastic pot, was barren.

Are these two examples of the importance of aeration? Britain experienced its driest February and March this century (no rain at all here) so it is conceivable that the clay seed pan was better aerated than the plastic one. I have been unable to replicate the experience of clay pots giving a better cutting strike than plastic ones. It may be because I use a more open compost than the nurseryman.

Plant Hybridization

(The extract below was printed in the {UK *Bulletin of the Alpine Garden Society* in 1970, and reprinted in March 1993. The author is 'Euphrasia'.)

" **'...change beyond report, thought, or belief**

The excuses used when we grow a plant that fails to look anything like a typical specimen of that species in the wild are many and varied. If the flowers seem washed out, we argue that the clear mountain light gives them a special radiance (though this intensity is often maintained when we view them through dense mist), nor is the air always so very pure; think for example of the daily traffic flow across the Brenner Pass. We blame unsuitable composts, the etiolating effects of glasshouse cultivation, stop/start winters, non-flowering clones, faulty watering, living in the wrong part of the country, differences in daylength: the list stretches on *ad nauseam*. Most of the shortfalls can be ascribed to one or other of these causes, but we don't always manage to pinpoint which, nor is an easy remedy always available.

A prevalent concern at the moment is that of identity erosion — in plain English, you start growing one plant, raise seedlings from it, then seedlings of those seedlings and, within a few years, end up with a batch of plants differing markedly from the original. Unless you confine your attempts to vegetative propagation, this experience will be a recurrent (but far from universal) one.

Yet still we read that by the strategies of selfing, closed pollination and rigorous isolation, Mr X or Mrs Y has managed to maintain a particular introduction, when in reality they have used it as a startpoint for an unconscious breeding programme. If they are fairly single-minded, they might try to select those seedlings that best reproduce the characters of the original plant, discarding the remainder, but the temptation to retain one or two of the more interesting variants is one not easily brushed aside (nor always confessed by those who preach the doctrine of the custodian's approach).

Plants are like people, it is sometimes said; well, if you want an approximate analogy, think of an Englishman upping sticks and emigrating to Australia. After a few years over there, it would be surprising had his lifestyle, speech, clothes etc. not altered to fit in with his new environment. Any children born over there would take the process a stage further and, within a few generations, integration would be pretty much complete.

Back in 1970, R.W.Allard published a paper with the title 'Problems of Maintenance': the hypothetical example involved was seed bank collections of wild oats, but the principle quoted translates to many of the plants we grow.

'When a collection is grown to rejuvenate the seed, the plants are of course subject to selection. Even though each entry may be grown under the best possible conditions that can be provided in order to maximise survival and minimise selection, selection still takes place and it is frequently sufficiently powerful to bring about substantial changes in the genetic composition of the entry. Compounded over two or three cycles of rejuvenation, the effect of selection is often so great that the entry bears little resemblance to the original parent(s) collected in nature.' "

If DSG members select seed progeny to give what they think are the same visual characteristics they are consciously selecting one set of characteristics. Unconsciously they are selecting another, those that

enable the plant to live in its new soil and climate. They cannot maintain the original plant. The only way to do that is to re-populate the wild.

If you want Mr and Mrs Average to grow Aussie daisies you have to offer plants which can compete with the established favourites. That means hybrids. The cognoscenti and the snobs will always demand species. The knowledgeable will have both species and hybrids.

'TOXINS FROM FERTILIZERS'

by Natalie Peate.

The statement 'toxins can develop from fertilizers' probably refers to composting of *Pinus radiata* bark which is the main constituent (about 80%) of most potting mixes used in southern Australia. In this case, the most serious toxins would be nitrite and ammonium which could result from overuse of organic nitrogen and/or incomplete composting.

Ammonium and nitrite can also develop under anaerobic conditions as pointed out. Toxins unrelated to fertilizers are also important. These include phenols and tannins in uncomposted or poorly composted materials, and organic acids in poorly aerated heaps.

The above information was provided by David Nichols M. Sc. who is the Technical and Research Manager at Debco P/L, one of our major potting mix manufacturers in Australia.

In Victoria we are fortunate in having potting mix suppliers who have researched these problems and have consequently developed excellent methods of composting material of a range of particle sizes. Slow release fertilizers are preferred by most nurserymen and these are incorporated in potting mixes which should be stored for no longer than 3-4 days, or even less during our Australian hot weather.

As Jeff Irons says, it is most important to have a well aerated mix. About 12-25% 'Air Filled Porosity' is usually recommended for nursery use in Australia, depending on plant variety and the length of time the plant is in the pot. This means that when plants are potted into a mix, the initial space available to air in the mix is about 15-25%. With time this will drop as roots fill some of the available air spaces and as the medium compacts over a period, from watering. It is important not to overwater thereby keeping all available air spaces filled with water. The water should be able to drain away fairly freely through adequate holes at and around the very base of the pot. Occasional heavy drenching with water is important, however, as this will help to flush out any toxins.

As far as cuttings are concerned, we have found that in almost every case the best material comes from plants that are less than one year old and vigorously growing. Tip cuttings are usually preferred and, on the whole, the growing tip is not removed. However, there are always exceptions. We are fortunate to have a 'fog' in our propagation area, but even with the ability to maintain high humidity around cuttings, we do not use wilted material as it almost never seems to recover properly. Flower buds are removed from cuttings, as sometimes are older leaves. For some varieties we also reduce leaf size.

Our cutting mixes, as distinct from potting mixes, have no fertilizers and consist of 7 parts Perlite to 1 part of shredded peat moss. Consequently aeration in our cutting mix is very high, probably about 30%, and as we water only when media start to dry out, aeration remains high. Cutting foliage remains dry (reducing fungal problems) and turgid owing to the high humidity produced by fogging. Percentage relative humidity is increased from about 70% in winter to about 90-95% in hot, bright weather.

COMMENTS ON 'COMMENTS ON PROPAGATION'

by Bev Courtney.

Having been asked to comment on everyone else's comments on propagation, I think the only thing I can say with any certainty is that there are no hard and fast rules where propagation, either from seeds or cuttings, is concerned. Whatever works for a particular individual is the best method for that person to use.

ADSG members are widely scattered (very widely in the case of Jeff Irons, our UK member) and therefore must experience an enormous range of climatic conditions from heavy frosts (Jeff's pots freeze in winter!) through muggy humidity to searing hot northerlies. I believe that each member needs to experiment with different propagating mixtures and growing conditions to find those best suited to his or her locality.

Much depends on the equipment available. A misting unit will allow softer cuttings to be taken and a hot bed will speed up root development, yet some species will not like either mist or heat and will perform better in a cold frame. The often-recommended method of simply putting a plastic bag over a pot of cuttings generally works well for most people.

Whether leaves should be removed or cuttings deliberately wilted also depends on the success of the method and members may have varying results.

Whatever the methods employed, a basic knowledge of the techniques of propagation is useful. One of the best references is *The Encyclopaedia of Australian Plants*, Vol. 1, by Elliot and Jones. Whenever I am having trouble with cuttings or seeds I go back to the relevant chapters and read them again, just to remind myself of the basics.

My own methods are working very well at the moment. Seeds are sown in a mix of 2 parts perlite to 1 part peat, and seedlings potted straight into Debco Green Wizard potting mix. I always protect newly-potted seedlings from hot sun and wind for a week after potting up, then they go out into the open. Cuttings are placed into a mix of 2 parts gravel to 1 part peat and put under a cold frame, which is just a wooden frame covered with heavy plastic. The frames are kept on the south side of the house where they get light but not direct sunlight. I put one cutting per tube (5cm square x 15cm deep) and this saves the often stressful (to the plant) process of potting on. (Each tube is filled with potting mix and a 'plug' of gravel/peat mix is placed in the centre to a depth of about 3cm. The cutting goes into this plug.) When the cuttings are rooted they receive a shot of osmocote and go out to a sheltered location to grow on.

ANOTHER OPINION ON HYBRIDISATION

by **Barbara Buchanan**.

In her spirited defence of true species I think Bev is confusing two issues. Without denying their importance, especially in any revegetation project, there is a general aim of SGAP to spread the growing of Australian plants — preservation by cultivation. I take it this means not just by the converted, ourselves, but by the general public. We face pretty tough competition from the exotic plants which have been selected and hybridised for centuries to be reliable, consistent and colourful.

Just consider for a moment what the introduction of the Poorinda hybrids some twenty years ago has achieved. Grevilleas (other than *G. rosmarinifolia*) suddenly appeared in every suburban backyard as well as in municipal gardens and industrial landscaping. True, there were too many very similar plants marketed and many have disappeared as part of the natural sifting process, but the Poorindas really opened up the market for natives generally.

Gardening is and always has been subject to the whims of fashion, a desire to have the latest, to grow something different. In promoting Australian plants we must try to supply what the public wants and for this I believe the hybrids and selections are essential. Garden plans call for a particular colour effect, a particular plant size, habit and foliage type, and then a plant is chosen to meet the criteria. Even in our attempts to create a natural looking bushland a range of hybrids can give diversity for interest without creating spottiness due to too great a variation. *Brachyscome multifida* is one daisy which has broken into the general gardening scheme both here and in Europe and, with the increased colour range, it should hold or extend its place whatever the current fashion.

There are two further reasons why I believe the interest of the Study Group should not be restricted to pure species. One is the problem of annuals. No garden-sized population seems to contain enough genetic variation to be viable for more than a few generations. I used to think my inability to return much seed to the seed bank was my fault, but since James Will spoke to us at the Little Desert I accept there is more to it.

Hybridisation can sometimes conserve genes even if it is in a different genetic complement to the parent species, and modern science can make these genes accessible in the future.

My other reason is the taxonomic uncertainty of 'genetic swarms' of some of our species. The splitters try to make each variant a separate species which is not necessarily an accurate representation of relationships. Our 'hybrids' may be representing evolution in action.

I hope I have not given an impression that we can neglect the true species and I certainly would not want to restrict anyone who only wants to grow true species. There is room for them all.

GROWING DAISIES AT METUNG

by Pat Tratt.

(Metung is on the Gippsland Lakes in Victoria, between Bairnsdale and Lakes Entrance.)

Our four acre block has roughly half sloping fairly gently to the north and half to the south, with the house in the middle. The south side is moister and has slightly less exposure to the hottest sun although it is open to the wind which blows often from the east, south or south-west. Extensive tree planting helps a lot, but we have to keep the main view open. This is across to the lake and then to the ocean two miles distant.

Brachyscome nivalis was grown from a small division from a plant given to a local SGAP member by Judy in about October '91. It was grown (as instructed) protected under shade cloth and kept moist. Not being a 'pot' person I planted it outside in October '92 on the edge of a south-facing bank between two rocks. This bank is the northern end of what I call my 'swamp' — a new project which is merely a series of different sized pools of various depths, the deepest being 1m. The pools were dug out by hand around a central island, each one separated by large rocks and a thick wall of padded clay. We have good sandy loam over clay. The northern end has a steep, south-facing bank about 1.5m high. It holds water well and provides many planting sites — moist to drier, sun to shade. Over the last couple of months *B.nivalis* had several flowers, none at present, and is an attractive tight clump growing down the bank into semi-shade, approximately 46cm x 21cm. No seed collected so far.

Brachyscome angustifolia given to me by Judy on her recent visit to SGAP Bairnsdale, bearing '(m-p) seedling pure' on the label, is planted further down this bank, protected and moist, flowering profusely and increasing in size. (This is a seedling from the 'isolated' pots of the mauve-pink form of *Brachyscome angustifolia* Judy.)

Brachyscome microcarpa (also from Judy, with a label reading 'Pat Shaw — may have crossed') was planted at the same time — end of February '93 — to the west of the swamp in moist soil mulched with sand, in filtered sun and protected by a log. It is now 17cm wide, growing well and currently has 15 very bright pink flower-heads.

This area hasn't dried out since completion due to the wet year. It will be interesting to see how it goes in a dry year.

Leptorhynchus linearis — a division collected locally when it was disturbed by road machinery. Three small pieces were planted in this same area, protected by logs and rocks. All are suckering and flowering brightly — sturdier stems than *L.squamatus* which is growing happily between native grasses. I love this genus and have *L.tenuifolius*, approx. 50cm wide x 30cm high, sheltered by a large log and covered with flowers for months now.

Brachyscome melanocarpa grown for our special study is still going strong although straggly at the base. As it grows with a large rock one side and kangaroo grass on the other to protect it from the wind the base cannot be seen. It is now spreading sideways to about 1m x 25cm high, constantly covered with pale lilac flowers — the blue-green foliage and kangaroo grass blending well. A self-sown seedling nearby is quite upright and strong so far with heads held up well on 12cm stems.

Brachyscome curvicaarpa gives a lovely, clear yellow show. Again generously flowering non-stop for several months. This is some 43cm wide x 30cm high, from seed sown last September. I have seed to enclose from these two, but seed from *B.curvicaarpa* never looks ripe to my inexperienced eyes.

Calocephalus lacteus in a very open position on the south slope has sprawled to 3.5m wide x 1.5m deep, with flower heads 15–20mm long. Cuttings are easy and fast. Seed is enclosed.

Ozothamnus cuneifolius from Elise Walker (a local AD SG member) planted October '90 near the house and open to all weather is a sturdy, dense to the ground bush, 1.5m high and 1m wide. It is still going strong, but just showing a little dead wood which I must cut out. Cuttings strike easily and a couple put down towards my swamp are similarly bushy and flowered well earlier in the summer.

Helichrysum thyrsoideum, which I guess must now be *Ozothamnus thyrsoideus*, grown as a cutting from Swift's Creek area was planted near the house on the edge of my 'mound and channel' garden (see NL33, p.34). It is a very dense bush which flowered profusely last October/November. I like the spicy smell after rain or in hot sun. It has a pleasing, slightly cascading habit and tiny reddish buds.

Podolepis jaceoides and *P.robusta* seed has germinated easily. I plan a native grass area interplanted with these and others in the moister areas where I already have two *Pycnosorus chrysanthes* giving a bright show, each having 40–50 heads and increasing in spread.

Must now go dig to press on with grass, rock and daisy areas.

THE VULGAR DAISY — *Leucanthemum vulgare*

by Esmá Salkin.

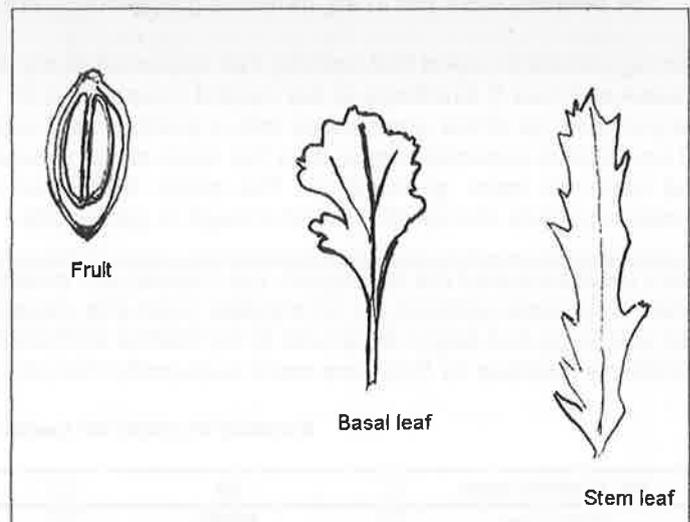
It's bold, brazen and seductive. It lures you out of the car. It stops you in your tracks. It is widespread along the Divide, on roadsides and by the coast. It is **very** invasive, especially in alpine herbfields where it is taking over the *Brachyscome spathulata* habitat.

It has been on the horticultural circuit, being sold by a large wholesale nursery in New South Wales last year as "*B.sp. — alpine*". It has also gone under the guise of *B.segmentosa* until the vendor was enlightened. One form was picked up in the Coorong in South Australia. I held on to that one for over a year, until I had the evidence of the fruit for identification, and then told the donor to burn it.

You'll know you have it when your brachyscome starts rooting and growing vigorously. It hails from Europe and is widely naturalised in South Australia, Western Australia, New South Wales, Victoria and Tasmania. Its leaves are crenate to dentate and mostly basal. It looks a bit like *B.aff. formosa* or *B.diversifolia*. It sends up tall branching stems with terminal white daisy flowers about 5cm across. Stem leaves are toothed and clasp the stem. The fruit is ribbed and the pappus absent.

Be aware of its weedy potential.

DON'T GROW IT.



THE PERPLEXITIES OF PROPAGATION

by Judy Barker.

It has been fascinating and exciting to observe how recent name changes and revisions have been grouping our Asteraceae, especially with regard to propagation from seed. It has been obvious for many years that our problem seeds have different dormancy mechanisms and we suspected that different treatments would trigger germination. Recent research on germination has verified these suspicions and has also indicated that the new groupings are following logical patterns.

Germination was promoted by so many factors in the large genera *Helichrysum* and *Helipterum* that the choice of factor for any individual species appeared almost haphazard. For instance, Willis and Groves (1991) found that gibberellic acid (GA_3) at a concentration of 500 parts per million (ppm) promoted germination of *Helipterum albicans*, but not of *Helichrysum apiculatum*. Lotte von Richter had reported in NL33, p.24 that GA_3 promoted germination of *Helipterum molle*, but not of *Helichrysum ambiguum*. Lo and behold, both *H.albicans* and *H.molle* are now included in the genus *Leucochrysum*. It was tempting to think that all the species in *Leucochrysum* might respond to GA_3 so Alf acquired a bottle which had been diluted to 500 ppm. Two of us (Bev Courtney and I) raced home from the meeting to sow our seeds of *L.fitzgibbonii* with appropriate controls.

We were not sure how to do it because descriptions in scientific journals seemed beyond the reach of housewives in a domestic situation. For example, Willis and Groves germinated seeds in 5 to 10 petri dishes lined with 9cm Schut Papier germination discs. Each replicate contained 20 seeds dusted with Thiram fungicide. The discs were moistened with a 500 ppm solution of GA_3 and later remoistened with distilled water whenever necessary. The experiments were conducted in artificially lit growth cabinets for 60 days at 30/20°C with an 8 hour day and 16 hour night. We did not have these advantages.

My methods were as follows:

1. For the control 50 dry seeds were sown on the surface of a container of 3 parts perlite to 1 part peatmoss and the whole covered with a thin layer of granitic gravel.
2. 50 seeds were sown as above and watered in with a small amount of GA₃. Every second day for a period of two weeks this container was watered with GA₃.
3. 50 seeds were soaked for 18 hours in a small amount of GA₃ and then sown as above.

All three containers were put outside in an area where they received rain only. Although they were not in direct sun the days were warm (22–28°C).

Bev divided her seeds roughly in half, then proceeded as follows:

1. Half were soaked in water overnight. This was the control.
2. Half were soaked in GA₃ overnight.
3. She tipped the seeds onto paper towels to dry in the hope that they would be easier to sow separately, but they stuck fast to the paper. She had not reckoned on the mucilaginous material these seeds produce when they are wet.
4. She cut the papers to the size of the punnets and laid them on the surface of each punnet.
5. The punnets were put in an unheated glasshouse with mist spraying several times per day.

I am aggrieved to report that nothing had appeared in my containers when Bev rang to announce that within a week she had 5 seedlings in her control punnet and 43 seedlings in her treated punnet. She had moved the punnets out of the glasshouse into a position that was shaded but open because she feared damping off could have occurred. Since then the roots of the seedlings had penetrated into her perlite mix, but there had been no more germination. The paper had dried out too quickly and had remained dry, so the remaining seeds did not stay moist enough to germinate.

Bev's results caused me to despair, but I rallied and moved my three containers into a north facing position where they were watered for 10 minutes night and morning. After about 5 days I was relieved to observe that seedlings had begun to appear in my treated containers, so the intermittent misting and slightly warmer conditions provided by Bev were more successful than my outdoor, weather-dependent methods.

Summary of results for *Leucochrysum fitzgibbonii*

| No. of seeds sown | 50 | 50 | 50 |
|-----------------------------------|--------|------------------------------------|------------------------------|
| Date sown | 8/4/93 | 8/4/93 | 8/4/93 |
| Seed treatment | None | Soaked in GA ₃ 18 hours | Watered with GA ₃ |
| Date and no. seedlings germinated | | | |
| 20/4/93 | 0 | 2 | 4 |
| 21/4/93 | 0 | 6 | 6 |
| 22/4/93 | 0 | 9 | 12 |
| 1/5/93 | 0 | 12 | 18 |

It certainly would appear that GA₃ promoted germination in the species of *Leucochrysum* tested so far. We were aware that our results would not stand statistical analysis, but we liked the way they were pointing. In a bid to get further evidence I repeated my experiment — this time using *Leucochrysum stipitatum* (syn. *Helipterum stipitatum*), but not watering every second day with GA₃ (as that seemed somewhat profligate in view of the cost). In this case 50 seeds were soaked in water and 50 seeds were soaked in GA₃ for 24 hours, then sown and placed as before in a north-facing position outside and watered for 10 minutes night and morning. As this newsletter goes to press (10/5/93) one seedling has appeared in the treated container after 17 days and none in the control. In the next newsletter the results after three months will be detailed.

Willis and Groves also found that light promoted germination of *Helichrysum apiculatum* (now *Chrysocephalum apiculatum*), but had no effect on *Helipterum albicans*. Lotte von Richter had reported that light promoted the germination of *Helichrysum ambiguum* (now *Chrysocephalum semicalvum*). Perhaps we should be suggesting that none of the species in the *Chrysocephalum* genus should be covered when sown.

I did a rough test by sowing equal volumes of *C. apiculatum* (collected from Wirrulla, SA, on 21/10/91) into two containers of seed mix. One was covered with a layer of 'quarter minus' granite chips (about 5cm across), one was not covered. After 12 days both began to germinate; after 25 days there were 21 seedlings in the uncovered container versus 5 in the covered one. Then we had a deluge of rain one night and many of the uncovered seedlings simply disappeared. Six weeks after sowing the numbers are 9

(uncovered) vs. 8(covered). The layer of chips would not exclude light completely, probably just cut it down. Perhaps the protection afforded by the granite chips outweighs the effect of the light, but it could be worth sowing *C. eremaeum* on the surface. It has never germinated for me.

Dr. Kerry Sharman (1992) reported that light promoted germination in *Hyalosperma glutinosum* ssp. *venustum*, *Leucochrysum fitzgibbonii* and *L. stipitatum* as well as *C. apiculatum*. So it would appear that no one factor, but a combination of factors probably holds the key to the germination of species. At least the new groupings seem to be narrowing the choices.

It was interesting to note that when Willis and Groves stored seed at 50°C/40°C in the dark for 4 weeks percentage germination was affected. The treatment promoted germination of *Leucochrysum albicans*, *Chrysocephalum apiculatum* and *Vittadinia muelleri*, but had an inhibitory effect on *Leptorhynchus squamatus*. This single factor appeals to me as holding the most promise for breaking dormancy.— at least in our difficult arid zone seeds. Sandy Salmon has arranged for the use of an oven to store seeds at 55–60°C for at least four weeks at the University of Melbourne as part of his postgraduate studies. He has been kind enough to include some of our bug-bears — notably *Rhodanthe polygalifolium* (from western New South Wales rather than Mildura) and *Lawrencella davenportii*.

There is a copy of the Willis and Groves article in the Study Group Library. I have only touched on some of the results, but it should be read in full by anyone interested in propagation from seed. The table demonstrating the results of their experiments is reproduced here (minus the three non-composites) with the authors' kind permission.

Table 2. Summary of results of germination experiments on four native herbaceous species
P, promotory effect; I, inhibitory effect; nil, no significant effect

| Species | Optimal germination regime (°C) | Effect of light on germination | Strong after-ripening requirement | Effect of GA ₃ | Effect of high temperature | Effect of cold-stratification |
|----------------------------------|---------------------------------|--------------------------------|-----------------------------------|---------------------------|----------------------------|-------------------------------|
| <i>Leucochrysum albicans</i> | 20/10 | nil | No | P | P | P |
| <i>Leptorhynchus squamatus</i> | 20/10 | nil | No | nil | I | I |
| <i>Vittadinia muelleri</i> | 25/15 | P | No | I | P | P |
| <i>Chrysocephalum apiculatum</i> | 20/10 | P | Yes | nil | P | nil |

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 Willis, A.J., and Groves, R.H. (1991). Temperature and Light Effects on the Germination of Seven Native Forbs. *Australian Journal of Botany* 39, 219–28.

MEMBERS' REPORTS

Alison Curtis and Brett Robinson (from Wagga Wagga, Victoria) write on 26/11/92:- "We have been on holiday on the south coast of New South Wales. Several olearias were flowering, including *O. tomentosa* and *O. ramulosa*, both of which were stunning. East of Canberra there were quite large areas of *Helipterum albicans* (now *Leucochrysum albicans*) in flower. There was also a plant which looked like a fine-leaved form of *L. albicans* with white bracts.

We are pleased to report that we had some success with seed that we obtained from the Group at the Victorian Wildflower Show earlier this year. In particular we are delighted with *Brachyscome stuartii*.

Linda Handscombe (from Pomonal, Vic) writes on 4/1/93:- "I presently have *Bracteantha viscosa* flowering well. I have been wiring them on 24 gauge wires. They are good for filling up small spaces in posies.

I am just picking *Bracteantha bracteata* and wiring from your seed planted in autumn and I have been picking hundreds from seedlings of old SGAP plants we grew in Porepunkah. I couldn't estimate how many flowers I have picked and wired from these six mangy-looking, windblown bushes — at least 1500.

With the new plants coming on and about 100 strawflowers (*B.bracteantha* 'Bikini' annuals) poor David and I are wiring about 400 every second day. I collected lots of strawflower seed of all the available colours and they have all turned out to be crimson. This was very disappointing as I wanted lots of white flowers which I am really lacking.

In the cutting line I have a number of *Rhodanthe anthemoides* which are taking off. *Helichrysum rutidolepis* and *Chrysocephalum apiculatum* are thriving. My very favourite plants (at the moment) are *Craspedia chrysantha*. I have about eight cutting grown plants which are flowering well, but are prone to slug and caterpillar attack. They are a nice addition to posies. I also have about six *Ixodia achillaeoides* which were slow to get going but are doing a little better now. The mother plant is on the point of bursting into flower after a good prune last year.

I have picked heaps of *C.apiculatum* (two forms — one is local) to dry and have been using it in posies. We have just taken more cuttings because it is so delightful in our lacklustre new garden. The thicker leaved, furry form originally came from Bill Owen's 'Pot Your Own' table at Central Highlands SGAP. We took it to Porepunkah, then back to here — so a little cutting goes a long way. David says he's seen the same form up on the plateau in the Grampians. We are presently striking *C.semipapposum* cuttings — some local, one from the north-east and a beautiful bright yellow one from Kyneton I believe.

We did strike some of the local *Chrysocephalum baxteri*, but only half survived and have not done really well. My pride and joy is a little clump of *Helichrysum blandowskianum* (now *Argentipallium blandowskianum*) from cuttings (local) last year. They have flowered again this year and are very pretty. They are in a sandy bed over a patch of scoria, mulched with newspaper and pinebark. I did put some old horse manure in before I read that I shouldn't!

I have been using a lot *Calocephalus brownii* (now *Leucophyta brownii*) in posies from two long-suffering, butchered plants, so have just taken some cuttings.

Of all the AD SG seed I got last autumn the *Rhodanthe chlorocephala* subsp. *rosea* (formerly *Helipterum roseum*) and *R.manglesii* did quite well. This autumn I'll try direct sowing some of these species early because it was a real job pricking them all out. My mother-in-law brought me a commercial packet of *R.chlorocephala* subsp. *rosea* seed from Western Australia which I direct sowed in spring. They are gorgeous! They are big, robust plants with much bigger flowers — probably all that rain. I also got a couple of *R.humboldtiana* which didn't do too well. The flower stems were too short to do much with them. I'll try some tiny posies. I liked *R.corymbiflora* because it was white!

My schoenias all fizzled out when they went into the ground, as did my *Helichrysum subulifolium* plants (now *Schoenia filifolia* subsp. *subulifolia*). I got four flowers I think.

Rhodanthe polygalifolia did well — I got about ten plants — but thought they were a bit boring and didn't wire or dry well. They have fizzled out but I collected a tiny bit of seed.

I liked *R.diffusa*, but really needed some pockets in a rockery for it — it was lost in a bed. I germinated one *R.floribunda* which is flowering now, but it isn't huge. If I cut it to dry there will be nothing left.

I have five plants of *Helichrysum elatum* in the ground from your seed. They are not dying but are not really growing either, though they are in the shadiest spot I can provide, and have cool root runs."

(3/93) "Nothing has changed since (my last letter) except that my *Argentipallium blandowskianum* has decreased by 75%. It was two plants planted closely together and because it was so lovely I took a couple of photos of it. Of course the next day the wind split one plant (the biggest) in two and now it is a shadow of its former self."

Brian and Mari Walker (of Valley View, SA) write in 1/93:- "The area of garden outside our kitchen window is really a picture — dominated by daisies, of course, but intermingled with other native plants. We are very pleased with a pot of *Wahlenbergia communis* which has flowered continuously for months and is a real gem amongst the pink, white, mauve and yellow flowers of other plants. Three large flowering spikes of *Anigozanthus* dominate the area and look good. It is not a large area yet but is gradually being extended. Most of the plants are still in pots but grouped very closely together so that the pots are hardly noticeable. We planted a semicircle of six *Olearia phlogopappa* (all white), which are growing nicely in the soil. They are very healthy and a lovely contrasting deep grey foliage to set off the colours of the other plants. We

placed the aforementioned pots on the shady side of the olearias and they appreciate protection from the sun.

Also growing nicely in the ground is a small carpet of *Chrysocephalum apiculatum* which seems never to be without flowers. It is not rampant; the odd sucker appears, which is dug up and potted on. In previous years this one was planted in the front but it always died within a year or so. As luck would have it, this time it really did say thank you very much! Plants do talk you know!!"

Doll Stanley (of Auburn, SA) writes:- "What a year it's been. Rain, rain and still more rain. Twelve inches more than normal, and though it's been marvellous for the general garden the paper daisies have suffered. I've had a very poor seed set, but am enclosing a few *Rhodanthe corymbiflora* seeds and hope a few will germinate.

Of the seeds sent to me, *Ozothamnus obcordatus* germinated very well (fairly old seed the note said) and now I have half a dozen well grown plants in pots. They will be tried in the garden later. I'm not sure how they will like our alkaline soil.

The *Brachyscome segmentosa* came up with several different leaves and when they flowered one was a lovely pale yellow flower. Wonder what it crossed with? *Brachyscome tadgellii* germinated one plant which later had only one flower on it, but it is a fine, healthy-looking plant. *Brachyscome diversifolia* var. *diversifolia* germinated well, and the plants put out in the garden are growing and flowering well.

Brachyscome angustifolia, *Rhodanthe chlorocephala*, *Argentipallium blandowskianum*, *Helichrysum adenophorum* and *H. elatum* all failed to germinate. Perhaps they were sown at the wrong time.

I tried some root cuttings of *Helichrysum leucopsidium* and two had nice little shoots showing when something ate the lot (snails?). Anyway I intend to try some more. Just put in some *Myriocephalus stuartii*. Didn't have much luck with *Minuria* sp. but as I am very fond of them I'll try again.

I planted out in the garden the *Brachyscome melanocarpa* from the Brachyscome Project, and so far they are looking well.

MEETING REPORTS

MARCH MEETING — Propagation

Members discussed their activities in this field, and their intentions.

Maureen Schaumann had taken cuttings on 12/1/93 of Peg McAllister's large-flowered form of *B. multifida* and a *Gastrolobium* species. She put some in a container in a large plastic bag. The bag was sprinkled, the top was knotted and left in the shade on the south side of the house. The cuttings were sprinkled once a week after that and had rooted in 2-3 weeks.

Some of the cuttings were placed in a wooden frame covered with clear heavy-duty plastic, but only the *B. multifida* had rooted after three weeks.

Fresh *B. spathulata* seeds collected and sown in October/November had germinated before Christmas.

Jenny Rejske had taken cuttings of *Olearia phlogopappa* the day before the meeting, but felt nothing had happened yet.

Bev Courtney has access to a glasshouse with intermittent misting, so she sows seeds at any time. She thinks that these conditions provide a warm atmosphere, and that the frequent watering washes out inhibitors. As soon as seeds germinate they are brought home because they become mould-affected if left long in such damp situations. The results are good — *B. tadgellii* has come up like a little lawn and recently *B. procumbens* (from Julie Strudwick) and *B. ciliocarpa* (from Old Onslow and Payne's Find to Yalgoo) have germinated in one week.

Beth Armstrong has taken a few cuttings of *B.rigidula* and *B.multifida* (Cape Conran). She is about to start sowing seed.

Val McConchie has been reorganizing her propagating set-up. She used to have 100% success, but in the last few years this rate has dwindled. She feels it is due to too much shade, so has cut back the foliage around the area and cleaned out the box thoroughly.

This year she intends to try three methods:

1. Bottom heat with automatic misting.
2. Plastic house with no bottom heat and manual misting — usually morning and evening.
3. Solar house made of thick plastic panels with a top vent. It has manual misting and no bottom heat.

Betty Campbell is getting hundreds of seedlings of *Rhodanthe anthemoides* coming up all over the garden. Since she does not know which forms they are she has taken cuttings of 'Paper Baby' and 'Paper Cascade' in order to know the identity of at least some of her plants.

She has sown *R.anthemoides* (unbranched form) in crushed gravel (in the absence of sand). A couple of seedlings have germinated so far.

Judy Barker had sown seed from the beginning of the year in an area which received sun for about four hours a day. Rain was the only source of water until germination began, at which stage the pots were sprinkled once a day, or twice if it was hot. There was always a surge of germination after heavy rain, but the interval seemed to vary and probably depended to some extent on daily temperatures. Perennials such as *Brachyscome chrysoglossa*, *B.formosa*, *B.parvula*, *B.petrophila*, *B.procumbens*, *Calocephalus lacteus* and *Helichrysum adenophorum* germinated as expected, but so did the annuals *Brachyscome ciliocarpa*, *B.halophila* and *B.oncocarpa*. She hoped the arid area seedlings could be well established before cold weather struck them down. The containers would be moved into sunnier positions when temperatures were consistently lower.

Some general tips on propagation emerged:

- If cuttings are stressed by heat or winds they will go limp. If they do not stand up again at night after watering they are not going to root and may as well be discarded.
- The softer the cutting, the quicker it will strike, but a balance must be struck depending on the time of year. Soft tip cuttings need automatic misting in hot weather. (If cuttings are held by the stem and the tips pulled gently they will snap at the weakest point — thus removing the softest tissue.) Soft tip cuttings are most successful in winter.
- The preferred time for taking cuttings varied. Maureen has most success from December to February, and Jenny usually takes hers in February. Bev 'goes for her life' in winter because there is no stress at that time.
- Maureen and Judy use margarine containers (round 500g — preferably Meadow Lea) because they like the depth. Bev uses the shallower punnets, but she says it depends on the species. *Podolepis* species have long roots which quickly reach the bottom and are either eaten or trimmed. This usually produces strong lateral growth. *Brachyscome tadgellii* has a lovely little root system, very neat and easy to pot on. Annuals want to get their roots down as deeply and as quickly as possible.
- Bev advises sowing a bit thinner and letting a good root system develop. Do not pot on too soon.
- Root aphids — half an hour in a small bucket of pyrethrum (25ml in 1000ml water) to which a dollop of horticultural diatomaceous earth has been added will clear these pests, but they will come back again. Beth sprinkles about a teaspoon of naphthalene on affected plants and waters it in. Be warned that naphthalene is said to be carcinogenic, but we do not know at what concentration it becomes dangerous.

We all agreed that this season of near record rainfall and cool temperatures could be unusual. Perhaps we should be wary of drawing too many conclusions under such circumstances.

LOVE LIES BLEEDING

(Jenny Rejske read this poem in the Melbourne Age some years ago and liked it so much she cut it out and put it in a safe place. She has found it again recently and would like to share it with us.)

**She hums and pauses like a bee, and picks
the native helichrysums yellow as
the straw that shades her face and hides her hair.
They'll look good in that pale green bottle,
little suns that are forever bursting
giving lifting brightness to a dwelling
where the ceilings sometimes press so dark and low
she takes and strokes the cat upon her knee.**

**She knows that love-lies-bleeding can be dried
for everlasting, that forget-me-not
and heartsease are the commonest of names,
no immortelle her flower will wither
but her gentle gesture is immortal —
placing daisies in a pale-green bottle.**

— Bary Dowling

NORTH-EASTERN VICTORIAN WEEKEND

Venue: Fifteen Mile Camp, Whitfield Road, Greta South.

Accommodation: Two dormitories holding twenty people in each.

Bathrooms: Toilets, male and female — tiled and modernised.

One flat, three double bedrooms.

Flat space for caravans or campers.

Local motels — make your own arrangements.

The camp has a fully equipped kitchen, dining room and meeting area.

Bedding: Mattresses only. **BRING SHEETS, SLEEPING BAG or DOONA and PILLOW.**

Catering: Evening meal on Saturday and Sunday, Three courses for about \$10.00 each.

For Friday's evening meal please bring your own. (Keep it simple if possible.)

Breakfasts and lunches — bring your own ingredients and **MILK.**

Morning and afternoon teas, etc., supplied (ADSG).

BYO **ALCOHOL** (if required).

Number of participants: Minimum number about 10, maximum number 20.

Cost: The basic cost of the facility will be shared by all, whether they are living in or not. The maximum cost for 10 people is \$12.00 plus the cost of the meals.

Deposit: \$5.00 payable to — Julie Strudwick, RMB 2551, Benalla, 3673. (Ph. 057 66.6232)

or — Esmá Salkin, 38 Pinewood Drive, Mount Waverley, 3149. (Ph. 03 802.6213)

NO REFUNDS AFTER 1/10/93

Program (tentative):

Friday evening — Daisy Update (specially for new members)

Saturday morning — Garden visit

— Lunch at Mount Samaria. Here we meet the Melbourne members who work.

" **evening** — Bringing sanity into name changes (Judy).

— Daisies galore in Western Australia, and your choice.

Sunday morning — Garden visit.

— Tiger Hill, Tatong. Lunch in the field.

" **evening** — More name changes (*Craspedia*)

— Glimpses of Daisy activities, and any other activities.

Seed Banks are available and plant swaps or gifts will be taking place. The program is flexible, geared to the interests of the participants and the weather. We're due for a fine weekend. We will not be visiting native plant nurseries. A list of local nurseries and recommended places of interest will be supplied for those staying longer. We must vacate the camp by 9.00 am on Monday.

BRING CAMERAS, WET and COLD WEATHER GEAR, UMBRELLA, SUN HAT and ANYTHING ELSE.

'ISOLATING' PLANTS IN THE GARDENby Judy Barker.

Like Julie, I have been forced to think about my purposes and activities within the genus *Brachyscome*. One of my main aims is to produce pure seed from species by isolating them. For two years I have 'isolated' large pots of plants of the mauve-pink *Brachyscome angustifolia* from different origins (so that the genetic constitution is not the same) and have rubbed heads together daily. These pots are about 10 metres away from the bulk of the daisies in the garden — out of sight and separated by a garage. Seed collected from this gaggle of plants has yielded seedlings which look and behave just like their parents. There may be slight differences in shade of heads and height of plants, but Alf assures me this is normal variation. Last year I added another pot of three of these 'pure' seedlings and collected seed again. It has been sown this year and the resultant seedlings look like the real McCoy.

I suspect that if there are masses of flowers together and not many other flowers within sight the pollinators stay in one place to collect their loads. If I am right I will be able to put any species we particularly need in this spot and collect 'pure' seed.

SEED LIST:

Seed is for sale to non-members at 50c per packet plus postage. Larger amounts of seed can be bought by arrangement. Requests for seed (ENCLOSING A LARGE, STAMPED, SELF-ADDRESSED ENVELOPE) should go to Esma Salkin, 38 Pinewood Drive, Mount Waverley, Victoria, 3149.

Most seed for sale comes from cultivated plants or from commercial sources. Please note that much of the seed listed below has come from members' gardens and may have crossed with other species. One parent only is guaranteed.

ADDITIONS

Asteridea athrixioides, *nivea*. *Brachyscome angustifolia* complex. *Calocephalus lacteus*. *Chrysocephalum apiculatum* (Fairhaven garden, Mosley Knobs).

Helichrysum elatum. *Leptorhynchus squamatus*. *Leucochrysum fitzgibbonii*, *molle*.

Olearia frostii, *magnifica*, *tomentosa*. *Ozothamnus obcordatus*, *thyrsoides*. *Podolepis lessonii*.

Rhodanthe floribunda, *manglesii*.

DELETIONS

Brachyscome angustifolia pink, mauve, *exilis*. *Chrysocephalum apiculatum* (Ardlethan, Blayney), *semipapposum* (Stanley). *Ixiolaena* sp. (Qld). *Ozothamnus cuneifolius*. *Pycnosorus chrysanthes*. *Schoenia filifolia* subsp. *subulifolia*

PROVENANCE SEED SPECIES

DELETION *Ozothamnus obcordatus*.

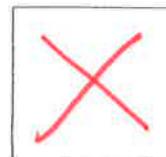
SEED DONORS

Many thanks to Judy Barker, Barbara Buchanan, Betty Campbell, Bev Courtney, Christine Howells, Jeff Irons, Colin Jones, Bob Mylius, Esma Salkin, Sandy Salmon, Dr. Philip Short, Doll Stanley, Gloria Thomlinson and Pat Tratt.

SUBSCRIPTIONS

Subscriptions are now \$7.00 per year for Australian members and \$14.00 per year for overseas members. Cheques should be made payable to the Australian Daisy Study Group and forwarded to the Leader, Esma Salkin (address above) or to the Treasurer, Bev Courtney, 3 Burswood Close, Frankston, Victoria, 3199.

FEEs ARE DUE ON 30th JUNE, 1993. THIS IS YOUR SECOND AND LAST WARNING. A LARGE RED CROSS MEANS YOU WILL BE OVERDUE IF YOU HAVE NOT PAID BEFORE THAT DATE.



NEWSLETTER DEADLINE

The deadline for the November Newsletter is **SEPTEMBER 25th**. Please send articles to Judy Barker, 9 Widford Street, East Hawthorn, 3123. Thank you for your contributions to the hybridisation debate. The fact that you sent your opinions in such numbers surprised and delighted me. Thank you for all the other articles and the illustrations too. Please note Esma's observations under the heading 'Newsletter' on p.19 of this newsletter.Judy.