

ASSOCIATION OF SOCIETIES FOR GROWING AUSTRALIAN PLANTSTHE AUSTRALIAN DAISY STUDY GROUP NEWSLETTER NO. 25

Dear Members,

Thank you to all who sent in their propagation sheets and to those who could only report mishaps - a deluge that washed away all seed, and snails which slithered in the night to feast on juicy young seedlings. We've all been through this learning process and devised defensive strategies, both verbal and practical, to relieve our frustrations. Thanks to Joy Greig (who did the word processing for the Daisy Book with enviable efficiency) for taking on the task of recording the propagation results. It is now easy to see which seeds consistently fail to germinate. If you are experiencing difficulty in germinating seed, contact me and we'll check to see if others are having the same problem and, if not, which method gave successful germination.

One cause of failed germination could be the storage of seed. This is under review and the Study Group thanks Geoff Butler of Canberra for his advice. We are adopting the following method for Living Collection and Special Project seed:

Place freshly collected, perfectly dry seed overnight in the freezer section of the household frig. to kill insects. Then store in a container to exclude moisture in the main part of the frig. This exposure to constant low temperature slows down the metabolic rate in the seed and helps to maintain viability. It's the best a kitchen technologist can do.

The post-mortem on the Open Weekend will be well under way when this NL arrives. We are looking forward to exchanging views with country and interstate members and we confidently expect the sun to shine to show daisies at their best, but in the best tradition of Melburnians we are prepared for all weathers.

The Daisy Hunters in the arid zone returned a few weeks ago full of enthusiasm for 'new daisies' and surprised how easily some species grow in inhospitable surroundings. Judy had a week in the Centre and Alf and I visited south-west Queensland and western NSW.. En route to Queensland Alf and I called on Bill Mulham to check out the location of the brachyscomes on Maureen's Wanted List. We are grateful for Bill's assistance and were successful in finding four or five on the list, although we still have to check our provisional identifications. For the whole trip our tally of brachyscomes was about fifteen. Other Asteraceae seen

for the first time by us were Helichrysum semifertile and H. pterochaetum, Helipterum troedelii, Leptorhynchos tetrachaetus and Podolepis neglecta. Calotis inermis put on a grand show in royal purple and Helipterum floribundum must surely be the most widespread daisy. The most memorable sight, however, must be reserved for Craspedia pleiocephala; myriads of blooms filled the whole landscape with the yellow of mature flowers encircling huge patches of yellow-green buds.



x 1/3

Myriocephalus guerinae

A summer field trip is planned to the Omeo area in late January (details page 52). Meanwhile, good luck with daisy matters and best wishes for Christmas and the coming year.

Esmā.

UNKNOWN PODOLEPIS SPECIES

by Bev. Courtney

It may seem strange that I am beginning what Judy hopes will be an extensive series of articles on Podolepis by writing about an unknown species. I'm doing so in the hope that some daisy-grower in a far-flung corner of the country will recognise its description and write to tell me all about it.

I have been growing this podolepis for about two years now, and had been calling it P. jaceoides because that's what it said on the seed packet. In my early days of growing daisies record-keeping was perhaps not as good as it should have been, but I dimly remember its origin to have been the Keilor Plains area, west of Melbourne. Doubts began to creep in when Maureen saw it in my garden and said, very definitely, "That's not Podolepis jaceoides". The doubts were crystallised when, on a visit to the Warby Range State Park last year with other Study Group members, I saw the real P. jaceoides growing.

Podolepis sp. begins life as an erect tuft of linear to lanceolate leaves. In mature plants the leaves form a robust clump up to 15 cm high and 20 cm across. The leaves can be up to 12 mm wide and the back of the mid-vein and the leaf edges are sparsely covered in longish white hairs. The remainder of the leaf surface is smooth and hairless. Flower stems arise in spring, up to 40 cm high and often as many as ten to fifteen per plant. They branch near the top to produce many drooping, spherical buds which gradually expand and stand upright as they mature. At this stage the centres of the buds look like pale green velvet. Flowers open to 2 - 3 cm across, bright yellow, with the soft outer ray florets being divided into three lobes.

Plants in built-up beds of light soil do not usually persist through the summer, however, some in heavier soil have managed to get through the winter and are making new late winter growth. It may be that this species is an annual or part-perennial; it certainly sets large amounts of mature seed which germinates readily. Seed is interesting too in that it produces a heavy oily stain on paper; other Podolepis species do this also.

I like this podolepis for its tufting habit. Planted amongst other 'tufties' it is helping to give my garden the natural look I am aiming for.

AN EMBARRASSING SEQUEL TO "ALL THESE DAISIES CAME UP!"

by Esmā Salkin

Seed sown from the assumed Helichrysum adenophorum var. waddelliae, collected by a forester son, produced seedlings with broad cotyledons unlike the thin cotyledons of the Snowy Mountains species. This sent me rushing back to the shrivelled specimen collected for me, and to Willis, A Handbook to Plants in Victoria. Sure enough, under the dissecting microscope, the inner involucral bracts were entire and thus it was H. leucopsideum and not H. adenophorum (where the apices of the innermost involucral bracts are conspicuously fringed or laciniate). Also the number of pappus bristles of H. leucopsideum are about 80 compared with 25 for H. adenophorum.

(Reference, NL 24, p.26.)

SPECIES OR FORMS NEW TO THE GROUP

Brachyscome ptychocarpa (Vic.,NSW.)

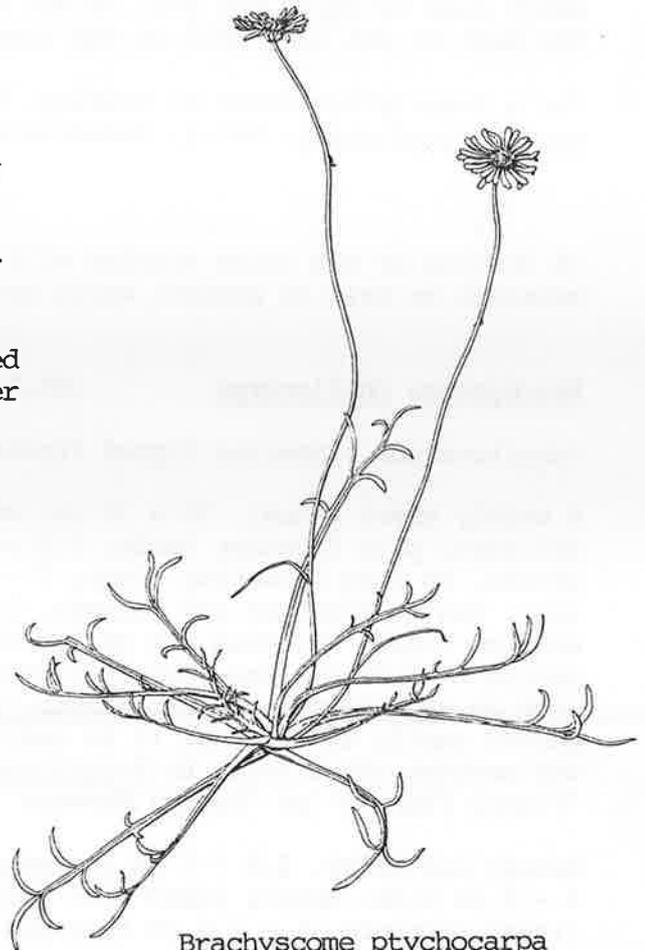
(ptychocarpus = bearing winged fruits)

Tiny Daisy

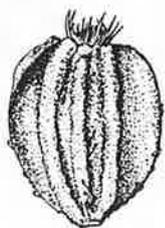
This species is listed by Dr. Willis as being rare in Victoria, so we were indeed grateful to Barbara Buchanan who went out of her way to visit the growing area to collect seed for the Group. This seed, I am very pleased to say, germinated well in 11 to 32 days. Apart from a curling of the leaves when first potted on, no further problems were encountered after spraying a couple of times with pyrethrum.

Brachyscome ptychocarpa is a small, dainty herb, 10 to 17 cm high and 18 to 20 cm wide, with a basal rosette of pinnatisect, fern-like leaves to 7 cm long, similar in appearance to Brachyscome nivalis var. nivalis. Each leaf has six to nine segments up to 1 cm long and 1 - 2 mm broad, entire (rarely with one or two minute teeth), and both leaves and stems are glabrous.

Flower buds are a delicate shade of pink, opening to white. The single heads, 1 - 1.5 cm across, appear at the tips of fine slender scapes, 12 - 17 cm long, bare except for a linear leaf, 1 - 2 cm long, or a small leaf bract.



Brachyscome ptychocarpa
x 2/3



B. ptychocarpa
achene x 25

The achenes are brown to black, 1 - 1.1 mm long and 1 mm wide, obovate, with wide wings and short hairs along the margins. Three raised longitudinal folds, mostly serrated along the edges, appear down the centre of the fruit, with the central fold usually bearing bristles. The pappus is white, long and crown-shaped.

A plant collected by Bob Mylius in New South Wales last year has been flowering non-stop since I received it earlier this year. Recorded as an annual, it may well prove to be a perennial if care is taken of its needs during the summer months. After mine wilted rapidly in the hot sun it improved considerably when stood in a saucer of water and placed in the shade.

Because of its neat, compact habit Brachyscome ptychocarpa is ideal as a rockery or garden plant as it can be tucked in almost anywhere, or try including it with your other daisies in containers.

Maureen Schaumann.

Spilanthes grandiflora

(Qld.,NSW.,NT.)

Location:- Kin Kin Creek, close to the water's edge.

Herb up to 30 cm x 1 m in a 300 mm container. It flowers from summer to autumn.

Our plant has now finished flowering and I intend to prune when the rain stops. In a container it requires heavy watering daily. We have not grown this species successfully in the garden, probably because we do not have any wet spots. We have sandy loam so maybe the soil is not heavy enough. Tracy Ellis has a few plants, the best in wet clay soil in one corner of his garden.

For a description refer to Stanley, T.D. and Ross, E.M. (1986), Flora of South-eastern Queensland, Vol.2, Queensland Department of Primary Industries, Brisbane.

by Pat Shaw.

(A drawing of the above species will be included in a future newsletter; the living material we have at present would not allow justice to be done.)

Brachyscome cheilocarpa (WA.)

(cheilocarpus = bearing lipped fruits)

A weakly erect annual, 30 x 30 cm, with large solitary, pale lavender heads, 2.5 - 3.5 cm across, on bare flowering stems, 7 - 20 cm long. Ten to fourteen ray florets, 13 mm long and 5mm broad, surround the yellow disc centre in a single row. These florets have such an appealing look, with their "petals" curved gently under, that it is easy to see why members often refer to B.cheilocarpa as 'Floppy Florets' or 'Droopy Drawers'.

Leaves are hairy, 3.5 - 7 cm in length and 2 - 6 cm wide, deeply lobed with 8 to 10 linear segments, 1 - 3.5 cm long and 1 - 2 mm broad, mainly entire but occasionally toothed. The branching hairy stems are succulent and tend to break very easily. The receptacle is wide and conical, 3mm high by 2 mm broad.

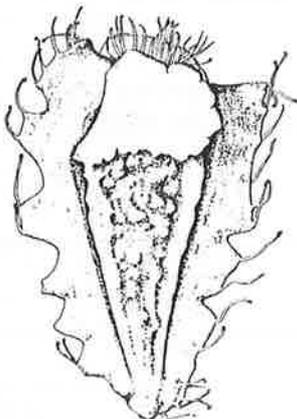
The achenes, 2.5 mm long and 1.5 mm broad, are straw-coloured and have uneven margins with long stiff hairs. The centre has many small, pimple-like bumps to which a few long hairs are attached. A large swelling is present at the top of the achene - making identification of this species very easy. The pappus is long and easily visible.



Brachyscome cheilocarpa x 2/3

Brachyscome cheilocarpa is similar in appearance to Brachyscome ciliocarpa, but differs from that species in the characters of the fruit and the involucre bracts, which are green and covered in long hairs.

Seed collected by Bob Mylius on his trip to Western Australia in 1987 was sown on the 18th. February, 1989. Six days later germination commenced and by the 13th. March one tiny seedling was in bud. Flowering started 42 days after planting three seedlings in a large pot and continued well into winter. When the really cold weather set in, much to my surprise, all my plants quickly died. Occurring in the drier regions of W.A., B.cheilocarpa is recorded as a perennial. It may well be so in its natural habitat but, after my experience this year and that of other members, it would seem to be an annual here in Melbourne.



achene x 20

Brachyscome cheilocarpa

To date, I can see no horticultural potential for this brachyscome, but the enthusiast may consider it well worth growing.

by Maureen Schaumann.

(Maureen lives in Mulgrave, about 20 km south-east of Melbourne. The soil is heavy and the annual rainfall about 80 cm.)

Helipterum stuartianum (SA., Vic., NSW.)

(probably after Charles Stuart, 1802 -1877, gardener and plant collector.)

Clay Sunray

I first saw H. stuartianum in 1983 while on a quick trip round western NSW.. It was growing in the plains along the road from Renmark to Broken Hill among scattered Stringybarks and with Helipterum polygalifolium, Craspedia pleiocephala and Brachyscome lineariloba. It was a most attractive small, white everlasting and I looked forward to growing it when someone collected seed. In '88 Esma found plants in seed at Yardea near the Gawler Ranges in SA.. Now I have two large plants from there in a wide, flat terracotta pot and I am delighted with the appearance. There is harmony in the dark green foliage, yellow-green stems, clean white heads and shining, golden-brown, drooping buds.

The plants are 30 - 32 x 30 - 40 cm; one has upright stems and the other has stems which run along the surface before becoming erect (reminiscent of Helipterum diffusum). Some stems are unbranched, while some produce one to three side shoots about half-way along their length. The heads are 22 - 28 mm across and are flat, with wide central discs. The stems are strong, almost wiry, and should be good for drying. I have found them easy to wire though they are not hollow-stemmed like H. splendidum.



Helipterum stuartianum x ½

The leaves are alternate, dark green, sessile, linear-lanceolate, 8 - 30 x 2 - 4 mm, almost glabrous, but with just a few long hairs along the margins. The leaves continue up the stem to just under the head, but decrease in size and become scale-like. They also develop a relatively large scarios appendage at the tip - like that on the upper leaves of Helipterum praecox.

The light green stems are sparsely hairy and become quite woolly just below the head. The broad outer bracts are almost fluorescent gold and the inner bracts are also broad, white and pleated - rather like those of the red-budded form of H. anthemoides.

The achenes are silky-hairy, 2 mm x 1 mm, and the pappus has 8 - 12 white, feathery plumes, 2.5 mm long, which are joined at the base.

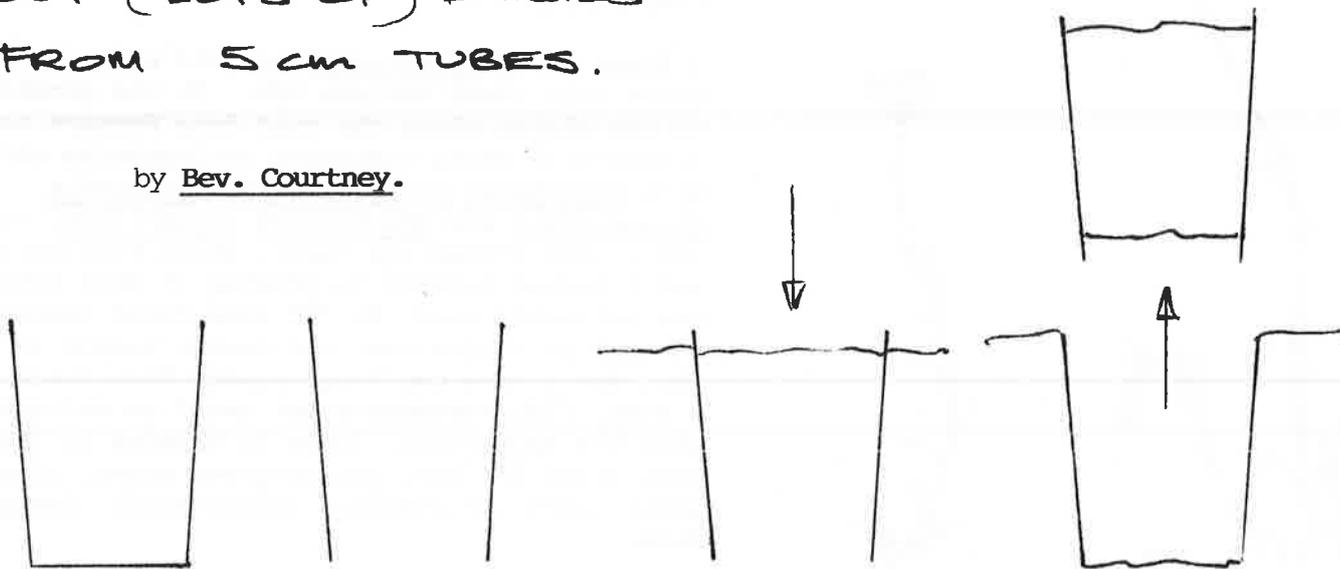
Seed germinated in 8 days when sown in March '89 and was potted on in 42 days. Most of the seedlings died or disappeared when left out in the open over this cold, wet Melbourne winter. Maureen also collected seed along the Silver City Highway in October '88. It germinated well when sown in May '89 and more seedlings have survived. Just for this year they are all going into pots rather than into the garden

so that I can keep an eye on them in order to collect as much seed as possible. Maureen tells me (with a touch of envy) that the heads of the Silver City Highway form are smaller and much harder to wire, so we must collect as much seed as possible from our Yardea forms. The trouble is that I find it hard to stop picking heads for wiring - they look so nice. I must try harder because this species looks like a winner to me.

by Judy Barker.

A QUICK METHOD FOR PLANTING OUT (LOTS OF) DAISIES FROM 5cm TUBES.

by Bev. Courtney.

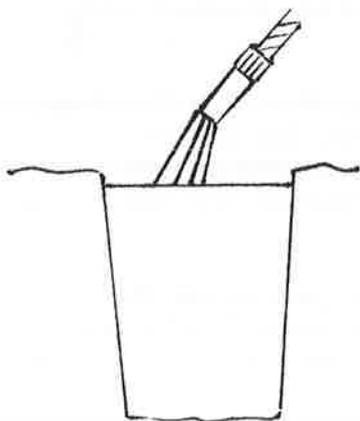


1. TAKE A
5cm POT
(EMPTY)

2. CUT OUT
THE
BOTTOM.

3. PUSH POT
INTO THE
SOIL (SOIL
SHOULD BE
MOIST.)

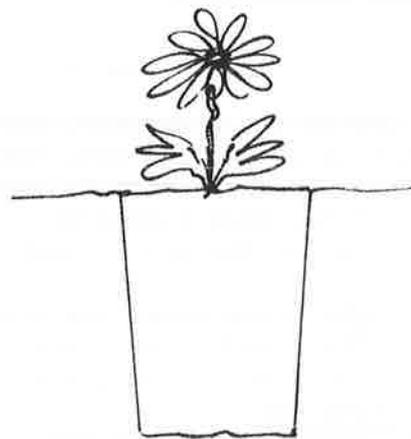
4. REMOVE POT
AND SOIL
PLUG.



5. FILL HOLE
WITH WATER.



6. REMOVE
PLANT FROM
POT. TRIM
COILED ROOTS.



7. DROP INTO HOLE
AND 'SNUGGLE'
INTO PLACE.
ADD GRAVEL MULCH
& SNAIL BAIT.

HYDROPONICS FOR DAISIES

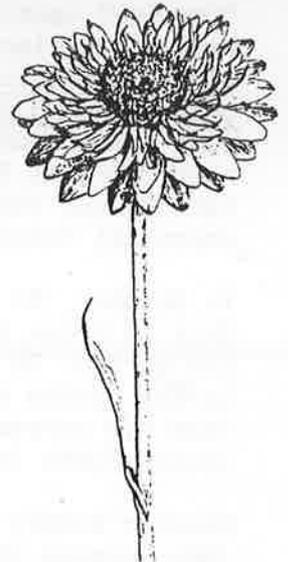
by Joyce Strong.

For the last three years my husband has been growing vegetables using Hydroponic Culture. He uses a very basic method, foam broccoli boxes filled with two parts perlite to one part vermiculite, and adds the water/nutrient mix by hand.

It is necessary to put a hole in the box on one side about 6 cm from the base; a screwdriver is a handy tool for this job. This small hole is to let you know when enough nutrient mix is in the box and also, if it rains, it lets out the excess water. Rain does no harm, it flushes out the container and prevents salt buildup.

We heard from a friend that he had grown Helipterum roseum using hydroponic culture and these were very successful. I decided to try Helichrysum bracteatum.

Using the above method I put down seven boxes - three of these using plants from commercial seed (Hendersons), the other four with plants from seed grown in my garden. The plants from the commercial seed are over 2 metres tall, the other plants are from the seed of H.bracteatum 'Princess of Wales' crossed with Helichrysum 'Bright Bikini' (red in colour and small of flower) and also nearby was a plant of H.bracteatum 'Cockatoo'. These are all low, bushy plants following the style of H.bracteatum 'Princess of Wales'. In half of one box I planted Helipterum roseum. All have flowered profusely, and I pick and wire them using the method described in the A.D.S.G..



H.bracteatum head

In using hydroponic culture it is necessary to be aware of the pH level of the nutrient; 6.5 seems to be ideal for Helichrysum.

This method can produce a large number of well grown flowers suitable for drying and wiring, and does not take up very much room. It is not intended to replace garden culture when massed displays are desired.

The nutrient we use is called "Simple Grow", and we purchased a book, Simple Hydroponics for Australian Gardeners by A.C.Sundstrom, B.Sc. Agr..

Brachyscome whitei

by Esma Salkin.

This brachyscome commemorates a Queensland botanist C.T.White, but I will always privately refer to this attractive brachyscome as 'White-eye'. The 'White-eye' is a very distinctive feature of the flower-head and derives from the rim of white or pale lilac at the base of the lilac rays that surround the yellow disc.

On our recent trip to south-west Queensland this was the first 'new' daisy encountered. I found this brachyscome on a red sandy roadside verge on the Enngonia to Brewarrina road. The plant focussing my attention was about 15 cm high and as wide, with six or seven lilac flowers (3 cm diam.) standing above a basal clump of ovate-cuneate, lobed leaves. Of considerable interest were another couple of heads shedding mature seed. This rapid maturation of fruit is obviously another strategy for survival in an arid environment. Fruit matured first at the periphery and had already dispersed by the time the inner fruit had developed.

The fruit is black, tuberculate on both faces, with thin wings, glandular at the margin.

The glandular-hairy nature of the plant was readily observed because a fine coating of red dust adhered to leaves and stems and marred the carefully chosen herbarium specimen. However, the disappointment in the quality of this flawed specimen was

compensated by the daisy's photogenic properties. Queensland members are probably very familiar with this brachyscome. What are your experiences with its cultivation? I'll certainly be trying it down south.

This brachyscome is prevalent on the red sandy soils in south-western Queensland and over the border in New South Wales. You find it on roadside verges disturbed by the grader and it is dominant in Mulga communities on the road from Charleville to Cunnamulla.

SPECIAL PROJECTS REPORTS

May Helichrysum apiculatum complex by Judy Barker.

"Complex" neatly sums up the situation. Within this complex it is thought that several species may be involved. Future revision will probably include the Helichrysum apiculatum complex, together with H. ramosissimum, H. semipapposum, H. mono-chaetum and H. pterochaetum, in a separate genus. Meanwhile, I am trying to establish some order into the forms I am growing. Then I will be able to choose the best horticultural form from each category and thus cut down the number of large pots taking over the back garden. The discards can all be planted at our coastal retreat, where all forms of this species seem to thrive.

In October '88 I have 38 pots (25 cm or 30 cm) of forms from a variety of places. This is known as the "Living Collection" and is situated in an east-facing area of the garden. In addition, there are about 28 other forms which have only been grown in the garden or have died before being potted. At least 12 more forms will result from the current year's collecting efforts. My spare time is devoted to trying likely forms in baskets.

Maureen kindly suggested the "L.C." to me originally. I groaned, but it is a good idea because the pots act as stock plants and let me decide whether they would make suitable container or hanging basket subjects. You will understand if I tell you I sometimes think I am drowning in this complex, but nevertheless I do thank all members who have contributed seed, plants or cutting material to me, and ask you to keep them coming. (Helichrysum semipapposum, my other special project, has retreated temporarily into the background, but I still grow all the forms I am given.)

Which factors will I use to categorise my forms? Will it be foliage colour, the colour of the disc florets or the bracts, the length of the inner bracts, whether they radiate around the disc florets, the habit of the plant, the type of the hairs present on the leaves and stems, the achenes, or a combination of all these characters?

Three general observations are:-

- . that the new young growth can be very different in size, shape and distribution from that encountered at the end of the season. An example of this is the form from Ayers Rock in which the young leaves are broadly spoon-shaped, 35 - 95 mm x 10 - 35 mm, with rounded apices, whereas the mature leaves are narrowly oblanceolate, 30 - 40 mm x 6 - 7 mm, with acute tips.
- . that the shape of the clusters of heads will change over the season. For instance, the heads of the Ayers Rock form are in fairly tight clusters in January, but by March or April they have developed racemosely.
- . that the roots of the H. apiculatum seedlings are white and quite thick, but those of the H. semipapposum seedlings are brown and fine.

This project has been fascinating. I have been amazed at the number of forms that can be found growing together in some areas. For instance, at least four forms were collected from around the Copeton Dam in northern NSW. in June '88.

Some natural categories seem to be surfacing, but a lot more work needs to be done and more charts of all the relevant characters drawn up. Here are some tentative groupings (or groupings).

GROUP 1

The stems are white, the leaves appear dark green above and white below, and are not aromatic. The young leaves are 70 - 80 mm x 7 - 9 mm, the mature leaves are 10 - 50 x 3 - 8 mm. Under x 25 magnification the upper leaf surface is sparsely covered with upright glandular hairs, the lower surface is cobwebbed, with some glandular hairs. The stems are quite thickly cobwebbed.

The heads are 7 - 11 mm across, the disc florets are yellow-orange and the bracts yellow. The inner bracts are short (4 - 4.5 mm long) and do not radiate.

The foliage of all the Gp.1 forms was badly affected by the cold winter weather. These forms flower relatively early in the season and do not sucker.

Included in this group are forms from Cessnock to Kurri-Kurri (NSW), Fossicker's Reserve (green leaf) from near Inverell (NSW), Glen Innes (NSW), Wyangala Dam near Cowra (NSW), Connemara (green, white-backed) which is 86 km south of Gunnedah (NSW) and Girraween (southern Qld.).

These forms differ in the thickness of the hairs on stems and leaves, but are similar in all other respects.

My favourite is the Cessnock form. It is more robust, neater in its growth habit, and there is more contrast in the foliage and flower-head colours. This form looks well in a large container and would be a good trailer. It should be tried in a basket. Seed from the "L.C." pot germinated poorly, but produced seedlings which are true to type so far.

GROUP 2

This group has small, non-aromatic leaves, grey or grey-green, thin-textured and silky-hairy both sides. The stems are whitish and quite thick with hairs. Under x 25 magnification both surfaces are cobwebby, more so below.

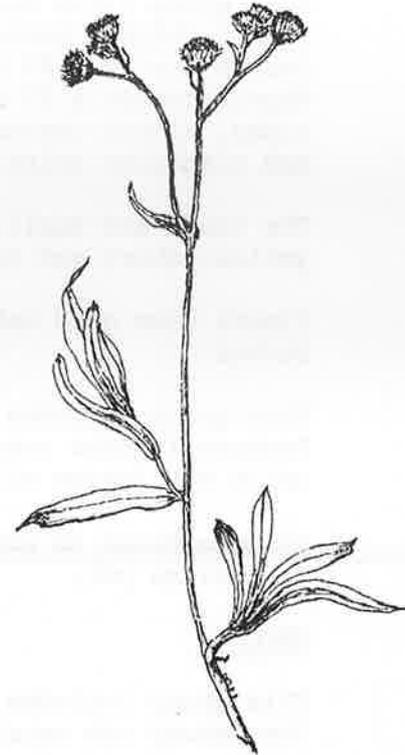
The heads are small, 3 - 8 mm across, the disc florets are yellow to yellow-orange, the bracts are yellow, short (2.5 - 4 mm long), and generally do not radiate.

The foliage was not affected over the winter. Some of these forms sucker lightly.

Forms in Gp.2 include Copeton Dam (silky leaf) near Inverell (NSW), Bothwell's (Tas), Road to Lake Eucumbene (NSW), and the Sawpit Creek area.

The habit varies from prostrate to more upright, but all forms are small and neat. The flower-head varies in colour from dull yellow to yellow-orange.

My choice is Copeton Dam (silky leaf). The silvery leaves contrast very well with the almost orange heads. It does not sucker so far and the habit is soft and bushy. There is something to recommend all of this group; the Lake Eucumbene form is also



H. apiculatum x 2/3

pretty, Bothwell's has good grey foliage and reddish stems, but does not flower profusely, and Sawpit Creek has good form, but the heads are a bit dull. They are all good subjects for containers or baskets, but have not persisted in the garden for very long.

GROUP 3

This group (like Gp.2) has grey leaves, hairy both sides, but the mature leaves have a much thicker texture than those of Gp.2 and are faintly aromatic. The young leaves are 70 - 80 x 7 - 10 mm, while the mature leaves are 15 - 20 x 3 - 4 mm. Magnification x 25 shows the leaves are covered with white cobwebby hairs on both sides, almost obscuring some glandular hairs. The stems have a mixture of cobwebby and glandular hairs.

The heads are small, 7 - 8 mm across, the disc florets yellow-orange, the bracts yellow, short and not radiating.

Plants have good habits in pots and are being tried in the garden. They do not sucker.

This group includes the following:- Copeton Dam (small grey leaf) (NSW), Fossickers Reserve (narrow grey leaf) (NSW), Wilpena Pound (SA), and perhaps Torryburn (NSW), which has leaves with wavy margins and does sucker.

Wilpena Pound is now unfortunately dead, but I like all the others and have no favourites yet.

GROUP 4

This group includes the majority of the forms found in Victoria. The leaves are usually quite large, not aromatic, hairy both sides, and vary in colour from grey to grey-green. The stems are long, often untidy and usually the same colour as the leaves. Under x 25 magnification both sides of the leaves are covered with long white hairs running more or less parallel, more dense on the underside. The stems are hairy.

The heads are relatively large, with yellow disc florets and radiating yellow bracts.

Some forms sucker lightly and all seem to flower earlier than forms in other groups.

In this group I have put forms from Adventure Bay (Tas), Anglesea (Vic), Ariah Park (NSW), Chain of Lagoons (Tas), Chiltern (Vic), Dunkeld (Vic), Grampians (Vic), Little River Gorge near Wulgulmerang (Vic), Longwood (Vic), Maldon-Bendigo (Vic), Mornington Peninsula (Vic), Naracoorte (SA), Providence Ponds near Bairnsdale (Vic), the Pyrenees (Vic), Reef Hills near Benalla (Vic), Seymour (Vic), and Werribee (Vic).

This group is too straggly for pots or baskets on the whole, but forms in it grow well in the garden. The heads can be large enough to wire.

My favourites so far are Chain of Lagoons and Pyrenees, with an honourable mention for Little River Gorge. They are bright, compact, reliable forms, flowering over a long period.

An addendum to this group is similar in most respects, but the leaves are very furry and much thicker of texture. Some of these forms grow in front-line coastal situations, e.g. Norman Point and Fairy Cove from Wilson's Promontory (Vic). Another is from Mount William in the Grampians (Vic) and the last is Merv's Tall. We don't know the origin of this one, but it has been a form sold by nurseries for



Grampians form x 1

a long time. We named it after our generous friend, Dr. Merv Turner, who told us exactly how to propagate it and gave us plenty of cutting material. His method worked well. Merv exported it to America as a cut flower because it has large, bright clusters, good silver foliage and long, strong stems.

These four grow strongly in the garden, especially at the coast, and can probably be regarded as variations caused by their original habitats. We could refer to these sub-groups as Gp.4a and 4b.

GROUP 5

The leaves are bright green both sides, highly aromatic and slightly sticky. Young leaves are relatively long and narrow, 105 - 115 x 10 - 12 mm, becoming smaller when mature, 20 - 30 x 2 - 4 mm. Under x 25 magnification the upper leaf surface is covered by upright glandular hairs (more thickly than in Gp.1). The lower surface also has glandular hairs and sometimes a very sparse covering of cobwebby hairs. There are glandular hairs on the stems too and sometimes a little cobwebby hair.

The heads are 6 - 7 mm across, the disc florets are yellow-orange, and the bracts are short, yellow, and do not radiate.

These forms produce strong growth which looks as though it could wilt in summer. They do not seem to sucker.

Gp.5 includes Fossickers Reserve (concolorous leaf) (NSW), Connemara (wide leaf) (NSW), and Girraween (green leaf) (Qld.).

These forms do not suit pot culture, but I will try them in the garden too. It is possible that this Group hybridises with Gp.1 because I seem to have a few intermediates. I lose confidence in the ability of my nose to sniff accurately and I'm washing my hands constantly to dispel the aroma of crushed specimens in order to try yet once more.

I have studied the achenes of all the forms, but have reached no firm conclusions. This is as far as I have managed to get and some forms have not been slotted in anywhere. I don't know where to put the form known in the nurseries as "amplexans", Ayers Rock - possibly an annual in Melbourne, Connemara (small leaf) - which looks the same as Pilliga, Goulburn, Horsham - with its very fine foliage, Koorawatha (NSW), Tenterfield (NSW), and the new forms from Poochera and Nundroo (SA). It's obvious I need a chart as big as my new study wall to record the characteristics of each form.

These conclusions are only a beginning. I'm prepared to change almost anything. Any suggestions?

June The *Brachyscome diversifolia* complex as well as other related species and putative hybrids

by Alf Salkin.

Brachyscome diversifolia was first illustrated and described by a Mr. R. Graham in one of a plethora of 19th. century books devoted to introducing "novelties" from abroad to the gardens of English men and women. The material for the description and illustration came from the garden of William Jackson Hooker who had received it presumably from one of the many botanical collectors working in Australia at that time. The particular book in which the plant was illustrated and described had the fascinating title of *Exotic Botany* and the year was 1823, so presumably it was an annual publication. In this volume the plant was described as *Pyrethrum diversifolium*.

In 1817 Cassini had erected the genus *Brachyscome* and by 1835 Fredrich Ernest von

Fischer and Carl Anton Meyer had included Graham's Pyrethrum in this genus as Brachyscome diversifolia.

Bentham in his monumental seven volume work Flora Australiensis described three varieties of Brachyscome diversifolia. These were var. diversifolia, var. humilis and var. maritima. The variety humilis is no longer recognised; humilis (meaning humble) probably indicates that Bentham was looking at depauperate specimens.

At present the three recognised varieties are:

- . B. diversifolia var. diversifolia (R. Graham ex. Hook.) Fisch. & C. Mey.
- . B. diversifolia var. maritima Benth.
- . B. diversifolia var. dissecta G.L. Davis.

Brachyscome diversifolia var. diversifolia

has a very wide distribution and is found in SA., Vic., NSW., southern Qld. and the ACT.. It is a large, robust daisy and is an excellent subject for the garden. The flowers are white and are among the largest of the Australian daisies.

seedling
leaf



stem leaf



rosette leaves



var. diversifolia leaf prints

Brachyscome diversifolia var. maritima, as the name suggests, occurs on the islands of Bass Strait. I have searched for it without success on Flinders Island, but Beth Gott, who regularly visits Erith Island, provided me with seed and told me that on Erith Island it is fairly common. Like var. diversifolia it has large flowers. The achenes are identical, but the sinuses of the pinnae are wider and deeper, and the foliage is more glaucous. Its habit is prostrate rather than upright as in var. diversifolia.

var. maritima

seedling leaf



var. maritima leaf

Brachyscome diversifolia var. dissecta also has a limited distribution. Willis records it in Victoria, but only from the Dargo High Plains. Stanley and Ross, Flora of South-eastern Queensland, record it from only the Darling Downs between Inglewood and Millmeran. Beadle et al, Flora of the Sydney Region, records it for the Blue Mountains

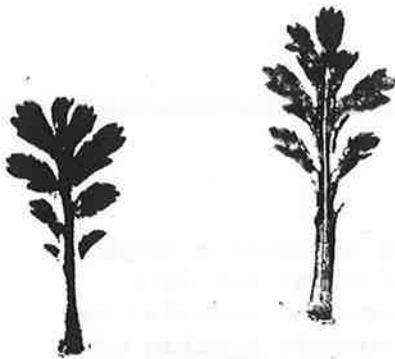
var. dissecta (?)



together with var. diversifolia, but apart from "leaves doubly pinnatisect" gives no other information. Davis lists, apart from Darling Downs, the following locations for herbarium specimens: Clarence R., Rylstone, Katoomba, Glen Innes, Tingha, Ebor Falls. The dates of these collections are from 1886 - 1940.

The variety was described by G.L. Davis in the Proceedings of the Linnaean Society of New South Wales, 73: 202, 200 fig. 70 (1948), "It is distinguished by its much branched scapes and thin doubly pinnatisect leaves with linear ultimate segments".

Some time ago I was given a plant by Gwenda Macdonald which she thought was a brachyscome. It was collected at Beachport on the south-east coast of South Australia. I have the plant in a 25 cm pot and it has narrow, linear, dissected leaves. This year it is in bud and I wait with bated breath for the achenes to develop. If it is var. dissecta it certainly extends the range of this elusive variety. If not it looks as though we will have to appeal to our Queensland members to search the area between Milmeran and Inglewood. Other than that, if the plant is on the Dargo High Plains we may need more information on its locality. Esma and I have visited this area on a number of occasions, but have not seen a daisy remotely like var. dissecta.



B. segmentosa

One other species I have included as part of my project is Brachyscome segmentosa. This is an endemic on Lord Howe Island some 1,000 km north-east of Sydney. The plant grows on exposed ledges on the two high mountains, Mt. Lidberd and Mt. Gower, above the 200 metre level. It is a large white daisy with deeply lobed, dark green, glossy leaves. The achene is indistinguishable from that of B. diversifolia.

It is assumed that the varieties of B. diversifolia and B. segmentosa have occurred due to their isolation. This is not evolution in the Darwinian sense of survival of the fitter, but simply the chance selection of certain alleles, because only a small percentage of seed germinates. This is noticeable when populations are genetically isolated.

One interesting aspect of returning one of these genotypes to the main group is what can only be described as a case of wanton profligacy. Members growing B. segmentosa with other brachyscomes have been surprised to find chance seedlings with an unmistakable likeness to some aspects of B. segmentosa. I am watching with interest the development of some of these foundlings.



B. segmentosa x B. heterodonta?
putative

B. segmentosa putative hybrid
(mauve flowers)

B. segmentosa x
B. heterodonta ?

List of plants in the Living Collection

B. diversifolia var. diversifolia (R. Graham ex. Hook.) Fisch. & C. Mey.
Beaufort, Dunkeld, Eltham, Mt. Samaria, Stawell, all in Victoria.

B. diversifolia var. maritima Benth.
Erith Island, Bass Strait, Tas..

B.diversifolia var. dissecta? G.L.Davis
Beachport, SA..

B.segmentosa C.Moore & F.Muell.
The Goat House, Mt.Lidberd, Lord Howe Island, NSW..

July Report on the International Plant Propagators' Society Conference

by Natalie Peate.

The most recent conference was held in Tasmania in May '89. The Society was founded in 1951 in U.S.A. on the premise that knowledge would be shared among plant propagators since nurseries were usually unwilling to disclose information. Subscriptions are \$110.00 per year.

This year's agenda included the following topics:

- . Lavender production in Tasmania
- . Aerial sowing of forest trees
- . Plant breeding - basic principles
- . Virus testing and virus eradication
- . Zantedeschias.

Natalie presented a paper on propagation media. At present she is using a propagating medium of composted fine pine bark (which is self-sterilising) and polystyrene foam beads. A recent innovation for propagators has been the introduction of plastic foam plugs with a fungus included which is active against Pythium (one of the genera of fungi responsible for damping-off).

Natalie has been experimenting with "aeroponics" and has had good results with hydrangeas. Cuttings are simply inserted in a sheet of clear plastic stretched over an empty box. They are "fogged" or held in a moist atmosphere which could contain fertilisers, hormone preparations or insecticides. Root systems form below the plastic film and plants can be transferred easily. This form of rooted cutting production has obvious advantages for sending overseas.

A great deal of work on hybridising Australian daisies is being carried out in U.S.A., Holland and Germany. Our daisies are big business overseas. Brachyscome multifida forms have been widely used for street planting in planter boxes throughout Helsinki in summer. In Germany from a gift of little plants there were one million plants produced for distribution in the first year. In the second year six million plants were produced. German hybridists are now working on a pink form of B.multifida var. dilatata.

Natalie has received a grant for three years to work on the hybridisation of Australian daisies. We were delighted that an Australian has the opportunity to work professionally in this field. We wish her every success and will do all we can to assist the project.

by Judy Barker.

August

Calotis Collection

by Beth Armstrong.

Calotis or Burr-daisy

Bev. Courtney says that a collection of dried burrs around a favourite plant is a cat deterrent. I'm waiting to try it.

Calotis cuneifolia - up to 60 cm.
(Eastern states in open eucalypt forest.)

Blue flowers - neat little clump - protect from snails.
I have grown several forms from Cobar, Tenterfield and one of unknown origin.
One plant in a pot is from Canberra. Some forms have darker blue flowers.

Calotis lappulacea - up to 45 cm.
(Eastern states in rocky places.)

Yellow flowers - am still waiting.
My plant was a cutting from Pat Shaw (Qld.) and has only just survived snails and grubs. It is still in the pot.

Calotis scabiosifolia var. scabiosifolia - 45 cm, stoloniferous.
(SA., Vic., western NSW., and southern Qld.)

White flowers or blue (so the book says).
One plant in the garden is a bit snail eaten and unhappy. There are two plants in pots - one from Andrew Paget with hairy, divided leaves, which hasn't flowered yet, and one from Tania Shiells with white flowers and long, thin leaves which are hardly divided.

Calotis scabiosifolia var. integrifolia - 35 cm.
(NSW., and Vic. in montane places.)

I have one plant from Salkins, Border Track. Originally it was in the garden, but looked unhappy and sulked so I put it back in a pot. Hopefully it will survive. Good blue flowers. I think this form is up at Mount Dandenong.

Calotis scapigera - 7 to 38 cm, stoloniferous.
(Qld., NSW., Vic., SA. - in heavy damp soils.)

Small white flowers, rarely lavender.
It has survived the Melbourne winter well. It spreads quickly.

FINANCIAL REPORT, AUSTRALIAN DAISY STUDY GROUP

by Joy Cook.

JULY 1988 - JUNE 1989

CASH RECEIPTS

CASH PAYMENTS

Cash at bank 1-7-88	\$1861.76
Subs	420.00
Donations	61.00
RHS. reimbursement book	51.50
Wire sales	8.50
Back copies NL	43.98
Interest term deposit	112.43
Interest cheque account	28.70
Seed sales	403.39

Cash at bank 30-6-89	
Term deposit	\$1112.43
Short term deposit	500.00
Cheque account	567.38
Cash on hand	72.29
Postage	158.07
RHS. Colour Chart	115.85
Seed	128.40
Floral art req.	102.70
Travelling costs	31.44
Printing NL	60.00
Stationery	27.36
Eye glass	22.50
Photocopying	14.53
Donation Botanic Gardens	50.00
Flora Foundn. Aust.	25.00
F.I.Duty	3.31

\$2991.26

\$2991.26

Although we appear to have a healthy bank balance note must be taken that the operating surplus for the year was \$390.04. Some may comment that this is very good for such a small group, but once again I must point out that the newsletter is printed for practically nothing (\$20.00 for each issue). If for some reason in the future the Study Group was to find itself without the services of the Greigs, who have been so kind in printing the newsletter for the cost of the paper, we could easily find ourselves in the red at the end of the financial year. I wish to personally thank Neal and Joy for their co-operation in this matter.

Postage has risen again; at the moment this is the biggest expenditure the Group faces.

A large proportion of our income still comes from the sale of seed. This is only possible because numerous members spend time visiting other groups and giving talks urging people to grow daisies. My special thanks goes to the Salkins and Judy Barker who are the most active in this field.

The Group has found it possible to make a donation to the Botanical Gardens this year. The money will help to produce a new four volume 'Flora' of Victoria. We felt this was appropriate because much help has been given to us over the years when help was really needed with identifications.

I trust that the next year will be as prosperous as the last and that members continue with the good work in growing daisies.

STUDY GROUP NEWS

DECEMBER MEETING

Tuesday, 5th. December at 29 Knees Road, Park Orchards at 10.00 am..
(phone (03) 876 1097 if lost.)

This will be our Christmas Break-up. We meet at Natalie Peate's nursery (Plant Growers Australia) to look around the nursery and particularly to observe the progress with daisies. BYO lunch follows in the Hundred Acres, a natural grasslands area at Park Orchards which is almost opposite the nursery. Bring a waterproof groundsheet to sit on as this will be a bush picnic.

OMEQ TRIP

This trip is planned for the week of January, 21st - 28th, 1990, but the timing is flexible - some members will arrive late and stay longer, some will not stay for the seven days. Everyone will stay at the caravan park at Omeo and all trips will start from there. Visits are planned to Hotham, Mt. Loch, Nunniong Plateau, Slippery Pinch and the Dinner Plains area.

The road to Omeo is sealed all the way, but north of Omeo the roads are not made. For details ring Esma at (03) 232 6213.

Haeckeria ozothamnoides

After our Warby Range trip we asked Arthur Hall to keep our Group in mind if he ever saw seed on the plants of Haeckeria ozothamnoides. He promptly replied that we could have as many seedlings as we wanted from his garden. An SOS to Barbara Buchanan, now living at Myrree, resulted in a box of seedlings potted up and ready for Esma to bring back when she spoke to the Wangaratta Field Nats. in September. Many thanks to Arthur, Barbara and Alan, and Esma for the parts they played. My plants are looking exceedingly healthy. (I spelt ozothamnoides wrongly in NL 24.)

BOOK NEWS

We have received our first Public Lending Rights payment and it has been paid into the Aust. Daisy Study Group Book Account.

HAVE YOU NOTICED ...?

... how olearias produce a lot of top growth for very little root growth? This makes them ideal specimen plants for medium to large pots. Bev Courtney.

... that cassinias brown off like the shrubby helichrysums? Jenny Rejske.

... that B.multifida (white form) goes brown in the centre in winter? Maureen.

OBSERVATIONS

Beryl Birch sowed juicy green seed of B.spathulata. It germinated in just one week when sown in mid to late November.

Bev Courtney picked the seed of B.stuartii when it was green. It later turned black.

Esma used H.apiculatum in winter and found no dye was produced whereas in summer a lot of dye had resulted.

Experience in Melbourne is showing that seed sown in winter takes longer to germinate, but grows more successfully. Is this due to the absence of fungal problems? Conditions are cold and moist, not warm and moist.

It was difficult to keep seedlings of B.curvicarpa (yellow) and B.nova-anglica going over winter in Melbourne. Members who had no trouble had put their seedlings under cover.

PLANT INDEX OF 1989 Newsletters Nos. 23, 24 and 25. (The NL no. is followed by the page no. in brackets. Illustrations are in bold.)

- Bedfordia arborescens 23(7)
- Brachyscome aculeata 23(10)
- angustifolia 23(17),24(21,25,27,28)
- basaltica 24(27)
- cheilocarpa 25(40,41)
- ciliaris 24(21)
- curvicarpa (yellow) 23(2,3),25(53)
- decipiens 23(12)
- diversifolia 23(17),24(33),25(47,48,49,50)
- formosa 23(10),24(21)
- gracilis 23(6),24(27)
- pariloba 25(41)
- nocarpa 23(3),24(33)
- microcarpa 24(25,28)
- multifida 23(8,17),24(33),25(50,53)
- nivalis 23(13)
- nova-anglica 25(53)
- obovata 23(1)
- parvula 23(17)
- ptychocarpa 23(6),25(39)
- readeri 23(17)
- rigidula 23(13,17),24(17)
- segmentosa 23(9,17),24(25),25(49)
- spathulata 23(13),24(27),25(53)
- stuartii 23(17),24(30),25(53)
- whitei 25(43,44)
- Brachyscome hybrids 24(25),25(49)
- "Brachyscomes Required" List 23(14,15,16)
- Calocephalus brownii 23(8)
- citreus 23(8)
- Calomeria amaranthoides 23(7), 24(33)
- alotis cuneifolia 23(10)
- inermis 25(37)
- lappulacea 25(51)
- scabiosifolia 23(17), 25(51)
- scapigera 25(51)
- Cassinia aculeata 23(11)
- aureonitens 23(11,17)
- laevis 23(11)

- Cassinia
- leptocephala 23(10)
- longifolia 23(13)
- quinquefaria 23(11)
- uncata 23(11)
- Celmisia asteliifolia 23(1,12)
- Craspedia glauca 23(13),24(33)
- globosa 24(27)
- pleiocephala 25(37,41)
- Erigeron pappocroma 23(13)
- Ewartia nubigena 23(12)
- Haeckeria ozothamnoides 24(26),25(52)
- Helichrysum acuminatum 23(12),24(33)
- adenophorum var. waddelliae 24(26),25(38)
- alpinum 23(12)
- antennarium 23(17)
- apiculatum 23(9),24(26,27,28),25(44,45,46,47,53)
- argophyllum 23(7)
- baxteri 23(9),24(28)
- bracteatum 23(3,4,9,10),24(33),25(43)
- Helichrysum conditum 23(7)
- cordatum 24(20,21)
- cuneifolium 23(7,17)
- diosmifolium 23(9,10)
- diotophyllum 23(17)
- elatum 23(7)
- hookeri 23(13)
- ledifolium 23(17)
- leucopsideum 25(38)
- monochaetum 25(44)
- obcordatum 23(7),24(27)
- pterochaetum 25(37,44)
- purpurascens 23(17)
- ramosissimum 24(30),25(44)
- rosmarinifolium 23(17)
- rutidolepis 23(5)
- scorpioides 23(5,14),24(30,33)
- secundiflorum 23(12,17)
- semifertile 25(37)
- semipapposum 24(27)
- thyrsoides 23(14),25(44)
- viscosum 23(10)

- Helipterum albicans 23(10,12)
- antheroides 23(10,12),24(29)
- floribundum 25(37)
- manglesii 23(9)
- polygalifolium 23(1),24(26),25(41)
- roseum 25(43)
- stuartianum 25(41,42)
- troedelii 25(37)
- Ixiolaena sp. Qld. 23(17)
- Lagenifera huegelii 24(26)
- Leptorhynchos squamatus 23(13),24(28,33)
- tetrachaetus 25(37)
- Microseris scapigera 23(13),24(26,27)
- Myriocephalus gueriniae 25(37)
- rhizocephalus 24(27)
- Odidia achlaena 23(17)
- Olearia alqida 23(14)
- frostii 23(13)
- lirata 23(7)
- phlogopappa 23(8,12),24(22,23)
- rudis 24(26)
- scillionensis 24(31)
- teretifolia 23(8,9)
- tomentosa 23(7)
- Podolepis arachnoidea 23(6)
- canescens 23(6)
- capillaris 23(6)
- gracilis 23(6)
- jaceoides 23(6,10),24(26),25(38)
- neglecta 23(10),25(37)
- sp. 25(38)
- Rutidosis leptorhynchoides 23(9)
- Schoenia cassiniana 24(33)
- Senecio lautus 23(13)
- minimus 23(17)
- Spilanthes grandiflora 25(39,40)
- Stuartina muelleri 24(26)
- Waitzia suaveolens 23(9)

SEED LIST

ADDITIONS

Brachyscome basaltica var. gracilis (w NSW), ciliaris var. ciliaris (s-w Qld.),
curvicarpa (white), diversifolia (King Is.), heterodonta var. heterodonta (NSW),
lineariloba (w NSW), melanocarpa (NSW, s-w Qld), whitei (s-w Qld).
Calotis cuneifolia. Helichrysum bracteatum (Grampians, South West Rocks, gold, lime),
dendroideum (w Vic), leucopsideum (w Vic.)
Helipterum albicans ssp. albicans var. albicans (1/89), jessenii. Ixiolaena sp. Qld.,
leptolepis. Leptorhynchus panaetioides. Minuria integerrima.
Rutidosis helichrysoides. Streptoglossa liatrioides. Vittadinia cuneata complex.

DELETIONS

Brachyscome angustifolia var. angustifolia, var. heterophylla.
Helichrysum apiculatum (Bennison High Plains). Waitzia podolepis.

All correspondence and requests for seed (enclosing a large, stamped, self-addressed envelope) should go to Esma Salkin, 38 Pinewood Drive, Mt.Waverley, 3149.

SEED DONORS

Many thanks to Kath Alcock, Judy Barker, Paul Barnett, Barbara Buchanan, Jeff Irons, Colin Jones, Bill Owen, Alf and Esma Salkin and Maureen Schaumann.

NEW MEMBERS

we wish to welcome the following new members:-

Colleen Simpson, 19 Waikerie Avenue, Hope Valley, S.A., 5090.

Julie Pegrum, 64 Kirnan Street. Floreat Park, W.A., 6014.

SGAP. Tamworth Group, C/o Patricia Mactavish, 99 Rawson Avenue, Tamworth, NSW., 2340.

Judy Will, P.O. Box 780, Millicent, SA., 5280.

Sue Quinnell, P.O. Box 226, Ferny Hills, Qld., 4055.

Corrinne Hampel, P.O. Box 611, Murray Bridge, SA., 5253.

SUBSCRIPTIONS

1989 subscriptions are now overdue! A LARGE RED CROSS means you are unfinancial and this will be your LAST NEWSLETTER unless payment is received. 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. If you intend to resign please let Esma know because there are several names on the waiting list.

NEWSLETTER DEADLINE

The deadline for the March Newsletter is early February, 1990. Thank you for your excellent articles (especially from the new members) and many thanks to Gloria and Betty for their beautiful and accurate drawings.
Please send articles to Judy Barker, 9 Widford Street, East Hawthorn, Victoria, 3123.
