

ASSOCIATION OF SOCIETIES FOR GROWING AUSTRALIAN PLANTS

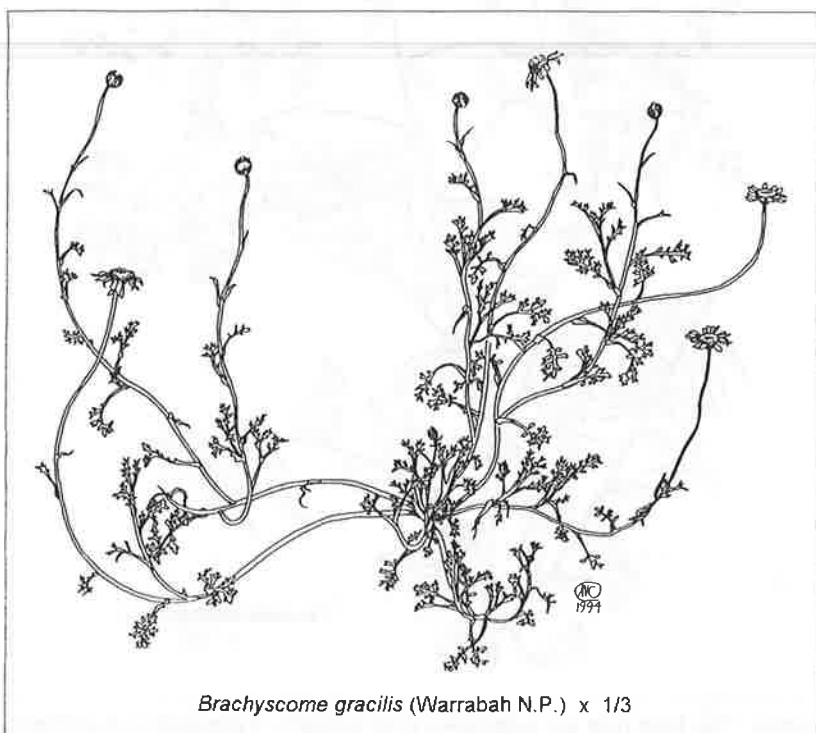
THE AUSTRALIAN DAISY STUDY GROUP NEWSLETTER NO.40

Dear Members,

With the bulk of collecting and observation completed for the *Brachyscome* Project, it looks as if drought will thwart me. Any rain that falls in the next couple of weeks will be too late for my collecting schedule. There's also the irritating problem of some arid area species failing to appreciate the urgency of our situation. They are being reluctant to germinate or to grow on down here in Melbourne. All this suggests there will be plenty of scope for follow-up research.

Like all study groups and kindred organisations, we rely heavily on the willing co-operation and voluntary efforts of our members. AD SG is indeed fortunate in this regard. We are very grateful to Ruth Marriott for the design of our windcheater logo (see p.52). We were an extremely smart crew in white logo on navy at the recent Melbourne Wildflower Show.

The Daisy display made quite an impact and we have Maureen Schaumann to thank for the inspirational concept of "Uses of Daisies". One of the projects was undertaken in great secrecy. The only clue we had was that Maureen was working away with wood. At the unveiling we were stunned to see beautifully created necklaces designed from *Cassinia aculeata* and *C. laevis*. What patience and creativity! Judy and Maureen supplied the range of dried flowers and Peggy MacAllister, Melbourne's Master Gardener, brought along a number of floral arrangements, a few of her own and some of her daughter's. Alf Salkin revealed the beauty of *Olearia argophylla*, left long enough in the forest to mature to a small tree, in his free-form sculpture and in his spoons and paté knives. Beth, Natalie and the rest of us coaxed a few pots of daisies into flower.



Brachyscome gracilis (Warrabah N.P.) x 1/3

As usual, our policy is to encourage the public to try daisies in the garden. Seeds sold well, and at 50 cents a packet, what is there to lose? Tubes of daisies sold reasonably well in the 'outer' in rather chilly conditions.

Subs: Prompt payments are appreciated and I feel the Red Cross Reminder on the June NL works well. It eliminates the considerable number of unfinancial members one used to have by December of each year.

Bank charges: Beware, \$8.50 is the charge for a returned cheque! Give us time to process cheques and monies. We meet once or twice a month (Dec. — Jan. excepted) when cheques, etc., are finalised. Our Treasurer has a 10 Km round trip to the bank so is not in a position to bank frequently. Our Treasurer would also appreciate payment of one year's subscription at a time, anything over is regarded as a donation (see p.51). Some of you have also forgotten our subs are \$7.00 per annum.

Membership: Those wishing to join should enquire from the leader, please. The strength of a study group is **active** members, i.e. members who send in reports on germination and cultivation results, which daisies you like and which species you observe in the wild. We can probably assist with identification if a representative pressed sample and fruit is forwarded to us.

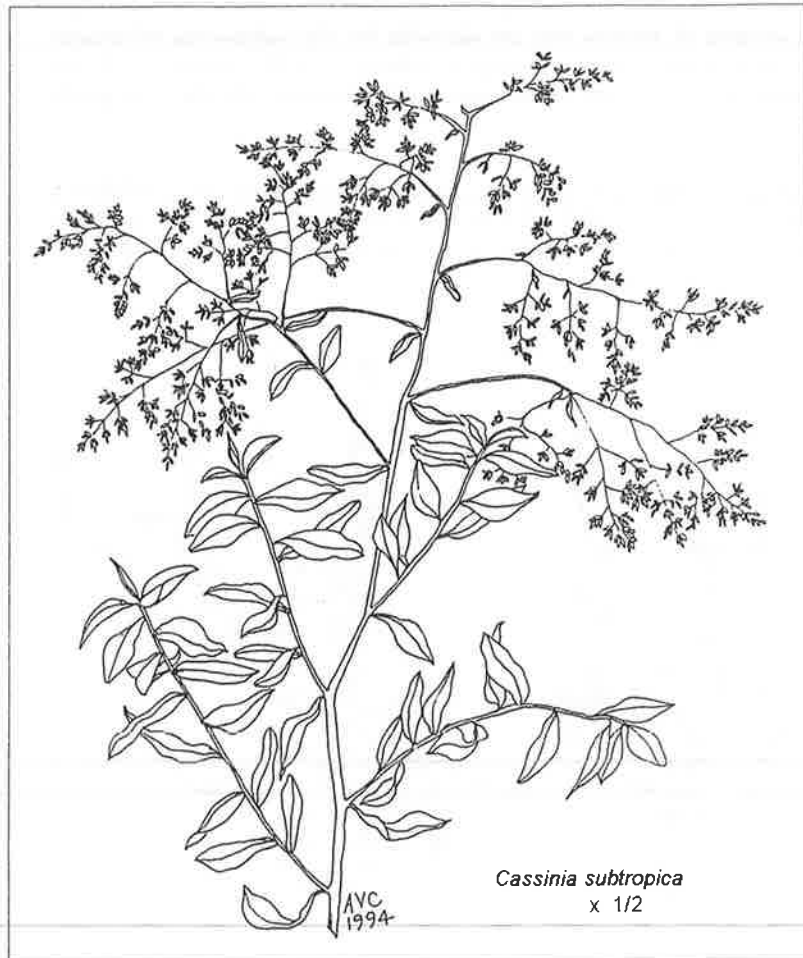
Congratulations to Pat Shaw on the introduction of her PVR'd brachyscome hybrid, *Brachyscome* 'Sunburst'. Pat has sent cuttings to Melbourne members and they are progressing well. We expect to be reporting on their progress by next autumn.

By the time this goes to press we will have had a little light relief, botanising in the Grampians, with energetic bush walking for some and socialising over a meal in the evening for all.

Best wishes for Christmas and Daisy Growing in the New Year.

Regards,

Esma



SPECIES OR FORMS NEW TO MEMBERS

***Cassinia subtropica* F. Muell.**

Bushy Rosemary

(Qld, NSW)

Seed collected at Nerang (Qld.) was sent by Pat Shaw in June 1990. It was sown in the following August and yielded good germination in 33–60 days (about 50 seedlings). Unfortunately, the seedlings died as time passed, until only one was left. Pat had already warned me that the species was difficult to grow. Although *C. subtropica* grows on high, stony hillsides in her area, it did not thrive in her garden and she felt her soil might be too good. So it was with some trepidation that I looked around our garden for a position that would afford my last plant a sporting chance of life. One bed had allowed a number of *Ozothamnus* and *Haeckeria* species to survive longer than others, a bed dominated by a 16m tall Dawn Redwood, *Metasequoia glyptostrob-*

oides. The tree has an extensive root system. I popped *C. subtropica* into this bed only about 1.5m from the trunk. As the Dawn Redwood is deciduous, there is plenty of winter sunshine for the plants under it, and there is also some protection from our dry heat. My cassinia has surprised and delighted me by growing and flowering in this position.

In its natural habitat *Cassinia subtropica* grows in open forest on basalt or conglomerate soils. It occurs in the south-east of Queensland and in the north coastal regions of New South Wales at high altitudes.

The flowering period in the wild is autumn and spring. In my garden the buds begin to form in March and it is in full flower from May until at least July.

Plants are said to grow 2–2.5m tall, but mine is still only 0.7 x 1.5m. It is a dense, spreading shrub with a fairly contorted look about it — possibly due to the right-angled bends in many of the larger stems. The branches grow more or less horizontally. With the afternoon sun behind it the shrub almost seems to glow.

The elliptical leaves are glossy, dark green above, grey-green with close hairs beneath, 1–3.5cm long and 0.3–1cm wide. The margins may be entire or slightly recurved. The young stems are greyish due to the covering of dense, short hairs which are obvious to the naked eye, but the older stems seem to have lost these hairs.

Loose clusters of small, whitish cream buds are held in a pyramidal panicle at the tips of the branches. The flower clusters are dainty, quite reminiscent of the New South Wales Christmas Bush, and they contrast well with the shiny, dark leaves.

Although the stems are shortish for picking (about 35cm long) the flowers have dried very well after treatment with PEG (polyethylene glycol) and this species should be useful for floral art. The leaves have curled somewhat in the process, but the clusters have a most pleasing, light, airy appearance. It was greatly admired at the Melbourne Wildflower Show by dried flower and pressed flower enthusiasts.

As a garden subject *C.subtropica* has the advantage of flowering in winter, and would be very attractive with low-growing correas and heath flanking it. Pat has now kindly sent more seed and I am going to set about growing a few more plants to trial in other parts of the garden.

by Judy Barker.

ADDENDUM ON CASSINIA SUBTROPICA

Cassinia subtropica grows naturally in shale-like, rocky, yellowish clay soils at Ormeau (which is between Brisbane and the Gold Coast) and also on the slopes of Mount Tamborine. It grows in well drained soils, although it likes moisture, and in association with *Daviesia arborea* and *Oxylobium ilicifolium*. Plants near Nerang, about 12Km inland from the Gold Coast, sometimes grow up to 2–3m tall.

(Reference from K.Williams (1979) *Native Plants of Queensland*, Vol 1, p.62.)

"Plants were found growing in exposed situations on steep mountain slopes at fairly high elevations. They were mainly on slopes with a westerly aspect, among rocks and rocky outcrops, on platforms and in protected crevices on small cliff faces. The soils of the area, mainly trapped wash from higher areas, contained a good deal of decomposing vegetable matter and were generally of a peaty nature. They were cool and moist even though it was the dry period of the year. The soils evidently are capable of retaining moisture for long periods."

The experience of Glen Leiper and myself was that the species was short-lived. In my case only one plant was trialled and that may have been badly located.

by Pat Shaw.

Brachyscome 'Sunburst'

Congratulations to Pat Shaw on her latest hybrid, *Brachyscome* 'Sunburst'. She has a PVR patent pending (No. 93/217). Pat has sent us the following details:

The plant is a hybrid between *B.segmentosa* and *B. aff. curvicarpa* (yellow ray florets). The parent *B.segmentosa* is a seedling found in the garden with pink buds. The *B. aff. curvicarpa* parent is from the second year generation of seedlings from original seed from the AD SG seed bank.

Brachyscome 'Sunburst' has pink buds and lemon flowers which fade to cream. It grows to 33cm high and up to 60cm wide. The flower-head is 2.5cm across and the stem length is 12cm.

Pat has kindly sent us rooted cuttings and a photograph of *B.*'Sunburst' and we look forward to growing it. She has also sent us news of another hybrid brachyscome, *Brachyscome* 'Just Jayne'. Bryson Easton of Forestdale in Queensland has applied for a PVR patent for this hybrid between *B.angustifolia* var. *heterophylla* and *B.multifida* White (Barakula, Qld form). 'Just Jayne' is a low growing, compact perennial herb with many large, white flower-heads to 3.2cm across.

Ozothamnus adnatus

(syn. *Helichrysum adnatum*)

Winged Everlasting

This small, erect shrub to about 1.5m has a sparse heath-like appearance. It is a component of disjunct Limestone Pomaderris shrubland.

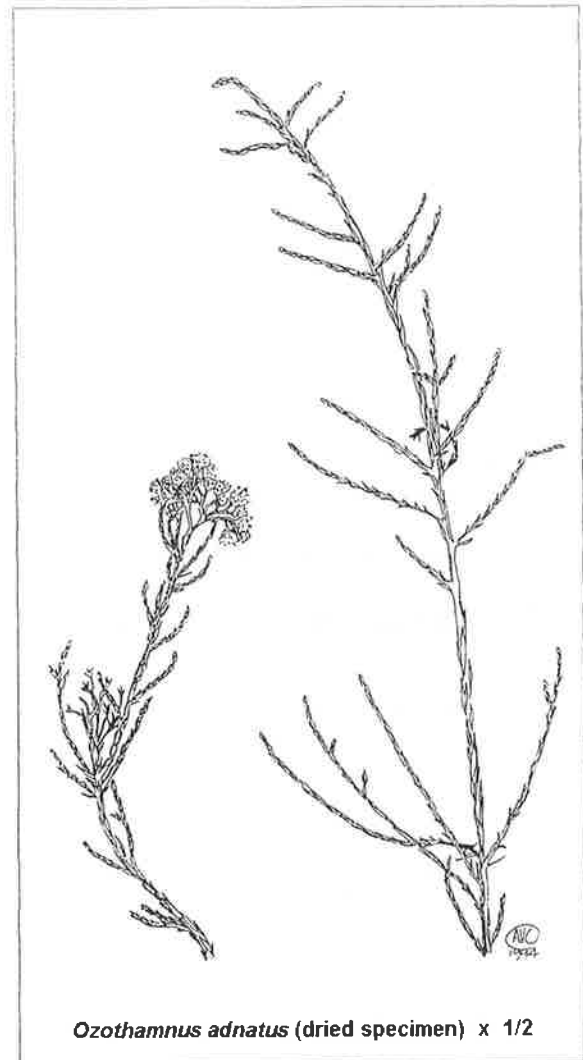
Ozothamnus adnatus is a vulnerable species with only three populations known in Victoria. Marble Gully, Bindi, which is east of Omeo, has the largest and most secure population for the State, growing on shallow rocky soil in grassy shrubland. It is also found in Snowy River volcanics. Unfortunately, an application to mine the significant marble deposits at Marble Gully is currently under review.

Ozothamnus adnatus is referred to as Rough Everlasting in Jean Galbraith's *Wildflowers of South-east Australia*. It has narrow linear leaves which are hard, shiny bright green, asperulous above, and densely white tomentose beneath. Leaf edges are recurved, the edges almost meeting towards the tip. Leaves are fused to the stem for approximately three-quarters of their length, broader at their base and tapering towards the tip which is curved outwards. Practically covering the tomentose stems, leaves reduce in size until almost scale-like towards the tips of the short branches.

The flowers are numerous, small globular cream-yellow, in terminal clusters, each head pedicellate. Flowering is in October-November. Involucral bracts are obovate, the lower portion with white woolly tomentum narrowed at the base, becoming broader, hyaline and shining.

The outward curved tips of the leaves may possibly be the reason for the common name Winged Everlasting.

by Pat Tratt.



Ozothamnus adnatus (dried specimen) x 1/2

GERMINATION of LEUCOCHRYSUM SPECIES

by Lotte von Richter.

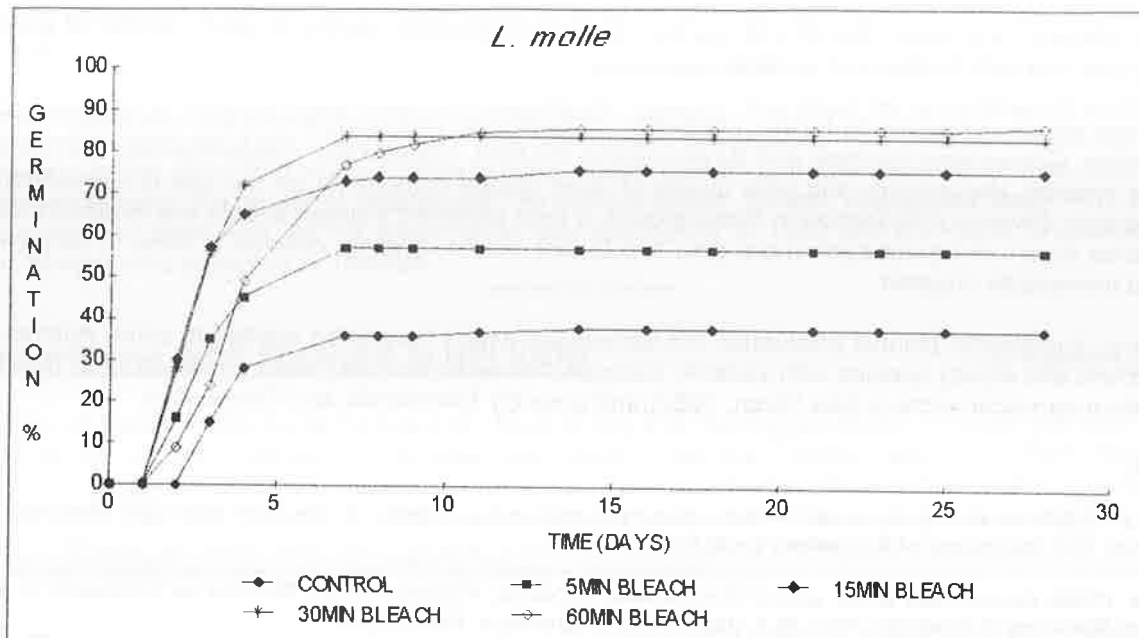
I have been working on the *Leucochrysum* genus with particular emphasis on the germination of these species. When I started my Master's degree work three years ago, the only seed that was available was that donated by you, Peter Milthorpe and the Mt. Annan Botanic Gardens. I had a lot of trouble germinating old seed and I thought there would be a dormancy problem. Once I had collected my own seed and stored it dried and in sealed containers they all germinated fairly well. I worked with *L. albicans* subsp. *albicans* var. *albicans*, *L. albicans* subsp. *albicans* var. *tricolor*, *L. albicans* subsp. *alpinum*, *L. graminifolium* and *L. molle*. I had small amounts of seed of *L. stipitatum* and *L. fitzgiibonii* but I did not collect this myself.

I conducted temperature and light experiments to determine the optimal germinating conditions and found that most are very easy to grow. I had trouble with one collection of *L. molle* and found that a pretreatment with bleach solved the problem! Anyone who has worked with the *Leucochrysum* species will have noticed that a sticky mucilage forms around the seed when it becomes wet. A pretreatment with a 1% solution of bleach for 30 minutes appears to remove some of the mucilage and germination improved.

The seeds were soaked in bleach and then were washed under running water to remove any excess bleach. If seeds were left too long in the bleach solution the germination was high, but the seedlings were deformed and tended to be a pair of cotyledons without roots. The use of bleach increased the germination

and also acts as a sterilising agent, reducing the incidence of damping off. This is a fairly simple pretreatment that anyone can do at home, considering that bleach or sodium hypochlorite is found in most households.

The graph shows the rates of germination for the bleach pretreatments. All the seeds were sown at 20°C under controlled conditions in a growth cabinet. I used 100 seeds per treatment and they were grown in glass petri dishes on filter paper. The five treatments were a control, then bleach solution for 5, 15, 30 and 60 minutes.



At this stage I have only used the bleach pretreatment with *L. molle* from one collection site as all the other *Leucochrysum* species have had germination percentages above 85% and it was not necessary to try to improve it. The actual germination percentages will be higher for these trials than any done outdoors at home. Under controlled conditions I was able to count all seeds, even those that appeared weak. The latter would not have become strong countable seeds in a punnet trial.

CUTTING/DIVISION PROPAGATION

by Dr. Kingsley Dixon.

(Dr. Kingsley Dixon is the Assistant Director of King's Park and Botanic Garden in West Perth, Western Australia. This is an excerpt from a seminar paper given at Gatton College, Queensland, on the general subject of Horticulture of Australian Plants in February 1994. It is reprinted here with kind permission.)

Cutting propagation in its many forms is a reliable method for clonal propagation of many woody and semi-hardwood Australian species. In this overview it is not appropriate to list all the cutting propagation methods known, since much of this information is available in the popular literature and procedures are not radically different to conventional cutting propagation.

Trends that have become apparent in recent times are that:

- Season of taking cuttings influences the strike rate. Beardsell (1989) found that the success of cuttings in the Myrtaceae are most successful if taken after flowering in late growth stages. For most species non-flowering period cuttings are generally more successful than from flowering or fruiting stages.
- Growth stages influence strike rate and the response varies with species. For most taxa rejuvenated stem tissues (i.e. basal resprouts, resprouts after pruning or hedging, epicormic resprouts) provide the best source of cutting material.

The relationship of seeder / resprouter morphs to ease of cutting propagation requires further investigation. It is clear, however, that there is a propensity in resprouting species to produce active

FIRE and VEGETATION in the ANGLESEA DISTRICT

by Mary White.

(Mary White is a well-known naturalist living in the Anglesea area. She has written a pamphlet on the effect of fire on the vegetation in the district after closely observing the results of fires over a number of years. This is an excerpt from the pamphlet which we are reproducing with Mary's kind permission. It includes the introduction and the special section on daisies.)

This area has been subject to fire for a very long time so that all plants that are now found in the district must have some way of surviving fires of moderate intensity. Many people were amazed to see how quickly the plants in the heathlands and woodlands recovered after fires: the fern gullies and melaleuca swamps took much longer and the peat swamps were often changed completely. In early times the volcanoes of the Western District could have been responsible for fires: lightning has been responsible for fires in the distant past as well as in recent years. We know that the aborigines burnt areas in order to stimulate the growth of grasses as fodder for the game they hunted. Settlers also cleared the land using fire as a tool in order to prepare the land for introduced crops of oats and wheat.

Native plants have various ways of surviving after fires or ensuring that their species persist. Plants like lilies, orchids, irises and some sedges have underground food storage organs such as bulbs, corms, tubers or rhizomes which contain what is needed for growth and shortly after fires they can put out their leaves; some were noted within three weeks. The daisy family generally depends on its seeds for regeneration of the species. Wrinkled Buttons, *Leptorhynchos gatesii*, which was thought to be extinct as it had not been recorded for 62 years, was able to come up from seed after the fire of '83. Wattle trees are destroyed by the heat of the fires, but that heat helps to crack the seed coat so allowing water to enter and the seed to germinate, so there are often large patches of wattle seedlings coming up where the trees were burnt. It is interesting to note that the young eucalyptus foliage which appears after fire differs markedly from the mature foliage.

The grasstrees have a large part of the stem underground, and, if not destroyed by fire, quickly show tufts of green leaves. These plants seldom flower except after fire; then they put up great flower stalks and flower in profusion attracting birds, butterflies, moths, ants, flies and beetles.

The effect of fire depends on many factors, amongst them the season of the year, the intensity of the heat, the composition of the vegetation and its density, the interval between burns, strength of wind, and rainfall after fire. If burns are in quick succession some species will not have time to reach maturity and produce seed on which the regeneration depends. In one case an area burnt in autumn 1980 produced masses of orchids in the spring; it was burnt again in February 1983 and produced very few orchids in that year. One area containing many Red Beak orchid plants did not produce any flowers after a light burn, but produced masses of flowers after the 1983 fires which were of much greater intensity.

Some species seldom appear except after fires. The Tufted Lobelia comes up in deep blue masses after fires; but plants are seldom seen at any other time. The Lizard Orchid came up and flowered after the '83 fires; in the following year only two plants were recorded and since then I have not heard of any records. Some plants appear regularly, but seldom flower except after fire, the Red Beak orchids are an example, Holly Lomatia is another.

A fire can alter the whole pattern of vegetation. Peat Swamps are an example. If the peat burns it can continue burning for weeks and will burn not only the aerial parts but also the roots of the shrubs and change the Scented Paperbark Swamp into an area with eucalypts. After a fire there is more light, less competition, and an increase in potash in the soil. Some factors cause a great flowering of lilies, orchids, irises with more, larger and brighter flowers. But there can be cases where a species disappears from a particular site. There was a very large patch of Nodding Greenhoods in the Ironbark Basin prior to the 1983 fires: they have not reappeared at that site by 1994. Perhaps the tubers were roasted.

Large numbers of disc-like orange fungi appeared in a damp area in Angahook after the '83 fire, in another place masses of fungi came up before any green life was seen. Mosses covered patches of the hillsides from which most of the topsoil was washed. Valleys of the streams were deepened. The first spring brought lilies and orchids, then came grasses. Pea plants appeared in the first season, but generally did not flower until the following one. Daisy bushes generally flowered in the second or third season. Heath often takes three, four or even five years to come into its own, as do most wattles. As time goes on the grasses tend to die out in the woodlands and shrubs tend to crowd out most small plants.

A fire in heathlands and heath woodlands can be responsible for regeneration: the interval between fires should be arranged, when planning "cool burns", according to the composition of the vegetation.

DAISY or EVERLASTING TYPE PLANTS — *Brachyscome*, *Helichrysum*, *Olearia*, etc.

Most of these grow from seed which is carried on the wind, sometimes for great distances, particularly when there are gale force winds such as accompanied the '83 fires. A friend who lived in Anglesea picked up a partly burnt dictionary on O'Donohue land. The dictionary had been in a house at Airey's Inlet at the time of the fire. Galvanized iron was scattered through the bush.

Another interesting point is that some seed appears to remain viable for many years. About 1920 *Leptorhynchos gatesii*, Wrinkled Buttons, was first found near Eastern View. Though it had been sought in that area it had not been recorded for sixty-two years and was thought to be extinct, when we found it growing abundantly along the tracks and flowering in June 1984. Satin Everlasting, *Helichrysum leucopsideum*, was also flourishing along the tracks, but it has now disappeared from most of the sites where it was found. Both of these species are being gradually crowded out by the growth of wattles and other shrubs. After the fires there will often be a great flowering of the small daisies, then they are gradually smothered by other plants that shut out the light. The Blunt Everlastings flower abundantly after fires making a great show in the heathlands, then they are gradually shut out. Some daisy species produce rhizomes from which they spread into great clumps: Common Everlastings, Button Everlastings.

The Daisy-bushes come up from seed, Twiggy Daisy-bush (*Olearia ramulosa*) more readily than the Musk Daisy-bush. Along the coast the Coast Daisy-bush, *Olearia axilliflora*, has come up readily after fire and made good growth in the front of the dunes, together with Coast Everlasting (*Ozothamnus turbinatus* — was — *Helichrysum paraliun*).

ISOLATION and POLLINATION TRIALS with BRACHYSCOMES

by Esma Salkin.

By excluding pollinators a simple method for collecting viable seed of known parentage is outlined.

It has not always been possible to collect seed when on field trips. An alternative has been to collect cuttings, usually root cuttings. When these cuttings are grown and bloom, cross pollination is carried out

- a) between different plants (or clones) from the same population,
- b) between flowerheads on the one plant,
- c) where possible one plant is left unpollinated as a control.

The small number of plants for each species used in this trial are due partly to the small size of the population and therefore the paucity of material, the amount which the collector's licence allows, or the failure of plants to bloom simultaneously.

ISOLATION of PLANTS:

This can be done by

- a) bagging individual flowerheads in insect-proof bags. This was not practical with the fine stems on brachyscome flowers.
- b) bagging the whole plant in a fine mesh bag. This method was used in 1992. Seed was successfully collected, but plants did not thrive due to an increase in humidity and reduced light. Fungal and aphid infestations were prevalent and losses resulted from over-watering.
- c) using a glasshouse or polyhouse which has been made insect-proof. I adapted a polyhouse 6' x 8' x 6' high (2m x 2.5m x 2m) by dividing it into two rooms, an inner insect-proof room opening off the outer entry room. I have allowed good ventilation with areas of 70% white shade-cloth. Rain is excluded and all watering is done by hand without wetting the flowerheads. If seed is not retained in the head it is collected by positioning the seed heads over small trays or inserting the fruiting head into a small seed packet. (No sneezing allowed!)

POLLEN TRANSFER:

This is done by 'rubbing heads'. I commence pollination when I can detect the style emerging from the female or ray florets. I pollinate this flowerhead with a more mature flowerhead, i.e. one in which pollen has been released in the bisexual florets. I pollinate daily when flowers are fully open and the temperature

above 20°C and continue pollinating until the flowerhead has aged. On each plant I pollinate as many flowerheads as possible.

I assume pollen is going in both directions as I'm not specific as to where I'm depositing pollen, i.e. heads act as both donor and receptor. I am only interested in getting seed.

Preliminary trials were carried out in May 1993 on *Brachyscome oncocarpa*, *B.ciliocarpa* and *B.stuartii* complex collections from the northern tablelands of New South Wales. Seed collection was excellent. Current trials on the species listed below were commenced in October 1993. The temperature in the polyhouse was recorded at the time of pollination (usually post noon). The temperature range was 22°C–32°C. No pollination was carried out between 23.12.93 and 28.12.93, the temperature was 13–14°C. At least 20°C seems to be required for the pollen to be released (observation, May 1993).

Aphid, mite and fungal attack occurred in October and some trials were terminated.

TABLE OF RESULTS OF POLLINATION TRIALS

(C) refers to cutting-grown plants,

(S) refers to plants grown from seed,

↔ refers to direction of pollen transfer,

(Species names adopted are subject to revision. Results [refers to seed produced] are subjective, i.e. nil, very poor, poor, moderate, excellent.)

Trial	Species	Origin	Pollination period	Results [seed production]
1	<i>Brachyscome</i> sp.	(C) Ranger's Lookout, Mt. Kaputar N.P. x ↔ (C) Schutt's Track, Mt. Kaputar N.P.	20.10.93 to 23.10.93 Trial discontinued due to insect attack	very poor very poor
2	<i>Brachyscome</i> sp.	(C) Schutt's Track A x B ↔	18.11.93 to 5.1.94	A — excellent B — nil
3	<i>Brachyscome</i> sp.	(C) Warrabah N.P. Population 2 A x B ↔ Population 3 A x B ↔	5.11.93 to 18.11.93 3.12.93 to 16.12.93 6.12.93 to 9.12.93 and 16.12.93 to 24.12.93	A & B — moderate A & B — moderate A — poor-mod., B — nil A — poor-mod., B — nil
4	<i>Brachyscome</i> sp.	(C) Barrington Tops A x B ↔	18.12.93 to 24.12.93	A — moderate B — moderate
5	<i>Brachyscome dissectifolia</i>	(C) Dawson Springs, Mt. Kaputar N.P. A x B ↔ C x D ↔ E (selfed)	19.10.93 to 22.10.93 6.11.93 to 27.11.93 5.12.93 to 21.12.93 23.10.93 to 28.10.93 & 18.11.93 to 28.11.93 6.12.93 to 24.12.93	A & B — excellent A & B — excellent C & D — excellent excellent excellent poor-moderate
6	<i>B. aff. formosa</i>	(C) Mt. Stanley, Vic. A x B ↔	20.10.93 to 28.10.93 Mite attack. Trial discontinued.	A & B — excellent
7	<i>B. aff. formosa</i>	(C) Moondarra Dam, Vic. A x B ↔	7.12.93 to 5.1.94	A — very poor B — very poor
8	<i>B. gracilis</i>	(S) Mt. Pilot, Vic. from F ₁ hand-pollinated trial 1992 A x B ↔ B x C ↔	22.10.93 to 18.11.93 22.10.93 to 12.11.93	A — excellent B — moderate C — poor
9	<i>B. nodosa</i>	(S) Narrabri, NSW. A x B ↔	23.10.93 to 30.11.93	A — moderate B — moderate
10	<i>B. nodosa</i>	(S) Mungerie Park, NSW. A x B ↔ C x D ↔ E (selfed)	24.10.93 to 28.10.93 23.10.93 to 30.12.93 Insect attack. 23.10.93 to 28.10.93 1.11.93 to 31.12.93	A — moderate B — moderate B & C — poor E — excellent E — excellent
11	<i>B. microcarpa</i>	(C) Underground stream, Girraween N.P. Qld. A x B ↔ (C) Tenterfield (selfed) (C) Pyramid Tk. Girraween N.P. (selfed)	22.10.93 to 17.11.93 5.11.93 to 24.12.93 27.11.93 to 24.12.93	A — very poor B — very poor nil nil

Trial	Species	Origin	Pollination period	Results (seed production)
12	<i>B.nova-anglica</i>	(C) Underground stream, Girraween NP A x B ⇔ C x D ⇔	3.11.93 to 30. 11 93	A — poor
			15.11.93 to 18.11.93	B — moderate
			28.11.93 to 3.12.93	C & D — excellent
				C & D — excellent
13	<i>B.petrophila</i>	(S) seedling hand-pollination trial, 1992 (selfed) (C) 1993 collection A x C ⇔ D x E ⇔ F x G ⇔	7.12.93 to 17.12.93	excellent
			1.12.93 to 6.1.94	nil
			1.12.93 to 6.1.94	nil
				nil
14	<i>B.procumbens</i>	(S) A x B	23.11.93 to 3.1.94	poor
			23.10.93 to 12.11.93	A — moderate
			22.10.93 to 25.10.93	C — excellent
			22.10.93 to 28.10.93	D & E — excellent
15	<i>B.stuartii</i>	(S) Torrington, NSW A x B x C ⇔ Plants in same pot.	23.10.93 to 28.10.93	F — very poor
			13.12.93 to 24.12.93	G — moderate
			5.11.93 to 11.11.93	very poor
			Fungal attack.	nil
			Trial discontinued.	A, B, C — excellent

COMMENTS:

Brachyscome species hybridise readily under cultivation, therefore the primary aim of the trials has been to produce maximum amounts of 'true' seed. The technique shows that isolation and hand pollination procedures are a simple and effective, if time-consuming, method. The production of seed enables further germination and cultivation trials to proceed, observation of progeny produced and confirmation of field identifications, e.g. *B. aff. formosa* (Moondarra Dam).

B. microcarpa collections need further investigation to interpret the negative results. They may be due to self-incompatibility, other inhibitory factors in the plants or the micro-climate in the poly-house.

B. aff. formosa (Moondarra Dam). The very poor result could indicate pollen production was low or inhibitory factors mentioned above were operating. This species suckers actively and seed production is not essential for its survival. The collection site was visited in November 1992 and February 1993. No flowerheads were observed, but under cultivation this species bloomed profusely over these months. Further observations 'in situ' are required.

REFERENCES: Dr. P.S. Short, 'A Basic Procedure for Producing and Dealing with Hybrids', *ADSG Newsletter* 30,25-6.
Sandy Salmon, 'Conducting Crossing Experiments with Australian Daisies', *ADSG Newsletter* 34,42-5.

FURTHER ADVENTURES WITH DAISIES IN POMONAL

by Linda Handscombe.

My favourites for this season were definitely *Calocephalus citreus*, *C.lacteus*, *C.sonderi* and *Leucophyta brownii*, which I am propagating at present from seed/cutting.

I also bought 20 tubes of what was supposed to be a big robust *Ixodia*, but turned out to be a very pretty small form (not that dwarf form). The flowers on this grow down inside the bush with new growth growing up around it. So it's difficult to pick and has to have short stems, but it has the effect of *Gypsophila* in a posy. It also seems much more hardy than the larger forms at our place. Speaking of *Ixodia*, we have struck a few large forms which mostly fizzle out in the garden. Peter Grenfell of Horsham says they get fungal diseases and you have to spray regularly, which I don't want to do. David has just collected some local seed for me so I can try the 'little green lawn' technique. It should grow well here because it is so common up the road. It infuriates me because the locals and illegal pickers pick it in large amounts and it sells really well, but I struggle to grow it. If I have taken cuttings from other garden plants, would adding leaf litter from around the parent plant at the time of planting out be of any benefit? Or would leaf litter from around a bush plant be better?

I picked one piece of *Odixia achlaena* and it dried very nicely. I have since struck a couple of plants. *Ozothamnus purpurascens* hasn't flowered but I've struck a few of them as well.

We picked a lot of *Ozothamnus diosmifolius* too and have struck about fifteen new plants I think. It gets infested with little grubs if we let it go past tight bud stage. They are looking a bit stressed from lack of water. I have one seedling waiting to go out.

We grew a few *Ozothamnus thyrsoides* from seed last year which I planted under windows!! They have since been moved and are about 1.5–2m tall, but haven't flowered yet.

My one *Helichrysum elatum* that survived is looking big and healthy despite really dry conditions and the removal of its shade tree. It hasn't flowered this year, but I think it had a couple of straggly flowers on it last season.

I grew quite a few *Rhodanthe antheroides* (Queensland form — I think) and they are a great filler in the rockery. I also got a number of "red bud" to grow and they are scattered around, but haven't flowered yet.

Leptorhynchos squamatus grew easily and are scattered around as well. They haven't flowered yet, but are looking fine. Perhaps our habit of under watering is the cause of this. I sowed some local seed from Stawell of what I always considered to be *L. squamatus*. It has very fine foliage and wiry stems with tiny yellow heads. It grew in very dry soil, which is perhaps the reason it hasn't thrived here, but it is very sweet.

Some local *Podolepis jaceoides* would have preferred more water to flower well. I managed two *P. lessonii* which were also very sweet but sparse.

My *Argentipallium blandowskianum* cuttings last year failed miserably, but I have three little plants to go out this year.

I forgot to mention some of my really nice *Bracteantha bracteata* colours. I have three bushes from seed which produce three types of apricot flowers. They are actually white flowers that dry having apricot centres. I'm striking them at present. I also grew some really pretty pink types too. I have collected some seed to see what I get next season. I could send some of it for the seed bank.

Anyway, to cut a long story short, I just need 24 hours more in each day!

THE EFFECT of HEAT TREATMENT to 60°C for THREE MONTHS on RECALCITRANT SEED

by Beth Armstrong.

The seed was roughly divided in half. One half, the control, was kept at room temperature and the other half was sent north to Alan and Barbara Buchanan's for the heat treatment. The seed was kept at 60°C for three months except for a few species which arrived late and were only treated for 1–2 months.

Special thanks to Alan who had to endure the heat of the oven during a hot summer!

The seeds were in the oven December to February and were sown in March 1944 by a number of propagators/members. Each member sowed a control and a heat-treated sample of some of the species.

TABLE 1 — Positive response

SPECIES	No. seeds per test	Nos. germ ^d . HEAT TREATED	Nos. germ ^d . CONTROL	COMMENTS and RESULTS	GROWER
<i>Angianthus tomentosus</i>	nc	40, 20	0	Seeds were mixed — B.A. had 2 heat treated samples. — E.S. had two controls.	B.A.
	nc		14, 3		E.S.
<i>Lawrencella rosea</i>	>25	3	0		J.S.
<i>Rhodanthe chlorocephala</i> <i>ssp. chlorocephala</i>	25	6	3	Origin Lake Logue (10/91) WS223	J.S.
<i>Rhodanthe moschata</i>	nc	21	10	(Maureen has germinated <i>R. moschata</i> with no pretreatment.)	B.C.
	nc	24	3		C.J.
<i>Rhodanthe polygalifolia</i>	20	11	0	Garden seed from Mildura colln. '90	E.S.
<i>Schoenia filifolia</i>		37 (2 mths. heat)	2	The heat treated seedlings never looked strong and gradually died.	J.B.

TABLE 2 — Species tested yielding no germination, a negative response or an indefinite response.

SPECIES	No. SEEDS per test	No. germ ^d . HEAT TREATED	No. germ ^d . CONTROL	COMMENTS and RESULTS	GROWER
<i>Bellida graminea</i>	25	0	3	Good, strong seedlings	E.S.
	25	0	0		J.S.
<i>Brachyscome cheilocarpa</i>	nc	6	4	(WS161)	E.S.
	nc	4	5	" " Weak seedlings	B.A.
<i>Brachyscome halophila</i>	nc	0	6	Negative response	E.S.
	nc	1	0		J.B.
<i>Brachyscome latisquamea</i>	nc	1	2	Eaten	B.A.
<i>Cephalopterum drummondii</i>	nc	0	0	Three batches tried.	E.S.
	nc	0	1		"
	nc	1	1		"
<i>Lawrencella davenportii</i>	25	1	0		E.S.
<i>Lawrencella rosea</i>	>80	1		Fresh seed collected from rubbed heads in pots germinates fairly well with no pretreatment.	E.S.
	nc		0		
<i>Leucochrysum fitzgibbonii</i>	nc	0	0		E.S.
<i>Leucochrysum stipitatum</i>	25	2	1		E.S.
<i>Myriocephalus guerinae</i>	25	0		Collected 9/91 (WS125)	E.S.
	19		1		"
	25	0	0		"
	25	0	0	WS125 (60°C, 1 mth.)	J.B.
	12		0	WS125	"
	33	2		" (60°C, 2 mths., GA ₃ , 29hrs.)	"
	24	0		" (60°C, 3 mths., GA ₃ , 29hrs.)	"
<i>Polycalymma stuartii</i>	25	1	0	Lake Everard, 11/89(60°C,1mth)	E.S.
	25		1	" " (Control)	J.B.
	25	0		" " (60°C, 2 mths.)	"
	25	0		" " (60°C, 3 mths.)	"
<i>Rhodanthe chlorocephala</i> <i>ssp. chlorocephala</i>	30	0	0	Origin Payne's Find to Yalgoo (9/91)	J.B.
	30	0	0	" " " " " "	E.S.
	25	0	0	Origin Norseman	E.S.
	25	9	13	Origin Lake Logue (10/91) WS223	C.J.
<i>Rhodanthe chlorocephala</i> <i>ssp. splendida</i>	25	0	2	Origin Cleary to Payne's Find WS115	E.S.
	25	0	0	" " " " " "	J.B.
<i>Rhodanthe pygmaea</i>	nc	0	0		C.J.
<i>Rhodanthe polygalifolia</i>	25	0	0	Origin Broken Hill to Menindee (9/89)	J.B.
	30	0	0	" " " " " "	E.S.
	>40 c35	0	0	Gawler Range (10/91) WS245.	J.S.
	nc	0	0	" " " " " "	C.J.
<i>Rhodanthe stricta</i>	nc	0	0	Murchison River Bridge, 9/88	J.B.

Our results probably reflect the viability of the seeds, the type of storage or the presence of inhibitors. Some researchers dissect the ungerminated seed to check whether an embryo is present — a little hard for us with our equipment and considering the size of the seed.

Judy Barker treated some of her ungerminated seed with GA₃ — see *Myriocephalus guerinae*.

There is also some evidence that the seedlings were weakened by the heat treatment and eventually failed to thrive or disappeared — see *Schoenia filifolia* and *Angianthus tomentosus*.

QUICK TRIP to the FLINDERS RANGES

by Judy Barker.

In mid-August my husband and I set off to meet friends in the Flinders Ranges for two days, followed by four days in the Barossa Valley. This was not to be a daisy foray, but I was allowed a day and a half in which to look for anything in the Asteraceae family at 100Km per hour, or 60Km if I was sure we were in the right area. Esma appointed me as her deputy collector, I packed a few references and brachyscome locations, a rough press, a camera and we were off.

The first disappointment was the drought. There was a complete lack of daisies from Melbourne to Red Cliffs, but I knew *Rhodanthe polygalifolia* grew in the Werrimull area so we turned west, full of hope. By the time we hit the Sturt Highway at Meringur North the country had become even drier and more bare. No *R.polygalifolia*! Nothing!

At the SA/Vic border we were surprised to find we had to hand over all our fruit and vegetables. A little further on we changed drivers and I found a daisy on the side of the road — *Brachyscome ciliaris* — better than nothing! There was another little patch of multi-coloured *B.ciliaris* just before we reached Renmark.

Next day we travelled from Barmera to Burra over some rough roads where no daisies grew. Between Peterborough and Orroroo I knew there was an *Ixiolaena* sp. because Colin Jones had told me so. In desperation I pulled up and there it was, lining the road but not in flower. It did not augur well.

My main aim was to find *B.dichromosomatica* and I was aware that it had been collected around Eurelia and Carrieton, so we slowed down a bit as we passed through these two old towns. Esma could probably have found it, but I couldn't. After that the hunt was on in earnest. The gravel roads became tracks, there were no signposts; there was a lot of dust. We took the wrong turning and had to backtrack. Finally, Lee stopped the car and announced we should be at a location. I almost stepped on a group of about five tiny, lavender daisies. It seemed like a miracle, and I was down on my knees in a flash, measuring, taking photos and notes and exclaiming with unalloyed delight. Meantime, Lee had gone some distance away and discovered a number of fairly extensive patches which could almost be described as carpets. My joy knew no bounds. *B.dichromosomatica* is a beautiful little annual, only 3–7cm high, but with a relatively large head (2.5–3.5cm across) of broad ray florets varying in colour from pale to deep lavender. The leaves are in a basal tuft and are pinnatisect. Exactly as I had read in the literature, it grew in close association with a tiny cytodeme of *B.lineariloba* and a slightly larger one. These two species, together with *B.breviscapis*, form the *B.lineariloba* complex, which we had just finished writing up for the book. The plants seemed to grow in profusion wherever the soil was bare. The dominant vegetation was low saltbush and grasses.

In the late afternoon we travelled north of Hawker and found many small treasures growing along the edge of the road. There was more *B.dichromosomatica*, *B.lineariloba*, and *B.ciliaris*, a yellow calotis and some tiny plants of *Rhodanthe corymbiflora* and a *Hyalosperma* species. The colour and shape of the mountain range beside the road was a magnificent sight. It had been a day to remember for a very long time.

Next day we left early for Chamber's Gorge where *B.ciliaris* var. *lyrifolia* was reputed to nestle. This proved to be a large, impressive gorge with a surprising amount of permanent water in it. The weather was warm as we walked off in search of this elusive brachyscome. It seemed a long walk, tantalizing because each corner promised to be the last one. I had decided var. *lyrifolia* was elusive to the point of invisibility, but Lee directed me to go round just one more corner. There it was — a bright mauve flower-head loosely attached to a small, soft, trailing tuft of foliage. I mean that literally, because I only saw one head. Numerous little plants flopped over the edge of the steep gorge face, but there was nothing loose about their roots. They were strongly anchored in the fissures between squared rocks. There could not have been much soil there, but it would have been a cool, protected situation. The leaves are indeed lyrate, an unusual shape for this genus. Leaves and stems are covered with small, stiff hairs.

At the turn-off into the gorge there were a number of erect little white daisies which I thought were probably *Calotis* species. Not until I looked at the seed under the microscope did I realise they were *B.dentata*.

Other species noticed were *Olearia decurrens*, *Cassinia laevis* and another *Cassinia* sp., *Chrysocephalum apiculatum*, *C.semicalvum* and *C.semipapposum*, none of which were in flower.

It was a wonderful holiday, topped off by a sighting of *B.cuneifolia* at Tintinara on the way home. John Barrie had given minute instructions about where it could be found under *Eucalyptus leucoxyton*. I have tried to convey the excitement, the feeling of satisfaction and contentment that follows a special find. Now I understand how daisy hunting could become an obsession to the exclusion of all else.

MEMBERS' REPORTS

Christina Leiblich (from Kimba, SA) writes on 6/6/94:- "... We are having the first good rain for the year, which means busy times ahead as we need to work up the land and get crops sown. We have had 70 points of rain at the farm up till yesterday and now, with a steady light rain last night and today, we have over 70 points.

Have not had much luck with daisies during the summer, the reason being poor quality tap water. This was so poor that the Kimba Wholesale Nursery Group had one of its members lose over a thousand Sturt Pea plants, so they went for dam water.

My *Bracteantha bracteata* also suffered from being chewed around the edges at night time so it meant some forays at evening to try to eliminate some of the little pests. After one evening session a deputation of four children from across the road rang the front doorbell to warn me they had seen a torch light flashing around my yard and there must be a prowler about. So I had to try to explain it was only me, beetle hunting. They must have thought, "What an oddball". I think this must be a beetle that semi-poisons the plants as it seems to knock them about fairly well. I had one self sown white-flowered form that reached no more than 19cm high, small-flowered and spreading. It was quite different in character to other *Bracteantha bracteata* offspring. It looks sick after all the chewing, but perhaps the winter rains will rejuvenate it.

Of the five forms (Dargan Hill Monarch seedlings) transplanted into the Uniting Church garden one was double, now deceased, and three were similar to the parent. One had two buds on most flower stalks — one flowering first and the other lower down and coming up a couple of weeks later, so it looked like a lot of flower-heads at once. These plants have also suffered with the poor water."

June Rogers (from Horsham, Vic) writes on 12/6/94 that the results of her seed germination, though not startling, are pleasing — especially the *B.graminea*, which is like a lawn in the pot.

"I transplanted my smallest plant of *B.melanocarpa* to a bigger pot and inspected its root system — yes, it does have a tap root.

We've had some welcome rain, and the grass has all greened up again. With the rain have come hordes of self sown *R.chlorocephala* subsp. *rosea*, *Schoenia filifolia* subsp. *subulifolia*, *Bracteantha bracteata* (Mt. Arapiles and the tall coloured commercial ones) plus seeds have self sown from one of the large white flowered bracteanthas — source and name unknown. Capeweed and clover are sprouting in the midst of this plenty, making weeding very difficult. Of course the rain was needed so that we could get a start on planting out all the old seed which we planted last year and which now was begging to get out of the pots. We manage to plant between 70 and 100 each day, depending on whether it is sand or loam we are digging."

Julie Strudwick writes on 29/6/94 :- "My plant of *Olearia astroloba* was looking a bit iffy with just a small tuft of green leaves on top of each of the two branches, which were only about 6 inches high. One day, about two weeks ago, I went out to find both tops gone and fresh wallaby droppings alongside, so I thought that was the end of it. However, this morning I noticed several tiny new shoots along what is left of the branches so maybe there's hope yet. I'll obviously have to keep a guard around it though."

Gloria Thomlinson (from Shepparton, Vic) writes on 29/8/94 that *B.oncocarpa* has self-sown again this year in the only place she hadn't mulched. The plants are small, but are healthy and in flower.

"Frosts have been severe this year — first time ever the daisies out the front have been affected. *Rhodanthe manglesii* was the main target, cut right to the ground except for two large, vigorous plants growing next to a large rock. It must have stored and released heat at just the right time and in the right measure, do you think?"

A Note on Subscriptions from your Overworked Treasurer

Would members kindly note the following:

1. Subscriptions are due on 1st July each year. (\$7 at present).
2. You will receive a reminder of this fact in the June newsletter. (And the dreaded red cross.)

3. If you haven't paid by October 31st., you will not receive the dreaded red cross in your November newsletter. This is because you will not receive your November newsletter.

5. Please pay for one year at a time. Your aforementioned, overworked treasurer would prefer not to have to keep track of you into the distant future. (This is why some of you get a red cross when you think you haven't earned it.)

6. If you are so well off that you do pay for more than one year, the additional amount will be recorded as a donation.

7. If you panic and think you haven't paid, calm down and check your cheque books. (Some of you paid twice this year!)

8. Don't pay too early. (Some of you do!) It gets confusing trying to work out if you're early for the current year, or late for the previous year. (And you may get that dreaded red cross!)

Note:

The following members paid twice this year and are considered paid up until June 30, 1996:

Elise Walker (Swan Reach), Jan Hall (Yarrawonga), and Peter Grenfell (Horsham).

Jeff Irons (UK) is also paid up until June 30, 1996.

If anyone has any argument with any of the above please write and tell me.

Bev Courtney
Overworked Treasurer

STUDY GROUP NEWS

ADSG WINDCHEATERS: - The colour is dark blue — brighter than navy. Esma describes it as mid-navy. The logo (pictured here) was designed most professionally by one of our members, Ruth Marriott, who is an art teacher. The brachyscomes are white with orange-yellow disc centres. The style is dropped shoulder line and the sizes are generous. The sizes are known as "Windcheater Sizes" and are not firm fitting.

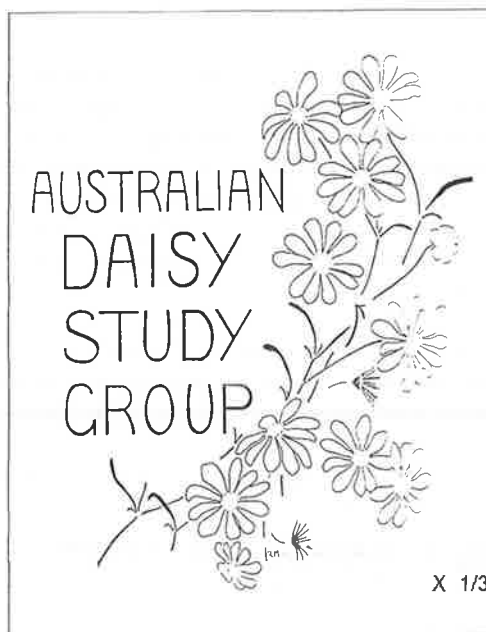
We wanted to have these windcheaters in time for the Melbourne Wildflower Show. Orders were taken at a General Meeting from the members present, but a few extra were ordered in case absent members felt they would like one. The cost is \$23.00 each for all sizes except XX large (which is \$25.00) and the following sizes are available on application to Esma:-

1 medium: Chest 116cm, sleeve (neck to wrist) 76cm,
length (nape to waist [back]) 68cm.

3 large: Chest 124cm, sleeve 82cm, length 70cm.

1 X large: Chest 132cm, sleeve 84cm, length 73cm.

1 XX large: Chest 138cm, sleeve 86cm, length 78cm.



X 1/3

Maureen reported that one of our customers at the Show said, "It would be worth joining the Study Group just to be able to wear one of those windcheaters". Much additional admiration was bestowed over that weekend and also at the Angair Nature Show where Bev Courtney and I were resplendent. These windcheaters are warm and comfortable.

Our congratulations and thanks to Ruth for the logo design and to Maureen for organising the printing and purchase.

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

Brachyscome angustifolia (mauve-pink), *latisquamea*, *microcarpa*, *nodosa*, *spathulata* ssp. *glabra*, *stuartii*,
Bracteantha bracteata (New England — damp), pink hybrid.
Calotis scabiosifolia var. *scabiosifolia*, *Helichrysum dealbatum*, *Olearia frostii*, *Ozothamnus costatifructus*,
Podolepis aff. *longipedata*, *Rhodanthe sterilesens*, *R. stipitatum*,
Schoenia ramossissima, *S. filifolia* ssp. *filifolia*.

DELETIONS

Ammobium alatum, *Cassinia aureonitens*, *C. quinquefaria*,
Chrysocephalum apiculatum (all forms), *C. baxteri*,
Olearia grandiflora, *O. phlogopappa*, *O. tenuifolia*,
Ozothamnus secundiflorus, *O. stirlingii*, *O. thyrsoides*, *Podolepis canescens*,
Rhodanthe chlorocephala ssp. *splendida*, *R. diffusa* ssp. *leucactina*, *R. stuartiana*.

PROVENANCE SEED SPECIES**DELETIONS**

Brachyscome melanocarpa x *B. dentata* (white form of *B. melanocarpa*),
Bracteantha bracteata (Pambula, Barrington Tops), *Craspedia paludicola*,
Hyalosperma glutinosum ssp. *venustum*, *Lawrencella davenportii*, *Myriocephalus guerinae*,
Polycalymma stuartii, *Olearia tasmanica*,
Ozothamnus diosmifolius (Woolgoolga), *O. ledifolius* (Mt. Wellington), *O. obcordatus* (Mandurang),
Rhodanthe stuartiana (Gawler Range).

SEED DONORS

Many thanks to Judy Barker, Linda Handscombe, Jeff Irons, Esma Salkin, Pat Shaw, Doll Stanley and Julie Strudwick.

NEW MEMBERS

We welcome the following new members and hope they will be very happy in the Study Group:

Ricky and Katrina Reeves, 4 Alexander Street, Hawley, Tasmania, 7307.
 Fay Boyle, 199a Holdsworth Road, Bendigo, Victoria, 3550.
 Gordon Ryan, RMB 5135 Andersons Road, Tower Hill via Koroit, Victoria, 3282.
 Christine Hennessy, 1666 Bells Line Road, Kurrajong Heights, NSW, 2758

NEWSLETTER DEADLINE: The deadline for the next newsletter is January 31 1995. Please send articles to Judy Barker, 9 Widford Street, East Hawthorn, Victoria, 3123. My gratitude to the artists, Ailsa Campbell and Ruth Marriott, and to all the contributors. Merry Christmas.



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Schoenia cassiniana 14
filifolia 15,48
 ssp. *subulifolia* 14,51
 Windcheater ADSG 37,52

(Illustrations are underlined.)

SUCCESSFUL COLLECTING

Esma and Alf have just returned from Ulupna Island in the Murray River, the Menindee Lakes and the Yorke Peninsula. Among other things they collected *Brachyscome muelleroides* and *B. basaltica* var. *basaltica* (or something very like it). Beth and John Armstrong are still travelling west, but have already dispatched a small group of *Brachyscome breviscapis* to us. They were all of 1-2cm high and the heads were in seed rather than in flower! Congratulations and many thanks to these determined, hawk-eyed members.