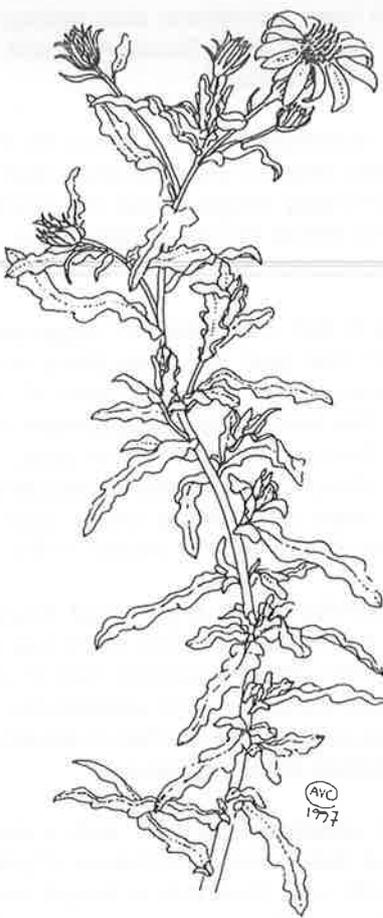


ASSOCIATION OF SOCIETIES FOR GROWING AUSTRALIAN PLANTS**THE AUSTRALIAN DAISY STUDY GROUP NEWSLETTER NO. 48**

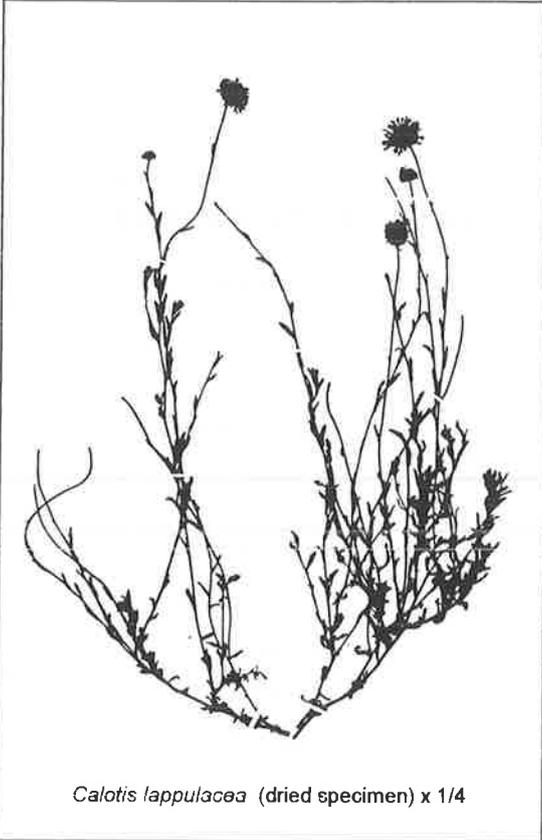
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SPECIES OR FORMS NEW TO MEMBERS

Calotis lappulacea

In June 1994, not long after my wife Jennifer and I moved to the southern end of Canberra, to the suburb of Theodore, I was walking on the hill that dominates our area, 'Tuggeranong Hill', and came across a handsome rounded sub-shrub covered in small yellow flowers which was unknown to me. It stood about 40cm high by about 60cm wide, was densely branched, and had relatively bright green foliage. Its shape and overall appearance promoted it as an attractive native species growing here on a north-facing slope, at an altitude of c. 750 metres. A few plants only seemed to be present in the population, and most were much smaller than the plant described above.



Calotis lappulacea (dried specimen) x 1/4

On investigation, the family proved to be Asteraceae, and this member one of the three species of *Calotis* found in the A.C.T. — *C. lappulacea*. Burbidge and Gray (1970) in *Flora of the A.C.T.* describe the species as "... not uncommon in dry sclerophyll habitats at lower elevations; also widespread Queensland to Victoria, occasional in South Australia and Western Australia. 'Yellow Burr Daisy'."

I supplied an herbarium specimen to the 'Centre for Plant Biodiversity Research', and seed to the Australian National Botanic Gardens, then promptly forgot about the plant as there were other sites and plants to investigate in our new area.

Walking with a group of S.G.A.P. members on Tuggeranong Hill one day in early March this year, we again came across the *C. lappulacea* population (or one derived from it). This time, however, no plants the size of my '94 specimen were found, the largest being 17cm in height and 28cm wide, and most of this population of about 34 plants were considerably smaller than that. They were all growing under very dry conditions in approximately the same area visited in '94.

In spite of the drought conditions, all plants had flowered well and now were essentially in a fruiting stage, with only an odd late flower evident. The plant that was 17cm x 28cm in size had c. 100 fruiting heads. I would suggest that it is likely that this species flowers over a relatively long period through the milder part of the year in this temperate climate. It also appears to hold on to its fruit, the so-called burr, until physically brushed or abraded by a passing object, then it breaks up into smaller units of one or more seeds, thus beginning the distribution process assuring survival.

The multi-stemmed character is also attractive as it provides the plant, whatever the size, with a dense appearance, and allows the small terminal yellow flower heads to be well distributed. The leaves of plants from the A.C.T. are found only along the stems. They are sessile and small, less than 1cm in length and c. 2mm in width, occasionally lobed, lobes and apices sharp pointed. Stems and leaves appear to have fine short pale hairs on all surfaces. No radical leaves occur in the A.C.T. populations of *C. lappulacea*.

It is my intention to grow plants of this species for garden use from seed, and to observe any changes in size or form under cultivation. I suggest that the local provenance seed should produce seedlings resistant to both cold and drought, and which should be tolerant of poor soil conditions. The above wild populations of *C. lappulacea* were growing in soils with a grey/brown 'A' horizon of c. 15cm depth and containing colluvial rock material of rhyolite origin. Underlying these were deep red clays. The associated vegetation included *Eucalyptus polyanthemos*, *E. nortonii*, *Brachychiton populneum*, *Cassinia quinquefaria*, *Exocarpus cupressiformis*, *Bracteantha viscosa*, *Chrysocephalum semipapposum*, and *Cymbopogon refractus*.

by Barrie Hadlow

Rhodanthe cremea Paul G. Wilson

Derivation: *cremea* — cream-coloured, a reference to the cream inner involucre bracts.

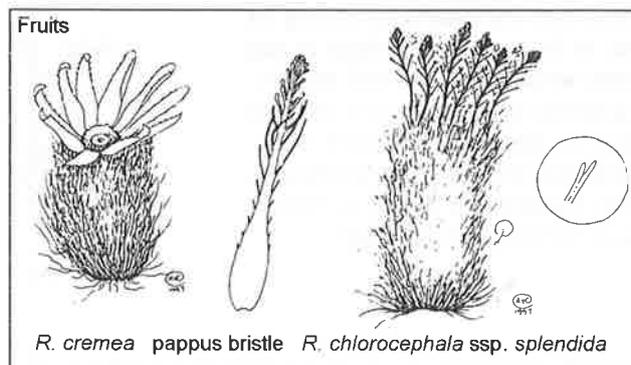
Distribution and habitat: WA. Occurs in the Shark Bay area, eastward from Hamelin Pool to the North West Coastal Highway. Found in tall, open shrubland on red sand over loam.

Description: An erect annual, 30–50cm high, branching at the base. Stems have woolly hairs just below the flower-head but are otherwise glabrous. **Leaves** are linear or narrow-obovate with acute or blunt tips, 2–3.5cm x 2–3mm, sessile, glabrous, borne near the base of the stem. **Flower-heads** are 3–6cm across, solitary at the tips of stems. Outer bracts are colourful, the outermost grey-green, then purple-pink shading to yellow. Inner bracts are white or cream, often with a dark purple band near the base. Corollas have 5 lobes, the 3 facing away from the stem are cream, deeply divided and recurved, the 2 facing the stem are red-brown and attached almost to the apex. This gives the disc centre a cream appearance with a superimposed pattern of dark spots. **Fruits** are 2.5–3 x 1.3mm, top-shaped, dark, with long silky hairs on one face, short hairs on the other. Significant features are the toothed cream scale-like pappus bristles tipped by narrow feathery filaments with club-shaped clusters at the tip. The narrow filamentous bristles fall off with time but the scale-like parts remain on the fruit.

Flowering period: *R. cremea* flowers from July to September in the wild, and usually from August to October in cultivation. When sown in summer it may flower in late autumn if conditions are suitable.

Propagation: Seed from the wild (collected in 10/96) has been trialled at intervals since 1/97 but it has germinated very poorly. Seed sown in 5/97 has germinated well for Maureen Schaumann and Syd Oats. This is possibly due to a relatively long after-ripening dormant period — perhaps 7–8 months. In Maureen's case seed responded to a pretreatment of a dilute White King soak for 30 minutes, and a rinse in water followed by a 24 hour soak in GA3. (See NL 47.) Syd's success (48% germination) resulted from a 24 hour seed soak in SISF to which a trace of Soil Wetter had been added. (See p. 25)

Cultivation and uses: This species should be a beautiful annual for gardens or containers if the reluctance of seed to germinate can be overcome. It will probably prefer warm, open situations in well-drained soils. Plants are subject to aphid attack. Flowers are suitable for wiring and drying.

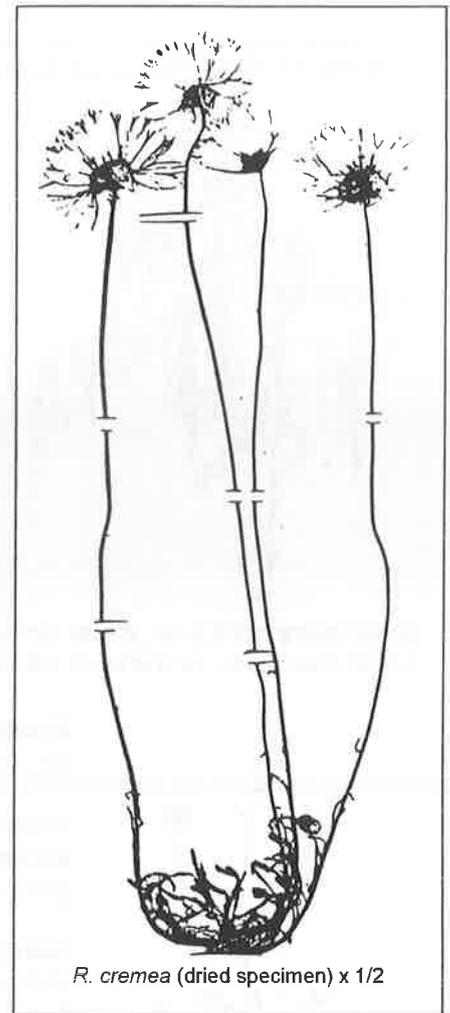


Similar species: *Rhodanthe chlorocephala* subsp. *splendida* is superficially very similar, and it also grows in the Shark Bay area. It differs in having a yellow disc centre (rarely black), and the blue-green foliage extends further up the stems. Under magnification the presence of spherical glandular hairs on stems and leaves (and the absence of woolly hairs) is an additional distinguishing feature. Other features are the regular shape of the corolla lobes, and the very silky white fruits. The pappus bristles are not as broad as those of *R. cremea*.

Special notes: Some forms of *Cephalopterum drummondii* and *R. chlorocephala* subsp. *splendida* growing in the same locality also have a dark purple band at the base of the inner bracts. It is thought that they may all have the same insect pollinators.

When *R. cremea* was collected in August 1996 it was notable for the number of large greyish grubs nestling in the disc centres. In this area there were more flies taking less notice of *Aerogard* than we had ever before encountered.

by **Judy Barker**



EVEN MORE DAISIES!by Jeff Irons

(This article appeared in *Pentachondra*, the newsletter of the Australian Plants Society, Newsletter No. 18, May 1997, an English publication. It is reproduced here with the kind permission of Jeff Irons, the Honorary Secretary and an English member of AD SG.)

***Calomeria amaranthoides***

Gk. kalos — beautiful; meris or meros — part. A reference to the amaranth-like plume of flowers.

In February 1996, when in New South Wales, I was taken to see this plant in full bloom. Later on my friend collected seed, and I was sent a C4 envelope of it. As is usual, most were empty husks, but I was able to extract a small amount of seed.

The species was described in detail in our first newsletter. It is a sensational aromatic biennial, with long tassel plumes of flowers 1m or more long. Under glass I've seen plants up to 3.5m high with flower plumes nearly 2m long. Cultivation is easy provided you remember that it occurs on cool south-facing slopes, and grows in fertile soil derived from basalt, containing plenty of organic matter, and in areas which receive summer rain. Seed should be sown in June and, with

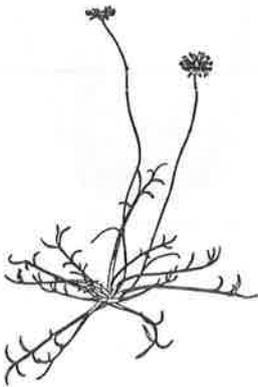
progressive potting on, plants should be at least in a 20cm pot by September. They must be overwintered in a frost free place, and should either be potted on in the following spring or planted out in late April.

Brachyscome ptychocarpa**TINY DAISY**

Gk. ptych — refers to folds; carpos — to fruit. A reference to the winged fruit.

Pretty pink is a good description for the small daisy flowers, each about 3cm across. All seventeen of my plants had gone into one 15cm pot, so there was a good display throughout the whole season.

Brachyscome ptychocarpa is found at moderate altitudes in north-eastern Victoria, and on the Southern Tablelands and Central Western Slopes of New South Wales. The flowers are usually white, but an isolated genotype on Mount Canobolas (pronounced can-ob-o-las, o as in got) near Orange has pink blooms. A gardening friend who lives in Orange collected seed, and gave me some when I visited him last year. Plants can be annual or perennial, and are always found in damp places.

***Bracteantha viscosa***

Known as Sticky Everlasting, this attractive daisy has heads just like those of *B. bracteata*, but they are smaller and daintier. The habit can be open, sprawling or upright, and the plant can be single- or multi-stemmed. It is a species which is not available commercially. Since it is new to me I don't know what our stock will be like. What I do know is that the donor says that the sheer quantity of flowers can exhaust the soil so that, even in Australia, plants may die after one season. The APS stock comes from Newnes Plateau in NSW. Plant it in well drained soil, and be pleasantly surprised if it lasts for more than one season. The yellow flowers dry well if picked in bud, or just as the bracts begin to open. Plants should grow to be 0.5–0.8m high.

***Brachyscome rigidula***

B. rigidula could be described as a high level *Brachyscome multifida*, for it looks very much like it. This species likes a sunny spot and poor well drained soil. It is a good scree plant. The form that I grow has lavender daisies, 2.5cm across, on 10cm stems, from early summer to autumn. Wild plants can have stems as much as 60cm long, and their flowers may be mauve, pink or white. Sub-alpine forms of this species do not have a good shape. Consequently the APS has never offered seed, because it has not been possible to get known high origin seed.

'THE PROBLEMS OF GARDEN-COLLECTED SEED AND THEN THE PROBLEM OF OVER-COLLECTING IN THE WILD'

— A perspective from Kings Park and Botanic Garden

by Luke Sweedman

(Cherree Densley asked Luke (Seed Collector at Kings Park and Botanic Garden) to comment on an article under this title that appeared in the SGAP Vic Newsletter, Vol. 40, No. 158. This is Luke's riposte, and it will appear in the SGAP Vic Newsletter June 1997. Cherree very generously offered the article to ADSG for this newsletter, and it was accepted most gratefully.)

I agree with Judy Barker's observations on collecting seed (SGAP Newsletter, December 1996) and the associated problems. I would like to outline what we do at Kings Park as regards seed for display and collection. We do collect from the wild for all our original source material as this is obviously the only way to ensure accurate provenance and genetic purity. If this seed is managed correctly there should be little or no need to collect from the wild again.

Our displays of *Rhodanthe chlorocephala* subsp. *rosea* in the Botanic Garden, up until last year, utilised the same seed collected every year for the past twenty years. This year we have changed seed to a different strain to invigorate our display but the seed we collected over the years was still germinating well and certainly turning on good displays. We decided to use a new strain primarily due to the colour forms within the population becoming lighter, paler, and a bit dull in brightness.

We sow large areas of up to half a hectare so our situation is rather different from the home garden. Smaller seedlots for collection are grown in the nursery on a regular basis. These are often in five hundred or so 125ml pots, and are left until seeding and then collected. We are careful to keep species separated and, although some *Brachyscome* species have been known to hybridise in colour forms, it has not been a major problem.

I would suggest that for commercial sale you find a grower who sticks to one or two species to try and restrict the possibility of crossing. If you keep a good clean strain you should have no problems.

I think it is far better to grow a strain and stick with it until it deteriorates and then start with a new one, rather than introduce a mix of old and new. If you can possibly grow populations originally from a wild source, then grow as many domestic first generations as possible, freeze these and then cultivate using one population at a time. In this way you are much more likely to keep a vigorous population. Then, if you find a crop failing, you can start from scratch with a frozen lot.

Recommendations

When you first get material from the wild, bulk it up as quickly as possible to increase the numbers. Divide this lot up and freeze half. Distribute the other half to your growers and get them to freeze some of their first progeny. This seed they use to grow for sale and, as a safeguard, they keep an original amount to bulk up if they lose a population.

There appears to me to be no way around growing reasonably sized areas for seed. An area of 25 sq. metres is ideal. This can be done using pots. As most Asteraceae are wind pollinated, locational barriers are the best option. This means ensuring that they are at least separated by some physical barrier such as a house. Keep species well away from each other. We use a glasshouse where we require guaranteed pure progeny.

If you use a new lot to replace an old lot, make sure you get rid of the old population by pulling out and spraying or using a different site. It is better not to contaminate a new population.

When bulking up a population to ensure maximum vigour use correct horticultural management techniques of weed control, adequate watering and fertilising regimes. We use Macrocote gold at 40 grams per square metre. Liquid feed can also be used to push them along, as can urea as a nitrogen boost. The subsequent plants should seed prodigiously.

Conclusion

By using these techniques the problems associated with hybridisation and declining vigour are much less. We have often bulked up very small amounts of seed quickly in pots in the nursery without problems, and then further boosted the numbers by growing large areas in the Botanic Gardens. (Perhaps you could find areas the council would love to see in flower, and you can collect the seed.) Larger areas are particularly

useful for the taller, more vigorous species such as *Rhodanthe chlorocephala* subsp. *splendida* and, say, *Rhodanthe sterilesens*. We also get our botanic gardens to collect small amounts from their own sections to regrow each year to keep their own strain separate.

REFLECTIONS ON POLLINATION

by Esma Salkin

In reflecting on Luke Sweedman's statement that 'most Asteraceae are wind pollinated' I came to the conclusion that that most daisies I've been growing are insect pollinated. Each spring I have a selection of daisies, mainly *Rhodanthe* and *Brachyscome* species, growing in large pots and troughs on a north-facing patio. Over a morning 'cuppa' I relax and enjoy the daisies, watching pollinators (mostly hoverflies) browsing the various daisy species.

This past spring (1996) I was requested by Natalie Peate, one of the co-ordinators of our current research project, to observe whether *Leucochrysum albicans* ssp. *albicans* var. *tricolor* 'selfs'. Five pots of this species were placed in the insect-proof polyhouse. No seed was set. Plants of the same species that were hand pollinated did produce seed. There is air movement across pots as ventilation is needed to prevent fungal disease.

About 20 pots of the above species from 2 or 3 populations were placed against a wall of the polyhouse in an area 0.75 x 1m, and were isolated from *L. albicans* ssp. *albicans* var. *buffaloensis*. In between were pots of *Brachyscome* species. Sarlon (70%) was erected over the plants which were facing north and west. There was no seed set. Seed set in the garden has been poor this season and it suggests that there were few pollinators. Other reasons for the poor seed set from the *Leucochrysum* species could be poor pollen production (too hot this spring), incompatibility between the populations or more complex reasons. Plants in the garden in full sun did produce some seed.

Observations with some *Brachyscome* species

A suitable technique for isolating and hand pollinating for seed production evolved by trial and error (mostly error). Small insect-proof cages covering one pot were only partially successful as there was a tendency to over water. A trial with a large trough full of *Brachyscome gracilis*, colour-coded and ready for pollination in a large insect-proof cage was aborted when a sudden thunderstorm flattened the plants. As plants dried out and stood erect, there must have been pollen transfer as, with no further interference other than air movement, plants produced full heads of seed. At this stage I opted for a polyhouse. Trials with a range of brachyscomes in the new isolation house produced mixed results, depending on temperature and amount of pollen produced.

One trial with *B. angustifolia* ssp. *angustifolia* produced plants with either entire or lobed leaves. To eliminate the suggestion of contamination the trial was repeated the following season. Results were entire to lobed leaves were produced in a ratio of 3:1, suggesting a recessive gene was operating. To check for air-borne pollens a label with a sticky adhesive on both surfaces was suspended among the pots. No pollen grains were found on the adhesive surfaces.

The notion that some Asteraceae are wind pollinated, however, can be supported as some AD SG members have developed allergic reactions when handling daisies. Air-borne pollen may not be the only factor involved since the perfume exuded by some daisies initiates a similar response. I was reminded of this recently when opening a packet of seed of *Rhodanthe diffusa* ssp. *leucactina*, which had been stored in a seed packet in a sealed plastic box at 4°C for about four years. My sinuses immediately reacted to a strong aroma as I opened the packet. I then recalled the collecting site (will I ever forget?) — hundreds of flowering plants packed tight on the roadside verge north of Bourke (NSW). I was delighted to see the display but attempts to find mature seed amongst the recently opened flowers had to be aborted as the aroma from the flowers was so overpowering it was producing an adverse reaction.

One would assume that the aroma emanating from the flowers rather than from the foliage was an insect attractant, as are brown markings on the bracts of species such as *Cephalopterum drummondii* and *Rhodanthe chlorocephala* ssp. *splendida*. What is the experience of other members? How are your daisies pollinated? Is aroma from flowers or leaves species-specific?

THE EVERLASTINGS PROJECT

Our progress with the project since the last newsletter has been made mainly in the field of germination. Most species needed a period of after-ripening. We stored at room temperature the seed collected last spring from the wild and from our gardens, and sowed at intervals.

Although Melbourne members generally sow annuals in late March or early April, and it was unlikely that many species would germinate early in the year, we tried sowing some of them in January. There were two reasons for this: the first was that we felt the seedlings might cope with Melbourne winters better if they were larger, and the second was that we feared the autumn temperatures might be too low for germination of some species, e.g. *Rhodanthe charsleyae* and perhaps *R. battii*. Certain species germinated, others didn't. It is too early to draw conclusions but a few tentative observations could be made at this time.

- *Rhodanthe battii*, *R. citrina*, *R. margarethae*, *R. sterilecens*, and *R. tietkensis* seemed to wilt as soon as the cold weather began. They also suffered from aphid attack. All these species have hairy leaves.
- *Rhodanthe psammophila* is not happy in the cold. A group of plants were shooting up quickly in April, and so they were cut back by half in the hope that their roots might balance their height. The severed hollow stems filled with water, and the entire group perished.
- The following glabrous or almost glabrous species do not seem to be affected by the low temperatures — *R. chlorocephala* ssp. *rosea* and ssp. *splendida*, *R. manglesii*, *R. stricta* and *Schoenia rosea*. Some seedlings of *R. polygalifolia* are unaffected, but some have curled and wilted leaves.
- *R. polyphylla* (a Queensland species) germinated very well (25 out of 30) when sown in mid-February, and plants are growing strongly in early June, even though the foliage is very hairy.
- The top leaves of *R. spicata* curled and became deformed with the onset of cold weather.

Several of the species that had impressed all the collectors last year with their attractive form and large flowers have begun to germinate, e.g. *Haptotrichion conicum*, *Schoenia filifolia* ssp. *arenicola*, and *Schoenia macivorii*. Julie Strudwick was the first member in the Study Group to germinate the latter, and reported that it had come up after a pretreatment of 30' in dilute White King solution followed by 24 hours in GA₃. She later found that it germinated well after 24 hours in GA₃ without the bleach treatment. Other members wasted no time in sowing this handsome species, and now many of us are watching its progress with great interest.

About twenty-eight members are actively trialling species, thirteen members have either contributed seed or are going in search of species we need, and several have offered to trial plants in their gardens. Since we have sixty-seven individual members (not counting SGAP Groups) this is an unusually high participation rate for a Study Group. Congratulations to you all, and thank you.

We will continue to sow species, to evaluate germination results, to grow the seedlings in pots and in the garden that we have managed to rear, and to share any plants for which we have no room. (Thank Heavens most of these species are small!) We are gaining confidence in our growing methods, and this confidence has been greatly assisted by the results you have returned to the co-ordinators. There is still much to be investigated. It is never too late for other members to join us.

Judy Barker

ITEM OF INTEREST

by Syd Oats

At the time of sowing my first *Rhodanthe* species for the everlasting seed trials, I noticed that when I spread the seeds on the sand in the punnet and sprayed them with water the small droplets were held in the small hairs around the seed, and the seed never really got wet for days.

The next sowing had to be soaked in SISP for 24 hours. (I use a quarter of a SISP disc soaked for a few seconds in 12ml of water until all the green colour washes out.) The seeds were dropped into the container, and they sat en masse on top of the SISP solution, and stirring made no difference at all. So I picked up the smallest amount of washing-up detergent on the very tip of a fine knitting needle and stirred it into the solution and seed, and hey presto, the seeds were immediately suspended in the solution and looked really soggy. I now use Soil Wetter, a horticultural form of detergent in place of the washing-up liquid. The result is that all my *Rhodanthe* seeds and *Actinotus helianthi* are soaked in a similar Soil Wetter solution for 24 hours — even if Sisp is not used. The seeds are rinsed off while they are still in the sieve (kitchen utensil) to make

them a little less sticky. I use a pair of plastic tweezers to pick them out one at a time and place them on the seed mix.

No *Rhodanthe cremea* had germinated before I used this Soil Wetter method, but I now have 12 germinated from my remaining 25 seeds. Similarly, no success with *R. polygalifolia* until I used Soil Wetter, which resulted in 6 germinations out of 30 sown.

REPORT FROM METUNG

by Pat Tratt

My best news is that it was *Brachyscome riparia* growing in crevices in rocks in Raymond Creek, very close to the *B. petrophila* found last year just above the creek. The flowers are a lovely bright pink. Although it grows in the vicinity of the walking track where it crosses Raymond Creek, the plants aren't under threat. They must cling in their niches at times of fast flow. The *B. riparia* seedling that Esma gave me is growing and flowering well on the edge of our dam, so I had a specimen for comparison of vegetative characteristics.

I grew the provenance seed of *B. iberidifolia* and *B. curvicarpa* from AD SG. *B. iberidifolia* germinated very well, the plants were fine and dainty, the flowers c. 0.7cm, all pale blue. *B. curvicarpa* resulted in four plants being put in the garden, only one of which grew on strongly and is still flowering. I think strong winds destroyed the others. *B. diversifolia*, grown from seed collected at Crooked River Road near Dargo, had quite yellow buds opening to white flowers. The recent very hot days have dried them out. I find tufted grasses often give sufficient light shade and shelter for many daisies to flourish, especially with rocks and logs to protect roots. The really large *Poa* tussocks overshadow and smother smaller species, but look great at a distance.

Our summer rains have kept things growing, but the very windy and very hot days have taken their toll. *Olearia astroloba* is looking stressed, and a large *Ozothamnus adnatus* blew right out of the ground. Joe Stephens raised a few *O. astroloba* for cuttings for the East Gippsland garden at Nyerimilang Park, but only a couple survived once planted out. He is remarkably successful at propagating a wide range of plants with very simple methods. He gave me a white-flowered form of *B. multifida* collected near Bruthen. It grows strongly and has flowered for weeks. I have grown a number of local native grasses, *Vittadinia cuneata*, *B. spathulata* and *B. diversifolia* for the EG garden, but will have to hold them over until autumn. Harsh conditions with little shelter and dry soil are causing newly planted stock to die off. The special garden is a very challenging and ambitious project.

The *Vittadinia* sp. seed sent from AD SG germinated fairly well but, once they were planted out, I gradually lost them. Conditions cannot have been suitable. *Podolepis jaceoides* has put on a very attractive display for weeks. *Brachyscome ciliaris* with mauve rays, grown from seed collected near Bindi, produced many flowers but quickly died off in the hot weather. *B. petrophila* makes a good garden plant for a moist, partly shaded spot, and *B. scapigera* produced many flowers over several weeks. *B. decipiens*, too, flowered well on its sturdy stems. I found what proved to be *B. decipiens* in quite a dry situation on a grassy slope amongst snow gums near Boundary Creek on the Gelantipy Road. They were much smaller plants than those nearer the creek in a moist shaded situation. Until I was able to collect seed I was at a loss to key it out.

James Turner and I have again received Botanic Guardians funding — application was made six months ago and we had just about given up hope. However, we can now plan trips for this year. The biggest drawback is that the garden suffers from neglect so I am trying to get it into some sort of order before it all begins.

ALPINE FIELD TRIPS — 1997

by Esma Salkin

Four areas were visited: Falls Creek (Vic), Kosciusko N.P. northern end (NSW), Mt Tambouritha via Licola (Vic), and Mt Buller (Vic). The wet spring and good snow falls followed by a long dry summer influenced our collection of material for research.

Falls Creek: 24th–27th January.

North of Omeo the bush was dry, flowering had finished and most of the seed had dispersed. A few seed heads of *Chrysocephalum semipapposum* were collected near a magnificent flowering specimen of *Banksia canei*, but seed of *Leucochrysum albicans* ssp. *albicans* var. *albicans* was gone.

Approaching the Bundarra River there were a few plants of *Cassinia* sp. (aff. *C. uncata*). At the river crossing was *Bracteantha viscosa*, and high on the dry ridge was *Brachyscome rigidula*. As we drove on to the High Plains we realised spring had barely begun and the plan to solve the relationship between populations of *Brachyscome tadgellii* and *B. nivalis* had to be abandoned. (See NL 44, p. 8.)

On both peaks of Mt Nelse we saw good populations of *Leucochrysum albicans* ssp. *alpinum*, and vast expanses of *Celmisia* sp. 4 but, alas, cattle had grazed the site of 3 species of *Erigeron* at the head of Cope Creek, and all that remained of dozens of ? *E. paludicola* were the rosettes.

The only erigerons observed were two unconfirmed species hidden among the shrubbery. Over the next couple of days botanising was interspersed with walking and sliding down large boulders in search of a mossy waterfall. En route to the waterfall we recorded and admired a colony of *Rhodanthe anthemoides* nestling among tufts of Snow Grass sheltered by a group of Black Sallee.

Kosciusko National Park — Northern Section: 7th–13th February.

It began with a heat wave and persistent attacks by vicious March Flies as we tried to examine flowers and make meticulous observations. Relief came when a welcome thunderstorm sent these 'beasts' underground. After alternating days of rain and sunshine we broke camp early. Despite these minor hardships we did enjoy the alps and the company. *Rhodanthe anthemoides* was out in profusion, its white heads a haven for insects feasting on seed. *Leucochrysum albicans* ssp. *alpinum* was similarly infested with insects, and little seed was available for collection.

Other daisies of note were the extensive colonies of *Brachyscome radicans*, the mixed populations of *Bracteantha bracteata* and *Bracteantha subundulata*, among which were hybrids between the two species. *Helichrysum adenophorum* var. *waddelliae* was prevalent beneath eucalypts, but of considerable interest was the association of *Ozothamnus thyrsoides* and *O. secundiflorus*, both growing on a dry ridge. On the fire trail to Table Mountain we were delighted to find many *Spiranthes sinensis* with its vivid pink blooms spiralling up erect stems.

Those who camped in the area with AD SG in 1987 would be disturbed to find the lovely garden of brachyscomes of many hues and the tall celmesias gone, flattened for a car park for skiers at Mt Selwyn.

Mt Tambouritha (north of Licola, Vic): 13th April.

Chaffeured by Natalie, we had a rushed trip to collect *Leucochrysum albicans* ssp. *albicans* var. *tricolor* seed, only to find cattle had dined well. We collected some cutting material among shrubbery on the steeply sloping bank of the creek. *Bracteantha subundulata* was in full flower beneath regenerating eucalypts and seed was available. Also collected were cuttings of a small compact form of *Bracteantha viscosa*, a fine grey-leaved form of *Chrysocephalum semipapposum* and *L. albicans* ssp. *albicans* var. *albicans*.

Mt Buller : 7th–8th April.

Seed of *L. albicans* ssp. *albicans* var. *albicans* was collected among loose rock right at the summit. A few *Brachyscome rigidula* were seen lining the walking track to the summit, a few representatives of the flora that once covered the mountain.

Alpine Field Trip for About February 1998

A week's tour of the Victorian alps is one suggestion. Any other ideas? Contact Joy Greig or Esma Salkin. Details will be found in the December NL.

A VERY STICKY QUESTION or THE MEANDERINGS OF A DAISY ADDICT by Syd Oats

QUESTION: Why do some *Rhodanthe* species have this glutinous jelly around the seeds when they are soaked?

PREAMBLE: When I carried out my seed trials on *R. polgalifolia* I had the doubtful pleasure of stripping off the outer coverings of 100 seeds to see if this made any difference to the germination rate. The result was that not one seed germinated, but I did discover that when I removed the slightly opaque thin layer between the embryo and the testa it turned to jelly when it got wet. When dry the coat is about 0.1mm thick but swells when the seed is soaked for 24 hours. In the case of *R. stricta*, *R. cremea* and *R. chlorocephala* the jelly swells so much that the seed is about double its dry size, and the jelly is held in place by the hairs. This

action seems similar to the crystals which can be added to potting mix, and hold 400 times their weight of water.

THEORY: Some *Rhodanthe* species have relatively few seeds compared for instance to *Bracteantha*, and therefore need a system to increase their survival rate. When seeds are blown onto the earth from plants after they are ripe a small shower or showers will not affect them, and they dry out again. But if the rain is heavy enough to soak the seed and the soil, it causes the seed to swell and form the jelly, which will hold the moisture long enough for the root to get down into the damp soil. The jelly not only supplies moisture but it glues the seed to the soil, preventing disturbance and maybe protecting the cotyledons from insect damage. *Bracteantha*, without this mechanism, probably survive through sheer weight of numbers of seeds.

Syd's theory is borne out in published work by Mott, J.J. (1974b). Factors affecting seed germination in three annual species from an arid region of Western Australia. *J. Ecol.* 69: 699–709. The following excerpts are reproduced from that article:

p. 699. ... 'The importance of seed surface characteristics in modifying the seed/soil interface has been emphasized by Sedgley (1963) and Harper & Benton (1966). These workers showed that germination was enhanced when a greater area was in contact with the substrate, and that mucilaginous seeds showed the greatest germination under high moisture tensions.'

(The species used for this study were the summer grass, *Aristida contorta*, and the two winter composites, *Helipterum craspedioides* — in the article referred to as *Helipterum* — and *Helichrysum cassinianum* [now *Schoenia cassiniana*] — referred to as *Helichrysum*.)

p. 702. ... 'Destruction of the mucilage layer in *Helipterum*, or removal of the hairs on the 'seed-coat' of *Helichrysum* had little effect on the rate of imbibition in both species. However, in *Helipterum* intact seeds imbibed about 25% more water than treated seeds.'

p. 704. ... 'Intact seeds and seeds treated to remove the gel in *Helipterum* and the epidermal hairs in *Helichrysum* were used, with four replicates of thirty for the untreated seeds, and two replicates for the treated seeds. Imbibition was carried out by placing the seed on the soil surfaces; and in some treatments the trays were sprayed with a fine water mist before being placed in the growth cabinets.'

The use of exposed soil surfaces gave low values for moisture uptake and germination in dry intact seed of *Helipterum* and *Helichrysum*. In both species the 'seed-coat' is covered with hairs, although these are short and sparse on *Helipterum* seed compared with the very dense and long hairs on the 'seed-coat' of *Helichrysum*. These hairs on the outer surface of the 'seed-coat' held the dry seeds off the soil surface and little water uptake took place. However, on moistening the seeds of each species with a fine water spray the hairs collapsed and the seed became closely applied to the soil surface. Under these conditions moisture uptake was more efficient, and after 6 h mucilage had formed a thick layer over the seed of *Helipterum*, further increasing contact between seed and soil. The long soft hairs of *Helichrysum* spread out over the soil surface, giving a large surface area, and helping to form a film of water over the seed.'

p. 706. ... 'Removal of the mucilage layer in *Helipterum* decreased the germination after spraying, and removal of the epidermal hairs on *Helichrysum* also reduced germination compared with the untreated sprayed seed. ... In both *Helipterum* and *Helichrysum* the 'seed-coats' were apparently important in their ability to change the seed/soil boundary after wetting, and so enable more efficient moisture uptake.'

Bravo, Syd!

PS to 'One Year On' - NL 46

by Ros Cornish

The week before Christmas I took John on a trip to the Tinderries, a fairly rugged mountain range south of Canberra, which I had visited a few weeks earlier with the "Wednesday Walkers" — a small group of Canberra SGAP members who go for walks on Wednesdays with the sole purpose of looking at plants. I wanted to show him the amazing variety of plants that we'd found flowering including some daisies —

B. spathulata, *B. scabiosifolia* var. *integrifolia*, *Calotis anthemoides*, *Helichrysum scorpioides*, *Craspedia variabilis*, *Chrysocephalum apiculatum* (several forms), *Chrysocephalum semipapposum*, *Bracteantha viscosa* and *Leptorhynchos squamatus*.

We decided to do the round trip which meant going through Captains Flat onto the Jerangle Road, turning right and going up and over the Tinderries, returning through Michelago. This had the added bonus of taking us past the *Rutidosis leptorhynchoides* site on the Captains Flat Road. As it was a Friday and mid-morning there was very little traffic so we were able to slow right down and had a birds eye view of the site from our (new) four wheel drive. What a picture. The site was a blaze of colour. The golden fluffy flowers of the *R. leptorhynchoides* were everywhere and behind them were a variety of *C apiculatum*, also at the peak of flowering. From our view point the population looked healthy albeit quite small. However, there did

not seem to be any ill effects from the roadworks that had taken place earlier in the year. It is hoped that the *R. leptorhynchoides* Recovery Team will be rewarded with significant seed production at the end of the season.

STRIKING CUTTINGS IN WATER

by Maureen Schaumann

After reading an article in the March issue of the SGAP Vic. Newsletter on 'Striking cuttings in water', I was motivated to write about my experiences with this method of propagation.

Last spring a branch broke off my dark purple *Olearia ramulosa*, so I took cuttings and stood them in water on the kitchen window sill until I had the time to pot them up. They were left much longer than anticipated, maybe 3-4 weeks, so imagine my surprise when removing them from the water to find some had rooted. This was so unexpected I rushed out and took cuttings of every olearia I had in the garden. I had visions of giving everybody olearias at our May week-end. Sad to say this dream didn't eventuate, as not one of this batch of cuttings rooted. *Helichrysum baxteri* treated in the same fashion rooted before Christmas, but not after.

In January, I picked a small posy of *Calocephalus lacteus* for a pretty glass bottle I have on the window sill. Why I stood them in water I will never know; they dry beautifully without it. The bottle was topped up with water many times, but in March I decided to have a change of flowers and emptied out the water. I was astonished to find that 9 out of 44 had produced long, thread-like roots from nodes along the very fine flowering stems.

Species I have tried, other than daisies, which root in water very quickly are *Goodenia ovata*, prostrate form, 2-3 weeks and *Lythrum salicaria*, sometimes in less than a week. All cuttings, except the *C. lacteus*, have been stood in a pottery container blocking out light from the stems. As suggested in Vic. Newsletter, I am now trying further cuttings in clear glass containers. Will let you know my results, if any, in future newsletters.

AN UPDATE ON ROOT APHIDS

by Bruce Wallace

At the moment I have been having a big throw out of root aphid infected pots. Over the past two years this pest has been becoming a bigger problem so I decided to dump all plants with root aphids as I have tried different chemicals to get rid of them. I found that Disyston granules worked best, either dry on the surface or mixed with water and the pot and plant immersed in the dip. Soil drenching with Malthion also had some effect but each time enough root aphids survived to build up again.

All our pots are kept on one bench which has a solid top of cement sheets. This allows easy movement for the root aphids between the pots. Any pot that was left on the ground was soon infected.

The nursery where I work also has a problem with root aphids, mainly in Ivy Geraniums and Zonal Geraniums. These plants are usually kept on benches but these are covered with galvanised mesh and the root aphids don't seem to move from pot to pot, but hanging baskets of Ivy Geranium above the benches have spread this pest — they must drop out onto the plants below.

What I have found during the big throw out is that some brachyscomes are liked by the aphids more than others. *B. stuartii* is No. 1 favourite, with *B. sp.* (Darling Downs) No. 2, *B. tadgellii* No. 3, *B. microcarpa* No. 4, and *B. ascendens* and *B. sieberi* var. *gunnii* the least favoured of the species we grow. The last two were not affected. As I have seeds from most of the species I am throwing out, I feel this may be the best method of control. The annual species were also affected but, as they were annuals, the potting mix had already been dumped.

HELP, PLEASE — In writing up *Rhodanthe manglesii* a reference to the disc centres being yellow or black has been found. None of the Book Committee members have ever seen black centres in *R. manglesii*. If anyone has any information on this observation would they contact Judy, please?

ANTSby **Shirley Dixon**

In my garden ants are a real problem. Other really sharing creatures take any nasty and put them where they can do the most damage — usually to my poor lemon tree and, as I dislike chemicals, I am not keen to spray with this, that and the other that is recommended.

I was given some hints by the gardening guru on the local ABC:

1. Mix borax and white sugar in equal parts. (Ants' mouths are too small for the natural sugar.) Place one teaspoonful near where the ants are. After a week the population in that area has diminished greatly.
2. Desperation measure — find a nest, pour kerosene down the hole and set fire to it. (Poor little ants.)

Many ants like to take small seeds to store for food at a later date, so seeds may be wet with kerosene and planted as usual. This method has been used by the older home vegetable growers very successfully. They make a small drain, sow the seed, dribble the kerosene along the line, and cover. The ants leave the seeds alone. I do not know what other effects ants have on the environment but these measures sure stop them munching the wood.

LETTER FROM ALBANYby **Ruth Moir**

(John and Beth Armstrong met Ruth on their trip to WA in 1994, were impressed, and suggested that AD SG might ask her to help us to trial brachyscomes in Albany. She acceded to our pleas for assistance, and contributed to *Australian Brachyscomes* in the chapter 'Brachyscomes for gardens'. Now she is helping us to trial species for the Everlastings Project Ruth wrote this letter on January 18th, 1997.)

The growing is over for 1996 — some species were late germinating but are doing their utmost to produce a flower or two and some seeds. Our season was on the dry side down on our patch of south coast. It was very late breaking but good, slightly above average, spring rains were a great help. Here are the results:

Rhodanthe chirocephala (Balladonia): A success, particularly mixed with *Schoenia filifolia*. Sown in April in a polystyrene fruit box (12" x 18"), they grew well in a mix of coarse river sand, local potting mix, vermiculite, peat moss, and old crumbly sheep manure. As they were destined for the Show in the third week of September any buds were initially nipped out but, in hindsight, could have been left to flower happily as the flower-heads were long lasting. Buds began appearing in early August. Seed was collected. Some weak mix fertilizer, Thrive or Phostragen, was used in the last few weeks before the Show.

All other seeds were sown in April '96 into 10–20cm plastic pots. From past experience, the results are better in a sunny garden situation but snails and slugs are very keen on the daisy family. The pots were elevated on a wooden plank, making it easier to control the pests.

Bracteantha viscosa: Three plants germinated in July–Aug (sown April). They flowered in Nov/Dec, and seed was collected.

Caioccephalus citreus: Germinated Aug/Sept (sown in April). Eight plants resulted, and are now in bud — 15–21cm high.

Rhodanthe diffusa: No germination.

Brachyscome parvula: Sown April, 2 plants to 15cm. Small, dense growth, and buds +++ now.

Brachyscome stuartii: Grew this in 1995 as well as 1996. It readily seeds into adjoining pots. My '95 ones are in a 25cm self-watering pot, and seem quite happy there.

Brachyscome segmentosa: No germination.

Brachyscome curvicarpa: To 30cm, vigorous growth, yellow flowers I cut it back quite hard in November and it is now in flower again.

Brachyscome melanocarpa: Late germination. Looking vigorous and some buds now appearing. One plant only, to 20cm.

That concludes the seeds planted from the Daisy Group. I had various others, like *Craspedia glauca*, *Rhodanthe humboldtiana*, etc., which all grew, and seed has been collected.

We were fortunate enough to see the spectacle of 'paper' flowers on the fringes of the northern wheatbelt in '96 (Aug/Sept). Good rains had ensured a wonderland of colour around Paynes Find and Mullewa. The *Cephalopterum drummondii* and *Rhodanthe chlorocephala* ssp. *splendida* were a delight, with an understorey of *Velleia rosea* on that red, red earth. *Schoenia cassiniana* was also stunning. I gathered a few specimens so hope that the seed produced will be viable.

Another bonus was a morning spent at Kings Park Annual Wildflower Show. In pursuit of an alternative to the petunia as a border, a mixture of *Schoenia filifolia* ssp. *subulifolia*, *Brachyscome iberidifolia*, and a white *Rhodanthe* were combined as a long border, and it was a stunning mix of colour. The plants were probably pot grown, buried in a bed of sawdust, and finally finished off with a stone border.

MEMBERS' REPORTS

Syd and Sylvia Oats of Beaufort (Vic) report on 10/2/97: 'We have about 80 forestry tubes of *Podolepis nutans* flowering beautifully. We don't have anywhere to put them yet. If they are annuals we will not have to bother. Such a lovely plant!

The two plants of *Helichrysum rutidolepis* / *scorpioides* (Parsons Lookout) we were given when AD SG visited in December have died off completely. We had them in the shadehouse, and a Pebble Bonk frog kept climbing in and out. When he left, he left the roots all uncovered, so I moved them into a sunny shadehouse. One collapsed and died, and the other followed, even though we moved it back. It was a shame because they had grown and looked so well.'

On 25/3/97 Syd and Sylvia sent several packets of seed from their garden and wrote: 'The *Podolepis nutans* flower buds were eaten dreadfully by insects so we cannot guarantee the quality of the seed. We had a few of the plants come up very pale lemon to almost white but they didn't set seed. The *Bracteantha bracteata* seed was from our lych-gate bed that Syd made. The daisies really did well in there, and still look magnificent — apart from *Helichrysum elatum* (only one survived), *Podolepis jaceoides* and *Brachyscome spathulata*, none of which did well, but *Brachyscome melanocarpa* was the best I have grown.'

Pat Shaw of Macgregor (Qld) writes on 5/11/96: 'The Goannas (2) were sent to Toowoomba for the annual Carnival of Flowers, and were on display at Rumours International, amidst a very large display of Floral Art. Hundreds of creamy coloured paper daisies were placed around the base, giving the appearance that they were standing in a field of daisies. They have been residing at the Beenleigh Library since that time.

Rhodanthe stricta has flowered and is now setting seed, *R. corymbiflora* has not yet flowered, nor has *R. chlorocephala* ssp. *splendida*. *R. polygalifolia* has produced one flower which took ages to open up, but it is a very nice-looking plant.

Ros Cornish of Widgiewa Road via Bungendore (NSW) writes on 27/2/97: 'At the next ANPC meeting we're going to focus on *Rutidosis leptorrhynchoides* because there is a Recovery Plan in place in this area. We've got a speaker from NSW National Parks and Wildlife (which has responsibility for the Recovery Plan) to talk about the Plan and its implementation, then someone from the Queanbeyan City Council to talk about its involvement, problems, etc. Finally, Andrew Young from CSIRO is going to talk about the genetic diversity studies that he's been doing on the various populations. Then we'll have a site visit to the Queanbeyan Nature Reserve.

Yesterday a few Wednesday Walkers drove to the Tallaganda State Forest — not far from Captains Flat — to do some cool forest walks. We found lots of *Helichrysum rutidolepis* in flower, and also a pretty little *Brachyscome* which appears to sucker, has quite fleshy leaves and very small, dainty white or mauve flowers.

I'm enclosing a pressed sample of a daisy which I have grown from seed. We found the parent on the Hoskinstown—Captains Flat Road last year. There seemed to be only one plant flowering on the roadside in a very dry, inhospitable spot. We went back several weeks later and managed to get a few seeds. They germinated well, and I now have several plants in the garden. Unfortunately the wallaby has pruned those in

the front garden drastically but the small garden at the back of the house seems to be wallaby free. (We have a small electric fence around it and I think it's so close to the house that the wallaby is kept at bay.) The plant there is flowering beautifully and I'll be able to get more seed. I think it's *B. dentata*. (Yes it is, Judy.)

Last week's Wednesday Walkers trip was to the Molonglo Gorge just outside Queanbeyan. There were amazing numbers of the green, fine-leaf form of *Chrysocephalum semipapposum*. I sent Bev a sample of the same one off our block and she was quite taken with it. The plants were very large and obviously quite old — there were so many. At one point the whole hillside was covered in them — most spectacular. We also saw lots of *Rhodanthe anthemoides* on a quite steep and shady hillside. They had well and truly finished flowering but there were a few seeds left so I'll see what I can do with them. The foliage was dainty and a lovely grey-green; the flowers seemed quite large (white) and would have looked good at their peak. I will have to return in spring to see them flowering.'

Gloria Thomlinson of Shepparton (Vic) writes on 25/3/97: 'A swap plant, Julie's I think, *Olearia elliptica*, is now a slender 1.7m, and in full flower this week. Its elliptical, dark green leaves amongst the *Prostanthera* on the north fence looked fresh, even on the hottest days. The flowering has transformed the area — very pretty. I pruned some heads that hung heavily over the pathway to see how long it lasts in a vase. If this plant doesn't succumb to root aphids (like others of the genus here) it would make a good 'filler' along the fence and at the end of the screened area.'

Barrie Hadlow of Theodore (ACT) writes on 8/5/97: 'I have recently begun the seed sowing suggested by Natalie Peate to obtain horticultural information about a range of species for the Everlastings Project. Natalie provided seed from certain species for Ros Cornish and myself, many of these species I had never heard of before, including genera new to me. I was pleased to see on page 4 of the March '97 Newsletter a page devoted to this project, giving me an idea of its size and scope.'

My contribution is a modest one at this stage, having sown seed of 3 species of *Hyalosperma* and 2 of *Lawrencella*. With no sophisticated propagation environment, and with the autumn night temperatures in the A.C.T. declining to single figures, I have had success only with two of them. *H. cotula* from the Darling Scarp in W.A. provided 12 seedlings from 50 seeds sown 16 days previously, and *H. glutinosum* ssp. *glutinosum* only yielded 1 seedling from the same number of seeds in the same length of time.

I shall repeat this sowing in spring with another propagation batch of the same species, and with a duplicate seed batch which I will have cool moist stratified at c. 4°C for 4 weeks prior to sowing.'

Beth McRobert of Jamboree Heights (Qld) writes on 8/5/97: 'The dear little *Rhodanthe manglesii* proved to be the most reliable (of the Project species) for propagation. They came up each time they were planted, but the ones planted in late spring did not survive our dreadful heatwave in November. I was very disappointed with *R. humboldtiana*. The first time I tried them, a few years ago, they were planted directly into the garden, and I had a wonderful display. The second time not so successful, and this time only one plant survived to flower, but did not set seed. Of the few plants which came up in the October sowing, one survived until after Christmas, but gave up then. I had no luck at all with *R. corymbiflora*, even though I tried smoking (my version of smoked water), and heavy soil (the only place I have seen them in the wild is on heavy black soil in central-western Queensland).'

From my experience, I think that, in Brisbane, autumn/early winter plantings are the best for the two *Rhodanthe*, and the *Schoenia cassiniana*. I had some seedlings of *Rhodanthe manglesii* for our recent Plant Sale, so I hope the purchasers enjoy the dear little things as much as I do. Also, I had pots of *R. chlorocephala* ssp. *roseum* and *Brachyscome iberidifolia* for sale, so maybe a few more Brisbane homes will have native daisies in their spring flower display this year.'

Lotte von Richter of Cambridge Park (NSW) writes of her trip to Western Australia on 23/5/97: 'We stopped at a property just north of Esperance starting in wildflower growing and had a look at the local flora. Then we drove north through Norseman and into Kambalda. We looked for daisies but all that was here was *Waitzia* in abundance. It was too early for seed, and many flowering heads were being devoured by grubs. Around Kalgoorlie we looked at the tourist mine and the Superpit before turning towards Perth through Southern Cross. Here we went to Bullfinch looking for a red flowering daisy but came across *Leucochrysum fitzgibbonii* with a very small amount of seed. This has been sown and has germinated. I was so pleased to finally see this species in the wild as I only ever had four plants for my research work. After this we took all the back roads and tried to go north as I wanted to see the Paynes Find area, even though I knew it would

no longer be colourful. After that it was back to Perth and home again. When I have lots of money I will go back just to see the daisies in full bloom.'

Marcel Terry, a new member from Smiths Lake (NSW) writes on 2/6/97: 'I am an external/part-time (post-graduate) student and am in the process of developing my proposal for the course. My basic interest is in the correlation, if any, between the development of the immature stages of Diptera (flies) within the flower heads of Asteraceae spp. on the one hand, and the morphology/anatomy and other aspects of the flower head on the other. I note that the species included in the Group's project include *Chrysocephalum apiculatum*, and you may be interested to know that in a the course of a previous study I found a number of larvae and pupae of a fly (Diptera: Cecidomyiidae) within the flower head of this plant, in the vicinity of Tenterfield. These insect stages were not readily visible from the outside.'

SNIPPETS

- Gloria Thomlinson's garden was written up in *Your Home*, a supplement to the *Shepparton News*, after our visit in November — on Australia Day to be precise. The emphasis was on the natural bush appearance of this peaceful garden, and the water-saving elements that Gloria has designed. The author, Ro Marriott, was moved later to write a poem about the garden because she said that her visit had been a 'haunting experience'.
- Shirley Dixon (who lives at Tura Beach, NSW) has offered to hold a weekend meeting or a look around the National Parks in her area some time in the future. She says the area between Green Cape and Bittangabee Bay at the right time of year rivals the West in its display of colour though there is not as much variety. She would be pleased if members contacted her whenever they are in her area.
- The Australian Flora Foundation has published preliminary research reports on projects funded by the Foundation in 1996. Of special interest to AD SG is a report on a project titled 'Improvement of seed yield for commercial production of the Australian daisies, *Rhodanthe chlorocephala* and *Schoenia filifolia*'. The research is being carried out by Darunee Choengsaat, J. A. Plummer and D.W. Turner. Results are indicating that seed yield is reduced by water deficit which limits a plant's ability to branch and therefore the number of flower-heads it produces. Seed dormancy affects commercial seed companies because seed must be stored until the dormant period is over, and this adds to costs. It has been found that different temperatures of storage can affect the period of dormancy. For instance, seed stored at 25, 30 or 40°C had 88, 90 and 88% germination respectively after three months storage, but seed stored at 65°C had 80% germination after two months storage. In the latter case, however, germination fell to 60% due to reduced viability. Extreme temperatures of 80–95°C overcame dormancy, and the most efficient time/temp. was found to be 11 days at 80°C. These results could have a big bearing on our Everlastings Project. It will be interesting to follow this research further.
- Gloria Thomlinson has been asked to provide illustrations for the final volume of *The Flora of Victoria*, as well as certain illustrations of *Brachyscome* spp. which appeared in *Australian Brachyscomes*. We are exceedingly proud of Gloria, and very grateful that she is a member of AD SG.
- The Wildflower Society of WA (Inc.) is holding their **SPRING FLING** at Perry House, 71 Oceanic Drive, Floreat Park on **SUNDAY, 14 SEPTEMBER, 1997**, from 9.30 am to 4.00 pm.
- *Olearia lepidophylla* has been identified for the first time in Victoria at Buckley Park in the Foreshore Reserve at Point Lonsdale. Previously it had been recorded only at King Island and in Tasmania. It is now thought to be a remnant in Buckley Park from the time when the land masses were joined together. It occurs as a small stand of bushes, and was identified for the Buckley Park staff by Neville Walsh.
- Jeff Irons reports that some seeds which do not respond to GA₃ will germinate when sown in leaf mould, which contains a number of gibberellins. He also observes that his one seedling of *Olearia pinifolia* from his 1966 collection has flat seed leaves, successive leaves becoming more revolute.

AUGUST GENERAL MEETING

On Tuesday, August 5th, representatives of Koala Blooms (including Rodger Elliot) will talk to members about the way their business is run and the sort of plants they seek for trialling. The meeting will be held at 9 Widford St, East Hawthorn. It starts at 10.00 am with morning tea.

MAY MEETING REPORT

On Saturday May 3rd thirteen members assembled at East Hawthorn at 2.00 pm — in some cases it was well before that hour. We started proceedings with cups of tea or coffee, and plant sharing. This segment of the meeting has enlarged to the point where it threatens to become the main business of the afternoon. The members are a most generous lot, and are becoming ever more so.

In Show and Tell, **Julie Strudwick** displayed six interesting and attractive *Brachyscome* hybrids. **Jenny Rejske** showed us photographs of swathes of *Rhodanthe anthemoides* in the area between Mt Speculation and Mt Cobbler, a 'complete meadow' such as she had never seen before. **Max McDowall** showed us an olearia from the Grampians which he had found along a track near Mt William. It was 1m high, pretty and growing in a sheltered spot. In the area of Ben Boyd N.P. he and Regina had seen a cassinia-like plant with rusty-orange buds. Esma suggested that it might have been *Ozothamnus conditum*. Max also told us of successful vegetative propagation methods he was using. He will report on them in the next newsletter. **Maureen Schaumann** showed us a form of *Chrysocephalum apiculatum* collected by Colin Jones from north of Marsden. Maureen observed that it made a nice mound and was a good form. She had brought *Ammobium alatum* 'Bikini' and reported that it had quite large heads but was shorter and more useful in gardens than the usual form. **Bev Courtney** displayed a pot of *Chrysocephalum semicalvum* ssp. *semicalvum* from the Flinders Ranges which Esma had collected. It was an attractive plant with unusually narrow foliage, but it was malodorous and had to be removed from the room. **Esma** brought *Cassinia laevis* from her garden. It also was heavily perfumed and had to go out. Esma drew attention to the possibility of seed pretreatment with GA₃ causing an internodal lengthening of the resulting seedlings. **Gloria** asked what was causing the top leaves of *Rhodanthe spicata* to become deformed. We thought it was due to aphids.

In the next segment Bev Courtney spoke about *Schoenia macivorii*, a species new to us and which we are studying in the Everlastings Project. Pressed specimens, coloured photocopies and photographs were handed around among members, and all were impressed with this large-flowered yellow annual which almost seemed to have enamelled bracts. Natalie and Joy had collected seed in two locations near Mt Augustus.

Bev explained that she believed in Mother Nature — a policy of sow and wait. Accordingly, she sowed seed from both collections in early and late November in mini-glasshouses (described in NL45, p.34), sprayed lightly with water and covered with a little sand. She put the lid on and left it through the summer. On 22/1 it rained all day, so she removed the lid and left the seeds in the rain. In a couple of days the waitzias she had sown at the same time began to germinate. Thinking that the *Schoenia macivorii* might also come up Bev began to give the seeds a 15' spray every day. Nothing appeared. Bev repeated the sowing with both collections on 26/1 and watered, but nothing came up (until about mid-April). She had not given the seeds any pretreatments. At the March Book Meeting Bev learned that WK + GA₃ and GA₃ alone pretreatments had been used by Julie first and then by Judy to germinate this species. This news weakened her belief in Mother Nature to the extent that she went home and sowed seed in SISP, SAISP, water and GA₃. (See NL 47, p. 7–8.) In SISP in 3 days she had 9 seedlings up from one collection and 13 from the other. In SAISP one seedling germinated from one collection on 2/5 — 39 days. In water no result. In GA₃ in 5 days she had 9 seedlings from one collection and 24 from the other. Her faith in MN was restored when she found that seedlings were beginning to germinate naturally in the original sowings in November and in the repeat sowings in January.

Natalie Peate described *Haptotrichion colwillii* and *H. conicum* and also illustrated her talk with dried specimens, colour photocopies and photographs. As very little seed of either species had been collected, not many sowings had been made. *H. conicum* had been sown in January without germinating but had begun to germinate when removed to the area down by the incinerator. This species does not seem to need a pretreatment.

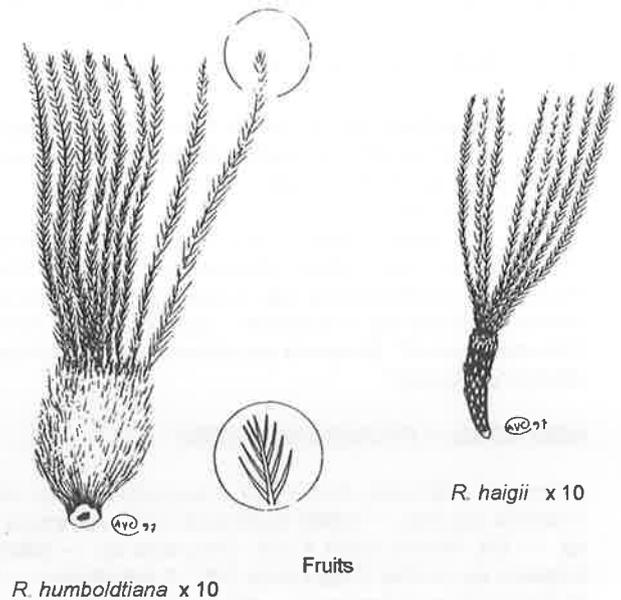
Judy spoke about *Rhodanthe cremea* and how it may be distinguished from the superficially similar *R. chlorocephala*. This species is described on p. 21.

Two hairy-leaved species of *Rhodanthe*, *R. haigii* and *R. humboldtiana*, have clusters of small yellow everlastings. These two species were inspected and the distinguishing features were indicated. *Rhodanthe haigii* has been confused with *R. humboldtiana* in the past. Plants are usually shorter, and the clusters are smaller. Under magnification the distinguishing feature is that the fruits are obovoid and brown, bear short hairs, and are smaller (to 1.5mm). The blades of the inner involucral bracts are shorter. The heads are also cylindrical but are usually smaller (4mm long). *R. haigii* occurs in South Australia and Western Australia but

R. humboldtiana occurs only in Western Australia. Descriptions of *Helypterum humboldtianum* therefore apply to *Rhodanthe haigii* in *Flora of South Australia* (1965) edn. 2, and in *Flora of South Australia* (1986) edn. 4 edited by J. P. Jessop and H. R. Toelken.

At this stage several spouses joined us for pre-dinner drinks and nibbles, followed by a delicious dinner provided by Melbourne members.

After dinner we adjourned to listen to Michael Cole (Sales Manager of Plant Growers Australia) who delivered a most interesting talk on the setting-up of a home page on the Internet. Michael had brought all the apparatus he needed to demonstrate the PGA home page and how it could be varied. He gave us many handy hints and answered numerous questions. Michael then showed a number of slides illustrating the best methods of setting up plants for photography, ideas for backgrounds, etc. This was an excellent talk and we were most grateful that Michael gave up his evening for us.



The dinner was made more enjoyable due to the hard work of daughter, Elizabeth, and family friend, Sandy Bennett, who presented the meal and later cleared the mess. Our gratitude to them and to the members who provided the food.

LETTER FROM THE LEADER

Dear Members,

For many years Camberwell Grammar School has printed our newsletter without charge as a social service, sponsored by Neal Greig, senior chemistry master and husband of our member Joy. Neal has retired, and in future we will therefore be having the newsletter printed commercially at our cost. This is the major reason for the increase in membership fee beginning from July 1998.

We would like to thank Neal, Camberwell Grammar and the staff of the printing department for the invaluable contribution which they have made to our Group over this very long period. We all wish Neal and Joy a long and happy retirement during which we look forward to a continuation of the great effort they have made in the past.

Sincerely,

NEW MEMBERS

A warm welcome to the following new members:

Barrie Hadlow, 35 Callister Cres., Theodore, A.C.T., 2905.

Marcel Terry, 2 Orange Grove, Smiths Lake, NSW, 2428.

David Penn, 15 Second Ave, Epping, NSW, 2121.

We thought we'd lost Beth McRobert of 5 Pintle Close, Jamboree Heights, Qld, 4074, but we are very pleased to announce that she was only temporarily mislaid.

SEED DONORS

Judy Barker, David Batty (Technical Manager of Thompson and Morgan), Ros Cornish, John Emms (Leader of SGAP South Gippsland), Joy Greig, Christina Leiblich, Syd and Sylvia Oats, Natalie Peate, Alf and Esma Salkin, Doll Stanley, Julie Strudwick, Luke Sweedman (Seed Collector for Kings Park and Botanic Garden), Gloria Thomlinson, Bruce and Thelma Wallace.

ADSG is exceedingly grateful to those donors who have provided seed of species we lacked for the Everlastings Project. Special thanks to Luke, who provided three species from the 'wanted' list in NL 47. We are also grateful for seed donations of other species. In general, the demand for seed is growing steadily, and it is pleasing to be able supply it from the wide range held in our seed bank.

SEED LIST

* indicates seed reserved for the Everlastings Project

ADDITIONS — GARDEN and COMMERCIAL SEED

Ammobium alatum 'Bikini' (seeds from garden plants)
Brachyscome sp. aff. *curvicarpa*, *dentata*, sp. aff. *gracilis*, *melanocarpa*, *tadgellii*
Bracteantha bracteata (mixed garden)
Craspedia variabilis
Leptorhynchos tenuifolius, *Leucochrysum albicans* ssp. *albicans* var. *albicans*
Podolepis neglecta, *nutans*. *Pycnosorus globosus*, *thompsonianus*
Rhodanthe chlorocephala ssp. *rosea* (Balladonia form)* form known commercially as *roseum grandiflorum* Double Red*,
*collina**, *diffusa* ssp. *leucactina**, *manglesii* (white form)*, *spicata**
*Schoenia ayersii**, *Schoenia cassiniana* 'Tanner's Pride'*.
*Waitzia podolepis**

ADDITIONS — PROVENANCE SEED

Actinobole uliginosa. *Ammobium craspedioides* (per ANBG).
Cassinia adunca — NSW; Burrinjuck 5/97, *compacta* — NSW; Burrinjuck 5/97, *quinquefaria* — NSW; Burrinjuck 5/97),
 sp. — SA; Mosely Nobs 11/95. *Craspedia* sp. — NSW; alpine, 2/96.
Erigeron sp. — Vic; Falls Creek 1/97, ? *bellidioides* — Falls Creek 1/97.
Helichrysum leucopsideum — SA; Kimba 12/96. *Ixiolaena* sp. — NSW; Gilgandra 8/96.
Leptorhynchos squamatus — Vic; Bundarra River 1/97. *Myriocephalus guerinae* — WA; 10/96.
Olearia pannosa — SA; Yorke Peninsula 1996, *phlogopappa* var. *flavescens* — NSW; Snowy Mountains 2/97,
 var. *subrepanda* — Vic; Falls Creek 1/97.
Ozothamnus hookeri — Vic; Mt St Gwynir 3/96, *obcordatus* ssp. *major* — NSW; Mt Kaputar,
retusus — SA; Wudinna 1996, *secundiflorus* — NSW; Snowy Mountains 2/97,
thyrsoideus — NSW; Snowy Mountains 2/97, Vic; Dargo N.P. 3/96.
Podolepis kendallii — WA; 10/96, *monticola* — 2 populations (per ANBG).
Polycalymma stuartii — NT; Alice Springs 9/96. *Pycnosorus thompsonianus* — NSW; Narrabri 10/92.
Vittadinia decora — Qld; 3/96.

DELETIONS

Bracteantha bracteata — Qld; Bundaberg, NSW; Boonoo Boonoo, Tas; Trial Bay 2/95, *papillosa* — Tas; Bruny Is.
viscosa — Vic; 1/92. *Craspedia aurantia* — Vic; Dargo High Plains 3/96.
Minuria integerrima, *leptophylla*.

***Brachyscome* species — ADDITIONS**

Brachyscome decipiens — Vic; Falls Creek 1/97, *melanocarpa* (white form) — NSW; Boggabilla Town Common,
nodosa — Qld; Quilpie 8/95, *radicans* — NSW; Bundarra River 1/97, *scapigera* — NSW; Snowy Mts (2 sites) 2/97,
spathulata — NSW; (2 sites), large form 2/97, Vic; Dargo H.P. 3/96, *tadgellii* — NSW; Snowy Mts 2/97,
tatei — SA; 10/91, 10/92.

— DELETIONS

Brachyscome xanthocarpa — SA; Streaky Bay 10/95.

SUBSCRIPTIONS

Subscriptions are \$7.00 per year for Australian members and \$14.00 per year for overseas members. These fees will be held at this level for the financial year 1st July 1997–30th June 1998. From the 1st July 1998 these fees will increase to \$10.00 and \$20.00 respectively. This increase is necessary in order to meet the increasing costs of servicing our members (see Leader's letter).

FEES ARE DUE ON 30th JUNE 1997. For the many members who have not yet paid their 97/98 subscriptions, a red cross in the box is the second and final reminder. Cheques should be made payable to the Australian Daisy Study Group and forwarded to Judy Barker or Bev Courtney (addresses on p. 19).



NEWSLETTER DEADLINE FOR NL 49 IS SEPTEMBER 25th. Thank you to the many members and others who contribute to the Study Group's newsletter. It is always great fun to type your articles into the computer. I have made many good friends through your correspondence, and am always learning new things about daisies and people. Our thanks to the illustrators, Ailsa Hamilton and Gloria Thomlinson. We know how lucky we are to have you both.