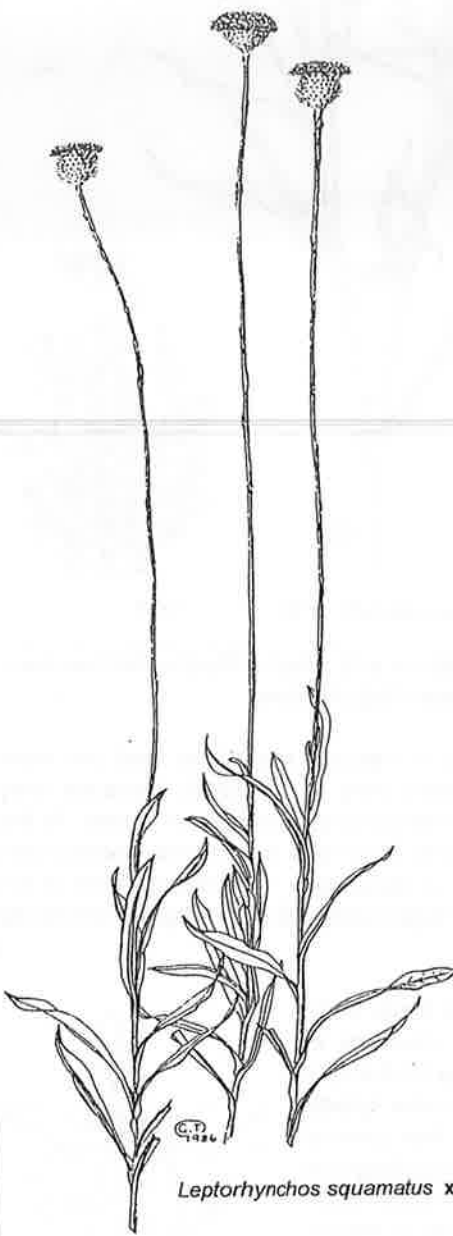


ASSOCIATION OF SOCIETIES FOR GROWING AUSTRALIAN PLANTS**THE AUSTRALIAN DAISY STUDY GROUP NEWSLETTER NO. 49**

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SPECIES OR FORMS NEW TO MEMBERS

Rhodanthe polyphylla (F. Muell.) Paul G. Wilson
(syn. *Helipterum polyphyllum* F. Muell.)

polyphylla — many leaves

(Qld, NSW)

Seed was collected from central Queensland in the '96 season, and sent to us by Pat Shaw. We were delighted to receive it as it was one of the species we needed to study for the Everlastings Project. Apart from descriptions in the *Flora of Southern Queensland* and the *Flora of New South Wales*, all we knew of it was that it was regarded as a weedy plant where it grew naturally. I understand that view to some extent but, after a close association with it for almost a year, I feel it has several redeeming features.

Two seedlots of thirty seeds stored at room temperature were sown in mid-February this year. In one test the seed was sown and the container was soaked for 24 hrs in an ice-cream container of water, which yielded a germination of 25 seedlings in 8–46 days; in the other test the seeds were soaked in SISP (Smoke-impregnated Seed Primer) solution for 24 hrs and then sown, which yielded 27 seedlings in 5–34 days. Although the SISP pretreatment speeded germination it is obvious that it was not necessary for this species under these conditions. The cotyledons were narrow, oblanceolate and bright green. We are observing the cotyledon shape in the hope that this character might remain constant for the species within the eleven sections into which *Rhodanthe* has been divided. *R. polyphylla* is the only species in one of these sections, section *Polyphyllum*.



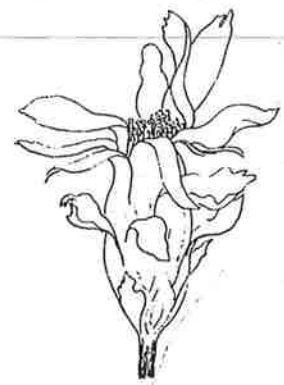
Rhodanthe polyphylla x 1/2

habit

In mid-Autumn some of the seedlings were planted into the garden in various situations, and six were placed in a very large pot with my best wishes. The latter performed best — probably because they occupied an open position, raised and able to receive all the sun that Melbourne provides in winter. At the beginning of spring some of these plants in the pot had curled tip growth but it was much less marked than that of the garden plants which mostly grew under the light protection of eucalypts. This deformation of the tip growth is probably due to aphid infestation and plants should have been sprayed with a pyrethrum spray as soon as it was noticed.

The plants in the pot are now 45–70 x 40–50cm on 10/10/97, and have been flowering since mid-July. The small **heads** are produced in terminal clusters, in corymbs, to be precise. They look wispy, a little untidy, probably due to the fact that there are at least 4 rows of bracts to the cylindrical heads. The outer bracts are appressed and slightly hairy. Each bract in the second row from the base of the head has a short white radiating blade, and the bracts in each succeeding row have slightly larger blades, the uppermost white blade being 4mm long. Each head is 4–5mm long and 3mm across, held on short peduncles 5–20mm in length. Stems are covered with woolly hairs. **Leaves** are 1.5–8cm x 1–4mm, very numerous, sessile, grey-green, sparsely hairy above, more so beneath. They are linear or very narrowly lanceolate, the margins slightly revolute and the tips brown and acute. Leaves are produced in small clusters on short branches. The plants appear to grow on one main stem which branches from the base and up the stem.

Fruits are black with silky hairs over the body, 2–3 x 0.8–1mm. The pappus is composed of c. 24 white bristles, evenly plumose, attached in a short ring at the base. It is easily lost from the body, and remains in one piece.





fruit x 20

A few short flowering stems were picked on 28/8 to determine vase life. Fresh water was added whenever necessary. The bunch was still fresh on 28/9 when I left for the ASGAP Conference but it had run out of water by the time I returned home. I have picked more and am testing vase life again. On 17/9 a bunch of stems were allowed 12 hrs in water and then air-dried. After six weeks of drying they are looking very fresh and pleasing. What they do when they are inverted will be tested later.

Two of the redeeming features of this species are its long flowering period and long vase life. We may be able to add the additional advantage that the flowers dry well. Peg McAllister suggested it could perhaps be the native equivalent of gypsophila when she first saw it, and she may well have been right in this assessment. One disadvantage is that the foliage smells slightly unpleasant, almost musty. *R. polyphylla* is described as a 'herb'; it will be interesting to see whether it lives longer than a year. I will gather seed from these plants and grow it again next year in order to learn more about it.

by Judy Barker

SMALL PLANT GARDENING

by Peg McAllister

Early this year while finding a place for a new small plant I unearthed three egg-shaped tubers 2–3cm long. This was where a yam daisy (*Microseris lanceolata*) had been coming up for about three years. Leaving one there I tucked two into the soil under the arching branches of a thryptomene, knowing they would be undisturbed if they took a while to establish. Now it is a pleasant surprise to find that I have three plants of equal size, all in bud and ready to flower together. It would be interesting to know when I could excavate in the future to take advantage of such an easy way to spread these obliging little daisies around.

Finding it difficult to keep *Podolepis jaceoides* looking good after some years, I decided to clear out all old leaves and stems, and cut well into the woody base that had developed. This has resulted in a fresh clump of about six tufts of leaves close to the soil, leaving me to hope that later stems with flowers won't fall over as my unpruned ones tend to do. The best Victorian stands of this plant I have seen were a year after fire cleared the One Eye Forest near Heathcote. They and *Goodenia blackiana* looked young and fresh after the cleaning.

This treatment looks to have worked well with *Brunonia australis*. I find them very prone to the fall over syndrome. The old stumps give rise to the new growth that looks so dead and can be up in the air. So I reduced one plant after last flowering. In fact I really thought I'd gone too far, leaving nothing above ground. I'm pleased to say there is now a cluster of rosettes with a nice 'coming up from underground' look, so here's hoping it helps to keep the stems erect at flowering. In my previous bush garden at Lilydale the naturally occurring *Brunonia* grew from shoots on long elbows of last year's old stems but these were held up by tussock and kangaroo grass. Back in steam train days there were wonderful stands of pincushions along the railway sides near Castlemaine and Gisborne where the harsher conditions kept them on shorter, stronger stems.

About six weeks ago I cut two late flowers, not well formed enough to dry, from *Pycnosorus globosus* right down to ground level. I put the lower 6cm into tubes of soil to find after two or three weeks that there were shoots forming on the stems. I have just now carefully investigated to find the cut ends callused with roots, and more shoots forming under the soil.

Thank you Daisy Group for the original seeds, here's hoping this is of interest.

REPORT FROM HELIDON (25. 6. 97)

by Esther Cook

I was very interested in the March article on breaking sticky seed dormancy as that was one of the first problems we faced in our *Ozothamnus diosmifolius* breeding program. The sticky mucilage coating on riceflower parts, particularly the stems and leaves, is quite obvious under the microscope as tiny beads of 'gum'. The mucilage on the seed would be a good protection against germinating after light showers in the wild. As well, the seed is often mixed up with a lot of trash from the bracts and capitula stems, and may have to develop a comparatively long root to wend its way to the soil before it can get established. What a wasted effort if the ground had already dried out before the first root even reached it!

I discovered that one way to remove the mucilage is to soak the seeds in warm soapy water for up to 24 hours, giving the container a shake or stirring the mixture every time I walk past it. I then plant the seedlings

on top of gravel and water them in fairly vigorously. As soon as seedlings appear I prick them on into jiffy pots so that I can keep using a heavier spray on the remaining seeds than I could use on seedlings. This way the seeds get plenty of water, plenty of air, and any remaining mucilage should be washed off.

Though the weather is very dry again and the temperature gradient over the Pacific Ocean suggests there will not be much rain before summer, the floods last year at least partly replenished the aquifers so we can irrigate regularly again. Our commercial plantings of riceflower, about 15,000 plants, are looking very good. Harvest will be particularly interesting this year as some of our new cultivars, bred specifically for the cut-flower market, will face their first major harvest. They are outcrosses from some of our best original cultivars, selected on about a dozen criteria, especially for their time of flowering, flower quality, vigorous regrowth after cutting, and clonal propagation rate.

One of the main aims of our breeding program is to extend the harvest period. If all goes well we should be able to harvest each week from the beginning of September to mid-November, with a different set of cultivars for each week. It is too risky to rely on a single 'super cultivar' for any time slot as different seasonal conditions affect different ecotypes in different ways. For example, one cultivar which performed as an excellent cut flower during the long years of drought flowers very unevenly in better times, getting a new flush of flowers every time it rains or the plants are irrigated. Of our 3000 seedlings 93% so far are rejects, almost all because they flower unevenly or the colour is not a pure snow-white or clear pink. We find this high reject rate surprising, as most of the seedlings are outcrosses from good established commercial lines. Perhaps we are just getting fussier!

Our *Ozothamnus diosmifolius* x *Cassinia laevis* hybrids are still doing well. The local *Cassinia laevis* may be resistant to root-knot nematodes since they grow wild in the same patches of soil where we lost all our riceflower to nematodes. Any resistance would be very important as nematodes kill 100% of the riceflower types we grow. A simple experiment was set up to test the best hybrid for resistance. We planted a hybrid and a tomato plant in a drum of soil taken from the nematode block. We watered the drum from the bottom to avoid compacting the soil, and settled back to wait for the tomato plant to die from nematodes. The idea was to look at the roots of the hybrid when the tomato died, and to see if there was any sign of root knots. Instead of dying, the tomato has flourished, producing dozens of large tasty tomatoes, without the use of any fertiliser or pesticide. The hybrid has also grown well. We will have to repeat the experiment being a bit more scientific, with controls, specified nematode counts, and separate pots for tomatoes and hybrids.

THE THRILLING LIFE OF A DAISYMAN

by Jeff Irons

It is dangerous to categorize gardeners but I like to think that they can be divided into those who are content to do the same thing year after year, and those curious beings who want to extend their knowledge and experience into new areas. DSG members obviously fall into the latter category. This short note will tell you about some recent discoveries of mine.

When grown in Britain Australian plants are often different from their native counterparts. Usually it is simply that they are taller or shorter than they would be in Australia. Sometimes we see other characteristics. One which really surprised me has resulted from a 1996 sowing of Tas. SGAP seed of *Ozothamnus rodwayi*. The seedlings had leaves covered with grey hairs, and I decided they must be those of *O. rodwayi* var. *kingii*. About ten years ago I grew the green leaved form, and these plants had leaves of a similar size and shape to those I remember. The plants were put out in the garden when a year old. A few weeks later I was surprised to find that the new leaves were smaller, a different shape, revolute with yellow undersides and yellow internodes. Six months further on I believe that I have a collection of young plants of *O. ledifolius*. I've apparently discovered a juvenile form of the species. That isn't surprising because botanists rarely get the opportunity of seeing all forms of a plant. There could be another good consequence too. I believe that *O. ledifolius* is self incompatible, so that a single specimen will never set seed. With a group of them I should be able to collect seed.

Another of my 1996 germinations was *Olearia pinifolia*. Only one seedling came up, and it had broad leaves, not at all like those I had seen on plants in the wild. As is my habit I kept the seedling. After 18 months it is still only 9cm high, with leaves about 15mm x 9mm. They are curled under slightly at the margins. Have I got a juvenile form, or is it a different species? Only time will tell.

I was excited when a respected member of TSGAP told me that the roadside plant which had attracted my attention was *Ozothamnus obcordatus*. Even more exciting, it had seed on it, and was not in a National Park. Now I have 4 seedlings, all planted out in the garden. They all have leaves about four times the size

of those on the parent plant and there is no way in which I could describe the undersurfaces as tomentose. Am I seeing a juvenile form, or is this another case of British soil and weather changing the shape of plants? Again I shall have to wait, possibly for some years.

When on Mount Wilson in the Blue Mountains I collected a packet of seed but didn't think to write the exact location on it. Now I can't remember whether it was collected at De Faur's Rocks or Wynn's Lookout. In a way that doesn't matter because both were sandstone, not basalt. The seedlings produced spreading shrubs, two of which are now (late September 1997) trying to open what will be clusters of small yellow heads. Except for the spreading shape of the plants they seem to fit the description of *Ozothamnus obcordatus* in both the *Flora of New South Wales* and the *Flora of Tasmania*. If they do key out to *O. obcordatus* I have another divertissement! Why did the NSW plants not produce initial large leaves? Why did they flower in their second year? The two collections are growing only a couple of feet apart. What are the Blue Mountains? Are they Central Coast or Central Tablelands? The *Flora of New South Wales* does not give either as a location for *O. obcordatus*.

While in New South Wales I saw a small herb, perhaps 7–10cm high in seed. I took it to be *Leptorhynchos squamatus*. Back home its offspring grew and grew. I ended up with plants 80cm and more high, flopping forwards towards the sun. Even my 6 : 1 grit : soil raised bed was richer and wetter than Blue Mountains sandstone! The flowers didn't seem right for *Leptorhynchos* though. My font of knowledge at DSG identified the plants as *Chrysocephalum semicalvum* ssp. *semicalvum*, a species not recorded from the area.

Dropping down from the crest of the Great Divide in NSW I found (yet another) small plant, this time with small burrs. Could it be an *Acaena*? There were no leaves to help with the identification. Surprisingly the seeds produced plants with lavender coloured daisy flowers. Using Curtis I keyed them out as *Brachyscome*. Oh dear, something was wrong! Once again the DSG came to the rescue and identified my plants as *Calotis cuneifolia* — a genus which is absent from Tasmania, and so not mentioned in Curtis. Our British conditions made the plants much larger than their native forbears, and they provided a mass of colour throughout the summer. I wonder whether they will survive the coming winter.

Discoveries like these make the life of a Daisyman exciting. Long may it continue to be so.

POSSIBLE REASONS FOR THE BEMUSEMENT OF A DAISYMAN

by Judy Barker

The eastern end of the Blue Mountains is classified as Central Coast and the western end is in the Central Tablelands. Mt Wilson is in the Central Tablelands. If we are correct in identifying Jeff's shrub from that area as *O. obcordatus*, the reason its growing habit differs from that of the Tasmanian form may simply be the variation encountered in so many species from different origins. All the descriptions of *O. obcordatus* that I can find, however, state that the undersurface of the leaf is tomentose, including the subspecies from Tasmania. It is possible that Jeff's Tasmanian plants are another species of *Ozothamnus*.

Helichrysum obcordatum was described by Burbidge, N. T. (1958) in 'A monographic study of *Helichrysum* subgenus *Ozothamnus* (Compositae) and of two related genera formerly included therein.' *Aust. J. Bot.*, 6 (3): 229–285. She described two subspecies, subsp. *obcordatum* and subsp. *major*, and she observed of subsp. *obcordatum* that 'This small-leaved variety is common on the hills near Hobart in Tasmania and extends from there through Victoria to the western slopes in New South Wales.' In the description of subsp. *major* Burbidge stated that 'The distribution is from the Grampians in Victoria to the Nandewar Range and to Wallangarra in north-eastern New South Wales. It seems to be generally associated with a higher altitude than is subsp. *obcordatum* on the mainland.'

As is the case with many Asteraceae seedlings, the juvenile leaves of *Ozothamnus* spp. are often larger than those of adult plants. I don't know why the Blue Mountains form would be different. Can anyone enlighten Jeff? In my experience these species usually flower in their second year — if they are still alive!

Physical Properties of Water and their Role in Germination

by Joy Greig

All aspects of cell structure and function are adapted to the physical and chemical properties of water, but this discussion will be limited to the effects of surface tension and osmosis in horticultural germination.

Liquid water shows a strong intermolecular attraction. That is, there are strong forces of attraction between adjacent water molecules which give liquid water significant inter-particle cohesion.

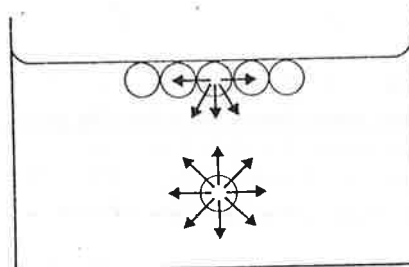
Each water molecule consists of an oxygen atom flanked by two hydrogen atoms and each hydrogen atom shares a pair of electrons with the oxygen atom. The geometry of the shared electron pairs causes the

molecule to be V-shaped. Because of a strong electron-withdrawing tendency of the oxygen atom, there is a partial negative charge on the oxygen atom and partial positive charges on each hydrogen atom, even though the water molecule itself is electrically neutral.

Because of this separation of charges, electrostatic forces can attract two water molecules to each other. This type of electrostatic attraction is called hydrogen bonding and it is one of the forces responsible for phenomena such as the surface tension of water.

Intermolecular forces acting on a molecule in the surface layer are biased toward the body of the liquid, whereas intermolecular forces acting on a molecule in the interior region of the liquid are balanced. This unbalanced interaction experienced by surface layer molecules results in the tendency for water to minimize its surface area. Surface tension occurs with other liquids, but in water the effect is 2 to 3 times greater because of the additional effect of hydrogen bonding.

Intermolecular forces acting on a molecule in the surface layer and on a molecule in the interior region of the liquid.

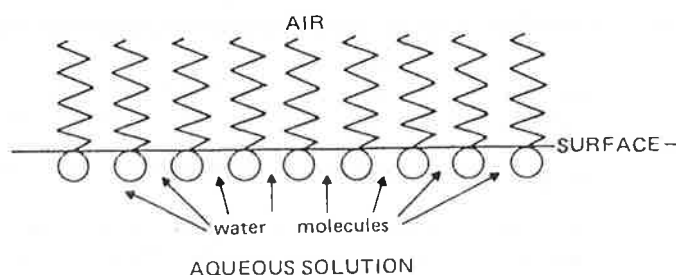


The intermolecular attraction between like molecules in a liquid is called cohesion. The attraction between the liquid molecules and another surface (such as a seed coat) is called adhesion. If adhesion is stronger than cohesion the surface becomes 'wetable' and the water molecule will interact with the seed coat. If not the water cannot 'wet' the seed coat unless some other factor (or surfactant) is added to break surface tension.

Dramatic decreases in surface tension of aqueous systems occur with detergents. These may be the salts of fatty acids or sulphonated hydrocarbons. These molecules consist of two regions. At one end there is a water-loving anionic group which is capable of forming electrostatic bonds with water, and at the other end there is a long hydrocarbon chain that is not capable of forming these bonds and therefore is hydrophobic (water-hating).

The hydrophobic groups tend to line up pointing outward along the surface of the water and the hydrophilic (water-loving) groups point inward to the interior of the water. Consequently surface tension is reduced, because now there is less cohesion between the water molecules at the surface. The water molecules are more likely to make contact with (or 'wet') a seed coat or other surface.

There is a tendency for water molecules to migrate into a surface with adsorbed surfactant molecules creating an outward pressure in opposition to surface tension.



Before water can interact with the cells inside a seed, it must first penetrate the seed coat (or testa). This it can do by entering the micropyle (a tiny hole in the testa through which the pollen tube entered the ovule during fertilization). Reducing surface tension will increase the contact of water molecules with the seed coat and make it easier for them to pass through the micropyle.

Daisy species in general have a relatively soft, pliable seed coat that may be capable of absorbing water directly. Some, for example *Rhodanthe* spp., have a densely tomentose testa. When wet the hairs spread out and stick the seed to the soil surface where it will be in further contact with moisture. In many species the testa produces a gel on wetting, and this acts as a further adherent to stick the seed onto the soil surface. The addition of a surfactant to water used for imbibing seed will assist both these mechanisms and

reduce the time that would otherwise be needed for the germination process to begin. It is unlikely, however, that it would increase the final germination percentage.

Breaking down the seed coat by micro-organisms or by physical means such as scarifying, freezing and thawing, treating with acid, etc., also allows water and oxygen to reach the embryo. In everlasting species this has been shown to have little effect on germination (Bunker, 1994) and may cause rotting of the embryo. This suggests that it is not the inability of water to penetrate the seed coat that slows germination. However, the inability of the water to come into intimate contact with the seed coat would do so.

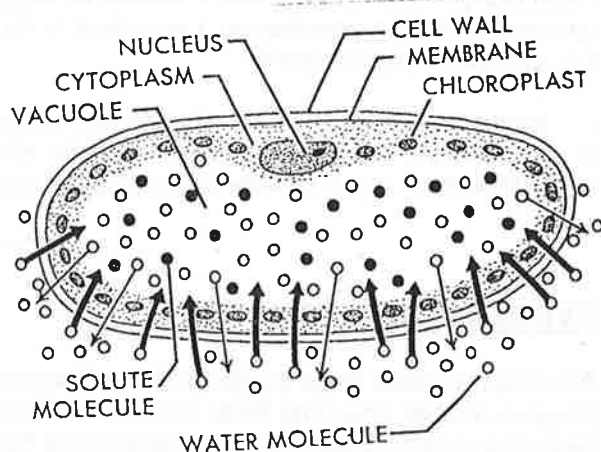
Once inside the testa, the water molecules are potentially free to enter embryo cells through the cell membranes and begin the germination process.

A plant cell has three main parts. The cell wall is a stiff cellulose substance that forms the outer structure, the protoplast or living substance of the cell which is encased by surface layers called membranes. Membranes of many cells in biological systems are constructed of a phospho-lipid bilayer that is similar to the detergent molecule in that it has hydrophobic and hydrophilic entities. These membranes are very thin, flexible and fluid, and are freely permeable to water but not to larger molecules such as sugars or to charged ions. They are imbedded with integral proteins, some of which allow for transport of specific molecules or ions across the membrane into the cell for specific metabolic purposes. Other peripheral proteins are loosely attached on the inside of the membrane. In effect a cell membrane is semi-permeable.

When a semi-permeable membrane (such as cellophane) is placed between water and an aqueous solution, water molecules will pass from the water to the solution as it seeks to equalize its concentration across the membrane. This process is known as osmosis. It is the tendency for water to flow to where the water concentration is less. Osmotic pressure is the force that must be applied to stop this flow.

Cells in plant tissues are generally distended with water and are said to be turgid. Turgid cells have sufficient pressure in them to support the weight of leaves and other soft tissues such as flowers, etc. When plant material is placed in water the cells take up the water and become turgid because some of the water molecules are able to pass through the cell membranes into the cell. When plant material is placed in concentrated salt or sugar solutions they lose their turgidity. The membranes permit water molecules to pass through, but not the ions, sugars or other dissolved substances. The rate at which water molecules can cross the membrane from the solution to the cell is reduced because a large number of them have been replaced by other (solute) molecules which cannot pass through. There is a net loss of water from the cell.

Turgor pressure results from a greater inward than outward diffusion of water. The relative rates are determined by the concentrations of water outside and inside the cell.



Thus there is a tendency for water to flow into a cell through a cell membrane when the cell is placed in an environment where the concentration of free water molecules is greater than that inside the cell. Conversely, if the cell is placed into an environment that has a high concentration of dissolved solutes water will flow out of the cell into the solution and the cell will become desiccated (dried out).

Osmotic priming is a technique of imbibing seeds in an osmotic solution under controlled conditions to maintain seeds in the desiccation-tolerant lag phase of germination (Wartiningsih *et al.*, 1994). In their experiment seeds were primed in solutions of K_3PO_4 , KNO_3 (potassium salts) or PEG (polyethylene glycol) for 4 or 8 days. The primed seeds were then rinsed with water, dried for 24 hrs at RT and then sown, with improved germination. But the addition of solutes to water used for imbibing causes a net loss of water molecules from the embryo cells into the osmotic solution and thus a delay in germination. How can this be?

Apart from the requirements of water and oxygen, and the effect of temperature, other factors come into play for the cells to be stimulated into growth. Engineered by millions of years of natural selection, seeds have

adaptations for meeting the needs of growing, reproducing and sensing changes in the environment. Extending germination over a period of time is a safety factor for the survival of the species. In some seeds the mechanism of this dormancy is simply the restricted oxygen and water supply due to the impervious seed coat. Others are thought to contain chemicals that are inhibitors that must be altered or removed before growth can take place. There are yet others, including many annual daisies, that must undergo a process called after-ripening or a period of dry storage (Mott, 1972). This occurs in nature when the seed lies on the hot soil over several months during the summer.

It has been shown (Willis & Groves, 1991; Peishi, 1995) that after-ripening periods in some Asteraceae are shortened by seed storage at high temperature. Presumably this would cause desiccation of the embryo. Osmotic priming would result in a similar desiccation, so this technique would mimic the 'over summer' period in nature.

A possible explanation is that during after-ripening the embryo cells may have to reach a critical level of dryness (desiccation) before the addition of water has the effect of stimulating the subsequent establishment of metabolism in the re-hydrated tissues — the beginning of germination. Some authors consider that it is unlikely that membranes in seeds would be able to maintain their bilayer conformation in the desiccated state (Peishi, 1995), but that this could be reformed when sufficient water was available. Another theory is that the breakdown of the cell mitochondria caused by drying produces an enzyme that is capable of starting the germination metabolism.

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Footnote: In view of the above I venture to suggest that the Study Group has perhaps been remiss in our attempts to induce germination. I am about to try the following with some of the more recalcitrant species, e.g. *Lawrencella davenportii*:-

1. Imbibe the seeds in an osmotic solution containing a surfactant for at least a week.
2. Remove the seeds, rinse and dry them for at least 24 hrs.
3. Imbibe them again in water containing a surfactant for 24 hrs before rinsing and sowing.

EVERLASTINGS PROJECT

It is now two years since the Study Group started to work on this project. I believe we have made substantial progress in that time. The Book Committee has been meeting for one morning a month. Each co-ordinator takes it in turn to present the information they have gathered on one species under their jurisdiction. Lately we have begun to give the committee a draft description written in the format in which we hope to publish. At the same time we show slides of three species that the co-ordinators have nominated the previous month. As we also do this at the general monthly meeting, we are building up a good collection of the slides we hope to include in the book. The photographers have developed thick skins over this period. We have been forced to do so by the extremely candid comments freely given — mostly by those members who do not take slides. But this slide show is a time of relaxation, and the beauty of the subjects stimulates us to even greater efforts in the growing of them.

We are very grateful to the members who have sent their propagation results to us. Each co-ordinator adds the information to the dossier. We apologise that the first seed we sent was so difficult to germinate, and that you may have had disappointing results. We have all had much to learn, and there are many anomalies for which we must try to find answers. It is becoming clear that many (if not all) everlastings have an after-ripening dormant period, especially those originating from the arid zone. This period varies, but it is still present even when seed is collected from harvested plants, although it may be shortened by repeated

harvesting. I say 'may be' — we have yet to prove this theory. This year we have been able to provide participating members with seed more likely to produce results because we have collected much of it ourselves, and we are beginning to see that arid zone seed should not be stored in the fridge, at least not until the dormant period is over.

Most members have found that pretreatment with a solution of Smoke-impregnated Seed Primer (SISP) improves the germination of many of their trial species. It is too expensive a pretreatment to use unless the improvement is marked. Some species are still reluctant to germinate. Joy Greig (in the article above) and Barrie Hadlow (on pp. 45–6) have suggested new methods we can try. Both suggestions probably spring from the same basic premise.

The Halls, the Goods, the Salkins and I are home from our expeditions. As this newsletter goes to print the results of the first three forays are still being assessed. Although the season was very dry and the plants were consequently very small, Lee and I were successful in finding the following species we sought: *Leucochrysum molle* (the seed AD SG had was not germinating), *Rhodanthe laevis*, *R. microglossa*, and *R. troedelii*. We also found species AD SG had acquired already, such as many interesting forms of *Chrysocephalum apiculatum*, *Hyalosperma glutinosum* ssp. *glutinosum*, *H. praecox*, *Rhodanthe corymbiflora*, *R. diffusa* ssp. *diffusa*, *R. floribunda* (everywhere), *R. pygmaea*, and *R. tietkensis*. We couldn't find *R. uniflora* although we looked hard in several locations. I am very grateful to Lee, not only for steering me to the places I needed to find but for finding many species when I had given them up for lost. He also took readings on the GPS, and achieved some excellent prints despite the ever-present winds.

We are hoping that Pat Fitzgerald may have collected seed of *R. collina* for us but there were very few plants where we found many last year, and she may not have been able to do so. Not counting the possible gains made by the other three expeditions the list of species we still need to acquire is as follows:

Chrysocephalum
eremaeum
pterochaetum
puteale
semicalvum ssp. *vinaceum*
Hyalosperma
demissum
pusillum
simplex ssp. *graniticola*
zacchaeus

Leucochrysum
graminifolia
Rhodanthe
collina
corymbosa
forrestii
frenchii
fuscescens
gossypina
heterantha
nullarborensis

Rhodanthe
pollackii
polycephala
pyrethrum
rufescens
sphaerocephala
uniflora
Waitzia
suaveolens var. *suaveolens*
corymbosa
podolepis

As you see, this adds up to 26 species. We will have to redouble our efforts to collect these outstanding species. The problem is that there is a lag time of about a year before we get any results, even after we collect seed. It is still not too late to join the Project. The more we have trialling species, the more we will know about them.

REPORT ON PROJECT RESULTS FROM LURG

by Julie Strudwick

(Julie lives on the top of a ridge E-S-E of Benalla. In this position she does not get much frost but she has to contend with wallabies, rabbits, rats, mice and many other predators. She is also short of water. In spite of these drawbacks she gets results. ... Ed.)

(13/6/97) 'Plants of *R. tietkensis*, *R. diffusa* ssp. *leucactina* and *Lawrencella rosea* I got at the May meeting are standing up well — the latter two have buds showing colour. *R. tietkensis* has flopped a bit but looks healthy and the stems are thickening at the ends as though buds will soon appear. Most of the species from my autumn sowing are looking good — specially *Rhodanthe humboldtiana*, *R. spicata* and *R. stricta*. No buds yet but lovely healthy, bushy plants. Some others are slower to get going, and *R. sterilescens* (which germinated well) seemed to be the favourite of the munchers. I don't know if there were more rats — no tell-tale signs — but something was still devouring any small plants left unprotected. I lost all the earliest *R. sterilescens* and those I have left were "second flush" germinations but they are starting to grow on now. I potted up about 15 plants of several species that had produced a few more seedlings after some rain and, two days later, I found every single one eaten off to ground level. It does get a bit frustrating!

Schoenia macivorii has continued to produce a few more seedlings after each rain, even though it's only light. There is one bud showing colour in the second lot (GA₃ only), sown 3 April. Those plants have not made much growth but the March sowing (White King ⇨ GA₃) have bushed up more and are not yet in bud.

My pride and joy at present are the 5 survivors of all my summer sowings — 5 plants of *R. chlorocephala* ssp. *splendida* which have been flowering since 27th March and (to me!) are magnificent. They are in a deep poly box and I've got them in an old wheelbarrow so I can wheel them out into the sun during the day, and put them safely behind the fence at night. There are very few pollinators about at present so I've been rubbing heads but I've seen honey bees on them a few times so, hopefully, there'll be some seed. There are dozens more buds and I expect they'll be flowering for several months by which time the pollinators will be back.

(16/6/97) Gloria told me she had a couple of seedlings of *Schoenia macivorii* up in her control. Until this last heavy rain I had only had follow-up germination from the GA₃ batch from 3 April, and no more in the control, WK ⇔ GA₃, or any other treatment. Yesterday morning, however, there was 1 up in the 24 hr. water soak, so perhaps more will come eventually, and Bev might get a "green lawn" in her untreated punnets. I had intended sowing some of this species each month but, since the plants of the April sowing are so much poorer than those of the March sowing, I felt it better to wait a while and I will start to sow monthly from about August.'

(13/7/97) 'I wonder what it is about Soil Wetter that makes it better than washing-up detergent. I always use the latter to get seeds to submerge. I'll try Soil Wetter next time, perhaps some of each where I have enough seed to see if it is the type of detergent or the time of sowing?

The top leaves of my plants of *R. spicata* and *R. humboldtiana* also started to get twisted and deformed. I thought it must be aphid or some such, and sprayed but I'm wondering now if it is just a natural thing. Both species produced buds shortly afterwards, and the heads of buds are now protruding out of the foliage, with no apparent damage to the buds.'

REPORT ON PROJECT RESULTS FROM CANBERRA

by Barrie Hadlow

My work for 'The Everlastings Project' continues slowly. The only success to date with my allotted species has been with *Hyalosperma cotula*. This seed lot came from the Darling Range scarp south of Perth (collected in 1996). Of the 12 seedlings potted up in early May, only 3 made it through Canberra's mid-winter frosts. This year they were severe as usual, particularly in July. The *Hyalosperma* seedlings seemed to keep growing, albeit slowly, taking frosts from 0° to -5°C. Their rather short, crowded, almost succulent leaves must be able somehow to cope with the sub-zero temperatures. The 9 plants that didn't pull through appeared to decline from causes other than the cold, although no doubt its influence was there. 'Damping off' and *Botrytis* could have been 2 fungal pathogens involved.

The 3 successful seedlings responded to the clear sunny Canberra winter days, and particularly in August growth was evident. These 3 have today (11/9/97) been planted out from their 60mm tubes into a well drained sandy loam bed with adequate mulch cover.

I have just completed a re-run of my autumn sowing which produced the above plants (but from only one seed lot). This sowing was preceded by soaking all 5 species in 2 differing w/v solutions of Hydrogen peroxide (H₂O₂), 3% and 6%. The length of time for both pretreatments was 23 hours at room temperature. They should have been super-oxygenated!

The autumn sown punnets that were unsuccessful I shall dry out now and store as they are (protected from rain), and rehydrate in autumn 1998. Talking to Patrick Courtney at Kings Park and Botanic Gardens in Perth early last year, Patrick told me that they had experienced some germination successes using this 'dry storage' method for seed lots that had shown no germination response following sowing. After a determined period and still no response the seed punnet/s were stored in dry conditions until normal watering and observation were reapplied. This 'maturation' period could be repeated if no germination again occurred; 12, 24, or 36 months might be considered appropriate. Patrick indicated that this technique had been beneficial at KP & BG for some members of the Epacridaceae and some Myrtaceae (*Verticordia* and *Thryptomene*). Just maybe — it might be worth trying for recalcitrant Asteraceae!

SEED AND POTTING MIX

by Syd Oats

This season I have changed my seed and potting mix.

My seed mix is 4 parts sand : 1 part Aussie peat : 1 part Cocopeat : 1 part air-dried sphagnum moss.

Potting mix for daisies consists of 3 parts sand : 8 parts Pinopeat : 1 part Cocopeat plus 100gm Pivot Blood and Bone and 25gm of zero Phosphorus Osmocote.

When filling up the punnets (14 x 8 cm) for the seeds I fill up half the punnet with daisy potting mix, the remainder is filled up with seed mix on which the seeds are sown. The theory is that the seed will have a relatively clean environment on which to germinate, and then the roots will penetrate into the potting mix to get nutrients to overcome the effects of nitrogen drawdown, and also to help them over the growing period until they are big enough to prick out. I hope?!

The waitzias I planted in the summer were planted by this method. They are now 3–4" (7.5–10cm) high, and are looking fairly healthy on 28/5/97.

(Syd also sent a fact sheet put out by C.T.C. Productions Pty. Ltd. for a program of Burke's Backyard on the testing of six blood and bone products on the market at the time this particular program went to air. The products were Yates Blood and Bone, Pivot Blood and Bone, Paton's Blood and Bone, Defender Blood & Bone, Sherringham's Blood & Bone (packaged by Brunnings and also sold as Coles' Country Garden Blood and Bone), and Nitrosol Complete Organic Fertiliser (labelled as 'Traditional Blood 'n' Bone'). These products were found to differ markedly in their constitution, one being found to contain no blood at all and relatively high potassium and chloride levels. It was concluded that the two best products for home gardeners were those put out by Pivot and Yates. Of these two it was noted that one impurity, rock phosphate, was detected in the Yates Blood and Bone.

Syd has added Pivot Blood and Bone to his potting mix to provide a ready source of nitrogen for his seedling daisies.)

AROUND THE LUNCH TABLE AT THE ASGAP SA SPRING PLANT SALE

by Judy Barker

Gathered for lunch around the table were Corinne Hampel, Colleen Simpson, John and Julie Barrie, sometimes Margie Barnett and I. Fortunately I had my brand new Conference folder equipped with pen and paper when they began to speak of propagation matters. This is what they said, not necessarily in order of saying:-

Colleen suggested purple Nutricote is good for your natives, being better than many other slow-release fertilisers in summer. Colleen's recipe for potting soil is as follows:

- 1 part garden soil
- 1 part peat moss
- 1 part perlite
- 3 parts coarse sand (variable grade)
- 4 parts of general potting mix
- Iron sulphate 1gm /litre

To this is added the right amount of IBDU or urea, Blood and Bone, and a small amount of trace elements. This sounded as bad as cooking to me but Colleen observed that she didn't like cooking, nor did she do much of it. A woman after my own heart!

John said his soil type is shallow lime over clay/limestone rubble, that is he has 17cm lime, then 20cm heavy clay, under which is the limestone rubble. With no preparation of any kind he planted about 90 eremophilas and 10 daisies, including *O. microdisca*, *O. passerinoides*, *O. rudis*, *O. tubiflora*, *O. rudis x picridifolia* (natural cross) in this awful soil. These plants went in and were watered in their first spring but received no water through their first summer.

The results five years later are that 90% of the eremophilas succumbed while 90% of the daisies survived and thrived! John has not noticed any pests. He wonders whether the heavy soil may have limited any root mealy bug infestation because these pests have certainly attacked plants in pots. In the same area there is saltbush, *Chenopodium curvispicatum*, *Rhagodia parabolica* and *R. spinescens* — all doing well. *Atriplex semibaccata*, used as a host to Quandongs, is also thriving.

Corinne and John agreed that it is a good idea to charge the root ball with fertiliser before planting by soaking in a bucket of Phostragen solution to which Soil Wetter has also been added. Plant out, and then water enough to remove air pockets. They also said Soil Wetter is needed to wet peat moss properly. I had been told this years ago at Burnley Horticultural College (as it then was known) and have been faithfully doing it ever since.

It was a good lunch. I would reveal more of the pearls that this good group of growers told me but I can't read my writing.

Report of a meeting hosted by the NSW National Parks and Wildlife Services

by Ros Cornish

A meeting of the SE NSW and ACT Region was held at Queanbeyan on 22 March. The focus of the afternoon was the button wrinklewort, *Rutidosia leptorrhynchoides*.

John Briggs, NSW National Parks and Wildlife Service, set the scene with a description of the plant and its habitat, including the exciting news that a new population had been found recently to the north of the present populations. There are only 12 populations in the ACT and nearby NSW and 9 populations in Victoria. The latest find was unexpected as it extends the range of the plant rather than fills in a gap between the other known populations.

John explained that although there are a large number of plants in most sites (except for one in ACT where there are only 5 plants), the total area occupied by *R. leptorrhynchoides* is only 14 hectares. Nearly all of the populations are on public land. In the early 1970s it was recognised that the plant's survival was threatened and in 1979 it was formally included on the national list of threatened plants.

In 1991 the ANBG initiated recovery activity. Subsequently, NSW National Parks and Wildlife Service became the lead agency in the Recovery Team that has been established, which now includes ACT Parks and Conservation Service, Centre for Plant Biodiversity and Research, Queanbeyan City Council, Yarrowlunla Shire Council, Environment Australia, National Capital Planning Authority, the Monaro Conservation Society and the Conservation Council of the SE Region and Canberra. The Team is hoping that Victoria will join so that a National Recovery Plan can be developed for *R. leptorrhynchoides*.

A Recovery Plan has been developed and it includes actions such as:

- interim and formal protection of a number of sites to secure the species' long term future.
- management strategies for specific sites, e.g. weed control, fencing
- monitoring of the populations
- genetic research
- research into the effects of fire — is fire necessary for the plant's survival
- establishment of a seed bank for the genetically distinct populations
- public education.

Following John's overview, Jillian Pratten from the Queanbeyan City Council gave a comprehensive and informative talk about the involvement of the Council in the Recovery Team, and its views on such issues. Jillian explained the Council's role and how it is implemented. She also talked about the Local Environment Plans that the QCC is required to prepare and what occurs when there is an '8a' area — where there is sensitive flora. Once an area is designated as 8a it must be protected, and Council must prepare a management plan and provide funds to implement it.

There are three *R. leptorrhynchoides* sites in which the QCC is involved in protection. Although the Council is now required legally to take action to protect the plants on QCC land, the Council has welcomed this. *Rutidosia leptorrhynchoides* has been adopted as the QCC Parks and Recreation Section's emblem to promote awareness, and it is now featured on uniforms and Council vehicles.

Jillian also talked about the QCC's role in the rezoning of an area where *R. leptorrhynchoides* occurs. There was a dispute between the QCC, the developer and NSW National Parks and Wildlife Service about the proposed boundary of the development. The Recovery Team provided advice, and a compromise was reached which has provided for a significant area to be set aside for *R. leptorrhynchoides*. This agreement should eliminate potential controversy when a proposed housing development proceeds in areas surrounding this occurrence of *R. leptorrhynchoides*.

Andrew Young from the Centre for Plant Biodiversity Research, CSIRO, then gave a very interesting talk on his genetic and demographic studies on *R. leptorrhynchoides*. For the past two years he has been involved in the Recovery Team and has been monitoring the various populations, looking at their genetic structure, and assessing the effects of population size, density and isolation on genetic diversity and population viability. The talk raised a lot of interesting points. Later there was a site inspection of *R. leptorrhynchoides* at the Queanbeyan Nature Reserve where members were able to see the plant flowering.

MEMBERS' REPORTS

Ray Purches of Wangaratta (Vic) writes on 13/6/97: 'Today I have arranged for a summary report of the QDPI report *Riceflower as an Export Industry — Market Opportunities*, which is available free of charge from Jim Lewis QDPI on (07) 3239 3318. I expect to order the full report at a cost of \$45.00.

I suspect the report will help my preparations for a Wildflower Growers Seminar at Wagga Wagga on 12/13 July which should be a ripper. Graeme Cook will be speaking on Riceflower, and Esther, in her recent reply to my quest for cultivation details, has emphasised to look them up at the seminar.

We have just completed planting about 250 Riceflower plants in the paddock — Cook's Snow White, Cook's Tall Pink, and a salmon pink form supplied from Kempsey. There are still another 200 or so Jacobs' Pink to go in, as well as eucalypts, Geraldton Wax, etc. Incidentally, Elspeth Jacobs has sussed out the origin of my good "Jacobs' Pink" Riceflower from Rodger Elliot. Apparently it was collected originally by David Jones at Putty, north-west of Gosford, and it is considered to be an intermediate leaf form by Tony Slater.'

Doll Stanley of Auburn (SA) writes on 21/6/97: 'We've had some frost and *Brachyscome angustifolia*, which was growing beautifully in a hanging basket, succumbed. It flowered all the summer, and if I'd only brought it under shelter it would still be with us. I grow a lot of brachyscomes in hanging baskets — in fact I'm running out of places to hang them!

I had great success with germination of *Olearia pannosa* but couldn't put them out while they were small. Anyway, I crossed my fingers and put them out while they were 6–8 inches high, and they seem to be taking off quite well. I was surprised to see what succulent roots they had.

We had a heat wave in February that did a lot of damage to the garden, but it gives me room to do more planting. It's been very dry up to date this year. We've had very little rain, but we keep hoping.'

Corinne Hampel of Murray Bridge (SA) writes on 23/6/97: 'I have discovered that a good long soak on a dripper line during February does wonders. I've also discovered that May is a good month for seeds to go in, and for cuttings to be taken (that is here in Murray Bridge anyway). I have a nice long list of goodies — some still in punnets, others pricked out. They include *Bracteantha bracteata*, various colours, *Bracteantha macrantha*, *Brachyscome ciliaris*, *B. melanocarpa*, *Calocephalus lacteus*, *Chrysocephalum semipapposum*, *Helichrysum scorpioides*, *Ixodia achillaeoides*, *Leucochrysum albicans* ssp. *albicans* var. *albicans*, *Minuria* sp., *Podolepis rugata*, *Olearia magniflora*, *O. pannosa*, *Rhodanthe diffusa*, *Schoenia filifolia* ssp. *filifolia* and *Senecio lautus*. Others in 15cm pots are doing well. I've just received a box of pots from SGAP to pot on those of the above which are ready.

We visited Rhonda Roach's garden at Lucindale in April. If you get the chance to call in there it will be worthwhile. Not daisies, but eleven acres of pure sand with dryandras and banksias self sowing. Part of it is sand quarry which they inherited with the property. Rhonda's words — "Ring at meal times or after dark. I'm always out in the garden during the day!" I heard on the grapevine that it was a garden to be advertised to interstate visitors.'

Rosemary Verbeeten of Lanena (Tas) writes on 25/6/97: "I have just returned from a brief trip to Victoria to visit my mother in Horsham. I visited Syd and Sylvia Oats at Beaufort on the way through. It was interesting to visit a fellow member, especially one involved in the seed trials. I planted half of my seed in the autumn and I will plant the other half in the spring. *Rhodanthe anthemoides* has done extremely well. *Leucochrysum albicans* had a good germination rate but I lost a few after potting on, and I suspect dampening off. They are potted up now and are outside in the full weather. I notice Syd kept his in pots but I intend to row mine out in the ground.

I have tried sowing *Olearia* seed but don't have success with any variety. I have good strike rate with cuttings, and I now have twenty different olearias growing in my garden. Does this seed need cross-pollination, have short viability, or is it just hard to germinate? I thought I would try the smoke method next, and make my seed raising mix more gravelly.'

Gloria Thomlinson of Shepparton (Vic) writes on 25/6/97: 'My *Rhodanthe battii* is now 70cm high and approx. 38cm wide. At the moment it is a very regular shape, has only a few scrappy leaves on the lower limbs, and some purple edging to some of the leaves — due to the cold no doubt. It is budding well. The plant has a smell which to my nose could not be called aromatic, and it may be stronger in the hot weather.'

David Penn, a new member from Epping (NSW) writes on 5/7/97: 'You asked why I chose to join the Group. My native garden has so far been something of a "botanical zoo", with plants from a variety of species chosen for their foliage or flower colour. I am attracted to the AD SG because of the opportunity to focus on a particular group of plants and do comparative trials. With the widespread membership of the Group one can

compare results with other members on different soils or in different climatic regions. The "research" is of course limited to what can be achieved with a limited number of specimens in the restricted space of a suburban garden.'

Linda Handscombe of Pomonal (Vic) writes on 9/7/97: 'The weather here has been very mild and dry. This time last year the farm was under water, but we still have lots of areas of dry, blow away sand. We have had some shocking frosts — froze the clothes on the line. They burnt an *Ozothamnus rufescens* back quite a lot but it's still green for the bottom 40cm. Because we weren't living here over summer and it was so hot, we lost lots of plants. AND the grasshoppers found the bed of *Bracteantha bracteata*. They defoliated some bushes, especially a lovely cream one, and any bushes with pointy flowers had the flower tips eaten off. The rabbits devoured any *Chrysocephalum apiculatum* without tree guards. Can you picture this — I have three left, growing vigorously upright in tree guards and pouring out the top?'

The three *Ammobium alatum* that I dug up last year and moved to the farm are just starting to take off. I wired heaps of them last year and used them to set off posies. I had a lot of trouble with caterpillars in the flowers last year — and they did like those little white flowers. They also ruined a lot of glycerined sago bush. Speaking of sago bush I had two beds of them up here. Six or seven plants in a raised clay bed in full sun didn't do too well over summer, but another six or seven plants in a bed facing south next to an old shed, which was mulched in desperation with horse stable straw and manure, are doing brilliantly.

I have taken cuttings of some *Bracteantha bracteata* with lovely colours and forms but can't plant them until spring after the red-legged earth mites have dispersed. I haven't planted any seed this year, because of our upheaval, but we have finally purchased and erected our first and long-awaited plastic tunnel house. Next year and this spring I can really get into it.'

Julie Strudwick of Lurg (near Benalla, Vic) writes on 9/7/97: 'I was puzzled to read in Jeff Irons' article that flowers of *Brachyscome ptychocarpa* were 3cm across compared to *B. rigidula* at 2.5cm. The *B. ptychocarpa* I've grown from Tiger Hill (Tatong) would have taken all their time to reach 2cm — more like 1.5cm. If he is getting flowers of 3cm on his Mt Canobolas pink ones they should be called Giant Daisy not Tiny Daisy.'

Jeff Irons of Heswall (England) writes on 24/7/97: 'Oh dear! Fancy me writing that the Mt Canobolas Daisy has 3cm blooms. Of course they are 1.5cm.'

Alan and **Jan Hall** of Yarrowonga (Vic) set off for a long exploratory trip in the Northern Territory and Western Australia in mid-July. Alan wrote from Alice Springs on 1/8/97: 'Firstly thank you so much for providing us with such excellent reference material, and congratulations to all who helped put it together. Apart from its value to Jan (in her relentless pursuit of everlastings) the photocopies in colour were of tremendous interest and envy to the personnel at the Desert Park here in Alice Springs.'

We have just had the most marvellous four hours here in their nursery hosted by Nursery Manager and ADSG member, Peter Horsfall, whose help we enlisted in confirming the identity of some of the 20 samples collected so far.

Their chief botanist, Mark Richards, was so taken with the potential value to them of colour photocopied specimens that he asked if we could get him a couple of examples which they would use to endeavour to get funding to purchase their own gear. With 4000 + taxa they certainly have the scope. We later spent three hours at the Herbarium (which moves out to the Desert Park early in 1998).'

Jan sent a fascinating card of *Minuria denticulata* which "grows in the shallow, often damp depressions in the gibber plains around Coward Springs. One ant species makes its nest at the base of the plant." And there were the ants at the bottom of the page. Jan wrote: 'Two and a half weeks into our trip and just starting to get "my eye in", and some sort of system started. Early on we only saw some *Brachyscome*, *Senecio*, *Minuria* and *Calotis* spp. till Roxby Downs where Desert Pea was flowering mid scattered daisies — Poached Eggs being the only everlasting we could see. We soon got to know *Rhodanthe floribunda* (I hope it was) plus a mixture of other daisies. The February rain apparently fell in this area — Roxby-Borfield Road to the Oodnadatta Track but very patchy follow-up rain to bring on the everlastings.'

We then took the 'Painted Desert' road to Copper Hills — although spectacular scenery, daisies and other wildflowers were sparse. There were more on the Stuart Highway, with *R. charsleyae* best.

Peter's display of daisies (and other desert plants) at the Desert Park is wonderful. He came back from a collecting trip in time to show us his nursery complex.'

Irene Cullen of Algester (Qld) writes on 10/8/97: Our Royal Nat. Show is on. On Wednesday we did the display, using our "Daisy" Goannas. One is revolving on a turntable, the other lying over rocks (artistically made from polystyrene boxes), as were the garden walls. For the ten days of show we could only use bracteanthas. We sorely missed Pat's potted daisies.'

Pat Shaw has been in poor health recently, and she will be moving to Birkdale (Qld) soon. She writes in August '97: 'I have only one daisy left in the garden and that is a beaut plant of *Brachyscome* 'Sunburst'. Still have a few others in pots, such as *B.* 'Maureen' and 'Betty Campbell'. One other is a seedling I found last year — it has large leaves and a pinky-mauve flower 6cm across. I can't figure out the parentage.

For the first time our display at the Royal Nat. Show won first prize and the Walter Burnett Shield. Part of the display is, of course, the two gumnut and daisy goannas. For the first time I was unable to go in and help set it up. I do hope someone had a camera.'

Ros Cornish from Widgiewa Road via Bungendore (NSW) writes on 12/8/97: 'The Wednesday Walkers did a walk on Black Mountain which is a major reserve in the middle of Canberra. There are many walks on it and lots of different vegetation because there are so many aspects. The only daisy of interest was *Helichrysum collinum* which is new to me. We only saw last season's spent flowers and a few leaves but I shall go back in spring to see it flowering.

We're getting incredibly low temperatures at the moment and huge frosts. Luckily we've also had some rain so we should get a good display in spring. The leaves of *Leptorhynchos squamatus* and *Craspedia variabilis* are beginning to be noticeable so it won't be long now.'

Bruce Wallace of Terrigal (NSW) writes on 17/8/97: 'Back in the autumn we were shown a new area where *B. angustifolia* var. *angustifolia* was growing naturally beneath spotted gums. Most of the shrubby vegetation had to be cleared, leaving the grasses to flourish. The area is slashed once or twice a year. The brachyscomes were neat little clumps of around 30cm diam. As I was collecting some cutting material from one of the plants I pulled up a suckering stem with roots, and what did I find? Root aphids!

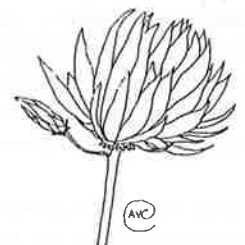
We have been using a new product to kill insect pests (including scale) called Beat-a-bug. It works. It is made from garlic, chilli and pyrethrum daisy, and it comes in a 1 litre spray bottle. One spraying is said to give a two week protection. I sprayed some root aphids yesterday, and it soon stopped them from moving, but any that were further into the root ball could have been protected.'

Marjery Stutchbury writes from Bundaberg (Qld) on 25/8/97: 'Another little excitement I want to share! I have a little bought plant in a self-watering container — a Venus fly trap, *Doinea muscipula*, which sits on my windowsill inside the glass pane in the kitchen. It is in a peaty-looking mixture which is always moist. I had popped a few *Bracteantha bracteata* flowers into a glass beside it and after a while one flower shed its seed everywhere, and also all over the Venus fly trap. I collected most of the seed, but was surprised about a week later to find about 10 little seedlings appearing in the container. Quite often I find these slow in the garden, particularly if I sow them. (I do get lots of self-sown seedlings coming up.)

So I tried filling a plastic cup with peat moss, wetting thoroughly, and standing in a saucer of water. My daughter Cathy (who is a Dept. of Environment Ranger) had collected some *Bracteantha bracteata* flowers from the roadside of the Yeppoon to Rockhampton road (central Queensland). These were also in a glass on my windowsill and one was shedding seed everywhere. So I gathered it up, put it on top of the wet peat and watered it in. I made sure it was always damp. Within about 10 days I could see them germinating — about 13 so far! I am thrilled because I've had trouble germinating seed from this same area. From lots of seed planted in the garden we have only 3 plants growing at the moment, and producing their first flowers. They tend to be tall plants with long thin leaves. I am going to try just a few at a time of the Project seed on the peat in this way. I have not yet extricated the plants from the Venus fly trap, so hope I can do so without too much injury to them. Incidentally, the fly trap caught a few flies the other day — you can see them inside the clamped "jaws".'

SNIPPETS

- Fred Mazzaferri sent a very large dried head of *Rhodanthe chlorocephala* ssp. *splendida* — about 8cm in diameter — not solely to make his Leader feel inferior but to illustrate that a bud was developing immediately below the head. Ailsa Hamilton has drawn it. None of the Melbourne members had seen anything quite like it from this subspecies. Has anyone else seen this sort of growth, and can they explain it?
- Paul Wilson has written to tell us that he has never seen a variant of *Rhodanthe manglesii* with a black centre. It is possible that the reference I read on the subject had confused *R. manglesii* with the black-centred variant of *R. chlorocephala* ssp. *rosea*. Paul also mentioned that he has agreed to undertake revisions of some members of the Asteraceae, the genera



Cratystylis, *Decazesia*, *Leptorhynchos*, *Myriocephalus* and *Polycalymma*. Although these genera are not included in the Everlastings Project this is excellent news for ADSG since we are still very interested in other genera. Paul added, however, that he had agreed to update his treatment of *Leucochrysum*, and that is one of the genera we are particularly studying. This is the best news we have heard for some considerable time.

LEADER'S LETTER

Dear Members,

You will all be pleased to learn that Peg McAllister is now an Honorary Member of ADSG. Peg helped Natalie and Joy to gather much of the seed we are growing for the Everlastings Project, and she is trialling some of the species for us. We are always welcome to visit her garden, and to show it to interstate or overseas visitors. The Melbourne members take delight in her company at our monthly meetings, and we are very lucky that she is willing to share her vast knowledge of plants with us.

To wander around Peg's garden with her is to get a small glimpse of the universe — her plants are growing together so naturally and look so cheerful that the creator must be thought to possess more than a touch of genius. Clumps of greenhoods are appearing, expanding in size, and flowering happily. Heath and flannel flowers are coming up throughout the garden, and one trigger plant is sitting up like jacky in the middle of her paved path. Since Peg grew up in the Bendigo area, she has a very soft spot for the plants occurring there, and so there are many Bendigo forms of species represented, all taking pleasure from being there. Peg gave me the article on p. 39, and later demonstrated what she had written about. I can vouch for her every word being absolutely true, but the shoots appearing from the base of the thick *Pycnosorus* stalk really astonished me. Where does she get these ideas? I get the impression that she is very close to the plants themselves, and perhaps they communicate somehow with each other. Maureen and I took Peg on a limited nursery crawl in June, or rather, I drove and Peg led. All doors were opened to us as though she were royalty. It dawned on us that she was an essential element in any future jaunts of similar nature. As she filled the boot with purchased plants she explained that she carried each individual plant around the garden until its perfect position was found. Maureen agreed that this was the way to do it. My purchases are planted wherever I see a space. This must partly explain why their gardens differ so markedly from mine. I am hoping something will rub off but am not confident. We will gain much from Peg's contributions, and will hope that ADSG provides some pleasure for her.

As Alan Hall described on p. 50, ADSG has begun to colour photocopy some of the best of our specimens. Neal Greig originally suggested that the Group should do this to help Joy, Natalie and Peg to recognise species they had not seen before when they travelled west last year. These colour copies were beautiful, almost works of art. We were amazed by how much more life-like they were than black and white copies. We sent Jan and Alan off with a folder of colour copies protected by A4 transparent sleeves, together with keys, descriptions, locations, seed samples, and anything else we thought might be useful. We were hoping that they might find some of the species we are desperately seeking for the Project.

Maree and Graeme Goods also volunteered to look for outstanding species for us on their trip. We kitted them out in much the same way but they had to struggle along with fewer colour copies because we can only afford one set. Esma and Alf are also on a collecting expedition but they have only grit, determination and expert knowledge to guide them.

Jeff Irons' article on juvenile leaves reminds me of the mysterious seedling *Mary White* and I found in the Point Addis area. Its leaves were obviously lobed. I had no idea what it was but *Mary* muttered that it could be an olearia. Some time later I was potting up seedlings of *O. ramulosa*, and I knew immediately that *Mary* had been right — as she usually was. In fact many of the Asteraceae seedling leaves are quite different from those of mature plants, *Olearia* and *Ozothamnus* species being prime examples, but they generally go on to produce normal leaves by the end of their first year. Jeff is making those identifiers in the Study Group very nervous. If we are right in our identifications then he has found at least two species that are not recorded in the sites in which he found them. What if we are wrong?

The ASGAP Conference in Adelaide was most interesting. Congratulations to the SA SGAP Group who organised a huge plant sale and flower show at the beginning of the Conference (simultaneously with the Grand Final of the AFL Football). It was an enormous undertaking for a group which had been sadly depleted by illness. One of the best parts of the time in Adelaide was meeting some of our interstate members whom I knew from their correspondence only. Jeanette Closs had cleverly recognised our fully laden station wagon at the Little Desert Park, and had left a message under the windscreen wiper. It

transpired that we were staying at the same motel in Dimboola, and so I was able to meet Don and Jeanette before the Conference began. The Plant Sale was an exceedingly impressive affair. Together with the Flower Show and various craft and environmental stalls it filled the Hamilton Hall at the Wayville Showgrounds. The Study Group Trade night was a busy one. My heartfelt gratitude to Jenny Rejske for helping me to answer queries and sell seed and books. Thanks also to Chris Strachan for taking Jen's place for the time it took to make a round of the other Study Groups' displays.

Christmas will follow fast on the heels of this newsletter. Thank you again to all those members and non-members who have assisted ADSG this year, particularly the members who do so much of the administrative work. Thank you all for your letters, and for the articles and the delightful drawings to illustrate them. Good health, good gardening, Merry Christmas and Happy New Year to you all.

Sincerely,

NEW MEMBERS

A warm welcome to the following new members:

Paul Carmen, 52 Woralul St, Waramanga, ACT, 2611.
Cathy Hook, 60 Captain Cook Cres., Griffith, ACT, 2603.
Jeanette Closs, 176 Summerleas Rd, Kingston, Tasmania, 7050.

SEED DONORS

Judy Barker, Pat Fitzgerald, Linda Handscombe, Jeff Irons, Colin Jones, Esma Salkin.

SEED BANK *Species marked with an asterisk will be retained for the Everlastings Project.

Seed is free to members and for sale to non-members at **80c per packet plus postage**. Please send a stamped self-addressed envelope (230mm x 100mm) with each request for seed, and please be aware that most seed orders require 70c stamps for mail within Victoria and 75c for interstate mail. Send to Esma for provenance seed or to Judy for garden and commercial seed (addresses on p. 37) but if both types of seed are needed one request to either will suffice.

Garden or commercial seed

ADDITIONS: *Brachyscome sieberi* var. *gunnii*, *tadgellii*
Bracteantha bracteata (Ebor, white, mixed colours)
Calotis cuneifolia
Chrysocephalum semicalvum ssp. *semicalvum* (Blue Mountains)*
Helichrysum adenophorum var. *waddelliae* (Newnes Plateau)
Ixiolaena brevicompta
*Lawrencella rosea**
*Rhodanthe propinqua**
Vittadinia decora (Qld form via John Story)

ADDITIONS — Provenance

Brachyscome curvicaarpa (NSW, 10/97)
Bracteantha bracteata (Moore Park, Qld)
Leucochrysum molle (NSW, 10/97)*
Ozothamnus ferrugineus (Anglesea, Vic, 8/97), *turbinatus* (Anglesea, 8/97)
Pycnosorus chrysanthes (gn leaf, Council Rest Room, Pyramid Hill, Vic, 6/97)

SUBSCRIPTIONS

Subscriptions are \$7.00 per year for members within Australia and \$14.00 per year per year for overseas members for the duration of the financial year July 1st 1997 to June 30th 1998. Due to increased costs this subscription will rise to \$10.00 per year for members within Australia and \$20.00 per year for overseas members in the following financial year.

FEES WERE DUE ON 30th JUNE 1997.

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