

EREMOPHILA STUDY GROUP NEWSLETTER NO. 29 AUGUST 1984

We are now twelve years old with over 100 members. In the SGAP Journal, S.A. Region, May 1972, Ken Warnes asked:

"Would all those interested in joining a national group to exchange notes and propagating material, please contact Ken Warnes, Waldon, Owen, South Australia 5460."

Twenty-eight people responded to that request, eleven are still members.

G.N.

EREMOPHILAS GROWING AT SPRINGSURE

Beverley O'Keefe

All species listed by me have been nursery bought and probably about 6 months old when purchased. I have listed after them the age in months since planting, so you would need to allow a further 6 months or so on to this.

E. biserrata: 7 months, growing slowly and looking healthy, about 45 cm wide.

E. bowmanii (broad leaf form): 24 months, growing well and flowered most of 1983. Seems to lose the leaves from the lower part of the bush and then looks a bit straggly. I have not been able to strike this one so far.

E. bowmanii (narrow-leaved form): 24 months, growing well and healthy, but this one is also losing leaves from lower part of bush and looks worse than the broad-leaved form. It has been flowering well. I managed to get two cuttings to strike from this one and they are both growing well and flowering at the moment.

E. brevifolia: 7 months, growing well and now about 30 cm high.

E. divaricata: 36 months, growing very well; also several cuttings struck from the original. Flowers for extended period over summer and autumn. First plant would be 0.5 m high X 1.5 m wide.

E. drummondii: 2 plants, one 13 months and one 10 months, both growing slowly and flowering at the moment. About 25 X 40 cm.

E. glabra (I do not know what form): 16 months old, growing very well and flowers from time to time. Has put up a few suckers or layers within the plant. Now 0.6 m X 1.8 m.

E. latrobei (Emerald form): 7 months, growing very slowly but is healthy. A second form with much longer leaves also 7 months, healthy, but not so robust. Both about 25 cm high.

E. macdonnellii (Simpson Desert form): 7 months. It has purple flowers similar to the other form, but the leaves are grey and hairy. Very pretty. About 30 cm high X 30 cm wide but not nearly as robust as the green leaved form.

E. macdonnellii: 13 months old and 45 cm X 30 cm. Nearly always has large purple flowers and lovely light-green foliage. I have four of these and they are all doing well.

E. mackinlayi: 7 months, growing well and has flowered. Now about 40 X 30 cm.

E. maculata (yellow form): 16 months, growing very well and covered with lovely yellow flowers from time to time. Now about 0.5 m X 2 m.

E. maculata (called 'compact' form): 13 months, growing very well but has not flowered. 0.6 m X 1.2 m and very healthy.

E. maculata (Goondiwindi): 46 months and has been good. Flowers in spring. Now 1 X 1.2 m and a bit straggly. Probably needs pruning.

E. maculata (Simpson Desert form): 7 months. Given to me, is healthy, but slow and has not flowered, so cannot send to you for identification check. About 25 cm.

E. microtheca: 13 months, four plants, all healthy and flowered last spring. All about 45 X 45 cm.

E. polyclada: 46 months. I was most interested to see in the December 1983 Newsletter that Reg and Flora Mason listed this in the up to 1 m section. In my garden it would be 2.4 m high by at least the same wide. It sends out long arching canes which droop to the ground and then root, forming new plants. I think it would go on for ever and take over if allowed. I use the layered plants as a constant source of supply for friends. In my garden it is in a particularly heavy soil position which is not built up and gets the run off when it does rain. We have long dry periods (at least 6 months sometimes) in the hotter part of the year. It does not get any frost, and I do not water it!

In a nearby friend's garden, which has black clay over basalt, E. polyclada has been grown in a shrubbery where the long arching canes could not reach the ground. In this case it would be 3 to 4 m high with a trunk like a small tree. It is hardly ever without a good display of large white flowers, which, against the fine foliage, look most attractive.

E. pterocarpa: 20 months, has been slow, but is starting to grow now. It is about 30 cm X 15 cm.

E. racemosa: 48 months, grown well and now about 1.2 X 1.2 m. Flowered for the first time last spring.

E. "subteretifolia": 7 months, growing well, only about 8 cm high, but with a spread of about 45 cm. Usually has flowers.

E. weldii: 13 months, two plants, both healthy, and about 15 X 45 cm. Flowered last spring.

E. woolsiana var. dentata: 7 months, growing well and about 45 cm high.

TYPES OF CUTTINGS

Geoff Needham

One sometimes has a choice in the type of cutting material to use for propagation. Probably the simplest and most common one is the single stem tip cutting from the leaders of growing stems. Depending on the season and condition of that plant, this can vary from a soft growth to a much more mature or woodier type. Providing the weather conditions are not extreme all may strike, but the softer wood type needs much more care after potting up, to harden off before planting out. There is another type of cutting that will give a different result, short many-branched portion often found on the lateral growth of the parent plant. This type of cutting has a relatively thick base of mature wood within a much shorter distance than the leader tip cutting. Personally, I have often found the latter type of cutting will strike more readily with many species rather than the slender tip cutting. Should one be successful with this branched type cutting, a young plant quickly develops into an attractive bushy plant, whereas the tip cutting usually requires nipping out to develop lateral growth. The nipped section can always be re-used as a cutting, especially if the species is in short supply.

UNPUBLISHED NAMES

Bob Chinnock

During my revisional work on Eremophila I have allowed tentative (tag) names that I have given to undescribed species, to be used by Study Group Members. These names are not published names and therefore have no standing and should never be used in publications unless it is made quite clear that they are merely tag names. This should be done by placing them in parentheses. Quite often I change the name after I have studied the species in more detail. The original tag name may have been considered inappropriate or a more suitable name found thus E. "trifida" was finally published as E. biserrata and I intend to publish the two species originally tagged E. "obtusifolia" and E. "elliptica" as E. "crenulata" and E. "lactea", respectively.

Until now I have not been too concerned about the use of these names, but with the increasing popularity of eremophilas and propagation of many species by the nursery trade, I would appreciate it if members take care when using these manuscript names. I list below the commonly grown and most widespread of these undescribed species and ask that when you mention them in articles or provide plants, you take care to have the name in parentheses. I am under no obligation to use these tag names when I publish the revision (hopefully in 1985) and if they are used indiscriminately, it will only add to the confusion later on if I make a change.

Tag name: E. "nivea", E. "barbata", E. "verticillata",
E. "magnifica", and E. "subteretifolia".

NOTES ON EREMOPHILA

Bob Chinnock

Most members are familiar with the low growing spreading form of Eremophila maculata which has red glabrous branches and prominently spotted carmine flowers. This form is in fact a very distinct subspecies (but only known in cultivation). It was thought to have come from near Goondiwindi in New South Wales, but until I can obtain material from a known locality, I am not prepared to formally describe the subspecies. For the present, I intend to give it the cultivar name E. maculata 'Carmine King'. I would be interested to find out if anyone knows where this plant grows naturally.

Although Eremophila divaricata is a relatively uniform species over most of its range, collections from Bourke in New South Wales are of a very distinct subspecies. The few herbarium specimens from this area are very poor, so if anyone is able to collect material for me, please let me know and I will provide details of what I need. This subspecies differs from the typical one in having the leaves and fruits clothed with stellate (star-shaped) hairs.

PROPAGATION BY CUTTINGS

Tony Clark

Because of difficulties with seed viability or inhibitors on the seed itself, most eremophilas are grown by cuttings. The following is a summary of methods we are using at Mannum with excellent results.

We have tried many media with varying results. Our best medium is washed Reedy Creek sand, available locally. This is of quartzite origin and when examined under magnification all particles have rounded corners. Similar grades of quarry sands have sharper corners and tend to compact more, thus reducing aeration. Cuttings inserted into quarry sand are more prone to damage (with soft stemmed species). Reedy Creek sand has a pH of 6.2. A long series of pH experiments using perlite, peat, vermiculite, and other media, have failed to produce strike rates comparable to just coarse sand. GROWOOL rockwool blocks produce a similar number of roots in a similar time but are approximately one hundred times as expensive.

The sand is prepared by being turned in a concrete mixer with RIDOMIL solution until a stiff mix is formed. This is then bucketed into a garbage bag inside a large planter. RIDOMIL is a fungicide which eliminates attacks by fungi such as *Pythium*, and *Phytophthora*, which are the main causes of below-the-ground rotting of cuttings. Being systemic, RIDOMIL is absorbed by the stems of cuttings and translocates to the foliage and new growth, where it also protects cuttings from downy mildew attack. Other fungicides with similar properties are FONGARID, ALLIETE, PREVICUR and TERRAZOLE. FONGARID and RIDOMIL have been known to damage Proteaceae and so an alternative should be used if grevilleas, isopogons, etc. are being propagated.

Inside the garbage bag the treated sand should be free from entry of injurious pathogens. The sand we use has been tested for various pathogens with negative results. The nematode count is also nil.

For cuttings, we take firm new growth tips from obviously vigorous plants. The cuttings are up to 10 cm long with the leaves carefully stripped from the lower half. This must be done without tearing the bark or the resultant cutting is liable to die. Plant food is stored in the green bark and leaves of plants, and potentially, the more foliage retained the quicker the cutting will strike. Stripped cuttings are left to stand in a rainwater and FORMULA 20 solution for about 10–30 minutes depending on the condition of the cuttings. We try to include at least two nodes on the stripped section of each cutting because it will sometimes die above the bottom node and strike on the second. FORMULA 20 will restore wilted material if it is not too far gone. Tips that are too soft should be cut off because they will only rot later in the frame.

Cutting material from unknown or poor-looking plants should be washed in a mild WHITE KING solution to neutralize potential pathogens. All instruments used in preparing cuttings should be as sharp as possible to minimize damage to the basal tissue of the cutting. The last cut is just below a node.

Containers of rooting powder usually have instructions for users to dip the bottom 1 cm of the cutting into powder. I disagree with this and insert the cutting stem full length. Some species like *E. maculata*, *E. glabra*, and *E. calorhabdos*, will root continuously up the stem between nodes as well as at the nodes. Cuttings with two nodes will sometimes root near the surface but not on the bottom. Some difficult species like *E. dempsteri*, *E. psilocalyx*, and *E. dichroantha*, can be induced to root if stems are lightly rubbed with steel-wool or sandpaper to aid penetration of the hormone. This must be done so as not to strip bark, or death of the cutting will result.

We use seedling trays for cuttings but anything will do as long as drainage is good and the container itself is properly cleaned (WHITE KING again) before use. The trays are filled with the treated sand and holes made with a six inch nail at intervals for the cuttings. These should be spaced so that when inserted cuttings do not touch each other or botrytis attack may result (particularly in winter). Some growers cram as many cuttings as possible into trays and to protect them are spraying at almost weekly intervals with BENLATE or ROVRAL; both of these control *Botrytis* (Grey mould) and powdery mildew, but are useless against fungi below the surface of the soil.

At our nursery we strike cuttings in a polyhouse on a sand bed. The bed is heated to approximately 25°C in winter but turned off from mid-spring to mid-autumn. These devices are very expensive to run so we have to produce a lot of plants over the winter period. Mist on desert plants is in our experience disastrous, especially to furry-leaved and sticky-leaved species. All our cuttings are hand watered 3 to 5 times per day, depending on the ambient temperature.

The use of liquid fertilizers encourages algae growth in cutting trays and is therefore avoided. The algae inhibits air and water movement to and from the soil and inhibits

root formation. Most eremophilas seem to strike better in an atmosphere as dry as possible. Good air circulation reduces the risk of aerial fungus attack to which most species have a low resistance.

During November and early December last year in Mannum, many eremophilas were severely damaged by *Botrytis* after two heavy rains. Species most affected were *E. glabra* (ex Murchison River), *E. subfloccosa* (forms), *E. "nivea"*, *E. weldii* and *E. densifolia*. Crowded-leaved and furry-leaved species are the most affected types and I attribute this to poor air circulation. Similar conditions can occur in cutting trays if plants are crammed in too close to each other.

When cuttings have struck they are heavily watered to loosen the medium and dug out with a kitchen knife. Even finely rooted plants (e.g. *Epacris impressa*) can be removed with very little root damage in this fashion.

The tubes I prefer are open bottomed, 10 x 5 cm with a slight taper and are reusable. If the sand block remaining around the root system is very bulky the struck cutting can be dipped in water to straighten the roots. The cutting is then held in its container at the correct height and filled downwards so that its roots are growing straight down. Usually it is easiest to do this if the cutting is held to one side of the tube.

Plants for sale in tubes, where the plant is on one edge, have almost certainly been tubed in this fashion and should have good straight root systems. Some growers fill tubes first, make a hole with a stick or something similar, and then drop in their plant. This practice often bends root upwards which then grown downwards and thus tie themselves in knots. Plants tubed in this fashion often have a reduced lifespan when planted out, similar to that of very pot-bound specimens.

Potting mixes should have some water holding material to keep the roots moist for at least a day, and at the same time they need good drainage to flush out accumulated salts. It is almost impossible to overwater potted plants in well drained soil because the excess drains away immediately. Heavier mixes retain salts, reduce aeration, and make stock more laborious to shift around. Our current mix is by volume, 5 parts composted pine bark, one part Reedy Creek sand, and one part fine yellow plastering sand, with nutrients being supplied by a mixture of slow release fertilizers. Liquid fertilizers tend to leach out of this type of mix very quickly and are only used in our nursery as boosters. Potted plants with slow release fertilizers will grow on quite happily for up to 9 months without a booster before planting.

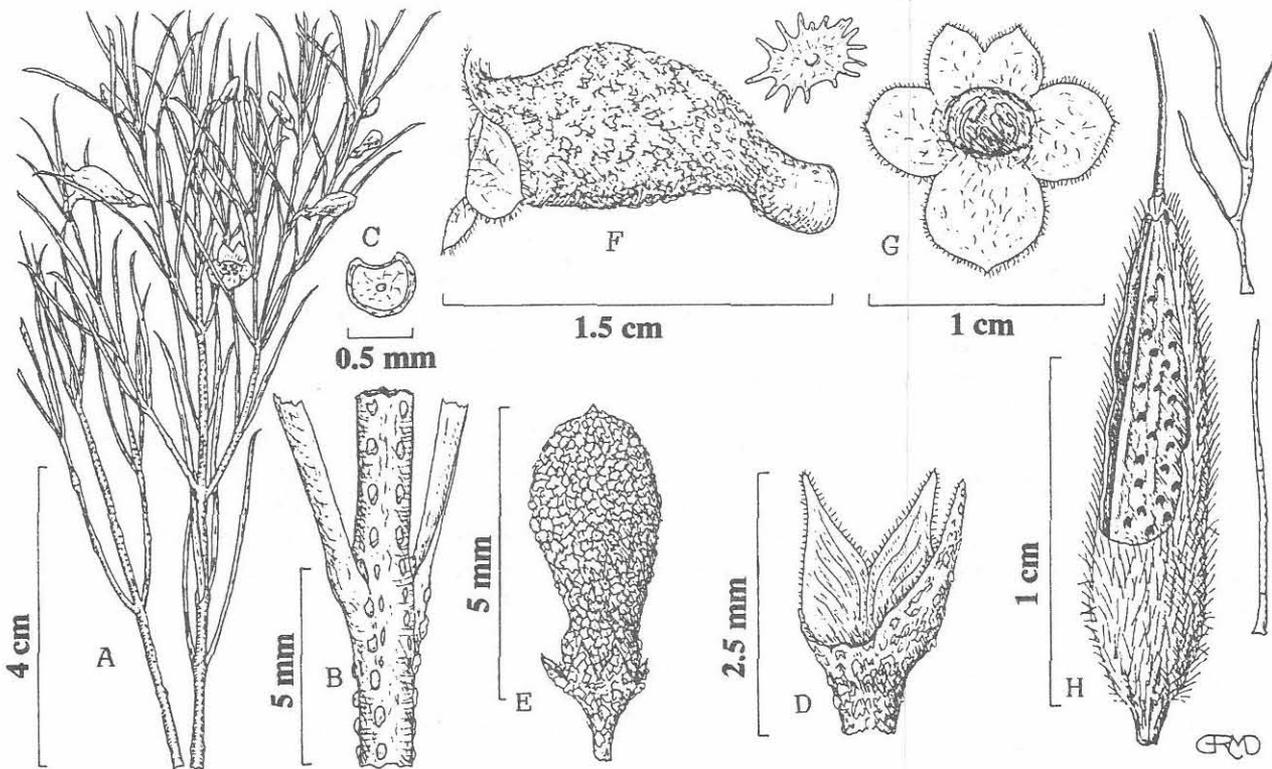
For cutting material we always try to keep a few plants in large pots and growing in ideal conditions. In the warm months plants can be cut every 4-6 weeks if they have plenty of fertilizer. This type of material gives better results than garden material and much better results than bush materials. Cuttings taken at any time of the year will strike readily provided the plant is actively growing, and flowers and buds are removed as they appear.

Some typical results (approximately 150 per batch)

<u>Plant</u>	<u>Hormone</u>	<u>Time</u>	<u>Percentage strike</u>
<u><i>E. oldfieldii</i></u>	SERADIX 2	5 weeks	90%
<u><i>E. pterocarpa</i></u>	SERADIX 2	4 weeks	45%
<u><i>E. willsii</i></u>	SERADIX 3	4 weeks	85%
<u><i>E. maculata</i></u>	SERADIX 2	10 days	95%
<u><i>E. macgillivrayi</i></u>	SERADIX 2	4 weeks	80%

<u>Plant</u>	<u>Hormone</u>	<u>Time</u>	<u>Percentage strike</u>
<u>E. "nivea"</u>	SERADIX 2	2 weeks	80%
<u>E. sargentii</u>	SERADIX 2	4 weeks	90%
<u>E. dempsteri</u>	SERADIX 2	4 months	45%
<u>E. merrallii</u>	SERADIX 2	4 weeks	20%
<u>E. calorhabdos</u>	SERADIX 2	3 weeks	95%
<u>E. polyclada</u>	SERADIX 2	3 weeks	95%
<u>E. alternifolia</u>	SERADIX 2	5 weeks	60%
<u>E. sturtii</u>	SERADIX 2	6 weeks	25%
<u>E. subfloccosa</u>	SERADIX 2	5 weeks	80%

We are experimenting with hundreds of combinations at the moment, in particular trying to improve on those species where the strike rate is below 75%.



Eremophila dalyana

A, habit; B, enlargement of branch; C, cross-section of leaf; D, calyx; E, flower bud; F-G, side and front view of flower with enlarged corolla scale; H, fruit with part of exocarp removed to show pitted endocarp and enlargement of branched and single hairs.