EREMOPHILA STUDY GROUP NEWSLETTER NO. 14 JUNE 1979

REPORT ON SUCCESS WITH CUTTINGS

Neil Marriott

A box of cuttings sent on 30/10/78 was received in Ararat on 31/10/78 and put in immediately. **Mix:** 1 part perlite, 1 part peat, 1 part coarse washed river sand; pre-sterilized (boiling water) and put in 10 cm plastic pots. Cuttings were watered in with a diluted mix of FORMULA 20 and MAXICROP after being treated with SERADIX No. 2 powder.

Propagation frame: Pots of cuttings were sunk into moist vermiculite in a frame with automatic bottom heating and automatic leaf-controlled misting. Frame was on the floor in a poly-house and it received 3/4 full sunshine. Poly-house was covered with 50% SARLON shade cloth in summer. Frame was sprayed regularly with BENLATE to prevent foliar mould/fungus infections.

Rooted cuttings were potted up late Jan–Feb. 1979 into 10 cm pots of free-draining gravelly soil. Potted up plants were placed under automatic misting again to overcome any root disturbance shocks, then placed outside in the sun after several days.

The following is a list of the cuttings put in and % strike results after 3 months:

E. angustifolia	0% (all unrooted, several still in frame)
E. behriana	92%
E. bicolor	100%
E. brevifolia	95% (cuttings very soft and fleshy)
E. clarkei	10% (1 only)
E. dichroantha	0%
E. exilifolia	0%
E. granitica	0% (limited no. and quality of cuttings)
E. hillii	0%
E. laanii	(white) 100%
E. laanii	(pink) 100%
E. maculata var. brevifolia	20% (poor result due to grubs eating many cuttings)
E. mackinlayi	100%
E. macdonnellii	95%
E. pachyphylla	0%
E. pantonii	75%
E. pterocarpa	10% (1 only, cuttings in poor condition, sooty)
E. resinosa	40%
E. santalina	10% (1 only—this was a thick woody cut)
E. weldii	50%
E. youngii	10% (1 only)
E. crassifolia X Myoporum platycarpum	90%

From these results one can draw a number of basic, but not conclusive generalizations:-

1. Smooth-leaved species (not sticky) strike readily and rapidly with bottom heat, plus mist.
2. Both hairy-leaved and sticky-leaved species tend to do poorly with the automatic mist.
3. Very poor results can be expected from poor quality or diseased cuttings, and from cuttings receiving a setback while in the frames.

However, inconsistencies do occur, such as the good strikes of hairy-leaved E. mackinlayi, and the grey-leaved E. macdonnellii, and also, the poor results for the smooth-leaved E. dichroantha and E. augustifolia, etc. Does anyone know any reasons for these?

As one of the aims of our Study Group is to attempt to increase the widespread availability of good eremophilas, I feel that results such as the above could well be used to develop a list of Eremophila species which are readily propagated and grown by the nursery trade. Already, most of my potted up cuttings in the above list are growing rapidly and flowering profusely. All my friends want plants of E. bicolor, E. mackinlayi, E. macdonnellii, etc. when they see them. What we have to do now is to see how tolerant they are under garden conditions. From my own observations I feel that many of these easy-to-strike species are also very hardy so long as they are placed in the correct situation in the garden, such as: along the hot northern walls of houses, in a well drained sunny spot in the rockery, etc.

If a set of basic guidelines on eremophila culture together with a list of tried and tested species, were made readily available to nurserymen so that they could advise their customers, I am sure we would soon be seeing eremophilas in many more gardens, especially in inland towns and cities. I have often given eremophilas to native plant lovers, who have never heard of eremophilas. Let us try and reverse this situation; how about Study Group members writing some articles for "Australian Plants", so that all SGAP members and nurserymen become aware of the genus!

Finally, concerning nursery culture after potting up, I have found that all species do far better when potted up firstly into a small pot (no larger than 10 cm), and re-potted later on if necessary into a larger size. This allows the ball of soil to dry rapidly after watering, whereas larger pots stay wet for far longer, causing root rot and high losses after potting up.

SEED GERMINATION AND SEEDLINGS

Ken Warnes

This is a continuation of the information in Newsletter no. 11 of August 1978 when I told how some E. gilesii had germinated after five or six years in an open pan. Unfortunately, none of these last year's seedlings survived, neither those listed, nor a couple that came later. The prolonged cold wet weather was too much for them.

The seed-pan remained in the open throughout the following summer and was watered occasionally with no results, but within a week of rain in early April 1979 the seeds of E. gilesii started germinating again; and to date at least 60 have come up, mainly singles with a few twins and triplets, but nothing to match last year's sextuplets. A dry spell caused germination to cease, but further rain brought more plants. This pan is divided into six sections and this year at least one seedling has appeared in each section, but as considerable migration has occurred over the years they may all be E. gilesii. The drupes are so broken down it is difficult to tell and all but one pair of cotyledons looked identical.

As last year's attempt to let them grow on in the pan was a failure, I decided to pot on at the cotyledon stage. Well, it is a wonder you could not all hear me at it but eventually 38 were potted on, some to jiffy tubes, others to 5 cm x 12.5 cm bags.

Damping-off and mice claimed the remainder, and damping-off continues to be a problem despite regular use of BENLATE. I discovered that the radicle emerges first from the drupe and penetrates deep into the soil before pulling the cotyledons free, so that I was trying to handle tiny cotyledons which had a 5 cm thread-like, and brittle, radicle. Only a few were transplanted intact. At this stage 11 remain, most still cotyledons only but some making one or two pairs of leaves. I did not keep the intact ones separate so do not know if they are the survivors.

Eight species sown in other containers in 1975 have not germinated. Heartened by the present germination I gathered up all the Eremophila seed I had collected or been given over the years and on April 29 sowed it in, and on, a soil mix of red sand and builders' gravel, and topped with a layer of 3 mm gravel. Mice have industriously dug up many, but this may give the advantage of having fruits at various depths, although those same mice have nipped off several seedlings that have emerged and pots are now removed if seedlings appear.

The seed was a mixture of species of various ages, and from the more than 60 pots the following have germinated, all following rain:

E. gilesii (collected 1977): 1 fruit produced 2 seedlings (1 x 2) at 10 days. Both 'damped off'.

E. bowmanii (collected 1977): 2 singles (2 x 1) at 24 days

E. bowmanii (collected 1977): 3 singles, 1 triple (3 x 1; 1 x 3) at 24 days

E. goodwinii (collected 1977): 4 singles (4 x 1) at 28 days

E. goodwinii (collected 1977): 1 triple (1 x 3) at 30 days

E. macdonnellii (collected 1974): 1 double (1 x 2) at 28 days
: 1 double (1 x 2) at 39 days

It is coincidental that three species appear twice; the seed was from different collections.

Two that have not germinated are E. tetraptera and E. fraseri, yet the donors germinated seed from the same collections.

The results from all this only support last year's findings and opinions. The one thing that is abundantly clear is that natural rainfall can do something that our alkaline, saline, fluoridated, and chlorinated, tap-water cannot do; and this brings me back to the inhibitor factor again (a report from California on the role of an inhibitor following this article). One point that intrigues me is why, in a whole pot of fruit, just one will germinate, often in multiples.

I had a further thought on the part birds play in germination after hearing Bob Chinnock's talk at the April SGAP meeting in Adelaide. In a number of species the calyx greatly enlarges after flowering, and in some cases turns bright red as the fruit develops, thus making the fruit far more obvious to birds. As everything in nature has a purpose, it seems logical to me that with these species we could expect ingestion by birds to play a part, otherwise I remain sceptical about the part they play. None of those that I have germinated comes into the enlarged calyx category.

Response to article on Eremophila Germination

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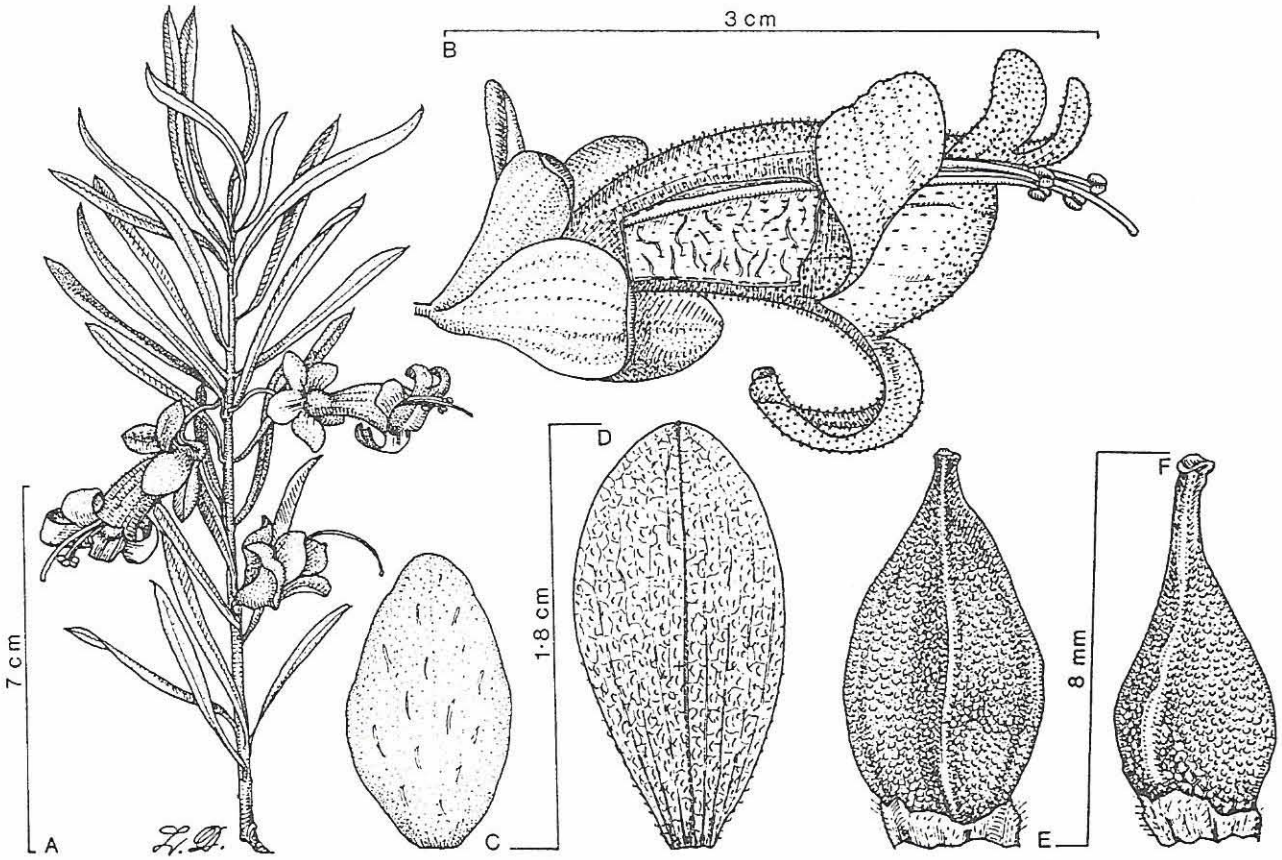
Some of our Sonora Desert plants will not germinate when they receive the first rains. It takes several rains before they will germinate. This is because the seed contains an inhibitor that prevents it from germinating until the inhibitor is leached out of the seed. This inhibitor is a protector because we frequently get summer showers in the Sonora Desert, and if the seed germinated, it would soon perish because there is not adequate soil moisture. Perhaps this is the case with Eremophila. They need several leachings to remove the inhibitor. The summer showers in the desert would frequently wet the soil to 12 mm, but then the temperatures may go up to 46°C in the following weeks.



Eremophila neglecta

A, habit; B, side view of flower; C-D, flowering and fruiting sepal respectively; E-F, front and side view of fruit.