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EREMOPHILA STUDY GROUP NEWSLETTER NO. 33

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Cultural Requirements of Eremophila

Frequently people ask what are the cultural requirements for growing eremophilas, so here is an attempt to answer that question using information obtained over the years from members of this study group.

Sun: probably the easiest to answer, full sun or sun most of the day is the optimum. In their natural habitat little shade is available although they often grow in association with other plants. In the suburban garden plants will often grow reasonably well, with far less sun than in nature.

Wind: no plants like wind some do have a better resistance to the effect of wind than others and obviously the low lying or prostrate plants are less exposed and certainly the tougher a plant has been grown the less damage, young plants should be given some protection till established.

Frost: like wind, frost is not desirable but is unavoidable in some localities. Certain species are much more susceptable than others particularly the furry leaf ones which is probably due to moisture trapped amongst the fine hairs. Little can be done except avoid planting in low areas if possible and keep an open area around and underneath the plant to promote air circulation.

Water: as the generic name suggests eremophilas, largely occur in arid areas, but although they grow in such areas it does not mean that they only reach their best potential under such conditions. Indeed many of the species introduced into cultivation by this group have proved to be good garden specimens partly due to an increase in moisture. Eremophilas grow in a naturally low rainfall areas and should certainly be selected for drier parts of the country. There is no indication that a high rainfall in itself is detrimental but other associated conditions particularly drainage are important. The majority of growers experience their heaviest rainfalls during winter but despite adequate yearly rainfall for mature plants most growers apply some water particularly to small plants. If the natural rainfall is high this practice becomes more essential as plants seem less able to withstand extended dry periods.

Soil: most of the plants grown by members are in sandy loam, loam over limestone or clay, with very few grow in sand alone. The pH is usually neutral to basic in fact those on limestone have reported up to pH9 although plants were showing chlorosis. A firm soil or loam seems to be indicated with pH neutral to slightly basic.

Drainage: plants from the arid areas do not like wet feet many plants dieback or die after a wet winter due to root rot. Plant on a slope or at least raise the area around the base of the plant to avoid water logging.

Fertilisers: in general fertilisers are not necessary for growing a healthy plant, however, if deficiencies are apparent such as iron, phosphorus or manganese then the addition of any suitable fertiliser would be beneficial.

Mulch: plants in nature seem to accumalate quite a considerable mat of branches, leaves and fruit on the ground beneath them. In low rainfall areas little decomposition occurs so the litter remains fairly constant. An organic mulch retains moisture and reduces soil temperatures in summer. It also, equally effectively, prevents heat rising from the soil in winter and will

attract frost whereas clear ground adjacent will be frost free. In areas where frosts are a problem mulch should not be retained in the periods of expected frost. Stones or small pebbles are relatively safe in this respect.

Geoff. Needham

Noah's Nursery Revisited

The title of this report is derived from an article in N/L 26, May 1983 which described how a large number of seedlings had appeared in my plantations following a severe thunderstorm in March 1983 and heavy rains which continued through April and May. About 120 seedlings were potted up and held until April '84 before planting out. The line "the years may turn up some interesting new forms" was indeed prophetic, and this article describes some of the developments.

A row of sixty three E. maculata was planted in a ripped furrow with holes broken through a limestone crust of varying thickness to enable a free root-run. Plastic sheeting and straw provided the mulch, with an old car tyre the only rabbit protection. All seedlings potted were kept in groups so that the female component of any cross-pollination could be determined, but even by planting out time variations in stem and leaf size, shape, colour and texture were evident. Tip-pruning of the more vigorous plants was performed in May '85.

By August most plants were in flower at sizes ranging up to 1 m wide and 70 cm high. Considerable variation occurred and it appeared that no plant was identical to its parent. Certainly the very distinctive forms such as "Morgan orange", were not among them.

While all seedlings came from around plants typical of the River Murray and adjacent flood areas the "other parent" is more variable. One plant shows characteristics of the north-west New South Wales form with rounded, dark leaves and red, fleshy stems while two others have narrow bronze leaves which were explained when the flowers appeared. "Dad" was obviously the pruple flowered form from Goondiwindi which I grew and lost many years ago. In N/L 26 I suggested that germination was from old seed so the crossing with a now deceased plant is quite feasible. Neither plant was particularly attractive but I was sorry when both succumbed to collar-rot following recent heavy rain.

I suspect "Goondiwindi red" has crossed with "Morgan orange", the resultant flower is magnificent though rather sparse. No selections have been made at this stage, but a few have good potential.

One pair of seedlings which appear to have come from a single drupe have different leaves. Too close to separate and still somewhat stunted I await their development with interest. Bob Chinnock tells me that it is quite possible for a multiple fertilization of a single flower by different pollen to result in half-twin embryos in a single drupe.

From these results it would seem likely that cross-pollination is necessary, at least to achieve high fertility rates and results from the species discussed later would tend to support this. The other explanation for the variation could be that with maculata in particular we tend to select as cultivars extreme forms from relatively large populations and so these may themselves be "freaks" or F1 hybrids and genetically unstable.

The only non River Murray seedling is from where an old E. maculata "aurea" died. I await with interest the first flowers to see whether this rather different form has cross-pollinated also.

With the exception of E. compacta all other surviving seedlings are from species where I grow more than a single form in the one area or are apparently inter-specific hybrids, supporting the cross-pollination theory. Many of these have not flowered and so final conclusions must wait, but the following describes some of them.

E. laanii: (pale pink form). Seedlings were potted under both plants of this suckering form. Unfortunately I mixed the two lots but if my theories are correct some will have the white-flowered parent (House block) and some the dark-pink non-suckering parent ("The Cottage" block). Considerable variation in leaf colour, angle of reflex between leaf and stem, flower size and habit. One has taken off like a young E. miniata.

The one seedling from under the dark pink form (N/L 26) grew into a healthy young boxthorn! Oh well, you can't win them all.

E. pantonii. Definitely of doubtful moral character. I took these at face value until they flowered when a number of E. scoparia characteristics became obvious. The flowers were pure E. scoparia, the tubercles fine and dense, stems 4-angled and foliage opposite. Why hadn't I spotted it earlier? Almost certainly all 11 plants are E. pantonii x E. scoparia.

E. youngii. All seedlings were under one bush but I have another form nearby. The seedlings show signs of being two different forms but none have flowered as yet. Several show signs of stunting with small twisted leaves but whether from poor root systems, or weak genetic make-up I can't say. The remainder are very vigorous.

Also among E. youngii were some seedlings which were obviously different. Green stems with sparse prominent tubercles, green alternate leaves, the whole covered with a fine, dense grey tomentum. These are being grown by four members and not available for general release until they flower and we can determine whether or not they have any real potential.

E. mackinlayi. Nearly thirty seedlings have gone as far as Queensland. Even in the nursery grey and gold tipped forms were evident. My best seedling appears intermediate in habit between the neat compact form of the parent and straggly habit of the other form present. Leaf and flower is so similar it is impossible to use them as a guide to any cross-pollination. Seedlings have continued to appear around the bush but none have survived and I haven't lifted any. Ray Issacson has struck cuttings from his seedling whereas the parent had defied all attempts since Ron Schahingers initial success in 1972.

E. sturtii. Appeared under E. battii, some 5 metres from my group of three E. sturtii (2 forms). Healthy but yet to flower.

E. macdonnellii. The original plant had broad leaves and came from William Creek, but the one surviving seedling has much narrower leaves and gives every indication of being a cross with the narrow leaf form common in cultivation which was growing a few metres away.

E. compacta. Two seedlings appear very similar to the parent but have yet to flower. I have no other specimen and no closely related species. The only other species with no near relatives which germinated was E. exilifolia, but I failed to save them.

HYBRIDS: From under E. pantonii, but with E. christophori and E. drummondii nearby I have some apparent hybrids. One certainly has E. christophori in it's breeding, the other has yet to flower and defies any attempts at identification.

Other seedlings appear at various times but I have not taken the time to keep them alive. In our hard soils any prolonged hot or dry spell very quickly kills young seedlings unless extra water is given to grown them to a size big enough to pot up. However, from the results of the young plants here it would seem worth the effort.

If cross-pollination is necessary it would explain why no seedlings appeared under single specimens that have set copious quantities of drupes. For example, one large but lonely E. bignoniiflora in a paddock block covers 5 m of ground with fruit, but I have never found a seed in one.

From my results it is obvious that we not only have much to learn about the reproduction of Eremophila, but also that there is an immense scope for new forms within a species and also for inter-specific hybrids. So if you are lucky enough to establish seedlings keep track of them; who knows what you may come up with, and if P.V.R. legistlation is passed you could make your fortune.

N.B. In this article I have used the term "form" simply to indicate plants of different breeding; 3 or 4 plants grown by cutting from a single parent would only be a single form.

Ken Warnes

The "pink" E. bignoniiflora and the "other" E. santalina

I had always been sceptical about the term "pink" when applied to E. bignoniiflora, as the common form often has a brownish-pink appearance. So it was with no great anticipation that I awaited the first flowering of two seedlings grown from seed sent to me by Dave Gordon many years ago. How wrong I was. One in particular has a glorious, bright lolly-pink flower well displayed on a vigorous bush tending to be a bit spindly, the other is not quite as bright but the bush is denser. So far, they have proved hard to strike.

Murray Catford sent me seed of E. santalina collected from the east side of the Flinders Ranges. Initially the fruit, then later the stems, leaves, habit and buds were typical of Myoporum, right up until it flowered when 1.5 m high. When the flowers opened it was E. santalina alright, but a very different form (variety?) to the more commonly cultivated one that so resembles a Santalum in habit.

A few notes to finish off. I was very dissappointed recently to discover my pink E. viscida 20 m from where I had last seen it - 1.5 m x 1.5 m and in full flower it had snapped off cleanly in a gale. Cuttings quickly died and as this form is still rare in cultivation I considered it a major loss. However, new shoots are growing from the crown so it may yet survive. As if in sympathy a mature white flowered E. viscida nearby has died completely - I suspect crown rot or termite attack.

A E. virens that died from crown rot a couple of years ago, shot from a root about 1 m from the crown. The regrowth is now over 1 m high, so if you do lose a plant don't be in a hurry to dig out the crown.

In answer to Norma Ali's question re E. laanii suckers it is my experience that the white flowered form suckers frequently, the pale pink form occasionally and the dark pink form does not sucker at all. At the same time, a great number of species will sucker or shoot from several, damaged or exposed roots. Possibly the root was damaged when the E. densifolia was planted, prompting the sucker.

When mentioning suckers naturally E. longifolia comes to mind. Grafting E. longifolia on to Myoporum would stop this problem, but beforehand, make sure you select a good form of E. longifolia. In our area it varies considerably and some forms are much more superior to others in flower colour and size, and in the degree of suckering and general habit. Alternatively would it be possible to cut the top off a sucker as it appeared and graft on another species?

Ken Warnes

On behalf of the Study Group I wish to extend our thanks to the Director and staff of the Botanic Gardens for their continued support for the production of this Newsletter.

May I also wish all members Seasons Greetings and good growing in 1986.

Geoff Needham

Articles are now wanted for our next Newsletter. Please write on alternate lines.

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