

ASSOCIATION OF SOCIETIES FOR GROWING AUSTRALIAN PLANTS

VERTICORDIA STUDY GROUP

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NEWSLETTER NO 27 -- FEBRUARY 1997

MEMBERSHIP

At this belated stage I would like to wish all Study Group Members a happy 1997, and may all your Verticordias prosper.

I am pleased to extend a welcome to the following new Study Group Members:-
Paul Whiley, 136 Boisdale Street, Maffra, Victoria 3860
M.J.Erskine, R.S.D. Rudd Road, Shapparton, Victoria 3630
David Lightfoot, 8/70 Brighton Avenue, Croydon Park, N.S.W. 2133.

Unfortunately a few members have failed to renew their subscriptions and therefore are no longer with us.

In a brief note, (8/96), from Judy Growsns, Parkerville, W.A., who has been getting things together again after the recent death of her husband John, she says:-

“Usually in the autumn I check through the Verticordias after the first rains and send an update on their survival rate and condition after the dry summer, but I have not been able to do that this year. The rain was late in coming and June and July have been so wet that it has made assessment difficult. We have had over half our yearly average in June and July and half the block is under water.---- I know we have lost some, including all the *V etheliana*

Certainly the fertiliser trial was a complete failure and no results can be assessed from it. I think such a trial needs a greater number of plants and also weather control.

The building up of gravel around the base of *V eriocephala* was successful. Those plants that received this treatment have sent up shoots from the base, but not the others. This may of course only work for our long, dry summer. It may cause fungal problems in wetter areas.”

DONATIONS

The Study Group is very grateful to acknowledge to acknowledge the following donations in excess of the nominal subscription :-

David Randall -----	\$2.00
Judy Growsns -----	17.00
Elizabeth George -----	7.00
Max Ewer -----	2.00
Gay Bennison -----	2.00
Kay Owens -----	2.00
Paul Whiley -----	17.50
Graham Eastwood -----	4.00
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.VERTICORDIA ETHELIANA var. ETHELIANA

To me, a well grown flowering plant of *Verticordia etheliana* v. *etheliana* is the ultimate. The specific name 'etheliana' was, I understand given by the well known botanist Charles Gardner to honor his wife Ethel. With striking crimson flowers approximately the size of, and similar in colour to *Verticordia grandis*, but more compact in growth habit, one's motor vehicle in the Murchison River district of W.A. virtually 'comes to a halt automatically' when a plant shows up on the verge.

You will not be surprised then that one of my personal ambitions is to grow and maintain this species to optimum standard. After numerous trials under differing conditions however, I must admit to still having some distance to go. Our understanding has been increased by various observations reported by members from time to time. In Newsletter No.23, with an assessment of results to that date, I included a comparative history of two potted specimens I have been maintaining as stock plants. They were originally potted up in October 1990 and both are still being maintained satisfactorily and used for cutting material. They have, in the main been held in the glass house under occasional mist where they have flowered well and have made better growth than I have been able to achieve with garden specimens.

With the benefit of further observations since the above, I believe it is now time to again review our assessments. Some observations reported earlier will be repeated if they still appear appropriate. If some comments may seem to imply a negative tone, perhaps I should firstly note some of the positives.

- A- **It propagates readily from new growth taken in mid-summer.** (Sydney, from stock plants held in glass house under occasional mist)
- B- **It is easy to maintain in containers.** (A above - Moyles, Mandurah W.A.)
- C- **The foliage does not appear to suffer from fungal attacks** as do some other Vert. species in the late summer/autumn period. (Sydney)
- D- **Very few problems from root or collar rot have been noted** (Sydney)
- E- **It shows good growth response to rain throughout the year** (Sydney)
- F- **It is relatively untroubled by insect attack.** (Sydney)
- G- **It will make good early growth in a range of soil types.** (Sydney, W.A.)
- H- **It can be expected to flower from early winter through to late summer.** (Sydney, in glass house + in/ground given favourable weather).

The following reports (J to W) have been helpful to indicate performances under varying conditions. Observations which seem most significant have been are highlighted:-

J- Moyles, Mandurah W.A. - It has been **easier to maintain** in good condition during winter, **located on a north/facing verandah**, than planted in the garden.

K- Koch, Matraville, Sydney - Grown in a perspex enclosure with north face open, in full sun, it developed and flowered very well in winter. In a 45cm deep tube it was protected from rain and **watered from the bottom as required** by means of a saucer. A little fertiliser was incorporated into a well drained mix. Later, planted out into a sandy garden, it did not survive very long.

L- Newman & Kenyon, Dural, Sydney, N/L 23 It made very **good early growth in fine/textured medium loam** with concretionary ironstone inclusions. It did not however survive to flowering. No artificial watering or fertiliser were applied.

M- E. George, re Manmanning, W.A. planting, N/L. 19 Very open situation **subject to extremes of weather** from 47C in summer and many consecutive severe frosts in winter. **Soil:-deep, white to grey, sand** of granite parentage. Plant responded and progressed well after being transplanted from earlier position where it had apparently suffered in competition with a Eucalypt. It was located **near a natural drainage line** but received no prior soil

preparation or maintenance other than weed removal.

N- E. George, Alexander Heights, Perth, W.A. N/L 17. Flowered well in August despite first buds in June having been **burned off by cold winds.** - **Soil deep sand** enriched in top stratum with Compeat. - Grown near large stones placed to even out winter temperatures.

P- Growns, Parkerville W.A. Soil **medium loam with laterite inclusions** -Weather extreme; summer/dry and winter/wet. N/L 20:- Trickle watered 1 year but then died.

Q-----NL/21:-Planted in **better drained area close to taller Acacias to give a little frost protection**, specimens were still flowering in August after about a year.

R-----N/L 22:-**After a hot dry summer and without watering**, (in order to test survival), plants were a little **dry looking but still leafy**

S-----N/L27:-**All of species lost following complete inundation** from very heavy June rains.(See separate report above, N/L 27)

T- Hewett, Cherrybrook, Sydney Grown in heavy loam in exposed north aspect, plants made fair early growth, flowered and hung on for some time, but **did not regain initial vigour**.

U- -----Grown in loamy gravel, **performance was similar**.

V-----Grown in well drained but rather nutrient deficient sand, enriched at planting with a small quantity of fertiliser, early growth and flowering were relatively good but plants **defoliated in late autumn and did not recover**

W-----Plants with **deep sand substrata and surface soil enriched with compost and loam**, seem currently to be holding on better(Refer to cultivation notes in this N/L).but it is a little too early to make conclusive assessments. It should be noted however that as well as enjoying a better spring season in 1996 than for some time they have also had the benefit of some hand watering.They have responded with continuity of flowering over the spring and early summer period, recovering from some defoliation after each flowering burst with a little new growth which quickly produces new flower buds rather than continued foliage development The vigorous growth of the earlier preflowering stage however has not yet been produced and the plants consequently **have remained rather small**.

A number of the above observations seem to warrant further discussion and prompt me to make assessments, which I readily admit, should be further tested before receiving blind acceptance. Will members please forward any appropriate observations in support of, or at variance with same.???

Soil and Drainage

Although it has been noted that early growth results suggest species' acceptance of a wide range of soils, I suspect that unless very freely draining subsoil conditions prevail, plants can suffer or be lost at times, from a sudden change in seasonal weather pattern, (particularly in the late summer period)

The Manmanning specn.(M), might seem to have some climatic advantage in being grown closer to the species' region of natural distribution and with comparable summer temperatures, but Parkerville specns (P, Q & R) were also grown in a high summer temperature zone. I suspect the major performance difference relates significantly to the soil types and subsoil drainage.

Specn.(M), on freely draining sandy subsoil, with some capillary moisture from the adjacent natural drainage line, would probably have been less exposed to variable moisture conditions in the lower root zone.

Specns (P, Q & R), on heavier and more slowly draining soil, would seem to reflect the general experience that the species responds well, particularly in early development, to

soils with good moisture availability. Due probably to the shallower root penetration however, from reduced necessity to forage for moisture, it could be inferred firstly, that, in a hot dry summer, the root system would be more subject to weather influence. Secondly, when wet weather conditions prevail, these roots, in more slowly draining soil, would become exposed to greater saturation hazard. Specn (Q) would seem to confirm some advantage from growing in a better drained situation.

Report (S), following complete and sustained inundation, albeit in the seasonal winter period, would seem to confirm the objection of the species to saturation of the root system.

Report (L), from Eastern Australia, in a different soil type, again confirms, by good early growth response, the species acceptance of a wide soil range. While general drainage could be described as reasonable, however, I suspect, as for P, Q and R above, that slower subsoil drainage may have exposed the roots to more variable moisture conditions.

Reports (T&U), from my own garden, would again seem to support observations regarding soil adaptability range and also, despite the differing climatic conditions of Eastern Australia, indicate a susceptibility to slower subsoil drainage.

Reports (J & K) would seem to confirm the species appreciation of constant soil moisture with adequate drainage, as provided by container culture.

My experience also with two potted specimens maintained since 1990, almost continuously in the glass house, under occasional mist, would again seem to confirm the species ready acceptance of moisture throughout the year providing drainage is adequate.

Aspect and Climate

It should be noted that the species grows naturally in tall shrubland as an undershrub, in the warmer winter conditions of the Murchison River district of W.A. Because of relatively close proximity to the coast, conditions are not as extreme, summer or winter as further inland in the more open heath areas.

Specns (J & K) would support a view that a warm winter aspect is most desirable

Specn. (Q) also reports better results when grown with some winter frost protection such as from adjacent taller shrubbery. Such procedure seems in line with the species' natural habitat.

The above observations may seem at variance with specn. (M) which is subject to weather extremes in a fully open situation. I believe this indicates however, that given adequate below ground development, the species has the resilience to withstand very rigorous conditions. Perhaps I could add here that, despite its natural occurrence in tall shrubland, the best specimens I have seen have been in more open situations where some general clearing of taller shrubbery has taken place.

It may be with (M), that the hot, dry summers toughen the foliage gradually and that when winter rains start, the new growth, produced under colder winter conditions is thus more cold resistant. By way of contrast in Eastern Australia, autumn growth is frequently rather lush, due it seems to the more humid seasonal conditions. When colder winter conditions ensue, this lush growth seems vulnerable, with early flower buds and leader foliage frequently cut back. Some plants have been lost at this stage, seemingly from the sudden weather shock. On other occasions complete defoliation has occurred, but a little regrowth has commenced from late winter.

Specn. (N), in Perth, also notes burning by cold winds in June but with later August recovery. It should be noted that specn. (N) has been grown in deep sand which I would have thought to be to its advantage. Perhaps the winter burning could be attributed to the fact that it had been encouraged, by virtue of the more congenial garden conditions, to maintain better summer growth, than as noted in (M). Perhaps then the foliage condition more closely followed the late autumn pattern of specimens in Eastern Australia, with susceptibility to early winter burn.

Watering.

Observation (E) is that the species shows good growth response to rain throughout the year. Furthermore, little if any adverse effect from artificial watering, either generally or by drip irrigation has been noted.

At times however water stress has been evident with newly planted specimens before satisfactory establishment has been achieved. First indications are a change in the direction which the leaves adopt relative to the stems, viz., being folded inwards, rather than standing outwards or even slightly backwards. After watering, leaf recovery is usually quite rapid. With plants in containers, evidence of this water stress can appear quite suddenly, but on the other hand, given water, recovery can also be very rapid.

Under 'Cultivation Notes' earlier in this Newsletter I have referred to what has appeared a problem in Eastern Australia, from the generally dry, and of late, drought conditions experienced during winter and early spring. I have noted means, involving artificial watering (refer comment W), by which I hope to counter the situation. It is too early as yet to draw conclusions from these measures but early indications suggest some improvement.

Another matter which may be influenced by seasonal weather patterns is the time planting out should be undertaken. In winter/wet areas, late autumn to early winter has generally been accepted as the most desirable time in order that plants can become established before the onset of the hot and dry summer. In the winter/dry regions of Eastern Australia however, I suspect this species may do better, planted in late winter or early spring. At this stage however, conclusive assessments must await more evidence. The trials noted in the preceding paragraph may well have a bearing, as well as the preplanting development and preparatory site staging of the specimens. I do strongly feel however that late spring or summer plantings should be avoided as early foliage development may not be adequate to safely withstand the transition to winter conditions.

Fertilising.

The matter of fertilising is another which, at this stage, must be a matter for further research. I have noted the difficulties, particularly in Eastern Australia, of producing good foliage development of garden specimens beyond the early preflowering stage. With Specn. (V), grown in nutrient deficient sand to counter possible root and collar-rot problems, slow release fertiliser was dug in prior to planting and apparently assisted good early development.

A brief report from Judy Gowns earlier in this Newsletter reports her fertiliser trial as a complete failure, but perhaps other factors such as the exceptionally heavy inundation, or lack of attention following the death of her husband John, may have had significant influence. From considerations I have noted above however, I feel that lack of freely draining subsoil may have been the real culprit. This is not to suggest that plants may not do very well in her soil type and climatic situation for an appreciable time, but that ultimately, when extreme weather conditions as noted prevail, survival chances would be considerably greater in the deep sandy subsoil conditions.

Together with our current understanding of the species as discussed under the above headings, perhaps it may subsequently prove possible, with appropriate fertiliser use, to achieve improved results, particularly in Eastern Australia

CULTIVATION NOTES

In Newsletter No. 26, August 1996, I indulged myself with some observations and surmise on the problems of maintaining reasonable development of many species under the winter-dry and summer-wet climatic patterns of Eastern Australia, with particular reference to

drought years 1993,94 and 95. I concluded the above Newsletter with a weather reference, (late July), to the effect that rain was then falling and perhaps this may be an indicator of more 'Verticordia-congenial' spring weather to come. Such has eventuated and, with occasional spring rains, garden responses generally have been the best for years. Sydney's weather progressed to exceptionally dry early summer conditions and without artificial watering, (see later), it has been interesting to note plant responses including dormancies. Many Verticordias have benefited by the 'a little more like home' spring weather pattern, so perhaps it is an appropriate time to again re-assess the position

To date, in Eastern Australia particularly, our cultivation research has been directed predominantly towards achieving reasonable longevity of Verticordia species. I have made many previous references to cultivation efforts, designed to overcome problems to roots and foliage from pathogens, which, as might be expected, have often been significant in our usual late summer and autumn weather conditions. Such research here has been a very good laboratory for determining species susceptibilities, Australia wide, to such pathogens, and for preferences of particular soil types. A recent issue of Australian Plants includes a comprehensive summary of these preferences and susceptibilities.

Plant responses to the recent drought years however, have highlighted some growth patterns, which hopefully may add another dimension to our research efforts and take us a little further towards our next cultivation objective; the marrying of the understanding gained to date, with measures to promote better establishment growth and better longevity.

I refer to some thoughts I introduced in the recent Newsletter No.26 concerning the apparent desirability of obtaining reasonable preflowering growth in the winter/spring period. As noted growth deficiencies in this regard have been particularly noticeable in the recent very dry years in parts of Eastern Australia. The earlier flowering species have seemingly been least affected. Lacking adequate vigour and growth during this spring development phase, many other Verticordias, while having still flowered, have seemed to have suffered later from reduced ability to recover after their natural dormancy periods.

Some may regard my following comments as merely a repetition of what could be considered well established good gardening practice. I believe however there are some factors which warrant such repetition and emphasis, if we are to achieve our ultimate goal; the understanding necessary to grow reliably and to optimum standard throughout Australia's climatic range, many of the various Verticordia species. Put simply and I hope objectively, the following considerations may hopefully carry us that extra step.

Drainage

For wet seasonal conditions in the autumn post-flowering phase, some species may demand very free sub-soil drainage in order to withstand problems from root rotting. The natural form of root development, (deep or spreading) may give indications for preferable soil type or structure

For species with deeply penetrating root systems such drainage provision may be particularly desirable. Trials on this basis are proceeding. (see N/L 26). with an upper stratum enriched to provide nutrients.

Collar-rot protection.

Although there is evidence that vegetative mulches may be used to some advantage in the summer/dry regions of W.A., the provision of sterile surface conditions as noted previously, seems desirable for most climatic zones. In Eastern Australia plants grown on

small sandy mounds seem to be proving relatively successful, but diagonal wind staking through the foliage is generally necessary to provide plant stability, as wind rocking can prove quite destructive and would appear to contribute to collar-rot problems.

Development of better preflowering growth.

Although I doubt there is a completely adequate alternative to seasonal rain in the preflowering growth period, there are perhaps some things we can do to improve the growth situation. Verticordias, hailing from a winter/wet region, in the main commence their seasonal growth activity during winter or early spring

Trials, referred to above, are currently proceeding in an effort to overcome seasonal climatic differences. Although effects of this seasonal difference have been accentuated, particularly with the later flowering species, by the recent drier than usual conditions in parts of Eastern Australia, it still remains a problem warranting special consideration, even under more average seasonal conditions, in most dry winter/spring regions.

When such dry seasonal conditions prevail, artificial watering alone, either generally or by drip irrigation, does not seem adequate to compensate for the lack of favourable growth conditions. In winter/wet regions furthermore, I believe the level of humidity, especially overnight, in this growing season, is a significant contributing growth factor. In contrast, nights in the winter/dry areas are generally very low in humidity.

Currently, several measures are being trialled in an effort to compensate. Over deeper sandy sub-stratum, (see "Drainage" above), the surface soil, to shovel depth, has been enriched with copious quantities of composted vegetative mulch. The garden surface except for about 20 cm diameter around the small sandy mounds noted above, has also been heavily mulched. This latter surface mulch between plants was applied during winter and will not be augmented until the start of the next winter growing period, so that by late summer it will have been reduced by decomposition to a relatively thin surface layer. Most new winter and early spring plantings have had slow release fertiliser incorporated into the soil prior to planting in a further effort to promote faster early growth. General hand watering has been applied every few days early in the growing season, unless natural precipitation has occurred. The frequency of hand watering has been gradually reduced as the spring season progressed and was virtually discontinued from early December.

The localised planting hillocks have resulted in the formation of shallow trough areas between the plants. These troughs, being heavily mulched, train excess water into the garden bed a little away from the plant stems and also prevent general surface scour. The mulch hopefully should also help retain more moisture in the upper soil stratum, particularly in the more deeply mulched winter/spring period, before appreciable breakdown has occurred. Furthermore, with a more gradual and continuous evaporation rate from same, the general level of garden humidity in the near/ground air layer can hopefully be increased to compensate in part for the otherwise dry air conditions. At night, with reduced wind movement, this increase in general humidity should hopefully be significant.

As I have noted it is early days yet with the above trials and until plants have withstood a range of seasonal conditions it will not be possible to make conclusive assessments. To date however results have been encouraging.

Some may question efforts to grow plant species which demand provision of such special cultural attention. For such members perhaps it may be appropriate to limit their efforts to species which seem easiest to adapt to their particular soil type and structure. It should be noted however that many of our well known garden exotics also demand specific treatments and I would contend that efforts to establish understanding of such magnificent Australian Native Plants as *Verticordias* is certainly warranted, both for ethical and conservation reasons and for pride in our indigenous Australian Flora.

INVESTIGATIONS INTO VERTICORDIA SPP.

The following article is reproduced by courtesy of *Verticordia* Study Group member, the **West Australian Wildflower Producers Association**, from their Newsletter, December 1996. Under the authorship of *Neville Burton et al., Agriculture WA*. it includes some interesting comment on *V. eriocephala* and closely related *V. brownii*.

“*Verticordias* are showy Western Australian native flowers popular in local and international cut flower markets. The small feather edged flowers are widely used in both fresh and dried arrangements. Bush picking has decimated some native populations. Very little is known about the agronomy of *Verticordias*. A research program aimed at the development of this plant genus for the cutflower industry is being undertaken in Western Australia.

Three projects have investigated the effects of bush picking on natural populations of *V. eriocephala*, establishment problems associated with *V. eriocephala*, and critical levels of nitrogen in *V. brownii*.

These studies have shown that bush picking threatens the survival of *V. eriocephala* in the wild and **uninterrupted root growth is critical to the successful cultivation** of this species. **Increasing nitrogen supply to *V. brownii* results in increased shoot growth relative to root growth weight.**”

The above comments by Neville Burton may explain some observations of these species on plant performance in Eastern Australia. While neither has indicated significant susceptibility to fungal attack on roots or foliage, *V. brownii* has been by far the easier of the two to maintain, with relatively fast plant development and flowering. The major hazard has come from wind damage and it has seemed highly desirable to protect it by staking. Placed diagonally through the foliage, this has proved beneficial. His reference to the ratio of shoot growth to weight of root growth given increased nitrogen may be part of the answer. As noted the species makes good early growth and is apparently responding to the increased fertility of garden conditions.

Verticordia eriocephala on the other hand, has been slow to progress here and difficult to flower. I have wondered if time of planting could have an influence upon early growth. In 1996 plantings both in May and October have responded similarly with little if any development until the late spring or early summer, when more vigorous development started and has continued to date. From this it might be inferred that seasonal growth tends to commence later than with many other *Verticordia* species, although the seasonal climatic pattern in its naturally winter/wet region may possibly have overriding influence there. The reference to a requirement for uninterrupted root growth could have significance for both initial planting and later plant maintenance such as flower harvesting.

For the former it could be desirable to ensure that nursery produced plants have not been held before planting, to the stage where root ends have been restricted, as planting at this stage and in this condition, or with coiling removed, could be expected to interrupt development.

With regard to harvesting of flowers, the natural form of plant development in many

areas is the formation of a corymbiform head,(or cauliflower as frequently known), supported on long stems of relatively mature wood. I would suspect that heavy removal of this mature stem wood could constitute a shock to the specimen which may then be reflected in the root system by growth interruption. While many plants in horticulture, particularly those of a soft wooded nature, accept or are even improved by such flower pruning, not all hardwooded species will accept it. The timing of such hard pruning may also be significant to plant survival. I have experienced losses from severe pruning immediately after flowering, of such easily grown species as *Verticordia chrysanthella*, whereas plants allowed to assume a relatively dormant summer condition have frequently produced new growth in mid autumn from defoliated branches. At this stage they have responded favourably to heavy trimming to restore appearance.

I have noted in WAWPA,S Newsletters that bi-annual flower cropping of cultivated plantations has been suggested in order to allow some plant recovery. It will be very interesting to see if they can come up with a treatment to solve this problem, perhaps by producing stem wood of less mature condition,. If so, the research could benefit our garden growing of the species.

Last October,Pat Kenyon,Ted Newman and myself had the pleasure of seeing first hand, **Graham Eastwood's** garden at Batemans Bay. You will have noted several reports from him in recent Newsletters including some points of his gardening philosophy, and it was interesting to see first hand how his *Verticordias*, in particular, were responding. We were certainly impressed, not merely by his *Verticordias*, but by the many other difficult to grow species in his garden and by their quality of growth and profusion of flowers

Two aspects in which he strongly believes have given me special cause for reflection; pruning from early development to develop compact specimens, and secondly, that all plants require a rest period at some stage in their annual cycle, even though this may not correspond, due to climatic variation, to the species dormancy period in it's area of natural distribution.

While many will readily accept the first principle, the time for pruning of mature *Verticordias* may surprise some as it is often considered that this should be undertaken at flowering or immediately afterwards. I have found however that some mature *Verticordia* species react unfavourably to this treatment, at least in our Eastern Australian climatic pattern. I believe the answer may be found in Graham's assertion that all plants must be allowed to go through an annual rest period. If left unpruned at the stage noted, minor die back; especially the flowered branch ends of some species, can usually be expected as they proceed into dormancy. From my experience, it is safer to trim these plants back to shape later in the post dormancy phase as new seasonal growth commences. I believe that the earlier pruning tends to interfere with the natural cycle, possibly by tending to induce new growth at a stage when they should be entering their rest period.

Graham has forwarded, (Jan. 97), the following notes on his *Verticordia* species.

A- Three years or more in age and seemingly well established:-

V. chrysanthella (4)

V. densiflora

V. monadelpha (grafted)

V. plumosa var. *plumosa*.

V. staminosa subsp. *cylindracea* var. *erecta*

V. attenuata

V. cooloomia (2). These have flowered continuously throughout the year and have remained green without leaf drop, but have not put on any new growth until quite recently

when one of them has finally started to move.

B- More recent plantings

V. citrella Developed well with good flowering in late spring. It had a touch of sooty mould which was corrected with a spray of white oil. It is currently making new growth.

V. huegelii planted 10/95 has only recently started to put on new growth. From the last spring until recently it was covered with powdery mildew which has disappeared with the new growth.

V. brachypoda planted last summer, grew fast before dropping most of its foliage, except for a little at the top and also at the bottom. Upon cutting back to the bottom tips it remained dormant until recently when steady growth from the bottom tips restarted.

V. fragrans has flowered twice but recently suffered damage from an animal intruder including movement of the stem with, I believe, some root damage, which resulted in foliage loss in the centre of the plant. It has now been cut back to a few healthy sprigs and I am waiting to see if it will progress again from here.

V. chrysanthella was loosened in early spring by wind, with one half of it affected. It was then staked and the whole plant remained green and flowered, but the leaves of the affected part then turned brown. This section was then removed and the rest is currently putting on new growth

V. minutiflora is green from top to bottom and is now starting to flower

V. chrysostachys was yellowish at first but as summer approached all leaves greened up and it is now flowering.

V. monadelpha (white) had a few flowers and is now making new growth.

V. monadelpha (pink) is also currently making new growth.

V. serrata flowered in late spring and is now making healthy new growth.

V. mitchelliana flowered well in spring and is now making new growth.

V. eriocephala did not flower but is growing well.

V. nobilis did not flower but is growing well.

C. Seedlings

V. huegelii var *decumbens* taken from seed box late 95 have only recently started to make new growth.

V. chrysanthella, (2), self sown and later transplanted to another location are both doing well.

Recent garden germinations since very early spring: -*V. chrysanthella*, (4)

V. staminosa subsp. *cylindracea* var. *erecta*, *V. monadelpha*.

I have noticed that self sown garden seedlings do nothing for 3 or 4 months and then only increase slightly in size for the rest of the year. It is only in the second year that they put on vigorous growth.

I have recently concluded that small plants or seedlings should not be sprayed with white oil from a pressure pack as it is too hard on them. I now apply the white oil with a fine artist's brush painting the stems without touching the leaves. This cleans up the trouble instantly and does not do any damage.

Max Hewett, ASGAP Verticordia Study Group Leader
11 Harvey Place, Cherrybrook 2126- (02) 9484 2766