

# VIREYA VINE

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FOUNDATION

R. S. F. PO Box 3798, Federal Way, WA 98063

E. White Smith, Editor

From Clarice Clark

Puyallup, Washington State

Dear VV,

E-mail from the Vireya net

I saw your letter in the Vireya Vine about the poisonous effects of Vireya Rhododendrons on birds. I have only my personal experience to share: I had two Eclectus parrots living in my greenhouse here in Washington. They were let out of their cages occasionally and allowed to fly into the house. Invariably, when they thought my attention was distracted, they would sneak back into the greenhouse and eat my Vireya Rhododendrons. They especially enjoyed eating the stems right down to the green cambium layer and could girdle a plant in just a few minutes. They ate leaves, flowers, you name it - and they destroyed a lot of plants. I never noticed any toxic effects except to the plants. Now, the parrots are native to the Solomon Islands off the coast of New Guinea, and there are vireyas native to the Solomons, so they evolved together. Your native birds in Hawaii would have to be studied, as they may not have this natural immunity. It's going to be hard to find anyone willing to risk your already endangered birds in a study that is potentially fatal. I would enjoy knowing if you hear from anyone else on this topic, and I hope you will write a follow up for the Vireya Vine with any news.

Clarice Clark

Puyallup, WA. 98371

E-mail [jbroadus@seanet.com](mailto:jbroadus@seanet.com)

E-mail from Graham Price in Australia

Thought I'd step in and provide a little advice on raising Vireya seedlings. I have made lots of mistakes and had a few successes growing Vireya seed and seedlings and have gradually worked out a way of doing it for my circumstances. I'm sure others have developed different ways for their circumstances. You'll have to work out your own methods but here are the broad techniques I use. Good luck.

1. All crosses should be labeled. That is, when you pollinate a flower place a small tag around the petiole with a suitable number and record in your "stud book" that number, the date, what you have crossed with what, when and generally why. An unlabeled cross is almost worthless.

2. Vireya seed doesn't last long (remain viable), generally only a week or two so it should be sown as soon as practical. It is possible to save the seed for longer by desiccating (drying) and freezing it but I am no expert so it's better to just sow it ASAP. Watch the pods grow long and fat - there are some Vireyas with seedpods longer than string beans. Collect the seed pods just when they start to split open and place them, and their label, in a paper bag or envelope and put this in a warm, dry place out of sunlight. The pods should dry out in a week or two, splitting open further and dropping small brown winged seeds. Break into any pods not fully open and empty out the seed, discarding the fragments of the pod. You should get lots of seed, some of which you may not need. Prepare a plant label with the relevant cross number and date sown to go in the pot with each batch of seed.

3. Prepare your seed raising mix ('soil mix' - though there shouldn't be any actual soil). Any fine mix will do. Generally fine-medium sharp sand and peat, but varying amounts of perlite, coconut fiber peat or similar will do (50:50 sand and peat is standard). The objective is to have it free draining but to hold enough moisture to keep the emerging roots damp. Make sure that the mix is just slightly acidic and not too acidic or alkaline (using peat moss will do this naturally). If you are prepared to water them daily then you can have less peat, but if circumstances dictate less frequent watering then use more peat. I know I'm not giving precise amounts of each component but so many things differ that it depends on the properties of each (sand, peat, etc) and your particular conditions. Each person must build up experience of what works for them in their circumstances so just keep trying and experimenting till you find something that works.

4. Decide on what type/size of tray or pot you want to use for the initial germination and growth period. I've always used shallow pots and trays, ~50mm deep, but deeper containers may work. I have had most success with small square pots (~40x40mm) and if you want more seedlings simply use several pots. Small pots should be adequate if you are just starting and each will generally produce 30-100 plants. Make sure the pots are reasonably clean and that the drainage holes are adequate and not blocked. Fill the pots loosely with the 'soil mix' (to the top of the pot) then saturate them with boiling water (pored over the top gently will do). This is the best way to get the mix thoroughly wet and it will essentially sterilize the pot and the mix, killing any bacteria or fungi present. Allow the pots to cool before sowing the seed.

5. Gently sprinkle the Vireya seed over the top of the wet 'soil mix'. Do not cover the seed. Spray the seed gently with plain water (using a hand-held kitchen spray bottle is the easiest). Don't use any fertilizer yet. This spraying will wet the seed and start the germination process. The top surface and the body of the 'soil mix' must now be kept moist and warm to allow the seeds to germinate and grow. This can be achieved in many ways. One way is to seal the pot in a clear plastic bag and put it on a windowsill (no direct sunlight or it will cook). Sealing the bag will maintain the internal moisture. Another way is to use a small germination box with bottom heat and an overhead light. Any such system that maintains moisture and provides enough light and warmth should do.

I have found that ~22-24 degrees centigrade bottom heat is great for getting things moving but if bottom heat isn't possible it will just take longer to germinate and slower to grow. There is an increased risk here because the longer it takes the more chances there are for algae & fungal infection. Germination will take 2-4 weeks. These are NOT fast growers so be patient.

6. The roots emerge from the seeds first and head down into the mix and then the first leaves appear. It can take some time for the secondary leaves to form - maybe months. The seedlings will grow slowly but if they appear to have stopped growing then give them more light, warmth, water or feed (or whatever) to stimulate them to grow.

7. Some people prick out the small seedlings and re-pot them as soon as they are big enough to handle with tweezers. I don't like this because it can break off the roots - and roots are EVERYTHING in growing Vireya seedlings. From my experience small seedlings can live for 4-6 months without roots if they are watered regularly but they will eventually die. Generating big healthy root systems is the key to successful seedling growing. I like to leave them in the pots they were germinated in until they are too big for the pot - i.e. 15-25 mm high. They will look like a small jungle but as long as fungus doesn't strike this is OK. This is also a good reason for having several smaller pots - if fungus strikes you may lose a few but not all pots. Once fungus strikes it can be difficult to save any seedlings in a pot (though it is worth trying by using any of a range of fungicides, particularly the systemic ones). To get the seedlings up to 15-25 mm high may take quite a long time - 12 months or more. However, they can be pushed along by the application of low-strength fertilizer as a "bottom feed". "Top-feeding" (i.e. spraying the leaves or flooding the top of the 'soil mix') is OK but it tends to encourage algae and moss to grow on the surface and this should be avoided. I find that "bottom feeding" is better as it stimulates the roots and doesn't encourage algae or moss on the soil surface. The easiest way to "bottom feed" is to use a soluble fertilizer (any general purpose soluble or liquid fertilizer should do but I like the ones based on seaweed - which also stimulate the roots). Put enough of the fertilizer solution (about half-normal strength) into an open container so that the liquid level will come to about halfway up the pot and stand the pot in this solution for a few minutes. The idea is to saturate the soil mix in the bottom of the pot without putting fertilizer onto the topsoil surface. With the use of light fertilizer, plenty of moisture and light and a little bottom heat the seedlings can be up to 15-25 mm high in 6 months.

8. When you are ready to transplant them just empty the entire pot, soil and seedlings, into a water filled tray and gently tease the plants apart, being extra gentle with the roots and using the water to lubricate the separation. Don't worry if all the soil washes off the roots. With luck you should have plants 15-25 mm long with root systems at least twice this long (i.e. 30-70mm) - the bigger the better. Transplant them individually into small tubes or pots (about 1-2 inch diameter depending on seedling size). Do Not put them in tubes or pots that are too large as they will just "stop". My experience is that the seedlings move slowly until their roots reach the edges of the tubes, at which stage they branch and grow furiously and the plant starts to grow more vigorously as the roots take up the fertilized water passing down the inside of the pot.

9. At the time of this first transplantation I generally give each tube/pot a small sprinkling of "Hoof and Horn" (a slow release fertilizer made of shavings from ?? cattle, horse and sheep that is, or was, available in Australia). I also water them in with "Plant Starter", a root stimulating compound used to help plants get over the shock of transplanting. There should be something similar available at most gardening centres. The "Hoof and Horn" essentially provides nitrogen to encourage leaf growth during this early stage but it also encourages strong healthy roots. My experience is that plants given this "Hoof and Horn" grow quicker than plants fertilized in other ways.

10. Over the next few months/years I apply a low-strength fertilizer (again "bottom feeding" is best) to push them along, re-potting as they need it (generally when the roots are massing at the edges of the pot). Again do not move them up into pots that are too large. Give them as much sun as they will take without drying out and burning.

11. Another thing I find important is to 'tip-prune' from an early age - starting when they are about 4-5 cm high. I pinch-out the leading central growth tip and this generally encourages two growth tips to emerge from dormant buds in lower-down leaf axils. I let these two branches grow a little and then 'tip-prune' them to try to get four branches. And so on. My idea is to get as many branches as possible as young as possible so as to make bushier plants and help restrict the rush-to-height that some vireyas display.

12. With luck you can get Vireya seedlings to flower in 4-6 years, though it can take longer. Of course, there are many reports of people getting flowers sooner by taking cuttings off their seedlings and striking these as new plants. Apparently the original roots emit chemicals in the sap that prevent the seedling from flowering too young. By taking cuttings and developing new root systems this can be avoided and one can get flowers several years sooner.

13. Last, but equally important, is not to expect every seedling to be a champion. I have heard people claim this for their crosses but generally only a few plants from each crossing will be as good as their parents and even fewer will be better. So work out what you want to keep and cull ruthlessly. Then start all over again, re-crossing between your hybrids in the endless search for something different - and hopefully better. There is no reason why a hybrid cannot be an outstanding plant and or flower. Most species grow in totally separated environments, or separate parts of the world, so there hasn't been any opportunity for nature to try its form of hybridizing and species creation. If you choose wisely and hybridize with a purpose (rather than simply cross whatever is flowering at the time) you can achieve something special. Then when you do produce something special, name it and register it and then give it to as many people as possible so that it spreads among all Vireya enthusiasts. This will give it the best chance of surviving.  
And GOOD LUCK.

Graham Price

More on seedlings from Fran Rutherford      Also E-mail

If I were Graham Price, I would never select what I am going to save based on photos or memory of what plants look like. I would first weed out the obvious dogs and then decide how many of the promising ones I have room to grow on for a few flowering years. The first flowering is often not indicative of what the flower will look in the long run. The rest I would offer to my friends to grow on and evaluate. If he still had some left, how about public gardens. Graham states his crosses were made about ten years ago and are now at a flowering stage. This seems like well above average time for a plant to reach flowering stage. I would like to know what crosses he has made so as an occasional hybridiser I can avoid using those species and hybrids that are slow to flower. Graham says he keeps his plants in full sun all year with minimum (?) shade cloth. Is he growing his plants in the ground or pots. I grow mine in black pots and if left in the sun for any length of time the pots overheat causing plant damage. I hope Graham will share more of his experience in growing vireyas. I think his idea of putting photos on the web is excellent. Seeing results of crosses is very important to all hybridisers. The more information we share with each other - the more apt we are to obtain superior plants.

Fran Rutherford

From Leslie Riggall  
Dear Vireya Vine

Kloof, South Africa  
September 2000

It is curious that although most poisonous plants are very well known and publicised, and given warning names, for example “deadly nightshade”, the “Death Cap”(a mushroom) and “poison ivy”, rhododendrons are not generally known to be poisonous.

In fact rhododendrons and azaleas contain one of the most dangerous natural poisons, with a history dating back for more than 2400 years. The poison is andromedotoxin, a narcotic which causes a struggle to breathe, convulsions, paralysis, and finally death from respiratory failure. In modern times victims of rheumatism and arthritis endured appalling suffering after a foolish, ignorant German experimenter published a report that tea made from rhododendron leaves would cure these diseases.

By contrast, primitive prehistoric people knew that rhododendrons are poisonous. The mashed leaves of rhododendrons were thrown into a pool of water, and when the paralyzed fish floated to the surface they were easily collected.

Historians have recorded examples of the danger concealed within rhododendrons. The great leader Xenophon led his Greek army in 401 B.C. to Pontus, where *R. luteum* (*Azalea Pontica*) covers the hillsides. After eating from innumerable local hives the soldiers suffered horribly and lay helpless on the ground for days. Had the harassing Colcian army attacked, Xenophon's army would have been destroyed. But they recovered, and in an epic journey Xenophon led them through terrible dangers and hardships until they arrived back in Greece. More than three centuries later, the great Roman general Pompey was pursuing and defeating the armies of King Mithridates, who was an amazing man. Mithridates had a formidable intellect, which enabled him to master twenty-two languages.

He had a dramatic personality, was an art collector and magician, famous for his strength, courage and skill with weapons. The astute Mithridates lured Pompey to those same hills where Zenophon nearly perished, and after the hungry Roman soldiers had been incapacitated by eating the azalea honey, they were all massacred by the Pontic army.

The explanation as to why the Pontic farmers had so many hives producing poisonous honey is, that they collected only the beeswax, which was a very valuable article of trade.

Vireya rhododendrons are certainly poisonous. In Malesian countries domestic animals sometimes die from eating the leaves, and some human lives have been lost, no doubt from eating the nectar or honey. This includes even goats, which usually can digest anything except metal.

From all this evidence, it is clear that we should never swallow anything that comes from a rhododendron.

Leslie Riggall  
Fern Valley Botanic Garden  
Igwababa Road, Kloof 3610  
South Africa

*Well OK, lots of plants are poison. How about 'Taro', Colocasia esculenta? The tubers are poisonous unless properly cooked. It is the main ingredient in Hawaiian poi. How about Nutmeg and mace? The essential oils are used in cooking, perfumes, cosmetics, etc. The oils contain about 4 % of the highly toxic compound, myristicin. Taken in excessive amounts, this compound can cause a fatty degeneration of liver cells. And on, and on, and on. Information taken from "Tropical Gardener" magazine. On the world wide web at [www.TropicalGardener.com](http://www.TropicalGardener.com) A very nice piece of work on tropical plants. EWS*

*Here is a word to know. Phylogeny: The history of the evolution of a species or group. EWS*

From Lyn Craven  
Dear Vireya Vine

Canberra, Australia  
October, 2000

New research project on Vireyas

The evolutionary relationships of the different groupings within section Vireya is the primary focus of a new research project that has recently commenced in Australia. Data sets derived from morphology (leaf and flower form, scale types, etc) and molecular chemistry (DNA sequences) will be analysed to give us a greater understanding as to which groupings the various species belong and the sequence in which the groupings evolved. The project will also help us understand how section Vireya is related to the other sections of subgenus Rhododendron (i.e. sections Pogonanthum and Rhododendron). Once we have established the likely phylogeny of section Vireya, it will be possible to test the Sleumer classification of the section to see how well it accommodates the very diverse array of extant species.

The biogeography of the section will be considered too because the most likely dispersal routes through the islands of the Malesian region can be worked out once the phylogeny is known. Almost certainly the section had its origins in mainland southeast Asia but questions about the direction of dispersal remain speculative until we understand more about the phylogeny. Perhaps dispersal was primarily southwards through the Malay Peninsula to Sumatra and Java and then eastwards through Borneo and Sulawesi to New Guinea and the Solomon Islands and Australia, or maybe it was through a northern route from Asia to the Philippines thence Borneo-Sulawesi and thence westwards and eastwards. And maybe dispersal back towards Asia has occurred too. This will be an exciting part of the research. The project is based in the Australian National Herbarium at the CSIRO laboratories in Canberra, and the project team includes researchers from CSIRO, the University of Melbourne and the Melbourne Botanic Gardens. There are also collaborative links with scientists in Edinburgh and the USA.

The results of the project are expected to have broad significance. The most obvious benefit to horticulture is that it will show the likely relationships of the subsections to each other; this will assist hybridists in planning their species crosses. It may even help in obtaining successful crosses to sections Pogonanthum and Rhododendron. The project's results will show which major lineages are widespread and potentially less at risk from extinction and which have small ranges and hence are more vulnerable; this will assist biodiversity managers in the Malesian region determine their conservation priorities. It will help us work out if the several different major flower forms and colourations, which are such an important part of the appeal of these plants, have evolved a few or many times in response to the selection pressures of the different major pollinator groups (butterflies, night-flying moths, birds, etc). It will contribute to our knowledge of the different dispersal routes taken by plants as they have spread through the Malesian region. And for many people, the results will satisfy their initial curiosity about the origins of Vireyas and then stimulate them into seeking answers to the further questions that will arise as to the genetic and geographic origins of this fascinating group of plants.

Lyn Craven, Research Botanist  
Australian National Herbarium, CSIRO Plant Industry  
GPO Box 1600  
Canberra, ACT 2601  
Australia

Phone: 61 2 62465122 Fax 61 2 62465249

Email: [craven@pi.csiro.au](mailto:craven@pi.csiro.au), Home page: <http://www.anbg.gov.au/people/craven.lyn.html>

***Here is a book all rhododendron people should read. Good book and very scary stuff.***  
*'Orchid Fever' by Eric Hansen. The cover says "A Horticultural Tale of Love, Lust, and Lunacy" A seductive journey into the obsessive, outrageous, and mesmerizing world of orchids. And a story about bureaucracy, and power hungry people in action. Sure hope they do not find out about Rhododendrons.*

Computer CD Rom Disk - Chris Callard in England has produced a CD-Rom for your computer. It is Windows 95/98 compatible and expands upon all of the topics covered on his INTERNET Web Site. Priced at \$20.00US plus postage and packing.

CD disk includes, History of Vireya culture; Distribution of Vireya in the wild; Cultivation advice; Vireya displays and nursery sources worldwide; Full species classification list - alphabetical and by subsections; Comprehensive list of over 700 named Vireya hybrids; Hybrid parentage list; and photographs of over 250 varieties of Vireya species and hybrids.

See his Web Site to order with a credit card.

[www.website.lineone.net/~cjcallard](http://www.website.lineone.net/~cjcallard)

For non-credit card orders, send a check for £15.00 drawn on a UK bank to Chris Callard, 26 Colwood Gardens, London, SW192DT, England

Chris has also located a few copies of the book "Rhododendrons of Sabah", published by Sabah Parks in Northern Borneo. This wonderful book is now out of print. It will probably be priced at about \$30US. If you do not have one write to Chris or send E-mail to [chris@vireya.co.uk](mailto:chris@vireya.co.uk)

# VIREYA NURSERIES

The Bovees Nursery (Lucie Sorensen-Smith)  
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Australia

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The Garden Centre, High Street  
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Keaau, HI 96749 (808)966-9225 [www.pacificislandnursery.com](http://www.pacificislandnursery.com)

Vireya seed exchange. WorldWide. Bill Moyles 4243 Norton Ave., Oakland, CA 94602 e-mail [wmoyles@pacbell.net](mailto:wmoyles@pacbell.net)

Rhododendron Species Foundation  
PO Box 3798 [www.halcyon.com/rsf](http://www.halcyon.com/rsf)  
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Tauranga, New Zealand web site at [www.vireya.co.nz](http://www.vireya.co.nz)  
Mail Order NZ only Phone (07)552-5756

Pukeiti Rhododendron Trust  
Carrington Rd. RD4  
New Plymouth e-mail [pukeiti@pukeiti.org.nz](mailto:pukeiti@pukeiti.org.nz)  
New Zealand web site at [www.pukeiti.org.nz](http://www.pukeiti.org.nz)

The Vireya Venue  
2 Clifford Street  
Maleny, Queensland 4552  
Australia

Neil & Kathryn Puddey Nursery  
PO Box 126, Woolgoolga, NSW  
Australia e-mail [puddy@bigpond.com](mailto:puddy@bigpond.com)

**VIREYA VINE**  
**RHODODENDRON SPECIES FOUNDATION**  
**P. O. BOX 3798**  
**FEDERAL WAY, WASHINGTON 98063 U.S.A.**