

Rhododendron Collecting in Sulawesi, Indonesia

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From "Rhododendrons in Horticulture & Science"

Published by The Royal Botanic Garden Edinburgh 2002

As a keen collector of *Vireya* species I have travelled to SE Asia five times since 1995 looking to introduce new species to cultivation. Visits to Sabah, Sarawak and Sumatra have been followed by two expeditions to Sulawesi in 1998 and 2000. Over the last four or five years several collectors have visited Sulawesi but until recently only a few of the vireyas found there have been introduced. Only a small percentage of growers will venture out to climb these mountains so I hope to give you an idea of how these plants grow in their natural habitat. Plants are only part of the experience of climbing mountains in tropical countries and I would like to share some of the varied experiences involved in these visits. In New Zealand we have strict regulations covering the importation of plant material, effectively meaning only seed can be brought back. This has greatly restricted the number of species I have been able to introduce. The cultivation of these seedlings has produced some interesting results and I would like to present my experiences with the cultivation of the species collected on my various expeditions.

I am an enthusiastic hobbyist and have been growing *Vireya* species for the last 10 years. I come from the northern part of New Zealand, where the climate is fairly kind to vireyas. The hybrids grow easily and vigorously outdoors; the species are more easily grown under cover as this provides wind shelter and better control of watering. The original species in New Zealand have come mainly from the collections of Os Blumhardt and Keith Adams in Sabah, Sarawak and West Malaysia and the Pukeiti collections, many from Graham Smith from Papua New Guinea.

My interest in collecting vireyas arose after hearing George Argent speak at a conference in Burnie, Australia. His talk on collecting in Irian Jaya (West Papua New Guinea) got me enthused and led to my own collecting on Mt.

Kinabalu and Mt. Trus Madi in Sabah in 1995, Mt. Penrissen, Mt. Berumput and Mt. Santubong in Southern Sarawak in 1996, and Mt. Sibayak and Mt. Kemiri in Northern Sumatra in 1997. Mt. Rantemario in SW Sulawesi followed in 1998 and Mt. Sojol in Northern Sulawesi in 2000.

My first experience of the rhododendrons of Sulawesi was from material collected from the summit of Mt. Sesean in SW Sulawesi in 1996 by Keith Adams and John Farbarik. The species, *R. rhodopus* Sleumer, *R. zollingeri* J.J.Sm. and *R. quadrasianum* Vidal, that were collected have grown vigorously and have now all flowered in cultivation. John Farbarik and his friend Hank Helm returned in 1997 from climbing Mt. Rantemario and I have included some of his observations in this paper together with those of my own visit in 1998.

Mt. Rantemario (3440m) is most easily climbed from the SW via the village of Karangan. From here a good ridge track can be followed with a two-day trek to the summit. We approached the mountain from the west, in the valley between Mt. Rantemario and Mt. Sinaji to the north, and we ended up taking five days to get close to the summit. It did allow us to find *R. vanvuurenii* J.J.Sm. at 750m altitude in pine forest remnants on the foothills of Rantemario. Buffalo and goats grazed the surrounding areas and the local residents actively cut out the rhododendron as they said it was poisonous.

Leaving these lowland hills we ascended through river valley rice paddy and onto the mountain proper. We ascended through mountain gardens with some coffee plantations, but largely of shifting cultivation of subsistence crops. At about 1500m pine forest gave way to a large terraced area of regenerating broad-leaved forest. Our guides told us that the local people had inhabited this area during the Japanese occupation in the Second World War. It was in these more open areas that we found *R. zollingeri* growing and seeding terrestrially. This is the same species Adams and Farbarik had collected on Mt. Sesean and it turned out to have a wide distribution on Mt. Rantemario up to an altitude of 2500m.

From here we had to traverse a small headland called Mt. Tirowal towards the south to resume our ascent. The canopy was high above us, with light levels low at ground level. Flowers of *R. celebicum* (Blume) DC. covered the ground

but the plants were largely out of sight high in the canopy above. It wasn't until we regained the more open ridges that light levels increased and rhododendrons became common at ground level. We found *R. quadrasianum* and large areas of *R. malayanum* Jack, in both a nice crimson form and also a rather spectacular white variety. This species became so thick on one part of the ridge that we had to crawl on our hands and knees through the twisted trunks of the 5m high plants.

The mountain weather in the tropics is usually fairly predictable. Mornings are mostly fine but as the day heats up, convection over the hills causes the air to rise and cloud forms at higher altitudes. This leads to mid-afternoon and evening rain, which clears in the late evening. The cloud can make navigation difficult and at one stage we did get lost for half a day, descending on the wrong track. With clearing weather the next morning we found our way back to the correct track and found the first of the white species, *R. impositum* J.J.Sm. This grew both terrestrially and epiphytically, tending to grow in moister areas just off the main track. The larger-leaved plants tended to grow in moister areas just off the ridges while the smaller-leaved vireyas of subsection *Albovireya* - *R. zollingeri*, *R. lagunculicarpum* J.J.Sm. and *R. arenicolum* Sleumer - were more common in the drier, more exposed ridges. As we climbed we found further plants of *R. impositum*, mostly with white flowers but some were pink, and some had larger, more campanulate blooms. It was difficult to tell whether this represents species variation or some element of hybridisation with the next species we found, the spectacular *R. pudorinum* Sleumer. We found only one plant in flower and this was just at the end of its flowering, but the foliage was as spectacular as the malayovireyas previously seen on Mt. Kinabalu. Plants with intermediate foliage almost certainly represented hybrids of *R. pudorinum* and *R. impositum*. It certainly can be very difficult to determine whether some of the plants are variations within these species or part of the populations of natural hybrids found on the mountain.

This problem is further compounded when seed is collected and grown on. New Zealand agricultural regulations prevent the return of wild-collected cutting material, so seed is the only practical way of introducing these species

to New Zealand. I have grown on seed from all my collections and have found at times large numbers of natural hybrids result. The low altitude species have tended to come true from seed, with 100% of *R. fallacinum* Sleumer and 99% of *R. polyanthemum* Sleumer collected on Mt. Kinabalu coming "true". The higher altitude plants, where they are more likely to grow in close proximity to other species, are much more likely to produce hybrid seedlings. Only about 10% of *R. lowii* Hook.f. and none of the *R. acuminatum* Hook.f. or *R. maxwelli* Gibbs seedlings have turned out to be true species. Although there are numerous obvious natural hybrids on the mountains it does surprise me they don't dominate as they are certainly vigorous in cultivation. I presume the true species do tend to be the best adapted for their natural environment. These natural hybrids do also offer insight into how new species can develop in response to changes in habitat or climate.

The flora of the high altitude ridges is always spectacular, especially the reds, purples and oranges of the new growth of *Vaccinium* species. As we climbed, *R. zollingeri* gave way to *R. lagunculicarpum*. This species was also variable, with the leaves tending to become more oval and the corolla tubes much shorter at higher altitude. Unfortunately it was at this stage we had to turn back due to lack of water. No rain for the previous two days meant we had to manage on water squeezed from sphagnum moss. The three species seen higher up the mountain were *R. pseudobuxifolium*, Sleumer, *R. nanophytum* Sleumer and *R. eymae* Sleumer.

I returned to Sulawesi to climb Mt. Sojol (3000m) in the year 2000. This is a much more isolated mountain than Mt. Rantemario. The area has been less influenced by "the west" or even the Indonesian government, and the hill people lead a subsistence existence living mainly off taro, rice and maize supplemented by a small amount of protein. While in the forest they hunted with blowpipes and slingshots and would supplement their rice and taro with the birds they caught.

We did find vireyas, *R. javanicum* (Blume) Benn., *R. quadrasianum* and *R. radians* J.J.Sm., growing at around 1000m in the coastal hills. For the first few days, most of the time was spent in hot dry areas of disused cultivation. One day we managed to walk only about 5km "as the crow flies" as it unfortunately

involved ascending and descending multiple spurs and ravines. It was a relief to reach the cool shelter of the forest, and as we ascended we found more *R. radians* and, for the first time, *R. leptobrachion* Sleumer. This grew terrestrially on the main ridge at about 2000m and appeared to have longer corollas than material seen on Mt. Rantemario. Mt. Sojol is only about 100km north of the equator but the climate is strongly influenced by its altitude and the narrowness of the peninsula, which means all sides are close to the sea. Above 2000m we were constantly in cloud, with frequent rain. It was cold and our local guides suffered in their wet cotton clothing. The rain also meant there were none of the dry ridges, such as those we had experienced on Mt. Rantemario, where vireyas and the albovireyas especially were dominant. Even with higher altitude the canopy never became shorter than 5-6m, and vireyas tended to be high up in the trees and much less abundant than on Mt. Rantemario.

The night before climbing to the summit we pitched our tent on a ridge. The ground was covered in tree roots and rose and fell about 6 inches as the trees swayed in the breeze. In the final 300m to the summit we found two new vireyas. The red-flowered *R. pseudobuxifolium* grew as an epiphyte in relatively low light areas off the ridge, and a spectacular large-leaved, white-flowered species *R. bloembergenii* Sleumer was growing terrestrially to a height of 4-5m.

Our guides were cold and wet and keen to get home. We had planned to take two days to get down the mountain; in the end we struggled to keep up with them on the descent and walked a total of 17 hours that day. We were glad to find a bamboo hut in which to spend the night, but not so happy the next morning to find the place crawling with cockroaches.

The rhododendrons of Sulawesi are still very poorly known, and many of its mountains have not been visited by collectors. The problem of the apparent frequency of hybrids, indicated here, often makes species identification difficult, but recent visits have brought several new and beautiful vireyas into cultivation.