

## Conservation Study and Exploitation of Vireya Rhododendrons

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**Abstract** Vireya Rhododendrons differ markedly in the way they respond to the attentions of collectors from most of the other horticulturally desirable plants from Malaysia such as orchids and pitcher plants (*Nepenthes*).

Like all other plants, conservation is best done in parks, reserves and other areas which protect the vegetation as a whole. In general, however, being montane plants with weedy tendencies, they are not amongst the most threatened. Nevertheless, an understanding of some aspects of their biology is needed if loss of species or natural populations is not to occur.

Limited conservation can be accomplished in parks and gardens both inside and outside the tropics and this can greatly facilitate the study and understanding of the biology of 'Vireyas' and do a lot to stimulate interest in the wider aspects of natural history. There is a growing international awareness of the beauty and 'value' of Vireya Rhododendrons which, with a little care, could be exploited by countries which are naturally richly endowed with these plants.

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Vireya Rhododendrons belong with the 'scaly' Rhododendrons and are usually recognised as a section (Argent, 1988), occasionally as a subgenus (Spethmann 1987). They possess multicellular hairs which are almost universally called scales by those studying and growing these plants but are further distinguished from other 'scaly' Rhododendrons by the seeds having long 'tails' or hairs at both ends.

Almost all the *Rhododendron* species in the SE Asian archipelago belong to section *Vireya*, exceptions being: three species of subgenus *Hymenanthes* which occur in West Malaysia and Sumatra; two species of subgenus *Azaleastrum* which penetrate south to West Malaysia; one species of subgenus *Tsutsutsi* which occurs as an outlier in the northern Philippines and about six species which have been introduced and persist in various forms in cultivation. With nearly three hundred species of *Vireya* having so far been described from SE Asia they are often referred to as "the Malesian *Rhododendrons*" and there has been considerable interest in the group both scientifically and horticulturally in recent years. They arguably show more floral variation than the whole of the rest of the genus put together, produce some of the largest flowers (*R.konori*, *R.lowii*); the strongest scents (*R.maxwellii*), some of the most lavish flowering flushes (*R.macgregoriae*) or the most persistently continuous or at least rapidly successive flowering (*R.bagobonum* and *R.burtii*). They are amenable to cool greenhouse cultivation in much of northern Europe and North America and can be grown outside in parts of California, southern Europe, Australia and New Zealand, being less expensive exotics to grow in greenhouses, requiring less winter heat and being amongst the most heat tolerant plants in the genus for cultivation in warmer areas.

*Vireya* *Rhododendrons* have thus become vogue plant in admittedly limited areas and as the number of species available for cultivation has increased there has been a growing demand for new introductions as species to be grown in their own right or as parents for the many breeding programmes which have been initiated. More horticulturists as well as scientists are travelling to SE Asia wishing to collect and it is therefore important that some monitoring of the situation occurs at least in what might be regarded as sensitive areas. Most of my experience of *Vireya* *Rhododendrons* has been obtained over the last ten years from observations made in the Kinabalu Park, Sabah which I first visited at the kind invitation of the Parks Department in 1980 and have subsequently visited several times. I first became interested in the group in the G. Mulu National Park in Sarawak and have now also looked

at a number of species in the wild in West Malaysia, various parts of Indonesia, Papua New Guinea and the Philippines. It is unfortunate that we do not have records from permanent plots from which to give precise indications of change in species abundance but some general observations may still be useful.

After orchids and *Nepenthes*, Rhododendrons are probably the third most sought after group of plants on Kinabalu but whereas both orchids and pitcher plants have been dramatically reduced along the main trail, human interference has had a negligible effect on *Rhododendron* numbers and in some situations these have actually increased. In the case of orchids it is easy to see why populations diminish. Plants are slow to establish from the minute seeds and whole mature plants are usually removed by collectors for sale. In the case of *Nepenthes* the loss of plants is less easy to understand as complete mature plants are much less frequently taken. Growers usually search for seedlings or take cuttings but an additional pressure is put on the plants by people removing the pitchers as trophies and it appears that repeated removal of these leads to disappearance of *Nepenthes* species. Vireya Rhododendrons if removed as flowers make poor trophies. The more showy blooms are delicate and the corollas are quickly shed when they are cut away from the plant. The plants themselves if not uprooted branch from below after flowers have been taken and their rapid growth can soon replace the materials lost. The one exception amongst the Vireya Rhododendrons on Kinabalu, a species which has decreased in abundance over the last ten years, is *R.acuminatum*. The population of this species dramatically crashed in the drought of 1983 to perhaps only twenty per cent of its former occurrence but it is now increasing again and shows clearly here that human interference has little to do with Rhododendron survival.

Vireyas have weedy tendencies, an attribute not rare in plants which have been successfully domesticated. They have small wind blown seeds which although primarily adapted to securing suitable epiphytic niches for growth also grow surprisingly well on open banks such as are naturally exposed after

landslides but which are also created by road building activities. Vireyas are promiscuous plants, or at least have the potentiality to be so when habitats are disturbed. All Vireyas have the potentiality to interbreed and produce viable offspring except when the style lengths of the parents are too dissimilar (Rouse & Williams, 1989). This ability to interbreed and exchange genes has no doubt been important in the rapid evolution of the group in mountainous areas but it also has important implications for conservation both *in situ* and in tropically based gardens.

As with all organisms, conservation is ideal in parks or reserves which conserve the ecosystem as a whole or at least large portions of it. The Vireyas being mostly montane plants, the threat to their particular environment is not usually amongst the most pressing but the devastation of smaller areas with varied topography must be a salutary lesson. The island of Mauritius first lost its lowland forest to sugar cane but subsequently its montane forest to tea. In Malaysia the threat to montane environments may come in different form such as the expansion of recreational facilities in the cooler areas in analogous fashion to the ski developments which are currently being contested by conservationists in Scotland.

Conservation can only be a very limited success even in the best scientific gardens but the importance of these lies far more in the potential for scientific study and for educational purposes which they open up. Critical differences between species may be far more easily observed under controlled conditions with the easy access which gardens give. The important difference between narrow leaved forms of *Rhododendron brookeanum* and *R. retivenium* on Kinabalu was observed far away from the mountain in plants growing side by side in pots. Our knowledge of pollen interaction and breeding systems is largely due to laboratory access to garden grown plants (Rouse & Williams, 1989) and many other similar examples could be given.

From the educational standpoint, there would be little awareness of this group of plants if it was exclusively necessary to walk for long hours and camp in

uncomfortable places, often getting soaked, in the hope of a brief glimpse of one or two species. This is often the reward of the enthusiastic field worker. It is not surprising therefore that the interest and awareness is largely generated back from the richly endowed gardens with ready access of large collections to wild populations in the countries in which they grow.

There seems a strong case to grow these plants in tropical gardens. Indeed Professor Holttum saw their potential in work he did in the 1930s (Holttum, 1939, 1941), which came to an end due to the war, where he was hybridising to produce garden plants for the tropics. Successful lowland tropical garden plants have not really been produced from amongst the Vireyas but there is really no reason why this should not come about by choosing parents from amongst the species which grow down to sea level.

Lou Searle working in the highlands of New Guinea in the early 1970s also saw the potential of these plants and established successful gardens along roadsides but never received the official recognition he deserved although he did receive the accolade of having a really splendid species named after him. A successful highland garden, the Lipizauga Botanical Sanctuary, is now being run by the Rev. Norman Cruttwell and Gabriel Waranu with the enlightened support of the Eastern Highlands Provincial Government just outside Goroka.

Local gardens to display these plants with a view to education and study are a very necessary development which must be encouraged and fostered but due caution has to be employed. Knowing as we do that the plants cross freely with one another, there is a real danger in introducing plants from one mountain range to another that we will permanently alter the local populations by gene exchange and may hybridise some species out of existence. With that danger in mind, an ideal tropical montane botanic garden should, in addition to having good access and a suitable range of altitudes, be on an isolated mountain or small group of mountains preferably lacking endemic species at least in the groups to be cultivated.

The growing international awareness of the beauty and interest of Vireya Rhododendrons could and should be exploited in an open manner to advertise another aspect of the biological richness of SE Asia, which will attract tourists and stimulate scientific study and interest in the region.

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### **References**

- Argent, G.C.G. 1989. Vireya Taxonomy in Field and Laboratory. Proceedings of the Fourth International Rhododendron Conference, Wollongong, NSW. 119-133. The Australian Rhododendron Society Inc.
- Holttum, R.E. 1939. Rhododendrons in Malaya. *Malayan Agriculture-Horticulture Magazine* 6: 34-47.
- Holttum, R.E. 1941. Rhododendron seedlings in Singapore. *Malayan Agriculture-Horticulture Magazine* 11: 93-95.
- Rouse, J.L. & Williams, E.G. 1989. Style Length and Hybridisation in Rhododendron. Proceedings of the Fourth International Rhododendron Conference, Wollongong, NSW. 74-82. The Australian Rhododendron Society Inc.
- Spethmann, W. 1987. A new infrageneric classification and phylogenetic trends in the genus Rhododendron (Ericaceae). *Plant Systemics and Evolution* 157: 9-31.