

Expedition to Malesia, 1968

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Although this expedition to collect live rhododendrons in South-East Asia did not get underway until I reached Kuala Lumpur, it felt as though things were moving shortly after the V.C.10 thundered off from Colombo to climb rapidly over the Cingales peaks. Interesting facts have emerged in Ceylon regarding *Rhododendron zeylanicum*. Not only was this species first noted on the summit of Adams Peak by a Moorish traveller in 1343-4, but it was the earliest recorded wild plant in Ceylon. On the Patanas above 5000 feet, it exhibits a remarkable ability to withstand periodic burning, and is often seen as a gnarled stunted plant no more than 5 feet high, flowering profusely. In the forests below it forms substantial 60-foot trees, more in keeping with the mental picture most of us have of this plant in the wild.

In the heavy heat of Kuala Lumpur it seemed unlikely that rhododendrons should be nearby, yet on the quartz ridge at Klang Gates (928 feet) just outside the city *R. longiflorum* and other species thrive. The first locality visited was an approach ridge to Bunga Buah at Uli Kali (approximately 3600 feet). A new road was being pushed along the slopes of the jungle below, and we were able to leave the car only a couple of hundred feet below the highest point of the ridge crest. Below the road were several epiphytic plants of *R. jasminiflorum* perhaps 40 feet up on the moss covered branches of a *Shorea* sp. Scrambling along a rough track, the first impression I had was how, in general, the mosses were much drier than in, say, New Guinea, except in well shaded crannies. The first terrestrial rhododendron I came across was a 3 foot plant of *R. malayanum* rooted into a sphagnum floored ferny alcove. The forest thinned abruptly and we found ourselves on an open silica-sandy ridge where drainage must be optimal. Around the perimeter were 3- to 5-foot mounds of peat, each topped by 10- to 15-foot plants of *R. wrayi*. None of

these were in flower, and what little seed there was proved too immature to germinate. In the sand were several plants of *R. jasminiflorum*; only two were in flower, but one had corolla tubes of deep pink, certainly an improvement upon any variety I have yet seen in cultivation. In 1888 a variety with soft carmine-rose corollas was sent to Kew from Perak by a Mr. L. Wray, but this must have been lost many years ago. It is of interest that as long ago as 1876 this species was commonly used after the manner of *Stephanotis* in wedding bouquets.

There were many plants of *R. malayanum* var. *malayanum*, a few of them with vinous-red flowers. The largest flowered varieties of this species are found in Celebes, and if it is to be used for further hybridisation it would be preferable to use these rather than the Malaysian varieties. Dropping steeply into the gloom of the jungle off the first ridge it was only a short while before all the rhododendrons took to the tree-tops, and then faded out altogether.

As we began to climb again towards Bunga Buah a tremendous crashing noise echoed through the jungle, spoor nearby confirmed that this was an elephant, and at times it seemed ridiculous to be crossing tracks while looking for rhododendrons. We came upon a large toppled tree, and scrambling along its length I came upon a rhododendron unlike any I had then seen. As it was not in flower it was impossible to identify, but it appeared to be not unlike *R. moulmainense*. Time did not allow a climb to the summit, so with regret we returned to the car picking up seedlings of *R. jasminiflorum*, *R. malayanum*, and *R. wrayi* en route.

The second trip was to the granite ridge at Bukit Perangin (2300 feet) to see *R. robinsonii*. A well-established colony grew not only in peaty pads overlying the rock, but also in bare crevices. In the hot sun the rock was unbearably hot, so it would appear this species has heat resistant qualities which could be useful in very hot climates. The pale salmon-pink flowers were attractive enough, but disappointingly small.

By far the most interesting area visited in Malaya was the Cameron Highlands, and based at Tanah Ratah (4500 feet) it was easy to wander along pleasant jungle walks and to study and collect a wide range of plants. Beginning with a walk to Robinson Falls it was not long before *R. jasminiflorum* var. *punctatum*, *R. malayanum*, and *R. wrayi* turned up, all growing predominantly terrestrially. Among other genera *Agapetes scortechenii* was outstanding, with plentiful *Diplycosia*, *Gaultheria*, and *Vaccinium* spp. As the sun went down leaving the valley cool and shadowed, patches of white showed up among the trees over and above the river. Binoculars revealed that these were the last flowers of *R. wrayi* apparent only when the glare of the sun was no longer reflected from the leaf canopy. After a scramble up the riverbank I secured a few white tinged-pink trusses, much more attractive than would be imagined from the illustration in Dr. Sleumer's, *An Account of Rhododendron in Malesia*. One cannot help but speculate on the future of this and other species in the Camerons as more land is cleared for cultivation. I heard that previously during February and March this rhododendron was conspicuous in its pink and white blossom, but now it is becoming much more difficult to see. I was especially interested in this species, as apart from the fact that it is one of the three known elepidote species from Malesia, its whole aspect was so strikingly similar to many hardier species from further North, and in fact its affinities lie closest to *R. pennivenium* from Yunnan. If the long attempted hybridisation between Malesian and hardier species is to be accomplished this is where work should begin. In the future it is important that we should introduce from the same group *R. atjehense* and *R. korthalsii* from Sumatra. In the Herbarium at Bogor I noted that Van Steenis wrote on his herbarium sheet 8991 of *R. atjehense* to the effect that it would be well-worth cultivating. While it is doubtful if these species will be horticulturally valuable in North-West Europe they will certainly be of interest to growers in warmer climes.

A climb up Gunong Jasar (5500 feet) revealed more willowy plants of *R. malayanum* straggling up to 3 feet; relying in many cases on other shrubs for

support. What an impression of sophisticated evolution this species leaves with one, leaving it impossible not to speculate how it came about. Its flowers varied in this locality from glowing red to a dull reddish-purple. Towards the summit 50-foot trees of *R. wrayi* became dominant in places. The track winds through their huge trunks, many of which I was unable to reach around. On these trunks other rhododendrons, *R. malayanum*, *R. jasminiflorum*, and *R. perakense* were epiphytic, forming a striking contrast between elepidote and lepidotes. *R. klosii* turned up here also, but none of its fragrant white flowers were seen.

Perhaps the most interesting locality in the Camerons is Gunong Brinchang (6666 feet). It was easy of access, as a well-surfaced road leads to the V.H.F. Station on the summit. I soon came across *R. pauciflorum*, a charming low growing species with fine glossy foliage and exquisite rosy corollas with reflexed petals. *R. perakense* was here too, but none of its yellow flowers were seen. *R. malayanum*, *R. jasminiflorum*, and *R. wrayi* were there of course, as was another species I had first found above Robinson Falls, it was probably *R. scortechenii*, and though not in flower had fine glossy foliage. Another species here which also occurred at Robinson Falls appeared to approach *R. javanicum* var. *teysmannii*, how tiresome that none were in flower so that positive identification could be made, but a native described the flowers as being yellow.

The summit ridge was moss forested with loose spongy peat underfoot, and it was in this peat that 80 per cent of the rhododendrons thrived and seeded freely, but although hybrids have been recorded between *R. malayanum* and *R. jasminiflorum* none were seen here. An interesting plant collected here was of the monotypic genus *Pernettyopsis* - *P. malayana*. This low growing stoloniferous plant has attractive foliage but inconspicuous flowers, however, its berries are of the most vivid cobalt-blue.

Driving back through tea plantations to Brinchang Village we passed rocky

outcrops from which *R. longiflorum* has been recorded, but lack of time made it impracticable to search.

From Kuala Lumpur the next stopover was in Singapore. Mr. H.M. Burkill, Director of the Botanic Gardens, was kind enough to show me several interesting cultivars and hybrids of *R. simsii* in his private garden, and told me that until 1947 a solitary plant of *R. longiflorum* grew high up in the branches of a *Shorea* sp. At Bukit Timah on Singapore Island. This last survivor has now gone. In years past I was pleased to hear that when rhododendrons were grown in the Botanic Gardens, seed was germinated upon crushed brick set in a bowl of water, just as one may deal with fern spores.

The flight from Singapore to Djakarta was spectacular but uneventful, and an hours drive saw me in the guest house of the famous Botanic Gardens at Bogor. While I was only able to find a couple of cultivars of *R. indicum* in moderate health, the magnificent luxuriance of other plants in endless variety more than compensated. There are so many wonderful features in this garden, but I think I found the great Canarium avenue planted by Hasskard about 1837 the most impressive feature. It is certainly one of the most impressive avenues in the world.

It was a great relief to escape from the heat of Bogor over Pontjack Pass to the mountain garden at Tjibodas on the slopes of the volcano Gedeh. I was surprised to see such plants as *Magnolia grandiflora*, *Magnolia x soulangeana*, and cultivars of *Camellia japonica* and *sasanqua*. There was also an interesting collection of azaleas. Apart from *R. indicum* cultivars and *R. mucronatum* in varieties which have been cultivated in Java since 1819, and were no doubt introduced straight from Nagasaki, *R. molle*, *R. scabrum* and *R. linearifolium* are also long established residents.

More interesting were the plants of *R. javanicum* var. *javanicum*. There are three or four fine plants cultivated in a rock garden; only one had a few flowers remaining, but they were quite the finest I have yet seen in this

species. Cuttings were taken, and this variety is now in cultivation in Australia. A grove of fern trees some 200 yards distant supported numbers of self-sown seedlings both on their trunks and among the mosses and ferns beneath.

The highspot here was the climb to the volcano itself. Setting off into the tropical rain forest, luxuriantly dank and somewhat mysterious with great plants of *Asplenium nidus* drooping from overhanging branches, it brought to mind William Lobb who passed along this same track in 1845. The humidity here probably never sinks below 90 per cent, and even at the edge of the forest on a bright afternoon is between 80 and 90 per cent and in the morning at 7 a.m. is always 97 - 99 per cent. The lowest recorded humidity is in fact 79 per cent.

There are magnificent trees in the forest such as *Altingia excelsa* which reaches 200 feet and *Canarium altissimum*. Occasionally branches become so overloaded with their epiphytic edaphic gardens that they crash to earth, and among the debris were occasional straggly plants of *R. javanicum*, *Vaccinium lucidum*, and *Ficus diversifolia* which has attractive leaves ochre-coloured beneath. Lycopodiums were there in their thousands such as *Lycopodium nummulariaefolium* and *L. phlegmaria*, but at lower altitudes *R. javanicum* appears to be restricted to the tree tops.

Gradually between 5000 and 5500 feet the tropical rain forest merges into temperate forest where *Gordonia wallichii* is common, and the air becomes moist and cold. The average temperature here is 64 degrees F, and falls to only 6 degrees above freezing have been known. *R. javanicum* then begins to appear terrestrially beside riverbanks and tracks, in fact anywhere the shade is not too dense. *R. retusum* var. *retusum* also appears, in gravel beds, on cliff faces, on muddy banks, and less frequently as an epiphyte. It is of interest that although the variety of this species found here has been in cultivation for many years its varieties *trichostylum* and *epilosum* have never been grown. After spending the night below the elfin wood skirting the volcano, we climbed next morning ever more steeply through thickets of *Anaphalis javanica*,

Leptospermum floribundum, R. retusum, Vaccinum Floribundum and V. varingaefolium, Gaultheria punctata, and Myrica javanica to the rim of the crater, bathed periodically in sulphurous fumes.

From the crater's rim the view into its scorched depths was awe inspiring, but beyond rose the peaks of Central Java brushed in morning mists, an altogether splendid scene. I did not waste much time here and soon began to climb down to look for *Hypericum leschenaultii*, however, I only found one small plant. It was interesting to come across a branch of *R. retusum* which bore flowers with petaloid stamens. Adjoining Gedeh is the cone of the extinct volcano Pangrango, and here grows one of the rarest primulas in the world *Primula imperialis* - confined to this single peak. Out of flower it could be just as easily *P. helodoxa*.

So far I had only found two rhododendron species, three others are recorded from this locality, *R. album*, *R. citrinum*, and *R. malayanum*, so I set out in earnest search for them. Each rotting log was scanned, each rock and cliff face, while my two able Javanese assistants climbed high into numerous epiphytically draped trees. It seemed hopeless. I sat by a hot water effluent from the volcano to rest, and then glossy rhododendron leaves showed up among the mosses draping an overhanging branch, then a small yellow flower. I scrambled up quickly, and there was a single plant of *R. citrinum*. Further search in the locality of the hot spring turned up a batch of seedlings, but outwith this hot humid spot - nothing. Later on a high cliff face *R. album* showed up, but the plant was beyond reach in the time and with the equipment we had available. *R. malayanum* I failed to find at all. My assistants told me they had not seen it for some years.

Flying out from Djakarta for Sydney it felt as though a major part of the expedition had been successfully accomplished when in fact Malaya and Java had merely provided a bonus for the main effort to be made in New Guinea. Arriving in Lae evoked nostalgic memories of my expedition in 1965, and while plans were being finalised it seemed a good idea to climb a couple of

thousand feet up Markham Point to see *R. retrorsipilum*. After a breathlessly hot morning's climb we reached a spot cooled by a fair breeze from the Huon Gulf which had been cleared seven years previously but was now being overgrown by 30 foot saplings. On a moss covered rotting log I found three plants of *retrorsipilum*, none in seed or flower. They did not look particularly healthy, and it would appear that the species became terrestrial when the ground was cleared but now was being adversely affected by inadequate light levels. Presumably it now goes back to the treetops. Ted Henty, who discovered the species as a single plant told me that the three I found were new to him - total known now four.

Shortly after, I flew into Goraina near the Waria River in the Eastern Area of Morobe District. While the altitude of this place - little over 2000 feet left no doubts that a climb lay ahead before I should find rhododendrons, the Bubu Valley to the south west looked enticing. That day I set off for the village of Arabuka and reached there before nightfall. It was a hot uncomfortable climb through the forest, and I was glad to lie on the hard boards of my bunk. Sleeping fitfully, I was aware that the hut was swaying gently, but put this down to a pig rubbing up its guests the wrong way, later, however, I heard that this had been an earthquake. Next morning we set out for the next village, and after a short stiff climb we emerged from the forest quite abruptly into grassland. There, almost immediately were the first two rhododendrons; two stunted bushes out of flower. A few hundred yards further on things looked brighter - several brilliant orange-yellow blotches of colour showed up in the grasslands. They could only be rhododendrons, and it proved so, a splendid species in Series Javanica. Picture well foliaged 3- to 4-foot bushes with opening flower buds of jade green, opening flowers of lime green to yellow, and fully mature ones orange-yellow shaded salmon-pink. Each truss contained from six to fifteen flowers and was about a foot across. It cannot be too far from *R. aurigeranum*, but is no doubt a much superior thing, and will be in great demand by growers. Seedlings were plentiful beside the track, but cuttings were taken from the best varieties. In this suffocatingly hot grassland I was amazed to find that this species is entirely surface rooted - the thick

rubbery roots lay horizontally no more than an inch below the sun-baked clayey gravel. The next village seemed so close across a deep valley I suppose a crow could have flown across in 10 minutes, but I took almost 5 hours following a trail which took me down into the forest before climbing again. There were very few rhododendrons, and nothing new.

After setting up my gear, there was just enough time before dark to climb through the native gardens and into the forest, accompanied by a gang of children. I asked them to bring any rhododendrons they could find, and when it was all but dark one little urchin turned up with a plant with clear pink zygomorphic flowers which comes near to *R. warianum*. It was the only plant to turn up near the village, and fortunately cuttings I took from it struck. Had time permitted, it would have been well worthwhile climbing higher, but I had to get back to Goraina next day to fly out to Lae before driving to Goroka in the Central Highlands. Even though the haul of rhododendrons was small, the new one made up for everything.

After attending the famous Goroka show with its seething thousands of dancing natives, it was a relief to return to the Fatima River which I visited three years previously. I had two main objects, firstly to get living material of *R. maius*, and secondly to climb higher up the river. It hadn't changed much, the sparkling river, the magnificent silence, the morning mists wafting through the great Podocarps and ferns. It was as though it had been waiting for me to return. There were changes, however. Where economically valuable trees had been felled three years ago regeneration had now got well under way, and the first day I spent looking for plants I'd met before - the superbum I'd hoped would flower, a venerable *R. herzogii*, some fine specimens of *R. culminicolum* var. *culminicolum* - all had been overgrown, and if not dead were moribund. The only species which appeared to be holding its own was *R. rarum*; it probably wasn't its ability to stand shade which effected its survival, but its quick growing straggly habit which enabled it to push out leaves beyond those of its competitors.

The recently felled areas yielded the usual quota of *R. superbum*, one of the species predominant in this area. I found two epiphytic wrecks of *R. maius* after a day's search - as I had suspected, this is a rare species in this locality. There wasn't anything I hadn't met before, though I was staggered by the size of an enormous epiphytic *R. superbum* which was 10 feet tall and 15 feet through - in flower it must have been a sight for the Gods and would have made a Parisian perfumery smell like an aerosol fly spray. A plant of *R. herzogii* I wrenched from a felled trunk, had the most gorgeous little tree frog under a leaf, it stared with "Disney"-like eyes, blended chamaeleonwise with the foliage; my helpers assured me it would make delectable kai kai so before it was devoured I put it in my pocket and let it loose later when no gourmands were about.

As ever, the riverbank was intriguing and gave easy access to many plants hard to find in the forest. In 1965 I came across a plant which appeared to be a hybrid between *R. rarum* and *R. culminicolum*, but now I found others half a mile from this locality, so perhaps this is a new species. It is remarkable that one of them has taken hold in cultivation, as it was of a fair size and suffered considerable root damage. In the grassland was a natural hybrid of *R. macgregoriae* and perhaps *R. leptanthum*, and in populations of *R. inconspicuum* from which I had obtained seedlings in 1965 the plants were scarcely half the size of those taken into captivity. I am unable to endorse the report that this species makes great splashes of colour in the wilds, here, 20-foot bushes seem reluctant to put out more than a dozen small trusses at once, and in any event the maroon-red flower colour is not conspicuous. Came the highest point upriver I had previously reached, I sat on the stones by the river near a large *R. macgregoriae*, I managed to catch a butterfly which was flitting from truss to truss, so it seems probable that this species may be pollinated by butterflies.

The river narrowed shortly into a series of cascades, rocky, and with large stones and boulders making up the banks which were overlaid by a shallow

layer of humus. Suddenly between an *Olearia* and a *Serauja* I saw glittering foliage on a 10-foot bush, it was *R. maius*, liberally covered with its uniquely small glossy maroon flower buds which give small hint of the splendidly scented white trumpets which emerge later. There were no seedlings about, so I took cuttings which are now growing both in Britain and in Australia. How much more robust the plant is when terrestrial, however, it was still uncommon and I only found three plants along the riverbank all told. Further upstream a terrestrial *R. superbum* had just dropped enormous deep pink corollas, and nearby a *R. phaeochitum* gilded in the old gold of its new foliage overhung the riverbank, hiding a *Salvatori's* teal, one of the rarest ducks in the world, which splashed out on my approach.

There were fine *Dimorphantheras* scrambling over the riverbanks, and one species, probably *Dimorphanthera womersleyi* with white flowers was especially attractive. A *Cyathodes* sp. aroused my interest, but I was only able to find one plant, and feel fortunate that one rooted portion I tore off is now growing well. Onward we plodded and splashed, but nothing new emerged though there were magnificent specimens of *R. macgregoriae*. At last when time did not permit further exploration, and tantalisingly close to a grass-topped mountain, perhaps two days walk away, I turned back to base. Packing away all the plants and cuttings in plastic tubing, it seemed a good idea to strike camp and to travel over Daulo Pass to Kundiawa in the Chimbu District. As we were dropping down towards Goroka a number of bright pink-flowered plants stood out in the grassland and fallow native gardens, they appeared to be *R. dielsianum* var. *stylotrichum*. Daulo Pass is no picnic outing for any type of vehicle, with the road vulnerable to landslides and traffic hold-ups as heavily laden trucks grind to a halt in the mud. Climbing ever higher up to 8000 feet, many rhododendrons showed up on the road cuttings, mostly *R. phaeochitum*, but nothing new until just over the summit I spotted a seedling which looked different. In leaf shape it appeared not unlike *R. cinchoniflorum* but on second thoughts it probably belongs to Series *Buxifolia* of the Subsection *Euvireya*, and may turn out to be new.

Arriving in Kundiawa it was interesting to meet Mr. Louis Searle, a local resident interested in rhododendrons. In his garden were many interesting plants including seedlings of Mainland Asiatic species and several hybrids. Among the most intriguing were rooted cuttings of a variety of *R. macgregoriae* with scented flowers which Mr. Searle had found near Goroka. The great limestone cliffs above the nearby district of Sina Sina seemed to merit investigation. It should have been possible to drive a Land-Rover to the top, but as we began to slide off the muddy road towards a steep drop I decided to stop and walk to the top. In the forest I found another species belonging to Subsection *Euvireya* Series *Buxifolia*, which is not too far from *R. vandeursenii* though as none were in flower positive identification will have to wait. Another species in Subsection *Phaeovireya* didn't add up to anything I had previously seen, but it may prove to be a natural hybrid. *R. phaeochitum* was there in the grassland, as were *R. macgregoriae*, *R. inconspicuum* and *R. konori*, but other identifications will have to wait until seedlings and cuttings flower in cultivation. Below the ridge the natives were most anxious to show me a small tree with spicily scented leaves which they rubbed on their arms as a perfume. It proved to belong to the genus *Evodia*, far from its relatives in China.

Nearby was a damp grassy area dotted with huge limestone boulders which had rolled from above. It supported an interesting population of *R. macgregoriae* both in the drier areas of the wet clay and also in the humus-filled cracks in the boulders. These plants had the largest flowers of the best colour I have yet seen in the species, and although there were not many to the truss, if this variety were crossed with, say the variety I found near Wabag in 1965, it should be possible to breed something superior to anything yet found in the wild.

We made an excursion along the Eastern slopes of the great Waghi Gorge where we found a species new to me, with foliage not unlike that of *R. lochae*. There were no plants in flower, but I was told they are red. Other species in

the area were *R. konori*, *R. inconspicuum*, and *R. phaeochitum*, but there was nothing in flower but *R. inconspicuum*. A further field trip was made along the Western flanks of the gorge, and here *R. zoelleri* turned up, an isolated population above a road cutting in the hot grassland. Nearby, but in a shadier area was a colony of *R. macgregoriae* with strikingly coloured red-orange flowers. *R. konori* was there in quantity, and it was interesting that Mr. Searle had persuaded a medical orderly to plant a hedge of this species alongside his first-aid post. In Kundiawa itself Mr. Searle, with the backing of the District Commissioner, hoped to set up a garden devoted to native rhododendron species, and in the future this could become a desirable tourist attraction. By this time I had a large number of plastic tubes packed with plants and cuttings which had to be put out each night and carefully shaded by day, and it was with some relief that we set off to drive back to Lae, reaching there a day and a half later after an overnight stop in Kainantu. Packing and despatching the plants took another couple of days, and then it was time to arrange to revisit Edie Creek and Mt, Kaindi.

In 1965 I had been short of time, so this trip I determined to spend a week thoroughly investigating the rhododendron populations both at Edie and Mairi Creeks and on Mt. Kaindi. Scrambling over the old gold workings on the first afternoon I was sorry to find that considerable grass burning has been carried out by the natives, resulting in a lower rhododendron population. I arranged next morning to cover all the more open areas at Edie and Mairi Creeks and to identify and count as accurately as possible the species there. This took a little over three days and the identifications and the percentage each species forms of the total population is noted here:

	Per cent
<i>R. luteosquamatum</i>	50.50
<i>R. invasorium</i>	14.05
<i>R. gracilentum</i>	12.00
<i>R. nummatum</i>	8.25
<i>R. herzogii</i>	5.05
<i>R. konori</i>	5.00
<i>R. leptanthum</i>	4.05

<i>R. macgregoriae</i>	1.05
<i>R. solitarium</i>	0.05
<i>R. sp.aff. R. maius</i>	0.05
<i>R. sp.aff. R. multinervium</i>	0.05
<i>R. superbum</i>	0.05
<i>R. sp. nov.</i>	0.05
<i>R. phaeochitum</i>	0.05
<i>R. nummatum</i> x <i>R. luteosquamatum</i>	0.05
<i>R. gracilentum</i> x <i>R. invasorium</i>	0.05
<i>R. sp. unknown</i>	0.05

R. luteosquamatum really is the most efficient coloniser, but along with such as *R. nummatum* and *R. inconspicuum* is certainly among the least worth growing species. *R. invasorium* was more was more effective in flower with five- to eight-flowered trusses of red or scarlet and with neat foliage. *R. gracilentum* occurred in greater variety than I had previously suspected. From the foliage point of view varieties appeared with minute leaves clustered upon shortly internoded stems to others with eight times the leaf size. The flowers were predominantly pink, but others were paler and some bright red. Some were completely prostrate plants, while others were tall and straggly up to 2 feet high. I am now convinced that plants I identified here as *R. anagalliflorum* in 1965 were nothing more than extreme forms of this species. *R. nummatum* is attractive enough in foliage, but little else, its hybrid with *R. luteosquamatum* was of more interest - a single plant.

R. konori as it occurs here is remarkably uniform in foliage and habit, only the flower colour varies, from the least common pure white to a clear deep pink, they tend to be smaller than varieties in other areas. *R. leptanthum* is a perky plant with clear pink flowers, at Mairi Creek it enjoys the hot, dry clay, but in cultivation appreciates a fair amount of shade. The comparatively small number of plants of *R. macgregoriae* were all apparently non-descript, but few were in flower, and I thought it strange that none exhibited signs of hybridity under the prevailing conditions. By far the most interesting were those plants of which I only found single specimens or small numbers. I only found for instance one small *R. solitarium*, and one shapely bush of *R. superbum* many miles from any other recorded plant, as were a few plants of *R. phaeochitum*.

Does this suggest that there are colonies of these species closer than is yet known, or has the seed blown a hundred miles or so from known localities? While combing the mossy channels and gulleys at Mairi Creek I came across two plants of a species completely new to me belonging to the Subsection Euvireya. They appeared somewhere between a large *R. gracilentum* and say *R. vitis-ideae*. This must be the first new species discovered in this area for some years. At Edie Creek were two more unfamiliar plants, one I put close to *R. multinervium*, and the fine glossy foliage of the other suggested *R. maius*, but as neither was in flower positive identification will have to wait until the cuttings I collected grow larger. If all these oddments prove to be what I think, the number of recorded species from this area will be increased by a third, but if random burning in the area continues I would estimate that the total population will be cut by at least 50 per cent within five years.

On Mt. Kaindi I found the most remarkable feature to be the rapid regeneration of *R. solitarium* along a track where the natives had felled trees and let in more light. The regeneration was, however, largely limited to this species, and although *R. leptanthum*, *R. konori*, and *R. gracilentum* were plentiful in the area they didn't avail themselves so readily of the opportunity. I was amazed also to find small trees of *R. solitarium* 20 feet high. It is a pity that this species is apparently not overkeen on being moved, most, if not all the seedlings and cuttings I sent to Australia soon perished, although those sent home to Grasmere merely hung fire for a few months before growing on. Along the track running to the helicopter pad a number of seedlings showed up which were too young to give any hope of identification, they were not unlike *R. herzogii*, but yet there was something atypical. Beyond the pad in an area of fallen trees were numbers of *R. nummatum* growing epiphytically, with *R. solitarium*, *R. leptanthum*, and *R. invasorium*, and more of the mysterious seedlings, try as I would I was unable to find a mature plant.

On my last visit I had only walked a short distance along the Bulldog trail, so one morning I set off alone to go further. At first the banks of *R. luteosquamatum* I had seen three years ago seemed more vigorous, but later

a mixed colony of this species and *R. nummatum* had become considerably overgrown, with the plants of *R. nummatum* mostly dead. As this road was dug out in 1942, it would give the species under a similar situation a life of about 25 years, surprisingly long considering the rapid growth of vegetation in the area.

The track, it could scarcely now be termed a road, is mostly overgrown and parts have fallen away on steep slopes leaving only an unstable way of a foots breadth over sheer rocky and muddy slopes. Some of the great trees which had fallen across, supported numbers of *R. konori*, *R. leptanthum*, *R. nummatum*, and *R. herzogii*, and more seedlings appeared similar to those on Mt. Kaindi. Half a days march on I came upon a splendid bluff, and with nothing new in sight sat down to enjoy the blue-hazed valley below, the silence of the great forest, the butterflies, and the birds. I walked into camp late in the afternoon, and after a further day packing plants and writing up notes, set off for Lae, stopping en route to admire *R. aurigeranum* near Bulolo. Two plants were in full bloom on a nearby hillside, and provided such fiery splashes of colour that I felt I had underestimated this species in the past.

I was soon ready for the next, and as it proved, the last stage of the expedition into the Rawlinson Range of mountains. By then, in June, the weather was beginning to break, and we had some difficulty flying out of Lae. On the first attempt it was too misty to get off the ground, on the second we managed to fly some 30 miles along the coast before being turned back by low swirling clouds, but finally we managed to get away by taking off early one morning and wending between forested peaks to touch down at Mindik just before the cloud came down and rain began to fall. We had a long trudge ahead, so after a certain amount of haggling over the distribution of loads with the bearers we set off for the village of Aregenang where I hoped to spend a week.

The village lay across a deep valley, and getting away from the airstrip into

the forest it was only a matter of yards before the first rhododendron showed up as a low epiphyte, *R. dielsianum*. Soon, *R. konori* appeared in a similar situation low down on a mossy trunk, in deeper shade than any in which I had previously seen it. How the rain fell, and how slippery the narrow track became, until at last we reached the river at the bottom. I had a spell here perched on a huge rock to smoke a soggy fag and to remove a few leeches, and noted that there were no rhododendrons on the banks. Beginning to climb up through the forest to the village was agonising with the rain, the slippery trail, and with aching muscles, but around four in the afternoon the track became more worn, and the rhododendrons appeared on the track cuttings and in the grassland alongside - we were soon in the village. We set up our camp in and around a stilted grass thatched hut, and it was not long before we had the billy boiling and tea up.

Next morning early, a native brought in a fine plant of *R. zoelleri* in flower, but after breakfast I set off into the forest above the village. Strangely, there were no rhododendrons on the road cuttings or in the fallow gardens, but as soon as I entered the forest *R. dielsianum* turned up in quantity, often in deep shade. For a while it looked as though this was the only species I should find, but soon seedlings of another species turned up on rotting logs and fallen trunks. I was unable to find any in flower, but it would appear to approach *R. incommodum*. By eleven it was pouring down, and by two I was so wet and mud-smearred that I made tracks back to camp somewhat disappointed with my finds. It's always so frustrating to be rained-off with the thought of something good nearby. This happened so often during this part of the trip, but during clear spells it was worthwhile scrambling through the bush and grassland below the village. On one of these minor adventures I came across a well-foliaged plant for all the world like a super *R. konori*; the natives told me this had red flowers, and this was to prove to be my first plant of *R. hellwigii*. Another day I climbed well above the village into the forest determined to find something new; nothing exciting appeared until after lunchtime when after looking over dozens of trunks and fallen logs a gangly unhealthy specimen of *R. pachycarpon* appeared, unhappy in its epiphytic role. Later, seedlings

appeared which may prove to be *R. herzogii*. Another day I walked down to the ridge where *R. zoelleri* was growing, and while it was unfortunate that all those in flower had been collected for the Herbarium without being photographed, the situation of the colony in grassland and thin bush alongside a track was interesting as all these plants were growing in a 3 inch to 2 foot layer of humus overlying limestone. Thousands of seedlings sprung from mossy tufts in half-shade. Returning to the village I came upon a small colony of *R. macgregoriae* growing in clay under a light shade canopy - this variety had the least ornamental flowers in the smallest trusses I have yet met, but it had the largest foliage. I met *konori* and *hellwigii* again, but nothing else. There were pretty *Dimorphanthera* spp. here. Especially one with white tipped red flowers, and fine foliage plants, *Ficus*, *Begonia*, and ferns in never ending assortment.

A splendid *Eugenia* sp. caught my eye, and many orchids, but after a few days it became apparent that it does not really pay a specialised collector of one genus to spend too long in one small area. Accordingly, after a week I set off back to the strip at Mindik taking a long route back; nothing new turned up and I was fortunate in being able to fly straight to Lae, landing there 20 minutes later. It had been a worry all along that the weather might close in for a long period, and had this been the case it would have taken a week to walk back. I still had over a week in hand, but the mountains remained wreathed in mist and rain and made it impossible to get anywhere interesting, so I had to leave for Australia to meet a commitment in Melbourne before I could return to the Western Highlands.

As is usual with such an expedition one is grateful for the enormous amount of help and hospitality which make the whole thing feasible, and I take this opportunity to thank all those whose names are too numerous to mention here.

As usual I took a number of soil samples. The results of their analyses are noted herewith:

Locality	pH	Loss on ignition	Texture
Ulu Kali Ridge	5.8	4.9	Sand
Bukit Perangin	4.6	69.0	Peat
Robinson Falls	4.5	68.2	Peat
Gunong Jasar	4.9	58.8	Peat
Gunong Brinchang	4.4	73.5	Peat
Gedeh (ground)	5.2	7.8	Clay
Gedeh (branch)	4.3	72.5	Peat

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