

## Rhododendron Collecting on Mt. Kinabalu

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It has been said that no general place on Earth, in this day of swift jet travel, is more than 24 hours travel time from any other place. Nevertheless, exotic place names still have a great fascination for most people, and it is extremely gratifying to visit such places to find that ready access by no means detracts from their interest and charm. Such a place is Mt. Kinabalu. The very name conjures up images of the mysterious east. To us, Frank Mossman and Dave Goheen, it is, in addition, Rhododendron Country. A glance at the map of S.E.Asia will show that Mt. Kinabalu is near the northern tip of the island of Borneo at 6° north latitude, and that Borneo is a very large island. It is somewhat larger than Texas at 288,000 sq. miles. Borneo has had a long, and at times, turbulent history. It is now divided into several political subdivisions. Kalimantan, the greater part of the island in the south, is a state of the country of Indonesia, while Sarawak and Sabah in the north are the eastern states of Malaysia. Brunei is a small independent sultanate between Sarawak and Sabah along the northern coast.

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*R. brookeanum*

For many years, Sabah, in which Mt. Kinabalu is located, and Sarawak were under the control of Great Britain. Both became independent in 1963, and

then joined the confederation of Malay States. Malaysia is now a prosperous and vigorous young country with an industrious population. Among its enlightened policies, has been the establishment of several National Parks with the accompanying commitment to carry out steps to preserve the natural beauty of these areas for subsequent generations.

Mt. Kinabalu National Park is the most interesting mountain park in Southeast Asia and the mountain, itself, is a scenic wonder. It is unique with its diverse climatic zones; tropic, subtropic, temperate, and alpine all to be readily observed as one climbs a few miles from park headquarters at about 5,200 feet to the lofty 13,455 foot summit. The mountain is also a botanical paradise, with what E.J.H. Corner, the organizer of two Royal Society of London expeditions on Kinabalu, believes is the richest and most remarkable assemblage of plants in the world (1).

During the month of January, 1980, we had the good fortune to visit, observe and collect in this marvellous assemblage. Our first task was undertaken months before our actual departure from San Francisco. As the mountain is under the protection of the Malaysian Government, it was necessary to request permission to collect plant material from the park director. There are very strict rules but we were granted permission to take herbarium specimens, seeds and cuttings in areas well away from park headquarters. Uprooting of plants was not allowed. We were well satisfied with the response from the park director.

Accompanied by Frank's wife, Doris, who came along to observe and practice her artistic talents, we left San Francisco in the rain on January 4, on a brand new Philippine Airline 747 jet. This was an auspicious start. It happened to be the first commercial flight for the newly-purchased aircraft from San Francisco to Manila. The service was superb and the long trip passed swiftly and uneventfully. Even after taking several flights across the Pacific, it is still an amazing experience with long hours over seemingly endless ocean then sudden arrival in the verdant, sun-bathed islands of S.E. Asia. The low clouds

and cold rain of Portland and San Francisco were quickly forgotten in the bright sunshine at the Manila Airport where it was 23°C at 8:30 in the morning. We tried to leave the airport for a tour of downtown Manila but a maze of restrictions and red tape seemed insurmountable so we remained in the transit zone.



*R. suaveolens*

Late in the afternoon we flew in a Malaysian jet along Palawan Island which divides the Sulu Sea from the South China Sea and at about 4:20p.m. picked up the northern tip of Borneo. The weather thickened as we neared Borneo and the clouds covered the lowlands, but Mt. Kinabalu was outstandingly visible and looked to us as high as Everest. This massive granite upthrust truly dominates the whole northern part of Borneo.

Landing and custom clearance at Kota Kinabalu were uneventful but the weather was oppressive-humid and hot, and especially noticeable to us just 24 hours from a cold January, Portland day. A short cab ride brought us to the Borneo Hotel which is near the beach and about 4km. from downtown Kota Kinabalu. We can highly recommend this delightful establishment and especially the restaurant. The hotel has a justly-deserved reputation for excellent food and the Chinese cuisine is first-rate.

Three days were spent in resting and exploring the low country in and near Kota Kinabalu. This is the old English town of Jesselton. How much more euphonious is the Malay, Kota Kinabalu! The town is packed with a vigorous

amalgam of 50,000 native tribal people, Chinese, Indians, Malays and a sprinkling of Westerners. It is disconcerting to travel thousands of miles to a southern tropical island and encounter traffic jams from 4 to 5 o'clock, but the town is booming and construction is everywhere in evidence. The activity tapers quickly as one leaves the city. Quaint villages and settlements of the coastal Bajau and the upland Kadazan or Dusun tribal people are still very much like the descriptions recorded by past generations of travellers.



*R. lowii*

On January 9, we left by Land Rover for the trip to the mountain. The road, which is still under construction, is a mixture of good and bad, and the trip to National Park Headquarters of some 45 miles takes 3 to 4 hours. This, of course, is nothing compared to the arduous cross country treks recorded by early travellers who took up to a week to walk through the rugged country from the coast to the mountain. One cannot help but admire the stamina and courage of Miss Lillian Gibbs who made the trip on her own, long before there was a road, in 1910.

Arrival in the headquarters meant arrival in the "Land of Perpetual Spring". A more salubrious place would be difficult to find. Tree ferns, tibochinas, orchids, nasturtiums, lilies and many other plants and flowers revel in the soft rains and mild temperatures of this favoured spot. Mr. Justin Jukian, who is now Senior Park Warden and who accompanied Frank Doleshy (2) on his climb of Mt. Kinabalu has established a rhododendron garden near the Club Kinabalu building (Kelab Kinabalu in the Malay language). In this, we saw out

first Kinabalu rhododendrons in bloom. *R.crassifolium* and *R.suaveolens* were in flower. *R.retivenium* had just finished and a magnificent *R.brookeanum*, brought from the Mesilau River, was in bud and bloomed for us.

After arrival, we settled into one of the chalets available for rental and which was our headquarters for two weeks. From the veranda, a sweeping view of the mountain all the way from the lower forested slopes to the bare granitic heights was available. We never tired of the kaleidoscopic panorama that daily unfolded in full view from the veranda. Sunrise would often be clear with the mountain bright in unobstructed sunlight. Then by 9 or 10 o'clock, misty clouds would steal in, and the mountain scenes would appear and disappear for perhaps an hour to be followed by a solid cloud cover that completely obliterated the mountain and appeared to hang like a curtain just above our heads. Late in the day the curtain would often lift, and again in the evening the mountain would almost magically reappear.



*R. crassifolium*

Our Land Rover driver was a remarkable young man, Peter Chang. He was not only a careful and expert driver who negotiated the rough, rutted roads and hairpin curves with ease and nonchalance, but he was also dependable. During the time when we were at headquarters and not on the mountain, Peter was always on call and was so punctual, that we could literally set our watches by his arrival. His father is Chinese and his mother a Kadazan lady from the Kundasan area near the park. From his mother, Peter had learned many of the legends and tribal lore of the hill people including one remarkable

tale (reminiscent of the European Dracula stories) of a being with a detachable head (head-hunting tradition!) that terrorized the villages for a long time. The being would come to a village, pretend to retire with the people at night and, after all were asleep, would rise, and quite remarkably detach its head which would float through the settlements, menacing and attacking the villagers. Before sunrise, the head would return and reattach itself to the torso. The depredations of this wicked being were stopped by a very brave and clever man who pretended to retire with the wicked being but who remained awake to watch. When the head left the body to start its night of terror, the brave man rushed to the forest and gathered bark and pitch which he brought back, and securely fastened to the headless torso. Near morning, the head returned but to its dismay it could not reattach itself, and was destroyed by the rays of the rising sun! Peter told this and other stories on several evenings in our chalet. He possessed a large English vocabulary but also a most atrocious accent. We had to listen very carefully but found his stories of great interest. Peter has saved his money, and he and his sister have purchased a small farming plot just outside of the park boundary to grow temperate vegetables for sale in Kota Kinabalu. He told us that he was able to grow and harvest four successive plantings of potatoes in one year!

On January 10, we took the Land Rover to the power station at 6,000 feet (1829 metres) at the end of the road. The trip up the road was made in a series of stops for botanical purposes and on the way we picked up a most enterprising young lad, John James, from Brisbane, Australia who, at a very young age of 17, had made himself an authority on the genus, *Nepenthes*, the insectivorous plants whose epicentre is Mt. Kinabalu. This young man quickly pointed out to us our first specimens of *Nepenthes tentaculata* growing on the embankments along the road at about 5,400 feet (1646 metres). At about 5,800 feet (1768 metres) he showed us *Nepenthes fusca*. Both of these incredibly interesting plants have two types of pitchers which have evolved into efficient insect traps. The lower pitchers are shaped differently from the upper ones but both are growing on the same plant. The pitchers are modified leaves. The stalk is a narrow blade and the true blade is the pitcher each with

an open lid, presumably for the purpose of shedding rain water and preventing the pitcher from becoming filled during the frequent downpours. John told us to be on the lookout for other *Nepenthes* species as we later made the ascent up the mountain. He also joined us for our practice climb from the power station. During our leisurely ascent to the power station we noted that we were passing through a magnificent forested area. At this elevation, the trees, e.g. oaks and beeches such as *Lithocarpus*, and *Trigonobalanus verticilata*, chestnuts like *Castanopsis acuminatissima*, and conifers, *Agathis* sp. were very impressive with boles up to a metre or more in diameter and heights of 30-40 metres. The decline in size and height with elevation is very noticeable and at the power station, there was definite decrease in size which continued as we walked up the trail from the power station at 6,000 feet to the second trail shelter at 7,500 feet (2286 metres) where we completed our test ascent and reluctantly turned back, January 10.

Five rhododendron in flower were seen and collected during this practice run. *R.fallacinum* was observed both as an epiphyte and as a terrestrial plant; from about 6 feet as an epiphyte to as much as 8 feet as a terrestrial. One form collected near the power station had 51 orange-red flowers in the truss, (cuttings and pollen collected). The unopened buds of this species are especially interesting with stripes similar to gold paint along the edges of the bud scales. *R.quadrasianum* var. *cuneifolium* was found in profusion from about 7,000 ft to 7,500 ft and most plants had orange-coloured corollas from 3/4" to 1" long. This species seemed to grow especially well in old and rotting tree stumps and logs. In places, the plants were as much as 6 feet high with literally hundreds of flowers. *R.stenophyllum* from 2 to 4 feet high with extremely narrow leaves resembling long conifer needles, was also numerous at this elevation. We found it to have a shy flowering habit. Most of these plants in flower had solitary, red, funnel-shaped corollas, but a few were seen with two flowers from the same axis and rarely 3 or 4. Quite the most beautiful of the rhododendrons from 5,000 to 7,000 feet were *R.suaveolens* and *R.retivenium*. The former is generally found as a rigorous terrestrial and occasionally epiphytic plant up to 6 or more feet high with dark green,

rounded, two inch leaves. The white flowers are in an upright truss of 22 and more flowers with long tubular necks flaring to open and rather flat petal segments. The yellow stamens contrast rather well and we found this to be a very striking rhododendron, sweetly fragrant. *R. retivenium* gave us a real sensation when we first found it on a ridge at about 6,500 feet. The clear golden-yellow funnel-campanulate flowers, two inches or more long and two inches across are borne on one to two inch pedicels of a pleasing reddish colouration. This combination of colours, offset by dark green leaves up to one inch across by six inches long, makes this one of the most outstanding Kinabalu rhododendrons. We could not help thinking about the repeated attempts which have been made to produce truly yellow colours in our temperate zone. Kinabalu has had them for a long time!



*R. stenophyllum*

The next day, January 11, we rose early for our climb up the rugged and yet well laid-out summit trail. Climbers on Mt. Kinabalu are required to use the services of a guide and porters are available for modest fees. At about 7a.m., we met our guide at park headquarters. He turned out to be a most remarkable young man by the name of Sopinggi Ladson. Sopinggi, 21 years of age, is a Dusun from the Kiau area on the lower slopes of the mountain. To reach park headquarters, he and two porters had walked six miles along forest trails and had arrived before 7a.m.! The two porters took us by surprise. They turned out to be Sopinggi's sisters, Sona, 16 years of age and Salumbi,

23 years old. Both were small and yet very strong and agile. By careful packing, in their cornills which were native baskets, they kept the assembled packs to about 40lbs. total weight, with 24lbs. net for our belongings. The native baskets serve extremely well as back packs and the two porters had no difficulty in out-pacing us on the mountain trail.

Again by Land Rover, we drove to the power station and began the ascent along the summit trail. From the power station at 6,000 feet to the second shelter at about 7,500 feet took about 1 1/2 hours. As we passed through 7,000 feet, we encountered another species of pitcher plant, *Nepenthes lowii*, named after the first European, Hugh Low, to climb Kinabalu. This plant has a remarkable lop-sided pitcher with a hairy lid, reddish-purple on the underside. The pot-shaped pitcher with about 500cc volume has a deep reddish-purple lining. Some of the pitchers were completely filled with water but we were not thirsty enough to try the potability. As we climbed, the forest trees became noticeably shorter in height although many still had diameters of from 50 to 75 centimetres. Mosses covered the tree limbs and trunks. Birds abound in this region and calls are frequent. Hoots, which we attributed to monkeys, could be occasionally heard, but none of these animals were seen. The birds of Kinabalu are very numerous and we noted that many showed little fear. Some, possibly the Kinabalu Friendly Warbler (*Bradypterus accentor*), were especially bold and when we rested would hop close by, hunting insects in the forest duff. This bird is only found in the Borneo mountains and sightings are becoming increasingly rare.

At 8,000 feet, the understory in the mossy forest was densely-draped with Gibbs' Bamboo, tree ferns, fibrous-rooted begonias and impatiens. In this type of mossy forest, to move more than a few feet from the cleared trail without the use of a machete is very difficult. At a fairly level place about 8,000 feet, we noted several *Rhododendron retivenium* and within one 50 ft radius counted three choice specimens. One was particularly good with 5 trusses in full bloom. The elevation demarcation between the two yellow species, *R.retivenium* and *R.lowii* was very sharp. At 8,000 feet, only *R.retivenium*

could be seen; at 8,200 feet, we encountered the first plants of *R. lowii*. From this elevation to as high as 11,500 feet, this magnificent species was observed in flower with colours from pure, bright yellow in the lower elevations to orange-yellow at the higher levels. At about 8,600 feet, Frank Mossman spotted an exceptionally fine *R. lowii* about 50 feet from the trail on a steep, upward bank, on a tree. After a struggle of 15 minutes or so with thick bamboo and underbrush, he collected a beautiful truss of this largest of the Kinabalu rhododendrons. (MGM#2a)

The truss, of a deep golden yellow colour, consisted of twelve flowers 4 1/4 inches (10.8cm) across and 3 1/2 inches (8.9cm) long with 1 1/2 inch (3.8cm) pedicels. Altogether, *R. lowii* is truly an outstanding rhododendron, and deserves to be widely grown. The plant is robust with new growth stems at least 1/2 inch (1.3cm) thick. The leaves on the collected specimen averaged 8 1/3 inches (21.6cm) in length by 5 inches (12.7cm) in width. It may be that *R. lowii* is a natural tetraploid emerging at the higher elevations of the mountain from the smaller yellow species, such as *R. retivenium*. A great deal of pollen was collected from this plant. Some of the flowers on the plant remained unopened even at maturity and this was found to be the result of the presence of a grub which fed on the pollen in the anthers of the unopened bud. One can speculate that motivation of pollen is involved in the hormonal triggering of bud opening. Consumption of pollen by the parasite certainly was associated with unopened flowers. The adult form of the grub was not observed.



*R. retivenium*

It should be mentioned at this point that moderate to severe damage by insects was widely observed during our collections on the mountain. Leaves and flowers were often found to be very badly chewed by grubs and worms. No doubt the absence of frosts and cold periods aids the development of these parasites who flourish in the mild climate. Some sort of accommodation has been established and the plants and insects now exist in an apparent state of equilibrium.

By 1:30p.m. we arrived at Carson's Camp at 8,900 feet. The camp is an old galvanized tin-covered hut with a dirt floor and a board-covered ledge for sleeping. Soppinggi and his sisters set about making a fire in one corner of the hut, which had no chimney. Frank Mossman accepted the smoky atmosphere and spread his sleeping bag on the wooden ledge. Dave Goheen said "no-way" and preferred the outdoors under a poncho. Some distance back of the hut, a magnolia tree was observed with a large seed pod measuring 2 inches (5.1cm) by 3 inches (7.6cm). This was secured and opened. The pink-coloured flower that he indicated was 12 inches (30.5cm) across. Even though the seed did not appear to be fully ripened we brought it back in hope of growing a plant that could produce such a flower.

Exploration of the *Dacrydium* forest a few hundred metres behind Carson's Camp revealed many specimens of *Nepenthes villosa*, the largest and most interesting *Nepenthes* that we found on the mountain. This plant has very large pitchers. One particularly fine specimen had a cup 9 inches (23cm) long and 4 1/2 inches (11.5cm) wide with an ovate lid measuring 5 by 4 1/2 inches (12 x 11.5cm). The capacity of this cup must have been well over a quart. There was, however, considerable variation in the size. This *Nepenthes* has a habit of climbing in a vine-like manner into other vegetation and letting the cups hang in clusters. To see many of these incredibly interesting cups in one cluster is a sight that is not soon forgotten. The flowering parts of the species are carried as spikes on separate male and female stems. We were able to collect seeds from several spikes of plants with large and showy cups. Also in

this area, we found our first specimens of *R.rugosum* and *R.ericoides*. Both of these rhododendrons are found in considerable profusion from Carson's Camp at 8,900 feet on up the mountain and *R.ericoides* is found all the way to the top as small prostrate bushes clinging to crevices in the rocky granite slopes.

Altogether, we found the area around Carson's Camp to be one of the most interesting places on the mountain. Late in the afternoon, at about 5:30p.m., the fog and clouds which had obscured everything all day, lifted and an amazing vista stretching all the way from the S.E. over the Sulu Sea to the west beyond Kota Kinabalu over the South China Sea became visible. It will be a long time before we forget our evening spent at Carson's Camp watching the sun fade into the South China Sea.

On January 12, we rose early. Mossman, because he couldn't abide the smoky interior of the hut and Goheen, because he was wet and cold from sleeping under a heavy dew-fall outdoors. We left the camp at 6:45a.m.. During our ascent, the trees diminished in size and many assumed the shape of large shrubs. As the *Quercus sp.*, *Clethra sp.*, *Phyllocladus sp.*, and *Dacrydium sp.*, became smaller and the forest canopy more open, plants of the Ericaceae (including rhododendrons) became more numerous. Several species of *Vaccinium* were widespread and contributed a great deal of colour with reddish and orange foliage tints. Two shrubby *Schima sp.* with white flowers, related to the Camellias with large separate flowers and *Leptospermum recurvum* with smaller more numerous flower clusters abound at these elevations. The latter occurs as a small shrub almost to the summit peaks where its native name of Sayat-Sayat has been given to the last trail camp on the mountain at 12,500 feet. Interestingly, many species of holly can be seen during the climb to Paka Cave. Most of the species have not been completely described and one, *Ilex havilandii* is found almost to the summit as a small shrub with leathery, recurved leaves which are a bright rose colour when young.

Between 9,000 and 10,000 feet several rhododendron species became prevalent. *R.rugosum* and *R.acuminatum* were both collected here. These two species appear to be quite similar and differed mainly in leaf shape. Both have dark green rugose leaves of about 1 inch (2.5cm) in width by 3 to 5 inches (7.6 to 12.7cm) long. In both, the leaf midrib is reddish-coloured and quite prominent. The leaves of *rugosum* are rounded at the tip while those of *acuminatum* taper to a sharp point. Professor Sleumer (3) describes the colours for *rugosum* as carmine-red or rarely rose-red and for *R.acuminatum* as cinnabar-red. We did not notice much difference in colour for these two types of rhododendrons and thought the colours to be pinkish-red.

Two quite remarkable rhododendrons are also found in this region. *R.ericoides*, which Professor Corner regards as the foremost Kinabalu rhododendron, flourishes here in shrubby clumps up to 4 to 6 feet high. As one progresses to the summit heights, the stature of this rugged plant decreases to small struggling bushes less than 1 foot high. This shrub, out of bloom, is really an improbable-appearing rhododendron with needle-like leaves closely set above the twigs similar to many others. In bloom, there is no mistaking the tubular scarlet flowers up to 1" long as being anything but rhododendron flowers. For some reason, seed collection was difficult and only one plant was found with seeds. *R.buxifolium* rather suddenly appears at about 9,000 feet. This is a robust plant with small, rather rounded, leathery leaves about 1 inch long. The crimson flowers, much longer than the leaves of this species, were visible for long distances as we progressed up the mountain through the shrubby, increasingly heather-like vegetation.



*R. buxifolium*

Paka Cave deserves some mention. Before the huts and shelters were built along the summit trail, this so-called cave provided the only shelter for the hardy, early climbers. It is not really a cave but the fall of a huge granite boulder, probably during the period about 3000 years ago when the Kinabalu ice-cap melted, in such a way that a room some 10 by 12 feet under the rock was created. Water covering over many granite boulders forms a pool in front of the cave and creates a really fine setting for this resting spot. *R. lowii* in a yellow-orange form was collected here, and Frank Mossman was able to show Sopinggi how to gather and thrash rhododendron seeds, perhaps the first step in developing a native plant hunter!

One hour walk through relatively open slopes took us past the new hut and helicopter landing pad to Panar Laban, the next to the last mountain shelter on the summit trail at about 11,200 feet. Just above Paka Cave, the soil thins out rapidly and this, even more than elevation, seems to create a tree-line. This lack of soil can be traced back to the flooding that occurred when the ice-cap melted. Only patches of soil remained in protected areas and trees do manage to grow in these protected areas almost to 12,000 feet.

One very interesting bit of the Kinabalu fauna was observed at about 10,200 feet in some of the last peaty soil. Here and there piles of earth had been pushed up and these were obviously angle worm castings but of a size never

observed in western U.S.A. Finally one of the worms was observed just off the path. This creature measured 18 inches (46cm) in length. It was probably immature since reports of 30 to 40 inch angle worms on Borneo have been made.

After we reached Panar Laban, which is a collection of several huts with galvanized roofs, wooden floors, and metal bunks all brought up by helicopter, the afternoon was spent resting and collecting in the surrounding area just below the glacier scarred granite summit rocks. One interesting feature of these stark and steep granite slopes was the growth and bloom of white orchids. Some of the more than 1000 species of Kinabalu orchids have been heavily collected near the summit trail but we were still able to observe many in bloom. As we neared Panar Laban two white species became predominant and on the steep granite slopes nearly every crack held at least one blooming specimen of two species of the genus *Coelogyne*. Both *C.exalata* and *C.papillosa* grow and bloom profusely at these altitudes. Alas, we were not able to see or even hear of any specimens of the two most famous Kinabalu orchids, *Paphiopedilum rothschildianum* and *Arachianum*, in bloom in the wild but had seen them in the orchid collection at the Singapore Botanic Gardens. Heavy collecting has nearly cleared accessible places of these wonderful orchids. Seeds of several orchids were collected, among them the yellow terrestrial *Spathoglottis aurea* which was common on the exposed banks of the road from headquarters to the power station, but somehow were lost in the trip home so we did not have any Kinabalu orchids in our home collection. Just to the east of the Panar Laban huts on a steep but protected slope of scrub forest, Dave Goheen spotted a bright red rhododendron in bloom perhaps 200 yards above the huts. In a determined effort to see this from close range, he walked several hundred feet up the summit trail and at the estimated contour level struck out S.W. to locate the tree-like *R.buxifolium* seen from the cabins. Over an hour of struggling through thick-growing evergreen trees festooned with vines and orchids still did not locate the rhododendron. Finally by shouting to Frank down at the cabins and shaking various bushes and trees so that Frank could see the motion and thus guide

the way by shouts, the plant was located. This turned out to be by far the largest rhododendron plant we observed. The trunk was measured at breast height to be 8 inches (20.3cm) in diameter and the height was at least 30 feet (9.1 metres). By arduous climbing, two limbs of this regal plant were secured. (MGM#4) The truss was a dark brick red of a very clear colour with up to seven or eight flowers about 1 inch (2.5cm) across and 1 1/2 inches (3.8cm) long. Also in this surprisingly protected spot at a very high altitude, estimated at 11,400 feet (3475m) were a number of *R. lowii*. The flowers were smaller than those from lower elevations and the colour was a bright orange-yellow instead of the clear golden yellow of the lower elevations.

One of the benefits of our resting time at Panar Laban was our "conversation" (mostly sign language) with Sopinggi about the native names for some of the plants we had collected and observed. Some of these were:

<i>Rhododendron brookeanum</i> (MGM#14,15)	Bunga Lampai
<i>Rhododendron buxifolium</i> (MGM#4)	Maropid
<i>Rhododendron crassifolium</i> (MGM#16)	Tagong
<i>Rhododendron ericoides</i> (MGM#13)	Rampai
<i>Rhododendron fallacinum</i> (MGM#30,17)	Kelintuhan
<i>Rhododendron lowii</i> (MGM#2a,3,11a)	Bunga Silau
<i>Rhododendron nervulosum</i> (MGM#26)	Turudo
<i>Rhododendron suaveolens</i> (MGM#18)	Gosing
<i>Rhododendron retivenium</i> (MGM#31,32)	Bunga Lampai
<i>Nepenthes villosa</i> (MGM#7)	Kung Kuanga
<i>Schima brevifolia</i> (MGM#21)	Tandas
<i>Leptospermum recurvum</i>	Sayat Sayat
<i>Rubus fraxinifolius</i> (Tree Strawberry)	Kerabundu
<i>Magnolia sp.</i> (at Carson Camp) (MGM#12)	Kedudungkong

Remarkably these plants had been observed and named by the native people, and Sopinggi was able to write a name immediately in excellent script when the plants were shown to him.

Following a beautiful evening, after the clouds dissipated, with spectacular views of the sun over the South China Sea, we retired in order to be rested for a final strenuous climb to the summit of Low's Peak. Sunday morning, January 13, was bright, clear and cold. Just before the sun appeared, the temperature was 12°C (56°F). We were in high spirits and ready to tackle the climb. We started on the rugged but well-worked trail above Panar Laban. The views were magnificent and the weather remained clear. Sopinggi was the first to reach the top of Low's Peak at 13,455 feet (4,101 metres) at 10:50a.m. The return to Panar Laban at 12:30 p.m. was in dense fog. The weather at the top was sunny and windless, revealing all the north peaks. Especially impressive was the yawning, indescribable chasm called Low's Gully which falls away north and east of the summit in vertical walls several thousand feet deep.

An uneventful rest at Panar Laban was followed by a good night's rest and rapid descent to the park headquarters on January 14. The descent was started at 6:15 a.m. and the power station was reached at noon. No matter what anyone says, going down is vastly easier than climbing up.

For much of the remainder of our stay in the "Land of Perpetual Spring", we explored the area in the park along well laid out trails ranging from about 5,000 feet up to 6,500 feet in altitude. Two additional rhododendrons were collected along the trail on the Liwagu River in the park on a hill at about 6,500 feet; across a deep canyon from the power station, a blooming plant of *R.nervulosum* was found. The open truss of orange-red flowers was found on a four foot bush growing in soil close by the trail leading down to the Liwagu River. This species had only rarely been collected and we were very pleased to be able to obtain cuttings. Further down the river trail, *R.crassifolium*, rather plentiful and in various forms both terrestrial and epiphytic, was also found. This species has fleshy leaves 4 to 6 inches (10.2 to 15.2cm) long by 2 to 3 inches (5.1 to 7.6cm) wide. The orange-scarlet to scarlet flowers are borne in a loose truss of from 15 to 20. Between 5,000 and 6,000 feet, this appears to be one of the most common Kinabalu rhododendrons.



*R. nervulosum*

Following down the Liwagu River in rather heavy rain, we spent the only miserable day of the whole trip. Not only was the rain rather heavy and unrelenting, but we encountered, at about 5,500 feet near the river, numerous leeches which were really on the lookout for warm bodies! This is the only area where we found these unwelcome pests. One other disappointment of this walk was to see, but be unable to reach, numerous epiphytic rhododendrons 50 feet or more above the ground. One especially fine *R. brookeanum* was seen telescopically, after Goheen found fallen corollas.

Two side-trips were made to the Mesilau River outside the National Park boundary searching for *R. brookeanum*. It is from this area that several fine forms of this species have been collected including the magnificent plant brought by Justin Jukian to the national park headquarters garden.

Mossman took the remnants of a road several miles up to the edge of the park but did not find anything of note. Goheen struggled for about 1/2 mile up the Mesilau River and thinking to find an easier route back to the road, struck cross country up from the river. About two hundred metres from the river, several forest giants had been felled during native clearing operations, and a plant of *Rhododendron brookeanum* was found in a fork of one of these trees. This was photographed and cuttings were taken. Several mature seed pods were found but, regrettably, were left lying on a log. From this spot back to the road, a distance of perhaps 1/2 mile, took a struggle of over two hours. A

fearsome tangle of berry vines, brush and a spiny palm which has been nicknamed the wait-a-minute bush, was almost impenetrable. Midway through the struggle following the unnoticed loss of both eye glasses and water bottle, a sort of panic set in. A short rest, and a good bit of self-lecturing quieted the panic and fortuitously, a small set of hand clippers located in a coat pocket. With these and a careful route selection the tangle was finally surmounted and through all this, the *R.brookeanum* branches were triumphantly carried back to the Land Rover.

The next day we returned to the experiment station but this time walked up to the end of the road then, following a faint path perhaps that originally blazed by Dr. Sleumer and Sheila Collinette in 1963 (3), climbed to about 6,900 feet. The weather was not cooperative and clouds and mist prevented us from locating the rock grotto on the Mesilau River described by Sleumer. We did observe many rhododendrons, especially *R.suaveolens*, *R.fallacinum*, and *R.quadrasianum* var. *cuneifolium*. In places, the rhododendrons were the most numerous plants; their profusion actually impeded our progress. Several collections of cuttings and seeds were made in this area.

Two additional, more or less scouting, side trips were also made but on these no collections were carried out. On the first trip, the road to the primitive Dusun village of upper Melangkap on the northwest side of the mountain, was travelled by Land Rover until a washout prevented further vehicle travel. From there, we walked about seven miles along the trail used by the natives to the village, situated on a hill above the South Kadamaian River. This river forms the boundary between unexplored and explored territory.

This village is very primitive. When we visited, the entire adult population was absent, either gathering food or taking produce for sale in lower villages. The then resident population of five boys and six girls shyly came out to see these strange visitors. Peter Chang told us that they had probably never seen Westerners before! How we looked with envy at these children dwelling in this primitive and beautiful region.

Across the river and up into the lower reaches of Low's Gully, several wooded hills and ridges at the optimum elevation for rhododendrons could be seen and these have never been botanized. We vowed to return someday and look for the new species that may thrive on those unspoiled ridges!

Another sight-seeing trip was made to the famous Tamud in the Bajau town of Kota Belud, north from Kota Kinabalu about 50 kilometres. The tamud is actually a trading fair in which all of the native peoples take part. It is a colourful, noisy and joyous affair. Here one can buy just about anything that the island of Borneo has for sale.

Following this, we bade a reluctant farewell to the mountain and returned by Land Rover to Kota Kinabalu. Our last two days were spent in preparing cuttings and seeds for return to the U.S. Cuttings were washed, all evidence of disease or insect damage removed, treated with fungicide, labelled and bagged in polythene for transportation to the U.S.

Frank and Doris Mossman left Kota Kinabalu for tourist-type sight-seeing and additional botanic research in Singapore, Bangkok and Hong Kong. Dave Goheen carried the cuttings to Manila and then to Honolulu where they were inspected. Only some vacciniums and the leaves of one magnolia were removed. All of the rhododendrons were passed. When the chief inspector saw *R.ericoides*, he could not believe it was a rhododendron but when he found a picture of it in one of his reference books, he asked if he could keep a sample and, of course, his request was granted!

The cuttings and seeds arrived in the U.S. in excellent shape. They have been distributed to at least six vireya growers on the west coast. Before too many years, we hope to see the results of our efforts in bloom. Surely, *R.lowii* will be ranked among the most desirable rhododendrons for any collector to have and the rest of the collected species will not be far behind.

Both epiphytic and terrestrial rhododendrons grow in moss and rotting organic debris with a pH of 3 to 4 above 5,000 feet. pHydration papers with a range of 3.0 to 5.5 were used.

As a final report to any who desire to visit and see this beautiful national park we offer these suggestions:

1. Plan your visit in January or February for the best chance for clear weather on the mountain. Also, more of the rhododendrons will be in bloom during this lull in the monsoons.
2. Plan to climb the summit trail. Anyone in reasonably good health can make the journey by proceeding at a leisurely pace.
3. Plan to rent one of the park chalets. These are adequate and make excellent hiking headquarters.
4. Contact the Director, Kinabalu National Park, P.O. Box 626 Kota Kinabalu, Sabah, Malaysia well in advance of the trip if any collecting is to be done.

#### **Mount Kinabalu Seed, Pollen, and Cuttings.**

MGM#1 *R.stenophyllum* seed and cuttings 7800 ft. Mt. Kinabalu 1/14/80  
mature seed

MGM#2a *R.lowii* pollen and cuttings. Deep yellow, 4" flowers.

MGM#3 *R.lowii* seed. 10,800 ft. Paka Cave three clones. 1/1/80 mature seed;  
orange flowers

MGM#4 *R.buxifolium* pollen. 11,400 ft 25 ft tree, 6-8" diameter trunk. Panar  
Laban. Cuttings, seed and pollen.

MGM#5 *R.rugosum* seed. 10,900 ft. Deep rose red flowers.

MGM#7 *Nepenthes villosa* 8,900 ft. Carson Camp, extra large pitcher.  
1/11/80.

MGM11a *R.lowii* pollen. Orange, 11,400 ft. Panar Laban collected by Dave  
Goheen 1/12/80.

MGM#12 Magnolia species seed. Carson Camp. Large pink flower according to Sopinggi.

MGM#13 *R.ericoides* seed. 12,500 ft above Sayat-Sayat, growing in granite crack. 12" ancient dwarf, ripe seed.

MGM#14 *R.brookeanum* pollen and cuttings. Mesilau River c.w. by Dave Goheen.

MGM#15 *R.brookeanum* pollen. Justin Julian form. 1/20/80.

MGM#16 *R.crassifolium* pollen and cuttings. Power Station trail. 1/17/80.

MGM#17 *R.fallacinum* pollen and cuttings. 51 flowers per truss. 5,800 ft. Power Station road.

MGM#18 *R.suaveolens*. Mixture, Summit Road and Mesilau River - both excellent. Cuttings, pollen.

MGM#19 *R.quadrasianum var.cuneifolium* cuttings. 6,000 ft. Mesilau River Ridge.

MGM#21 *Schima wallichii* seed. Purple new growth; white flowers with yellow organs. Panar Laban area.

MGM#26 *R.nervulosum* cuttings. Liwagu River 6,300 ft.

MGM#30 *R.fallacinum* seed 6,300 ft. On ridge above Mesilau River

MGM#31 *R.retivenium* pollen and cuttings. Large flower, deep yellow. 7,200 ft.

MGM#32 *R.retivenium* pollen and cuttings. Medium-size flower, green-yellow. 7,200 ft.

### References.

1. E.J.H. Corner - The Plant Life in "Kinabalu, Summit of Borneo". Sabah Society Monograph 1978 p.113.
2. Frank Doleshy - Quarterly Bulletin ARS, Vol.31, No.2, pp.70-82, 1977.
3. Dr.H.Sleumer - Jahrbuch 1965 der Rhododendron-Gesellschaft, Bremen.

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