

# THE CARNIVOROUS FLORA OF GUNUNG BANDAHARA

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In March 1996 a party consisting of eleven people (six Indonesian, four German and one Englishman) undertook a seven day expedition to explore Gunung Bandahara. This mountain is in the Leuser National Park, Aceh Province, Sumatra.

Although we expected to find *Nepenthes* at the higher altitudes of this mountain, we could not be sure which species would be present. Since the collections of van Steenis (1937) the following species are known to occur within the borders of the park: *N. densiflora* (Danser, 1940: G. Leuser, Goh Lemboeh, Pucuk Agosan), *N. miki* (Salmon & Maulder, 1995: G. Leuser, Goh Lemboeh), *N. spectabilis* (Danser, 1928: G. Kemiri) and *N. tobaica* (Danser, 1928: G. Kemiri, Goh Lemboeh, Pucuk Agosan).

The climb began at a village near Kutacane on the Trans-Sumatran highway. We distributed the weight among back-packs and commenced walking through the village and past the local school into lowland plantation land. Growing in the plantation were coffee plants (kopi), breadfruit trees and rubber trees, to name but a few. Suddenly we were attacked by very aggressive wild bees. Some of us could not escape fast enough and had to crouch down until the bees' rage was over. Then our group carefully reformed at a safe distance. The very painful stings were treated, and we progressed on through the intense heat of the plantation to a lowland rainforest. Its shade was welcome but the high humidity was not. The climb continued past beautiful rainforest trees onto rattan clad slopes, making progress slow through the thick undergrowth. Lack of water at this point also made things harder, however we found a huge forest sump or puddle close to our first camp for the night.



Figure 1: Upper pitcher of *N. spectabilis* (H. Rischer).

After an early start the next morning, we eventually reached a small cloud forest at midday. The altitude was around 1800 metres. The pain from our exertions subsided at the sight of our first *Nepenthes*, a huge and most beautiful form of *Nepenthes spectabilis* (Figure 1). A lot of small rosettes grew in *Sphagnum* and larger plants climbed high upon trees. The pitchers were larger and peristomes more flamboyant than those of other forms of *Nepenthes spectabilis*. Captured insects in the upper as well as in the lower pitchers were mainly beetles. Both pitcher types also contained living mosquito larvae.



Figure 2: Young plants of *N. mikei* (H. Rischer).



Figure 3: Lower pitcher of *N. diatas* growing in dense mossy forest (H. Rischer).



Figure 4: Stunted plant of *N. diatas* growing on the top of G. Bandahara (H. Rischer).

Some metres further on grew plants of the more familiar *N. tobaica*.

Day three took us higher into the cloud forest and at approximately 2200 m *N. mikei* (Figure 2) took the place of *N. spectabilis*. This species occurs also on G. Pangulubao situated about 200 km to the southeast (Salmon & Maulder, 1995). Additionally a very different *Nepenthes* began to appear. This species had pitchers that were light maroon in colour with a spiked peristome (Figure 3). The plant seemed to be an unusual form of *N. singalana*, however we were to find out later that it had been previously collected in 1972 and was in the process of being described as *Nepenthes diatas* (Jebb & Cheek, 1997). This species is very strong and

vigorous with a firm woody robust appearance. Pitchers reached 35 cm in length and were very abundant as we climbed a huge ridge covered in *Sphagnum*, in pursuit of the summit. This was vividly illustrated by the fact that the native rattan collectors working as our guides called a campsite that we came to "Camp Tetakur," which means "*Nepenthes* camp." At an altitude of 2500 m *N. mikei* disappeared. In this transition zone, hybrids of the two species were found.

To our surprise the ridge widened into a huge flat mountain bog. Water was plentiful as were thousands of seedling *Nepenthes* and *Drosera spatulata* carpeting the floor. We made camp on quaking ground as darkness was approaching fast. The following morning we briefly explored the area and found bigger plants of *N. diatas* climbing in the larger patches or copses of vegetation. It seemed that the seedling *Nepenthes* among the grasses and sedges of the bog floor were unable to flourish without the cover and anchorage of taller, woodier vegetation.

We ventured towards the summit and observed that *N. diatas* had completely changed its form of growth. It became stunted at a height of about 40 cm and each plant supported only two or three functional leaves and pitchers (Figure 4). They were dark red and leathery due to the high ultraviolet radiation intensity. The plants resembled *N. densiflora*, a fact overlooked in the original description of *N. diatas*, which was based exclusively on material from 2400-2600 m. Indeed, there seems to be a gradual change towards the characters of *N. densiflora* from mountain to mountain. For example, the plants from G. Kemiri correspond in all respects with *N. diatas* except that the pitchers are always funnel shaped without a waist very similar to *N. densiflora* (Marthaler, 1997).

The prey in the pitchers of the plants growing here in very open places were clearly different from those occurring further down in the forest. Here it consisted mainly of ants, which we found still crawling on pitchers and flowers at 6 PM when it was already dark and foggy. In the pitchers of the forest plants, beetles, spiders and centipedes were found, but all pitchers had been colonized with mosquito larvae (Culicidae). All stages of flower development were found on neighboring plants, from closed flower buds to ripe fruits. Another interesting fact was that plants only 30-40 cm tall were producing upper pitchers. We deduced that this was adapting the plant to the more extreme climatic conditions encountered close to the summit. Vegetation was dominated by *Rhododendron* species and many orchid genera (e.g. *Dendrochilum* and *Epigeneium*). The temperature during the day was 20°C but at night or after rain it dropped to 5°C within minutes. At nearly 3000 m, small hollows in the ground filled with rain water for a short period after the frequent thunderstorms. Around those hollows were *Utricularia* together with *Drosera spatulata*.

Unlike the plants, our guides did not like the low night temperatures. This and our dwindling food supply forced us to turn back. After two nights on the summit we descended the mountain in two days to a warm reception from the villagers.

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