



Nepenthes thorelii – a resolution

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It is difficult not to be overwhelmed; whilst my friends and colleagues fuss around a particular group of low growing plants, I am stood aside, trying hard to breathe normally, to stay calm and to regain my sense of perspective. In the vegetation around me I can see, amongst the small shrubs and trees, more of these plants. For a few moments, I wonder whether what I am seeing is real. We are in southern Vietnam, in Lò Gò-Xa Mát National Park alongside the border with Cambodia, and we have just rediscovered the long lost *Nepenthes thorelii*, a taxon unseen by botanists since it was described 102 years ago, in 1909 (Figure 106).

This personal hunt for *Nepenthes thorelii* started in 2007, when I found an undescribed *Nepenthes* on Phnom Bokor (Mount Bokor), in southern Cambodia. This plant would later be named *Nepenthes bokorensis* and it would be the first of several Indochinese species to be uncovered in this part of the world in the following years.

At the time, the literature on the Cambodian carnivorous plant taxa was virtually non-existent, and Cambodia perhaps not the most obvious choice as a destination in which to see them. Personal circumstances were the deciding factor; though I was born in Vietnam, my parents are Cambodian, having fled the country in order to escape the genocide instigated by the Khmer Rouge. Since my father had recently moved back to Cambodia, it was the only choice for me. The trip saw me visiting Mount Bokor, a well-known hill station where, I

Figure 106 (above). A trio of lower and intermediate *Nepenthes thorelii* pitchers. Note the broad peristomes.

was told, pitcher plants could be seen growing wild. Thorough studies carried out over a number of visits led to my realising that the species growing on Mount Bokor was new; I was eventually able to describe and publish this taxon as a new species, but not before my literature and herbarium research brought *Nepenthes thorelii*, a *Nepenthes* of eastern Cambodian and Vietnamese provenance, to my attention.

It soon became clear to me that perhaps the most famous species from Indochina was not very well defined at all, being known from only a handful of specimens and an old description, none of which seemed to match any of the plants cultivated under that name. Determined to solve this puzzle, I began to make the Indochinese *Nepenthes* my specialism, and to study every possible specimen in my bid to resolve the status of *N. thorelii*.

One day, whilst studying the various Indochinese *Nepenthes* specimens of Paris Herbarium, I found *Nepenthes thorelii* specimens (which turned out to be *N. smilesii*) that had been collected from the Vietnamese town of Hatien, the very town of my birth, in the 19th century. And as I made progress with my research, I came to realise that relocating *Nepenthes thorelii* was likely to prove difficult; the plant had been collected from places that were ruined by the spraying of Agent Orange during the Vietnamese war, areas that are now agriculturally rich, having been drained and turned into paddy fields or oil and rubber plantations subsequent to the laying down of arms.

Satellite images gleaned from Google Earth compounded my fears; very little natural habitat remained in any of the historic collection sites and, moreover, despite the increasing numbers of qualified botanists in Vietnam, no articles, records or photographs of genuine *N. thorelii* had been published since it was last collected by Désiré Bois in 1903, and then described by Lecomte in 1909. Though many plants were sold and continue to circulate in the horticultural trade as *Nepenthes thorelii*, none of them match the lectotype in Paris. The species therefore remained absent from living collections and for all intents lost to science, until one day, in November 2009, photographs of putative *N. thorelii* surfaced on the Internet.

Some Vietnamese *Nepenthes* enthusiasts had posted online pictures of wild *Nepenthes* that they had just found somewhere in southern Vietnam. Perhaps naïve of their actions, they actually posted pictures of themselves with freshly poached plants; their hands were dirty, and small shovels were visible in the corner of one photograph. Then I looked at the plants and my heart literally jumped; I recognised at once the globose lower pitchers that I had so carefully examined many times over the course of my research in Paris Herbarium. The poached plants in the photographs clearly matched the pressed specimens of the long lost *Nepenthes thorelii*. The species might not be extinct after all.

I quickly made preparations to visit the site and confirm the identity of the plants in person. Despite a complete lack of assistance from the Vietnamese enthusiasts, I was able to discover vague details about the Vietnamese swamps from which the specimens were stolen. I was fortunate enough to be joined on this trip by renowned *Nepenthes* expert, Charles Clarke, with whom I would spend a week searching for the site in which the poached plants were photographed.

Unfortunately, a few days of investigation led Charles and I to a swamp near the coastal town of Phan Thiet, southern Vietnam, to find that all the plants had been poached. The villagers who used to walk by the site each day confirmed this fact; “Youngsters from Ho-Chi-Minh City came by and took all the plants with round, red pitchers.” All we were left with was hundreds of *N. mirabilis* and thousands of *Utricularia odorata* and *Drosera indica*. With more time at our disposal, we checked the surroundings of Hung Yen (Ong-iem), one of the historic sites of *N. thorelii*, but found only a few *N. mirabilis*.

Surveys of this and nearby sites showed that almost all of the land had been drained to give way to rubber plantations. We also surveyed Ta Ku National Park, located just next to the Phan Thiet swamp, where we met local rangers keen to assist, but again found only *N. mirabilis*. At this point, Charles had to leave, so I used my remaining time to visit the village of Thi-Tinh (Ti-Tinh) where *Dr. Clovis Thorel collected N. thorelii* between 1862 and 1866. I spent two whole days there, searching anywhere and everywhere, only to be met with the same words: “No

more *Nap am* now” – *nap am* being the Vietnamese for *Nepenthes* – “...a long time ago, there were many, but now we drain the land, and people collect the plants when they find to make special medicine.” I finally returned to France, feeling sad and bitter about the tantalising, but ultimately disappointing, circumstances.

On my return to France, I decided to gather all the information that I could on *N. thorelii*. I had uncovered the specimens collected by Désiré Bois in 1903, but misidentified as *N. smilesii* and, with the help of these well preserved specimens, endeavoured to write an improved description of the taxon since Lecomte’s description of *N. thorelii* had been based on three different Indochinese taxa. My paper eventually included my revised description, a botanical illustration demonstrating what a living *N. thorelii* plant would look like, and a comprehensive history of *N. thorelii* taxonomy, its doubtful presence in the horticultural trade, and a conservation assessment.

It was already too clear that *N. thorelii* was a critically endangered species; even if other populations could be found elsewhere, they were likely to be very localised and thus vulnerable to development or poaching. The paper was eventually published and untitled “The Elusive *Nepenthes thorelii*”, a fitting title at the time. At this point, I decided to establish relations with the Vietnamese scientific community. Making them aware of the rareness of a Vietnamese endemic plant would be an excellent start; they were the best qualified and best situated to relocate *N. thorelii* if it was still extant somewhere. I therefore contacted Dr. Luu Hong Truong from the Ho-Chi-Minh Institute of Tropical Biology, sending him my *N. thorelii* account and highlighting the importance of this Indochinese endemic.

In late 2010, I started to receive emails from Dr. Truong, who had read my paper and asked his colleagues to take photographs of any pitcher plants that they encountered during their various field trips. Truong indicated that one of his colleagues, Dr. Vu Ngoc Long, had observed *Nepenthes* in southern Vietnam, near the Cambodian border, that could fall within the range of *N. thorelii*. The pictures he was able to

show depicted some beautiful, infundibular and slightly obovate upper pitchers that were interesting but inconclusive. I told Truong that I needed to see them personally and that I would visit the location on my next trip, which was to follow in 2011.

On August 2011, I took a flight from Paris to Kuala Lumpur, where I would meet my botanist friend and *Nepenthes* expert Dr. Alastair Robinson, who would join me for three weeks of travel in Cambodia with a few days in Vietnam. During this period, we would be joined by other colleagues; botanist Luu Hong Truong and his entomologist colleague, Dang Viet Dai, in Vietnam; and photographer and naturalist, Jeremy Holden, and entomologist, Oleg Kosterin, in Cambodia. This short sojourn in Vietnam seemed like my last chance at relocating *N. thorelii*, as I had started to become resigned to never solving the mystery of this plant; I was not optimistic.

From Kuala Lumpur, Alastair and I flew to Phnom Penh, capital of Cambodia. It was a moving experience being able to introduce Alastair to Cambodia. As much as the plants themselves interest me, it was enjoyable to travel in and see my country of origin through the eyes of a friend – particularly one who will eat anything, insect or vegetable alike. After a very long bus journey, we arrived at the Bavet border crossing where we left our vehicle and crossed into Vietnam on foot, a truly bizarre experience for all the bureaucracy involved. There, in the dark, Truong and Viet Dai were waiting for us.

The next morning, we became acquainted with Mr Nguyen Dinh Xuan and Mr Ly Van Tro, the Director and Vice Director of Lò Gò-Xa Mát National Park, the protected area in which we would spend the following days. We were given permits to survey the park, which straddles a military zone alongside the border with Cambodia.

Before travelling to the park, we first stopped at the Vice Director's house to examine a plant that his rangers had brought him a few weeks earlier; they had arrested some people poaching *Nepenthes* in the park for traditional medicine, and Mr Ly had decided to keep

the plants in his garden; its long, narrow leaves covered with hairs and cylindrical lower pitchers with inflated bases did not represent *Nepenthes thorelii*. It was *N. smilesii*, the most widespread pyrophytic *Nepenthes* in Indochina. This was a bad omen, and my imagination saw our expedition ending in failure. Truong reassured me that there were three locations in the park that host *Nepenthes*.

We entered the park where we were warmly greeted at various checkpoints by rangers and armed soldiers. Our team – Alastair, myself, Truong and Viet Dai – was joined by one of Truong’s colleagues, a ranger and Mr Ly Van Tro himself. We set off on foot along dusty paths amidst extensive scrublands; it was extremely hot, and not yet noon, the environment seemingly very dry, despite being in the wet season. We noticed abundant *Osbeckia* along the path, a genus of shrub that is always a good indicator of impoverished, acidic soils. We eventually left the path and soon, amongst thin trees on bone-dry soil carpeted with dead leaves, we stumbled onto a population of *Nepenthes smilesii*. It was a disappointment, of course, and these were clearly the plants represented in the photographs taken by Truong’s colleague.

In the afternoon, after a lunch-break of curried frog in a silt hut surrounded by padi fields full of flowering *Utricularia aurea*, we headed towards the second location where we would find, once again, a population of *Nepenthes smilesii*. In a vast, dry clearing filled with *Melaleuca* trees and *Drosera burmanii*, we witnessed hundreds of *N. smilesii* of all shapes and sizes. Few other species can compete with *N. smilesii* when it comes to sheer morphological plasticity, though *N. maxima* springs to mind. We surveyed the whole area in the hope that *N. thorelii* might grow sympatrically with *N. smilesii*, unlikely as it seemed; I know of no instances of two species in the *N. thorelii* aggregate growing together. Indeed, we found nothing more than *N. smilesii*, not even *N. mirabilis*. It was far too dry.

The final blow came when we stumbled upon an unusual looking *Nepenthes smilesii* with roundish, nearly globose lower pitchers – one plant among hundreds of plants with cylindrical lower pitchers. An

unpleasant idea entered my mind, something I did not wish to entertain. But Alastair, ever the direct pragmatist, looked me straight in the eyes and said, “*François, you have to entertain the possibility that the material collected by Thorel may simply have been an unusual looking N. smilesii... perhaps Thorel collected plants that he simply found attractive because of their round pitchers – it’s not good practice, but it’s easy to do.*” We collected a specimen along with some more typical *N. smilesii* and went back to Tay Ninh to our hotel.

I had a difficult night; perhaps *Nepenthes thorelii* was nothing more than a fantasy. I had even forgotten the plants photographed in Phan Thiet. Surely the images of these plants were proof that plants fitting the types of *N. thorelii* did exist in Vietnam. I had explained to Truong during dinner that we needed to check a wetter habitat, like the margins of a swamp. There, we might still have a chance at finding *N. thorelii*. Even so, the prospect of another failure loomed, and I was already hoping that our time in Cambodia would prove more fruitful.



Figure 107 (above). Lower pitchers of *Nepenthes thorelii* plants. Note the spectacular colouration and form.

We woke up early with one location left to explore. Truong knew nothing of the plants at the third location; he was told by one of the rangers that *nap am* were growing there, having seen them a few years before. My legs were quite heavy that day; had Alastair been the sort to ask me to go back to Cambodia that day, I might have agreed; we had several *Nepenthes* populations to check in the Cambodian province of Koh Kong, and I already knew that that part of the trip would be successful. After a quick breakfast, we took the road to Lò Gò-Xa Mát, driving along narrow paths near the patrolled border until, finally, the car stopped. This time, several rangers joined our team, and even a soldier was assigned to join us. He seemed so stern and unfriendly with his Kalashnikov, but assented to assisting us if there were any problems with the Cambodians. What a memorable sight!

This area of the park was clearly wetter, and more humid. Truong indicated that according to the ranger who found the *Nepenthes*, we would be going to an area of land adjacent to a swamp. After half an hour, we arrived at a huge, isolated pitcher plant with multiple growth points – arguably a very old specimen – climbing amongst the trees. It was, without a doubt, a hybrid involving *N. mirabilis* and a species from the *N. thorelii* aggregate. *Nepenthes smilesii* was my assumption, since we had seen so many in the park already, the location of the previous day being just 5–6 km distant.

As we resumed our walk, my mind grew blank with resignation, and I fell to the end of the procession. From a clearing ahead, I suddenly heard Alastair state in his dry British deadpan, “*François? I think you may well [indistinct word] like what I’m looking at...*” What did he say? Did he say “*not like*” or something more positive? Spurred on by hope, I found myself running through the undergrowth, calling out, “*What did you say, Alastair?!*” “I said,” he paraphrased, “*that I think you’re going to quite like these pitchers!*” I finally emerged from the forest into a vast clearing. Alastair was crouched with the lead ranger a few metres in front of me,

Figure 108 (facing page). (Right to left) Dr. Luu Hong Truong, François Sockhom Mey and a park ranger holding freshly collected herbarium specimens of *Nepenthes thorelii* in Lò Gò-Xa Mát National Park, Vietnam.



looking at some large, dark red, globose pitchers. I look around and saw another plant, then another, and dozens more (Figures 107, 108 and 109). These were the very same plants I had spent so much time studying back in Paris, the same plants seen in the photographs from Phan Thiet. We had found *Nepenthes thorelii*!

It was an amazing feeling, but with limited time, I was unable to dwell on the sense of history that I felt in following in the footsteps of a botanist like Clovis Thorel. Under the watchful protection of the sentry with the Kalashnikov, we worked hard to document all that we could about *N. thorelii*; at almost noon, it was already exceptionally hot. We split the tasks to be as efficient as possible; Alastair took on the task of gathering measurements and data relating to the physiology of the plants to prepare an emended description of *N. thorelii* and a description of a hybrid involving *N. thorelii* and *N. mirabilis* that we also found; I started taking pictures and ecological notes; Truong, with the help of his colleague, collected new voucher specimens of *N. thorelii* to serve as local voucher specimens; and Viet Dai collected samples as part of an infaunal study. On top of the wide display of ants and mosquito larvae in the pitchers, we are surprised to find a drowned scorpion and various insects and arachnids wandering the inflorescence.

In addition to stink bugs and magnificent spiders, the most striking discovery was the discovery of several praying mantis nymphs on the *N. thorelii* inflorescences. They belonged to the Hymenopodidae, a family of flower mantids that likely belong the genus *Creobroter*. Did this insect have a particular relationship with *Nepenthes thorelii*? It was something that we could not know, though certainly a fascinating topic of research. It was not easy to work in the scorching heat of the Indochinese high summer, but



Figure 109 (above). Lower pitchers of *Nepenthes thorelii* growing amongst grass.

we are lucky to be part of a botanical rediscovery. On top of the collection of voucher specimens, we agreed to publish a taxonomic account of *N. thorelii*, including a revised description and a lot of ecological notes, with a description of the hybrid between *N. thorelii* and *N. mirabilis* to follow.

The following days in Cambodia passed like a dream; this trip in Indochina was already more successful than I had hoped. Before leaving Vietnam, we deposited the new *N. thorelii* material in the Institute of Tropical Biology and enjoyed another day in Ho-Chi-Minh on a high. I still feel emotionally drained when I think of those first few days in Vietnam, but I am very happy to have been part, with the help of Alastair, Truong, Viet Dai and all those others who assisted, of a perhaps minor but certainly memorable botanical and human adventure.

Dedicated to Alastair Robinson, Andreas Fleischmann, Charles Clarke, Marcello Catalano and Stewart McPherson, who have taught me so much in these last few years - François, December 2011.

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