

# *Trachycarpus geminisetus*, the Eight Peaks Fan Palm, a New Species from Vietnam

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1. *Trachycarpus geminisetus* in its natural habitat.

*Trachycarpus geminisetus* is a wonderful, newly discovered fan palm from the northern part of Vietnam. In this article the authors tell the story of its discovery and describe the species, differentiating it from other members of the genus.

To make the story of this joint expedition easier to follow, we decided to split it up between the different authors.

**Martin Gibbons writes:**

In August 2001 I received an email that was to lead us on another of those adventures along the *Trachycarpus* trail. It was from our friend and mentor, John Dransfield of Kew. In it he explained that a bundle of herbarium specimens collected by botanists from Missouri Botanical Garden and their Vietnamese collaborators near Ha Giang on the Chinese border in northern Vietnam in April 2000 contained a specimen apparently wrongly identified as *Guihaia* but suspected by John of being a species of *Trachycarpus*, and one that he was unable to identify. This was especially interesting. The genus, currently containing eight species, grows in an approximate band along the foothills of the Himalayas, spreading eastward into Burma, Thailand and China. Of those that are known from wild populations, the furthest west is *T. takil* in central northern India. Further east, the next is *T. martianus* in central Nepal and then *T. latisectus* in the Darjeeling area in India, *T. martianus* again in Meghalaya Province, India, *T. oreophilus* in northern Thailand, and *T. princeps* and *T. nanus* in western China. We always thought it would not be surprising to find another species in the north of Vietnam or Laos. It would simply be extending the distribution pattern further east, and suitable mountain ranges that would provide the cool climate that *Trachycarpus* needs definitely seemed plentiful in the region.

With this in mind Toby and I arranged to visit Vietnam, and made contact with Mr. Nguyen Van Du from the Hanoi Institute of Ecology and Biological Resources who was familiar with the area where our palm was collected. In October 2001 we flew to Hanoi and were met by Du and his colleague, Mrs. Phuong Anh. It was our first trip to this country and after being dropped off at the hotel, our first mission was to try the local food and beer. Both passed our rigorous testing with flying colors.

Early the next day we were collected and taken to the Hanoi Herbarium where we were invited to inspect specimens of palms collected in the area. The afternoon also passed pleasantly enough, walking around the city, admiring the French Colonial architecture, popping into shops for beautiful Vietnamese lacquer ware, and having an early supper at a roadside stall. Tomorrow we would be on our way. We were collected at 9.30am by Du, Anh and a driver, all of us squeezing into the small Russian built jeep, and we set off along a good road north-west, and out of the city.

The countryside is strongly reminiscent of southern China, and, once we had cleared the city, we passed village after village, town after town, all surrounded by endless paddy fields, tended to by peasants in traditional hats. Coconut and *Areca catechu* palms were much in evidence, but as we sped further north we began to see great numbers of *Livistona* palms, two species, one with stiff erect leaves and one with leaves elegantly drooping at the tips. Both were found in great numbers, occasionally even in mixed stands. The plants with the stiff leaves were particularly plentiful, sometimes covering entire hillsides. Their leaves were popular for thatch, and bundles of the stuff lay everywhere, awaiting collection. We finally found a tree in fruit. These were quite large, oval, lead blue in color, and we identified the tree as *L. jenkinsiana* with reasonable certainty. It is a stately and stunning tree with a tall, slender trunk, frequently clothed in the old, thorny leaf bases and with a massive crown of huge, circular fan leaves. We realized only after a while that the second species was also growing abundantly in this area. Unlike the former, which was usually found on the slopes of the surrounding hills, it seemed to prefer swampy ground and was growing along the borders of the ever-present rice paddies. They differed in their tall, straight trunks, usually smooth and gray, with only a few stubs of the leaf bases remaining near the base, and the smaller leaves with drooping leaf tips. The cherry-sized, bright blue fruits suggested it was *L. saribus* we were looking at.

Lunch was at one of thousands of wayside stalls: frog, eel, rather bony chicken and rice, washed down with Hanoi beer, which is good and cheap. We sped on through the afternoon and into the night (darkness falls at 6 pm) and eventually we arrived at Ha Giang, where we stopped at the Yen Bien Hotel, just in time for supper.

On the next day, we had to make formal application to the Forestry Department, the 'Community Office' and to the 'Foreigner Police' for permission to visit the target area. Alas, our supplications were in vain. Permission was denied. A law passed just days before our arrival prohibited foreigners from visiting districts bordering China. There was nothing to be done but wave goodbye to our three new friends as they drove off in the jeep to cover the remaining 30 miles to Bat Dai Son, the site of the 'new' *Trachycarpus*. Meanwhile, we cooled our heels for two days in Ha Giang, waiting impatiently for their return.

**Nguyen Van Du continues:**

After an entire day waiting for travel permission from the provincial government of Ha Giang for

Martin and Toby without result, we decided that Phuong Anh and I should go on to Bat Dai Son on our own, leaving Martin and Toby at the hotel. Accordingly, at 10 am, after getting a letter of introduction from the Ha Giang forest department, our jeep headed north from Ha Giang town in the direction of Quan Ba district. It was about 45 km from Ha Giang to Quan Ba and was quite a good road except for several kilometers of road works. We reached Quan Ba district at 12:30 and took lunch at a popular roadside restaurant. We knew from past experience that from here on the road ahead was bad, but quite how bad we did not realize. It was paved with rocks and was really in a terrible state, with huge potholes impeding our progress. We had to stop for half an hour while our driver labored to engage four-wheel drive. Because the previous night there had been heavy rain, the road was very slippery, all the more so because it was clay. Soon afterwards, we had to stop again; the engine was overheating, and we had to collect water from the nearby river to top up the radiator. In all it took us 3 hours to cover 25 km, the car climbing and jumping up and down over the rocky road. Finally, we reached Bat Dai Son and visited the office of the 'Population Committee.' Here, we met the president and vice president of the committee, along with two policemen from Quan Ba. After a few words of greeting I stated the purpose of our visit. They warned us that since this commune bordered China the security was strictly controlled but seemed satisfied after checking our documents. That night, we took a meal with the commune staff and had a drink with them. The meal was very simple – two pork dishes and cabbage soup – but even so I knew that this was a special meal for guests; the life of these mountain people is very tough. We had a nice time with them and they were very friendly. Since Phuong Anh was the only woman there, each local wanted to drink a toast with her. Luckily her drinking capacity was quite good, though we couldn't drink too much as tomorrow would be a hard day, and went to bed earlier than usual.

Next morning we got up at 6 o'clock and had a quick breakfast. Though it promised to be a nice day it turned out densely foggy and our departure was delayed till 7am when we left with two local guides. Because the Population Committee was located on the top of a hill at 769 m alt., we had to begin by descending 500 m before we could start to climb. Since it was foggy, the trail was even more wet and slippery. Furthermore, the mountain was very steep; we climbed up step by laborious step. On the way, we saw big trees of *Caryota* sp. growing scattered on the rocky ridges.

At 11 am, we reached the village of Thong Hoa Long ('Foggy Valley'). We saw many *Trachycarpus* growing near the houses. Our guides said that the tree was called 'Trong,' meaning fiber tree. They said it had been brought from the wild and cultivated for the trunk fibers to make back-basket straps. It seemed that every tree had been stripped; all were bare with conspicuous internodes.

We asked our guide whereabouts the previous expedition had collected the unidentified *Trachycarpus*. He said that there were some in Chong To Tien ('mountain with some flat places'), about 2 km away. I took out the binoculars and looked closely at the mountain. We could see one palm tree near the top of the closest peak, but no others, either because of the fog, or perhaps they were too short to appear above the surrounding vegetation.

We decided to try for the tree we could see. Before leaving the village we took many pictures of the cultivated palms in the village and their habitat, using Martin's and Toby's cameras. The mountain here was steeper than any other I have climbed. Mrs. Phuong Anh could not climb by herself and several times I stopped to help her. The ridge was very wet, with small trees of *Cupressus*, *Tsuga*, *Rhododendron*, Lauraceae, Rosaceae and Melastomataceae and there were plants of *Paphiopedilum* and other orchids. We even found another species of palm, probably a young *Plectocomia*. Finally, near the top, we reached the palm tree. It grew out from the rock on the northeast ridge at about 1300 m altitude (Figs 1, 2). It looked very strong, as its stem was about 2 m tall and 25 cm in diameter, including the fibers. We took many pictures of it with three different cameras. Unfortunately, there was no inflorescence or fruit on the tree, only some old fruits on the dried inflorescence branches, but we collected two leaves as herbarium specimens. Near the palm we found one young tree and two seedlings, which we collected for growing.

We were very happy to have reached the palm tree and descended the mountain on the other ridge. In contrast, it was very dry and easier to get down. We got back to the Population Committee again at 4 pm. After reporting the work to the committee and saying goodbye to them, we turned back to Ha Giang. We knew that Martin and Toby would be anxious for our return.

#### **Toby Spanner writes:**

Du and Anh arrived back at our hotel after dark, exhausted but happy. The entire back of the jeep was filled with leaves and other palm parts, some collected at the site on Chong To Tien, some





2. *Trachycarpus geminisectus*, leaf sheath.

collected in the Village below, and a few more alongside the road to Bat Dai Son. Of course we could not wait to have a closer look at the specimens and immediately spread everything out on the pavement right in front of the hotel entrance. As I was taking a closer look at the material, my heart sank. These plant parts looked identical to those of our well-known friend *Trachycarpus fortunei*, just as popular here in Vietnam as it is in China for the durable fibers that clothe the trunk. One large leaf and a small plant, however, looked different. Du and Anh pointed out that these were the specimens collected on Chong To Tien. The big leaf appeared very leathery and durable as well as unusually large compared to that of *T. fortunei*. The lower surface was covered with a thick, whitish waxy layer. After looking at the leaf for a while, I realized that all of the 40 segments were joined in pairs for their entire length, appearing as if there were only 20, which gave the leaf a very bold and bulky appearance. The leaves on the small plant, a juvenile of perhaps 1 m (3 ft.) tall overall, showed the same characteristics. Of particular interest to us were also the fibers of the leaf bases as they differ quite dramatically within the genus and provide easy clues for the identification of various species. Martin noted that this *Trachycarpus* had the

thickest and sturdiest fibers of any *Trachycarpus* we had ever seen (Fig. 3). They were fairly short, stiff, very coarse and robust and of a dark brown color. We all agreed that the plants on Chong To Tien had not much in common with the *T. fortunei* growing around the villages, and that it probably was a plant new to science, later to be confirmed in the herbaria at Hanoi and Munich based primarily on the 1999 and 2000 collections of Averyanov, Harder, Hiep et al. borrowed from Kew.

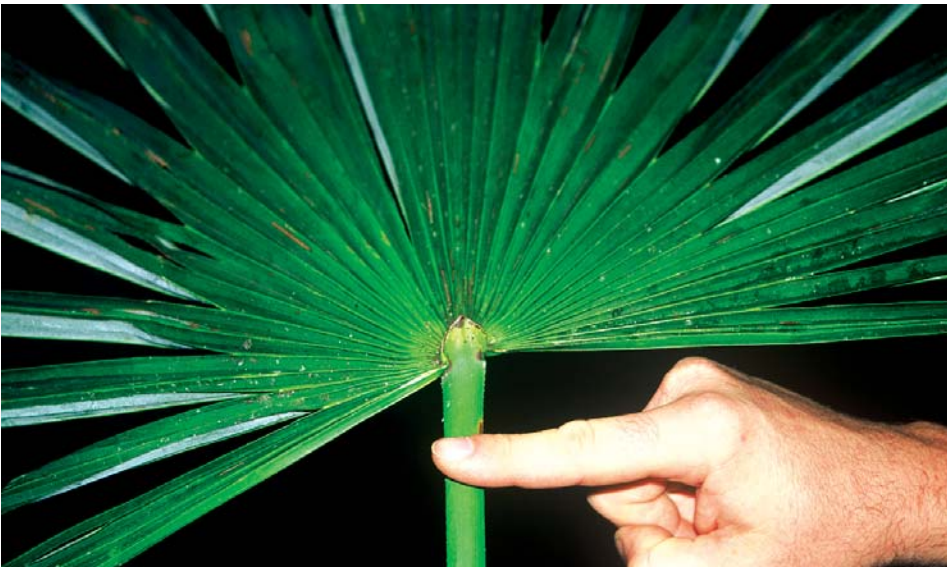
***Trachycarpus geminisectus*** Spanner, Gibbons, V. D. Nguyen & T. P. Anh, **sp. nov.**

*T. principis* Gibbons, Spanner & S. Y. Chen similis sed trunco brevi, vaginis foliorum fibris grossissimis compositis lamina grande in ca. 20 segmentis geminatis profunde incisa, floribus fragrantis differt. Typus: VIETNAM. Ha Giang, Quan Ba, Bat Dai Son, Gibbons, Spanner, T.P. Anh & V. D. Nguyen, GSAD 01 (holotypus HN, isotypi K, MO).

Solitary, unarmed, dioecious fan palm; trunk erect, 1–2 m tall, densely clothed in persistent, fibrous leaf-sheaths, ca. 25 cm diameter. Leaves 10–12, forming a spreading, very open crown, marcescent leaves forming a loose skirt around the trunk; leaf-sheath fibrous, very coarse, dark brown, persistent, dotted with a few pale brown scales, exposed part of sheath divided into stiff, wiry threads; petiole ca. 85 cm, slender, c 1.4 cm wide and 0.9 cm high near middle, very robust, stiff, flat above, triangular in cross section, with a broad yellow stripe below, orange towards the base, glabrescent, margins minutely toothed; hastula small, ca. 1.5 cm long, triangular, petiole slightly extending into the blade below to form a weak costa; leaf-blade palmate, 3/4 to 4/4 orbicular, ca. 85 cm long from hastula, ca. 130 cm wide, very leathery, dark, glossy green above, thick whitish waxy below (Figs 4, 5), transverse veinlets barely visible, deeply and regularly divided for more than 3/4 its length into ca. 40 rigid, stiff, linear segments, joined for their entire length in groups of 2 or rarely 3, slightly tapering from 2/3 their length from the hastula towards the apex, arranged in one plane, producing a nearly flat leaf profile; central segments ca. 85 cm long, 4 cm wide at middle (i.e. ca. 8 cm for a typical double segment), with a very thick and prominent midrib beneath, lateral segments gradually more narrow and shorter, to c 50 × 1.5 cm, apex of segments acute-notched, shortly bifid. Inflorescences few, interfoliar, branched to 3 orders. Male inflorescence short, ca. 50 cm long; peduncle short, oval in cross section; peduncular and inflorescence bracts keeled, base tubular, inflated distally, slightly tomentose, apex acuminate; rachis bracts similar to peduncular bracts; rachillae short, 3–6 cm long,



3. *Trachycarpus geminisetus*: Toby Spanner holds a young plant, showing the white undersurface of the leaf.



4. *Trachycarpus geminisetus*: upper surface of the leaf.

thin; flowers densely arranged, subtended by minute bracteoles, globose, ca. 3 mm in diameter, yellow, fragrant; sepals ovate-triangular, 2 mm long, briefly connate at base; petals oblong-ovate, twice as long as sepals; stamens 6, exceeding the petals; filaments slightly ventricose; anthers sagittate, blunt; pistillodes about half the length of stamens. Female inflorescence long, robust, stiff, spreading; peduncle oval in cross-section, prophyll 2-keeled, long, tubular; peduncular and rachis bracts, keeled, long, tubular, apex acuminate; rachillae 7–13 cm long, fleshy, yellowish in fruit; flowers globose, 2–3 mm diameter, yellow, fragrant, usually solitary,

subtended by minute bracteoles, sepals 2 mm long, orbicular; petals oblong-ovate, 2.5–3 mm long; staminodes very small; carpels ventricose with a short, conical style. Fruit shortly stalked, reniform, wider than long; epicarp thin, black, with a white bloom; mesocarp thin; seed reniform, wider than long; endocarp very thin; endosperm homogeneous. Germination remote-tubular, eophyll simple, narrow, plicate. (Figs. 1–4).

**DISTRIBUTION:** Vietnam, Ha Giang province (Quan Ba district) and Cao Bang province (Bao Lac district); in primary closed or secondary, low, wet, mossy mixed cloud forest on steep slopes and

along remnant karst limestone ridges, at 1100–1600 m a.s.l. (Back Cover, Fig. 1); co-occurring with conifers such as *Cupressus*, *Taxus*, *Nagea*, *Pseudotsuga*, broadleaf trees like *Rhododendron*, several Lauraceae and Rosaceae spp. Palms such as *Plectocomia*(?) and large *Caryota* have been observed close-by. Even though it has not been observed there yet, it seems very likely that *T. geminisectus* also occurs in similar habitats just across the border in China's Guangxi province.

**CONSERVATION STATUS:** With the meager data available at this moment, no precise assessment is possible. Apparently it is very common on some ridges within its distribution area. Its habitat is steep and nearly inaccessible and because the plant has no uses, human interference is minimal. However, it seems that this species could be at risk because of a scattered distribution and through hybridization influence from *T. fortunei*, which is cultivated in nearby villages. It apparently does not occur in any protected area.

**CULTIVATION:** For lack of propagating material, *Trachycarpus geminisectus* has not yet been introduced into cultivation. There are no plants of this species outside its native habitat. We believe however, that because of its very ornamental large leaves with wide segments and its supposed resistance to cold, it would be a highly desirable landscaping plant for temperate and subtropical areas alike.

**SPECIMENS EXAMINED:** VIETNAM. Cao Bang prov., Bao Lac distr., municipality Dinh Phung, Nam Linh ridge (N 22°47' E 105°49'), 15 April 1999, P.K.Loc, P.H.Hoang, Averyanov L. No CBL 1421, CBL 1422 (K, LE). Ha Giang prov., Quan Ba distr., Can Ti municipality, vicinities of Sing Xuoi Ho village (N 23°04' E 104°59'), 1100–1150m a.s.l., 12 Oct. 1999, N.T. Hiep, N.Q. Binh, L. Averyanov, P. Cribb, No NTH 3605 (K, LE). Bat Dai Son municipality, on Chong To Tien (ridge), ca. 1300 m a.s.l., (N 23°09', E 105°00'), 6 April 2000, D.K.Harder, N.T. Hiep, L.V. Averyanov & N.Q. Hieu DKH 5226 (K, MO); idem, Nov. 2001, Gibbons, Spanner, T.P. Anh, V. D. Nguyen, GSAD 01 (Holotype

HN, isotypes K, MO).

The specific epithet (Latin – *geminisectus*, with twin segments) relates to the fact that the leaf segments of this palm are usually joined in pairs along their entire length (Fig. 3).

**NOTES:** *T. geminisectus* is easily distinguished from other members of the genus by its large leaves with paired, very wide segments and short trunk with persistent leaf bases that have very coarse, wiry fibers (Fig 2). The double leaf segments, 8 cm wide, or the occasional triple segment, about 12 cm wide, represent by far the widest in the genus. Vegetatively and in floral structure, *T. geminisectus* seems most closely related to *T. princeps* Gibbons, Spanner & S. Y. Chen. As there is no recent taxonomic treatment of the genus *Trachycarpus* (but see Beccari 1931, Kimnach 1977 and Gibbons & Spanner 1998), relationships of *T. geminisectus* will be dealt with more precisely in a conspectus of the whole genus, which will appear in a later publication.

#### Acknowledgments

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