

South China: Its Magnolias and the 1998 International Symposium on the Family Magnoliaceae

Richard B. Figlar

Hosted by the South China Institute of Botany—Academia Sinica, The International Symposium on the Family Magnoliaceae (ISFM) was held at the South China Botanical Garden on May 18-22, 1998 in Guangzhou, China. The symposium consisted of four days of sessions and an excursion to the Dinghushan Biosphere Reserve. Also offered was an optional excursion to Yunnan Province (May 23-28) to visit four other Magnoliaceae gardens and to see wild Magnoliaceae in their natural habitats.

Over 100 scientists and experts from 14 countries attended the symposium and The Magnolia Society was represented by ten members. Nearly 70 papers covering a wide range of Magnoliaceae topics and research projects were presented at the plenary sessions or as poster presentations. Some highlights of the reports and presentations were:

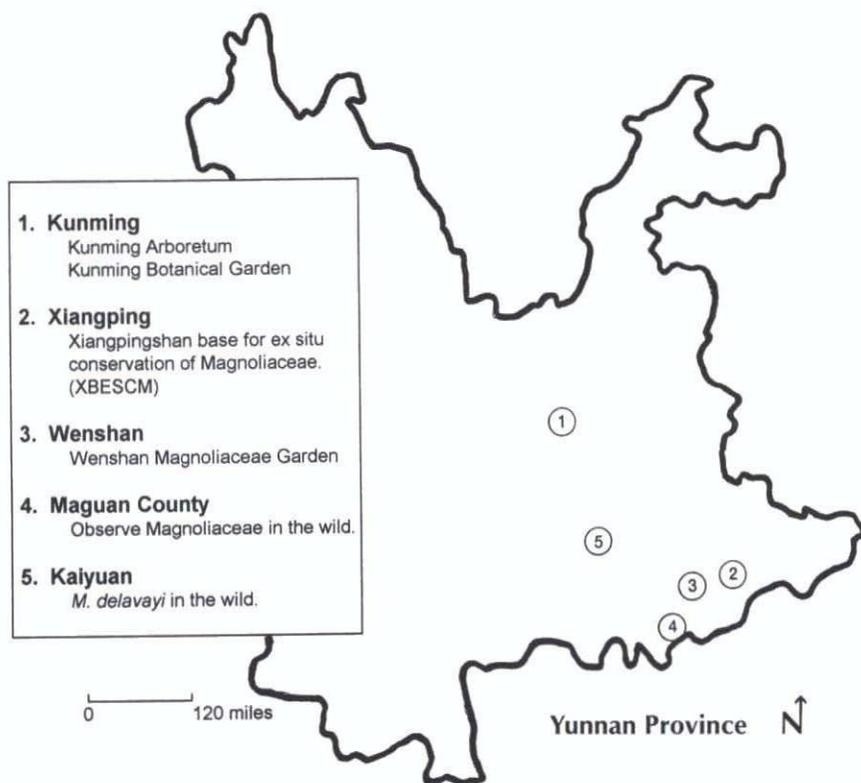
- Descriptions of three new deciduous species: *Manglietia decidua*, *Michelia sericea*, and *Magnolia sinostellata*.
- Presentations of two contrasting classification systems: Dr. Hans Nooteboom suggested that all species of Magnoliaceae can be relegated to no more than four genera according to current morphological interpretation. However, based on preliminary outcomes of molecular (DNA) research he suggests it may be possible that all species of Magnoliaceae belong to only two genera: *Magnolia* and *Liriodendron*. In contrast, Dr. Law Yuhwu (Liu Yuhu) presented his taxonomic system of Magnoliaceae that depicts 16 genera.
- Results from several molecular studies plus newly described morphological characters indicate that subgenus *Yulania* is closer to *Michelia* than to the rest of Magnolia. Richard Figlar renames all *Michelia* and *Elmerrillia* as *Magnolia*.

- New color forms (red, pink, yellow, cream) of *Magnolia delavayi* are described.
- Horticultural opportunities were shown for *Michelia macclurei*, *Michelia foveolata*, and others.
- New conservation methods and gene pool management ideas were presented to help manage the endangered (or threatened) species of Magnoliaceae in China. (Endangered Magnoliaceae, which numbered 25 in 1992, are increasing.)
- A report suggesting that artificial nighttime lighting on flowers of *Magnolia delavayi* helps improve seed set.

The event was widely covered by the local news media in Guangzhou complete with newspaper articles and TV interviews of ISFM participants. (The Symposium proceedings are being published and will be available to members of The Magnolia Society later this year.)

Guangzhou, which is located about 50 miles northwest of Hong Kong in Guangdong Province, is situated nearly on the tropic of Cancer. With an elevation of 100 feet above sea level, the climate in this region is subtropical—very similar to the climate of south Florida, USA except the summers in Guangzhou are usually very wet and winters are very dry, as they are in other parts of southern and eastern China. Thus, most magnolias cultivated at South China Botanical Garden (SCBG) are of the evergreen, warm temperate type with a few tropical types also being represented.

Of the 300 hectares of SCBG, a separate section of 12 hectares is devoted entirely to Magnoliaceae. This area contains an astonishing 130 species of magnolia *sensu lato* (in this article I use the term “magnolia” in the broad sense to include *Manglietia*, *Michelia*, *Kmeria*, etc. but not *Liriodendron*). As we walked through this marvelous place, there didn't seem to be enough time to look, study, take pictures of these plants, and keep up with the tour.



At the SCBG, we were most fortunate to have seen a bloom of a male flower of *Kmeria septentrionalis*. This curious flower consisted of just a mound of stamens subtended by only three tepals (see Figure 1). *Kmeria septentrionalis* (recently renamed *Woonyoungia septentrionalis* by Liu Yuhu) is indistinguishable from typical magnolia lineages, except that it is dioecious, which means that the male and female flowers occur on different trees.

Other garden highlights included *Magnolia henryi* and *M. albosericia*—both close relatives of *M. delavayi* in section *Gwillimia*—also in bloom. Stunning, too, were our first glimpses of the very rare *Manglietia grandis* and *Manglietia megaphylla*. With their huge evergreen leaves clustered at the ends of the branches, they resembled exotic versions of our familiar Umbrella Magnolias of section *Rhytidospermum* (see Figure 2).

The magnolias of the *Michelia* group were impressive, as well. Especially noteworthy were *Michelia balansae*, with its large loquat-textured leaves, and *Michelia shiluensis*, with its shapely crown and thick, durable foliage. Except for the two tropical species, *Michelia* × *alba* and the orange-flowered *Michelia champaca* (see Figure 3), none of the *Michelia* species was in bloom (they are precocious bloomers like the *Yulania* magnolias). In this part of China, *Michelia* × *alba* and *Michelia champaca* are the most frequently cultivated magnolias. As tropicals, they tend to rebloom sporadically throughout the year, which may be one reason for their great popularity in the region.

Towards the end our stay at SCBG, we traveled to Dinghushan Biosphere Reserve, which is about 50 miles to the west of Guangzhou. Also called Dinghushan Arboretum, like the SCBG, it was established in 1956 and is affiliated with the South China Institute of Botany. The arboretum includes a 1133 hectare mountain preserve of pristine subtropical forest that is home to some seven native magnolias: *Magnolia championii*, *M. paenetauma*, *Manglietia moto*, *Michelia foveolata*, *M. figo*, *M. maudiae*, and *M. odora*. *Michelia odora* is often referred to here as *Tsoongiodendron odorum* because of its elephantine fruits that are the largest in all of Magnoliaceae. Though this trip was meant to be a few hours of relaxation for this symposium-weary group, most of us hiked a half mile up the mountain to see the only surviving individual *Michelia odora* in the preserve. The trek was well worth it, however, as we finally reached this impressive magnolia whose trunk was at least 4 feet in diameter at eye level (see Figure 4).

The final day of the symposium was capped with a traditional evening banquet at a nearby restaurant. We had worked hard the past few days—a good reason for us to celebrate hard, including karaoke!

The Yunnan Excursion—Kunming

The next day, May 23, a much smaller group that included Gordon and Roberta Hagen (USA), John Tobe (USA), Sangtae Kim (Korea), my wife, Anita Figlar, and I (USA), departed for Guangzhou Airport



Figure 1 *Kmeria septentrionalis*. Male flower at SCBG. Note mound of stamens subtended by only three tepals (Richard Figlar)



Figure 2 *Manglietia grandis*. South China Botanical Garden. (Richard Figlar)



Figure 3 *Michelia champaca*. SCBG. (Richard Figlar)

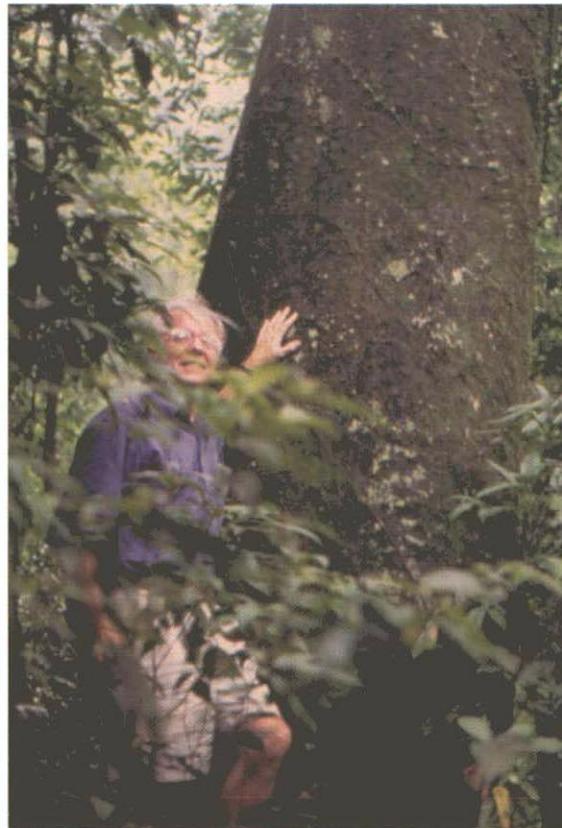


Figure 4 Dick Figlar leaning on a large specimen of *Michelia odora*. Dinghushan, Guangdong province. (Anita Figlar)

and the flight to Kunming in Yunnan Province, about 800 miles to the west-northwest.

Because of its low latitude of 25 degrees (slightly north of the tropic of Cancer) and its high elevation (average is 6500 feet above sea level) the weather in Kunming is called "middle subtropical inland plateau climate." Its North American counterpart would probably be extreme southern Georgia and northern Florida. However, Kunming's high elevation and low latitude provide a climate where temperatures are less volatile than those of southeast USA (not as hot in summer, seldom colder than 20 °F in winter). As in the rest of south China, most of the rainfall occurs during the months of May through October, with very little falling in winter. On this day, the rainy season had not yet commenced.

Our first garden stop was Kunming Arboretum. This 42.4 hectare arboretum, established in 1975 and affiliated with the Yunnan Academy of Forestry, contains more than 1000 plants of 72 species of Magnoliaceae. We could immediately see that Magnoliaceae plants were held in high regard here as nearly all of the trees around administration buildings and laboratories were magnolias.

These landscape plantings included outstanding mature specimens such as *Magnolia yunnanensis*, which is a member of section *Gynopodium* and somewhat of a *M. grandiflora* look-alike when viewed from the distance. Most Chinese botanists prefer to call this species *Parakmeria yunnanensis* because it, and others in this section, are androdioecious. (*Androdioecious* means that some trees produce only male flowers, while others bear regular bisexual flowers—hence the name *Para* (similar to) *Kmeria*.) Another tree that caught the eye was *Michelia lacei*. Its large lush dark green leaves and dense form make it easy to distinguish from other magnolias.

In the arboretum itself we were treated to more treasures, such as our first glimpse of a good sized tree of *Manglietiastrum sinicum* (also called *Magnolia sinica*, and *Manglietia sinica* in the literature). This species was discovered in Yunnan in 1979 and named by Liu Yuhu.

Remarkably, just seven individual trees were found in two remote locations in Xichou County in southeast Yunnan. This large evergreen tree bears fragrant white blooms with red-purple outer tepals. Like *Magnolia yunnanensis* and other members of section *Gynopodium*, which *Manglietiastrum* seems to resemble, it blooms earlier in the season, thus we had no chance to actually see the flowers (see water-color drawing, Figure 5). *Manglietia conifera*, on the other hand, was in full bloom here. With red stamens and globose tepals, its flowers are curiously reminiscent of those of *Magnolia globosa*. To view the flower, it had to be pried open by hand (Figure 6). Of the many other magnolias that we saw, the pink form of *Magnolia delavayi* was in full bloom with its pale pink blooms glistening in the sun.

The tour continued at the nearby Kunming Botanical Garden (KBG). Founded in 1938, KBG occupies 44 hectares of land with 1.3 hectares devoted specifically to the 90 species of Magnoliaceae, growing here. Fellow Magnolia Society member and Deputy Director of KBG, Sun Weibang, gave us a whirlwind tour.

Once again, we were treated to an enormous menu of magnolias. Here, with most trees growing very close to one another, there wasn't much walking to do. One of our first encounters was the sight of the incredibly glossy-leaved *Magnolia lotungensis* (also called *M. nitida* var. *lotungensis* and *Parakmeria lotungensis*) of section *Gynopodium*. Nearby, were specimens of an interesting new yellow magnolia, *Michelia xanthantha*. Though not in bloom at this time, of course, this evergreen species is featured in KBG's garden brochure, which shows a bloom consisting of 12 well formed, bright yellow tepals with long, similarly colored, spreading stamens—a most unusual and attractive flower. No doubt, this very new species is destined to be a player in world horticulture in the years to come (see photo on page 272 of *Magnolias and their allies*, David Hunt, ed.).

One of the biggest surprises came as Sun Weibang brought out a small potted specimen of the newly discovered (1994) *Manglietia decidua*. This species' foliage was quite striking as both sides of the young leaves were glaucous. From a distance, the color of the foliage



Photo of the excursion group at the administration building of the XBESCM.
(Roberta Hagen)



Figure 5 *Manglietiastrum sinicum*
(*Magnolia sinica*). Watercolor by Deng
Yingfeng.



Figure 6 *Manglietia confiera*. Opened
flower at Kunming Arboretum. (Richard
Figlar)

appeared bluish-gray, while up close the leaves looked as if they were covered with condensation. This is definitely something new in a deciduous magnolia that may prove hardy into USDA zone 6! (See picture in related article this issue.) Interesting foliage was noticed in yet another new magnolia, *Michelia sphaerantha*, which was first described in 1987. At first glance the leaves resembled those of *Magnolia denudata* or *Magnolia* × *soulangeana* of subgenus *Yulania*, quite different from other *Michelia* spp.

As we began to leave the garden, we noticed near one of the administration buildings what looked like a *M. grandiflora* with heavily indumented foliage. Closer examination, however, revealed the telltale *Michelia*-like fruits of another “new” species, *Michelia calcicola* (syn. *Michelia ingrata*). Native to limestone habitats in southeast Yunnan, *M. calcicola* was discovered as recently as 1988 (see Figure 7).

Traveling South to Wenshan

The next morning we loaded ourselves into two sport utility vehicles and began a day-long trip to Wenshan, which is in Southeast Yunnan, about 300 miles to the south of Kunming. The trip was long and hard with much of our route being on unpaved roads. A lunchtime visit to the Stone Forest tourist attraction provided us with some nice recreational relief as well as an interesting and informative tour of the unusual karst geology unique to this part of Yunnan. We arrived in Wenshan that evening, which gave us plenty of time to rest up for our first stop, the Xiangpingshan Base for Ex-situ Conservation of Magnoliaceae.

The Xiangpingshan Base for Ex-situ Conservation of Magnoliaceae (XBESCM) was established in 1986 on Xiangping Mountain, elevation 4495 feet, about 50 miles to the east of Wenshan (see map). Even though situated just below the tropic of Cancer, the high elevation modifies the climate, making it cooler than expected at this tropical latitude. Highest temperatures both here and in Wenshan seldom (if ever) reach 100 °F in summer. Although light frosts do occur in winter, they are rare. Again, the precipitation pattern is similar to other parts of south China—dry winters, rainy summers.

At this particular time it was dry and relatively cool, about 73 °F during the day.

For a Magnoliaceae fanatic like me, the XBESCM was something from my dreams: there were orchards of magnolias wrapping the slopes of this large scenic mountain as far as the eye could see. In contrast, the valley below and the mountains beyond looked distant and separate from this exotic place. As we hiked up the mountain, we entered vast arrays of monoculture plantings, one species at a time. This 23.3 hectare plot contained some 10,000 individual plants, which represented 96 Magnoliaceae species! Looking in one direction, one would see the orange glow of the new foliage of hundreds of precisely spaced *Michelia balansae* trees, all of the same age; then at the turn of the head, one would encounter a lush orchard of *Manglietia forrestii* (see Figure 8) bordering on an undulating pattern of *Magnolia officinalis* var. *biloba* (a species of legendary medicinal popularity in China). There was an excellent stand of *Michelia macclurei* (see cover picture), and for the first time we saw *Magnolia cathcartii* of section *Alcimandra* (also called *Alcimandra cathcartii* in Liu's system).

M. cathcartii has been in taxonomical limbo for quite some time, having first been described as *Michelia cathcartii* by Hooker and Thomson in 1855. A quick study here of the branching pattern of this species indicated that it was similar to that of *Yulania* and *Michelia*—perhaps Hooker and Thomson were right! Sangtae Kim's molecular model, which was presented at the International Botanical Congress this year, confirms that this taxon evidently belongs in the *Michelia* group. (Page 404 of the *China Plant Red Data Book* has a nice picture of *Magnolia cathcartii*.) As we followed a switchback trail to the base of the mountain, we couldn't help but admire a fine cluster of handsome *Michelia lacei* trees growing near a small compound and vegetable garden (see Figure 9).

We spent the second part of the day at the Wenshan Magnoliaceae Garden, which is located about a mile from the center city of Wenshan. Though smaller than the XBESCM, this garden was also

entirely devoted to Magnoliaceae. Its four hectares contain approximately 1000 plants of 100 species of magnolia. As in Kunming Arboretum and the EBESCM, Wenshan Magnoliaceae Garden is administered by the Yunnan Academy of Forestry and here, as in the other locations, many projects are underway.

One of the ongoing projects is an attempt to develop potential perfume plants. To this end, many species are being evaluated here including *Magnolia yunnanensis*, *Manglietiastrum sinicum*, *Manglietia eciatricace*, as well as several species from section *Gwillimia*. One of these, *Magnolia guangnanensis* (probably closely related to *Magnolia championii* and *M. coco*), was in flower (see Figure 10). Another close relative, *Magnolia odoratissima*, was also quite impressive as was *Magnolia phanerophlebia*, a plant whose leaves look just like those of *Magnolia coco* but much larger. As we found our way through the arboretum, we came across one of the crown jewels of the trip, the red form of *Manglietia insignis* in full bloom (see Figure 11).

The Trip to Maguan County

In a very real sense this was the most exciting part of the Yunnan excursion—an expedition into the backcountry of the Exterior Gulinqing section of Maguan County to see wild *in situ* magnolias. Exterior Gulinqing is a rectangular shaped area of about 12 miles wide by 37 miles from north to south, with the southern part of the area bordering Vietnam (see map). Elevations in the areas where the magnolias occur are generally from 5000 to 6000 feet above sea level, thus the climate is not significantly different from that of Wenshan. Amazingly, in this small region some 31 species of magnolia can be found. Yunnan province is the world's center of distribution of magnolia, with about 90 species reported, or nearly 40 percent of the total number of known species.

Though our destination was only about 75 miles south of Wenshan, the ride was rough and often quite difficult. Few of the roads were paved (sometimes barely passable) and our drivers were not afraid to negotiate these roads aggressively, which was sometimes a little unnerving. From our vehicular vantage point, at first we could see

little “virgin” forest as most of the vegetation consisted of introduced species of *Eucalyptus* interspersed with native *Cunninghamia lanceolata*, *Pinus yunnanensis*, and a few *Trachycarpus fortunei* (Windmill Palm). Gradually, this gave way to patches of what appeared to be more typical native forest, and in some of these areas, even an occasional *Magnolia delavayi* could be discerned from the car window, which heightened our anticipation of what was to come.

Finally we arrived at our first stop, Chengzi Mountain (Chengzishan) near the town of Gulinqing. Here, we hiked up the mountain and saw six species: *Magnolia delavayi*, *M. yunnanensis*, *Michelia platycarpa*, *M. martinii*, *M. opipara*, and *Manglietia maguanica* (see back cover). We were told that this wild population had been spared because Chengzi Mountain is a sacred burial site and that it is forbidden to remove trees from such places. At another nearby site, Carbi Mountain, the forest canopy consisted almost entirely of *Magnolia yunnanensis* (over 120 individual trees), with an occasional *Illicium henryi* or shrubby *Magnolia delavayi*. Surrounded as it was by cultivated lands, we weren't surprised to hear that Carbi is also a cemetery.

Near the southern end of Exterior Gulinqing, the increasingly mountainous terrain gave way to more contiguous and dense forest. Here, at a place called Chun Tianping was perhaps our most exciting encounter—the rare *Manglietia grandis* in its native habitat. Discovered in 1951, *M. grandis* occurs only in a few scattered populations in four counties of southeastern Yunnan and two counties of southwestern Guangxi province. It is on the endangered species list. We quickly scrambled up a steep gravelly hillside to reach this population of several large trees on the edge of a dense forest (see Figure 12). Even a few *Manglietia grandis* saplings were present in the understory, which is a good indication that this population is reproducing. At least one large red flower was visible high up in one of the trees. I can't begin to describe the special feelings I had at this particular moment. Since this part of Yunnan had only recently been made accessible to foreigners, it is quite possible that we were the first western botanists to actually see *M. grandis* in the wild.

At other stops in the area we had glimpses of large wild trees of *Michelia pachycarpa* (similar to, if not synonymous with, *Michelia lacei*), *Manglietia pachyclada*, and additional *Magnolia yunnanensis* and *Michelia opipara*. The latter species is quite similar to the more familiar *Michelia doltsopa* of the high mountains of northwest Yunnan.

The next day, on the return route to Kunming, we were treated to a nice stand of blooming *Magnolia delavayi* growing along the road in a mountain savanna near the town of Kai Yuanshi, about halfway between Wenshan and Kunming (see map). This was the final field event of the excursion.

Back at the hotel in Kunming later that evening, we attended a farewell banquet hosted by Mr. Chen Jihai, Director of the Forestry Department of Yunnan Province. It was an enjoyable final chapter to a most memorable meeting and excursion.

Epilogue

As I reflect on this extraordinary experience, I sense several significant achievements and breakthroughs for Magnoliaceae. First, the study, cultivation, and conservation of Magnoliaceae in south China has achieved a great deal in the past 25 years, or so, and these efforts are now gaining even more momentum. The sheer numbers of scientific papers presented at the ISFM, mostly by Chinese authors, are testimony to this, as is the degree of *ex situ* cultivation of Magnoliaceae that we observed at Wenshan Magnoliaceae Garden, the Xiangpingshan Base, Kunming Arboretum, Kunming Botanical Garden, Dinghushan Arboretum, and South China Botanical Garden. Additionally, the quantity and quality of research being performed at the Yunnan Academy of Forestry, at the Kunming Institute of Botany, and at the South China Institute of Botany (the last two organizations being part of Academia Sinica) is substantial.

Also, the ISFM brought together magnolia specialists, scientists, horticulturists, and so on, from all over the world who shared a common passion: Magnoliaceae. No doubt, the new personal and



Figure 7 *Michelia calcicola* showing nice indumentum. Kunming Botanical Garden. (Richard Figlar)

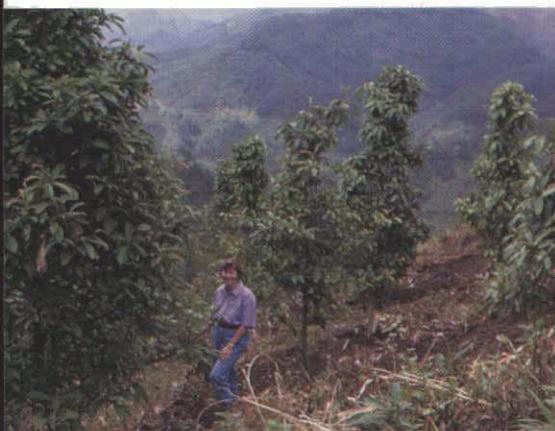


Figure 8 Anita Figlar standing in a planting of *Manglietia forrestii* at XBESCM. (Richard Figlar)

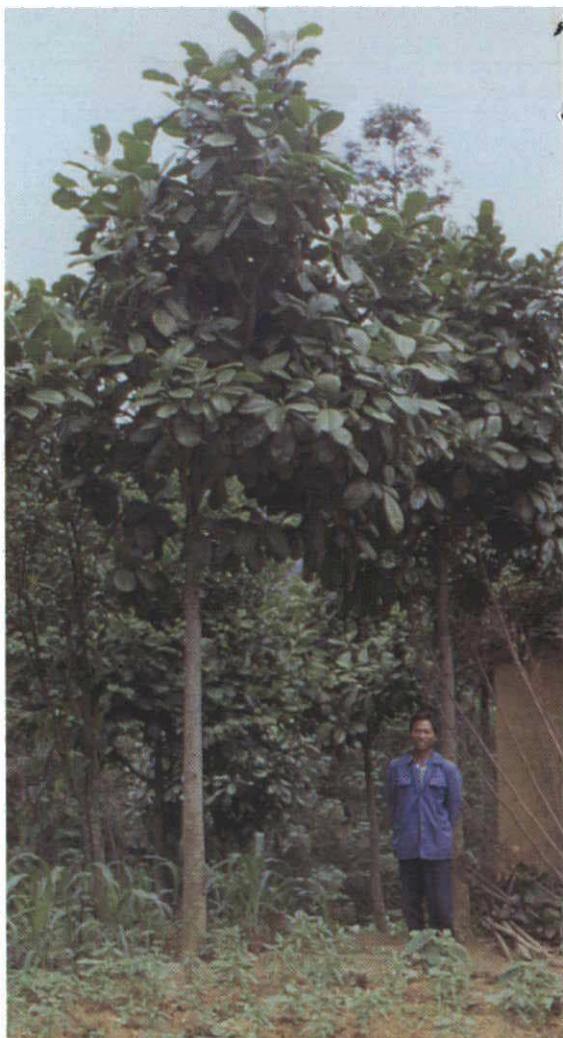


Figure 9 *Michelia lacei* growing amongst vegetables at XBESCM.



Figure 10 *Magnolia guangnanensis*.
Wenshan Magnoliaceae Garden.
(Richard Figlar)



Figure 11 *Manglietia insignis* (red form).
Wenshan Magnoliaceae Garden
(Richard Figlar)

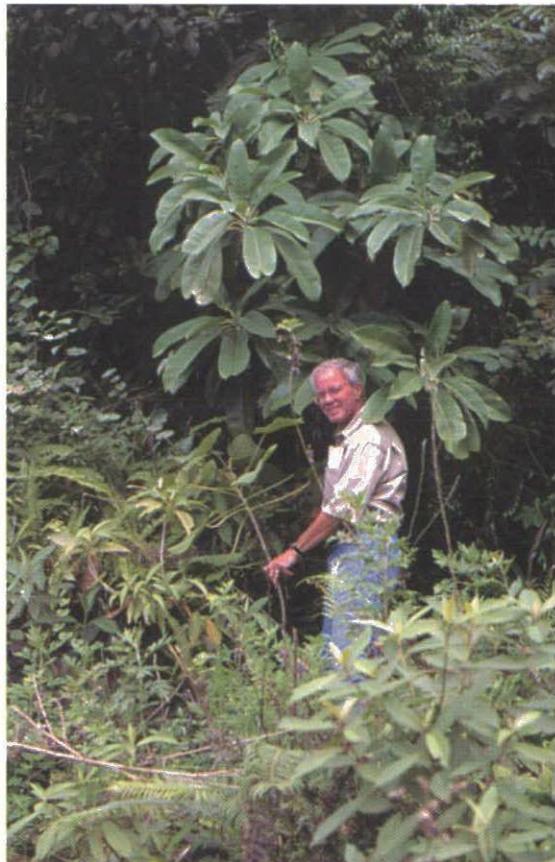


Figure 12 Richard Figlar standing next
to a wild *Manglietia grandis*. Photo
taken in Chun Tianping, Southeast
Maguan County. (Richard Figlar)

professional relationships that began in Guangzhou in 1998 will expand and bear more fruit in the future. With the publication of the Proceedings of the ISFM, other horticulturists and botanists will be able to benefit from this work, as well. Already, some of the research originally presented at the ISFM has been enlarged and enhanced. At least one of these projects was presented at the International Botanical Congress, held this past summer in St. Louis, Missouri USA.

Finally, I see great opportunity for world horticulture. In these two weeks in south China, I saw more different species of magnolia than I have seen in the 25 years that I've been studying magnolias. The majority of the over 50 species I photographed, I have never seen before! Almost all of these new species are warm temperate—not tropical—species and they are largely untried in Western gardens, especially those of the *Manglietia* and *Michelia* groups. I have the feeling that several, in fact, will be worthy additions to world horticulture as ornamentals, for further breeding, or as collector plants for magnolia specialists possibly into USDA zone 6. ☞

Acknowledgments

I wish to thank the South China Institute of Botany, Academia Sinica, The Yunnan Academy of Forestry Sciences, the affiliated arboreta and gardens, their scientific and organizational leadership, their staff, and support personnel who made this symposium so enjoyable and successful. A special thanks goes out to Mr. Fan Hanming, the Secretary General of the Organizing Committee of the ISFM, who took good care of us throughout our memorable stay in China.



Partial List of Species Seen and Photographed

Note: If recently discovered, the date of first publication of the species appears in parentheses. Widely known deciduous species such as *Magnolia officinalis* and *Magnolia cylindrica*, although seen, are excluded from this list.

Section *Gwillimia*

- Magnolia delavayi*
M. henryi
M. albosericea (1964)
M. coco
M. odoratissima (1986)
M. guangnanensis (ined.)
M. championii
M. phanerophlebia (1988)

Michelia group

- Magnolia cathcartii* (*Alcimandra cathcartii*)
Michelia × *alba*
M. baillonii (= *Paramichelia baillonii*)
M. balansae
M. cavaleriei
M. champaca
M. coriacea (1987)
M. figo
M. floribunda
M. foveolata
M. calcicola (1988)
M. lacei
M. odora (1963) (= *Tsoongiodendron odorum*)
M. pipara
M. macclurei
M. martinii
M. maudiae
M. megalimba (ined.)
M. pachycarpa (1987)

- M. shiluensis* (1963)
M. sphaerantha (1987)
M. yunnanensis

Manglietia Group

- Manglietia aromatica*
M. conifera
M. crassipes (1982)
M. cylindrica (= *M. conifera*)
M. decidua (1994)
M. eciatricace (ined.)
M. forrestii
M. grandis (1951)
M. hainanensis
M. insignis
M. maguanica (1988)
M. moto
M. pachyclada (ined.)

Section *Gynopodium* (*sensu lato*)

- Magnolia lotungensis* (1963)
 (= *Parakmeria lotungensis*)
M. yunnanensis (1951)
 (= *Parakmeria yunnanensis*)
M. sinica (1979)
 (= *Manglietiastrum sinicum*)

Kmeria

- Kmeria septentrionalis*