Recent Magnolia Exploration in China©

Douglas Justice
University of British Columbia, Botanical Garden, 6804 SW Marine Drive, Vancouver, BC V6T 1Z4 CANADA
Email: douglas.justice@ubc.ca

University of British Columbia (UBC) Botanical Garden is a university botanical garden located in the mild maritime climate of Vancouver. Along with maples, mountain ash, styrax relatives, and woody climbers, magnolias represent one of our more valuable and important collections. Our collections policy states that we should:

- Maintain a balanced and representative collection of global plant diversity, subject to the limitations of site, space, soil, and climate.
- Give priority to plants of known wild origin, recorded provenance, and known pedigree (in the case of cultivated plants), and to maintain their documentation by means of record keeping to a high standard.
- Serve the current scientific needs of researchers at UBC.
- Grow educationally useful plants, principally to serve the needs for live material of UBC undergraduate and postgraduate courses, but also to serve the needs of our community education programs.
- Maintain collections of rare and endangered plants for conservation and education.
- Include in the collections some plants of such aesthetic appeal that they refresh the human spirit, where this is possible without compromising any of the aforementioned principles.

There are about 150 individual magnolias in UBC Botanical Garden's collection, representing about 115 accessions and 90 different taxa. Accessions are represented as individual records in the database. The 90 magnolia taxa consist of species, subspecies, and varieties, and we also grow a number of cultivars, as well. Only about 25 individual specimens are known to be of wild provenance.

Our wild-provenance accessions include the following evergreen and deciduous magnolia taxa:

Evergreen	Deciduous
M. aromatica	*M. campbellii* subsp. *campbellii*
M. cavaleriei	*M. cylindrica*
M. chevalieri	*M. fraseri*
M. fordiana var. *fordiana* (syn. *M. yuyuanensis*)	*M. obovata*
M. maudiae	*M. sieboldii*
M. sinica	*M. wilsonii*
M. yunnanensis	*M. zenii*

Close to 100 species of evergreen magnolia are native to China, the majority to southern China. Obviously, not all Chinese magnolias are cold hardy at UBC, but many are, including some species from surprisingly subtropical areas. We've tried *M. delavayi* on three or four occasions without success. And *M. guangdongensis*, is not your average magnolia foliage. It is not in cultivation in the West.

Last year I had the pleasure of seeing some of the last remaining specimens of *M. sinica* in the wild, growing in a protected area in southern Yunnan. A group of us visited this area following the second Magnoliaceae Symposium that was held at the South China Botanical Garden in Guangzhou, Guangdong Province, China. At the symposium, delegates were introduced to the influence of Liu Yu-Hu, the father of Chinese Magnolia taxonomy. Lui modified and popularized (at least in China) a system originally codified in 1927 by James Dandy of the British Natural History Museum, which describes about a dozen different genera in the Magnolia family. Recent molecular analyses suggest that the segregates (other than *Liriodendron*) don't deserve generic rank; however, most Chinese authors still recognize the Dandy-Liu system. At the symposium, we were treated to vigorous debates between proponents of the Chinese system and the more conservative system of Figlar and Nooteboom. Through his involvement with the Magnolia Society, Dick Figlar has done more to popularize the science of magnolias and to champion the two-genus system than anyone before him.

Increasingly, UBC Botanical Garden has been using the following protocols in the acquisition of seed from wild magnolias in China. The first stage includes the identification of target species, the identification of academic partners in China who are actively doing taxonomic research, and the securing of funding for expeditions. Stage two is mainly springtime reconnaissance. This is primarily finding and recording location and other data on flowering plants, from which seed can be collected later, and assisting of our partners on site in whatever collecting they might be doing, such as tissue for DNA, herbarium specimens, etc. The final stage involves returning to the site in the autumn to collect, or if not possible, to support collecting of seed by partners in China.

Going to China to collect is always an adventure. China is a vast country, with varied terrain and a diverse magnolia flora. Areas such as western Sichuan close to Tibet are typical of the areas that still have deciduous magnolias in the wild: steep and often inaccessible. Andy Hill, curator of the David C. Lam Asian Garden at UBC is following in the footsteps of Peter Wharton, former curator of the Asian Garden at UBC. Peter certainly had the collecting bug. In all, he visited five provinces of China on nine separate occasions. Andy is currently on his fourth trip to China. Magnolia terrain is not always difficult, but because of habitat destruction, over harvesting, and collecting, specimens are getting harder to find.

Locals are enlisted (often encouraged with money or cigarettes) to help find significant, flowering individuals that may be in areas away from roads. Sometimes, the guides are very young. For our collecting, we usually travel with scientists such as Dr. Shouzhou Zhang, Director and Head of Landscapes at Fairylake Botanical Garden, Chinese Academy of Sciences, who are members of the Academy. The Chinese Academy of Sciences is a federal institution and such official work is not generally subject to delays and petty bureaucracies.

Many conservation challenges are likewise, collecting challenges. Some of those collecting challenges include:

- Habitat destruction
- Local over-harvesting
- Over-collecting
- Shrinking genetic diversity
- Access problems
- Lack of expertise

For example, *M. officinalis* is stripped for its bark, which is valuable in Chinese folk medicine. The flower buds of this species are also harvested for medicinal uses. Incredibly, wealthy landowners now pay to have large magnolias dug and moved to their estates. Luckily, DNA can be extracted from frozen flower parts.

Seed of Yulania magnolias can be collected in late summer or fall as soon as the fruits turn red and start to split. Magnolia seeds spoil quickly because of their oily seed coat, but dry out quickly if the seed coat is removed. Before shipping, we remove the seed coat and pack the seeds in slightly damp strips of newspaper. A very mild bleach solution is used on all packing materials. All seed, herbarium material, and tissue for DNA extraction are the property of the Chinese hosts. It is through their work with Chinese regulators as well as their goodwill that any of it arrives in North America. With luck, and by collaborating with our partners both outside and within China, we will continue to share in the wealth of Chinese magnolias and to contribute to their conservation.