

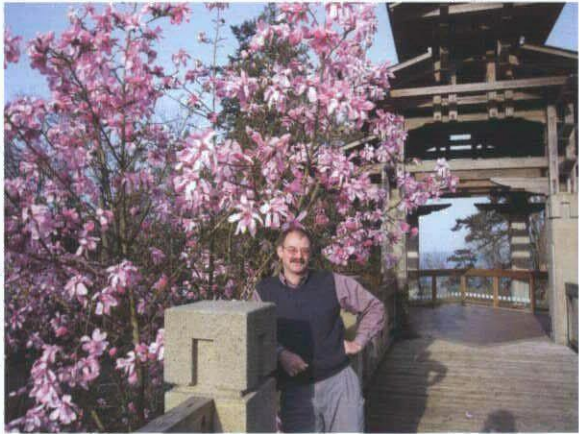
## Asiatic Magnolias and the UBC Botanical Garden

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The University of British Columbia (UBC) Botanical Garden has a fine history of *Magnolia* study that goes back a half century to the early plantings in the David C. Lam Asian Garden. The 10-hectare (25-acre) garden was originally being developed as a collection of rhododendrons by then Curator Peter Wharton who soon expanded that early vision to include other associated woody plants. Principal among those were the much-loved magnolias, many of which were uncommon, with new species still to be discovered and added to the Garden.

Early plantings in the UBC Asian Garden were of section *Yulania* and included favorite cultivars such as *M. dawsoniana* 'Chyverton', *M. sprengeri* 'Claret Cup', *M. s.* 'Copeland Court', *M. s.* 'Wakehurst', *M. campbellii* subsp. *campbellii* 'Ethel Hillier' and *M. c.* subsp. *mollicomata* 'Lanarth'. As the goals of research



and conservation grew in importance, so did the preference for wild-

Peter Wharton with *Magnolia* 'Eric Savill' at UBC Botanical Garden

collected species with known provenance. Valuable seed began to arrive at the Garden through a wide network of magnolia friends and the varied species began to dominate the collections. The Garden's own expeditions into wild places across Asia were also contributing to the community, with fieldwork carried out in South Korea, China and northern Vietnam.

### Fieldwork and research

Perhaps one of the most important of these expeditions was the work done in 2006 on *Magnolia sargentiana*. Along with Dr. Ya Tang and colleagues from Sichuan University, Peter Wharton was part of a group that was able to locate new ranges of this red-listed species in the Meigu Dafengding Nature Reserve. This helped the Chinese government, which had already established sensitive regions and plant groups, to set up new protection areas and further conservation efforts. Seed was collected and distributed internationally to various botanic gardens and scientific institutions for

*ex situ* study, with a number of specimens added to the UBC Botanical Garden.



Author and guide next to  
*Magnolia dawsoniana*

Fieldwork in Asia has continued with recent expeditions to Sichuan Province, in western China. Two trips in 2010 with Quarryhill Botanic Garden, Sichuan University, Shenzhen Botanic Garden and Ya'an Botanic Garden sought to collect a range of data and locations of magnolia species in bloom early in the year, then return to collect seed and supplemental data in the autumn. These expeditions have been successful, with a large number of *M. wilsonii*, *M. sargentiana* and *M. dawsoniana* examined and specimens collected. The geotagged data will be compiled in a new spatial database we are developing to assist in future fieldwork. All of this, hopefully, will add a little more to our collective knowledge of the amazing genus.

The UBC Botanical Garden is committed to the study of *Magnolias*, both in their native ranges and within our own collections. One project that is just now passing twenty years of activity is the continuing *Magnolia* Phenology Study. A passionate group of volunteers have recorded observations relating to bloom times—information that will be compared against weather data for that period and examined for trends. We have noticed significant variation in data from year-to-year observations and will soon be able to see exactly what changes have occurred.

### Evergreens at the UBC Botanic Garden

Vancouver is fortunate to have a mostly gentle climate. The Asian Garden is in a particularly sheltered spot below a towering canopy of native conifers (*Pseudotsuga menziesii*, *Abies grandis*, *Thuja plicata* and *Tsuga heterophylla*), and influenced by the Pacific Ocean, which is close by. The temperature rarely drops below -10C/14F. On average, 125cm (50in) of rainfall is measured annually; however, most of that arrives in the winter, making it necessary to irrigate through the summer. We can grow a surprising range of plants and it was an inspired decision early on to begin experimenting with the evergreen magnolias.

In an article that appeared in the UBC Botanical Garden Journal, *Davidsonia*, in 2006, Peter Wharton provided an update on how these evergreen species were performing in Vancouver. At that time he wrote, "A major challenge for many species is sudden cold, often with heavy wet snow, a common winter event in the Pacific Northwest. Branch and crown form, strength of branch and stem attachments, branch flexibility, and the snow



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shedding attributes of leaves are all factors that influence survival and attractiveness under this threat." This observation proved prescient, especially during this past winter where foul weather arrived unusually early in November (down to nearly -7C (20F), strong winds and heavy wet snow and returned again, nearly as dramatically, at the end of February.



*Magnolia sprengeri* after an ice storm April 13, 2010

In the five years since that report we have lost a few promising species, including *M. doltsopa* (section *Michelia*) and *M. floribunda* (section *Michelia*). A few others in very poor condition are scheduled for removal. But there have also been some real stars.

Here is a brief update of the Asiatic evergreen species magnolias at the UBC Botanical Garden in 2011.

*Magnolia aromatica* (section *Manglietia*) - One weak plant, poorly sited with too much shade and drought. Minimal growth, but leaves and buds look little damaged. Not a fine specimen. We are propagating it and expect better luck in another part of the Garden.

*Magnolia cavaleriei* var. *platypetala* (section *Michelia*) - Perhaps 90% defoliated from the winter and some broken branches. Not at all happy with the harsh weather of early November.

*Magnolia chevalieri* (section *Manglietia*) - One of our worst for frost burn and marked leaves, though, if past experience is true, it should recover well through the summer.

*Magnolia conifera* (section *Manglietia*) - A fantastic tree. Most promising and perfectly content, even after the last winter. Strong, even branching, no breaks...even with minimal protection. Leaves and buds seem almost completely unblemished. We're very excited about this species and it appears it may bloom well this year.

*Magnolia ernestii* (section *Michelia*) - Another great performer, at least in its sheltered position below our native conifers. Some broken branches but little frost damage to the foliage, though somewhat difficult to tell as it's now approaching 10m (33ft) in height with a high crown.

*Magnolia fordiana* var. *fordiana* (section *Manglietia*) - There are a number of trees and most have looked quite bad for many years. Very spindly growth, yellowed leaves and repeated damage from cold and snow. Possibly improved fertility would help, as well as a less exposed site (our best tree is growing in half shade and our worst, totally open).

*Magnolia foveolata*

(section *Michelia*) - Despite being well protected by the over-story of larger conifers, this tree suffered some significant branch damage from snow loading, including the top 2-3m (10ft) of its central leader. This is truly a shame, because the large glossy leaves and new buds appear mostly to have made it through the cold without too much injury. This was one of Peter Wharton's favorites and he would argue it has great potential for this region.



*Magnolia foveolata* at UBC Botanical Garden  
(Photo by Douglas Justice)

*Magnolia insignis* (section *Manglietia*) - Looks absolutely perfect, as usual. Leaves unmarked and lots of healthy flower buds. This tree receives a fair amount of indirect light and some shelter from nearby conifers that deflect the worst of the winter weather.

*Magnolia lotungensis* (section *Gynopodium*) - A really lovely tree, surprisingly undamaged by the heavy snows or the cold temperatures. Definitely another one to watch.

*Magnolia martini* (section *Michelia*) - Two trees -- one terrible and the other just very bad. Many broken branches (over half of the one tree) and both with yellowed and burned leaves, buds and wood. It's becoming difficult to justify their continued place in our collection.

*Magnolia maudiae* (section *Michelia*) - Possibly our best of the recent magnolia additions. Unscathed with very strong growth. We have three trees, all Peter Wharton collections and all with some shelter and moist (though not necessarily well-drained) sites. They look terrific.

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*Magnolia nitida* (section *Gynopodium*) - This young tree is a bit of a surprise for us. It was rediscovered in an overgrown, shady and dry corner of the Garden (during some plant exploration in our own garden!) then somewhat brutally transplanted early last season. In the last year it has grown nearly 0.5m (2ft) and is now approx. 2.5m (8.5ft) tall, and is completely at home. The small, glossy leaves and tiny buds are perfect.

*Magnolia yunnanensis* (section *Gynopodium*) - This tree is located beside our *M. aromatica* and suffers the same conditions of dry, poor soil and competition from neighboring plants, of which it is not at all tolerant. It was nearly totally defoliated from this winter and is in serious decline. We are in the process of propagating this tree and hopeful that it will do better elsewhere in the Garden.

### Looking ahead

In the coming year, UBC Botanical Garden will participate in a multi-site North American Plant Collections Consortium registration of the genus *Magnolia*. This will help articulate our commitment to magnolias and firmly place the group as a priority taxon in our policies and planning. The Garden's position within the University's organizational structure has changed and we are now part of the new UBC Biodiversity Collections group in the Faculty of Science. This brings increased access to UBC researchers and resources, as well as the outstanding UBC Herbarium. It is our intention to continue to play a lead role in both *in situ* and *ex situ* conservation, research and education while developing a beautiful garden (and this genus really does make it so easy) that will delight visitors.

### References

WANG, J., TANG, Y., XIE, Z.-H. and ZHANG, M.-Y. (2009), Autecology and conservation status of *Magnolia sargentiana* Rehder & Wilson (Magnoliaceae) in the Dafengding region, southern Sichuan Province, China. *Journal of Systematics and Evolution*, 47: 525–534. doi: 10.1111/j.1759-6831.2009.00051.x.

WHARTON, A.P. (2006). Evergreen Magnolias Growing at UBC Botanical Garden, Vancouver, Canada: a Progress Report. *Davidsonia* 17(4):116-133.