

Laidlaw Scholars Leadership and Research Program

Summer Research at Cornell Botanic Gardens

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Abstract

The process of developing a new garden representing Chinese, Korean, and Japanese gardening traditions at Cornell Botanic Gardens highlights a need for comprehensive research on biologically and culturally suitable plants. Plants needed to be selected for suitability in the area of Ithaca, NY. In addition, each plant needed to be relevant to an East Asian gardening tradition or significant, religiously or culturally. This work took place over two phases of research. The first phase compiled plants commonly found in East Asian gardens and cross-referenced climatic suitability using plant and garden databases. The second phase then used the list produced in the first phase to guide interpretative research on the cultural significance of the plants, searching for important symbolisms and traditions. 190+ plants were identified as relevant over the six weeks of research. Future work should continue to refine this list and determine the layout of this garden.

Problem Statement

The ‘Garden of Lost Hours,’ also known as the New East Asian Garden in the process of development at Cornell Botanic Gardens required an evaluation of biological and cultural eligibility of plants.

Literature Review

To understand the general structure of Chinese, Korean, and Japanese gardens, a variety of books focusing on the theory, traditions, and practices of designing and keeping East Asian gardens were consulted. The first book, *Korean Gardens: Tradition, Symbolism and Resilience* by Jill Matthews, provided a detailed context and history for Korean gardens. Through various examples and documented history of Korean gardens, Matthews argues that the Korean garden is meant to blend into natural landscapes and highlight defining features of the existing space.

Korean gardening tradition places less emphasis on selective breeding and cultivation, but prefers to use wild species for their natural characteristics. Confucianism, Buddhism, and Daoism are major influences of these gardens, as well as the importance of changing seasons. Korean gardens are quite different in philosophy from Japanese or Chinese gardens, despite recurrent destruction during times of occupation (Matthews).

The book *The Japanese Garden: Islands of Serenity* by Haruzo Ohashi Netork describes essential elements of Japanese gardens including carefully selected ornamental plants, stones, asymmetry, and elevation gradients. These gardens tend to have some sort of water, like a fountain, pond, or stream. There is a very intentional design process behind Japanese gardens, where plants reflect years of work in their size, shape, and texture. Trees, temples, or hills are meant to anchor the design and landscape of the gardens. Stones, arranged in asymmetrical patterns can look like dried river beds or shorelines. Japanese gardening is heavily influenced by Shintoism and Buddhism (Netork).

Chinese gardens place lots of emphasis on harmony and time, choosing species emblematic of the seasons and months of the year (Kiani & Kakzhand). The “Three Friends,” pine, plum, and bamboo are central to Chinese gardens. Peach trees are important as well, symbolizing immortality and spring. A peach tree will be important to this garden, since it is named after the story “The Peach Blossom Spring.” This fable revolves around the idea of a utopian place and time passing by. Balancing the elements of rock, water, and plants is important for the different purposes of Chinese gardens such as learning, writing, or reflection. Lotuses are also sacred flowers, and are part of any garden featuring water. Most plants found in Chinese gardens have profound symbolism and history in the collective imagination of Chinese

storytelling and history. Balancing the aesthetics of the ‘nature’ and the ‘human’ is essential to Chinese gardens (Morgan).

Methods

The first phase of this project involved compiling a list of plants that could be used in an East Asian garden. Using gardens inspired by East Asian traditions or in East Asia, species were identified and added to a spreadsheet. These gardens included the Seattle Japanese Garden, the Lan Su Chinese Garden, the Portland Japanese Garden, the Aeyangdan Garden, China National Botanical Garden, Namsan Park, and Seoul Botanical Park. Later on, plants mentioned in the books *Important Plants of East Asia I: Plants Tell Stories by East Asia* and *Important Plants of East Asia II: Plants Above the Forest Limit by East Asia* were also added to the list if necessary.

The second phase was twofold. First, the physiological and biological suitability and feasibility of growing these plants in Ithaca, NY was evaluated. Using resources such as peer-reviewed studies, the NC State Plant Toolbox, the Missouri Botanical Garden Plant Finder, Plants of the World Online (Kew Gardens), eFloras, the US National Arboretum, the Royal Horticultural Society, World Flora Online, etc., the life form, physical characteristics, and growing zones of plants were collected and organized. Second, the cultural significance and symbolic meanings of the plants were investigated using literature collected across Cornell University’s Mann Library, Mui Ho Fine Arts Library, and the Kroch Library Asia Collections. Books on Chinese symbols, East Asian Gardens, Japanese, Chinese, and Korean gardens were collected to begin compiling interpretive information about the plants that will be found in the garden. This cultural and symbolic information will help guide the structure of signage and exhibit design accompanying the garden. Collectively, this shapes the educational counterparts of the garden which can serve as a space for academic classes at Cornell University, for community

education, and youth programs serving the local community. Much of the symbolism associated with plants in this garden will have deep connections to East Asian religions, literature, and visual art. Myths and stories have shaped a lot of symbolism, and there is a cultural practice of writing poetry in gardens that originates from Confucian school of thought (Matthews). Classes focusing on landscape architecture, East Asian art, literature, etc., can use the garden and its adjacent educational material to contextualize curriculum.

Additionally, travel to Beijing as part of a collaborative program between Cornell's College of Architecture, Art, and Planning and China Agricultural University supported research for this project. The program, which took place August 1st to August 14th, focused on urban and rural climate resilience and involved visiting several parks and gardens in the Beijing area. The site visits included the National Botanical Garden, the Summer Palace and surrounding grounds, the Forbidden City, Jingshan Park, and the Qinghe Waterfront Green Corridor. Species within these parks are protected and marked with signage indicating species. Frequently observed species were compiled into a document for reference to follow up on. This work is currently in progress.

Findings

The most important species identified were peonies, bamboo, plum, peach, lotus, and ginkgos. Several conifers including pines, hemlocks, cedar, and fir were also determined to have strong symbolic value and to be necessary for this garden. Cherry, dogwood, and magnolia were found to be commonly associated with femininity and beauty, and to be important motifs in East Asian gardens and art.

Several plants were found to come in groupings: in Korean gardening traditions, plum, orchid, chrysanthemum, and bamboo are known as the "four noble friends," while in Chinese

gardening tradition, plum, bamboo, and pine are known as the “three friends of winter. Plants are also often grouped together based on the season they represent, for example, orchid for spring, lotus for summer, chrysanthemum for autumn, plum for winter. These plants also symbolize the great cycle of life which is important to Daoists and Buddhists (Matthews).

Trees were found to be especially important in religious contexts. Temples typically have ginkgo trees on either side to represent a scene where Buddha reaches nirvana between two trees similar to the ginkgo. The most frequently observed pines in Chinese gardens were the species *Pinus tabuliformis* and *Pinus bungeana*. Catalpa trees were also recognized as significant to Buddhist traditions, and the species *Catalpa bungei* and *Catalpa ovata* were identified as important. In Korea, the Korean red pine is known as the supreme tree and can be found outside most temples, shrines, or religious sites. Orchids were also found to be especially important to Korean gardens, while Irises were very common in Japanese gardens.

Ginkgo trees are not just used at temples in Buddhist symbolic traditions, but they are also used to mark entrances to scholarly spaces in Confucian traditions as well (Matthews). They are emblems of resilience and intellectualism.

Peonies, both herbaceous and tree peonies, are contenders for most significant cultivated plant in East Asian gardens, especially Japanese and Chinese gardens. Peonies represent spring and tree peonies are known as the ‘King of the Flowers’ in Chinese tradition. They can also be known as the ‘Queen of Flowers’ in Korea. They have strong associations to royalty (Matthews). They symbolize good omens and are flowers of the Yang principle as opposed to the Yin (Morgan). Herbaceous peonies symbolize love and affection are often found alongside phoenixes, pheasants, peacocks, and fowl in Chinese art (Morgan).

Discussion

The biological and physiological characteristics of the plants in our list will help guide design of the garden this fall. Landscape architects-in-training will be carefully considering the needs of every plant to determine if and where it should be planted in the garden. The garden will include water and stone elements, as well as elevation changes, all of which will be key factors in deciding where is the best suited place for each plant.

The cultural and interpretative information for each plant will also inform placement and positioning within the garden. For example, if there is a plant that is always located at the entrance of a garden, like a gingko, then this information will guide where the gingkos will be placed. Plants that come in pairing or groupings with other plants, will stay together, allowing opportunities for education and programming surrounding the themes of those groupings.

Some of this research has also given insights into key features of these gardens in terms of layout. For example, the shapes of paths surrounding water sources and what kinds of plants should be around those paths, like bonsai. All of this information has been gathered into a singular document that will be used collaboratively between gardens staff and landscape architecture students.

This information will also dictate the interpretive elements of the garden and accompanying exhibit. Collectively, signage, curriculum, tours, youth programming, and general programming will all be derived from this information to determine the best ways to share this garden with the public. There is plenty of educational potential within this garden, which this information will help design.

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