U.S. Botanic Garden

In the shadow of the U.S. Capitol, on the edge of the National Mall in Washington, D.C., is a fascinating collection of plants. The United States Botanic Garden (USBG), the oldest continually-operating botanic garden in the United States, is run by the Congress of the United States. In support of its mission, the USBG maintains an orderly, documented, labeled collection of living plants. It currently has about 26,000 specimens (about 4,000 species) with noteworthy collections of economic plants, medicinal plants, orchids, cacti and succulents, bromeliads, cycads, and ferns.

Although George Washington, Thomas Jefferson and James Madison envisioned a botanic garden at the seat of government, nothing developed in this regard until 1816 when the newly formed Columbian Institute for the Promotion of Arts and Sciences in Washington, D.C. proposed the creation of a botanic garden to collect, grow, and distribute plants that might contribute to the welfare of the American people. Congress established an Institute garden in 1820, when President James Monroe signed a bill setting aside five acres of land on the Mall for such a purpose.

The garden to the west of the Capitol grounds functioned until 1837. In 1842, the idea of a national botanic garden was proposed again after the United States Exploring Expedition, under the command of Captain Charles Wilkes, returned from the South Seas to Washington with living plants from around the globe. The Wilkes Expedition, a four-year, 87,000-mile voyage that circumnavigated the globe and confirmed Antarctica was a continent, brought back a massive collection of plants previously unknown in the US (as well as numerous dried plant specimens that formed the core of what is now the National Herbarium; and the core collection of the Smithsonian Institution – fossils, minerals, shells, insects and animals). Later expeditions and donations added to the collection, with many of the original individuals or their descendants still in the collection. The USBG now includes a number of unusual plants seized by U.S. Customs as part of the Convention on International Trade in Endangered Species (CITES), as well as commemorative gifts by foreign governments, and descendants of plants of American historical significance.

The plants from the Wilkes Expedition were first housed in a specially constructed greenhouse behind the Old Patent Office Building and were moved a few years later into a new structure on the site previously occupied by the Columbian Institute’s garden – in front of the Capitol, where the Capitol reflecting pool is now located. The USBG moved to its present location in 1933.

In 1856, in recognition of their increasing stature, the collections and their associated operations and facilities were officially named the United States Botanic Garden. An annual appropriation has been provided by Congress since then for maintaining the USBG. The Architect of
the Capitol has served as Acting Director of the USBG since 1934. Under the direction of the Joint Committee on the Library, which is charged by law with control over the Garden, the Architect is responsible for the maintenance and operation of the Garden with a staff of 66 full-time employees.

The USBG includes the Conservatory, the National Garden, outdoor display gardens in Frédéric Auguste Bartholdi Park, and the Administration Building, as well as an 85,000 ft² offsite plant production and support facility that opened in 1993.

The Conservatory
The 56,000 ft² conservatory was originally built in 1933 as a complex of connected brick galleries and glass greenhouses. Designed by then-Architect of the Capitol David Lynn, it was the first large building in the country to use aluminum for structural support. It reopened in 2001 after a four-year, $33.5 million renovation to restore the limestone exterior and modernized the interior with air-conditioned galleries and state-of-the-art climate control systems while retaining its architectural character. These systems automatically control misting, shade cloths, fans, air-handling equipment, heat, and window vents to achieve a perfect range of day and night temperatures and humidity. The fountains, radiator, exterior windows and doors were restored or recreated to the original design of the building. There are 10 themed greenhouses surrounding two outdoor courtyards, each one simulating a different habitat. About half of the space is devoted to exhibits that focus on the importance of plants to people, and half to exhibits that focus on ecology and the evolutionary biology of plants. Throughout the Conservatory, plants are labeled with the common and scientific names, plant family and place of origin.

In the formal Garden Court, the first section of the Conservatory that visitors enter, a female queen sago palm (*Cycas circinalis*) collected on the Wilkes expedition is displayed among the other permanent and seasonal plantings. The male of the species may also have been brought back with the Wilkes Expedition. Two rectangular pools with low fountains are surrounded by wide walkways and benches amid the lush foliage. The plantings in this room, from low herbaceous plants to tall trees, focus on plants of economic value to humans. Many food or spice plants, including citrus, coconut, bananas, va-
nilla, chocolate, cinnamon and tea are displayed here. Flowers or other ornamentals provide colorful accents throughout the space. During the holidays there is a beautiful display of miniature Washington landmarks made out of flowers and branches.

On either end of the Garden Court are the East and West Galleries with different exhibits, artistic displays of plants, and educational programs that promote botanical knowledge. The exhibit in the West Gallery emphasizes the ways in which plants contribute to the comfort and culture of humans as useful, ornamental, and ceremonial objects; in images or architecture; as products we use everyday, and even figures of speech. Spices and essential oils, plant-based world cuisines, and other concepts are presented in interactive displays, matching games and nature-inspired art. The exhibit How Plants Work in the East Gallery is closed for renovation until Spring 2010.

The original Palm House, now called the Jungle, displays plants from the world’s lowland tropical rain forests. Designed to simulate an abandoned plantation being reclaimed by the forest, this planting includes an understory of stunted trees and shrubs, a high canopy of trees, and lots of epiphytes. A visitor
walkway 24 feet above the floor (which is accessible by both stairs and elevator) allows observation of the jungle canopy from above. Occasionally, sprays of mist burst out to keep the humidity relatively high. This central structure, rising more than 80 feet to crown the Conservatory, houses tall royal palms (*Roystonea regia*), a traveler’s palm (*Ravenala madagascariensis*), cycads, and other rainforest plants. Showy orchids, gingers, and anthuriums are among the many plants in the understory. The Vessel Fern (*Angiopteris evecta*, native to New Zealand) here is believed to be a division of the original specimen brought back on Wilkes’ ship.

From the jungle we take a tour through the smaller greenhouses and outdoor spaces surrounding the Jungle, moving counterclockwise from the northwest corner:

The **Rare and Endangered Species House**, nestled between the Garden Court and the Plant Exploration House, includes specimens of both tropical and desert plants whose survival in the wild is threatened. The space includes the Australian foxtail palm (*Wodyetia bifurcata*) and Wollemi pine (*Wollemia nobilis*, not a true pine, but a conifer in the family Araucariaceae) previously thought to be extinct, as well as many endangered cacti and succulents acquired as CITES confiscations.

![Unusual plants are displayed in the Rare and Endangered Species House, including a Wollemi pine (R).](image)

The **Plant Exploration House** showcases plants that were introduced to the US after government-sponsored sea voyages of discovery, including the Wilkes Expedition and the Perry Expedition to Japan in 1852. All the plants surrounding the giant clay jar spilling over with water into a stone-rimmed pool are exotic – bird of paradise (*Strelitzia reginae*) from South Africa, heliconias from tropical America, and a Norfolk Island pine from off the coast of Australia. The Botanic Garden hosts several temporary exhibits each year to illuminate the history of plant discoveries and to show how exploration continues today, both in the field and in the lab. This display focused on succulent plants of southern Africa, particularly aloes.

![The current display in the Plant Exploration House focuses on plants from South Africa, including many aloes – with some made from beads and wire as traditional South African art (RC).](image)
The **Orchid House** evokes a tropical paradise, with a boardwalk leading through the misty air. The USBG’s collection has more than 5,000 species and hybrids, many of which are rare, endangered, and threatened specimens that have been deposited here through CITES, but only 200 plants are on display at any time. The plants are rotated in and out from the production facility so most are blooming while on display. Epiphytic orchids perch on the tree trunks and branches, while lithophytes are placed on the rock outcroppings that surround the walkway, and terrestrial species grow in the ground.

Up to 200 blooming orchids fill the steamy Orchid House.

The **Medicinal Plants House** shows a variety of herbs, flowers and ferns (but unfortunately doesn’t list the medical uses of most of the plants). There are more than 200 plants in this collection, which includes species and natural or cultivated varieties that are currently acknowledged to provide therapeutic value by research scientists as well as by healers from allopathic, homeopathic, herbal, ethnobotanical, and other widely accepted healing traditions.

A variety of plants with medical uses are displayed in the Medicinal Plants House, including *Aloe vera* (LC), *Madagascar periwinkle* (*Catharanthus roseus*, RC), and *passionflower* (R).

The **World Desert House** showcases cacti, succulents and other plants from arid parts of Africa, Australia, North America, and South America, including a ferocious blue cycad (*Encephalartos horridus*) that may have been collected on the Wilkes expedition. It is about the right size and possible age, but because early records are incomplete and inaccurate, it can’t be proven. The displays of specimens from both Old World and New World deserts demonstrate how desert plants have evolved similar adaptations to cope with harsh environments despite evolving independently in different parts of the world. Some examples of this convergent evolution include development of a thick, waxy stem for water stor-
age as *Adenia glauca* from South Africa and elephant foot tree (*Nolina recurvata*) from the American Southwest have, or the harsh spines for protection of *Didierea madagascariensis* from Madagascar and the saguaro cactus (*Carnegiea gigantea*) from Arizona, US. Some of the larger specimens in this house include *Cereus hildmannianus*, a tall night-blooming cactus from South America, Texas prickly pear (*Opuntia engelmannii* var. *lindheimeri*), the green-trunked blue palo verde (*Parkinsonia floridana*), the shrubby Baja fairyduster (*Calliandra californica*) with its showy magenta flowers, and the spiky giant aloe (*Aloe mutabilis*).

Plants from arid climates are displayed in the World Deserts House.

The **Southeast Corner House** was designed as a transitional space to host a series of exhibits highlighting fragile ecosystems. The former Oasis display featured an oasis with papyrus in the shallow pool surrounded by lush vegetation, including fig trees and cotton palms (*Washingtonia filifera*), native to oases in the deserts of the southwest US and Mexico (and named in honor of America’s first President). Now the Hawaiian section, there is a collection of rare and endangered native Hawaiian plants acquired in 2003. Silverswords (*Argyroxiphium sandwicense*), the unusual endemic succulent *Brighamia insignis*, and others are displayed around a waterfall cascading over the low rock cliff into a pool below.

Threatened and common plants of Hawaii are presented in the Southeast Corner House, including *Brighamia insignis* (R).
The **Garden Primeval** exhibits an ancient forest as it might have appeared about 150 million years ago, in the mid-Jurassic period of the Mesozoic Era. Primitive seedless plants that require moist and humid conditions are displayed here, along with wind-pollinated gymnosperms, cone-bearing woody shrubs and trees that were beginning to become dominant at that time. Giant tree ferns line the serpentine path and surround the pool with its floating ferns. Club mosses, whisk ferns, and horsetails, represented in the display by the scouring rush (*Equisetum hyemale*) from North America, mingle with cycads, conifers such as Norfolk Island pine (*Araucaria heterophylla*), and a male ginkgo (*Ginkgo biloba*), another ancient tree.

Go back in time in the Garden Primeval, featuring ancient spore-bearing plants and gymnosperms that dominated the world during the time of the dinosaurs.

The **Plant Adaptations** space has changing exhibits that show the different ways plants adapt in order to survive in their environments. One section focuses on nitrogen fixers, another symbiosis between insects and their host plants, including several different types of ant plants.

The Plant Adaptations corner illustrates the many ways plants have evolved, including several types of ant plants (C) and bullhorn acacia (R) which also has a mutualistic association with ants.

The east courtyard contains the **Children’s Garden** which features many elements to encourage interaction with plants and the natural environment. Temperate annuals and other things that kids can touch

Kids of all ages can explore plants and nature in the Childrens Garden in one of the two conservatory courtyards.
and feel and learn about invite exploration. The central fountain has a hand pump to fill watering cans, a tunnel of vines is a place to run through, and small garden boxes are available for digging, planting or harvesting.

The **Meditation Garden** fills the other of the two courtyards with plants from the Southeast and Southwest US. These plants are marginally hardy in Washington, D.C., but are able survive here because of microclimate created by the southern exposure and the protection of the surrounding walls. A meandering stone path goes past a pond surrounded by boulders, with plants that like wet soils, including a loblolly bay (*Gordonia lasianthus*), native of swamps and moist areas of the southeastern US, and a needle palm (*Rhapidophyllum hystrix*, rare in its native southern habitat, but thriving as a landscape plant from the Gulf Coast to the Atlantic coast of South Carolina. Pitcher plants (*Sarracenia* spp.) and venus fly trap (*Dionaea muscipula*) are kept in pots so they remain very wet. Drought resistant plants are placed around the perimeter of the courtyard, with a desert willow (*Chilopsis linearis* ssp. *linearis*), native to desert washes of the Southwest, and a mescal bean (*Sophora secundiflora*), also known as the Texas mountain laurel, anchoring this part of the landscape which includes several species of *Nolina*. The tall blue beargrass tree (*Nolina nelsoni*) from the mountains of Mexico has spiky upright leaves rather than the grass-like leaves of the other *Nolina* species. Most *Nolina* species are from the Southwest, but all three species from the Southeast are included here, too.

**The National Garden**

This facility on 3 acres directly west of the conservatory (one of the last vacant spaces on the National Mall) opened in 2006 after five years of construction. It is designed to provide “living laboratories” for environmental, horticultural, and botanical education in a contemplative setting showcasing the natural beauty of North American flora. A landscaped path winds through the major features: the Rose Garden, the Butterfly Garden, the Lawn Terrace, the First Ladies’ Water Garden, the Regional Garden, and an outdoor amphitheater.

The National Garden, a new facility on 3 acres adjacent to the Conservatory, is filled with plants.
The Margaret Hagedorn Rose Garden is designed as an outdoor garden room featuring more than 250 types of roses (the national flower). All eight classes of roses grown today are represented, to show the breadth of rose diversity as well as specific cultivars that grow well in the Mid-Atlantic Region.

The national flower blooms in the National Garden's Rose Garden.

The Butterfly Garden (funded by the National Garden Club) demonstrates the array of nectar plants that can attract pollinators. It includes many regional plants in a variety of heights and growing habits that bloom from spring through fall.

The First Lady’s Water Garden has an elegant pool and fountain in an intricate pattern of American granite and bluestone inspired by the Colonial–era quilt pattern known as “Martha Washington.” This garden focuses on the central role that water plays in the well-being of plants, animals, and people, as well as serving to recognize the notable service of the First Ladies to our country.

The fountain in the First Lady’s Water Garden is designed in a quilt-like pattern. The area showcases the role of water in life.

The Regional Garden showcases unusual, useful, and ornamental plants native to the mid-Atlantic region arranged in naturalistic settings along a stream. There is great diversity in this region because of numerous intergrading habitats and its “crossroads” location between the colder Northeast and warmer Southeast, and between the moderated coastal climate of the east and the colder continental climate to

A stream meanders through the Regional Garden, with a boardwalk (LC) traversing the water.
the west. This garden features hundreds of species and varieties of plants from the coastal plains and piedmont regions from New Jersey to North Carolina.

**Frédéric Auguste Bartholdi Park**
The Park, south of the conservatory across Independence Avenue, was created in 1932. It is named for the 30ft-high, classical cast-iron fountain in the garden’s center designed in 1876 by the French sculptor Frédéric Bartholdi (who also designed the Statue of Liberty). The beds in the 2-acre park were geometrically arranged and planted in formal classical style to feature the fountain and to accommodate public gatherings. This garden also displays a variety of small demonstration gardens of various types, to provide inspiration and ideas for home gardeners.

The 1876 fountain (RC) is the focal point of Bartholdi Park, across the street from the Conservatory.

Annual and perennial flowers in innovative combinations bloom among ornamental grasses, shrubs and trees, with secluded benches placed throughout and tables under umbrellas surrounding the fountain during the warmer months, many with views of the crystal roof of the Conservatory, the Capitol dome, or even the Washington Monument. The plantings are periodically updated to showcase new varieties, design trends and garden maintenance methods.

The Park offers landscaping ideas for homeowners, as well as tables to enjoy the fountain and its surroundings.

Benches and other spots to sit encourage lingering in the Park.

The largest theme garden, the Heritage Garden, uses native North America species and is certified as a National Wildlife Federation Backyard Wildlife Habitat. The Park also houses the main administrative building for the USBG. A Chinese jujube tree (*Zizyphus jujuba*, used for medicinal purposes in the Far
East) brought back by the Wilkes expedition in 1942 grows near the building.

Next to the park administration building (L), a jujube tree (LC) brought back on the Wilkes Expedition offers a treat for the local residents (RC and R).

The USBG complex is located between First Street and Third Streets SW and along the north and south sides of Independence Avenue. The Conservatory’s main entrance is located at 100 Maryland Avenue SW. There are daily plant and flower shows, including an orchid display January through April, a summer terrace show featuring sustainability mid-May through September, and an annual holiday exhibition with dazzling poinsettias. The National Garden is adjacent to the Conservatory, with entrances from Independence Avenue, from Maryland Avenue (at 3rd Street), and from the Conservatory Terrace. The USGB is open every day of the year, including weekends and holidays, and admission is free. The Conservatory is open from 10:00 a.m. to 5:00 p.m. daily (free 45-minute highlight tours of the Conservatory are sometimes available), while the National Garden is open from 10:00 a.m. to 7:00 p.m. daily. Bartholdi Park, located across Independence Avenue from the Conservatory, with access from any of the three bordering streets (Independence Avenue, Washington Avenue, or First Street) is open from dawn to dusk.

Parking is extremely limited, so the easiest way to get to the USBG is by taking the Metro. Exit at the Federal Center SW station (Orange or Blue line) and walk north (left) along Third Street for two blocks, cross Independence Avenue and continue one more block to Maryland Avenue. Look toward the Capitol and you will see the glass dome of the Conservatory.

– Susan Mahr, University of Wisconsin

Additional Information:
- US Botanic Garden – the official website at www.usbg.gov/
- A Botanic Garden for the Nation – to purchase a printed copy or download the pdf version at www.usbg.gov/history/A-Botanic-Garden-for-the-Nation-The-United-States-Botanic-Garden.cfm