For Immediate Release
March 23, 2005

State-of-the-art Nolen Greenhouses for Living Collections To Open May 14 at The New York Botanical Garden

Nearly an acre under glass, the Nolen Greenhouses are the most sophisticated behind-the-scenes greenhouses at any botanical garden in the United States. The 43,000-square-foot facility was designed by Mitchell/Giurgola Architects and opens on May 14, 2005. It provides much-needed growing capacity and an efficient staging area for hundreds of thousands of plants—from alpines to desert plants, aquatics to tropical rain forest trees, temperate perennials to annual bedding plants and bulbs, and orchids to ferns.

"The Nolen Greenhouses for Living Collections are a vital asset to this premier museum of plants," says Kim Tripp, Ph.D., Director of The New York Botanical Garden and the leader of the Nolen Greenhouses project. "They are critical to accommodate our growing programs in horticulture, science, and education. And they are essential to support the extraordinary diversity of plants grown at the Botanical Garden for the Conservatory and for all of the gardens, grounds, and collections."

The aesthetically striking facility is a fitting counterpart to the Botanical Garden's Victorian landmark display glasshouse, the Enid A. Haupt Conservatory. The Nolen Greenhouses will enable the Botanical Garden to develop its living collections, propagate plants for exhibition, and grow plants under specialized conditions for study, research, and conservation. "Our goal is to grow the perfect plant under the perfect conditions," says Bruce Blevins, Propagation and Growing Systems Specialist and the horticulturist on the design team for the Nolen Greenhouses. "This new facility is a tremendous leap forward."

Since mid-February 2005, plants have been moving from the Botanical Garden's former propagation range into the Nolen Greenhouses. Already thousands of annuals, perennials, shrubs, and bulbs are being grown and primed for peak display during the upcoming *Spring Flower Show* in the Conservatory.

The opening of the Nolen Greenhouses marks a major milestone in the Botanical Garden's "Campaign for a New Era," a seven-year strategic program of capital construction and program development. Spearheaded by President Gregory Long, this and the preceding seven-year campaign have sparked a transformative renaissance at the Botanical Garden, revitalizing both facilities and programs across the institution.

Architectural and Technological Sophistication

The Nolen Greenhouses are a handsome structure forming a network of eight growing zones in two sleek and linear glass buildings. They are a dramatic contrast to the more organic design of the Haupt Conservatory, with domes patterned after the veining of the lily pads of the giant Amazonian waterlily, *Victoria amazonica*.

In addition to the growing zones (36,000 square feet under glass), the complex includes an indoor horticultural work area (traditionally called a "head-house"), a computer and electrical systems management area, and two outdoor growing spaces: one featuring a retractable shade curtain system and the other a high-tech drip-irrigation system for container-grown production of 8,000 -10,000 plants.

- more -

The Nolen Greenhouses combine state-of-the-art technology from European commercial growers with customized adaptations to meet complex growing requirements. The eight growing zones are specific to the Botanical Garden's collections, matching the temperate conditions outdoors and the varied tropical biomes in the Conservatory. The growing zones are grouped into two blocks. The north block includes the Bourke-Sullivan Display House, alpine and other rare plant propagation facilities, and arid (or desert) collections. The south block includes orchids, tropicals, aquatics, cloud forest collections, and related plants.

The Nolen Greenhouses feature innovative open-roof ventilation, the latest in environmental controls, and efficient irrigation and fertilization systems. Operating systems include automatic shade curtains; cooling and humidity regulated by evaporative pads and fans; massive concrete knee walls and floors imbedded with a radiant heat system that supplies more than half of the buildings' heat requirements and highly efficient, timer-controlled drip-irrigation systems that dramatically reduce water consumption. A centralized 21st-century computer system monitors and controls climatic conditions across all zones.

Climate controls are engineered for maximum efficiency in both operation and maintenance, and make it possible to grow plants "against the season" by making the climate warmer and brighter in the winter and cooler and shadier in the summer, as necessary. They make it possible to accelerate plant growth or to slow it down (which can be just as crucial to producing high quality plants). There are many devices for cooling the greenhouses in a precise and efficient manner. The pad-and-fan system, for example, is an active cooling system that allows for six different stages of cooling in the few situations where roof ventilation cannot achieve sufficient passive cooling.

A centralized computer network monitors and manages all the climate controls (shade, humidity, heat retention, ventilation, and temperature). A multi-functional weather station detects rain and monitors outside temperature, humidity, wind direction, wind speed, and sunlight intensity. These measurements provide the computers with the critical data from which to regulate the desired conditions in each interior zone.

The Nolen Greenhouses were designed by architects Jan Keane and James Braddock of Mitchell/Giurgola Architects, LLP. This is the firm's fourth greenhouse assignment and posed complex design, siting, and operational challenges. The Nolen Greenhouses were designed around the special needs posed by growing and maintaining plant collections and by the rigorous requirements of producing such a vast array of plants. This work had been taking place in the former propagation range, which had deteriorated badly over time.

Architect James Braddock considers the operable roof "the predominant unique feature" of the building. Each unit's glass roof can be opened when the weather is good, facilitating "hardening off" of plants without the need to move them outdoors. The roofs open to the sky, perpendicular to the ground, creating thermal air flows as found in nature and presenting a majestic cathedral-like profile.

The technology for operable roofs was pioneered by Van Wingerden, the manufacturer of the greenhouses. The landscape was designed by Shavaun Towers of Towers/Golde. More details about the project team are available on the Nolen Greenhouses architectural fact sheet.

The Nolen Greenhouses are a key element in revitalizing the 45-acre southeast quadrant of the Botanical Garden. The most recent addition was the restored Benenson Ornamental Conifers, a 15-acre, 440-specimen collection that opened in October 2004. The quadrant also includes the landmark Snuff Mill, the award-winning Peggy Rockefeller Rose Garden, and the Dolores DeFina Hope Tree Peony Collection. Venerable oak trees and a maple collection grace the landscape next to the Nolen Greenhouses.

Nolen Greenhouses' Pivotal Role at the Botanical Garden

The Nolen Greenhouses are central and pivotal resources underpinning all the institution's activities. The New York Botanical Garden grows and cares for hundreds of thousands of plants each year for display in gardens and plant collections across 250 acres. Seasonal exhibitions often require upwards of 13,000 plants that must be grown from seeds or cuttings.

Plants at the Botanical Garden are grown for four purposes:

- Display and exhibitions (both outdoors and inside the Conservatory)
- Permanent living collections (for reference and historic preservation)
- Conservation (for conservation research and re-introduction)
- Scientific research (to observe plant growth and development and to obtain genetic material)

The nation's preeminent Victorian glasshouse, the Enid A. Haupt Conservatory, home to *A World of Plants*, showcases the wonders, diversity, and uses of plants as well as the work of the Botanical Garden's scientists. The Conservatory offers an ecotour of plants and biomes of the world, including palms of the Americas, tropical rain forests, the deserts of the Americas and Africa, aquatic plants, and special collections including carnivorous and hanging plants. The Nolen Greenhouses provide the wide range of growing and curatorial environments necessary to propagate and grow the plants displayed in the Conservatory.

Outdoor horticultural attractions include the Rose Garden, the Rock Garden, and the Jane Watson Irwin Perennial Garden, and superb collections of daylilies, orchids, hardy ferns, cherry and other flowering trees, and conifers. The Nolen Greenhouses provide plants for display in these and the rest of the 48 gardens and plant collections.

The Nolen Greenhouses also provide plants for major flower shows and exhibitions in the Conservatory. The annual *Holiday Train Show* has become a New York City tradition. It's followed by the popular *Orchid Show* in March, spring flower shows from April through June, and *Victorian Ornamentals* and *Waterlilies and Lotus* in summer.

The Nolen Greenhouses also support the New York Botanical Garden's research programs, which depend in many ways on access to living collections. In one of the most extensive field research programs of any botanical garden in the world, researchers have conducted pioneering plant expeditions around the world for well over a century. Often they return with living specimens or seeds for cultivation and further study. The new facility allows scientists to grow rare and often inaccessible plants in a secure, accessible, and controlled environment, and to observe them throughout their life cycle.

In the Nolen Greenhouses, rare and endangered plants from North America*, South America (rain forests), Asia (various), and Africa (S. Africa and other regions, e.g. Namibian *Welwitschia*) will be propagated and maintained for safe-keeping, study, and potential re-introduction. The Botanical Garden is one of the USDA "safe-sites" for repository of rare plants seized at shipping points (airports and harbors) following attempted illegal importation. These plants (e.g., orchids, cycads, ferns) are grown here until they may be repatriated or used for study by USDA affiliates.

*The New York Botanical Garden is a participating member of the National Center for Plant Conservation, contributing to the *ex-situ* conservation of endangered eastern North American plants.

Primrose Palette Exhibit Inaugurates Bourke-Sullivan Display House

Although most of the Nolen Greenhouses will be closed to the public, one unit, the Bourke-Sullivan Display House, will be open to the public to showcase special plants and offer visitors the chance to learn the techniques of the Botanical Garden's professional horticulturists. The first display is *Primrose Palette,* an exhibit of 10 to 12 species of primroses, featuring auriculas. Auriculas are classic Victorian glasshouse plants that can be raised successfully in our climate only in environmentally controlled glasshouses. Primroses have a wide color range and an addictive charm due to their form, bright colors and patterns, and simple beauty. Their typical flowering time is May, a key factor in choosing primroses for this first exhibit, which will be open from May 14 through June 12.

The Bourke-Sullivan Display House, a more intimate setting than the larger galleries in the Conservatory, is appropriately scaled to display ephemeral and delicate primroses. The primroses will be accompanied by other classic Victorian flowers and plants, including fuchsias, tender roses, gardenias, and large fern baskets.

Primrose Palette will be followed by other exhibits in the Bourke-Sullivan Display House, timed to the plants' natural growth and flowering cycles.

About the Sponsors

The Nolen Greenhouses for Living Collections have been made possible by leadership gifts from Mr. and Mrs. Wilson Nolen and Eleanor F. Sullivan, and by capital support from the Mayor of New York City and the City's Department of Cultural Affairs, and from the City Council.

A substantial campaign gift from Eleanor F. Sullivan, a longtime member of The New York Botanical Garden's Board and its Horticulture Committee, has made creation of Bourke-Sullivan Display House possible. The first exhibit in the Bourke-Sullivan Display House, *Primrose Palette,* was made possible by generous support from Mr. and Mrs. Wilson Nolen and Eleanor F. Sullivan, and additional support in memory of Dorothy F. Thorne.

###

The New York Botanical Garden is a museum of plants located at Bronx River Parkway (Exit 7W) and Fordham Road in the Bronx. The Botanical Garden is open year-round, Tuesday through Sunday and on Monday holidays, from 10 a.m.–6p.m. April through October, and 10 a.m.–5 p.m. November through March. The best way to enjoy the Botanical Garden is with the *Combination Ticket* that includes grounds admission, the Conservatory, Tram Tour, and Everett Children's Adventure Garden, and costs $13 for adults, $11 for students and seniors, $5 for children 2–12. For information call 718.817.8700 or visit our Web site at www.nybg.org.

Contact: George Shakespear or Maria Izquierdo 718.817.8616