

# ITALY

## Botanical Garden (Orto Botanico), Padua

### Brief description

The world's first botanical garden was created in Padua in 1545. It still preserves its original layout – a circular central plot, symbolizing the world, surrounded by a ring of water. Other elements were added later, some architectural (ornamental entrances and balustrades) and some practical (pumping installations and greenhouses). It continues to serve its original purpose as a centre for scientific research.

### 1. Introduction

**Year(s) of Inscription** 1997

#### Agency responsible for site management

- University Centre “Orto Botanico dell’Universita” of Padua  
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### 2. Statement of Significance

**Inscription Criteria** C (ii), (iii)

#### Justification provided by the State Party

(i) As the above four points make clear, the *Orto Botanico* is composed of many elements of a very high cultural level, each of which, not only scientifically, is highly considered by those who know the World Heritage List.

(ii) Of similar age, but less well documented, are the Botanical Gardens of Pisa and Florence. All the other Botanical Gardens have made reference to them and to that of Padova in particular due to its really exceptional architecture. Thanks to the existence of the *Orto Botanico*, already in the first half of the 18th century, the Veneto was the first to set up nursery-gardening and to record its history (Farsetti garden at Santa Maria di Sala, province of Venice).

(iii) Following the discovery of some 13th-century documents, perhaps only the *Scuola Medica* of

Salerno with its *Hortus sanitatis* by Matteo Silvatico can boast of possessing an *Orto Botanico* older than that of Padova. However, only the boundary and position of that garden are now known; in fact later works have destroyed its three essential functions of teaching, experimentation, and collection.

#### As provided in ICOMOS evaluation

**Qualities:** The Botanical Garden of Padua is the oldest surviving example of this type of cultural property anywhere in the world, exceptional by virtue both of its high scientific value in terms of experimentation, education, and collection and of its layout and architecture. Its herbarium and library are among the most important in the world.

**Recommendation:** That this property be inscribed on the World Heritage List on the basis of *criteria (ii) and (iii)*:

The Botanical Garden of Padua is the original of all botanical gardens throughout the world, and represents the birth of science, of scientific exchanges, and understanding of the relationship between nature and culture. It has made a profound contribution to the development of many modern scientific disciplines, notably botany, medicine, chemistry, ecology, and pharmacy.

#### Committee Decision

**Bureau (June 1997):** The Bureau recommended the Committee to inscribe this site on the World Heritage List on the basis of cultural criteria (ii) and (iii). The Botanical Garden of Padua is the original of all botanical gardens throughout the world, and represents the birth of science, of scientific exchanges, and understanding of the relationship between nature and culture. It has made a profound contribution to the development of many modern scientific disciplines, notably botany, medicine, chemistry, ecology, and pharmacy. The Bureau requested the State Party to provide complementary information on financing and management of the site.

**Session (1997):** The Committee decided to inscribe this property on the basis of criteria (ii) and (iii), considering that the Botanical Garden of Padua is the original of all botanical gardens throughout the world, and represents the birth of science, of scientific exchanges, and understanding of the relationship between nature and culture. It has made a profound contribution to the development of many modern scientific disciplines, notably botany, medicine, chemistry, ecology, and pharmacy.

- Statement of significance adequately defines the outstanding universal value of the site
- Proposal for text has been made by State Party for the UNESCO's official description of the site: The first botanical garden in the world was created in Padua in 1545. It still preserves its original layout—a circular central plot, symbolic of the world, surrounded by a ring of water. Subsequently additional elements have been included, both architectural (ornamental entrances and balustrades) and practical (pumping installations and greenhouses). It continues to serve its original purpose as a source of education and scientific research, always updating its activities in line with the scientific progress of the botanical disciplines

### Boundaries and Buffer Zone

- Status of boundaries of the site: adequate
- Buffer zone: adequate; At the time of the works to prepare the site management plan, it emerged that the extension of the "Protection Area of the Botanical Garden" mentioned in the Padua Local Authority's General Urban Development Plan was smaller than the protection zone identified by the ICOMOS. Hence the design of a variant to the Padua Local Authority's General Urban Development Plan, which redefines the perimeter of the Protection Area of the Botanical Garden so as to make it coincide with the protection zone identified by the ICOMOS
- Change to buffer zone proposed by State Party

### Status of Authenticity/Integrity

- World Heritage site values have been maintained
- In theory, the changes that run the risk of influencing the future authenticity and integrity of the site could be of two kinds: a) functional changes, such as the loss of its original function as a place intended mainly for the purposes of research and university teaching in the botanical disciplines; b) territorial changes, deriving from alterations to the original boundaries of the site. The University of Padua has paid the utmost attention to both of these issues

## 3. Protection

### Legislative and Administrative Arrangement

- The Padua Local Authority's Urban Development Plan defines the "Protection Area of the Botanical Garden" all around the site. Within this Protection Area, the following are

permitted: a) restoration measures on the historical sites or morphological and environmental reconstruction of the same; b) morphological reconstruction measures based on Recovery Plans, but the buildings must be reconstructed further away from the boundaries of the Botanical Garden. The following are not permitted: a) conversions of the outdoor areas unless they involve the restoration of historical sites or the reintegration of the vegetation and environmental system; b) underground excavations to build garages, car parks or service rooms within a band up to 40 m away from the boundary. The Partial Variant to the Urban Development Plan – Historical Center Areas provides specifications, which apply to the contiguous area along the south boundary of the site. The Botanical Garden comes under the Territorial Coordination Plan of the Provincial Authority and under the Territorial Coordination Plan of the Regional Authority, in which the "System of Monumental Gardens" and the system of "Parks and Gardens of Historical-Architectural Interest", respectively, are provided. The Legislative Decree N. 42/2004 of Ministry for the Cultural Heritage and Activities specifies the protection of villas, parks and gardens of artistic and historical interest

- The protection arrangements are considered sufficiently effective

Actions taken/proposed:

- Redefinition of the Protection Area of the Botanical Garden

## 4. Management

### Use of site/property

- Visitor attraction; Site of university teaching activities; school teaching activities; scientific activities in the fields of botany and pharmaceutical botany, paying particular attention to the conservation ex situ of rare and threatened species (Seed Bank); experimentation on the acclimatization of exotic plants; cultivation of plants for use in experiments by university lecturers and researchers in botanical disciplines: exchange of seeds and scientific material with other botanical gardens around the world.

### Management /Administrative Body

- Steering group
- Levels of public authority who are primarily involved with the management of the site: local; University of Padua

- The current management system is sufficiently effective

### 5. Management Plan

- Management plan under preparation
- Implementation commence: 12/2007
- Responsibility for over-seeing the implementation of the management plan and monitoring its effectiveness: as part of the preparation of the Management Plan, the idea is to create a "Control Team" including members of all the organizations involved in order to supervise the implementation of the Management Plan and monitor its efficacy

### 6. Financial Resources

#### Financial situation

- State Budget
- University of Padua
- Ministry for the University and Scientific and Technological Research
- Cariparo Foundation; Wiegand Foundation; Cariplo Foundation
- Sufficient

### 7. Staffing Levels

- Number of staff: 17
- There is a technical staff specialized in the maintenance and management of living collections, the operation of the modern irrigation system, climate control in the greenhouses, and the management of the Seed Bank
- The technical personnel of the garden is barely sufficient to guarantee the survival of the existing living collections.
- There is a complete lack of "educational staff" capable of assuring a specific teaching program for the different types of visitor and suitably differentiated according to the time of year
- Lack of permanent staff to run the Visitors Centre

Rate of access to adequate professional staff across the following disciplines:

- Very good: conservation; interpretation; education
- Good: promotion; visitor management
- Average: management

### 8. Sources of Expertise and Training in Conservation and Management Techniques

- Scientific institutions
- For the gardening staff, refresher courses are provided. Training from participation at international conferences and congresses organized by Botanical Garden Conservation International and at Congresses of the European Botanical Gardens. For the administrative and technical staff, the University of Padua provides training courses on computer literacy, administrative management, English language
- Training needs: Access to the English language courses organized by the University is too limited. The continuing professional education of the technical staff through experience gained at other foreign botanical gardens is limited both by inadequate resources dedicated to this item in the budgeting process and by administrative constraints on expenses allowable for missions abroad
- Training available to stakeholders

### 9. Visitor Management

- Visitor statistics: 37.440 (number of tickets issued and free visits registered), 2004
- Visitor facilities: Visitors Centre with explanatory panels in two languages, multimedia stations, audiovisuals; guide brochure of the Garden in 4 languages; book-shop (in preparation) at the Visitors Centre. Services for the Blind and Poor-sighted: route with collections of plants arranged on raised platforms accompanied by panels written with special characters for visitors with poor eyesight, and in Braille for the blind; panels written in special characters and Braille on the collections of exotic plants and on the collections of poisonous plants. Services for visitors with Motor Disabilities are also available: wheelchairs suitable for moving around the Garden. The creation of a museum about the site, would be highly desirable. The guidelines for managing the European Historical Botanical Gardens (Edinburgh Charter, 1997) call for the creation of a museum to document the history and evolution of the garden over the centuries
- Visitor needs: a larger and more rationally organized book shop; a coffee shop; multifunctional rooms for conferences and/or practical demonstrations; spaces for temporary exhibitions on specific topics; a permanent

exhibition on the history and evolution of the Garden over the centuries

### 10. Scientific Studies

- Studies related to the value of the site; Monitoring exercises; Condition surveys; Archaeological surveys; Botanical, ecological, phytopathological studies, site environment monitoring and awareness promotion
- The numerous studies on the site can be divided according to the following different topics: historical studies; historical-architectural studies; historical-artistic studies; botanical studies; ecological, pedagogical and agronomic studies; methodological studies on the education activities; activities to promote awareness of the historical and cultural significance of the site. Information system using a geo-referenced technology. Guidebooks

### 11. Education, Information and Awareness Building

- An adequate number of signs referring to World Heritage site
- World Heritage Convention Emblem used on some publications
- Adequate awareness of World Heritage among: local authorities
- Need for awareness raising: further improvement in the awareness of the student population; further improvement in the awareness of teachers accompanying school groups; dissemination of information through various communication media
- Education strategy/programme: due to the lack of dedicated personnel, is adopted the strategy of providing training courses for teachers from all kinds of schools to enable them to provide guided tours for their own classes. Since 2005, there have been graduate volunteer available for work in lieu of military service, who have been trained to conduct guided tours for visitors on particular topics
- Heritage days; arrangements are being made for an exhibition about the Botanical Garden at the History of the Architecture of Gardens Museum in Düsseldorf (Germany)
- Web site available; [www.ortobotanico.unipd.it](http://www.ortobotanico.unipd.it)
- Local participation: in progress

### 12. Factors affecting the Property (State of Conservation)

#### Reactive monitoring reports

- N/A

#### Conservation interventions

Conservative measures for the architectural structures: repair and conservative restoration of the natural stone tanks and fountains, architectural elements adding to the prestige of the Garden; restoration of the wrought iron fences and gates of 18th century; restoration of the greenhouses; restoration of the stonework; repair of portions of the masonry in the circular boundary wall.

Conservative and restoration measures on the collections of plants, involving: measures to ensure the safety of the trees; phytosanitary measures to contain root rot. Eliminating risks: uncontrolled fluctuations in the water table; diffusion of root rot. Requalification and sustainable use of historical buildings

- Present state of conservation: Good

#### Threats and Risks to site

- Development pressure; environmental pressure; natural disasters; visitor/tourism pressure; a drop in the level of the water table as a result of pumping for the construction of underground garages in the adjacent area
- Specific issues: micro-environmental changes due to building in the areas on its boundaries; potential diffusion of root rot due to the fungus *Armillaria* sp; damage due to the roots of the trees near the surface and to the lawns on the edges of the footpaths due to the pressure of the flow of visitors

#### Emergency measures taken

- Monitoring of the micro-environmental conditions and automated systems for compensating any unbalance
- Purchase of part of the area on the southern boundary of the Garden
- Control of root rots diffusion
- Regulation of visits by school groups
- Promoting individual visits

### 13. Monitoring

- Formal monitoring programme
- One of the most severe risks for the living heritage of the Garden is represented by the micro-environmental changes induced by urbanization, particularly by any unbalances in the soil's hydration. To prevent this risk, a

system has been in place for continuously monitoring the situation, recording soil hydration and the level of the water table in several places in the Garden. This system is connected to a new, advanced automated irrigation system, so that the situation of the water supply can be adjusted in real time, as necessary. Diffusion of root rot due to the fungus *Armillaria* sp. This is monitored by keeping a check on the appearance of the carpophores and by means of phytopathological surveys to ascertain the presence of the fungus in the vicinity of the roots of the trees of historical interest. Damage caused by the trampling of the numerous visitors, especially when in groups is monitored using two indicators: the extension in length of damage to the lawns along the sides of the footpaths that has to be restored each year; the average width of the damaged area.

teaching activities as well as conservation and restoration measures.

**Future actions:**

- Extension of the protection area; organisation responsible: Municipality of Padua; timeframe: 2006
- Development of the Garden staff; organisation responsible: University of Padua; timeframe: 2005
- Fund raising for conservation and restoration. Organisation responsible: Cariparo Foundation; timeframe: 2007. This action requires International assistance from the World Heritage Fund. Nature of request: co-operation and suggestions in order to find sponsors to restoration projects. The request will be filled: 01/2007

#### **14. Conclusions and Recommended Actions**

- Main benefits of WH status: conservation; economic; greater attention in the site and its problems paid by the local, regional and national authorities; greater interest at national and international level, demonstrated also by the continuous applications for stages at the Garden from university students from Italy and abroad
- Strengths/Weaknesses of management: the fact that it is surrounded by the town, with a negative fallout in terms of both the scenery and the micro-environment; insufficient protection of the site on the eastern side due to the uninterrupted building up against boundaries; insufficient scenic and environmental protection on the side along the southern boundary, since only a part of this area has been destined for the protection and development of the Garden; insufficient (and sometimes completely lacking) permanent technical personnel with the following capabilities and responsibilities: specialist gardeners for taking care of the living collections; technical and administrative personnel; graduate personnel for research activities and for scientific activities relating to the management of the seed bank; personnel responsible for international exchanges and public relations; educational staff; marketing staff; shortage of an adequate budget to enable the programming of any proper scientific and