Interreg CENTRAL EUROPE
European Union
European Regional Development Fund

HICAPS

WP-T2

TOOL DEVELOPMENT AND CONSENSUS BUILDING

D.T2.2.2 Report on plant diversity and their value

Version 1.0

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History of the document

Version	Status	Date	Changes	Comment
0.1	First draft	15 March 2018		
1.0	Final	31 March 2018		

1. Introduction

This document will present an overview of the parks involved in the HICAPS project from the point of view of their plant component, showing a series of in-depth analyzes investigating the characteristics of the green heritage, its value and its specific function. Following the suggestion of the Fondazione Villa Ghigi, coordinator of the workpackage T2, the partners have agreed a common framework for the collection of information in the form of a questionnaire, presented in Annex A. The individual works produced by the partners, also presented in Annex A, highlight the plant component of each park and the aspects related to it in relation to the following themes:

- the presence of secular and monumental ornamental trees, isolated or in rows, belonging both to exotic ornamental species and to native species, and the dendrometric characteristics of the most valuable specimens, with a deepening linked to any trees that testify to certain phases, or moments, of the history of the park;
- the conservation state of the green areas, especially of monumental trees, and any critical issues related to tree species, in relation to the changed climatic conditions of the last decades;
- a description of the environmental context in which the parks are inserted, and the relationships among landscape, flora and fauna presences, with an in-depth analysis of any harmful animal species that can damage and condition the management of the park;
- the presence in the parks or close to it of courses and ponds of natural and artificial origin, and their landscape and environmental implications (typical vegetation and fauna);
- the presence in the parks of a rural plant component, linked to the previous productive and utilitarian use of parks;
- the existence of traditions and culinary curiosities related to the arboreal, shrub and herbaceous species present in the parks or in the immediate surroundings and any customs still alive;
- the existence of medical and therapeutic traditions and curiosities related to the arboreal, shrub and herbaceous species present in the parks or in the immediate surroundings and any customs still alive;
- the management aspects of the green areas in terms of the type of interventions carried out, existence of management plans, subjects involved in the maintenance (also environmentalist or voluntary associations), existence of good management promoting biodiversity.

In the following pages, a summary sheet is presented for each park, offering a comparative picture of the different issues taken into consideration. In particular, the analysis was performed in the following areas:

- Park of the Castle of Gornja, Bedekovčina (Croatia)
- Walk Lane of Josip Juraj Strossmayer, Varaždin (Croatia)
- Linear Park of the Este Walls , Ferrara, Emilia-Romagna Region (Italy)
- Villa Ghigi Park, Bologna, Emilia-Romagna Region (Italy)
- Wieniec Park, Kujawsko-Pomorskie Voivodeship (Poland)
- Łańcut Park, Rzeszów (Poland)
- Historical Castle Park, Ptuj (Slovenia)
- Historical Castle Park, Velenje (Slovenia)

2. Role and significance of green areas in historical parks

The plant component is the main structural and identifying element of every green area, whether it is a park, a garden or another space. The plant material is a fragile and delicate component, much more perishable than the architectural and furnishing elements. Trees, shrubs and herbaceous plants, in fact, are subject to their life cycles and to the natural processes that lead them to aging and death, with the consequent need for periodic renewal of plants. In the case of historical parks, the plant component takes on a very special role and meaning. This is because the green component can offer an unusual reading of their evolution over time, thanks to the composition and arrangement of trees, shrubs and flowering plants in characteristic designs and structures, traces of the plant kits of the past, to the present plants and in particular to the oldest and often age-old tree specimens that represent the added value of each historical park for the historical-testimonial role they play.

Therefore, the monumental trees of the HICAPS parks deserve special attention for their protection, preserve their presence for as long as possible and enhance their original and exclusive nature of witnesses of the history of the park. The analysis must be interpreted in this sense, highlighting how the parks preserve, in a different but always significant way, age-old and monumental tree species linked to certain historical phases or to specific individual episodes. Sometimes there are native trees belonging to species that recall the original plant landscapes of those territories: the oaks *(Quercus pubescens)* of the Park Villa Ghigi, the *oaks (Quercus petraea)* of the park of the castle of Bedekovčina, the oaks *(Quercus robur)* of the park of Varaždin, and again, the hundred years old hornbeams of the park of the castle of Łańcut, the ash and beech trees of the Turnišče Park of Ptuj, the various species of lime tree present in all the considered parks. More often, however, exotic tree species prevail, introduced in Europe in past centuries for their ornamental value and used to adorn the parks, highlight the social prestige of the owners, follow the fashion that brought in the old continent plants unusual from the newly discovered and colonized worlds. Among these, there are many widespread evergreen conifers such as *Thuja gigantea, T. occidentalis, Picea conica, P. pungens 'Glauca', Tsuga canadensis, Chamecyparis lawsoniana, Cephalotaxus drupacea, Calocedrus decurrens, Cedrus spp.,* able to create compact and spectacular compositions, or also striking conifers such as *Taxodium distichum,* a species native to the humid areas of North America that has been introduced in the park of Varaždin in memory of water once present in the moat of the ancient fort. Also spectacular are the plant architectures of ornamental species with deciduous leaves, among which plantain (worthy of note is the *Platanus hybrida* of the linear park of Ferrara), beech with red leaf *(Fagus sylvatica 'Purpurea'),* like the specimen that grows isolated in the Turnišče Park of Ptuj or the long boulevard in Łańcut park, and horse chestnut *(Aesculus hippocastanum),* whose spectacular blooms still underline today ancient avenues of access to historic houses.

The conservation and management of monumental trees, therefore, represents a strategic theme for the project, directly related to the substitution of trees that have reached the end of the life cycle or in any case going to be cut. The new plant introductions within a historical park, in fact, should take into account, as well as historical-landscape assessments, also environmental, agronomic and technical criteria. Next to the traditional ornamental specimens that can be re-proposed to preserve the historical green outfit, in certain situations it would be advisable also include some indigenous species that are able to adapt better to the environmental conditions of the area. At the same time, especially where the climate is undergoing significant changes towards warmer and drier conditions, as in Bologna and Ferrara, some Mediterranean species or from other geographical origins may also be considered. In this context, the new plant introductions could also include real "floristic novelties", that is to say unusual species and botanical curiosities that can underline the timeliness of the interventions and contribute to enrich the tree heritage and the biodiversity of the parks.

Another issue proposed by the analysis concerns the new role of historical parks, especially those located in

urban and peri-urban contexts. Besides their traditional ornamental and historical-landscape value, these parks are now able to perform an important ecological and environmental function, thanks to their vegetal masses that, in addition to the healthiness of the environment, also foster the protection and increase the plant and animal biodiversity. A notable example in this sense is the park of the Este walls of Ferrara, which has become a strategic element of the city's ecological network. It should be emphasized that, although to a different extent, the parks of the HICAPS partnerships today are surrounded by urban areas that has profoundly changed the original contexts, and their connections with the surrounding open areas of rural or natural origin are scarce or absent. In some cases, however, the lack of maintenance of some sectors is causing a gradual process of re-naturalization, with the appearance of new plant species and animals (sometimes even intrusive and harmful) and new environments, strangers to the original plant compositions, but certainly of great interest. This is the case, for example, of the parks of Varaždin, Ptuj, Velenje and Villa Ghigi, where more or less extensive plant formations have grown spontaneously in recent decades. In this framework, in those parks where the current re-naturalization processes do not compromise valuable plant pre-existing historical settings, it can be important follow this trend and welcome, next to the ornamental sectors, new green species able to integrate the overall design. This can be a motivated way to interpret and partly redesign the historical parks of the 21st century and to actualize some decisions and management actions, according to new models and perspectives (always keeping in mind the principles of conservation that must guide the protection of historical parks).

Closely related to this theme, then, are also the management aspects of historic parks, which today appears to be a priority to ensure their future. In the HICAPS parks, emerges the need to ensure their continuous care by qualified personnel, through maintenance interventions based on knowledge of the heritage and their state of preservation. Management plans must set clear objectives, shared and sustainable also from an economic point of view, projected in the medium-long term. Few parks are in this optimal condition and some even struggle to guarantee even the minimal interventions necessary for their conservation. It follows that the lack of economic resources and the inevitable reduction or absence of maintenance and care of the green, expressed by many partners, risk flattening and distorting the wealth and the past qualities of the places and obscuring their identity. Finding solutions to ensure adequate care of these green areas, starting from their plant heritage, and optimizing the resources available is certainly another major challenge expressed by the HICAPS project.

Finally, the function of the vegetable component of a historical park can today be interpreted also from a socio-educational point of view, considering the innate attraction and psychophysical well-being coming from contact with nature. A monumental tree at the entrance of a castle, like the old linden in the park of Velenje, looking as an ancient guardian, a centenary fruit tree, remembering the customs, traditions and knowledge of the past, like the old patriarchs of the Villa Ghigi Park, the centuries-old Ginkgo biloba of the Łańcut park, among the first examples of this exotic species introduced in Europe in the 18th century, represent fascinating and exciting experiences that offer the opportunity to tell more direct and engaging the history of a place, the tastes and fashions of the past, the botanical and stylistic choices changed over the centuries, the culture and the art of the gardens, the value and significance of the preservation of a historical place. Looking closely at plant architecture of the past can also represent an opportunity to reflect on current events and the environmental dynamics of our time, on the maintenance of a green area, on the concept of biodiversity, on indigenous and exotic plants, on the relationship between man and nature, on the importance of the care and good governance of one's own territory as well as of the entire planet. In this sense, the green heritage of historic parks in its multifaceted variety and diversity can be a valuable ally for engaging the visitors of these green areas through guided walks, cultural events or recreational moments (as long as they are not invasive and impactful). This is a concrete way to revitalize these places, encourage visits by citizens, families, students and tourists, and emphasize the public interest that the historic parks play. Today we are called to preserve and pass them on to future generations: these objectives are the basis of the HICAPS project.

2.1. Conclusive remarks

 **Lesson Learnt by the Partners**
Even before starting any promotional campaign, it is important to quantify the conservation state of the green areas, and the existence of critical issues related to tree species, in relation to changed climatic conditions.
The presence, within or close to the parks, of rivers and ponds of natural and artificial origin, has a high relevance in the definition of strategies to enhance the park and attract new visitors.
An effective management of the green areas not only depends on the type of interventions carried out, as well as on the promotion of biodiversity, but also rely on the active support of environmental and voluntary associations, and the active involvement of citizens.
A special care must be given to the plant components present in every green area, since it is a fragile and delicate component, more perishable than the architectural and furnishing components of the parks.
The plant component offers an unusual view of the evolution and history of the park, due to the different composition and arrangement of trees, shrubs and flowering plants, playing the role of historical-testimonial of the past of the city.

 **Recommendations to our Central Europe colleagues**
The presence of secular and monumental ornamental tree is a key element in the definition of a strategy to promote your local green areas. Even better if they belong to native species characteristics of your particular area.
When considering the environmental context in which the parks are inserted, analyse the presence of harmful animal species that can damage and condition the management of the park.
Highlight the presence of existing rural plant components and valorise the ancient and traditions culinary curiosities connected with the plant species present in the parks, as a key issue to involve the citizens and catalyse the interest of tourists.
Similarly, highlight the presence of medical and therapeutic traditions and curiosities connected with the plant species present in your park.
The introduction of new plants within a historical park must take into account both the previous landscape assessments and the environmental, agronomic and technical criteria.
When planning how to revitalise and enhance your historical park, do your best to rediscovered the past traditions and merge them with the actual priorities and interests.

Some typical plant species present in the HICAPS parks

	Bedekovčina,	Varaždin	Ferrara	Villa Ghigi	Kujawsko-Pomorskie	Rzeszów	Ptuj	Velenje
 *Aesculus hippocastanum*	X		X	X	X	X		X
 *Carpinus betulus*		X	X		X	X		X
 *Fagus Sylvatica*	X		X	X	X	X	X	X
 *Fraxinus spp.*	X		X	X	X	X	X	
 *Platanus hybrida*			X					X

	Bedekovčina,	Varaždin	Ferrara	Villa Ghigi	Kujawsko-Pomorskie	Rzeszów	Ptuj	Velenje
 *Quercus robur*	X	X		X	X			X
 *Taxodium distichum*		X						
 *Tilia cordata*	X	X	X	X	X	X	X	X
 *Ulmus minor*	X		X	X			X	

3. Croatia

3.1. Bedekovčina: Park surrounding the Castle of Upper Bedekovčina

Location and surroundings: The park is located on a hill near the village of Bedekovčina (8,000 inhabitants), in view of the Krapine valley, in a peri-urban environment in contact with the surrounding open environment. The park was built in the mid-eighteenth century as a green area of the castle-baroque residence of Bedekovčina. Currently the castle, well preserved and maintained, is home to a public structure that deals with problematic young women.

Surface: 6.5 ha.

Design, composition and state of conservation: Starting from a probable baroque plant in the park, a landscape style design was added in the nineteenth century, also including three lakes, of which today remains the smallest without water, together with an orangery still present with sectors cultivated with vegetables and flowers. At the end of the nineteenth century there were important changes in the park layout, including a new driveway with horse chestnuts to access the castle, still in use, and the construction of a pavilion, a bowling alley and a tennis court, no more present nowadays. Despite being protected since 1965, the park is neglected and, due to poor maintenance, some parts have turned into a forest with trees and shrubs typical of local indigenous vegetation (but also invasive species such as *Robinia pseudoacacia)*.

Monumental trees and state of conservation: The oldest trees in the park are some oaks *(Quercus petraea)*. Drought and violent storms are causing problems on older trees and spruce specimens.

Floristic / faunal emergencies, rare and protected species: No autochthonous or exotic plant species have been reported to have an impact on the park's vegetation (with the exception of the aforementioned *Robinia pseudoacacia)*.

Studies and programmes: An inventory of the trees in the park was written in 2011 indicating the most relevant and urgent interventions to be carried out, but there is not a specific plan to monitor and care for valuable trees.

Park management and maintenance: The entire park is managed by the Foster home for female youth and by a public institution (for the preservation of cultural heritage of Krapina zagorje county). The part of the park that will be restored thanks to the HICAPS project is now managed by the Municipality of Bedekovčina. In the park there are no regular maintenance operations (cutting and pruning of trees, substitutions of trees, mowing of lawns) but only occasional and extraordinary works such as the securing of damaged trees.

Plants used for culinary and therapeutic purposes: There are no traditions related to the use of plants for food or therapeutic purposes.

Ongoing projects: Thanks to the HICAPS project, part of the park will be restored, new plantations started, and, more generally, the park will be revitalized for citizens and tourists (playground, cafeteria, renovation and energy efficiency of the building).

3.2. Varaždin: Walk Lane of Josip Juraj Strossmayer


Location and surroundings: The park is located in the centre of Varaždin (50,000 inhabitants), in the valley of the Drava river, in a consolidated urban area, without connections with the surrounding open context. The park develops around the ancient structure of the Gothic-Renaissance fort, where today the Varaždin City Museum is located.

Design, composition and state of conservation: The current design derives from an overlapping of interventions succeeded in the centuries, of which only the last ones are known. The arrangement of the late nineteenth century continued until the mid-twentieth century according to a romantic-natural design, followed by the subsequent spontaneous spread of vegetation over the last 60 years, above all on the bastions of the fort. The current aspect is a bit confused and not in line with the stylistic features of the historical context. Evergreen conifers prevail near the fortress and deciduous plants in the outlying areas; the collection of ornamental shrubs and flowering herbaceous plants is also very rich. It is worth mentioning a decorative garden that is believed to date back to 1750.

Monumental trees and state of conservation: The monumental arboreal heritage includes both deciduous and evergreen species. Among the former, old specimens of linden *(Tilia cordata)* and oaks, among which noteworthy is a oak *(Quercus robur fastigiata),* and avenues of lime trees and poplars cypress *(Populus nigra italyca)*. There are many specimens of historically significant conifers, including specimens of *Taxus baccata, Thuja giganthea, T. occidentalis, Picea conica, Cephalotaxus drupacea (C. harringtonii)* and groups of *Pinus nigra* at the corners of the bastions. A group of *Taxodium distichum* next to the fortress reminds the past presence of water in the moat. Some of the older specimens show critical vegetative and static conditions, having been affected by extreme weather events and require treatment, slaughter and substitution.

Floristic / faunal emergencies, rare and protected species: No autochthonous rare or exotic plant species are reported with significant impacts on the park's vegetation cover.

Studies and programmes: In the period 1996-2005, studies were carried out on the park (including the inventory of existing trees and their conditions) and a plan to revitalize the greenery was presented to recover the historic atmosphere of the ancient construction.

Park management and maintenance: Since 1948 the park is managed by Parkovi (Department of public parks and green areas) and its maintenance is operated by a municipal services company specializing

in agricultural activities. The interventions, carried out on the basis of the aforementioned revitalization plan, include the care of diseased trees, especially oaks, the pruning of trees and shrubs, substitute plantations, planting of annual flowering grasses, mowing of the meadows, maintenance and restoration of pedestrian paths. , maintenance and renovation of furniture (tables, benches, trash cans).

Plants used for culinary and therapeutic purposes: There are no traditions related to the use of plants for food or therapeutic purposes.

Ongoing projects: In addition to reintroducing the water element in the park, the reorganization of a park sector in a garden following to the canons of the medieval period, with drawings and species typical of the period, is planned. More generally, the aim is to identify new elements of interest and attraction for citizens and tourists.

4. Italy

4.1. Ferrara: The Linear Park of Este Walls

Location and surroundings: The park is located in the centre of the city of Ferrara (133,000 inhabitants) located on Po di Volano, one of the branches of the Po river. It accompanies the circle of the ancient walls that almost completely surround the historical centre, within an urban context that maintains some connections with the surrounding rural landscape and with other public green areas.

Surface: The park has a linear development of 9.2 km.

Design, composition and state of conservation: The park develops close to the walls, both on the embankments and in the underlying valley, and constitutes a unique architectural and plant composition of its kind. The embankments are occupied by long avenues lined with double rows of lime trees, hackberries and plane trees. In the "sottomura" (under the walls) there are vast tree-lined meadows with both native and exotic tree species, including white hornbeams, elms, lindens, mulberry trees, hackberries, horse chestnuts, American maples, bald cypresses, paulwonias and ginkgo. There are no pools of water, but in case of rains in the depressions of the outer valley, water stagnations are often formed.

Monumental trees and state of conservation: Among the isolated trees stands out a majestic example of *Platanus hybrida* that recalls how the area was equipped starting from the nineteenth century, following the example of the Paris boulevards, a road to the carriages and "public walks" surrounded by greenery. Among the numerous avenues, there are five double rows of broad-leaved trees (linden, plane-trees and hackberries), altogether almost 800 specimens of trees in fair vegetative and phytosanitary conditions that represent an unusual green belt of the city.

Floristic / faunal emergencies, rare and protected species: The wealth of habitats favours the presence of a rich and diversified flora with 240 species (300 considering those introduced for ornamental purposes), representing 39% of the urban flora; there are also rare and protected entities. Among the invasive exotic species, with an aptitude to spread spontaneously, there are *Ailanthus altissima, Broussonetia papirifera, Gleditsia triacanthos, Robinia pseudoacacia, Maclura pomifera* and *Paulownia tomentosa*. Among the problematic animals there are mainly grey crows *(Corvus cornix),* jays *(Garrulus glandarius)* and pigeons *(Columba livia)*.

Studies and programmes: Floristic and wildlife censuses are periodically updated and represent a knowledge base on which the annual park management plan sets up; currently studies on insects and vertebrates are being carried out by the Museum of Natural History of Ferrara.

Park management and maintenance: The park is well maintained and enhanced. Tree maintenance is entrusted through a contract to the managing body of the municipal green maintenance service. There is an annual plan shared with the municipal administration that identifies the species to be subjected to

pruning or cutting, after an investigation of instrumental stability VTA (Visual Tree Assessment). The maintenance includes some techniques to promote biodiversity (for example, keep the trees as long as possible alive and, in the case of slaughter, leave parts of dead wood on the ground explaining to citizens the reasons for this choice).

Plants used for culinary and therapeutic purposes: The traditional use of tree, shrub and herbaceous plants for culinary purposes or for various processes (basketry, woodworking for tools, etc.) is still alive.

Ongoing projects: Targeted control of invasive exotic trees *(Ailanthus altissima* and *Broussonetia papyrifera)* and contextual strengthening of the presence of native species; strengthening of ecological connections.

4.2. Bologna: The Villa Ghigi Park

Location and surroundings: The park is located on the first hills close to Bologna (390,000 inhabitants), in a peri-urban environment in contact with the surrounding natural and rural landscape. It houses a seventeenth-century villa (of nineteenth-century appearance) now abandoned and, in a farmhouse, the headquarters of the Fondazione Villa Ghigi, partner of the HICAPS project. The park, owned by the city, was opened to the public in 1974.

Surface: 30 hectares.

Design, composition and state of conservation: The park is a representative example of the Bologna foothills landscape characterized by ancient noble villas- They had both representative and productive purposes, surrounded by parks and gardens, rural areas relics of the ancient agricultural estates and large natural areas. In the park are clearly recognizable nineteenth-century assets related to the last owners of the estate. The plant landscape is composed of a rich mosaic of environments: the garden of the villa, the rows of fruit trees of local cultivars, a woodland of ancient origin, shrubs and newly trained reforestation. A young orchard houses a collection of the rural biodiversity of the regional territory (it is part of the regional network of biodiversity orchards).

Monumental trees and state of conservation: In the garden of the villa are concentrated notable ornamental specimens: *Taxus baccata, Photinia serratifolia, Pinus pinea, Cupressus sempervirens* and *Calocedrus decurrens;* in front of the villa stands a large *Cedrus deodara,* planted in 1874 on the occasion of the acquisition of the estate by the last private owners. The crossing the garden is flanked by a row of old lime trees *(Tilia cordata).* Among the autochthonous presences, several centuries-old oaks *(Quercus pubescens)* stand out. Also worthy of mention are some fruit trees (pear, almond, cherry) of significant age and size. In recent years, part of the tree heritage shows signs of suffering and several desiccations and vegetative and phytosanitary problems have been recorded.

Floristic / faunal emergencies, rare and protected species: The park is located in a context with a high biodiversity, part of a wider element of the protected areas system of the Emilia-Romagna region and close to some areas of the Natura 2000 network. It preserves many rare and protected floristic species. From the point of view of wildlife, in addition to the presence of large mammals such as roe deer and wild boar, which often cause damage to the park, it is worth mentioning the sporadic appearance of the wolf.

Studies and programmes: Trees are subject to monitoring, instrumental stability surveys VTA (Visual Tree Assessment) and care interventions. Floristic and faunal censuses are periodically updated and used to prepare the annual park management plan. For the past few years, a programme has been implemented to enrich the park's arboreal heritage, providing the citizens with the opportunity to plant a tree in the park ("A tree for you").

Park management and maintenance: The park is managed by the Foundation, on the basis of an agreement with the Municipality of Bologna, and entrusted to a specialized social cooperative. The annual management plan includes ordinary and improvement actions aimed at the conservation, restoration and enhancement of the park, as well as support for school and extracurricular educational activities and initiatives for citizenship. Some interventions, in particular, are aimed at favouring the biodiversity of the park.

Plants used for culinary and therapeutic purposes: There are different traditions and curiosities related to the use of plants, some still practiced by the elderly settlers of the area that are a precious historical memory of the area.

Ongoing projects: Enrichment of the biodiversity of the area, improvement of the entrances, opening of a refreshment point in the building near the villa, reorganization of some sectors, integration of furnishings.

5. Poland

5.1. Kujawsko-Pomorskie Voivodeship: the Wieniec park.


Location and surroundings: The park is located in Wieniec, in the Wielkopolsko-Kujawska Plains. The climate is characterized by low rainfall, which can cause periodical water shortages. Winters can be mild with little or short-term snow covers. The areas abound in fertile soils such as black earths and lessive soils. The condition of the stand of trees is good. The area is used for agricultural purposes and there are no forms of natural environment protection there, in the vicinity within 12 km there is the area of Natura 2000 PLH040037 Słone Łąki in the Zgłowiączka Valley; in the vicinity within 13 km there is the area of Natura 2000 PLH040039 Włocławska Vistula Valley.

Surface: 8 hectares.

Design, composition and state of conservation: In the front part, you may see single monumental trees such as the red beech, European larch, oak, red horse-chestnut, blue spruce, northern white-cedar, Sawara cypress and Canadian hemlock. At the back of the palace there is a neglected and overgrown park with numerous wild trees such as the black locust, Scots elm, maple tree and ash tree – the park resembles the oak-hornbeam forest.

Monumental trees and state of conservation: The main ornamental trees are horse-chestnut tree, Norway spruce, small-leaved linden and large-leaved linden, London plane tree, the common ash and Norway maple. Some historical trees are present, about 130 years old: the London plane tree, the common ash, the horse-chestnut tree, English yew, common oak, large-leaved linden, Norway spruce and red beech.

Floristic / faunal emergencies, rare and protected species: There are no particular autochthonous floristic presences.

Studies and programmes: Presently the Palace is envisaged for major renovation.

Park management and maintenance: After the end of the Second World War, the Palace of the Kronenberg family was converted into a tuberculosis hospital. Until 2006 the palace house the Tuberculosis and Lung Diseases Ward of the Provincial Hospital in Wloclawek. For nearly a year the palace and park complex in Wieniec has been managed by the Kujawsko-Pomorski Impresaryjny Teatr Muzyczny [Musical Theatre] in Torun. The management board of the province would like a new cultural institution, namely the Kujawsko-Pomorskie Centrum Muzyki in the Wieniec Palace to be housed there. The documentation will relate to modernisation of the palace building and old manor building, complete development of the entire lot and restore and renovate the historic fence with its main gate.

Plants used for culinary and therapeutic purposes: There are many plants suitable for these purposes. Linden flower infusions are valued for their diaphoretic properties and they improve dermal breathing. Infusion baths not only have diaphoretic effects, but also enable us to relax, regenerate our skin and help decrease cramps. The spruce oil is used in treatment (owing to its cholepoietic properties and

stimulation of gastric secretions). It stimulates secretion of the bile and removes parasites from bile ducts or intestines. The common spruce in the form of oil can also be used in case of nerve pains and muscle and joint pains (also in rheumatic diseases). A broth made of shoots can be used in case of upper and lower respiratory tract disorders. Infusions made of horse-chestnut flowers or leaves have spasmolytic, anti-inflammatory, antibacterial and calm constipating effects on the alimentary tract. Compresses with the use of infusions or broths made of bark, flowers or leaves improve blood circulation in the skin, accelerate absorption of hematomas, decrease swellings and prevent varicose veins. The oak barks has anti-inflammatory, antibacterial, astringent and disinfecting properties. It is used for skin with lesions and for problems with the alimentary tract. The oak bark helps in inflammatory conditions of the skin and mucous membrane – for stomatitis, pharyngitis and in case of minor damage, frostbites or mild burns. A broth of the oak bark is also used externally in treatment of haemorrhoids.

Ongoing projects: After the end of the renovation actions, it is expected that the Kujawsko-Pomorskie Centrum Muzyki in the Wieniec Palace will be housed here.

5.2. Podkarpackie Voivodeship: the Łańcut Castle park.

Location and surroundings: The park is located in the centre of the town of Łańcut (18.000 inhabitants), 16 km east of Rzeszów (181.000 inhabitants), in an urban context that presents connections with the surrounding rural landscape. The castle was built in the middle of the 1600s as a fortified residence, repeatedly modified over time; in 1944 it was taken over by the Ministry of Culture and Art, together with a part of the park, and today houses a large museum.

Surface: 36 hectares.

Design, composition and state of conservation: The park was built between the eighteenth and nineteenth century, when the seventeenth-century fortified building was turned into a noble residence. Between the end of the nineteenth and the beginning of the twentieth century, the area was re-organised and extended to the east with a vast landscape-style sector. Today the park is divided into an inner part (between the castle and the moat) - where there is a rose garden, an Italian garden and beautiful flower beds, and an external part (located beyond the moat) - where there is an artificial lake, an orangery, the coach house, the barns, the riding school and a small romantic castle. The park has always been famous for the cultivation of orchids and in 2008 was inaugurated a new exhibition structure that houses a rich collection.

Monumental trees and state of conservation: The park holds a truly remarkable number of monumental exotic trees, of various species, the most ancient introduced during the eighteenth century. Witness of the value of the rich and precious botanical heritage of the park, a centuries-old Ginkgo biloba tree stands there, probably the oldest specimen of this species in Poland (the first plant was taken to the

palace garden in 1723-28). Remarkable is also the avenue of lime trees that surrounds the internal garden, arranged to form a five-pointed star. As for the condition of the trees, there are harshness due to strong winds and static problems that especially threaten the older and majestic trees, however subject to monitoring and care.

Floristic / faunal emergencies, rare and protected species: There are no particular autochthonous floristic presences, nor invasive exotic species.

Studies and programmes: In recent years, many actions have been carried out to enhance the historical park, with the support of public funds, which have contributed to the planting of trees, shrubs and perennial grasses, as well as the purchase of equipment for the care of the park.

Park management and maintenance: The care of the park, maintained in good condition thanks to continuous and adequate interventions, is entrusted to the Department of Conservation of the Park composed of the Manager, and staff for a total of about 20 people. The main interventions concern the care of lawns, flower beds, trees and shrubs.

Plants used for culinary and therapeutic purposes: There are no traditions related to the use of plants for food or therapeutic purposes.

Ongoing projects: Important conservation and restoration works are planned in the castle and the surrounding historical park. The work in the green areas will concern the improvement of the paths, different architectural structures, furnishings and artefacts, including the external fence and the gates. The park will also be equipped with a Wi-Fi monitoring system to protect it from damages, vandalism and theft. It is also planned to build a roof in the inner courtyard of the castle, which will allow the opening of a cafe and a small restaurant.

6. Slovenia

6.1. Ptuj: the Turnišče Park


Location and surroundings: The park is located a few kilometres southeast of the town of Ptuj (18,000 inhabitants), in the plain of the Drava River, in a peri-urban environment in contact with the surrounding agricultural and production context. The park and the architectural complex, dating back to the 12th century, today belong in part to the municipality of Ptuj and in part to the Ministry of Education, Science and Sport. The main building, damaged by a fire in 1987 and ruined today is abandoned. O one of the buildings in the complex is home to the Ptuj Biotechnology School.

Design, composition and state of conservation: Over the centuries the park has undergone many changes in terms of size, design, style and use. The first baroque-style installation was followed, in the first decades of the 19th century, by a subsequent arrangement on the model of the English parks. The construction of a large stable dates back to 1885, in operation till 1980. Today the design of the park is simple and informal, with groups of trees and shrubs alternating with grassy clearings. Towards the north, a vast wooded area is located. The park is crossed by a stream that feeds a pond, causing swamps, making some areas not crossable. Many incongruous elements (auxiliary services, greenhouses, a sports field and various fences) are present, not coherent with the historical context of the area.

Monumental trees and state of conservation: Among the valuable specimens, several deciduous species prevail, such as oak, plane, linden, ash, beech and elm. Two ash trees survive, wrecks of a historic avenue that in the past led to the castle, and two poplars placed at one of the entrances.

Floristic / faunal emergencies, rare and protected species: Among the species of interest there are *Taxus baccata* and *Ilex aquifolium*. The park houses a beautiful station of *Galanthus nivalis,* species protected in Slovenia and by CITES (Convention on International Trade in Endangered Species of Wild Fauna and Flora). As for the fauna, in the park there is the tawny owl *(Strix aluco)*. No harmful plant and animal species are reported.

Studies and programmes: In 2016, a study on the arboreal heritage surveyed the valuable trees and proposed some measures for plant diversity management. It is part of a larger park conservation project.

Park management and maintenance: After the Second World War, with the nationalization of the complex and the park, the funds for maintenance were reduced and this caused the lack of proper management of the green area. Today in some sectors the vegetation grows in an uncontrolled way, the paths are abandoned, the fence damaged and partly removed. Even the valuable trees are not maintained properly. The main maintenance work is performed by external workers recruited by the Municipality of Ptuj.

Plants used for culinary and therapeutic purposes: There are no traditions related to the use of plants for food or therapeutic purposes.

Ongoing projects: The recent conservation project of the park has highlighted how the poor management, an inadequate use and the abandonment of the complex have compromised its cultural, architectural, landscape, artistic and historical values. The work is preparatory to a landscape architecture project that aims to promote and enhance plant diversity and also provides indications on furnishings and equipment suitable for the green area.

6.2. Velenje: the Historical Castle Park


Location and surroundings: The park is located on a hill at the southern edge of the village of Velenje (34,000 inhabitants), in a peri-urban environment in contact with the surrounding open environment that includes agricultural and natural areas. The castle, dating from the 13th century, has been recently restored and today houses the Castle Museum.

Design, composition and state of conservation: The current design of the park recalls the arrangement of the mid-nineteenth century, even if the transformations of the late twentieth century (with the construction of a polygon for ski jumping and a parking lot) have definitely changed the physiognomy of the green area. An avenue of horse chestnuts goes up the hill and marks the access to the castle that is surrounded by trees, alternated with grassy clearings according to the principles of the English park. An extensive natural forest covers the remaining slopes of the hill. Remarkable also the presence of fruit trees, evidence of an orchard and a vineyard of the nineteenth century.

Monumental trees and state of conservation: The park holds several trees planted between the end of the 19th and the beginning of the 20th century. Among the exotic ornamental species stand out a large specimen of *Tilia platyphyllos* at the entrance to the castle near the suspension bridge, a pair of *Chamecyparis lawsoniana* and other caduceus specimens *(Platanus hispanica, Tilia platyphyllos, Aesculus hippocastanum)*. In the sector near the castle and in the adjacent natural forest there are also native species such as *Picea abies, Fagus sylvatica, Ulmus glabra, Quercus robur* and *Acer platanoides*. Finally, there are two rows of *Aesculus hippocastanum,* one of which marks the current avenue to access the castle and the second develops nearby. In recent years, the adverse climatic conditions have compromised many trees, with consequent demolition of the most damaged plants.

Floristic / faunal emergencies, rare and protected species: There are interesting migrations of plant species from the park area next to the castle to the forest that covers the hill. This issue does not create problems and does not affect the management and maintenance of the park. The presence of different species of birds, squirrels, sometimes deer and foxes, adds value to the park. The presence of old trees with cavities favours the presence of the owl.

Studies and programmes: The new management of the park has recognized the value of biodiversity and the importance of preserving existing plants; has started monitoring the greenery planning renovations, new plantations and other improvements, some of which have already started.

Park management and maintenance: The park around the castle belongs to the municipality of Velenje that has entrusted the management to the local Museum (maintenance is carried out by the castle staff). The maintenance of the remaining wood is followed by the local department of the National Forest Institute of Slovenia, which also monitors the phytosanitary and static conditions of the trees.

Plants used for culinary and therapeutic purposes: The culinary traditions and curiosities related to arboreal, shrubby and herbaceous species are still very much alive in people's daily lives.

Ongoing projects: The new management of the park intends to design the new structure of the area and its complete restoration, taking into account the historical surveys carried out and planned, with the aim of starting a process of revitalization of the park, thanks to the contribution of the HICAPS project.

Annex A: Template for data collection

HISTORICAL CASTLE PARKS

WP-T2 Tool development and consensus building

D2.2: Plant diversity and their value

Template to collect information

We ask you please to input the following information, respecting the suggested dimension of each section and adding pictures and links to existing URLs for enriching your presentation. In case you have a very interesting experience to share with the partners, please add a detailed description as an annex.

1. The **ornamental component** prevails in all the HICAPS parks' trees and is relatively homogeneous in terms of species. Does your park include monumental specimens? To what extent? Please report species, approximate height, and trunk diameter of the key specimens (about 5 to 10 samples)

2. With respect to the **ornamental tree components,** are there tree lines with monumental features? Please describe the main ones and provide data on the species, height, and diameter? (0,5-1 page)

3. Are there individual trees, or groups, representative of particular **historical phases of the park** and that can be considered witnesses of its history? (0,5-1 page)

4. The tree component typical of the territory **(indigenous species)** is in some cases prevalent. Please list species, approximate height and trunk diameter of monumental specimens (about 5-10 samples). Are there invasive species of exotic plants, which have a significant impact?

5. Many species of **indigenous trees, both native and ornamental**, are common to all HICAPS parks. Please report degradation and any problems that species have shown in recent years, also in connection with climate change (droughty summers, milder winters, violent atmospheric events). Is there a plan for monitoring the phytosanitary and static conditions of key trees? (0,5-1 page)

6. The historical parks are in some cases close to/included in larger natural areas. Please describe these areas and their relationship with the parks in terms of flora, fauna, landscape, etc. Are there animal species (e.g. wild boars, crows, etc.) affecting the management of the park and its surrounding areas? (0,5-1 page)

7. In the parks or close to them, there are often rivers, streams, water areas of natural and artificial origin. Please describe the conditions and quality of the water, the characteristics of vegetation, the presence of a specific fauna (0,5-1 page)

8. The first reports poorly revealed the presence of trees, shrubs and plants connected to the agricultural traditions of the territorial areas in which the parks are inserted. Is this component absent or present to a very limited extent? If present, please describe it in a synthetic way, highlighting the most typical species and cultivars (0,5-1 page)

9. Are there culinary traditions and curiosities related to the tree, shrub and herbaceous species present in or close to the park? Are these traditions still alive? Please describe (0,5-1 page)

10. Are there and therapeutic traditions and curiosities related to the tree, shrub and herbaceous species present in or close to the park? Are these traditions still alive? Please describe (0,5-1 page)

11. Please detail these key aspects of the park: management, staff, cleaning, main maintenance work carried out over a year, new plantations, restoration of individual areas, etc. Does the management involve national or local voluntary environmental associations? (0,5-1 page)

12. From the management point of view, are good practices being put in place to protect and promote biodiversity? Please describe them and detail the results (0,5-1 page)

13. Please annex additional documentation material (maps, documents, photographs, research, etc.)-

Many thanks for your time and effort

HISTORICAL CASTLE PARKS

WP-T2 Tool development and consensus building

D2.2: Plant diversity and their value

Park around the historical castle of Bedekovčina

1. **The ornamental component prevails in all the HICAPS parks' trees and is relatively homogeneous in terms of species. Does your park include monumental specimens? To what extent? Please report species, approximate height, and trunk diameter of the key specimens**

The park is mostly neglected. There are no monumental trees. The oldest examples of trees are oaks that are unfortunately in most cases of bad condition.

2. **With respect to the ornamental tree components, are there tree lines with monumental features? Please describe the main ones and provide data on the species, height, and diameter?**

There are no monumental trees.

3. **Are there individual trees, or groups, representative of particular historical phases of the park and that can be considered witnesses of its history?**

The oldest trees are possible to belong to the historical park's matrix, although due to lack of maintenance the park has in some parts turned into a forest.

4. **The tree component typical of the territory (indigenous species) is in some cases prevalent. Please list species, approximate height and trunk diameter of monumental specimens**

The largest and the thickest trees in the park are oak / juniper trees. Among the other species in the park are common spruce, plantain, elm, ash, maple, red beech, tisza and others. Regarding the invasive foreign species, there are traces of acacia. Exotic species are not present.

5. **Many species of indigenous trees, both native and ornamental, are common to all HICAPS parks. Please report degradation and any problems that species have shown in recent years, also in connection with climate change (droughty summers, milder winters, violent atmospheric events). Is there a plan for monitoring the phytosanitary and static conditions of key trees?**

Currently, there is no plan for phytosanitary and static conditions of key trees. The inventory of trees in the park and the recommendations for restoration of dry and dangerous trees has been made which includes measures for cutting the dry branches and trees which might be dangerous (in the sense that they fall down). These trees will be cut down before the HICAPS investment will start.
The problem appeared in spruce for droughts during the summer, thunder that hit several trees, the pest is present in some of the oldest trees also, and drying of the trees due to the age. Also, the problem are storm winds that negatively affect all the trees within the parks. It ruins also the healthy trees.

6. **The historical parks are in some cases close to/included in larger natural areas. Please describe these areas and their relationship with the parks in terms of flora, fauna, landscape, etc. Are there animal species (e.g. wild boars, crows, etc.) affecting the management of the park and its surrounding areas?**

Common thing to HICAPS park in Bedekovčina and all surrounding parks in the Krapina-Zagorje County that are protected as monuments of park architecture, is that they were not systematically preserved and are in most cases neglected.
The exception is a park around Miljana castle in the Zagorska Sela Municipality, which was restored to the historical matrix and kept all the old monumental trees.
Park around the Bračak Castle is not protected as a monument of park architecture, but has started remediation in terms of removing dry and dangerous trees and pruning dry trees. Walkways and benches are arranged around the park.
There are no wild boars in the park around the castle of Gornja Bedekovčina that would affect the management of the park, nor did the event of a larger number of crows appear in the documented history.

7. **In the parks or close to them, there are often rivers, streams, water areas of natural and artificial origin. Please describe the conditions and quality of the water, the characteristics of vegetation, the presence of a specific fauna**

There once existed three artificial lakes in the park, none of which are active or existing anymore. In the immediate vicinity there are no springs, streams or larger watercourses. There are no wildlife park surveys. It is possible to assume that certain species of birds, small mammals, bugs, amphibians and reptiles are found in the park.

8. **The first reports poorly revealed the presence of trees, shrubs and plants connected to the agricultural traditions of the territorial areas in which the parks are inserted. Is this component absent or present to a very limited extent? If present, please describe it in a synthetic way, highlighting the most typical species and cultivars**

The list of species was given already in the first report.

9. **Are there culinary traditions and curiosities related to the tree, shrub and herbaceous species present in or close to the park? Are these traditions still alive?**

There are unfortunately no culinary traditions and curiosities related to the tree, shrub and herbaceous species present in or close to the park. The trees do not have any culinary value.

10. **Are there and therapeutic traditions and curiosities related to the tree, shrub and herbaceous species present in or close to the park? Are these traditions still alive?**

There are no therapeutic traditions and curiosities related to the tree, shrub and herbaceous species present in or close to the park.

11. **Please detail these key aspects of the park: management, staff, cleaning, main maintenance work carried out over a year, new plantations, restoration of individual areas, etc. Does the management involve national or local voluntary environmental associations?**

The part of the park that will be restored through HICAPS is currently managed by Municipality of Bedekovčina. The whole park is managed by the Foster home for female youth and by Public institution for preservation of cultural heritage of Krapina Zagorje county. Park is poorly maintained up to now. The management does not involve national or local voluntary environmental associations. New plantations will be planted through HICAPS project.

12. **From the management point of view, are good practices being put in place to protect and promote biodiversity?**

The park is not systematically maintained in terms of regular cutting of trees and branches, replacing the trees that are cut. Planting has not been made according to the historical matrix, but ad hoc.
It is good that the castle has a function and for that reason it is at least regularly cleaned and maintained on the basic level, cutting the grass in summer months etc.

13. **Please annex additional documentation material (maps, documents, photographs, research, etc.)-**

Doc “STUDY OF THE PARK” with the list and pictures of all the trees that are in the park , including Latin names of trees and plants.

HISTORICAL CASTLE PARKS

WP-T2 Tool development and consensus building

D2.2: Plant diversity and their value

The walk lane of Josip Juraj Strossmayer

1. **The ornamental component prevails in all the HICAPS parks' trees and is relatively homogeneous in terms of species. Does your park include monumental specimens? To what extent? Please report species, approximate height, and trunk diameter of the key specimens**

Today, the existing vegetation in the environment of the Old Town proves that after original planting, supplementary planting of plant material continued. With such overwhelming and spontaneous self-restraint, there was a physiological confusion of the Renaissance ramparts and the stoning of the Old Town. Original form of romantic-natural styling style was completely lost.

By analyzing the current arrangement of green areas in the historical complex of the Old Town, which includes earlier spontaneously planted tree specimens - original concept of park design and subsequent free placement on the ramparts and elsewhere with the spontaneous spread of vegetation in the last 60 years, the diversity and somewhat pervasive appearance today's green environment of the Old Town.

In the area closer to the fortress is predominantly the coniferous, while in the peripheral parts of the monumental complex there are a deciduous plants.

Of the individual, solitary specimens, an old specimen of lime between the former grain and the building of today's Historical Institute should be mentioned. That category also includes two pieces of old limes next to the former grain. Behind the lime worthy of the future comes oak *(Quercus robur)*. One smaller group of three exceptionally old specimens of oak round the corner of the embankment with a former gravel. Particularly worthy of mention is the sample of stupor oak *(Quercus robur Fastigiata)* along the north-western tower. Following are two pieces of old planks that are located at the foot of the earth's ramparts behind the old barn.

From the existing coniferous trees and shrubs it is important to emphasize: *Parotia persica, Calocedrus decurrens, Cephalotaxus drupacea, Chamaecyparis lawsoniana,* Low pines *(Juniperus horizontalis, Juniperus media etc.), Juniperus virginiana,* European larch *(Larix europea),* coniferous *spruce (Picea*

conica), Spruce *(Picea excelsa),* Blue Spruce *(Picea pungens Glauca),* Himalayan pine *(Pinus excelsa),* Black pine *(Pinus nigra),* Pine *(Pinus silvestris),* American pine *(Pinus strobus) Pseudotsuga taxifolia*. In particular, we point out a lots of *Taxus bacata* formed in larger groups, and individual specimens of yew *(Taxus bacata Fastigiata)* and thorax *(Thuja giganthea* and *Thuja occidentalis),* and a wonderful group of wet taxodens *(Taxodium distichum),* planted directly by the fortress as a reminder of the former water the surface in the loopholes.

2. **With respect to the ornamental tree components, are there tree lines with monumental features? Please describe the main ones and provide data on the species, height, and diameter?**

In the area closer to the Old Town, predominantly in the existing picture is the conifer, whereas in the peripheral parts of the monumental complex are predominantly deciduous trees.

Of deciduous trees, it is important to emphasize the lime *(Tilia parvifolia),* both in terms of the past and the present as well as in relation to the future generations. First of all, the lime forms a strong tree lined with Ulica Stanka Vraza and Ulica Vladimira Nazora, which in the present picture indicates a good green frame for the monumental complex of the Old Town.

There are several more significant tree lines around the park or are located at the entrance to the park - tree-lined poplar, ornamental cherry, lime trees, tree-lined forces. Some of them are in poor health, and need to be replaced or professionally cut by individual trees in order to maintain the typical stylistic characteristics of the ancient historical period. Realizing the assumptions of planning to achieve the integrity of the atmosphere along with the cultural dimension contributes to the general educational value as well as to the tourist.

Tree lined lime tree - Tilia cordata: the lime is relatively good, the trees are 10-12 m in height, the diameter of the trunk 60-100 cm.
Tree lined poplar - Populus nigra Italyca: in the last few years, old poplars have been replaced by young trees, trees are 6-8 m in height, tree diameters 40-60 cm.
Tree lines decorative cherry - *Prunus sp.:* cherries are in relatively good condition, they are 6-8 m in height, 40-60 cm in diameter.
Tree lined *Forsithia intermedia:* they are in relatively good condition, height 4-6 m, bushy breeding.

3. **Are there individual trees, or groups, representative of particular historical phases of the park and that can be considered witnesses of its history?**

From the existing plan sources it can be seen the original composition of the garden and its affiliation to the medieval Renaissance styling style. The look of the original garden points to two elements: a semicircular path and a cross-shaped path, which served as the proposed solution for this part of the Old Zown's environmental setting. This basic scheme is accompanied by additional vegetation: coniferous conically-shaped buxus, while the two free fields in the central part include: a spherically-shape buxus framed by a floral plantation from the historical period, such as a very grateful begonia, because it sprouts almost the entire vegetation period and the typical is for floral gifts from the historical period.

As an example of the trees that point to the historical periods of the park, it is particularly worth highlighting a beautiful group of wetland taxodies that were produced directly beside the fortress as a reminder of the former water surface in dugouts. Also a significant role in the park space are groups of black pines at the corners of renaissance ramparts, lime *(Tilia parviflora)* in the central part of the park and a group of shrubs that were in fashion at a certain historical period. There are also significant groups of yews *(Taxus baccata),* and individual specimens of *Picea conica,* plum yew *(Cephalotaxus drupacea),* Stoned oak *(Quercus robur Fastigiata)*. By analyzing the current arrangement of green areas in the historical context of the Old Town, which includes earlier spontaneously planted solitaire trees, there is diversity and a somewhat pervasive look of the present-day environment of the Old Town.

4. **The tree component typical of the territory (indigenous species) is in some cases prevalent. Please list species, approximate height and trunk diameter of monumental specimens**

In the park area most of the plant species of indigenous species are in this area. Primarily, there are numerous examples of limes, yews, poplars, pines, birches, hornbeams, which are spread throughout the park. Significant specimens are 10-15 m in height, with a 40-60 cm trunk diameter, and some of the older specimens have a disrupted health condition, and it will be necessary to do the bending of individual branches or removing the entire trees. There are no exotic plant species in the park area, which would have a significant impact on the horticultural landscape of the park.

5. **Many species of indigenous trees, both native and ornamental, are common to all HICAPS parks. Please report degradation and any problems that species have shown in recent years, also in connection with climate change (droughty summers, milder winters, violent atmospheric events). Is there a plan for monitoring the phytosanitary and static conditions of key trees?**

In the recent period, inventory of trees and the overview of tree condition in the entire park area was done. Biotic and abiotic factors had a significant impact and weakened individual trees, which became more susceptible to plant disease and pests. The analysis covered over 230 plants in the area of the Old Town. In general, the health status of plants in the field of research is satisfactory, but individual trees in the field of research, which primarily refer to old trees, are in poor health and reduced vitality and pose a potential hazard to the users. Such potentially dangerous trees due to static disruption, due to the presence of rot, are exposed to the breaking of branches and entire trees during extreme weather conditions. It is proposed that after the removal of the trees, new plant plants be planted, which are identical, preferably native plant species, which are well tolerated by the urban environment in which they are located.

By arranging a medieval garden in the yard of the Old Town, an extraordinary experience of the historical atmosphere will be realized in the way that is solved and performed in the best European examples, which will be complemented by two outstanding historical values of Varaždin as well as all over Croatia: Old Town and its Renaissance ramparts.

6. **The historical parks are in some cases close to/included in larger natural areas. Please describe these areas and their relationship with the parks in terms of flora, fauna, landscape, etc. Are there animal species (e.g. wild boars, crows, etc.) affecting the management of the park and its surrounding areas?**

The Walk Lane of J.J. Strossmayer is not included in larger natural areas and there are no animal species affecting the management of the park and its surrounding areas.

7. **In the parks or close to them, there are often rivers, streams, water areas of natural and artificial origin. Please describe the conditions and quality of the water, the characteristics of vegetation, the presence of a specific fauna**

Near the park i.e. the Walk Lane of J.J. Strossmayer there are no rivers, streams or water areas of natural and artificial origin.

8. **The first reports poorly revealed the presence of trees, shrubs and plants connected to the agricultural traditions of the territorial areas in which the parks are inserted. Is this component absent or present to a very limited extent? If present, please describe it in a synthetic way, highlighting the most typical species and cultivars**

According to our knowledge in the Walk Lane of J.J. Strossmayer there is no presence of trees, shrubs and plants connected to the agricultural traditions of the territorial areas in which the lane is inserted.

9. **Are there culinary traditions and curiosities related to the tree, shrub and herbaceous species present in or close to the park? Are these traditions still alive?**

According to our knowledge there are no culinary traditions and curiosities related to the lane since there are no trees, shrubs and plants connected to the agricultural traditions.

10. **Are there and therapeutic traditions and curiosities related to the tree, shrub and herbaceous species present in or close to the park? Are these traditions still alive?**

According to our knowledge there are no therapeutic traditions and curiosities related to the lane since there are no trees, shrubs and plants connected to the agricultural traditions.

11. **Please detail these key aspects of the park: management, staff, cleaning, main maintenance work carried out over a year, new plantations, restoration of individual areas, etc. Does the management involve national or local voluntary environmental associations?**

The city Council of the City of Varaždin entrusted the environmental maintenance work of the Old Town to a municipal utility company engaged in horticultural activity. A more detailed analysis of the arrangement of green areas in the historical complex of the Old Town that blends previously spontaneously planted tree specimens, the concept of park planning and additional planting on the ramparts and elsewhere with the spontaneous spread of vegetation over time shows the diversity, heterogeneity and somewhat murky look of today's green environment of the Old Town. In the period 1996-2005 studies and analyzes of the state, inventories and proposals for revitalization of the environment have been made so since then the maintenance and operation of the green area in the Old Town has been in compliance with the prescribed guidelines. The works of the oak and shaping of trees and shrubs are carried out and the annual planting of seasonal flowering plants in a styled garden.

Substitute planting of shrubs and shrubs is also carried out in accordance with the prescribed revitalization proposals of the park, successively and, if necessary, in order to replace diseased or dried plants. There is a concern that a new self-restraint would not happen, or that the historical complex would be cleansed of the inclination. After removing the existing bush or tree, it is planting new substitute seedlings.

The annual maintenance works include mowing and lawn mowing, annual restoration and upgrading of walking paths, maintenance and refurbishment of communal equipment (seating compartments, tables, garbage bins).

For a long period of time, the final object will be the complete cultural object of the highest historical value and in the part related to garden culture and art. In this sense, this task goes beyond the local Varaždin's frameworks and becomes a component of the Croatian and European cultural future.

12. **From the management point of view, are good practices being put in place to protect and promote biodiversity?**

Environmental maintenance works of the Old Town are conducted by a municipal utility company engaged in horticultural activity. The maintenance and operation of the green area in the Old Town has been in compliance with the studies and analyzes of the state, inventories and proposals for revitalization of the environment made in the period from 1996 till 2005.

HISTORICAL CASTLE PARKS

WP-T2 Tool development and consensus building

D2.2: Plant diversity and their value

The Linear Park of the Este Walls

1. **The ornamental component prevails in all the HICAPS parks' trees and is relatively homogeneous in terms of species. Does your park include monumental specimens? To what extent? Please report species, approximate height, and trunk diameter of the key specimens**

All the linear park (including trees) is protected by Legislative Decree 42/2004: Code of Cultural Heritage and Landscape, and in particular by its art.136 (Buildings and areas of remarkable public interest).
Inside the park, in Viale Alfonso d'Este 1, there is a monumental tree defined as such by the L.R. n. 10 of 14/1/2013, and included in the list of monumental trees of the Municipality of Ferrara (decision of the Municipal Council PG2015-67452 on 30/06/2015. It is a plane *(Platanus hybrida)* 24 meters high, with the trunk circumference of 470 cm and a crown of 22 meters in diameter.
There are also 5 tree-lined avenues whose position and context justifies to be mentioned here, since they represent botanical emergencies of the area and for this reason have been included in the list of monumental trees of the Municipality of Ferrara.

2. **With respect to the ornamental tree components, are there tree lines with monumental features? Please describe the main ones and provide data on the species, height, and diameter?**

In the park there are some embankments hosting relevant rows of trees mainly divided as follows:

- in the section of Via Bacchelli (Rampari di Belvedere): 1 double row of lime trees *(Tilia cordata), 600* meters long, with 181 specimens, probably 60 years old, in good state even though they have in some cases dry elements, with an average height of 17 meters; a double row of plane trees *(Platanus hybrida)* with a length of 652 meters composed of about 181 specimens, probably 60 years old, with an average height of 18 meters in a good state of vegetation and poor dryness;
- in the section of Via Gramicia (Rampari di Belfiore); 1 double row of hackberries *(Celtis australis)* 820 meters long, formed by 221 specimens in good state, with an average height of 18 meters, probably 60 years old;
- in the section of Via Belvedere: 1 double row of plane trees *(Platanus hybrida)* 550 meters long, in good state, with few dry elements composed of 119 specimens of average height of 17 meters, probably 50 years old; a double row of lime trees *(Tilia cordata)*, 190 meters long, composed of 67 specimens of 17 meters, probably 60 years old, in good state and with a medium evidence of dryness.

3. **Are there individual trees, or groups, representative of particular historical phases of the park and that can be considered witnesses of its history?**

The linear park along the walls of Ferrara is continuously maintained and enhanced, with pedestrian and cycle paths, which extends both on the embankments and in the valley below. The embankments are occupied by long avenues with double line of lime trees, hackberries and above all plane trees. Moreover, in the "sottomura" there are vast tree-lined meadows, with native and exotic tree species, including white hornbeams, elms, linden trees, mulberry, hackberries, horse chestnuts, American maples, bald cypresses, paulonias and ginkgo. In some cases we observe valuable specimens, such as the two large black poplars that exceed 20 meters in height at the Montagnone Park. Here we see an ancient plane tree that reaches 25 meters, characterized by a truck circumference of almost 5 meters and a dense expanded foliage with a diameter of 23 meters. This tree is very important, because it reminds us that this area was equipped in the nineteenth century, following the example of the boulevards in Paris, with a wide road for carriages and enchanting "public walks" immersed in the vegetation.

4. **The tree component typical of the territory (indigenous species) is in some cases prevalent. Please list species, approximate height and trunk diameter of monumental specimens**

The lime trees *(Tilia cordata)* have an average height of 17 meters, with some specimens with an average circumference between 145 cm and 164 cm. The plane trees *(Platanus hybrid)* have an average height of 17 meters with an average circumference of 133 cm. The hackberries *(Celtis australis)* have an average height of 18 meters with an average circumference of 188. There are also invasive exotic species, as well as some hybrid species in particular poplars and maples introduced for ornamental purposes, which at the moment do not appear to create major problems. In detail, the invasive tree species are: *Ailanthus altissima, Broussonetia papirifera, Gleditsia triacanthos, Robinia pseudoacacia,* as well as *Maclura pomifera* and *Paulownia tomentosa* which begin to expand spontaneously.

5. **Many species of indigenous trees, both native and ornamental, are common to all HICAPS parks. Please report degradation and any problems that species have shown in recent years, also in connection with climate change (droughty summers, milder winters, violent atmospheric events). Is there a plan for monitoring the phytosanitary and static conditions of key trees?**

Trees can be attacked by various pathogens, such as insects, bacteria and fungi, that are responsible for the decomposition of wood. The maintenance of trees is entrusted by Ferrara Tua, providing the maintenance service to all the municipal green area. An annual plan, shared with the Municipal Administration of Ferrara, lists the species to be subjected to pruning and cutting, after investigation of instrumental stability called VTA (Visual Tree Assessment). The objective of this investigation is to define the potential risks for the trees, by assigning them a predefined risk class as well as defining the most suitable conservation and safety operations and preparing an appropriate action plan. Some important trees may also be subjected to ultrasonic tomography, to evaluate the true internal width of the tears. The VTA method allows the identification of risk through the recognition of external symptoms. A tree that has suffered traumas (atmospheric events,

pathologies, incorrect maintenance interventions) is subject to intense growth processes in order to restore its optimal balance structure. Through visual analysis, i.e. verifying the foliage, the presence of parts of dry wood, cords, fungal bodies, wounds or other symptoms, it is possible to diagnose its state of health and plan the requested interventions. This analysis in some cases is accompanied by more in-depth checks, based on instrumental measurements obtained with specific equipment for the assessment of the trees.

6. **The historical parks are in some cases close to/included in larger natural areas. Please describe these areas and their relationship with the parks in terms of flora, fauna, landscape, etc. Are there animal species (e.g. wild boars, crows, etc.) affecting the management of the park and its surrounding areas?**

The nearest park is the north urban-agricultural park. It extends over 1200 hectares and reaches the Po river embankment to the north; it is bordered to the west by Via Canapa and the Bologna-Padua railway line and to the east by Via dei Calzolai. It occupies the territory of the Barco, the ancient hunting reserve of the Este family, annexed to the Delight of Belfiore, located within the walls. A bike path runs along the east side, adjacent to Via dei Calzolai, and allows you to reach by bike the bank of the Po.

This large area creates a connection with the Natura 2000 site IT4060016 of the Po River. It is separated from the walls by a wide and very busy road. During peak hours (around 8 am and from 5 to 7 pm), there are long queues of cars particularly on very cold and bad weather days. Next to this road runs a medium-sized canal, about 9 meters wide and 1.4 km long, connected to the Ferrara irrigation system.

The park includes: a portion closer to the walls, freely accessible by the public, called "Parco Bassani" in honour of the famous writer, with meadows, hedges, trees and bushes, cycle paths and ponds fed by the system of drainage-irrigation channels; the grounds of the Centro Universitario Sportivo which host sports facilities (swimming pools, gyms, restaurant, guesthouse building) with an 18-hole golf course; an area hosting a social centre for elderly people; the former waste disposal site in the city of Ferrara, now covered with land and largely re-naturalized, using native and exotic species (for example, the butterfly bush *(Buddleja sp.)* is present); a former waste incineration plant inactive for about 10 years; the Ferrara wastewater treatment plant. The rest of the park is occupied by conventional farmland (cereals, orchards, recently pawlonia) and scattered houses partly intended for commercial activities, such as cottages and dog training centres, including the buildings that house the kennel and the cattery municipalities managed by volunteers.

In the north-west area, there is a sugar mill disused since few years ago. Close to it are still present the embanked tanks that were used for decanting the materials derived from the processing of beets, which, according to the current regulatory plan of Ferrara, could be still reused. Among the agricultural land, about 23 hectares were planted in 2003 with native arboreal specimens by a private foundation that also owns the local institute of high school for agricultural training, the Istituto F.lli Navarra. In the area there are maples, ash trees, oaks, walnuts, hornbeam and alders. However, these are trees expected to be cut after a cycle of about 20 years.

A small spontaneous grove of 0.6 hectares of surface with elms (*Ulmus sp.)* surrounds a ruin that has long been a military area.

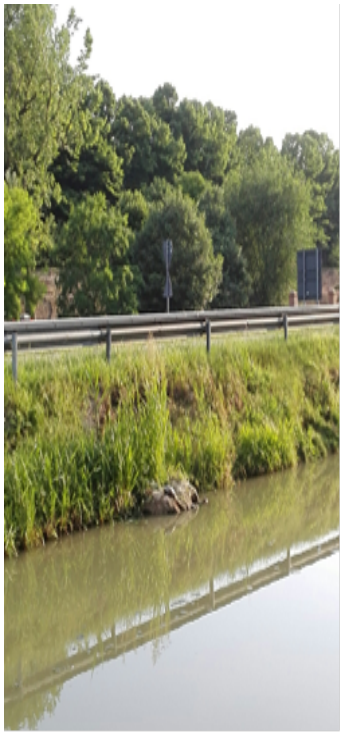
An ancient ditch (Fossa Lavezzola) runs near the northern border, included as a secondary ecological corridor in the provincial ecological network of Ferrara.

Harmful animals are mainly living close to freshwater area. There are grey crows *(Corvus cornix)*, jays *(Garrulus glandarius)*. Sometimes the jays, among the birds, create some problems, while the number of pigeons *(Columba livia)* has largely decreased in the last years.

7. **In the parks or close to them, there are often rivers, streams, water areas of natural and artificial origin. Please describe the conditions and quality of the water, the characteristics of vegetation, the presence of a specific fauna**

The linear park does not include well defined water streams. In case of heavy rains, water stagnations occur in the grassy depression of the outer valley, thus determining the high humidity conditions favouring hygrophilous herbaceous plants. The valley, however, is periodically cut so that there is no development of reeds.

In the urban parkland of the north urban park there are several ditches and canals as well as some *maceri*, typical artificial ponds made since the Middle Ages for the textile processing of hemp *(Cannabis sativa)*. A couple of new ones have been built in recent years by the owners of farmhouses.



The old ponds have been surveyed through inspections carried out by the Museum of Natural History of Ferrara between 2004 and 2008. Two of them were reassessed in 2015. They are a breeding ground for toads *(Bufo bufo)*, a species protected by the regional legislation. In the ditches, some plant species of high conservation interest had been identified in that period, in particular water chestnuts *(Trapa natans)* and water gentian *(Nymphoides peltata)*. These species have now disappeared from those habitats. Among the causes of these disappearances we can certainly hypothesize the action of introduced exotic species nutrias *(Myocastor coypus)*, red prawns *(Procambarus clarkia)*, herbivore carps *(Ctenopharyngodon idella)*, common carps *(Ciprinus carpio)* herbivore or omnivore, voracious and prolific that also threaten sediments. At least for *Nymphoides peltata*, the disappearance is certainly in relation with the excavation work and reshaping of the canal in which they were located.

In the Fossa Lavezzola there is a fairly good development of reed beds *(Phragmites australis)* with other hygrophilous plants such as *Iris pseudacorus*, *Carex spp.*, *Sparganium erectum* etc. We observe also the presence of the exotic *Reynoutria japonica*. The bank has a slightly sinuous course: the mowing along its banks, it is not known whether by chance or by precise will, is carried out in a manner quite respectful of ecological prescriptions. Especially in winter, some birds species of conservation interest - such as *Alcedo atthis* - find refuge and feeding in the moat. Throughout the year there are several species of herons and mallards.

Other exotic species with great ecological impact are *Silurus glanis*, voracious predator of Vertebrates, *Trachemys scripta and Lithobates catesbeianus*, also impacting both on aquatic species and on terrestrial species nesting near the water. It is emphasized that about 75% of the fish species found in the fresh waters of Ferrara are of exotic provenance.

A research run by the Museum of Natural History of Ferrara in 2004 used the *Dithteri Sirfidi* as indicators of the state of conservation of biodiversity according to the protocol Syrph the Net and took into consideration two locations within the urban park. Individually, the conservation status turned out to be rather poor, with values less than 50% of the Sirfid species expected for well-structured urban parks. Particularly suffering were the species with larvae that develop in aquatic plants: the degree of eutrophication of the water of the canals favours the phytoplankton and makes the water opaque, by preventing the engraftment of submerged leaves.

The linear park is not too far from the Po di Volano, one of the two rivers that were at the origin of the city. In some places, the distance between the walls and the river is only 100 meters. In the Ferrara's waterway network, one of the richest points of aquatic vegetation with various species of conservation interest *(Ceratophyllum demersum, Potamogeton nodosus, Potamogeton crispus, Trapa natans, Salvinia natans, Spirodela polirhyza, Nymphoides peltata, Lemna spp.)*, various bird and dragonflies species have been spotted *(Anax imperator, Sympetrum fonscolombii, Ischnura elegans, Erythromma viridulum, Crocothemis erythraea, Ortethrum cancellatum)*. This area will soon be subject to extensive changes, aimed at restoring the full navigability of the Volano river: it will therefore be a way to reconcile actions for infrastructure and biodiversity conservation.

8. **The first reports poorly revealed the presence of trees, shrubs and plants connected to the agricultural traditions of the territorial areas in which the parks are inserted. Is this component absent or present to a very limited extent? If present, please describe it in a synthetic way, highlighting the most typical species and cultivars**

Even if not strictly in the perimeter of the linear park, the Terraviva area has been used for increasing environmental actions and promote biodiversity, adopting biological techniques. According to the will of the managers of this site, the production aspect is secondary to the objective of raising awareness on biodiversity issues. Here you can find fruit trees, and - since 2016 - a lawn maintained at *Phacelia tanacetifolia* to support pollinators.

9. **Are there culinary traditions and curiosities related to the tree, shrub and herbaceous species present in or close to the park? Are these traditions still alive?**

Morus alba (mulberry): young leaves, before flowering, blanched and used for rolls like vine leaves; alternatively, cut into strips in salads. Fruits eaten as such or processed into syrups, fruit in syrup, jam and jelly. The plant is still very used, especially the fruits that are actively harvested both by locals and new migrants coming from Eastern countries. The young branches are used in basketry.

Plantago lanceolata (plantain): young leaves eaten raw at the end of winter, especially the jets attached to the root, with a pleasant taste of porcini mushroom. Older leaves consumed cooked in soups and soups, to which they give a hint of mushroom, or sautéed in a pan; the stem can also be consumed, depriving it of the outermost layer. Seeds pulverized and added to flour in bread making or to prepare rustic desserts.

Sambucus nigra (elderberry): the flowers are used fresh or dried to flavour sweet and savoury dishes or to prepare the elderberry syrup. The fresh flowers are fried and served with salt or sugar. Fully dried berries are used to obtain drinks or cooked and sieved for jams, jellies or syrups. Elder wood is also used for preparing musical instruments, because its hollow inside, or as a handle for tools, since it is particularly light but elastic.

Taraxacum officinale (dandelion): young leaves, before flowering, are eaten in salads. Leaves after flowering are consumed blanched or sautéed. Flowers are added to salads and eaten raw. Roasted roots are used as a substitute for coffee.

Typha angustifolia (mazzasorda): young spring plants are cooked as asparagus. Pollen is collected and used in bread making. Raw or cooked roots are eaten as a potato or reduced to powder and used as a thickener in soups and purees. The culinary tradition linked to the mazzasorda is disappearing.

Ulmus minor (elm): its samaras are used raw in salads or lightly cooked.

10. **Are there and therapeutic traditions and curiosities related to the tree, shrub and herbaceous species present in or close to the park? Are these traditions still alive?**

Nothing remarkable to underline.

11. **Please detail these key aspects of the park: management, staff, cleaning, main maintenance work carried out over a year, new plantations, restoration of individual areas, etc. Does the management involve national or local voluntary environmental associations?**
12. **From the management point of view, are good practices being put in place to protect and promote biodiversity?**

Major efforts are done trying to keep the trees alive for as long as possible, to bring them into maturity, so promoting biodiversity. However, it will be necessary to tackle the problem of stability of the trees trying to keep them standing anyway as long as possible. This can be done, for example, by containing the foliage when they risk being too vulnerable to wind, or even realizing support systems for dying trees and, in the case it is impossible to avoid killing, find a way to leave dead wood posts on the ground explaining to citizens that it is not negligence, but a strategy to support biodiversity. The park is so extensive and present on all sides of the city, to make it truly a very important junction in the system of ecological connections of the territory.

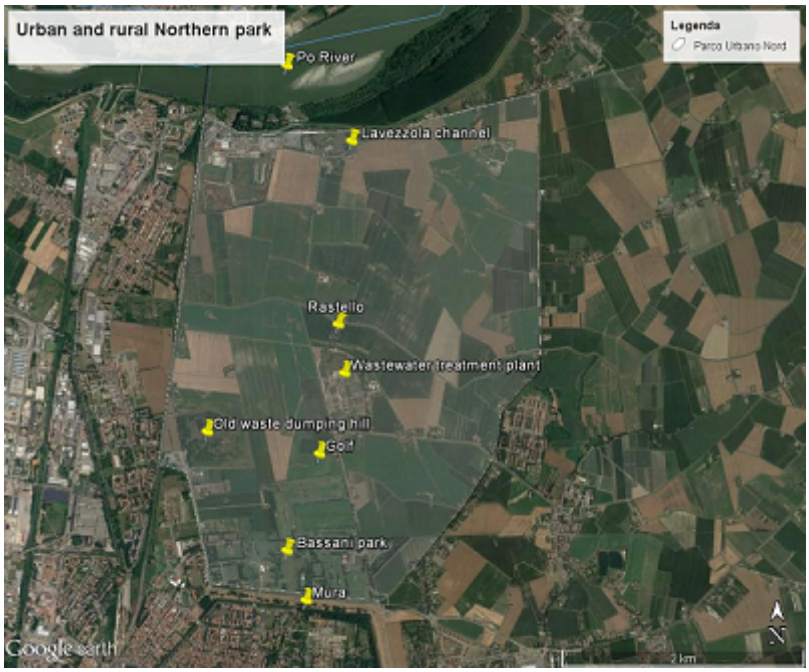
Cracks between the bricks of the walls are a refuge for many small protected animals such as *Podarcis muralis* and *P. Sicula*. When necessary, restoration techniques compatible with the presence of these animals should be applied or compensation strategies should be applied.

There are some areas where exotic invasive plants are taking over, for example along the east edge of the valley (via Caldirolo) and on the south walls (Kennedy Parking, via Baluardi). Since the situation is under control, these plants are expected to be replaced with native specimens.

It is necessary to give a little more space to the shrubby plants favouring those species that are quite rare in Ferrara such as *Viburnum spp., Euonimus europaeus, Paliurus spina-christi*. It is also possible to favour some rare autochthonous climbing species such as *Clematis viticella* and some herbaceous species (among other things with beautiful blooms) that can take advantage of the temporary humidity conditions such as *Silene flos-cuculi,* also not frequent in the Ferrara plain but already mentioned in the Walls.

The presence of animals for whom there are few information, such as the *Chiroptera* and *Apus apus* and the many insects such as the saproxylic species, and the possibility of inserting suitable shelters and habitats should be also evaluated.

13. **Please annex additional documentation material (maps, documents, photographs, research, etc.).**



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HISTORICAL CASTLE PARKS

WP-T2 Tool development and consensus building

D2.2: Plant diversity and their value

The Villa Ghigi Park

1. **The ornamental component prevails in all the HICAPS parks' trees and is relatively homogeneous in terms of species. Does your park include monumental specimens? To what extent? Please report species, approximate height, and trunk diameter of the key specimens**

The park hosts there are some examples of trees, concentrated in particular in the garden around Villa Ghigi, which do not fully possess the character of monumentality but still represent important elements that characterize the ornamental component of the green area.

The following are the main tree specimens and their dendrometric characteristics:

N.	Place	Name	Scientific Name	Diameter (cm)	Height (m)	Note
1	Garden of Villa	Himalayan cedar	*Cedrus deodara*	145	15	
2	Garden of Villa	yew	*Taxus baccata*	60	12	plants with more stems
3	Garden of Villa	domestic pine	*Pinus pinea*	71	20	
4	Garden of Villa	common cypress	*Cupressus sempervirens*	69	19	
5	Garden of Villa	common cypress	*Cupressus sempervirens*	62	21	
6	Garden of Villa	photinia	*Photinia serratifolia*	43	11	plants with more stems
7	Fenced wood	Incense cedar	*Calocedrus decurrens*	106	23	
8	Along Fontane river	American black walnut	*Juglans nigra*	100	20	

2. **With respect to the ornamental tree components, are there tree lines with monumental features? Please describe the main ones and provide data on the species, height, and diameter?**

In the garden behind the villa there is a long row of old lime trees *(Tilia cordata)* that flanks the main path; altogether it is about twenty specimens, with the characteristic "candlestick" pruning, with an average trunk diameter of 50 cm and an average height of 15 m.

Just outside the boundaries of the park, along the road that climbs from Via San Mamolo, there is a double row of old horse chestnuts *(Aesculus hippocastanum)* that once marked the access road to the estate of the Ghigi family starting from the historic gate; altogether there are 8 specimens, dating back to the first half of the twentieth century, with an average trunk diameter of 60 cm and an average height of 12 m.

3. **Are there individual trees, or groups, representative of particular historical phases of the park and that can be considered witnesses of its history?**

The period of planting some of the park's arboreal specimens leads back to certain historical phases of the park. of some trees the dating is approximate, while for others it is almost certain, based on interviews released in recent years by some elderly former settlers of the Ghigi estate. The presence of oaks *(Quercus pubescens)* is already documented in the cadastral descriptions of the late eighteenth century (Catasto Boncompagni, 1792), as witnessed by the centuries-old specimens still present along the road or at the eastern border of the park.

In the garden of the villa, the large specimen of Himalayan cedar *(Cedrus deodara)* that stands in front of the building's façade was planted by Callisto Ghigi, Alessandro's father, on the occasion of the acquisition of the property (1874). A specimen of oak *(Quercus pubescens)*, along the main road close to the Becco, was planted by Callisto Ghigi in 1875 in memory of the birth of his son Alexander. Some old specimens of ornamental exotic species are attributable to the former estate by the Ghigi family (Callisto and Alessandro). These include a cryptomeria *(Cryptomeria japonica)*, a short row of Ginkgo biloba along the Fontane stream and, in the fenced forest, a beech wood *(Fagus sylvatica)* and the exotic evergreens *(Calocedrus decurrens, Thuja gigantea)*.

In the first period of public management of the park (in the 19'70s), a reforestation started with native broadleaves along the river Fontane and in the eastern sector of the park, with a grove of white poplars just down the parking along Via Gaibola, a short row of American khaki *(Diospyros virginiana)* along one of the park's walking paths, which also houses a double row of khaki *(Diospyros kaki)*.

4. **The tree component typical of the territory (indigenous species) is in some cases prevalent. Please list species, approximate height and trunk diameter of monumental specimens**

The park has several relevant autochthonous tree species, especially oaks, isolated or in row, even if few of them are monumental. The main presences and dendrometric characteristics are listed in the following table:

N.	Place	Name	Scientific Name	Diameter (cm)	Height (m)	Note
1	Garden of Villa	downy oak	*Quercus pubescens*	161	23	close to magnolia
2	Garden of Villa	downy oak	*Quercus pubescens*	134	18	close to the old ice box
3	Garden of Villa	downy oak	*Quercus pubescens*	102	17	Close to the line of oaks
4	Garden of Villa	country maple	*Acer campestre*	80	17	On the back side of villa
5	Garden of Villa	elm	*Ulmus minor*	80	19	western plane of the garden
6	Close to Becco	downy oak	*Quercus pubescens*	121	19	along the street
7	Along the street	downy oak	*Quercus pubescens*	127	15	at the end of the growing cycle

Specimen 3 is the most significant of a row of downy oaks that marks a stretch of the border road of the villa's ornamental garden. It is made up of a total of 9 specimens with an average trunk diameter of about one meter. It should be noted that other specimens of downy oaks grow in the wooded areas of the park (about ten plants with an average diameter around the meter).

5. **Many species of indigenous trees, both native and ornamental, are common to all HICAPS parks. Please report degradation and any problems that species have shown in recent years, also in connection with climate change (droughty summers, milder winters, violent atmospheric events). Is there a plan for monitoring the phytosanitary and static conditions of key trees?**

In the last few years, several trees in the park, belonging to native, exotic and fruiting species, are showing clear signs of vegetative and phytosanitary suffering and problems.

Since 2004, when the Villa Ghigi Foundation has taken over the management of the park, several old specimens at the end of their vegetative cycle have dried up. Among these we note some downy oaks *(Quercus pubescens)*, a group of beeches *(Fagus sylvatica)*, several horse chestnuts *(Aesculus hippocastanum)*, a specimen of giant thuja *(Thuja plicata)*, one of evergreen magnolia *(Magnolia grandiflora)* and one of Colorado fir *(Picea pungens)*. A second specimen of Colorado fir is currently in precarious conditions, as well as an old libochedron *(Calocedrus decurrens)*.

The many investigations performed, show that the causes of desiccation are due to a combination of concurrent factors, including specific pathogens, but also to the changed local climatic conditions (in particular the low rainfall during the year and the consequent long periods of drought).

The desiccations in the park have also threatened fruit plants, both young and mature, especially of the family Rosaceae as wild plums *(Prunus cerasifera),* sweet cherry (Prunus avium), sour cherry *(Prunus cerasus). Some si*gns of suffering and desiccation have been recorded also between specimens of walnut *(Juglans regia)* and elm (*Ulmus minor)*. The annual management plan of the park provides for monitoring and instrumental checks of the most significant and ancient trees, performed by specialized technicians, which are based on the VTA (Visual Tree Assessment) method.

6. **The historical parks are in some cases close to/included in larger natural areas. Please describe these areas and their relationship with the parks in terms of flora, fauna, landscape, etc. Are there animal species (e.g. wild boars, crows, etc.) affecting the management of the park and its surrounding areas?**

Despite the proximity to the historic centre of Bologna, the park is inserted in a hilly area, characterized by a high degree of naturalness and biodiversity, where large areas once cultivated or uncultivated for decades are now covered by dense shrubs and young woods, due to the gradual process of re-colonization by spontaneous vegetation. There are native species typical of the hilly vegetation; among the trees there are ashes, elms, maples, cherry trees, downy oaks and oaks, while among the shrubs: hawthorn, blackthorn, dogwood, wild rose, often dominated by climbing plants, like vitalba and ivy.

In the wider context of the Bolognese hill, in addition to the Protected Landscape of the Hills of San Luca, where the park is included, a few kilometres from the Villa Ghigi Park stand out two areas that are also part of the protected areas system of the Emilia-Romagna region. They are part of the Natura 2000 Network (Gessi Bolognesi Regional Park and Calanchi dell'Abbadessa, Contrafforte Pliocenico Natural Reserve).

In the park, especially in the marginal sectors, there are some interesting situations common to the rinselvative areas surrounding it. These environments offer shelter and nourishment to a rich wildlife that habitually frequents the park, with the presence of species that people could not imagine until a few decades ago: large mammals (ungulate as roe deer and wild boar, fox, yew), squirrel, dormouse. The sporadic appearance of the wolf is also to be underlined, with some predation episodes that have been recorded within the green area (some wolf families now live permanently in the hills surrounding the park and in particular in the Regional Park Gessi Bolognesi and Calanchi dell'Abbadessa). There are micromammals, many species of birds, reptiles like green lizard, slow worm, lizards, snake, etc.
Regarding the relationship between the green area and the local fauna, some criticalities related to the damage caused by the presence of individual species have been identified. Wild boar in the meadows (with lifting of the turf and gradual disappearance of many plant species, including rare bulbous like wild tulips), damage from roe deer (feeding on buds of trees as well as mature grapes and causing the barking of branches and young trunks), damage from crows (rummaging in trash cans, looking for food and pouring to the ground a large part of objects).

7. **In the parks or close to them, there are often rivers, streams, water areas of natural and artificial origin. Please describe the conditions and quality of the water, the characteristics of vegetation, the presence of a specific fauna**

The Fontane stream, which marks the northern boundary of the park for a while, is a small tributary of the Aposa river and collects the waters of the homonymous valley on whose northern side the park develops. Probably the name of the river relates to the wealth of springs that characterized the slope, many of which are dry today. It was once also called "al fos dla pulverira" due to the presence of a powder keg destroyed in the post-war period. The terminal stretch of the river, which is a tributary of the Aposa, was buried in the 1950s and 1960s, a period to which many of these interventions on watercourses in Bologna date back.

In the first years of public management of the park, the river was affected by foul-smelling discharges from one of the neighbouring properties, which had compromised the quality of the water and caused the disappearance of many species of the typical local fauna. Currently there is a similar problem of discharges of domestic water of unknown nature arising from another neighbouring property (works have started to upgrade the water purification system). It should be noted that in the past the presence of newts has been reported in an old water collection tank close to the Becco. In 2008, a small artificial reservoir was realized by the Foundation for educational purposes, but also to increase the biodiversity of the park. It hosts several typical aquatic plants (water celery, sedges, rushes, yellow irises, etc.), as well as frogs, toads, dragonflies and other aquatic insects. In the old baths of the Palazzino (a converted old drinker and washhouse), the Apennine ulcer (Bombina pachypus), a rare endangered amphibian introduced in agreement with the Foundation, has been present for years, as part of a repopulation project in the Apennine territory of Bologna. The Villa Ghigi unit is among those that have given the best results, with specimens that come back every year for reproduction.

8. **The first reports poorly revealed the presence of trees, shrubs and plants connected to the agricultural traditions of the territorial areas in which the parks are inserted. Is this component absent or present to a very limited extent? If present, please describe it in a synthetic way, highlighting the most typical species and cultivars**

The park preserves many elements that can be traced back to the ancient agricultural estate and the rural component is one of the main matrices that characterizes its landscape and vegetation. Currently, out of about 100 recorded wood species (arboreal and shrubby), 23 species are fruit-bearing. In the past, the abundance of fruit trees of different varieties was one of the main sources of income for the farms of the estate, as the entire foothills behind Bologna until the mid-twentieth century was the main source of fruit and vegetables supply for the city. Today in the park there are still some hundreds of fruit trees, among which there are many old specimens belonging to rare and endangered typical cultivars of the Bolognese hill. Among these, remarkable for their majesty and beauty during the flowering period, a double row of pear trees (Pyrus communis), a row of almond trees (Prunus dulcis) and several rows of wild plums (Prunus cerasifera) can be underlined.

The following are some of the most characteristic cultivars belonging to the main fruiting species.

- Pear tree: Francesina, Molinaccio, Ruggine, Curato, Spadona, Zuccherina, Volpina
- Apple tree: Abbondanza, Lavina, Roman Rose.
- Fig tree: Goccia d'oro, Gentile, Verdeccio.
- Mediterranean medlar (azerole): Red, Small yellow, Big yellow.
- Cherry tree: Mora di Vignola, Cornetta, Durone

In 2010 a new plant was also built, the Frutteto del Palazzino, which collects a collection of about thirty fruit trees (with different apple, pear, olive, apricot, plum, biricoccolo plum, pomegranate, fig and quince varieties) and of about ten specimens of vine obtained from centuries-old specimens present in the Emilia-Romagna Region.

The park still preserves vineyards and rows of productive vines, which the Foundation has entrusted in management to two expert winemakers. Among the typical vines of the Bolognese area, we can mention wine grapes such as Negrettino, Moscato, Albana, Trebbiano, Sangiovese and Lambrusco (for the latter still survive three plants dating back to 1929 and restored in 2017); among the table grapes appear Saslà (or Chasselas), Angela and Paradisa.

Finally, in the park there are some trees that can be traced back to the past rural:

- a short row of white mulberries (Morus alba) reminds the traditional silkworm breeding in the Emilian countryside, an activity for which Bologna was famous in the last centuries throughout Europe;

- several examples of ash (Fraxinus spp.), whose branches were used as poles for the vineyards.

- several specimens of willows (Salix alba and S. alba var. vitellina), whose flexible branches were used as laces for the vine and various basketry works. For this last activity, once very practiced, also hazel (Corylus avellana), vitalba (Clematis vitalba) and common reed (Arundo donax) were used. For some years the Fondazione Villa Ghigi has been organizing basketry laboratories with the collaboration of a young basket maker specializing in this ancient profession. It should be noted that the common cane was also used for the chairs and its stalks were used as a support for vines and climbing vegetables (tomatoes and beans) and even today it is widely used in the Becco vegetable garden.

9. Are there culinary traditions and curiosities related to the tree, shrub and herbaceous species present in or close to the park? Are these traditions still alive?

There are many culinary traditions and curiosities related to the park and the surrounding area, some still practiced by the elderly settlers of the former estate (one of them still lives in the Becco area inside the park, another just across the border of the green area, others near Bologna). These people represent a precious historical memory and the Foundation often involves them in information and educational

activities, as they are able to transmit the memory of the customs, traditions and knowledge of the peasants of the past, Their presence is important because it establishes connections among different generations and helps to reflect on very topical issues (today recognized as "good sustainability practices"), such as the importance of care and territorial governance, respect for nature and natural cycles, the seasonal nature of food, the fight against food waste, etc.

Among the activities related to the conservation and transformation of fruit, still alive is the preparation of jams, Bolognese mustards and quince, which are the basis of many traditional dishes of the local cuisine. In this regard, in the summer of 2017 the Foundation, in collaboration with a local processing laboratory, started the production of small quantities of jams (choosing among the most characteristic fruit of the park as wild plums, pears, quince apples) with results very satisfying. For the next year it is planned to start a small production of jams for sale both in the park and in particular places of the city, under the brand name Villa Ghigi (the income generated will be used to improve the park maintenance). Furthermore, it was common to preserve the fruit as syrup: this procedure mainly concerned cherries and, in particular, black cherries.

As far as table grapes, in the past it was customary to wither the clusters of certain varieties such as Angela and Paradisa on racks, and consume them during the winter time. The preparation of baskets as Christmas gift boxes was one of the most profitable activities for the settlers of the former estate, and still today they prepare these baskets to respect the tradition

We must also mention the custom to pick up some herbs from the fields and fields to prepare fresh salad ("misticanza" or "armisdanza") or enrich pies. Some of these herbs still grow in the park and the Foundation, as part of the activities for the public, organizes walks dedicated to the recognition of the main wild herbs. Among these, the nettle deserves a special mention, still harvested because it is one of the classic ingredients for colouring green the "sfoglia" and creating the classic "lasagna verde alla bolognese".

Among the culinary curiosities of the past, coming from the stories of the elderly settlers of the former estate, there are some habits that have now disappeared, such as: to preserve dried tomatoes in the granary during the winter months; to preserve the cornelian cherries (Cornus mas), the so-called "cornelian olives", in brine and prepare a liqueur with walnuts harvested on the St. John's Day (the so-called "nocino") or another liqueur made from the maceration of the leaves of giant Thuja (called "Tubal"). The latter was very appreciated by Alessandro Ghigi, who offered it to his frequent guests, inviting them to guess what was it done with.

Among the many "farmyard animals" bred in the past in the farms of the former estate, near the Becco still survives a small colony of Romagna pigeons, a breed selected and described by Alessandro Ghigi, which still has specific characteristics; the Romagna pigeon is registered in the regional list of endangered breeds.

10. **Are there and therapeutic traditions and curiosities related to the tree, shrub and herbaceous species present in or close to the park? Are these traditions still alive?**

In the past, but even today, the plantain leaf *(Plantago spp.)* has been used as an antiseptic against the bites of mosquitoes and other insects, as well as against skin reactions caused by the nettle.

11. **Please detail these key aspects of the park: management, staff, cleaning, main maintenance work carried out over a year, new plantations, restoration of individual areas, etc. Does the management involve national or local voluntary environmental associations?**

The management of the park is managed by the Fondazione Villa Ghigi on the basis of an agreement with the Municipality of Bologna, with the operational support of a specialized social cooperative. Every year a management plan is drawn up, defining an articulated series of interventions, both ordinary and for special improvement. The latter ones are aimed at the preservation, restoration and enhancement of the peculiar characteristics of the park, as well as at delivering educational and information activities and initiatives for citizenship, organized by the Foundation.

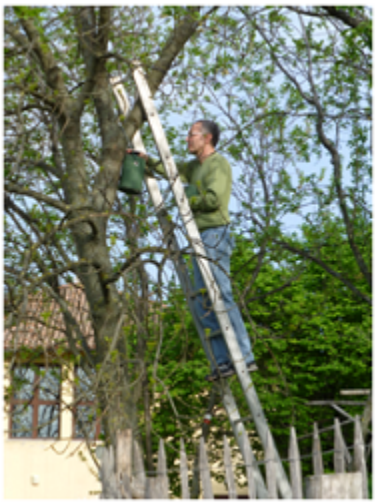
The main ordinary maintenance interventions concern the hygienic protection service, the mowing of meadows and slopes, the pruning of the hedges along the road system, the ordinary maintenance of roads, paths, the hydrographical network and the furnishings. Improvement measures, on the other hand, vary from year to year and generally concern the reorganization of sections of roads and paths network, the improvement of water regulation, the consolidation of slopes subject to landslides, the insertion of new furnishings similar to the existing ones, new planting of trees and bushes, the care and maintenance of particular or highly frequented areas (such as those around the Palazzino and Villa Ghigi buildings, the Becco vegetable garden, the Palazzino Orchard, the green area at the entrance of via di Gaibola, etc.), specific interventions in wooded areas and on single or row trees, visual and instrumental appraisals (VTA) on valuable arboreal specimens, fruit trees pruning, support to interventions related to school and extracurricular educational activities, the snow and ice service in some sections of pedestrian traffic. The management of the park participates in the Voluntary Ecological Guards (GEV) that perform on behalf a supervisory service concentrated mainly on weekends and in the period from spring to autumn.

12. **From the management point of view, are there good practices being put in place to protect and promote biodiversity?**

Management of the green area respects the principles and techniques of the biological method, as defined by the Bio Habitat Regulations: (http://www.bio-habitat.com/home/home.asp) and the European Regulations. 2092/91 IFOAM. The social cooperative that performs the interventions in the park has specific skills, since it cultivates fruit and vegetables in his own land with organic methods (ICEA certification). The maintenance of the park and all the operations that take place have the objective of safeguarding and favouring the biodiversity of the green area, compatibly with the need to guarantee citizens a correct and safe use.

The mowing of meadows and slopes is performed selectively according to the different use of the areas, the calendar of flowerings and the presence of rare or protected flora species. In rotation, non-mown areas are maintained to ensure the dissemination of the plants, favour wild pollinators and allow the refuge of the wild microfauna. In past years, in a grassy sector of the park, grazing has been experimented with a small flock of sheep in collaboration with a local pastor (activity ceased due to the transfer of the shepherd). This type of practice, already in use in other public green spaces in Italy but above all abroad, represents a model of management of a grassland that is both ecological and economic and has certainly enriched the park with an original and picturesque note; as soon as the conditions allow it again, it is thought to replicate the experience, which also has a strong educational interest.

The resulting vegetable resulting from felling and pruning of trees is released on site, placed in stacks or subjected to chipping, to preserve and increase the supply of organic matter in the soil and encourage the maintenance of its fertility.



Periodically, naturalistic furnishings such as artificial nests and feeders are set up and introduced into the park to favour the presence of birds (including insectivorous birdlife), wild bats and pollinators.

With regard to rescue irrigation, which exclusively concern the new plants of trees and shrubs, in order to limit the consumption of the water network, the water of a well-cistern was inside the Palazzino also used experimentally. In recent years this practice has not been possible anymore, because the water level of the well has dropped, due to the poor rains.

Lastly, the phytosanitary defence through specific products is limited only to cases of real necessity, after careful assessment of the situation, and concerns only recently planted fruit trees belonging to rare species and for which it is difficult to find cultivars. The treatments are performed manually and using only the products allowed by the internal regulations.

HISTORICAL CASTLE PARKS

WP-T2 Tool development and consensus building

D2.2: Plant diversity and their value

The Wieniec Park

1. **The ornamental component prevails in all the Hicaps parks' trees and is relatively homogeneous in terms of species. Does your park include monumental specimens? To what extent? Please report species, approximate height, and trunk diameter of the key specimens**

In the front part, you may see single monumental trees such as the red beech, European larch, oak, red horse-chestnut, blue spruce, northern white-cedar, Sawara cypress and Canadian hemlock.

At the back of the palace there is a neglected and overgrown park with numerous wild trees such as the black locust, Scots elm, maple tree and ash tree – the park resembles the oak-hornbeam forest.

2.With respect to the ornamental tree components, are there tree lines with monumental features? Please describe the main ones and provide data on the species, height, and diameter?

The horse-chestnut tree, Norway spruce, small-leaved linden and large-leaved linden, London plane tree, the common ash and Norway maple,

3.Are there individual trees, or groups, representative of particular historical phases of the park and that can be considered witnesses of its history?

The stand of trees includes species with natural monument parameters – about 130 years old: the London plane tree, the common ash, the horse-chestnut tree, English yew, common oak, large-leaved linden, Norway spruce and red beech.

4. **The tree component typical of the territory (indigenous species) is in some cases prevalent. Please list species, approximate height and trunk diameter of monumental specimens**

The Scots elm, the European white elm, Norway maple, sycamore maple, common ash, small-leaved linden and large-leaved linden.

5. **Many species of indigenous trees, both native and ornamental, are common to all Hicaps parks. Please report degradation and any problems that species have shown in recent years, also in connection with climate change (droughty summers, milder winters, violent atmospheric events). Is there a plan for monitoring the phytosanitary and static conditions of key trees?**

The complex of palace and park in Wieniec is located in the Wielkopolsko-Kujawska Plains. The climate is characterized by low rainfall, which can cause periodical water shortages. Winters can be mild with little or short-term snow covers. The areas abound in fertile soils such as black earths and lessive soils. The condition of the stand of trees is good.

6. **The historical parks are in some cases close to/included in larger natural areas. Please describe these areas and their relationship with the parks in terms of flora, fauna, landscape, etc. Are there animal species (e.g. wild boars, crows, etc.) affecting the management of the park and its surrounding areas?**

The area is used for agricultural purposes and there are no forms of natural environment protection there, in the vicinity within 12 km there is the area of Natura 2000 PLH040037 Słone Łąki in the Zgłowiączka Valley; in the vicinity within 13 km there is the area of Natura 2000 PLH040039 Włocławska Vistula Valley.

7. **In the parks or close to them, there are often rivers, streams, water areas of natural and artificial origin. Please describe the conditions and quality of the water, the characteristics of vegetation, the presence of a specific fauna**

The Zgłowiączka River flows south from the park – about 150 m away

8. **The first reports poorly revealed the presence of trees, shrubs and plants connected to the agricultural traditions of the territorial areas in which the parks are inserted. Is this component absent or present to a very limited extent? If present, please describe it in a synthetic way, highlighting the most typical species and cultivars**

The Easter eggs – so-called kraszanki (eggs painted in one colour without any patterns) were boiled brown in, among others, oak bark. In the Kujawy region it was a custom to go around with a 'gaik-maik'. When a symbol of winter was drowned, the whole procession came back with a branch of a pine or spruce decorated

with ribbons, glittering elements and paper flowers. The branch referred to as a 'gaik-maik' was carried by a girl dressed in white with a flower wreath on her head. The procession accompanied by music visited all huts in the village, exchanged wishes and sang songs.

9. **Are there culinary traditions and curiosities related to the tree, shrub and herbaceous species present in or close to the park? Are these traditions still alive?**

Some honey.

10. **Are there and therapeutic traditions and curiosities related to the tree, shrub and herbaceous species present in or close to the park? Are these traditions still alive?**

Linden flower infusions are valued for their diaphoretic properties and they improve dermal breathing. Infusion baths not only have diaphoretic effects, but also enable us to relax, regenerate our skin and help decrease cramps. Additionally, linden has anti-inflammatory, protective, disinfecting, expectorant, mucous coating and calming properties and stimulate gastric secretions. It also soothes sore throat and coughing and protects mucous membrane of the alimentary tract. In treatment of diarrhoea, indigestion and poisoning, medicinal charcoal obtained from the linden timber is used. The linden infusion can also be used externally in the form of compresses in case of conjunctivitis and blepharitis as well as for swellings and dark shades under eyes. Rinsing of skin with the infusion soothes irritated skin, cares for your skin, makes it flexible, decreases seborrhoea and blocks skin exfoliation.

In Europe, they thought that the ash tree had a large therapeutic power and was used to treat hernia in babies. Some also think that the ash leaves were used as a successful antidote to a viper bite. Applied on the affected body part, the leaves were to block the poison. The leaves were also taken orally. Additionally, the ash leaves are thought to have anti-diuretic properties. They are taken orally and applied externally in the form of an infusion made of a bunch of leaves boiled in one litre of water. On the other hand, the ash bark was used in treatment of absence of menstruation. Traditionally, the bark and leaves were used as herbaceous means against diarrhoea. A substance contained in the root and leaves increases excretion of uric acid and it has been proved in rheumatic diseases such as rheumatoid arthritis and osteoarthritis. Moreover, the remedy was used for treatment of ear diseases and warts. Chemical substances found in the ash tree help wounds to heal and decrease swellings. The bark is used in treatment of fever and has astringent properties.

The spruce oil is used in treatment (owing to its cholepoietic properties and stimulation of gastric secretions). It stimulates secretion of the bile and removes parasites from bile ducts or intestines. The common spruce in the form of oil can also be used in case of nerve pains and muscle and joint pains (also in rheumatic diseases). A broth made of shoots can be used in case of upper and lower respiratory tract disorders.

Infusions made of horse-chestnut flowers or leaves have spasmolytic, anti-inflammatory, antibacterial and calm constipating effects on the alimentary tract. Compresses with the use of infusions or broths made of bark, flowers or leaves improve blood circulation in the skin, accelerate absorption of hematomas, decrease swellings and prevent varicose veins.

The oak barks has anti-inflammatory, antibacterial, astringent and disinfecting properties. It is used for skin with lesions and for problems with the alimentary tract. The oak bark helps in inflammatory conditions of the skin and mucous membrane – for stomatitis, pharyngitis and in case of minor damage, frostbites or mild burns. A broth of the oak bark is also used externally in treatment of haemorrhoids.

11. **Please detail these key aspects of the park: management, staff, cleaning, main maintenance work carried out over a year, new plantations, restoration of individual areas, etc. Does the management involve national or local voluntary environmental associations?**

Presently the Palace is envisaged for major renovation.

After the end of the Second World War, the Palace of the Kronenberg family was converted into a tuberculosis hospital. Until 2006 the palace house the Tuberculosis and Lung Diseases Ward of the Provincial Hospital in Wloclawek. For nearly a year the palace and park complex in Wieniec has been managed by the Kujawsko-Pomorski Impresaryjny Teatr Muzyczny [Musical Theatre] in Torun. The management board of the province would like a new cultural institution, namely the **Kujawsko-Pomorskie Centrum Muzyki in the Wieniec Palace** to be housed there. The documentation will relate to modernisation of the palace building and old manor building, complete development of the entire lot and restore and renovate the historic fence with its main gate.

HISTORICAL CASTLE PARKS

WP-T2 Tool development and consensus building

D2.2: Plant diversity and their value

Łańcut Castle Park

1. **The ornamental component prevails in all the HICAPS parks' trees and is relatively homogeneous in terms of species. Does your park include monumental specimens? To what extent? Please report species, approximate height, and trunk diameter of the key specimens**

In the historic park in Łańcut, deciduous trees predominate mostly in native species, but we also find alien species from various habitats and planted at the turn of the 18th and 10th centuries. One of the oldest introduced trees is a maple plane planted at the end of the 18th century with a circumference of about 800 cm and a height of about 30 m. Other interesting species planted in this period that should be mentioned are - purple beech, purple (circumference of about 500 cm, height about 30 m), ginkgo biloba (circumference about 400 cm, height 30 m) - it is probably the oldest specimen of ginkgo in Poland. From this period also linden avenues that surround the internal garden in the form of a five-pointed star. The oldest of these trees come from 1772. Up to now, about 20% of the oldest ones have survived. The oldest native is a bunch of lindens and hornbeams over 300 years old. From the beginning of The nineteenth century comes from the maple tree growing near the Romantic Castle in the amount of 3 pieces with circumferences of about 450 cm and height of about 24 m. From the 30s of the nineteenth century, the tree stand surrounded by the historic Ujeżdżalnia. They are - an American tulip tree with a trunk circumference of about 400 cm and height of 26 m, a purple beech remix (circumference of 430 cm and height of 26 m), clusters of plane trees (circumference of 650 cm, height 28 m).

2. **With respect to the ornamental tree components, are there tree lines with monumental features? Please describe the main ones and provide data on the species, height, and diameter?**

From monumental trees should be mentioned:

- Maple clusters - 5 pieces with circumferences 450 - 800 cm.
- Ginkgo biloba L – a specimen formed from the fusion of two or three trunks with a circumference of 400 cm.
- Common buzzwort purple - 3 pcs. - Circuitry with trunks from 400 - 500 cm.
- American tulips
- Alley composed of purple beech trees planted at the beginning of Twentieth century - in the amount of a dozen or so items (circumferences of trunks, area 300 cm and height of approx. 26 m)

3. **Are there individual trees, or groups, representative of particular historical phases of the park and that can be considered witnesses of its history?**

From the beginning of the assumption, there are specific trees characteristic for a given period. At the beginning of the 18th century, several specimens of linden trees and hornbeams growing from the northern side of the Castle come from. II half of the eighteenth and early the nineteenth century is the time when the castle loses its defensive function and is transformed into a palace. With the palace, after partial levelling the garden arises. From this period comes a linden avenue surrounding the garden around the Castle, ginkgo biloba, maple plane, purple beech, purple maple leaf. Odesska - growing in the internal garden. From this period also come the oldest trees growing near the Romantic Castle (clusters of maple and common hornbeam) and riding arena (American tulip, purple beech, purple chestnut, chestnut tree white). The end of the nineteenth and early twentieth century is the extension of the park's assumption in the eastern direction. The attached area was designed in the spirit of the English landscape park. From that time comes the unique in the country avenue planted with purple beech trees, a group of pedunculate oaks called, red oaks, common beeches, chestnut trees.

4. **The tree component typical of the territory (indigenous species) is in some cases prevalent. Please list species, approximate height and trunk diameter of monumental specimens**

Native species should be mentioned:

- Common beech - growing in the eastern (landscape) part - trunk circumferences about 400 cm, height about 26 m
- Pedunculate oaks - trunk circumferences 300-400 cm, height approx. 24 m
- Common groves - tree trunks, approx. 300 cm circuit, 24 m high
- Haughty ashes - circumferences about 350 cm and more, height about 30 m.
- Poplar gray - circumference about 400 cm, height about 30 m

Invasive species is an autochthonous species with significant expansiveness, which spreads naturally or with human participation and is a threat to the fauna and flora of the ecosystem, competing with indigenous species for an ecological niche, and also contributing to the extinction of local species.

In the park, there are rather no invasive species of exotic plants that have a significant impact. However, in the park you can find valuable, old, monumental species of exotic plants:

deciduous trees	coniferous trees	shrubs
Ginkgo biloba *Ginkgo biloba*	Canadian pine tree *Tsuga canadensis*	Narrow-leaved olives *Elaeagnus angustifolia*
American tulip *Liriodendron tulipifera*	Spruce prickly *Picea pungens* "Glauca"	Magnolia Soulange *Magnolia x soulangeana*
London plane *Platanus x hispanica* "Acerifolia"	*Spring pine* *Pinus strobus*	Japanese Magnolia *Magnolia kobus*
Crimean lip *Tilia* "Euchlora"		Purple magnolia *Magnolia liliiflora* "Nigra"

Chestnut tree *Aesculus hippocastanum*		
Maple ashore Odessa *Acer negundo* "Odessanum"		

5. **Many species of indigenous trees, both native and ornamental, are common to all HICAPS parks. Please report degradation and any problems that species have shown in recent years, also in connection with climate change (droughty summers, milder winters, violent atmospheric events). Is there a plan for monitoring the phytosanitary and static conditions of key trees?**

In recent years, chestnut crumblers have made large damages to the health of white chestnuts, causing chestnut leaves to die and fall, sometimes even in July. The next problem are very strong winds occurring this year, causing many damage and excursions of the weakest specimens of trees (especially the oldest and largest ones). In order to prevent breaks and exits of trees, systematic reviews of the historic stand are carried out and care treatments are carried out aimed at the correction of crowns and improvement of tree statics.

6. **The historical parks are in some cases close to/included in larger natural areas. Please describe these areas and their relationship with the parks in terms of flora, fauna, landscape, etc. Are there animal species (e.g. wild boars, crows, etc.) affecting the management of the park and its surrounding areas?**

The historic park in Łańcut is not included in any natural area. Due to its historical character, it is under conservation protection. Existing animal species do not affect the management of the park.

7. **In the parks or close to them, there are often rivers, streams, water areas of natural and artificial origin. Please describe the conditions and quality of the water, the characteristics of vegetation, the presence of a specific fauna**

The historic park in Łańcut has no natural watercourses, and is even far away from them. In the landscape part there is an artificially created small pond with an island and a concrete bottom. It does not have a constant inflow of water and is supplied with rainwater from the drainage of the existing moat wall. Due to the lack of constant flow it is stagnant water. In the pond grow various water plants including. water lilies, sticks, urea, rips and others. The fauna should include various species of fish (including the largest group of fish) and wild ducks.

8. **The first reports poorly revealed the presence of trees, shrubs and plants connected to the agricultural traditions of the territorial areas in which the parks are inserted. Is this component absent or present to a very limited extent? If present, please describe it in a synthetic way, highlighting the most typical species and cultivars**

The area occupied by the park is located in the city centre and is not associated with agricultural traditions

9. **Are there culinary traditions and curiosities related to the tree, shrub and herbaceous species present in or close to the park? Are these traditions still alive?**

There is no culinary tradition. The curiosities associated with trees should be attached at the beginning of the twentieth century, and the already existing, grove with pedunculate oaks called "tan". There was a tradition in Łańcut and the surrounding area, so that the young people who were getting married would plant two oaks to protect their love and faithfulness.

10. **Are there and therapeutic traditions and curiosities related to the tree, shrub and herbaceous species present in or close to the park? Are these traditions still alive?**

There are no therapeutic traditions connected with vegetation in the park.

11. **Please detail these key aspects of the park: management, staff, cleaning, main maintenance work carried out over a year, new plantations, restoration of individual areas, etc. Does the management involve national or local voluntary environmental associations?**

All activities related to the maintenance and care of the park are taken care of by the Park Conservation Department, composed of the Manager, 2 brigadiers and staff in an amount of about 20 people. The main tasks of the Department include ongoing care consisting in maintaining the existing lawns, rebates and flower beds, as well as trees and shrubs at the appropriate level. In recent years, intensive work has been carried out related to the revalorization of the historic park and restoration of its appearance from the 1930s. These works were supported by the National Fund for Environmental Protection and Water Management in Warsaw and the Provincial Fund for Environmental Protection and Water Management in Rzeszów. The funds obtained from these Institutions contributed to the carrying out of caring work in the park stand, the purchase and planting of trees, shrubs and perennials, as well as the purchase of park care equipment.

12. **From the management point of view, are good practices being put in place to protect and promote biodiversity?**

In the historic premise of the park, the overarching goal is to maintain the historical compositional layout and use of such plant species and varieties to maximize the original state (the period adopted as the most important and the most valuable historical). Biodiversity is not a primary objective in this type of assumptions, therefore, no such practices are introduced.

13. **Please annex additional documentation material (maps, documents, photographs, research, etc.)-**

- https://www.zamek-lancut.pl/pl/ZamekDzisiaj/Plan
- https://www.zamek-lancut.pl/pl/ZamekDzisiaj/Park
- https://www.zamek-lancut.pl/pl/ZamekDzisiaj/Zlotuptaka
- https://www.zamek-lancut.pl/pl/ZamekDzisiaj
- http://www.mdk-lancut.pl/asp/pliki/2016.09.05_PAT_informator/informator_lancut_3.pdf
- https://www.zielonyogrodek.pl/lancut-wizyta-w-ogrodzie-przyzamkowym
- http://atlasrezydencji.pl/lancut-zamek-lubomirskich/

HISTORICAL CASTLE PARKS

WP-T2 Tool development and consensus building

D2.2: Plant diversity and their value

Turnišče Park

1. **The ornamental component prevails in all the HICAPS parks' trees and is relatively homogeneous in terms of species. Does your park include monumental specimens? To what extent? Please report species, approximate height, and trunk diameter of the key specimens**

HICAPS Park in Ptuj will be settled in park area around Castle of Turnišče, which has more than 600 trees and more than 30 sorts of shrubbery.

In time and space there are few tree assemblies that are special: (1) in central part of park we can find monumental old individual trees, (2) foothills of central part are also filled with old trees, (3) throughout park we can find younger trees, some of own growth some were planted. Key specimen in Castle park Turnišče:

SPECIES	APPROXIMATE HEIGHT	TRUNK CIRCUMFERENCE
Oak age	over 20 meters	724 cm
Maple leaf plane	over 20 meters	548 cm
Red leaf beech	over 20 meters	538 cm
Lime	15 - 20 meters	505 cm
Oak age	over 20 meters	504 cm
Maple leaf plane	over 20 meters	497 cm
Maple leaf plane	15 - 20 meters	485 cm
European ash	over 20 meters	393 cm
European beech	over 20 meters	368 cm
Oak age	15 - 20 meters	363 cm
Red oak	over 20 meters	358 cm
Elm	over 20 meters	355 cm

2. **With respect to the ornamental tree components, are there tree lines with monumental features? Please describe the main ones and provide data on the species, height, and diameter?**

Throughout the history of Castle Park Turnišče the park had two lined tree line that led towards castle. Later they added a tree line behind the castle as well, but it soon was reorganised into English type of park. Tree line towards castle was formulated of different tree species. Mentioned tree line in late 19th century disappears from maps and use. Today we can find some fragments of what used to be tree line. There are two old ash trees that was once part of an historical ash tree line towards castle.

European ash	circumference: 247 cm	height: over 20 meters
European ash	circumference: 283 cm	height: over 20 meters

3. **Are there individual trees, or groups, representative of particular historical phases of the park and that can be considered witnesses of its history?**

Castle Park Turnišče has few very impressive trees, which outstands for its developed structure – wide trunk diameter, reached high and width of treetop. With more than seven meters of trunk diameter stands out a huge oak tree. It is predicted that mentioned tree originates from late 18th century. Tree is settled in south part of park.

Important trees are also two poplar trees, which stand at the south-west entrance. They are remaining from tree line which led towards castle until late 19th century.

Detailed analysis showed that Castle Park Turnišče has 23 trees, which could be valued as tree nature value, mainly because of their trunk diameter.

4. **The tree component typical of the territory (indigenous species) is in some cases prevalent. Please list species, approximate height and trunk diameter of monumental specimens**

One of major specialities of Castle Park Turnišče is a very large nature grow area for common snowdrop. Snowdrops are among protected species in Slovenia, they are also protected under CITES (Convention on International Trade in Endangered Species of Wild Fauna and Flora).

5. **Many species of indigenous trees, both native and ornamental, are common to all HICAPS parks. Please report degradation and any problems that species have shown in recent years, also in connection with climate change (droughty summers, milder winters, violent atmospheric events). Is there a plan for monitoring the phytosanitary and static conditions of key trees?**

Castle Park Turnišče is settled on Drava plain field. Through park flows stream Studenčnica, who's numerous sources caused a formation of a pond in park. Park lies on 223 m altitude. The area has a moderate continental climate. Park area is relatively resistant to time to time climate changes. Drought is not a very significant problem because of the stream Studenčnica in the park. Hard winters are in park area very rare, mild winters do not dramatically affect the trees and shrubbery.

In year 2016 the Municipality of Ptuj ordered a preparation of an Arboristic plan for Castle Park Turnišče. The plan itemized every tree in park and offered suggestions on how to handle with the individual tree.

6. **The historical parks are in some cases close to/included in larger natural areas. Please describe these areas and their relationship with the parks in terms of flora, fauna, landscape, etc. Are there animal species (e.g. wild boars, crows, etc.) affecting the management of the park and its surrounding areas?**

Castle Park Turnišče has status of different insurances at Institute of the Republic of Slovenia for Nature Conservation (ZRSVN): Turnišče, Castle surroundings (ID 1126), Turnišče stream, nature value (ID 7056), Natura 2000, Drava (ID 5000011) and Drava, ecologically important area (ID 41500). Insurances are made because of its flora, fauna and landscape properties. The management of the park is not affected by wild animal species.

7. **In the parks or close to them, there are often rivers, streams, water areas of natural and artificial origin. Please describe the conditions and quality of the water, the characteristics of vegetation, the presence of a specific fauna**

Through park runs stream Studenčnica, who's numerous sources causes a formation of a pond in park. Stream Studenčnica is of natural origin. It runs on right sight of river Drava. Once the stream had very clean and bright water. Today the stream has a muddled ground, flora and fauna are destroyed, its water is troubled.

In Castle Park Turnišče is very large natures grow area for common snowdrop. Park has 63 trees with trunk diameter over 250 cm, mainly from the category old trees.

8. **The first reports poorly revealed the presence of trees, shrubs and plants connected to the agricultural traditions of the territorial areas in which the parks are inserted. Is this component absent or present to a very limited extent? If present, please describe it in a synthetic way, highlighting the most typical species and cultivars**

Park area neighbours at his east and south side to agricultural area. Trees in Castle Park Turnišče are part of larger forest that spreads north of Castle Park. Therefore tree species in Castle Park are similar to species in forest. Further components of connection to the agricultural traditions are not present.

9. **Are there culinary traditions and curiosities related to the tree, shrub and herbaceous species present in or close to the park? Are these traditions still alive?**

Culinary traditions related to the tree, shrub and herbaceous are not present.

10. **Are there and therapeutic traditions and curiosities related to the tree, shrub and herbaceous species present in or close to the park? Are these traditions still alive?**

Area of Castle Park Turnišče was/is not known for its therapeutic traditions.

11. **Please detail these key aspects of the park: management, staff, cleaning, main maintenance work carried out over a year, new plantations, restoration of individual areas, etc. Does the management involve national or local voluntary environmental associations?**

Castle and Castle Park Turnišče are managed by Municipality of Ptuj, who is also the owner. Two buildings are inhabited by residents. Part of Turnišče park area is managed by Biotechnical school Ptuj. They take care of east part of park area, and are responsible for maintenance of trees and lawn in Castle Park Turnišče. Main maintenance works are carried out by external workers that are hired by Municipality of Ptuj.

Aboristic plan, from 2016, shows specified list of trees in Central Park Ptuj. Same plan also includes suggestions, how to work with trees and shrubbery, and how to handle with new planting. Preposition has been made to prepare a landscape architecture plan. Mentioned plan should evaluate most suitable species, places and instruction about managing the plant diversity in Castle Park Turnišče. Landscape architecture plan should also specified urban equipment.

12. **From the management point of view, are good practices being put in place to protect and promote biodiversity?**

In later years park and castle Turnišče are not being managed properly. Big steps towards protection and promotion of biodiversity are yet to be made. Conservatory plan, made in 2016, gives clear message about bad management of castle and of surrounding park. Conservatory plan and arboristic plan gives specific instructions how to approach towards protection of biodiversity in Castle Park Turnišče.

HISTORICAL CASTLE PARKS

WP-T2 Tool development and consensus building

D2.2: Plant diversity and their value

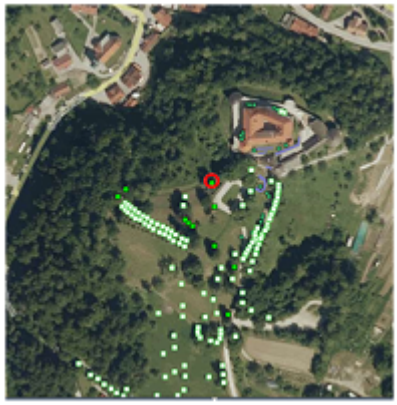
Historical castle park of Velenje

1. **The ornamental component prevails in all the HICAPS parks' trees and is relatively homogeneous in terms of species. Does your park include monumental specimens? To what extent? Please report species, approximate height, and trunk diameter of the key specimens**

Velenje Castle park does include monumental specimens and they are located at different positions in the park. Through the years it is obvious, that only the most resistant plants still exist in the park, in the past they all were part of them homogeneous and harmonic castle park.

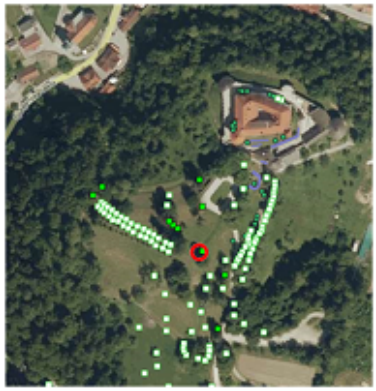
This few still existing plants are very important part of the cultural and environmental heritage and important link with the past, the present and the future of the castle park. Their value is also important for future park renovations, to reach the final effect as close as possible to the characteristics of its original state. The first example is right at the front of the castle entrance, next to the hanging bridge.

Large leaf lime tree (Tilia platyphyllos) is a more than 15 m high tree, with the trunk girth of 346 cm at 1m above ground, and the diameter of 109 cm at the same level. This tree is a castle guard, what makes it a plant of special value.



The second example is in the south part of the castle park, under the castle walls. Chamaecyparis lawsoniana, known as Lawson cypress is a rare conifer with such vitality and condition in our area. The tree is more than 15 m high, with the trunk girth 372 cm above ground and the diameter of 118 cm at the same level.

The third example is also in the south part of the castle park, under the castle walls. Chamaecyparis lawsoniana, known as Lawson cypress with incredible shape and tree structure. The tree is more than 15 m high, with the trunk girth of 290 cm at 1m above ground and the diameter 93 cm at level.


The fourth example is a solitary tree, located also in south part of the castle park. Platanus x hispanica, known as plane tree, having a very interesting bark texture. The tree is a approx. 15 m high, with the trunk girth of 280 cm at 1m above ground and the diameter of 89 cm at same height level.

The fifth example is reminder of an alley also located in the south part of the castle park. Aesculus hippocastanum known as Horse Chestnut. The tree is more than 15 m high, with the trunk girth of 346 cm at 1m above ground and the diameter of 110 cm at same level.



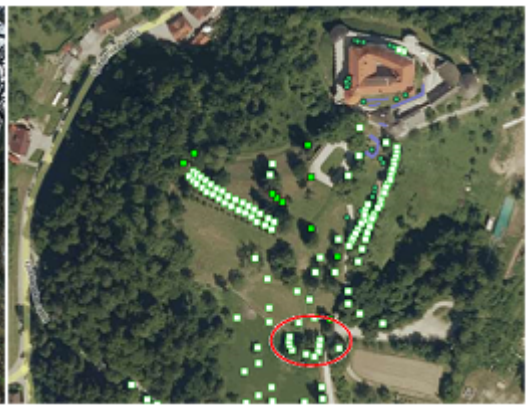
The sixth example is lime tree at the same level as the castle entrance. Large leaf lime tree (Tilia platyphyllos) which is more than 15 m high, with the trunk girth of 290 cm at 1m above ground and diameter of 93 cm at the same level.

2. **With respect to the ornamental tree components, are there tree lines with monumental features? Please describe the main ones and provide data on the species, height, and diameter?**

Velenje Castle park does include tree lines with monumental features , though not as individual trees. We will present the horse chestnut alley. When driving up to the castle we enter the tree avenue of old the horse Chestnuts *(Aesculus hippocastanum)*. A further example is also the alley of horse chestnuts *(Aesculus hippocastanum)* not far from the castle entrance.

Both chestnut avenues are no longer complete or connected, though they originally were. The answer is equal to the question No.5. The approximate height of trees is 10 to 15 metres with the trunk girth between 200 and 346 cm at 1m above ground and their diameters between 65 and 110 cm at the same level. As in the past the chestnut avenues were complete, it is now part of the future plan to restore them to their original state.

Another interesting tree group is a semi-circle circle of *Carpinus betulus*, commonly known as the European or common hornbeam. Approximate height of trees is 10 m with the trunk girth between 160 and 200 cm at 1m above ground and diameter between 51 and 64 cm at the same level. The semi- circular tree formation is unique for our area and was probably meant as a place of rest for a park strollers.



3. **Are there individual trees, or groups, representative of particular historical phases of the park and that can be considered witnesses of its history?**

Yes, we can find both, though speaking of the trees we cannot go far back. The end of 19th and the beginning of 20th century is the period with which the previously mentioned trees can be connected and can be seen as the witnesses of that part of the castle history. Unfortunately no trees older than that exist today. In my answer to the first question I already described individual trees, which represent the past of the castle park. The same goes for the tree formations described on the previous pages.

Beside the trees and shrubs which are still growing there are also other groups of plants on the meadows inside and outside the castle walls. The castle toilets with the direct outlets on the outside castle walls were responsible in the past for the heterogeneous plant diversity around the castle.

Perennials or herbs below were used as well for culinary as also for medicinal purposes:

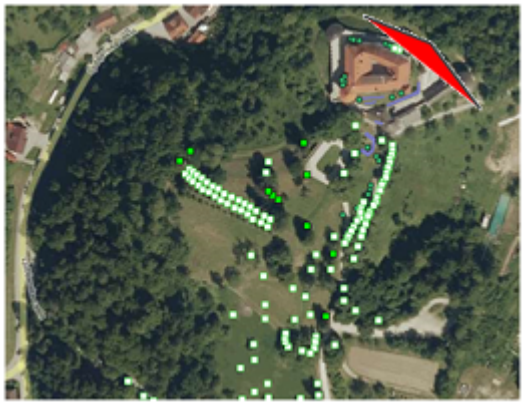
Fragaria vesca, commonly called wild strawberry
Glechoma hederacea, commonly known as ground-ivy
Symphytum officinale, known as comfrey
Achillea millefolium, commonly known as yarrow or common yarrow
Urtica dioica, often called common nettle
Pimpinella anisum, also called aniseed
Verbascum phlomoides with common name mullein
Allium carinatum, or witch's garlic
Some trees and shrubs on the castle hill were and are still used for culinary and medicinal purposes:
Robinia pseudoacacia, commonly known in its native territory as black locust
Sambucus nigra, known as elder, elderberry or black elder
Cornus mas, known as Cornelian cherry or European cornel
Rubus fruticosus, known as blackberry

We can assume that especially the plants above, still found on the meadows close to the castle are witnesses, that their ancestors were important part of the castle life far back in the past.

4. **The tree component typical of the territory (indigenous species) is in some cases prevalent. Please list species, approximate height and trunk diameter of monumental specimens**

We can find some indigenous species typical for our territory, which are part of the castle park or the forest on the castle hill, e.g. *Picea abies* known as a Norway spruce is present as well in the castle park as also in the forest on the castle hill.

The tree is more than 15m high, with the trunk girth of 308 cm at 1m above the ground and the diameter 98.10 cm at the same level.



Fagus Sylvatica known as a common beech is present as a part of the forest on the castle hill and in the close surroundings.

The tree is a approx. 15 m high, with the trunk girth of 180 cm at 1m above the ground and the diameter of 57 cm at same level.

Ulmus glabra is present as well in the castle park as also in the forest on the castle hill.

Tree is more than 15 meters high, with the trunk girth of 180 cm at 1m above the ground and diameter of 58 cm at the same level.

Quercus robur, commonly known as common oak is present as a part of the forest on the castle hill.

The tree is more than 15 m high, with the trunk girth of 300 cm at 1m above the ground and the diameter of 95.54 cm at the same level.

Acer platanoides commonly known as a maple is present as a part of the forest at the edge of the castle hill.

The tree is more than 15 m high, with the trunk girth of 160 cm at 1m above the ground and the diameter of 51 cm at the same level.

5. **Many species of indigenous trees, both native and ornamental, are common to all HICAPS parks. Please report degradation and any problems that species have shown in recent years, also in connection with climate change (droughty summers, milder winters, violent atmospheric events). Is there a plan for monitoring the phytosanitary and static conditions of key trees?**

In the past 20 years, we also have witnessed a lot of changes and deviations of weather in connection with the climate change. Droughty summers brought problems to Horse Chestnut trees, especially those on both sides of the avenue, connecting the old town with the castle. In this case the trees have access with only with half of their roots as the avenue ascends up to the castle and this makes the situation only worse. We have been said witnesses of the avenue weakening in the past few years.

We are trying to find the solution by comparing the past state , when the road was made of macadam with the present asphalt road. We are afraid that solution will not be an easy or a cheap one. We think that our hopes to stabilize the tree avenue are more than realistic. Drought is a problem also for conifers, but at the moment situation is stabilized.

In February 2014 the combination of sleet and a long period of frost, damaged almost 90 % of castle trees.

As consequence to the broken branches and other damages the trees were massively attacked by different pests causing additional damage which then resulted in felling quite a number of trees.

In the past 3 years, we have managed to solve some of the problems, although irreparable damage has remained. The castle park still shows the wounds which we must hell in the near future.

In 2017 a lot of trees were damaged by strong wind. There is a threat for vegetation 2018 to. That is why we are trying to introduce the continuous monitoring of all the trees in the castle park as in the present we are still confronted with unexpected phenomena.

In 2010, cadastral register of trees and shrubs was implemented for reason of monitoring and Velenje municipality is responsible for all the necessary activities. Separate from the castle park, monitoring of the phytosanitary and static conditions of the castle hill forest is conducted by the National Forest Institute of Slovenia.

6. **The historical parks are in some cases close to/included in larger natural areas. Please describe these areas and their relationship with the parks in terms of flora, fauna, landscape, etc. Are there animal species (e.g. wild boars, crows, etc.) affecting the management of the park and its surrounding areas?**

In this case, the historical castle park is part of the Šaleska valley area. At its northern side the Castle park is connected with the town through the castle hill forest, while on all other sides it borders on the rural or natural areas.

The result is migration of flora and fauna to the areas of castle hill forest and other parts of the castle park, but that does not cause any problems and does not affect the management and maintenance of the castle park. On the contrary, the presence of different species of birds, squirrels, sometimes deer and foxes, adds to the value of the park.

Migration of flora is also interesting, especially in the castle hill forest and along the castle walls. In the forest, we have noticed at the past 10 years the presence of:

Cyclamen persicum, the Persian wild cyclamen.

On the castle walls we can find beautiful *Asplenium trichomanes* commonly known as maidenhair spleenwort.

That is also added value, but with monitoring we need to supervise any possible enlargement of some species to keep them at the level when the architecture (castle walls) will not be damaged.

7. **In the parks or close to them, there are often rivers, streams, water areas of natural and artificial origin. Please describe the conditions and quality of the water, the characteristics of vegetation, the presence of a specific fauna**

In the past (more than 50 years ago)a fish pond was also a part of the castle park. The only important source of water was a well with rain water in the castle courtyard and another one inside the castle (see photos below). Outside the castle there is a now abandoned well with spring of ground water.

The castle park is on a hill, surrounded by the river Paka, the stream Trebuša and some other water sources. Not far away there are also the lakes Velenje.

Water quality in all water sources is extremely good, nevertheless we cannot claim that this water sources are directly affecting the castle park. The well with rain water in the castle courtyard and one inside the castle could still be used as the water supply of the castle.

Outside the castle, there is an abandoned well with water source from the ground.

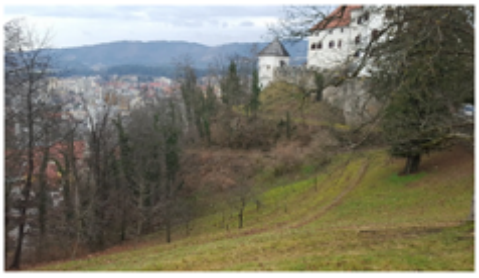
The closest river to the castle is the Paka. Then there are the stream Trebuša, lake Velenje and some other water sources nearby.

Water quality in all the water sources is extremely good, but we cannot claim that this water sources are directly affecting or have influence to flora and fauna the castle park.

8. **The first reports poorly revealed the presence of trees, shrubs and plants connected to the agricultural traditions of the territorial areas in which the parks are inserted. Is this component absent or present to a very limited extent? If present, please describe it in a synthetic way, highlighting the most typical species and cultivars**

Inside the castle walls and in the castle park, we can find a lot of connections to the agricultural traditions, especially as the main policy in the period of the empress Maria Theresia was self – sufficiency.

As a result, a fruit garden was planted as a part of a castle park.



Low maintenance care did not cause many problems in the past, ignoring violent atmospheric events and so still a lot of fruit trees grow here today. In the past years some renovation works have been carried out. In the fruit garden we can find old apple, cherry, pear and walnut species , what helps to save traditional, old and resistant species.

Inside the castle walls we can also find some plum trees and grape vines. All this plants are still present in the castle park area. They were planted with care and following all the rules of landscape design and architecture.

A lot of renovation works in fruit garden are planned for future as a proof of importance to save traditional, old and resistant species.

9. **Are there culinary traditions and curiosities related to the tree, shrub and herbaceous species present in or close to the park? Are these traditions still alive?**

Yes, culinary traditions and curiosities related to the tree, shrub and herbaceous species are still present today and they are very much alive in everyday life of the people in Šaleška valley. Because of strong relation to tradition, trees, shrubs and herbaceous species are still present in and around the park (see my answer and research to the question no.3).

Like spices or additives to food following herbs , perennials, shrubs and trees are still used. *Glechoma hederacea* commonly known as ground-ivy is used for potato soup.

Urtica dioica, often called common nettle is used as early spring vegetable (in cooking).

Pimpinella anisum, also called aniseed was used in many cooked dishes and pickles.

Allium carinatum or witch's garlic is used for soups and spreads.

Taraxacum officinale called common dandelion is used as early spring salad.

Achillea millefolium, commonly known as yarrow or common yarrow in the past was used for chicken and turkey feed (young leaves mixed with hardboiled eggs).

Fragaria vesca, commonly called wild strawberry is a still cherished wild fruit.

Trees and shrubs on the castle hill are also witnesses of culinary tradition and medicinal use. *Robinia pseudoacacia,* commonly known in its native territory as black locust. Deep fried flowers are eaten as main dish (served with lettuce) and they are important source of honey.



Sambucus nigra is known as elder, elderberry, black elder.

Deep fried flowers are eaten as main dish served with lettuce or compote.

Cornus mas known as Cornelian cherry or European cornel. Fruits are used for jam and syrup.


Rubus fruticosus known as a blackberry. Fruits are used for jam and syrup.

Corylus avellana known as a hazel. Nuts are important ingredients for many sweet dishes, chocolate, etc..

10. Are there and therapeutic traditions and curiosities related to the tree, shrub and herbaceous species present in or close to the park? Are these traditions still alive?

Yes, therapeutic traditions and curiosities related to the tree, shrub and herbaceous species are also present are and very much alive in everyday life of people in Šaleška valley.

Urtica dioica, often called common nettle is widely used for healing (tea, lotion, etc).

Seeds of *Pimpinella anisum,* also called aniseed are used against cramps especially with children.

Taraxacum officinale called common dandelion is used for syrup as cough protection.

Achillea millefolium, commonly known as yarrow or common yarrow is a very important medicinal herb (tea, etc.).

Symphytum officinale it is known as comfrey is a very important medicinal herb (ointment, etc.).

Verbascum phlomoides with common name mullein is a very precious medicinal herb (tea, etc.).

Pulmonaria oficinalis, commonly known as lungwort is very precious medicinal herb(respiratory and lung problems).

Chelidonium majus, commonly known as greater celandine is also a medicinal herb.

It is still used as wart prevention.

Trees and shrubs at castle hill are still used for culinary and medical purposes. *Sambucus nigra* also known as elder, elderberry, black elder. Flowers and fruits are used for syrup and as herbal tea and it is widely appreciated as fiver protection. *Cornus mas* known as Cornelian cherry or European cornel. Branches with flowers play an important role in Easter tradition.

11. **Please detail these key aspects of the park: management, staff, cleaning, main maintenance work carried out over a year, new plantations, restoration of individual areas, etc. Does the management involve national or local voluntary environmental associations?**

Maintenance is divided into that of the castle park, carried out by castle stuff and that of the castle hill forest, where the local department of National Forestry Institute of Slovenia takes care of the monitoring and maintenance.

The castle park needs it periodic grass cutting , with special attention to castle meadows, as all the plants need to reach the level of ripeness. Low level grass maintenance approach in the past proved positive, because many species were so successfully saved. I have already indicated that monitoring of trees and shrubs should be done with the help of the cadastral register, but maintenance approach is usually realized when problems arise.

Last year, the new management of the castle took new approach to the castle park maintenance, starting monitoring the plant condition, planning renovations, new plantations and other measures, taking in to account the castle history with as well as the rules of the landscape design , castle architecture and present and future castle(museum) activities. Some renovation works are already in progress and some planed for the first half of the year 2018.

For years, local environmental associations have been involved in some projects and in the future they will be chosen again, but with great care , taking into account the nature of a specific project.

12. **From the management point of view, are good practices being put in place to protect and promote biodiversity?**

In the past the maintenance approach, although not so sufficient as it should have been, was nevertheless a key factor for preservation and protection of herbs indigenous plants. Sadly the same cannot be said for ornamental plants, especially for trees and shrubs. At this moment castle park is at its turning point, which cause for immediate action.

In the last three years the new management have recognized the importance of biodiversity in the castle park the importance of preserving the existing plants, as well as planning the new layout and a complete restoration. Importance of the story and vision which includes plants, is a base for versatile castle activities in the future.

13. Please annex additional documentation material (maps, documents, photographs, research, etc.)-

The research is based on my personal experiences only. All photographs are added directly in research. Most photographs were taken by the author himself, with the exception of some photos which were taken from the existing internet pages.
In research, I have used cadastral register of trees of Velenje municipality and print screen photos made on its bases.
As a source of further information the booklet “Graščinski parki Šaleške doline /Castle parks of Šaleška valley” was also used.
During research, I contacted the castle museum director, Ms. Mojca Ževart and Ms. Nataša Dolejši msc. For her extensive arboristic knowledge.