

Application of the Heritage Urbanism Model on the Example of the Renovation and Revitalisation of the Town Parks of Opatija

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ABSTRACT

Opatija, the first climatic health resort on the eastern coast of the Adriatic and the elegant center of the tourist riviera of the same name in Croatia, is characterized by an impressive identity and a unique image of the town formed in the unity of urbanism, architecture and park architecture in the late 19th and early 20th centuries. Town authorities strive to protect, restore and revitalize their rich park heritage, especially town parks and promenades. Therefore, Opatija's town parks were considered as a case study in the scientific project Heritage Urbanism (HERU), which defined general and special models for the renovation and revitalization of cultural-historical heritage. This paper provides an overview of appropriate models of renovation and revitalization of all ten of Opatija's town parks using the HERU method based on established factors of their identity and criteria for preserving their values, improving their condition, and possible new interventions. It is concluded that it would be necessary to apply a certain combination of 14 general and special models. The results of the research are applicable in urban planning and tourist development planning in Opatija and other similar tourist resorts in Croatia and abroad.

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1. INTRODUCTION

In the territory of Croatia, there are numerous examples of historical gardens that represent the value of national significance but, at the same time, are equally comparable with similar European examples. In addition to the historical town gardens of Zagreb and other cities of continental and Adriatic Croatia, the gardens next to the castles of Hrvatsko Zagorje and Slavonia and Dubrovnik's Renaissance gardens, the parks and gardens of tourist places that developed as climatic spas on the Adriatic or spas in the interior of the country in the late 19th and early 20th centuries, are of such value. The Adriatic climatic health resorts developed especially in its northern part as places with a favorable and mild climate, suitable for the stay of the wealthy European clientele of the time in winter. This is how spas were established in Opatija, Crikvenica and on the islands of Lošinj and Rab. Among all of them, Opatija's park architecture stands out for its richness and urbanity as one of the most important factors of the town's unique image and identity (Obad Šćitaroci & Bojanić Obad Šćitaroci, 1998) and as an attraction for tourists as well.

The elements of Opatija's park architecture can be classified into ten typological categories: public town parks, hotel parks, sanatorium parks, parks of villas and summer residences, public buildings parks, park areas among residential blocks, private house gardens, parks of churches and monasteries, cemeteries and promenades and tree-lined avenues. Opatija's park architecture was created mainly in the "golden" period of the town's development at the end of the 19th and the beginning of the 20th century under the Austro-Hungarian Monarchy. In the first half of the 20th century, we find the beginnings of its protection, and in the second half of the 20th century, many historical gardens were devastated. At the end of the 20th and the beginning of the 21st century, there was a reaffirmation of park architecture as a cultural heritage and social space (Vahtar-Jurković, 2004).



The reason why we are continuing our research on the topic of Opatija's park heritage is the continuation of earlier research in which we recognized its values and, based on the set criteria, determined that it is a value of not only national but also international importance, especially compared to similar examples in the Mediterranean such as Nice (France), Sanremo (Italy) and Portorož (Slovenia) (Vahtar-Jurković, 2010). The speciality of recent research has been the search for suitable and sustainable models for its renovation and revitalization.

2. RESEARCH METHOD

The subject of research in this paper is the most valuable part of Opatija's park architecture, namely the ten public parks: Angiolina Park, St James' Park, Margarita Park, Slatina Park, Drago Gervais Park, Park in Ulica Vladimira Nazora, Imperial Park, Esperia Park, Bulgaria Park and American Gardens (Fig. 1).

The Town of Opatija maintains its public parks and promenades extremely well, thanks to the association Parkovi established for this purpose. In recent years, stimulated among other things by scientific research and published books on the value of park heritage at the national and international level, as well as awards from international institutions (the Golden Flower in the world-level international competition Communities in Bloom in 2017, and the Silver Flower of Europe in the European competition Entente Florale Europe in 2006), Municipality of Opatija want to valorize this part of their cultural-historical heritage more economically, primarily in terms of tourism. Public parks are, namely, often the "engine" that drives tourism in many communities because parks with museums and cultural and heritage artifacts or rare plant species are attractions themselves, and they provide sites for special events and festivals that attract tourists (Crompton, 2005). Such events are: "Opatija—Imperial Town", "RetrOpatija" and "Opatija Advent—the most beautiful Advent by the sea". Also, several projects were recently launched: the renovation of the former botanical garden with a collection of camellias, the so-called American Gardens (Vahtar-Jurković, 2015); redevelopment of farm buildings and greenhouses in the Angiolina Park into a visitor center and museum of Opatija's park architecture and a project to present all ten public parks of Opatija as a unique tourist product—a themed route called The Necklace of Opatija (*Opatijska kolajnica*) (Vahtar-Jurković, 2020). For this reason, and considering that the activation of heritage was also the topic of the Heritage Urbanism (HERU) scientific project (Obad Šćitaroci, 2015), the authors deal with the models that can be applied

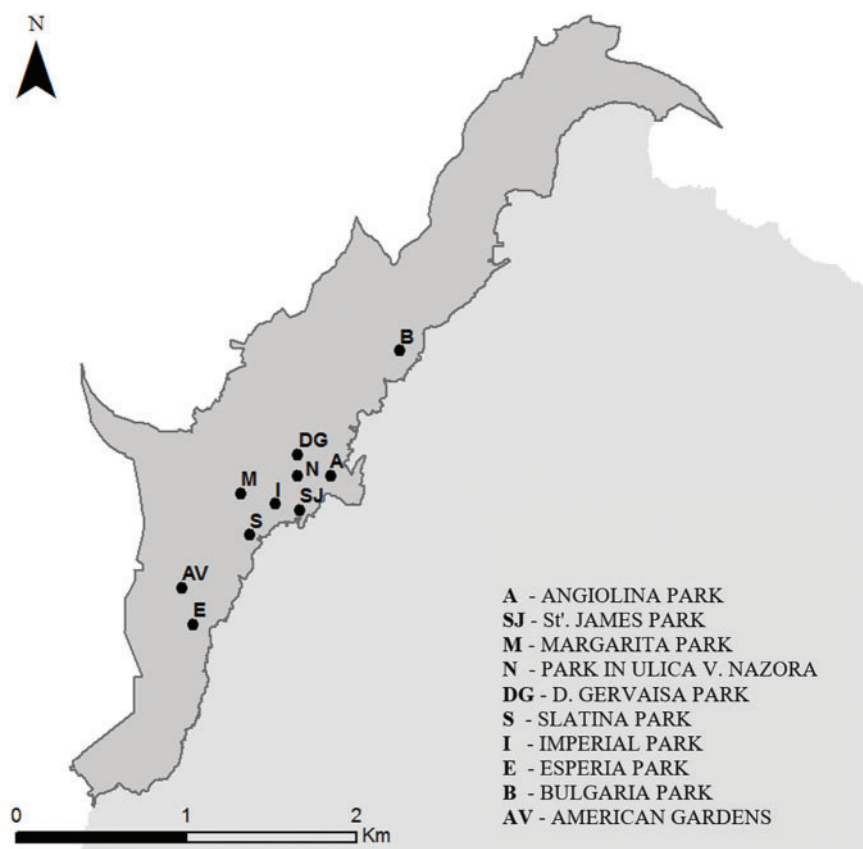


Fig. 1. Situation of the town parks in Opatija (Map: Koraljka Vahtar-Jurković).

during the renovation and revitalization of Opatija's town parks as the main research question. In doing so, they apply the HERU method—researching the criteria for evaluation and for possible new interventions in parks, which they establish based on the identity factors, influence factors and value factors of each park. The goal of the research is to determine appropriate and sustainable models of renovation and revitalization for each of the ten Opatija's town parks.

The starting points for the research are, on the one hand, previous research on Opatija's park architecture (Vahtar-Jurković, 2004 and 2010), and on the other hand, the results of the HERU project, during which general and special models applicable to the renovation of historical parks and gardens were identified (Obad Šćitaroci *et al.*, 2019). They emerged from the analyzes of several authors who dealt with historical gardens in other locations in Croatia, such as the Lipik spa garden (Obad Šćitaroci *et al.*, 2015), the Trsteno Arboretum (Marković, 2015) and the gardens of the Rijeka Dubrovačka (Obad Šćitaroci *et al.*, 2017). All the mentioned researches have in common that they indicate the need to apply a combination of several models in order to preserve and affirm historical values and modernize them in a way that does not endanger these values (Obad Šćitaroci *et al.*, 2019). Other authors came to the same conclusion, for example, Gullino *et al.* (2020). Earlier documents of the international level, as well as the latest declaration, “Adaptive re-use of the built heritage: preserving and enhancing the values of our built heritage for future generations”, adopted in Leeuwarden at the end of November 2018, are on the same track (Leeuwarden Statement, 2018).

As a basis for the research, a catalogue form was compiled for each park in which general information about the park, a description of the park and its architectural and botanical structure, as well as the characteristics that distinguish each park from others and which make it particularly recognizable, were entered. On the basis of these data, collected not only from the literature but also from field research, the factors of identity, factors of influence and factors of the value of the parks were determined as a starting point for determining the criteria for preserving the value of the parks and for improving their condition and possible new interventions in them. During that process, consultations with the relevant entities were also carried out, primarily with the Rijeka Conservation Department of the Ministry of Culture and Media (Konzervatorski odjel Rijeka Ministarstva kulture i medija), State Geodetic Administration (Državna geodetska uprava) for data from the Cadastre and the administrative department of The Town of Opatija responsible for spatial planning (Upravni odjel nadležan za prostorno planiranje Grada Opatije) for ortho photos of the parks, as well as the company which takes care of the maintenance of the parks and gardens of Opatija (Parkovi d.o.o.) for data of plant species. Professional studies and projects created for recent revitalization programs of individual parks were also analyzed (Sošić *et al.*, 2016a; Sošić *et al.*, 2016b; Sošić *et al.*, 2017a; 2017b). As an example, below is the catalogue form of Angiolina Park (Table I).

TABLE I: CATALOG FORM OF ANGIOLINA PARK (LOGFRAME: KORALJKA VAHTAR-JURKOVIĆ)

Name of the park	Park Angiolina	
Adress	Opatija, Ulica Maršala Tita	
General data		
Cadastral data	c.p. 769/1, 769/6, 770, 781, 782/2, 783, 784, 785, 788 i 893/1, c.m. Opatija	
Ownership	The Town of Opatija	
User	The Town of Opatija	
Degree of protection	Monument of park architecture, 1968 Cultural asset together with Villa Angiolina, 2016 Indirectly—as part of the cultural and historical complex of Opatija, 1969	
Description		
The type of park space	Public town park	
Author	Carl Schubert	
Topographic location and terrain morphology	In the centre of the town; on flat or slightly sloping ground, average land slope 8.5%	
Area and shape	26.669 m ² , irregular shape	
State of preservation	of vegetation	Excellent
	of facilities	Excellent
	of plastics	Excellent
The stylistic characteristics	Historicist garden	

TABLE I (CONTINUED)

Objects and Contents	
Architectural objects	Villa Angiolina; Swiss House; greenhouses, nursery and farm buildings
Park and architectural facilities	Music pavilion
Park plastic memorials	To Friedrich Julius Schueler and Ivan Matetić Ronjgov
Park facilities	Meteorological circle; group of stalagmites; well of water in honor of the centenary of the Red Cross of Opatija; gravel paths through the park; benches; lamps; wastebaskets; irrigation
Other	Informative tables with information about the garden
Botanical Structure (124 plant species in total)	
Phytocenological characteristics of the base of the park	A natural laurel grove
Important or rare plant species	A large number of exotics; groups of camellias, some of them donated and entered in the Golden Book of Camellias (Skorup Krneta, 2012)
Main physiognomic types	Individual trees; groups of tall trees and bushes; meadows; flower beds
Particularities	
Villa <i>Angiolina</i> with floral <i>rondeau</i> ; field with camellias	
Identity Factors	
Villa Angiolina and floral <i>rondeau</i> in front of it; music pavilion; field with camellias; a large number of plant species (botanical garden)	
Influence Factors	
Location in the center of the town; in the absence of a town square, this park takes many public functions and the villa and/or park is the venue for many public and tourist events; enters to the garden from three sides (from the main street, from the port area and from the direction of the Kvarner Hotel); passing through the park maintains the continuity of the Lungomare coastal promenade from Volosko to Lovran	
Value Factors	
By applying evaluation with regard to the age of creation, properties, special criteria and meanings from the point of view of function, the highest rated (112 points)*.	
Criteria	
For evaluation	The oldest Opatija's park arranged in the middle of the 19 th century; considering that it is owned by The Town of Opatija, it has value from a property-legal point and in terms of the way of use because it is available to the public; the contribution of the park to the urban environment and to the tourist recognition and attractiveness of Opatija is pronounced throughout all historical periods.
For new interventions	In the area of greenhouses, nurseries and farm buildings, it is possible to arrange a visitor center, park museum and educational facilities.
Models of Improvement and Revitalization	
General Models	
Conservational model	As it is the oldest and most valuable town park in Opatija, and considering the existence of numerous and diverse historical sources, it is necessary to apply the conservational model in the protection, renovation and revitalization of this park.
Urbanistic model	The values of the Angiolina park in terms of location, surface, architectural and botanical structure, design concept and stylistic features must be viewed in an urban context, preserved and presented as a distinct urban value.
Architectural model	Given the existence of several historical buildings in the Angiolina park, during the renovation and protection and the implementation of new contents in the area of former farm buildings, it is necessary to apply an architectural model that will achieve the harmony of the buildings and their contents with the park. The fact that in 2016 this park was protected as a cultural asset together with Villa Angiolina confirms the necessity of this approach.
Functional model	The functional model, which considers the garden primarily in the context of its previous functions, but also allows acceptable new functions in accordance with contemporary needs, is applicable in the part of the arrangement of the future visitor center and museum of Opatija's park architecture.
Aesthetic model	During the renovation and protection of the park and the realization of new contents, an aesthetic model must be applied, not only because of the high value of this historical park, but also because of Opatija as a climatic spa and tourist destination of highest rank in order to maintain its high aesthetic value.
Ambiental model	The ambiental model is applicable because all interventions in the Angiolina park must be a contribution to the ambiental value of the town.

TABLE I (CONTINUED)

Special Models	
Activational model	With regard to the planned new facilities in the area of the former economic part of the park and the possible new facilities in the Swiss House, it is desirable to apply the activational model.
Spatial model	The spatial model is reflected in the inclusion of the Angiolina park in a unique themed route called The Necklace of Opatija (<i>Opatijska kolajnica</i>).
Economical model (the model of economic sustainability)	Preparations are underway for new measures such as the visitor center and the presentation of all the parks as The Necklace of Opatija, so the charging of tickets to certain parks and/or facilities such as the Villa Angiolina is being considered, which is on the track of the application of economical model which, with the town budget as the main source of funds, should ensure the economic sustainability of the care of Opatija's town parks.
Model of contemporary interventions	The model of modern interventions will enable the realization of new contents, but also preserving the memory of the space and the inherited values (the former closed greenhouses, open flower beds and storage for carriages will be given a new purpose aimed at visitors for the purpose of presenting and affirming not only the Angiolina Park, but also the entire park heritage of Opatija).
Legal model	–
Ecological model	As the base of the Angiolina park is arranged in the largest natural laurel grove in the Mediterranean, into which numerous other plant species have been introduced in such a way that the natural factors are preserved and refined, and the result is a space of special harmony and harmony, such an ecological approach should be applied in the future. The ecological model is also reflected in the fact that, due to the favorable climatic conditions, numerous other plant species grow in the garden, especially exotic ones, which is why the Angiolina park is famous and has great value as a botanical garden.
Transformation model	The transformation model is applicable in the part of the arrangement of the former economic part of the garden and in relation to possible new contents in the Swiss House.
Participatory model	The joint action of state (Ministry of Culture and Media, Conservational Department in Rijeka), county (Administrative Department for Spatial Planning, Construction and Environmental Protection; Public Institution Priroda) and local services (respective administrative departments of the Town of Opatija; Parkovi) is necessary in order to restore and successfully prepar and realise revitalisation of the Angiolina park and the implementation of new contents in it.

3. RESULTS AND DISCUSSION

3.1. Identity Factors, Influence Factors and Factors for the Valuation of Opatija's Town Parks

Identity factors are the most important elements by which heritage differs from one another, by which we recognize and remember them. For Opatija's town parks, these are buildings in or around them; fountains, sculptures, music pavilions and colonnades in parks; elements of the botanical structure including important or rare plant species (for example, groups of camellias), very old trees (some of them are even from the time of the establishment of parks), groups of trees or recognizable rows of trees, flower beds and a particularly large number of plant species; then recognizable design concepts that contribute to the creation of different atmospheres in individual gardens. By factors of influence, we mean the specifics of the position from which the relationship of the park with the narrower and wider environment arises, i.e., the influence of the park on the environment and the environment on the park, as well as views towards the sea, individual buildings or the landscape. The factors on the basis of which the value of the park is determined are the age of the park,

the characteristics of the park, special criteria and importance from the point of view of function (Vahtar-Jurković, 2010).

The identity factors of the *Angiolina park*, founded in 1845, are the Villa Angiolina with a recognizable floral *rondeau* in front of it (Fig. 2), the music pavilion, the Swiss House, a field with camellias, as well as an exceptional wealth of plant species, which is why the park has been a kind of botanical garden since its foundation. Factors of influence are the location of the park in the center of the town, as well as the fact that in the absence of a town square, this park assumes many public functions and the villa and/or park is the venue for many public and tourist events. The peculiarity of the park is the possibility of entering the park from three sides (the main entrance from the main street, from the harbor area, from the direction of the Kvarner Hotel) and the fact that passing through the park maintains the continuity of the Lungomare coastal promenade. This is the most valuable park in Opatija (Vahtar-Jurković, 2010).

The main factor in the identity of *St James' Park*, founded in 1986, which consists of two parts at different heights, is a neo-baroque fountain by Hans Rathausky from 1889 with a sculptural group representing the divinities Helios and Selene (as an allegory of day and night) in the upper part of the park (Fig. 3). At the beginning of the 21st century, a sculpture by Ljubo de Karina called “The Moon Phases” was placed in the lower part of the park. Elements of the botanical structure are also significant for this park—old Atlas cedar from the time of the establishment of the park (Adamović, 1915); a row of palm trees surrounded by climbing roses, the row of pine trees, individual camellia bushes donated and entered in the Golden Book of Camellias (Skorup Krneta, 2012), and views of the surrounding buildings and the sea. Factors of influence are the surrounding buildings, above all, the St James' church, the surrounding historic hotels (*Imperial*, *Milenij*) and especially the building of the Juraj Šporer Art Pavilion, which is entered directly from the park. Valued with 92 points (Vahtar-Jurković, 2010).

For *Margarita Park*, a closed and introverted space founded around 1900, we recognized as identity factors the central open field—a lawn and numerous surrounding fields overgrown with tall trees and undergrowth of bushes, between which numerous gravel paths and footpaths wind, as well as romantic resting places (Adelheide Ruhe, Markusowsky sitz, Madonna). Valued with 100 points (Vahtar-Jurković, 2010).

In *Slatina Park*, laid out in 1938 (Državni arhiv Rijeka, 2007), the main identity factor is the central fountain accentuated by flower beds bordered by boxwood (Fig. 4) and the open views from the park to the coastal promenade, the main town bathing area and the sea. It was evaluated with 88 points (Vahtar-Jurković, 2010).

The *Park in Ulica Vladimira Nazora*, which belongs to the oldest garden areas in the town from the end of the 19th century and is part of the unique concept of the buildings and garden of the Southern Railway Company by Carl Schubert (Schubert, 1894), is recognizable by the central ellipse-shaped field dominated by a group of old cedars. It is an introverted green oasis in the center of the town, valued at 89 points (Vahtar-Jurković, 2010).



Fig. 2. Villa Angiolina with floral *rondeau* during Advent (Photo: Koraljka Vahtar-Jurković).



Fig. 3. Fountain and oldest Atlas cedar in St James' Park (Photo: Koraljka Vahtar-Jurković).

Little central square in the shape of half of a stylized flower and open vistas towards the town and the sea are identity factors of *Drago Gervais Park*, valued at 59 points (Vahtar-Jurković, 2010).

The factors of the identity of the *Imperial Park*, laid out in the second half of the 20th century without a special project, conception and connection with the surrounding buildings, are the old downy oak and holm oak trees. It was evaluated with 53 points (Vahtar-Jurković, 2010).

Palm trees, laurel and bamboos are the basic elements of the identity of *Esperia Park*, once the park of the villa of the same name, which today has no connection with the surrounding buildings. It is closed to the roadways by tall plantations and visually open to the staircase on the east side and in the direction of the sea. It is valued at 59 points (Vahtar-Jurković, 2010).

The elements of the botanical structure—cypresses, laurels, bamboos and especially two exceptional specimens of coastal sequoias are the basic factors of the identity of the *Bulgaria Park*. After World War II, it was separated from the villa around which it was arranged, so since then, there has been no connection with the surrounding buildings. It was evaluated with 49 points (Vahtar-Jurković, 2010).

The identity factors of the *American Gardens* are numerous: first of all, it is the location on an extremely steep terrain that allows beautiful views of the town, the sea, the town of Rijeka, the surrounding mountains and the islands of Cres and Krk, as well as the concept of a terraced garden. Then there are the historical elements of the park: the monumental main entrance, terraces, monumental staircase (Fig. 5), the colonnade of columns at the top of the park, and historic closed



Fig. 4. Fountain in Slatina Park (Photo: Damir Fabijanić).



Fig. 5. American Gardens (Photo: Koraljka Vahtar-Jurković).

greenhouses, among which the closed greenhouse for succulents at the top of the monumental staircase, “Šišina mirina” and pergolas. The identity of the park is also contributed by its botanical structure with rows of hanging mulberry trees in the lowest part of the park and cypress trees at the top of the park, a collection of camellias, citrus fruits, roses, lawns and flower beds. Buildings and properties on neighbouring plots do not affect the park, or vice versa, and the connections with the town were not emphasized until today. The application of the evaluation criteria led to a high score of 90 points.

3.2. Criteria for the Preservation of the Value of the Parks and for the Improvement of Their Condition and Possible New Interventions in Them

On the basis of the identified factors of identity, influence and value, criteria for the preservation of the value of the park and for the improvement of their condition and possible new operations in them were determined for each park, as follows:

During the renovation of *Angiolina Park*, the criteria are preservation of buildings and other architectural structures, botanical structure and conception of design, garden composition and stylistic features. Interventions are possible in the former economic part of the park, where it is possible to arrange a visitor center and a museum of Opatija’s park architecture, as foreseen in the spatial and urban plans of the town.

Criteria for the renovation of *St James’ Park* are the preservation of the recognizable neo-baroque fountain, the botanical structure and the surrounding buildings, above all, the Imperial Hotel and the Juraj Šporer art pavilion. However, despite the fact that the park has had its current form for several decades, and considering the existence of numerous historical sources, during one of the future comprehensive renovations, the possibility of returning to the original design, historicist stylistic features and botanical structure should be considered.

In *Margarita Park*, the preservation of the botanical structure, design concept, park composition and stylistic features of the old part of the park is a condition. In this historical part of the park, plant species significant for Opatija and endemic species of the Liburnian area should be highlighted for a stronger presentation of the park as a kind of botanical garden.

As part of the *Slatina Park*, it is necessary to preserve the fountain, the view of the sea, as well as part of the historical environment of the Park. However, considering the need for a town square, it is possible to expand the park square to the current area of the gas station and bus station. This is also an opportunity to create a new urban landscape for the 21st century.

Regarding the criteria for the renovation of the *Park in Ulica Vladimira Nazora*, it is necessary to preserve the design concept with an ellipse-shaped central field and a group of cedars, and with regard to possible interventions, the plant species indicated in the preserved Schubert plan should be restored. It should be arranged and presented as a meditative garden filled with symbolic meanings related to the dominant tree—the cedar as a symbol of health, longevity and strength, which are all terms associated with Opatija as a spa town.

The criteria for the renovation of *Drago Gervais Park* are the preservation of the viewpoint on the top of the park and the existing valuable parts of the botanical structure. For the sake of a stronger connection with secondary schools, there is a possibility of activating the park by introducing new content related to young people and affirming it as a park of learning, reading, etc.

During the renovation of *Imperial Park*, the old downy oak and holm oak trees should be preserved. The fact that it is a valuable location in the center of the town and that the park does not have a defined

concept opens up more opportunities to increase its attractiveness—for example, by expanding the surface of the parking lot on the south side and renovating the former aquarium that existed there at the beginning of the 20th century, or by setting up features that would remind it, and by arranging the collection of donated camellias.

During the renovation of *Esperia Park*, the condition would be the preservation of the group of palm trees and the creation of a landscaping project that would allow for new facilities—for example, given the proximity of the Thalassotherapy facility, monuments to the doctors responsible for declaring Opatija a climate health resort and maintaining the highest state level of this multi-awarded health care facility.

In the same way, the preservation and presentation of the old coastal sequoias as a valuable rarity is necessary in *Bulgaria Park*, and due to the fact that it is only a part of the former garden of the villa with which it is unlikely to be reconnected, there is a possibility of reshaping and introducing new contents according to the complete project of landscaping as a garden dedicated to children.

During the revitalization of *American Gardens*, the renovation criteria are preservation of the park composition, buildings and other architectural structures and botanical elements (rows of hanging mulberry trees, rows of cypress trees, camellia collections, citrus fruit collections, vegetable garden collections). In relation to the criteria for new facilities, it is possible to arrange the central square and catering facilities in the former greenhouse for succulents, the construction of a new entrance to the garden from the north side, and the use of the garden for exclusive events.

3.3. *Models of Renovation and Revitalization of the Town Parks of Opatija*

Based on the presented factors and criteria, models were considered for each park that should be applied during their renovation and revitalization, and below is an overview of all recognized models with an explanation of their application for individual parks.

The *conservational model* is applicable to six parks: Angiolina Park, St James' Park, Margarita Park, Park in Ulica Vladimira Nazora, Slatina Park and American Gardens. When protecting, renovating and revitalizing the Angiolina Park, because it is the oldest and most valuable park of Opatija, and considering the existence of numerous and diverse historical sources, the application of this model is necessary (Jakaša Borić & Dumbović Bilušić, 2016). St James' Park is also part of the oldest parks in Opatija, so the application of the conservational model is justified, especially with regard to the preservation of the area, historic buildings in the surroundings and historical elements such as the significant neo-baroque fountain. Additionally, given the existence of numerous and diverse historical sources, consistent application of the conservational model could restore the original design of this park. With the conservational model, it is also possible to preserve the historical part of Margarita Park, given that its original conception and botanical structure have been continuously preserved. When arranging Slatina Park, it is necessary to preserve and affirm the cultural and historical values of the urban environment (historical hotels, coastal promenade and beach) and elements of the original idea of the square itself (first of all, the recognizable fountain). For the Park in Ulica Vladimira Nazora, the application of the conservational model is mandatory in order to preserve its original conception and design and to restore the plant species recorded in Schubert's plan. The conservational model is also applied when preserving the original architectural elements and the botanical structure of the American Gardens.

The *urbanistic model* is applicable to all ten parks because Opatija's historical parks cannot be viewed in isolation but in an urban context. It is necessary to evaluate their location in the most elite areas of the town, the value of which they themselves contribute to, as well as their predominant position in the center of the town, in that part that is protected as a cultural-historical unit, then their relationship to the sea and surrounding historical buildings. The fact that they have been present since the very beginning of the town's development as an elite climatic health resort as part of the unique image of the town formed in the unity of urbanism, architecture and park architecture must be preserved and presented as an urban value. This especially applies to the Angiolina Park, the St James' Park, Park in Ulica Vladimira Nazora and Slatina Park. Margarita Park, as a preserved green oasis where, historically, and even today, walking tours included in the rehabilitation of heart patients have been planned, contributes to the preservation of the urban value of Opatija as an elite health resort. Imperial Park, as valuable park area in the very center of the town, in the immediate vicinity of the second oldest hotel in the town and the recently opened cultural center Gervais, has a great potential for new, more substantial development, which could significantly contribute to raising the urban value of this part of the town. The American Gardens, whose recent renovation restored the public function of the former botanical garden, are an example of a contribution to the revitalization of that part of the town that is not in the town center, just like the *Esperia* and *Bulgaria* gardens, which are yet to undergo significant revitalization. When renovating all the parks that have a view of the sea, as the most important relationship to the landscape, this urban speciality should also be affirmed. The most

beautiful example of this is the American Gardens, which are noted to have “unique views on the roof of the town” (Vahtar-Jurković, 2015).

The *architectural model* is applicable to those gardens that contain significant architectural objects. There are five parks: Angiolina Park, St James' Park, Drago Gervais Park, Slatina Park and American Gardens. The Perivoj Angiolina cannot be viewed separately from the villa of the same name around which it is arranged but also from other historical buildings and architectural objects in it. The same applies to the significant fountain in St James' Park, but also the Juraj Šporer art pavilion and the Imperial Hotel as buildings with which it is spatially and/or historically connected. The Drago Gervais Park should be rethought in relation to today's school building (a former villa in front of which it was originally decorated) and the viewpoint in front of it, and the Slatina Park in such a way as to preserve the famous illuminated fountain as one of the signs of Opatija's recognition and harmony with surrounding historic hotels. In the American Gardens, existing buildings in the park should be included in the renovation and revitalization of the park. Thus, catering facilities will be arranged in the closed greenhouse for succulents at the top of the monumental staircase. In historic closed greenhouses, the old furnace for heating and the method of growing plants should be presented.

The *functional model*, which considers the garden primarily in the context of its current functions but also allows for acceptable new functions in accordance with modern needs, and the possibility of its application we recognized in two gardens: the Angiolina Park and the American Gardens. For Angiolina Park, it is applicable in the part of the arrangement of the future visitor center and museum of the Opatija's park architecture in the area of the former nurseries, greenhouses and farm buildings, for which function the need for moving to the nursery in Ičići ceased. By applying a functional model, the American Gardens are returning to the original public and educational function of the botanical collection, as well as raising awareness and sensitizing the public to the values of Opatija's park architecture. By adding new functions, such as the organization of exclusive events (concerts, promotions, small weddings, etc.), the application of this renewal model is emphasized even more.

The application of the *aesthetic model* is a *conditio sine qua non* of any renovation and revitalization of all operations in Opatija's town parks in order to maintain the quality and recognition of them, but also of Opatija as a top-ranking tourist destination. Therefore, the aesthetic model is valid for all ten parks.

The same applies to the ambiental model, because parks are one of the most important elements of the town that give the town its uniqueness, identity and special ambient value, and some of their elements are symbols of the town.

The *activational model* accepts the possibility of introducing new purposes during the renovation and/or revitalization of the park. Given that new town projects are recently being planned in some parks, this model can be applied to three parks: Angiolina Park, Drago Gervais Park and American Gardens. In the case of Angiolina Park, the activation model is applied by activating the former economic part of the park and possible new contents in the Swiss House in connection with the activities of the Croatian Museum of Tourism located in Villa Angiolina. Since Drago Gervais Park should be especially intended for young people, it would be desirable to activate it with new content and make it a place of events and activities. There is no doubt that by applying the activation model, the American Gardens will be activated through new contents and become a place of events and activities, which will revive the peripheral part of the town.

The *spatial model* applies to all of Opatija's parks, and is reflected in their connection into a unique themed route called The Necklace of Opatija (*Opatijska kolajnica*).

The model of economic sustainability (*economical model*) is imposed during the arrangement of new content in Angiolina Park and the revitalization of the American Gardens. In the course of preparations for new measures such as the visitor center and the presentation of all the parks as The Necklace of Opatija (*Opatijska kolajnica*), the charging of entrance fees to individual parks and/or facilities such as the Villa Angiolina, the Šporer art pavilion, etc., is being considered, which, along with the town budget as the basic source of funds, should ensure the economic sustainability of the care of Opatija's town parks. In the same way, the maintenance of the American Gardens must be based on an economical model, that is, on the charging of tickets, the sale of seedlings and souvenirs, and the realization of income from the hospitality facility and the mentioned exclusive events.

The *model of contemporary interventions* does not exclude the possibility of modern construction and interventions, but with the preservation of the memory of the space and inherited values, the affirmation of identity features and the innovation of revitalization, this model can be applied to new interventions in the Angiolina Park (visitor center and park museum) and the American Gardens (arrangement of the central part of the garden in which the unaesthetic old greenhouses have already been removed and the central square is being arranged as a place for future events). The same can be applied when arranging the Imperial Park.

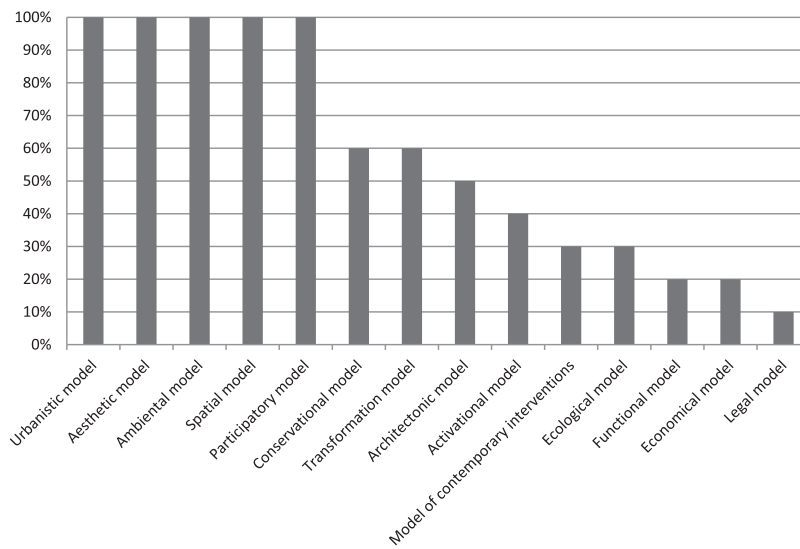


Fig. 6. Representation of models of renovation and revitalization of the town parks of Opatija (Graph: Koraljka Vahtar-Jurković).

The *ecological model* is based on the appreciation of natural features and their preservation, which is significant for three parks: Angiolina Park, Margarita Park and American Gardens. As the base of the Angiolina Park is the largest natural laurel grove in the Mediterranean, into which numerous other plant species have been harmoniously introduced in such a way that the natural factors are preserved and refined, such an ecological approach should be applied in the future as well. It is also reflected in the fact that numerous exotics also bear witness to the favorable climate, thanks to which Opatija was declared a climatic health resort at the end of the 19th century. The ecological model is applicable during the arrangement and presentation of Margarita Park because it is a park arranged on the basis of a natural laurel and downy oak forest with introduced plant species that are significant for Opatija. During the last decade, through the activities of the Public Institution for the Management of Protected Areas of Nature in the Primorje-Gorski Kotar County Priroda, several specimens of protected plants—endemic to the Liburnian region (primarily Učka's bluebell) were brought into the park. The reorganization of the botanical collection in the American Gardens is a contribution not only to education about biodiversity through an artificial anthropogenic plant collection but also to the presentation of the special ecological conditions of the Liburnian region.

The *transformation model* can be applied to six gardens. These are only in parts of the Angiolina Park (in the part of the mentioned new interventions in the area of the former nursery, greenhouse and farm buildings) and American Gardens (in the central part) and, potentially, on the entire surface of the St James' (in the case of renovation of the original decoration), as well as Imperial Park, Esperia Park and Bulgaria Park, which require a complete rethinking of the concept and decoration.

The *participatory model* must be applied in the renovation and revitalization of all ten parks because only with the joint action of the competent state (Ministry of Culture, Conservation Department in Rijeka), county (Administrative Department for Spatial Planning, Construction and Environmental Protection of the Primorje-Gorski Kotar County, Public institution Priroda) and local services (relevant administrative departments of the Town of Opatija, Parks) can successfully prepare and implement projects for landscaping and revitalization of the parks.

The *legal model* is possibly applicable only for American Gardens because, for all others the ownership has been decided.

As a result of everything stated, it is clear that during the renovation and revitalization of all ten of Opatija's town parks, it would be necessary to apply a certain combination of the above models. Representation of individual models is shown in Fig. 6, from which it is clear that during the renovation and revitalization of Opatija's town parks, the urbanistic, ambiental, spatial, aesthetic and participatory model should be the most represented, which are applicable in the case of all ten parks, because for all of them, it is true that we cannot observe them in isolation from the narrower and wider environment, but as a spatial entity of exceptional ambient value, where it is mandatory to achieve excellence and recognition, which is possible only with the participation of competent institutions at the local, county and state level, as well as citizens and their associations.

4. CONCLUSION

In conclusion, it should be said that Opatija's town parks should be restored and revitalized in such a way as to affirm the peculiarities of Opatija—as a town with a favorable climate, a climatic health resort of the highest rank, a tourist center with the longest tradition in the Republic of Croatia and a town for meaningful vacations, a town of botanical gardens and collections, the town of camellias, a town with not only a rich tourist history, but also a town of children and young people, a town of the future. In doing so, the applicable general and special models came from the HERU Project, which confirms the correctness of choosing the town parks of Opatija as a case study in this Project, based on their historical, urban and ambient value and the rich architectural and botanical structure that confirms the importance of Opatija as one of the most beautiful examples Croatian historical park architecture on a national and international scale.

The research carried out in this work is applicable in the spatial and urban planning of the town of Opatija, but also in the planning of its economic, primarily touristic development, and especially in recent and future projects of renovation and revitalization of Opatija's town parks. It can also serve as an example for the revitalization of parks in other tourist centers in Croatia and abroad.

4. CONFLICT OF INTEREST

The authors declare that they do not have any conflict of interest.

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