

# ANNALES

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*Annali di Studi istriani e mediterranee*  
*Annals for Istrian and Mediterranean Studies*  
*Series Historia et Sociologia, 27, 2017, 2*





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## HISTORICAL CHARACTER OF THE LANDSCAPE OF VELIKI BRIJUN

*Biserka DUMBOVIĆ BILUŠIĆ*Ministry of Culture of the Republic of Croatia, Conservation Department in Rijeka, Užarska 26, 51000 Rijeka, Croatia  
e-mail: bbilusic@gmail.com*Mladen OBAD ŠĆITAROCI*University of Zagreb, Faculty of Architecture, Kačićeva 26, 10000 Zagreb, Croatia  
e-mail: mos@arhitekt.hr*Jasenska KRANJČEVIĆ*Institute for Tourism, Vrhovec 5, 10000 Zagreb, Croatia  
e-mail: jasenska.kranjcevic@iztztg.hr

## ABSTRACT

*This paper focuses on the landscape of Veliki Brijun Island, from ancient to contemporary times. By examining the organisation and land use over various historical periods we have determined the island's characteristic features. The research results indicate changes in landscape, influenced by social, economic, cultural, and political circumstances. Various types of landscape have been formed, witnessing a range of space use during particular periods, including: agrarian, residential, military/fortification, tourism, forest/natural, production, maritime, and recreational use. Aiming to preserve the identified elements of landscape identity, criteria are proposed for the conservation of value in case of future spatial interventions.*

**Keywords:** northern Adriatic, Veliki Brijun, landscape history, landscape factors, landscape types

## IL CARATTERE STORICO DEL PAESAGGIO DELL'ISOLA VELIKI BRIJUN

## SINTESI

*Il tema del presente lavoro è il paesaggio dell'isola Veliki Brijun (Brioni Grande o Maggiore) dalla preistoria al giorno d'oggi. Sulla base delle ricerche effettuate sull'organizzazione e sull'uso dello spazio nelle diverse epoche storiche, vengono definite le sue caratteristiche peculiari e distintive. I risultati della ricerca indicano che il paesaggio è cambiato a seguito delle circostanze sociali, economiche, culturali e politiche. Si sono formate varie tipologie di paesaggio, che testimoniano ancora oggi diversi usi dello spazio in determinati periodi storici, come ad esempio: funzioni agricole, residenziali, militari difensive (fortificazioni), turistiche, silvicolturali, produttive, marittime e ricreative. Al fine di preservare gli elementi distintivi dell'identità paesaggistica, vengono proposti dei criteri per conservare il valore del paesaggio anche attraverso nuovi possibili interventi e progetti nell'area.*

**Parole chiave:** Adriatico settentrionale, Veliki Brijun (Brioni Grande o Maggiore), storia del paesaggio, componenti paesaggistiche, tipologie di paesaggio

INTRODUCTION<sup>1</sup>

Croatian territory abounds in various cultural landscapes, including the Brijuni Islands, an example of well-preserved landscape and seascape – a synthesis of natural and anthropogenic values. The island Veliki Brijun is located in northern Adriatic, next to the Istrian peninsula, north-west of the city of Pula. It boasts an area of 560 acres and is the largest of all of the 14 Brijuni islands.

Brijuni Islands became a national park in 1983 and is one of the rare national parks in Croatia that has experienced significant human activity throughout history (Zakon o nacionalnom parku i spomen području Brijuni, 1983). Therefore, it was recognised as a cultural property in 2012 and included in the Register of Cultural Heritage of the Republic of Croatia (Zakon o zaštiti i očuvanju kulturnih dobara, 1999). Previous approaches to the protection, conservation, and spatial planning at Brijuni National Park relied on separate analysis of either natural or cultural components, without examining the interrelationships of landscape types.

Considering the fact that during the past few decades maintaining the value of the cultural landscape of Veliki Brijun has stagnated, this research focuses on examining the anthropogenic features of landscape formed during historical development. The aim is to determine the factors that influence its identity and use them as a stepping stone to determining the criteria for future development plans.

A vast number of papers on the Brijuni islands has been published, mostly focusing on cultural or natural heritage. Some of the most prominent papers on archaeological heritage include: Gnirs, 1911; Mlakar 1962; Suić, 1976; Vitasović, 2005; Glogović, 1989; Begović-Dvoržak & Schrunck, 2006. The topic of military fortifications on the islands was covered by: Piplović, 2003; Cvek, 2015. The topic of tourist-architecture heritage was covered by: Goldstein & Mavar, 2003; Mugler, 2013; Dumbović Bilušić & Bilušić, 2015. The topic of natural heritage was covered by: Brockhausen, 1906; Schiller, 1912; Markotić, 1997. There has been virtually no systematic research on the formation and transformation of Veliki Brijun landscape, save for the following papers: Begović-Dvoržak, 1995; Dumbović Bilušić & Bilušić, 2015.

The research of Veliki Brijun landscape begins by examining the island within the historical, economic, social, cultural, political, and ecological context. The overall space-time context influences the landscape's heritage, whereas its revitalisation and future use must help stimulate and develop the environment.

The research was motivated by the changes in the Spatial plan of the Brijuni National Park, and the



Figure 1: Position of Veliki Brijun – map (Source: authors)

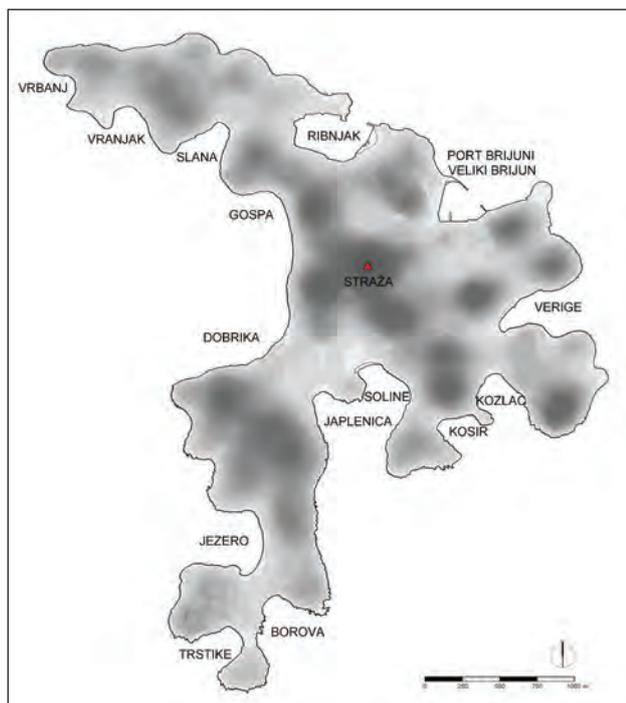
creation of the Management plan, which required an adequate professional basis (Ministarstvo kulture Republike Hrvatske, 2014; Ministarstvo kulture Republike Hrvatske, 2015). This was followed by a research within the scientific project *Heritage Urbanism*, aimed at researching urban and spatial models for the revival and enhancement of cultural heritage.

Examining a landscape without including historical data can lead to a failure to recognise important factors of its character, and a loss of value when planning its development. Not only does a landscape's historical character serve as a means of understanding the historical nature of landscape, it also aims to include it in the planning of changes.

To gain insight into landscape formation, the paper examines through various historical periods the organisation and use of land, as well as landscape factors as elements of spatial, functional, and visual identity. Using time-slice analysis, various types of landscape, as well as their spatial positions and interrelations, were determined in different historical layers.

The research is based on field research, analysis of written and graphic historical sources, as well as available literature. Apart from the time-slice method, the inductive-deductive method was used for the creation of graphic attachments in GIS.

<sup>1</sup> This research is a part of the scientific project *Heritage Urbanism (HERU) - Urban and Spatial Models for Revival and Enhancement of Cultural Heritage (HERU-2032)* financed by Croatian Science Foundation, which is being carried out at the Faculty of Architecture University of Zagreb, under the project leadership of Prof. Mladen Obad Šćitaroci, Ph.D., F.C.A.



**Figure 2: Relief – hypsometric characteristics of Veliki Brijun (Source: authors)**

#### NATURAL FEATURES OF VELIKI BRIJUN LANDSCAPE

Natural features of an island include the topographical context whose advantages were used to establish settlements and employ other forms of land use: production, residential, military/fortification, tourist, recreational use etc. This relates to Carl Sauer's classical definition of cultural landscape: *The cultural landscape is fashioned out of a natural landscape by a culture group. Culture is the agent, the natural area is the medium, the cultural landscape is the result* (Sauer, 1925, 37).

The geological and geomorphological make-up of Veliki Brijun consists of early-cretaceous carbonate sediments covered in thin quaternary deposits. Lithologically, these are thin-layered light-grey and white limestone.

With respect to relief, Veliki Brijun consists of a flat, indented shoreline which exhibits mild elevation inland, thus forming gently-inclined hills.<sup>2</sup> The inclination is usually slight, 12° maximum. The gently-inclined hills gradually spread inland, whereas the middle of the island culminates at its highest peak of cca 50 meters above sea level.

There are no sources of potable water, submarine springs, or running water on Veliki Brijun. On the hill



**Figure 3: Aerial footage of Brijuni Islands (Source: <https://www.google.hr/search?q=brijuni&biw=1422&bih=766&source=lnms&tbn>)**

above Verige cove lie the remains of an old well and cistern that provided a supply of potable water. There are four ponds on the island as proof of former larger water areas and wetlands which were drained in the late 19<sup>th</sup> and early 20<sup>th</sup> centuries through the process of amelioration.

Veliki Brijun belongs to the European Mediterranean climate zone characterised by mild, relatively short and rainy winters and dry and hot summers.

Vegetation is lush with predominantly Mediterranean species, permanently green grass, *macchia* and forests. Forest vegetation consists primarily of holly oak and flowering ash spread on most of the island. The holly oak layer sporadically contains bay trees. Due to long-term anthropogenic influence the flora of the island has changed significantly. In 2013 the Brijuni Islands was included in Natura 2000,<sup>3</sup> a network of protected areas, making this maritime zone extremely important in terms of planning and sea use.

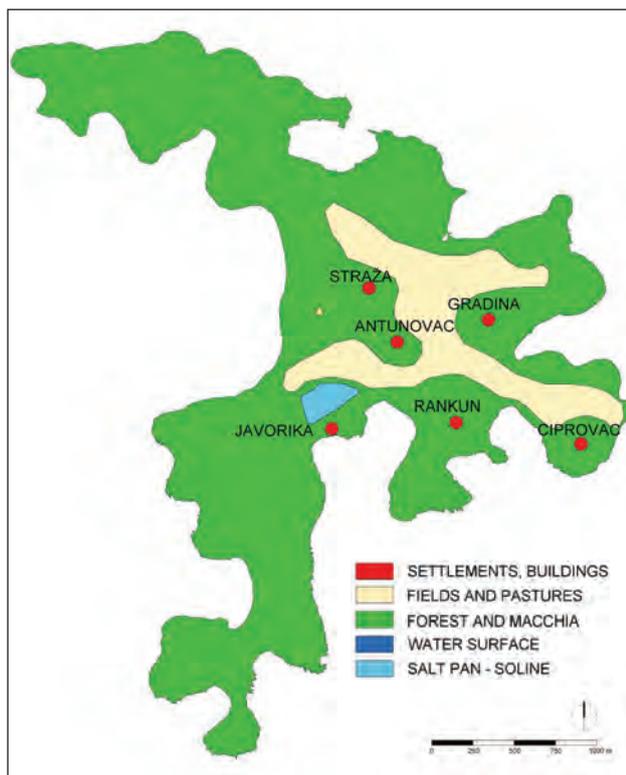
Visually, Veliki Brijun has an indented and meandering coastline with deeply indented coves, especially on the north-eastern side. The land consists of conical forest-covered hills and is surrounded by open areas of meadows and pastures. Thus, a dynamic relief-composition of space is formed, complete with tall and short vegetation and bordered by a flat shoreline.

#### HISTORICAL LAYERS OF VELIKI BRIJUN LANDSCAPE – TIME-SLICE ANALYSIS

Examining the landscape of Veliki Brijun through various historical layers one can identify cultural, social, economic, ecological, and political circumstances of a

<sup>2</sup> The highest peak of the island is Straža is 54,7 meters above sea level.

<sup>3</sup> By joining the EU, the most significant Croatian areas for the conservation of species and habitats were included in the network of protected areas Natura 2000 Ekološka mreža <http://www.biportal.hr/gis/> (15.1.2016.).



**Figure 4: Organisation and land use of Veliki Brijun during prehistoric times (Source: authors)**

particular period. Certain circumstances have left permanent marks in space by creating distinctive features of spatial organisation and land use enabling the identification of landscape factors. The historical character of landscape is defined as a combination of physical and perceptual attributes of a location. Through chronological layering, time-slice analysis, we examine the degree of conservation of landscape features from particular periods, and acknowledge their role and contribution to the current appearance of the landscape. The Veliki Brijun area possesses certain elements of historical character that are analysed within the corresponding spatial and historical context.

#### Prehistory (up to 2<sup>nd</sup> century B.C.)

Traces of life on Veliki Brijun are marked by dinosaur footprints in Barban, Ploče, and Tratika. The footprints date back to the Mesozoic era cca 230 – 65 million years ago.

The first evidence of anthropogenic influence on the changes in natural environment dates back to the

Neolithic period, cca 4000 years B.C. when livestock and crop farming, fishing, and probably salt extraction, as well as dwelling construction, marked the first significant change in the natural condition of the Brijuni landscape. The indented shoreline and coves were suitable for docking of ships, whereas the highest peaks were suitable for establishing hill forts and controlling and defending of the area.

The Bronze and Iron Ages, spanning from the 13<sup>th</sup> to 2<sup>nd</sup> centuries B.C., mark a high population density of Veliki Brijun (Suić, 1976, 63–83). From the late Bronze Age hill-fort settlements on the island were inhabited by the Illyrian tribe Histri<sup>4</sup> who participated in the Mediterranean trade, as well as piracy (Starac, 1994, 46). From the 6<sup>th</sup> to 4<sup>th</sup> centuries B.C. northern Adriatic was the centre for the communication between the Greeks, Etruscans, and middle Europe, including the Histri tribes.

#### Organisation and land use

In the Javorika bay, in the immediate vicinity of the sea, a settlement without defensive structures was established. Traces of huts on the Gromače cape in the immediate vicinity of the sea, near the salty pond in the Soline cove, indicate the existence of semi-dugouts with exterior made of wicker.<sup>5</sup>

The position of the island in relation to Adriatic waterways influenced the use and organisation of island space. During the Bronze and Iron Ages the Histri erected their settlements (hill forts) on flat hilltops, in naturally convenient locations. These stone settlements were established on the most prominent hills at the centre of the island: Straža, Gradina, Antunovac, Ciprovac, and Rankun. The settlements were surrounded by one to three belts of concentric ramparts adapted to the natural configuration of the hill. An important architectural form of that age were burial structures – necropolises, stone heaps discovered on top of the hills Ciprovac, Antunovac, and Rankun (Gnirs, 1908). From today's perspective, these are small-scale organic settlements patterns.

By clearing forests and *macchia*, the first arable land and pastures were created. Presumably, the use of quarries and salt pans existed before Roman settlement on the island. Arable land was communal.<sup>6</sup>

#### Landscape identity factors

Landscape appearance in prehistoric times of the Bronze and Iron Ages was primarily defined by hill-fort settlements on flat hilltops and communal land ownership. Situating hill forts on hilltops enabled communication and a certain amount of control over waterways. Hill forts like Gradina and Ciprovac have been well

<sup>4</sup> The Illyrian name for Brijuni was Brevona (Glogović, 1989, 13).

<sup>5</sup> Archaeological research was conducted by archaeologist Anton Vitasović.

<sup>6</sup> Pastures and livestock farming were vital to indigenous communities throughout the Bronze and Iron Ages (Suić, 1976, 60).

preserved as archaeological sites, whereas the highest peak Straža was used to build a new fort in mid 19<sup>th</sup> century. The Soline site, with a preserved toponym and marsh – pond, is a remnant of the shallow sea where salt was extracted in ancient and probably earlier times.

### Roman and Byzantine Empire (2<sup>nd</sup> century B.C. – early 9<sup>th</sup> century)

From 177 B.C. Veliki Brijun was part of the Roman Empire and was populated by Roman settlers (military veterans, and officials).<sup>7</sup>

After the fall of the Western Roman Empire, Istria and thus, Brijuni Islands fell under the rule of Visigoths (476–539), and later the Byzantine Empire, until 788. During emperor Justinian's conquests in Eastern Adriatic and Apennines, the settlement of Kastrum on Veliki Brijun was probably used as a military settlement and quarantine. In the 6<sup>th</sup> century, following the spread of Christianity during the Byzantine Empire, two structures were built: a three-nave basilica of St. Mary in the immediate vicinity, above the Kastrum settlement, and St. Peter's Church on top of a nearby hill (Starac, 1999, 42–73; Šonje, 1981).

#### Organisation and land use

During the Roman times, the formerly communal land from the Neolithic period (forests, fields and pastures) became individual property of Roman landowners,<sup>8</sup> and was organised into large agricultural estates. The centre of the estate was a villa in Verige, whereas several other rustic villas (*villae rusticae*) existed on the island's agricultural estates. The characteristic built-up settlement patterns are large-scale and are of the maritime villa and rustic villa type.

From the late 1<sup>st</sup> century B.C. to the 1<sup>st</sup> century A.D., two villas were built on Veliki Brijun. One villa with a pier was located in the Verige cove and had contained outbuildings, residential, and sacred buildings.<sup>9</sup> With respect to technical solutions and utilities, the villa was very well equipped, as witnessed by the water reservoir and well on top of the hill, used to supply potable water to the villa.<sup>10</sup> The northern part of the cove contained architecturally less elaborate, yet more functional outbuildings.<sup>11</sup> After the fall of the Western Roman Empire

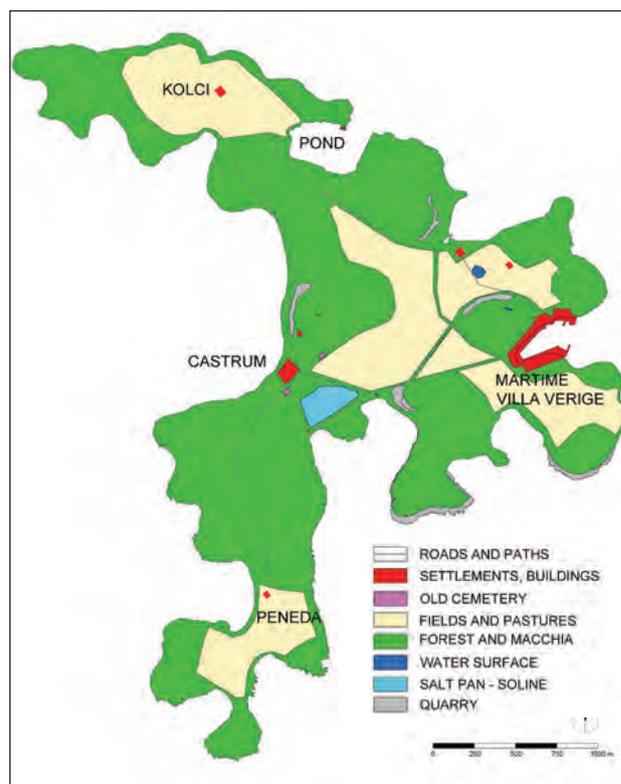


Figure 5: Organisation and land use during Roman and Byzantine times (Source: authors)

the Verige villa is abandoned and the inhabitants find refuge in a settlement in Dobrika cove.

The rustic villa located on the northern part of the island at the Kolci site served for exclusively economic purposes (Begović-Dvoržak & Schrunck, 2006). The oldest rustic villa located at the Dobrika cove maintained the continuity of life from ancient to medieval times due to its gradual transformation into a settlement.<sup>12</sup> Located by the shore, it was organised around a centre courtyard containing a cistern. At the end of the 4<sup>th</sup> century the villa was systematically fortified with strong defensive walls containing watch towers, guarded entrances, a water cistern, food and goods storage space. Thus, a military-camp (lat. *castrum*) type settlement of Kastrum was formed.<sup>13</sup> Kastrum was organised in an orthogonal

7 After their victory in 177 B.C. the Romans conquer Istria and with it the Brijuni Islands, thus beginning the romanization of the area (Starac, 1994, 45–61).

8 The assumption that the entire island of Veliki Brijun had a single owner – apart from historical sources and parallels with Italian territory – is corroborated by the fact that there are no traces of land distribution on the island.

9 The villa is considered the largest in Istria and represents the most extravagant architectural complex on the eastern Adriatic coast (Zaninović, 1995, 86–96; Begović-Dvoržak & Schrunck, 2006). In mid 1st century amphoras and olive oil were produced in the villa (Starac, 1999, 65–67).

10 Considering its urbanistic and architectural make-up, the Verige cove villa can be compared to the Damecuta maritime villa on the island of Capri (McKay, 1998, 115).

11 Apart from the area designated for the production of wine and olives, farm facilities also contained food and wine storage space, as well as a pool for fish farming.

12 The antique cistern was also used during Venetian rule in the 15th and 16th centuries (Bertoša, 1986, 29).



**Figure 6: Maritime villa at Verige cove (Photo: Biserka Dumbović Bilušić)**

street layout, with several smaller squares at intersections. Four main entrances connected the settlement with the road system leading to other parts of the island.

Quarries were located mainly by the shore: north of the Dobrika cove on the western side of Veliki Brijun, near the rustic villa, and a Late-Antiquity settlement located between the Dobrika cove and Soline bay.

The patterns of unbuilt landscape include forests and *macchia*, vast farmlands for cultivating olives and vines, and to a lesser extent grain and vegetables.

#### ***Landscape identity factors***

The Roman period which caused massive changes in the landscape of Veliki Brijun served as the basis for the future urbanization of the island. The changes in landscape were caused by new methods of land use, as well as the implementation of new technical achievements in processing and storing food and liquids (olive oil, wine, etc.), supplying water, quarrying, sea-salt exploitation, and the like (Starac, 1999, 8).

Making use of the island's natural advantages, a villa with a port was built in the well-protected Verige cove, as an example of highly representative architecture and urbanism of the time. The villa in Dobrika cove was transformed into an urbanized Late-Antiquity i.e. Byzantine settlement. Both villas, together with their arable farmland, introduce a new, large scale into the landscape and represent the key elements of architectural identity. Simultaneously, as a spatial focal point, they influenced the organisation of farmlands and woodlands, as well as the establishment of main roads toward land and sea. Relicts of agrarian olive-oil production are witnessed by old olive trees in particular areas, especially near Kastrum, and the northern part of the island. The functional identity of the island is defined by agrarian production of olives and wine, quarrying and salt extraction,<sup>14</sup> and a defensive function.

Preserved landscape patterns from Antiquity and the Byzantine period are integrated in the spatial formation of tourist landscape in early 20<sup>th</sup> century and represent important elements of visual identity (Keller, 1905).

<sup>13</sup> Kastrum also contained a textile workshop (Matijašić, 1998, 34).

<sup>14</sup> At the site of former salt pans in Soline building remains are preserved.

### Late 8<sup>th</sup> century to early 19<sup>th</sup> century (medieval and modern period)

From the late 8<sup>th</sup> to late 18<sup>th</sup> centuries this area was under Frankish, Aquileian, and Venetian rule, respectively. At this time the Brijuni Islands underwent a change in ethnic and economic structure. Unlike previous periods, when the area experienced economic progress and spatial improvements, this new era was a time of insecurity and constant threat accompanied by the menace of the plague. The Brijuni Islands, as well as Istria, were under Frankish rule since 788. The newly-arrived Slavic and the remaining Roman inhabitants settle in the area according to the feudal policy on farmland use of the time. Due to constant Saracen attacks in the 9<sup>th</sup> century, as well as the Venetian wars with west Istrian cities from 11<sup>th</sup> to 14<sup>th</sup> centuries, the Brijuni Islands were frequently taking a hit and changing rulers. At these tumultuous times the island population found a safe haven in the fortified settlement of Kastrum. During Venetian rule the Brijuni Islands were owned by various rich patrician families.<sup>15</sup> The southern part of the island was a marshland – one of the reasons contributing to the migration from Kastrum to the settlement as we know it today. In addition to the agricultural production of olive oil, grapes, and grain, the most prominent activities included quarrying and wood exploitation, as well as salt extraction (Bertoša, 1986, 63). After the plague subsided in 1412, due to the loss of a great part of the population, the Pula municipal council decided to incentivize the settlement of the Brijuni Islands and grant privileges to stonecutters.<sup>16</sup> Health problems were caused not only by the plague, but also the local conditions in marshlands i.e. malaria. According to historical descriptions from the 17<sup>th</sup> century, *the Brijuni Islands were a poorly inhabited location whose inhabitants are engaged in quarrying. Fields remain barren, but the sea is teaming with fish* (Bertoša, 1986, 69). The age of decadence and malaria lasted well into the late 19<sup>th</sup> century. The Treaty of Campo Formio in 1797 marks the end of Venetian rule.

#### Organisation and land use

Gradual decay of ancient civilisations and great socioeconomic changes influenced the spatial transformation of the island. The medieval and modern periods were marked by numerous attacks by conquerors, changes of rulers, the menace of the plague and malaria, all of which was reflected in space. The data from late 16<sup>th</sup> century indicates that the chief activities on the island included quarrying and wood exploitation, whereas livestock farming and agriculture became secondary. Therefore, farmlands and pastures from earlier periods

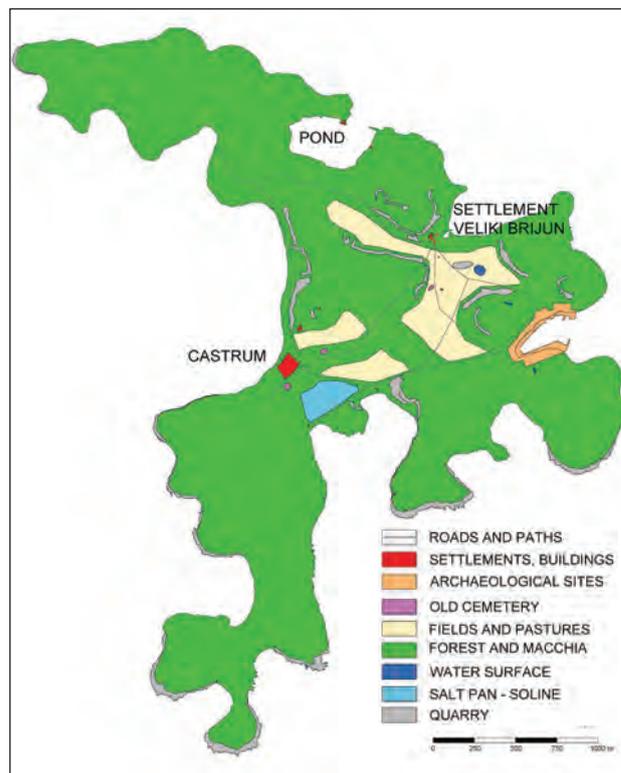


Figure 7: Organisation and land use from 8<sup>th</sup> to late 18<sup>th</sup> centuries (Source: authors)

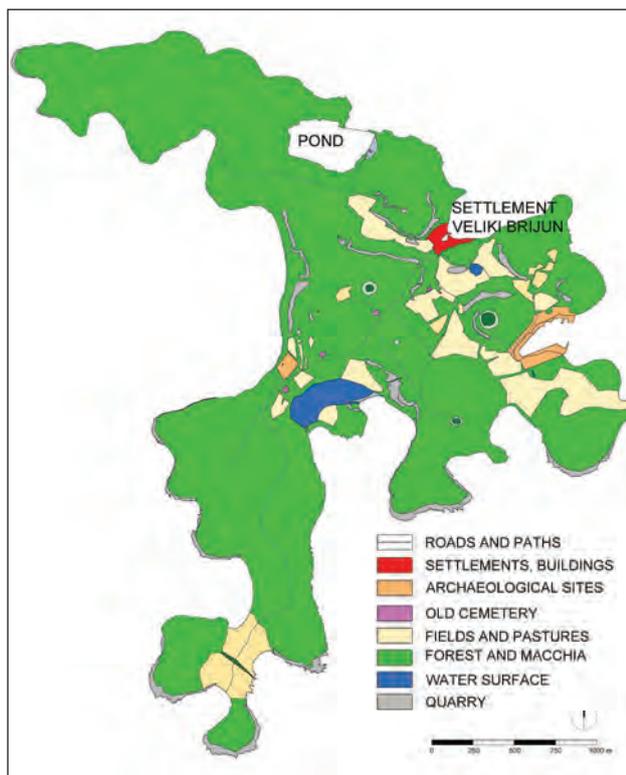
diminished, went untended and were overgrown with macchia. In early 17<sup>th</sup> century there were merely fifty or so poor inhabitants on the island, living in fourteen houses and farming wheat, maize, and olives, quarrying and delivering stone for the construction of Venice.<sup>17</sup> In addition to quarries used in the Roman period and located mostly by the shore, new ones were opened in the island's interior.

In the medieval period there were two settlements on the island: Kastrum on the southern shore, and the new settlement of Brijuni in today's port, around the shallow bay, near the defensive tower. In late 9<sup>th</sup> century, next to St. Mary's Church in the immediate vicinity of Kastrum, a Benedictine monastery was built, influencing the economic, social, and cultural life on the island. The life in Kastrum is interrupted due to the plague and the dissolution of the Benedictine abbey in 1312. However, ceramic remains in the water cistern, dating from the 15<sup>th</sup> and 16<sup>th</sup> centuries, indicate a continuity of life (Bertoša, 1986, 46). The exact period of the formation of the new Brijuni settlement in the interior, above the bay and today's port, has not been determined. The Roman-

15 The owners of the Brijuni Islands were patrician families: Dona, Canal, Cornero, and Franghini as the last one (Bertoša, 1986, 58).

16 According to the Statute of the city of Pula from 1421 and 1423, privileges were granted to stonecutters in Brijuni (Gnirs, 1911). In 1563 merely 0,5% of Brijuni land was cultivated (Bertoša, 1986, 67).

17 Report by Novigrad bishop Tommasini from 1650 (Bertoša, 1986, 70).



**Figure 8: Organisation and land use in early 19<sup>th</sup> century (Source: authors)**

esque defensive tower around which the settlement was formed dates back to the 12<sup>th</sup> century (Bertoša, 1986, 34). In the location of an older church in the settlement, St. German's Church was built in 1481, and St. Rocco's Church in 1504.

#### **Landscape identity factors**

From the 8<sup>th</sup> to late 18<sup>th</sup> centuries, the Brijuni Islands experienced a complete decline of previously accomplished economic, technical, and cultural values. This was also reflected in the condition of the landscape – untended farmlands and poor architectural activity. The ancient settlements Verige and Kastrum were abandoned, as were the rustic villas surrounded by farmland. A new settlement with fewer than twenty houses was formed next to the castle and tower. By building the Romanesque tower, and later a castle, the settlement did not reach new architectural heights, nor did the island's space organisation establish new spatial structures. The urban patterns of the new settlement include organic forms and small-scale construction, adapted to terrain

conditions. The silhouette of the settlement is dominated by the castle with tower.

#### **The 19<sup>th</sup> century**

After the demise of the Venetian Republic in 1797, the Brijuni Islands briefly came under Austrian rule, as they were part of Illyrian provinces under French administration following the Treaty of Schönbrunn, from 1809 to 1813. The islands will later become part of the Austrian Monarchy, until its demise in 1918.

At the beginning of the century the sole inhabitants of the island were stonecutters who engaged in manual quarrying (Bertoša, 1986). During the 19<sup>th</sup> century the number of inhabitants fluctuated substantially, as the inhabitants and military men fell ill with malaria (Bahr, 1991; Cvek, 2015, 79).

#### **Organisation and use of land**

Several cartographic illustrations from the early 19<sup>th</sup> century show the spatial organisation on Veliki Brijun,<sup>18</sup> and the extent to which the island was built up. Since the Brijuni Islands were one large estate owned by a single owner, the subdivision of land was carried out solely according to use. Preserved maps clearly show that in the first half of the 19<sup>th</sup> century the largest portion of the island was covered in forest and *macchia*, especially in the south and north, apart from valleys containing farmlands with olive gardens and vineyards.<sup>19</sup> Smaller areas with fields and pastures were located near the Brijuni settlement, the Peneda peninsula, near Soline, and the Rankun peninsula.

The central settlement of Brijuni is located at the bottom of the shallow bay near the defensive tower and castle, facing Istria. The settlement contains two churches and only ten or so residential and outbuildings, several of which are marked as dilapidated. Other dilapidated buildings include: St. Mary's Church with monastery, St. Peter's Church, three buildings in the Soline cove, two buildings at the foot of the Straža hill, and one by the shore of the Turanj cove. The settlement of Kastrum is marked as pasture ground with trees. The site of the antique villa in Verige cove marks only a water cistern. Salt exploitation in the salt pan was completely abandoned in the early 19<sup>th</sup> century.

At the highest peak of Veliki Brijun, located at the Neolithic hill fort, a strategically significant location which provides a broad view of both sea and land, the Tegetthoff fort was built from 1864 to 1868. In the late 19<sup>th</sup> century the defence system was improved and coastal forts Peneda, Naviglio, and Cavarola were built from 1898 to 1902 (Piplović, 2003). For the construc-

<sup>18</sup> Map made during the French administration 1809–1813, a cadastral map from 1820, and topographic map from 1830.

<sup>19</sup> Small and flat valleys stretching between hills the ground consists of thick layers of red soil and is suitable for farming, meadows, and vineyards (Kupelwieser, 2006, 32).

tion of these military forts several smaller active quarries were used (Bertoša, 1986). Due to the increasing number of professional soldiers the island had to provide more food, which led to an increase in farmland. In the efforts to fight malaria in the late 19<sup>th</sup> century amelioration was conducted as a basis for landscape transformation (Mlinarić, 2009). Island space was connected by a network of roads from previous periods, used in the late 19<sup>th</sup> century to connect military and civilian facilities.

### *Landscape identity factors*

During the 19<sup>th</sup> century the landscape of Veliki Brijun was defined by areas covered in forest and *macchia*, overgrown fields, and marshlands. The modestly proportioned Brijun settlement with a prominent castle, at the foot of which a church and several residential buildings are located, is an example of vernacular architecture, in both structure and form. The settlement pattern was defined by stone houses with traditional inclined roofs, forming an organic whole. At the back of the settlement there were the large rocky slopes of stripped quarries.

New landscape patterns were established by the construction of military fortifications, situated at strategically important locations, either by the shore or strategic hills, contributing to the locations' visual identity.

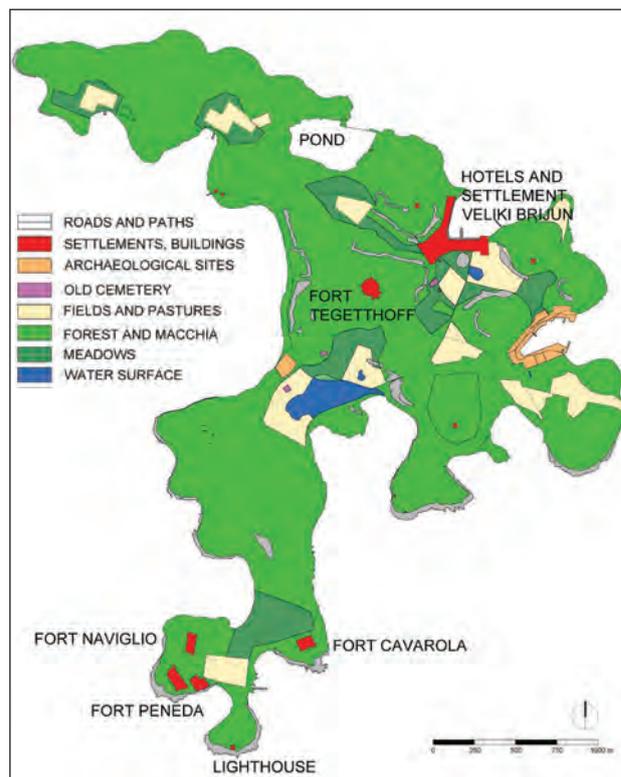
### **The first half of the 20<sup>th</sup> century (1893–1945)**

The big changes in Veliki Brijun landscape began in 1893 when the islands were purchased by Paul Kupelwieser.<sup>20</sup> Through major investments and interventions the islands underwent a vast transformation economically, socially, ecologically, and culturally. In addition to draining the land in order to fight malaria, organised agricultural production and afforestation were implemented. The establishment of organised agricultural production set the basis for the development of a fashionable new tourist destination.<sup>21</sup>

WWI halted all large-scale activities on Brijuni and after the dissolution of the Austro-Hungarian Empire in 1918 they became part of the Kingdom of Italy.

Paul Kupelwieser died in 1919 and his son and heir Karl Kupelwieser struggled to keep the island business afloat. After his death in 1930, due to substantial debts, the Brijuni Islands were now owned by Italy.

After Italy's capitulation in 1943 the islands were taken over by the Germans. Allied air forces bombed German military positions on several occasions in 1944 and 1945 (Mlakar, 1959; Mlakar, 1971), damaging hotels and buildings on the western shore.



**Figure 9: Organisation and land use in early 20<sup>th</sup> century (Source: authors)**

### *Organisation and use of land*

After purchasing Veliki Brijun, Kupelwieser turned the island into a model agricultural farm. Amelioration<sup>22</sup> was followed by improvements to farmland designated for growing vines, olive trees, fruit trees, and the like. Simultaneously, several other activities were conducted, including afforestation, enhancements of old and building of new roads. New structures were built around the spatial nucleus that was the old historic settlement.

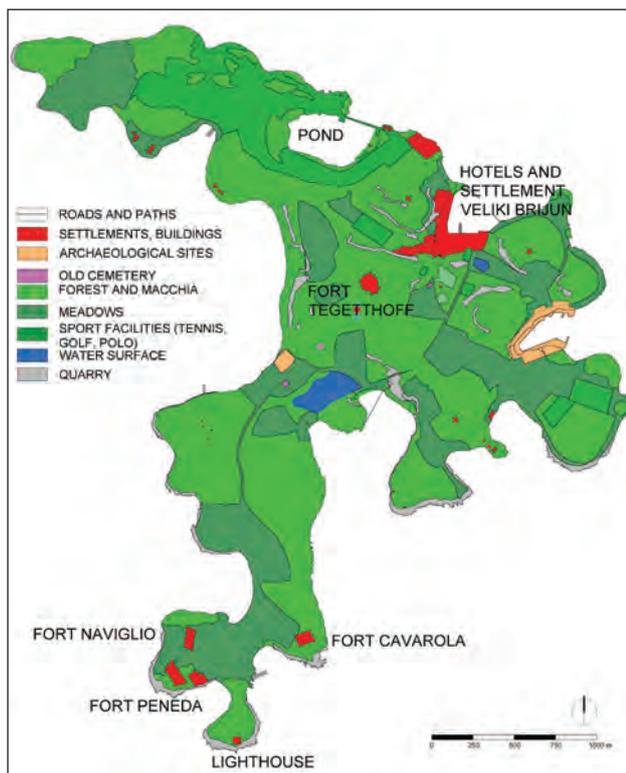
The shallow bay was levelled and a port was built for the docking of ships (Kupelwieser, 2006, 61), whereas a series of farm, residential, and outbuildings were built by the southern and western shores. For the formation of the port arch the natural shoreline was adjusted to form straight lines along the southern and western shore, whereas the area at the entrance channel was slanted, thus forming a zig-zag pattern in an attempt to imitate the shore's natural appearance.<sup>23</sup> The formation of the

20 Paul Kupelwieser was a director at an iron and steel plant in Vítkovice (Czech Republic) (Mugler, 2013, 136; Kupelwieser, 2006).

21 Although Veliki Brijun was not equipped for tourism, there are records of sailing excursions arriving from Pula in 1886 (Blažević, 1987, 66).

22 Robert Koch (1843–1910) was hired to fight malaria on the islands (Mlinarić, 2009, 145).

23 For the levelling of the bay and building of the new revetment, stone from abandoned quarries was used. A narrow-gauge railway was built to transport the stone. Thus, new space was gained for fields and meadows (Kupelwieser, 2006, 61).



**Figure 10: Organisation and land use in the second half of 20<sup>th</sup> century (Source: authors)**

shoreline and the positioning of the main pier, as well as the location of the historic part of the settlement defined the spatial organisation of the future tourist resort of the Brijuni. The first structures built included separate housing for the owner and his family, and the labourers. Outbuildings included: stables, wine cellar,<sup>24</sup> windmill, dairy plant (Brockhausen, 1906, 229; Almanach, 1909b, 24), plant nursery etc., in the immediate vicinity of the shoreline, on the location of future hotels. To ensure the efficient functioning of the modern estate, potable water was supplied from land via submarine route, whereas electricity was produced by a generator.

The spatial organisation and construction density before the construction of tourist and hotel structures at the Brijuni Port are documented in a 1904 military map. This demonstrates that the construction was conducted without a previously designed spatial plan outlining the organisation and appearance of the future tourist resort. The idea of tourist development came to being several

years after the establishment of the agricultural farm. The port, which was built using the innovative reinforced concrete, enabled the docking of various vessels.

Following the architect Eduard Kramer's project design, by 1914 a series of hotels was built along the shoreline, accompanied by numerous amenities (cafés, restaurant, casino, reading room, etc.), and the first saltwater indoor swimming pool in this part of the Adriatic. The scope of the construction of tourist facilities is illustrated by the fact that just before the outbreak of WWI there were 300 luxury rooms registered on the island (Dumbović Bilušić et al, 2015, 361). Large sections of the Neptun hotel complex were built, characterised by historicist and secessionist decorative elements, playful mansards and modern forms reflected in large *loggias* with expressive ornaments, as well as old small-scale elements (churches, villas, labourer settlements, etc.). Tourists were mainly distinguished guests, Austro-Hungarian and European nobility, esteemed scientists, high-ranking officers, and the like.<sup>25</sup> In addition to tourist facilities, the island also contained an acclimatization centre for exotic animals waiting to be transported to ZOOs across Europe. Abandoned quarries by the shore and inland were systematically transformed into parklands.<sup>26</sup> Several guest villas were built on the southern and western shores.<sup>27</sup>

Medieval churches (Churches of St. Peter and St. German) were restored, and archaeological sites were presented to the public (Gnirs, 1908; Gnirs, 1915).<sup>28</sup> The entire area is landscaped, with an important role played by the refurbished abandoned quarries. It was the time when revitalized quarries, restored churches, and archaeological sites were integrated into a landscaped park, stretching mostly through the centre of the island, and offered as a tourist attraction (Jurić & Ćorić, 2009).

The existing fortification system of Veliki Brijun was complemented by fort Giaccone during WWI (Piplović, 2003).

After the end of the Great War in 1918 the following years were a time of recuperation and the 1920s witnessed a number of undertakings, including the construction of golf and polo courses, and an airstrip (Kranjčević, 2015). To accommodate golf players, a new hotel named Karmen was built in 1942.

### **Landscape identity factors**

At the turn of the 20<sup>th</sup> century, changes occurred not only in the spatial plan of the Brijuni landscape, but the attitude towards nature and landscape as well, sparking admiration for natural forms (Haeckel, 1899). Although

24 In 1903 the capacity of the wine cellar was 1055 hl of wine (Lenz Guttenberg & Pavletić, 2007, 12). The Brijuni wine was advertised in the islands' own newspaper *Brijuni Insel Zeitung*, published 1910–1914, as well as other publications (Almanach, 1909b, 12).

25 The list of distinguished guests was published in the *Brijuni Insel Zeitung* magazine.

26 The work was conducted according to the plans of chief forester Alojz Zuffar/Ćufar's (1852–1907).

27 Villa Otto, Villa Freis and Villa Bertha.

28 In line with the views of conservationists M. Dvorak and J.W. Kubitschek, the cultural heritage of the island was now used for tourism (Jurić & Ćorić, 2009).

plans initially focused primarily on model agricultural farm, gradually they began to incorporate the island as a whole, including its cultural and natural heritage (Brockhausen, 1906).

Unlike the organic spatial structure of the old Brijuni settlement, the construction of residential structures, outbuildings, and tourist structures gave the island new features. Urbanistic character was established by the in-line construction of the hotels Neptun I, II, and III, and their annexes, as well as the formation of a continuous representative façade. As opposed to single-storey structures that dominated the western shore, the southern shore now boasted three and four-storey structures, setting a new standard in space (Dumbović Bilušić et al., 2015). The vista from the shore toward the centre of the settlement remained open owing to careful dimensioning of the esplanade wall, the Wandelbahn, enabling the medieval tower to retain its long-standing status as a significant spatial accent of Brijuni. In the late 1930s the vista of the cove was enriched by the construction of hotel Karmen.

By the construction of hotels complemented by sports, recreational, and other holiday and entertainment amenities, the island became a tourist landscape.

The overall appearance of the landscape was especially accentuated by forests, numerous promenades of various widths (embellished with stone walls, small footbridges, and belvederes), as well as Mediterranean and exotic plants (agaves, mimosa, tangerine, almond, and bay trees, and the like).<sup>29</sup> Short and tall vegetation was neatly separated, with clearly outlined edges and a guided vista directed toward a distant perspective. To complement the indigenous vegetation (holly oak and olive trees, etc.), and the overall composition of the vista, pine and stone pine trees were introduced due to their geometric shapes.

The landscaped archaeological park containing the ruins of a maritime villa in Verige, and the Kastrum site are two of the most striking locations. Due to this specific relationship between its cultural and natural heritage the Brijuni Islands are regarded as a cultural fairy tale (Brockhausen, 1906).

The island's landscaping scheme integrates recognizable historical elements: abandoned quarries turned into landscaped parks as an early example of biological revitalization and ecological approach; buildings of historical value and archaeological sites. The positions of the Neolithic hill forts (Antunovac, Ciprova, and Rankun) were recognized for their beautiful vistas and were thus chosen as belvedere locations. This was a way of transferring into the modern age the prehistoric landscape's

character, defined by the harmony of architectural forms and natural topography. The former defensive and residential use of hilltops was partly retained, as plans were made to construct modern fortifications.

### The second half of the 20<sup>th</sup> and the beginning of 21<sup>st</sup> century

Allied bombing campaigns destroyed or damaged most of the buildings on the western and southern shores. After WW II the Brijuni Islands became part of former Yugoslavia and were categorised as national (government) property. From 1947 Brijuni were used as a presidential residence and were thus closed to the public, losing their tourist and commercial use. The cultural and natural values of the island were recognized and measures to protect the nature and cultural property were implemented.<sup>30</sup> After the death of Yugoslav president Josip Broz Tito in 1980 it was discussed whether the island should be open to the public.

The Act on National Parks and Brijuni Memorial Site from 1983 opened the island to the public, and aimed at ensuring the conditions for the permanent protection, maintenance, conservation, and improvement of structures and space on the islands, as well as the use of their natural, cultural, and historical values.

After the dissolution of Yugoslavia in 1991 the Brijuni Islands became part of the Republic of Croatia. With the changes in the socio-economic system, the island management and the system of financing changed as well. Today the Brijuni Islands are managed by the public institution Brijuni National Park.

During the past few decades the value of heritage, especially cultural and historical, has declined. The priorities have shifted toward maintaining the natural condition, leading to the succession of *macchia* and shrubbery, and the loss of the recognizable landscaped park structure – distinct edges and the relation between the lawns and tall vegetation. The villas and hotels managed by the Government and National Park, respectively, are not operating in a sustainable way, which is reflected in the failure to provide proper maintenance.

### Organisation and land use

During the renovation after the bombing, the former concept of continuous façades was abandoned in favour of detached structures, especially on the western side of the port.

To accommodate government officials in the 1950s, old villas were renovated and several new ones built on

29 In the early 20<sup>th</sup> century, The Brijuni Islands were dubbed „*Natur Park im grössten Stile*“ [Nature park of the highest of styles]. As early as 1906 the islands boasted 35 km of walking and cycling paths (Brockhausen, 1906, 229; Almanach, 1909a, 24).

30 In 1948 the Republican Institute for the Protection of Natural Rarities of the People's Republic of Croatia declares the Brijuni Islands a protected natural rarity. The Regional Office for Preservation of Monuments in Rijeka includes the “Yugoslav Monument Site – Tito's Brjuni” in the Register of Immoveable Cultural Monuments in 1983. That same year, on the basis of the Nature Protection Act, Brijuni Islands were declared a National Park.



**Figure 11: Hotel complex at Brijuni port in the 2015 (Source: PINP Brijuni)**

the western shore, with landscaped parks added later on. Cultivated nature continues to hold the highest recognizable value.<sup>31</sup> In place of the old dilapidated Saluga bathhouse a new one was built.

To accommodate the presidential security service on one section of the golf course in the Turanj cove hotels Franina and Jurina were built in 1956. These buildings were built in the form of pavillions in the park, designed according to modernist principles.

Standing army troops were stationed on the island, making use of some parts of Veliki Brijun and several other islands.<sup>32</sup> For accommodation and military activities they mostly used the military structures built in the second half of the 19<sup>th</sup> century, the Peneda peninsula, and fort Tegetthoff. In late 20<sup>th</sup> century military troops abandoned the large area on the island, now occupying only a small part of Peneda and the area near Tegetthoff. Historic military forts that were not used began to decay.

In addition to the ZOO established next to the Jadranka villa, on the northern edge of Veliki Brijun a safari park was established in 1978 containing numerous

exotic animals, mainly gifts brought by foreign officials on their visit to the island.

Since the islands opened to the public, three systems of tourist use and visitation have existed: excursions/visits, stationary, and state-residential. Given the numerous examples of individual architectural and archaeological heritage, the Spatial plan of the Brijuni National Park divided the island areas into zones according to various degrees of protection. The most valuable areas include the central and north-western part of the island, containing the highest concentration of archaeological sites dating back to prehistoric times, antiquity, and early medieval period, surrounded by two archaeological zones: Verige and Kastrum. The second-degree protection area includes the landscape park, which is connected to the first-degree protection zone. This includes the locations of numerous cultural, historical, and natural elements, the central hotel-zone, and the fortification complex on the Peneda peninsula. The areas with the highest degree of nature protection include forest reserves, arboretums, and ornithological reserves. The island's surface is covered mostly in forests and woodlands whose natural

31 Gardner from Rijeka, Josip Kulfanek was in charge of maintenance (Radivojević, 2009).

32 The military's presence was necessary to provide maritime border security and protect high-ranking government officials.

value dictates spatial planning and management, aiming to preserve the integrity of forest stands (Ministarstvo zaštite okoliša i prostornog uređenja Republike Hrvatske, 2001).

### *Landscape identity factors*

Post WWII period was a time of protecting and preserving values acquired in previous periods and did not contribute to creating new, recognizable landscape patterns. The renovation of tourist landscape following the bombing led to the purification of architectural and urbanistic characteristics from the early 20<sup>th</sup> century. This in turn diminished the features of the architecture and setting. Instead, the contributions related to non-material and associative values, as Brijuni were once again open to foreign officials<sup>33</sup> and renowned artists and scientists (Srđić, 1985, 46–60).

During the post WWII period, especially when the island was closed to the public, several villas were built that were masterfully incorporated in the environment.<sup>34</sup>

#### LANDSCAPE IDENTITY FACTORS OF THE VELIKI BRIJUN ISLAND

The research of the genesis of Veliki Brijun Island revealed numerous types of landscape which resulted from organisation and use of land influenced by various historical, social, economic, cultural, and political circumstances. They bear witness to the relationship between natural circumstances and human activity.

On a small island, several landscapes types emerged that were interrelated and intertwined. Through different uses/facilities in space various landscape patterns were created, including residential, agrarian, fortification, production, maritime, recreational, and tourist landscapes, which acted as the bearers of spatial, functional, and visual identity of landscape and seascape. The research revealed the most important identity factors formed in particular time periods. The landscape's historical character is apparent in its current appearance.

The historical character of Veliki Brijun's landscape is defined by landscape patterns from prehistoric, antique, Byzantine, late-medieval and Renaissance periods, from late-19<sup>th</sup> and early-20<sup>th</sup> century Romantic and secessionist features, and mid-20<sup>th</sup> century modernist features.

The prehistoric landscape patterns are represented on hilltops that contain hill forts. These belong to Neolithic communities of the Liburni and illustrate the symbiotic relationship between topographical features of the terrain and the constructed residential, sepulchral, and defensive structures. Hillside were covered in for-

est, whereas peaks contained settlements with either concentric defensive walls, or sepulchral structures (tumuli).

The Liburnian hill forts illustrate the process of relocating from the plains (dugout settlement in Soline cove) to higher ground, which remained a permanent feature of the island, until the emergence of Roman settlements.

Ancient Rome introduced significant and long-lasting changes to the landscape with respect to settlement organisation and land use. Life on the island is settled in the plains, by the shore near docks or ports, a common feature of settling in the eastern Adriatic (Suić, 1976, 28). Unlike the communal use of pastures, fields, and forests practiced by Liburnian tribes, Roman senatorial families used their private land (*ager privatus*) to intensify agrarian production of olives and grapes, as well as the exploitation of natural resources, stone and salt. The functional identity of the landscape in Roman times is characterised by luxurious life style and leisure time, agricultural production, and exploitation of natural resources (McKay, 1998, 115). The settlement landscape is represented in large-scale maritime and rustic villas, which are now archaeological sites.

The period from 8<sup>th</sup> to late 18<sup>th</sup> centuries was defined by spatial isolation and malaria, marking a time of decay and demise of the island's urban and productive accomplishments. The settlement shifts to the north of the island and a new urban pattern emerges, with which the landscape structure reverts to a small spatial scale. In the organic settlement surrounded by quarries the landscape was dominated by the defensive tower, castle, and sacred buildings, whose structures have been preserved to this day.

The defensive and fortification character of the island in the 19<sup>th</sup> century is represented by landscape patterns with military forts dating from the Austro-Hungarian Empire, located on prominent coastal spots, as well as Neolithic hill forts, illustrating the historical sequence of defence identity.

The tourist and recreational character of the landscape from early to mid 20<sup>th</sup> century came about through planned activities. Brijuni Islands were recognized as the ideal Mediterranean landscape, an English park landscape (*„englischen-parklandschaft“*), “a sea garden”, a nature park, and the like (Brockhausen, 1906; Almanach, 1909a; Illustrierter Wegweiser, 1911, 41; Illustrierter Wegweiser, 1912, 42). The leisure and entertainment landscape is shaped by the landscape patterns of parklands, tennis and golf courts, forests and meadows with integrated remains of Roman villas and sacred buildings. In addition to the unbuilt landscape, the visual identity of the built-up landscape of the period

33 When Brijuni was the Yugoslav presidential residence it was always associated with the Yugoslav president Josip Broz Tito. As a highly extravagant location it attracted many foreign officials until president Tito's death in 1980.

34 To satisfy the requests for separate accommodation in the 1950s, several residential villas were renovated / built on the western coast: Jadranka, Brijunka, Bijela (White) villa, Primorka, Dubravka, and Lovorka. The area surrounding all the villas consisted of landscaped parks with meticulously tended paths and garden equipment.

is defined by the typology of historicist and secession-style villas and hotels. Brijuni is comparable to famous European destinations: for its landscaping to the Island of Wight in England (Brockhausen, 1906), for its flora with Corsica (Illustrierter Wegweiser, 1912, 43), for its archaeological sites with Greek islands and Asia Minor (Illustrierte Wegweiser, 1912, 46), and for its climate with the Cote d'Azur (Der Fremdenverkehr, 1912, 2).

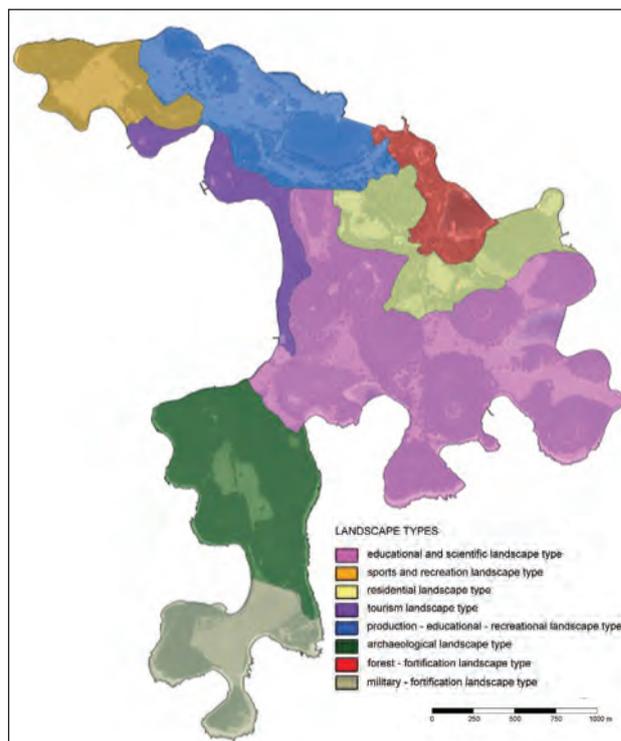
In the second half of the 20<sup>th</sup> century there were no significant changes in landscape. The Brijuni Islands became an exclusive holiday location for the former Yugoslav president Josip Broz Tito and his guests – foreign officials. The visual identity of the villas and hotels is defined by architectural and urbanistic characteristics of neoclassicism and modernism. Associative features and a non-material connection were created between the Brijuni landscape and Tito and the Non-Aligned movement.

In recent times activities are focused on maintenance, protection and preservation of natural and cultural values of the island aiming for relaxation, education, and recreation. With this in mind, small-scale elements are introduced, causing fragmentation of landscape patterns, creating a dispersion model.

#### CRITERIA FOR THE CONSERVATION OF LANDSCAPE VALUE AND NEW INTERVENTIONS ON THE ISLAND

By examining the landscape, we have confirmed the main hypothesis of the research stating that the historical features of the Veliki Brijun Island have influenced the formation of its character. The island presents distinct patterns of agrarian, residential, fortification, tourist, maritime, and recreational landscape from various periods. The anthropogenic character of the landscape is preserved in historical patterns as material elements of its spatial and visual identity. In addition to material features, the Veliki Brijun landscape boasts powerful associative features related to the post-WWII period when it served as the presidential residence of Josip Broz Tito and his place for meeting with numerous world leaders. When aiming to preserve landscape identity and adjust it for new use, the future development of Veliki Brijun cannot be planned solely according to laws of nature – the anthropogenic features of its character must also be taken into account.

The conservation of identified landscape features and values, as well as new interventions, must be based on satisfying the defined criteria (Dumbović Bilušić, 2015). The evaluation of landscape involves the relationship toward criteria groups for the determination of value of particular landscape factors and types/areas. The criteria are based on historical, cultural, architectural, setting, archaeological, and aesthetic values of landscape-identity factors i.e. types. The framework for the evaluation of cultural landscape is based on the internationally set and established evaluation model (UNESCO, 2012).



**Figure 12: Veliki Brijun landscape types (Source: authors)**

The criterion of wholeness/ integrity of cultural landscape, and therefore the evaluation of integrity, is based on the presence of distinctive formation components and functions of its development in multiple historical periods. The integrity of the Veliki Brijun landscape was studied as: functional, structural, and visual. The spatial identification of preserved landscape patterns, which document the functions that took place in the landscape through historical periods, defines the landscape's structural integrity. As a result of historical development, visual integrity is closely related to the identification of the morphological factors of landscape i.e. its identity. Landscape types of Veliki Brijun fully meet the criterion of integrity, as they possess a substantial number/quantity of factors, features, and patterns able to convey the value of integrity.

The criterion of authenticity/credibility relates to material landscape features, such as state of conservation/survival of historical structures and landscape patterns from various historical periods. The authenticity of landscape organisation, and its formation, includes the evaluation of the patterns of spatial organisation defined by the systems of roads, and land subdivision, etc. In addition to the main criteria of integrity and authenticity, other criteria for landscape evaluation include: time depth, coherence, representativeness, and rarity.

The criteria for value conservation and new interventions in the landscape of Veliki Brijun are based on the evaluation of value of each landscape type. If a landscape type exhibits higher degrees of conservation and value, the main intervention would include maintenance and conservation of its attributes. If the historical attributes have deteriorated, the landscape demands a higher degree of new interventions, which would include enhancements or the creation of new attributes.

### CONCLUSION

The landscape of Veliki Brijun is an area of a small, low-elevation, slightly hilly island with pronounced human activity spanning over several thousand years. It is an area where natural elements and man-made structures are intertwined through human habitation and use. Within the framework of UNESCO's landscape classification, it could be categorised as intentionally designed tourist landscape from early 20<sup>th</sup> century with highly natural areas (forests and *macchia*) and landscape patterns from various historical periods integrated in its structure. Tourist landscape with diverse and complex landscape patterns and structures includes villas and hotels; recreational facilities (tennis, golf, polo, etc.), ZOO, promenades and paths with belvederes; outbuildings and ancillary facilities.

By analysing the elements of landscape identity of Veliki Brijun in various historical periods we have determined that over the course of history man has changed not only the landscape, but his attitude towards landscape, as well. The island's primarily agricultural and production character was the result of rich soil and sea shallows favourable for salt extraction, of limestone and quarries, and has survived during its long history, despite the post-WWII period when as the presidential residence it was closed to the public. The recent stage of the island's development within the Brijuni National Park is focused on relaxation, recreation, and education.

The formation and transformation of landscape and seascape as a relationship between man and nature has changed over the course of history. After a great economic and cultural rise during ancient times, followed by a breakdown of civilisation heritage, in the early 20<sup>th</sup> century Veliki Brijun underwent a planned transformation into a tourist location. It was designed as a tourist resort located in landscaped parkland with

important artefacts of architectural heritage integrated in its structure: archaeological sites from Roman/ancient times and Byzantine and early Medieval times, as well as historical buildings. The entire island was designed as park landscaped, in the spirit of the landscaping style developed in England in late 18<sup>th</sup> and 19<sup>th</sup> centuries.

Landscape patterns of residential character have been present throughout the island's history and were preserved in the structures of Bronze-Age hill forts, residential and rustic Roman villas, Byzantine settlement, Modern-Age vernacular settlement and residential villas at the coastal strip, from the first half and mid 20<sup>th</sup> century. The pattern continuity of the island's fortification and defensive role was preserved in the following structures: Bronze-Age hill forts, Late-Antiquity and Byzantine towered ramparts, medieval defensive towers and castle, and a fort from the second half of the 19<sup>th</sup> and early 20<sup>th</sup> centuries. The patterns of tourist and hotel landscape originate in the first half and middle of 20<sup>th</sup> century. This period is also related to the patterns of unbuilt landscape of recreational facilities (tennis and golf courses, promenades, landscaped parklands in abandoned quarries and around hotels and villas). The patterns of agrarian landscape (fields, pastures, olive groves, vineyards) were significantly reduced when compared to the active productive periods of the Roman times and the early 20<sup>th</sup> century, and are thus now present in a very small capacity of the education garden and arboretum. The areas covered in forest and *macchia* belong to the historically continuous landscape patterns which have been present constantly and are the most represented among all of the other patterns.

The research has demonstrated that, aside from the predominantly natural character of Veliki Brijun landscape, anthropogenic attributes also proved important, as they shaped the elements of spatial, functional, and visual identity preserved within various landscape patterns. The mentioned landscape patterns that satisfy the criteria of time depth, diversity, representativeness, and rarity must be maintained to preserve the integrity and authenticity of the historical character of Veliki Brijun landscape. Diverse landscape patterns are integrated in the homogeneous, intentionally designed recreation and leisure landscape. Due to its unique and distinctive nature, the Brijuni landscape represents an important segment in not only Croatian, but Adriatic and Mediterranean cultural heritage as well.

## ZGODOVINSKA ZNAČILNOST KRAJINE OTOKA VELIKI BRION

*Biserka DUMBOVIĆ BILUŠIĆ*

Ministarstvo kulture Republike Hrvatske, Konzervatorski odjel u Rijeci, Užarska 26, 51000 Rijeka, Hrvatska  
e-mail: bbilusic@gmail.com

*Mladen OBAD ŠČITAROCI*

Sveučilište u Zagrebu, Arhitektonski fakultet, Kačićeva 26, 10000 Zagreb, Hrvatska  
e-mail: mos@arhitekt.hr

*Jasenska KRANJČEVIĆ*

Institut za turizam, Vrhovec 5, 10000 Zagreb, Hrvatska  
e-mail: jasenska.kranjcevic@iztztg.hr

### POVZETEK

*Veliki Brion je najveći otok v arhipelagu Brioni v severnem Jadranu. Članek se osredotoča na oblikovanje in spremembe krajine skozi različna zgodovinska obdobja. Namen raziskave je bil preko analize geneze krajine Veliki Brion ugotoviti organizacijo in rabo zemljišč ter dejavnike krajinske identitete. Cilj je, da se prepoznajo značilne krajinske značilnosti ter določijo merila za ohranitev krajinske vrednosti za prihodnje posege v prostoru. Ob prepoznavanju značilnih krajinskih vzorcev, tipov krajine, sta bila določena njihov prostorski položaj in medsebojna povezanost. Z induktivno-deduktivno metodo so v članku obdelani raziskovalni podatki, pridobljeni iz pisnih in grafičnih zgodovinskih virov, medtem ko je bila za pripravo grafičnih podob v GIS-u uporabljena časovna analiza.*

*Osnovne značilnosti krajine Veliki Brion vključujejo tudi odnos med naravnimi elementi in človekovimi aktivnostmi, ki so spreminjali in prilagajali krajino v skladu s socialnimi, kulturnimi, gospodarskimi in političnimi potrebami. Različne potrebe in funkcije prostora so kreirale stanovanjske, agrarne, utrdbene, proizvodjalne, turistične, pomorske in rekreacijske elemente krajine. Glede na kompleksen zgodovinski značaj krajine Veliki Brion, mora sodoben pristop k načrtovanju krajine temeljiti na priznavanju in upoštevanju funkcij, ki so se oblikovale v različnih zgodovinskih obdobjih.*

**Ključne besede:** severni Jadran, Veliki Brion, zgodovina krajine, dejavniki krajine, tipi krajine

## ABBREVIATIONS

- GIS** – Geographic Information System  
**UNESCO** – United Nations Educational, Scientific and Cultural Organization  
**WWI** – World War I  
**WWII** – World War II  
**PINP Brijuni** – Public Institution National Park Brijuni

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