

Towards a Healthy Architecture Luštica Peninsula

by Saša Cvetković

A thesis
presented to the University of Waterloo
in fulfillment of the
thesis requirement for the degree of
Master of Architecture
in
Architecture

Waterloo, Ontario, Canada 2006

© Saša Cvetković 2006

AUTHOR'S DECLARATION FOR ELECTRONIC SUBMISSION OF A THESIS

I hereby declare that I am the sole author of this thesis. This is a true copy of the thesis, including any required final revisions, as accepted by my examiners.

I understand that my thesis may be electronically made available to the public.

A handwritten signature in black ink, consisting of several loops and a horizontal stroke, positioned above a solid horizontal line.

Abstract

This thesis creates an architectural *vision* for the future environmentally and culturally *healthy evolution* of the *Luštica peninsula*, a very *potent* and *unique* site along the *Adriatic coast* in *Serbia and Montenegro*. While acknowledging the contemporary and increasingly important need for *ecological incentives* in designing, planning and management of our environments, the work utilizes a holistic *ecosystems approach* as a methodological tool to unravel the site's inherent organizational and operational complexities. Imagined and embodied in a *Natural and Cultural Heritage Park*, the development vision is fundamentally driven by the idea of the immortality and destiny of a place, often referred to as *the sense of a place*. The focus of the thesis is embedded in the search, discovery and eventual safeguarding and enhancement of Luštica's *genius loci*, thereby ensuring its ecological and economical *sustainability*, and the overall health of its *reconciled* natural and cultural communities. By proposing a resolution for existing problems and fostering intrinsic potentials of the site, the thesis offers a new *paradigm* for developing our environments wherein the spirit of a place plays a quintessential role in defining their very identity and meaning.

Acknowledgements

I would like to thank all who made a difference in creation of this thesis. First of all, my sincere gratitude goes to group of individuals from Serbia and Montenegro: personnel from CEP office and from Department of Landscape Architecture at University of Belgrade in Belgrade; Sanja Marković from Institute of Nature Protection in Podgorica; people from Public Library, City Archives, Institute for Urbanism and Planning, and Tourist Centre in Herceg Novi; people from Nautical Museum and EXPeditio in Kotor; Kaća Nikolić and Srećko Krasan from Tivat; and special thanks to Svetlana Jeleč and other people from Luštica. Without their invaluable assistance and support the thesis would not be possible.

Thanks also to my supervisor Val Rynnimeri and my thesis advisors, Rick Haldenby and Rick Andrighetti. Their valuable advices and experiences in the field helped me greatly during the thesis voyage. A special thanks to my external reader Neno Kovačević for his time and commitment.

Finally, I would like to thank my friends and especially my family for their unconditional love, continual support and for constantly having faith in me and my work.

...to my PARENTS...

Branko Cvetković and Mira Cvetković

Table of Contents

	<i>Abstract</i>	v
	<i>Preface</i>	xv
<i>Thesis Overture</i>		
<i>introduction</i>	<i>Thesis Exploration and Foundation</i>	3
	<i>Thesis Site and Approach</i>	14
<i>Embryonic State</i>		
<i>thesis contextual framework</i>	<i>Luštica Peninsula – Personal Narrative</i>	26
	<i>Methodology – Genius Loci</i>	34
<i>In Search for Spiritus Movens</i>		
<i>analyticum</i>	<i>Ecosystems Holarchy</i>	44
	<i>Adriatic Sea</i>	46
	<i>Montenegrin Littoral</i>	52
	<i>Boka Kotorska</i>	56
	<i>Luštica Peninsula</i>	76
	<i>Narratives & Mapping</i>	
	<i>Natural</i>	80
	<i>Historic & Landscape</i>	92
	<i>Cultural</i>	104
	<i>Narratives - Problems & Potentials</i>	116

***Heritage Park Luštica
syntheticum***

<i>A Park Proposal</i>	138
<i>Luštica as a Heritage Park</i>	140
<i>Luštica as a Multipurpose Park</i>	142
<i>General Objectives</i>	144
<i>Spiritus Movens Re-visited</i>	150
<i>Heritage Park Design</i>	152
<i>Luštica Management</i>	182
<i>Monitoring</i>	200

***The Fortifications of Luštica
specificum - a case study***

<i>Background</i>	206
<i>Artefacts - Design</i>	220
<i>Experience - Spiritus Movens</i>	224
<i>Attunement</i>	238
<i>Ukop Locus</i>	247
<i>Fort Arza</i>	265
<i>Design Guidelines</i>	272

***Towards a Healthy Architecture
conclusion***

<i>Gestalt</i>	287
<i>Model, Polemic, Vision</i>	291

Appendix

<i>Building Traditions</i>	297
<i>ECOlogical Revolution</i>	310

<i>List of Illustrations</i>	321
<i>Bibliography</i>	333

Visuals - Note on Figures

All figures represent the work of the author, whether they are photos, maps or tables, with exception of a few images that were borrowed, adopted and adapted from various sources to support the thesis. For a detail list of all figures refer to the back of the book in the section on Illustrations.

The figures on cover pages match the corresponding chapters in the book. Since they are not labeled on the cover pages, they are included here as the following:

Into the Light

Fig. Introduction

The photo of the tunnel and the staircase as found on *Gornja Arza* artillery location.

Virgin Land

Fig. Embryonic Stage

The photo portrays the intact environment, unspoiled nature of the Zeta valley.

Holy Tree

Fig. Analyticum

The photo of an old olive tree in Žanjice. It represents one of Luštica's essential qualities.

The Window

Fig. Syntheticum

The photo suggests the synergy of cultural and natural; duality substituted by unity.

The Opening

Fig. Case Study Analyticum

The view out through window of Fort Kabala. From a murky, dense past to a healthy future.

Ukop Mood

Figs. Case Study Syntheticum

The photos reveal the character of Ukop site. With Minimum to achieve Maximum.

Towards a Healthy Architecture

Fig. Conclusion

The photo of the gateway to Fortification Rose which was restored, renovated and reanimated.

Preface

Inspired by past and present environmental and ecological movements, and by architectural philosophies that aspire towards the reconciliation of man and nature, this thesis explores what defines the sense of a place of the Luštica peninsula, an exceptional site found on the Adriatic coast of Serbia and Montenegro. The process of unraveling and understanding its culturally affluent past and complex present conditions becomes the kernel for envisioning Luštica's future - a prosperous, meaningful, and most importantly, *healthy*^{*1} site development.

Beyond the academic rationale of finding the appropriate site that provides the desired complexities (rich interlinked cultural and natural layers), and beyond a set of goals that could address the problems and potentials of contemporary architecture in response to its environment worldwide, there is also a very strong personal motivation behind the site selection. The cultural ties, the mentality and traditions, deeply rooted in the author's personality are the primary motive responsible for choosing a site so remote and distant from the present Canadian academic realm. For the land that nurtured generations of his predecessors, the author feels a powerful sense of belonging and a burning desire to do something for the country, something exemplary and progressive, something innovative and visionary, something in accord with the local potential that has never before been able to thrive to its fullest capacity due to the politics of an historically tormented country.

On a broader more universal scale, this thesis site epitomizes the contemporary struggle for an economically and environmentally sustainable development in the time of a global ecological crisis. Exploring the possibilities and re-evaluating the principles of planning, landscape architecture and architectural design, this thesis attempts to establish a methodology, a fused and unified axiom for a successful, and above all, healthy design development in all spheres of 'world making', while strongly advocating for *Nature* as the key guide and the chief partner in the overall process. Conversely, this thesis could also be read as a personal quest into the natural and cultural realms of a particular Mediterranean site with the purpose of defining a genuine meaning of design as the governing principle of creation; to find out what truly constitutes a meaningful architecture.

^{*1} **healthy** in the thesis is used interchangeably with terms such as '**sustainable**,' '**ecological**,' '**harmonious**,' and '**natural**'. In all these cases, the word means '**pro-life and creation**' in its most fundamental sense. **Healthy**, in this context, means respectful and friendly for the environment and for the natural and cultural systems involved. **Healthy** also means **prosperous, successful and future-full** in a more **sustainable** sense with respect to the overall environment. The **anti-thesis** of the term would be '**un-healthy**,' meaning **non-benefiting, parasitic** even, and utterly **threatening** to survival. The **unhealthy** jeopardizes its own future and all other entities in its realm as well as those affected by it. **Healthy** also means **harmonious** as it promotes a **sybiotic relationship** between the 'healthy' system and the surrounding environment. It means that both, if in tune with each other, **benefit** from this relationship. It also means **natural** since this **pro-life** notion is extensively found in nature and its '**natural**' **processes of evolution, cyclical changes**, preserving the natural, **dynamic balance** or homeostasis; **natural** also means '**given in nature**' and objectified in every aspect of existence.

i

Thesis Overture
introduction



"We need to realize the powerful potential of architecture to mediate between man and the environment, to both alleviate the rootlessness of the Telematic Nomad and accept responsibility for the health and well-being of the earth. We need an architecture that works to ground us in place, to provide us with a footing from which to evaluate contemporary technology critically and embrace it selectively, rather than one that celebrates dissolution and the placelessness of telecommunications. We need an architecture of affiliation, engagement, and stewardship.

Without an architecture that bonds us to the earth and to each other, our lives will be as empty as the rapacious sprawl of exurbs and suburbs. We will become strangers to ourselves, interlopers in our own homes, tourists in our own towns forever cut off from public virtues and concern for our environment. Without attention to the need for architecture to engender love, pride, and cultural bonding to place, our most stylish efforts, most pragmatic solutions, and most sincere critiques will simply add to the decay of an already unhealthy planet."

Ellen Dunham-Jones, *Losing Ground*

thesis exploration and foundations

This thesis began as a wish to address coastal architecture as a theme aspiring to reconnect man with nature; to revisit the evolutionary and philosophical origin of life - the water and the sea. The edge between the land and the sea became the focus of a personal experiential discovery in which the dichotomies and contrasts fundamental to virtually any living condition were explored. They comprised a series of experiences: the overwhelming scale of nature in respect to the human factor, analogies between the female body and nature, explorations of the audio-visual landscapes, the tensions created between the sacral and the profane, the man and the woman, the traditional and patriarchal versus the modern attitudes.



Thesis Incipient Stage

Fig. i.1 (left)

The river case explored the ideas of scale of nature and human, together with the analogous relationship between woman and the river

Fig. i.2 (right)

The land case explored the ideas of kinetic experiencing of an audio-visual landscape; movement and participation with a polarized playful environment as essentials for gaining an experience

the consecrated case



Thesis Incipient Stage

Fig. i.3

The consecrated case explored the ideas of duality and polarization, specifically focusing on the unique and very peculiar conditions at the mount Athos - *Holy Mountain*

...multilayered [meta]physical treshold at holy mountain

Parallel to this experiential exploration, the work started to move into a more pragmatic realm of environmental and ecology-based issues pertaining to the current world-wide crisis. New problem-solving strategies acknowledged the complexities embedded in all living organisms, systems, designs, and creation processes. As a result, the thesis shifted towards a more practical direction of selecting a particular site that initially had carried much of the portrayed experiential tensions and conflicts. Simultaneously it provided specific conditions charged with problems and potentials regarding the future development and evolution of the selected place. This duality formed the basis for the forthcoming thesis development.

The last influential component was a more theoretical investigation into the relationship between man and nature, historically a symbiotic one until the industrial age and the advent of machinery, the creation of corporations, private ownership, the capitalist notion of profit, and invention of capitalism itself. Writings and essays discussing the issues of these relationships informed and shaped the general architectural philosophy in the thesis and strengthened the desire to attempt the creation of a practical framework; a methodological process that would allow a reconciliation of man and nature to take place. The first and foremost step in this worrying process became the search for *genius loci* - the sense of a place.



Swimming pool, Leca de Palmeira, Portugal, 1961-66

Fig. i.4

One of the influential projects for the thesis, where a fusion of natural and man-made elements is profoundly striking - hence suggesting similar approach to the Luštica's coastal development



Piazza Metallica, Dunsburg-Nord, Landscape Park, 1991

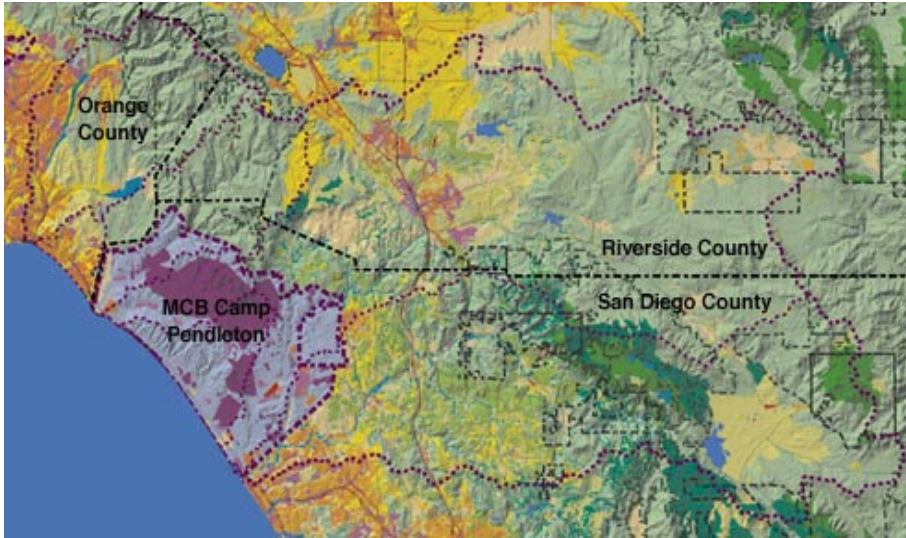
Fig. i.5

A former industrial park represents one of the most compelling contemporary landscape projects with the similar 'healing' attitudes as envisioned for Luštica's revitalization.

The beginnings of the written work which follows were characterized partly by a difficulty in finding the most adequate way to present the richness, the multi-layering, the sheer complexity of the Luštica peninsula, its identity and character. The decision was made to develop the thesis by attuning the intuitive, introspective sounds of personal desires and aspirations with the objectivity of the facts of the place, the 'external' reality of the subject matter. The two components, the personal and the factual tend to merge, intertwine and enhance each other creating an integrated narrative which essentially represents the story of Luštica, its body and its soul.

Themes covered in the thesis also reflect the mosaic quality of the multi layered content embedded in Luštica's site narrative. Perhaps the path of their discovery is the path of the story telling. Therefore, the thesis is not intended to be read only in a standard linear progression, but also as a dictionary, a journal, or a brochure in which the mosaic pieces in a form of various texts, quotations, images and diagrams found on the margins and in the body-text, are interdependent and interconnected into one integral whole. This idea is also supported and aided by cross references which add an additional navigation throughout the book. Although they may appear to be otherwise separate and divergent, the mosaic's parts, the linear narrative and the cross references all compliment each other thereby providing a comprehensive and *gestalt* outlook on the presented material.

This thesis has started as a simple idea, a wish to make difference in the world. As any other thesis, it began with the 'known', based on the works of others in the field of the subject matter, and then gradually it departed to an 'unknown' territory, to its own world of discovery and innovation. Since the world is not a *tabula rasa*, everything new that is created has to originate on something old, something that already exists. In order to understand this thesis entirely, it is mandatory to identify its origins in literature. On this thesis subject there is a plethora of significant academic and non-academic work that has been researched, explored and studied to a greater or lesser degree depending on the importance, quality and relevance of the material. The following influential precedents are selected since they form the foundation for the evolution of the thesis. These projects and works not only informed the imminent thesis material, but served as reference models and at times, as the only guidance in the development process of the thesis.



Camp Pendleton, California, US
Fig. i.6
 Political and Landscape Map

Biodiversity and Landscape Planning project which proposed alternative futures for the region previously occupied by a military base, has provided a solid referential basis for envisioning the Lustica's future evolution. The Pendleton project has offered an outstanding mapping work which utilized GIS, and a series of future development scenarios with different impact intensity on the surrounding environment.



Sea Ranch, California, US
Fig. i.7
 Olhson Recreation Centre with the pool in the foreground and the Pacific in the background

This successful model for a sustainable and environmentally friendly community planning, management and living, represents a true practical embodiment of what constitutes a *healthy* development. It is also a direct inspirational example for a new development on Luštica. [Refer to Pg.170 in Chapter 3]

*Magia Blanca,
La Paz Waterfall Garden, Costa Rica*
Fig. i.8 (left)
Site-seeing of the natural wonders



A trail, Hacienda Baru, Costa Rica
Fig. i.9 (right)
Hiking and walking the trails



Toucan Flight, Hacienda Baru, Costa Rica
Fig. i.10 (bottom)
Educational and research expeditions

Tropical climate predisposed Costa Rica to unique and exceptional natural beauty and richness. The country has invested greatly in these resources. It uses them as an ecological and economic foundation in the tourism development of its regions. Accordingly, Costa Rican government designed and implemented eco-tourism principles and practices which have proven to be economically and environmentally sustainable. In the developing tourism oriented regions such as the Luštica peninsula, the ecotourism locations and the techniques found on Costa Rica thus serve as a successful model for healthy thriving of natural and cultural systems. [refer to *Zones of Eco-tourism, Pg. 176, Chapter 3*]





Downsview Park, Toronto, Canada

Fig.i.11 (top)

Perspectival rendering of one of the major public spaces

Fig.i.12 (bottom)

Proposed Site Plan



Downsview Park represents a place of history, a model for the future, where natural and urban come together as a constructed versatile ecosystem and a sustainable community place, to live, learn, work and play. As such, this park proposal greatly resembles the future vision for the Luštica's Heritage park. Apart from the size difference, Downsview Park is also set in the heart of the urban fabric. Unlike Luštica's predominantly natural environment, such urban setting carries a whole new different set of values, attributes and intensities pertaining to its design development and implementation.

Park Güell, Barcelona, Spain

Fig. i.13 (left)

Winding roads and paths and the central seating area with the supporting columns in the background

Fig. i.14 (right)

Organic-looking support column and railing details

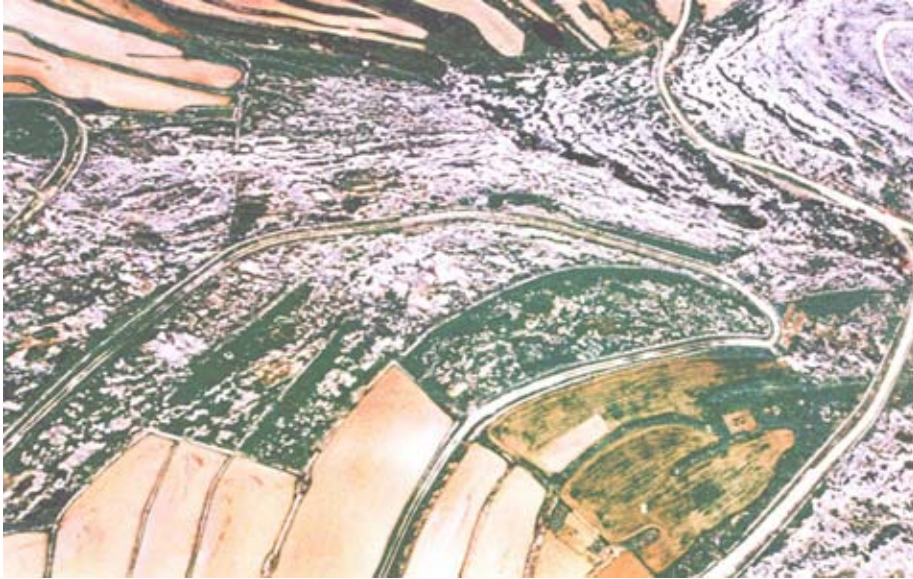
Fig. i.15 (bottom)

The entrance to the park with the main staircase



This is one of the largest urban parks in Barcelona envisioned by a legendary Catalan architect Antoni Gaudí. Originally intended as an English style garden city, the park today is a magical setting in which natural and cultural are wonderfully and compellingly brought together. This incredible inheritance of organic nature-inspired architectural designs in a form of curves, mosaic work, colonnades and railings, directly represent the embodiment of Gaudí's architectural design vision and philosophy. For Gaudí, profoundly immersed in Nature and her design principles, cultural has always been seen as a part, an extension, of natural. Similar organic approach and design language with Nature as a principle guide is intended for the Luštica Heritage Park design and development - fortifications' renovation, pavilions, shelters, trails, gates and other programmatic elements proposed for the Park. [refer to *Zones of Redevelopment*, Pg.164 in Chapter 3].





Ta Cenc Heritage Park, Gozo, Malta

Fig.i.16 (top)

Aerial shot of the landscape patterns created by agricultural land, ancient cart routes and winding roads as carved out of the rocky terrain

Fig.i.17 (bottom)

The Heritage Park Management Plan showing the Ta Cenc site with the surrounding context and topography



The management plan for this Heritage Park addresses a series of interlinked issues pertaining to the future development of this potent and complex site. Central ideas such as natural and cultural heritage conservation and protection, scientific research, tourism development and recreation are very similar to the concepts proposed for the Luštica peninsula and its future evolution. These management initiatives in both scenarios are driven by an essential motive for preservation and enhancement of *genius loci* – the sense of a place. Although promoting tourism, the strategies tend to minimize its intensity and impact on the surrounding environment.

The Burning Man Festival, Nevada
Fig. i.18
The setting sun and the Burning
Man wooden structure



For the detail description, analysis,
and relationship between this fes-
tival and Luštica, refer to Pg. 256 in
Chapter 4

Amongst many written works that have been read over the course of the thesis development, the following two books are mentioned here due to their tremendous influence on the emerging thesis. They are: *“Design with Nature”* by Ian McHarg and *“Practice of the Wild”* written by Gary Snyder.

Beside various case studies reviewed from all over the world (America, Canada, Costa Rica, Portugal, Malta), the thesis would not be possible without instrumental precedents found in Serbia and Montenegro, and the related academic literature and mapping material which have proven to be its *sine qua none*. Amongst many, the subsequent works of native Serbo-Montenegrin authors were crucial for providing necessary information and documentations: a PhD thesis on *“Anthropogenic Modification Types in the Landscape of Boka Kotorska”* written by Goran Bozović, *“Boka - an Anthropogenic study”* done by the orthodox priest Sava Nakićenović, and *“BOKA”*, a collection of works in arts, culture and science published annually by the Museum of Herceg Novi. The majority of the mapping material came from the government maps of the region with the *Topographic Charts of Herceg Novi, Tivat* and the *Trašte Bay* being the most useful ones. Boka Kotorska maps provided in the PhD thesis of Goran Bozović together with the mapping information gathered directly from the site research and field trips to Luštica were also essential for the analysis’ development.*²

*²For detailed bibliography on each section refer to the end of the book where all sources used are adequately grouped and listed.

One more influential factor needs to be mentioned. Even though it is not part of the stipulated literature search and has not been academically accredited, the experience of the site's character and its corresponding narratives were vital to the thesis from its beginnings. To verify and improve mapping information, substantial amount of intrinsic material was gathered and acquired through personal on site investigation, experiential exploration, and practical site research during the two-months-visit to the Boka Kotorska region and the Luštica peninsula in August and September of the summer 2004. Interviews, conversations, expeditions and site-surveying were all instrumental in the development of supplementary, and often essential, knowledge necessary for the realization of the thesis. At times, these sources happen to be the only available information and as such their credibility and relevance to the subject matter have constantly shaped and guided the course of the thesis from its incipient stage until the last conclusion.

thesis site and approach

Luštica is a hilly peninsula situated in the southeastern Adriatic region along the northwest part of the *Montenegrin* coast of *Serbia and Montenegro*. From a geomorphological and anthropological perspective, Luštica represents an inseparable part of the larger region of the *Boka Kotorska Bay*. With its isolated landmass Luštica shapes the southern edge of the Boka Kotorska bay and separates it from the open *Adriatic Sea*. At the same time, with its rich cultural history, it has also been an integral part of the historical continuum of the surrounding region of Boka Kotorska.

The most striking aspect of Luštica's landscape is the greenery that covers the whole peninsula, contrasting the blueness of both the sky and the Adriatic Sea. As the mediator in this natural dialogue, the Cretaceous white-grey rocky terrain known as *kras* creates morphologically rich and complex relief elements, which vary drastically from the northern part of the peninsula facing the Boka Kotorska bay, to the southern coast which opens up to the Adriatic sea and horizon. This variation is also evident from the low coastal region to the hilly mainland terrain. The land and the surrounding sea host seemingly endless numbers of faunal and floral species, some of which are endemic and unique for the region. Due to its exceptional natural diversity on such a small territory, Luštica contributes greatly to the quality of Boka Kotorska by being one inimitable natural entity in the whole of the Adriatic. Furthermore, as an integral part of the Boka Kotorska Bay, the Luštica peninsula shares the privilege of being a part of the bay that has been recognized as one of the most beautiful bays in the world.^{*3}

^{*3} *The Club of the Most Beautiful Bays in the World* was established in 1997 in Berlin with the registered office in Vannes, France. The club counts for 32 most beautiful bays amongst which are the infamous bays of Rio, Quebec, Venice, San Francisco, and others. Boka Kotorska Bay was accepted in the club in the year 2000.



A Visual Taste of the Luštica Peninsula

Fig. i.19

A virgin land, the thriving native vegetation, the crystal blue sky and the endless horizon

Even though a pristine, natural environment dominates the peninsula, Luštica also has a rich cultural heritage due to centuries of human activity tied to this location and its even more active surrounding region. Past archeological discoveries have shown that Luštica and the Boka Kotorska region have been frequently inhabited by many different settlers for more than 4,000 years. Before and after the arrival of the Slavs, numerous states, countries, kingdoms, and empires gravitated to the region of Boka Kotorska, to its powerful strategic location in the southeastern Adriatic, near the *Otrant Door* and the open *Mediterranean Sea*. The region's desirable living conditions - a serene environment, a mild climate, calm waters and bays that served as a refuge from pirates and the open sea - gave rise to many ancient cities and coastal villages. Beside settlers, such a rich region also constantly attracted many different invaders. As a result, the control of the region was passed from one ruler to another, frequently influencing conditions of the region. Borders, administrations, and the overall political, social and economic situation have been constantly changing. All civilizations and authorities - from Illyrians and Greek colonists, Roman and Byzantine Empires, to post-Slavic Venetian and Turkish rules, the brief Russian and French governance, and finally Austro-Hungarian, Italian and German occupation in the past century - have left their traces manifested in cultural and environmental modifications of the area, adding to its complex cultural heritage.

Old Stone Houses in Bijelila

Fig. i.20

The image reveals a magic character and feeling of the symbiotic relationship between natural and man-made elements.



Genius loci is a particular quintessential characteristic of a place, its spirit, one which consists of many interdependent underlying conditions crucial for the understanding of that place. Luštica's spirit lies directly in the symbiosis of two aspects. Natural and man-made environments are impressively connected on Luštica in one heterogenic and unique whole. The natural diversity, from sandy and gravel beaches, small islands and capes, to completely inaccessible rocky cliffs with caves and grottoes underneath, is often complemented by minimal human intervention, in the past governed solely by utilization, nurturing, and consequently adapting to the natural surrounding and its potentials. As a result, there are many building artifacts and man-made elements such as small docks, ports, urbanized beaches, observation and defense objects, even little coastal villages, which, completely immersed in the natural setting, meet the neighboring natural environment in a balanced and harmonious way. For example, authentic Illyrian burial grounds called *tumuli*, medieval Christian Orthodox churches, centuries-old small rustic villages, and even monumental Austro-Hungarian fortifications, all found throughout the Luštica mainland, rest peacefully and in accord with the natural surrounding. Complimenting the untouched slopes covered with native greenery and ancient olive groves, barren and rocky hill tops, and small islands and coves, the cultural artifacts appear as if they were there forever, not built by human hand but rather carved by forces of nature, stone by stone out of its own terrain.

In the past few decades, unfortunately, Luštica has been characterized by severe disregard for its existing environmental condition, for this unique treasury consisting of two complex symbiotic and well-integrated systems, natural and man-made, which have co-existed and developed in this area since the beginning of their recorded history. Not only does this disregard the existence and preservation of the *genius loci* but it also threatens to disrupt a dynamic, balanced relationship between human activity and its surrounding environment underlying that spirit of place. Luštica's cultural and natural heritages are in great risk of neglect, disrepair and even complete destruction. More significantly, the natural eco-systems, including the diverse and authentic ecology of the entire region, are becoming highly endangered. In particular, unplanned and uncontrollable urban growth, unpredictable tourism techniques based exclusively on profitability, increasing environmental pollution, dilapidation of cultural monuments and even degradation of in-land medieval villages and adjoining horticultural lands, are just a few examples of by-products of contemporary human activity and its ignorance for the cultural balance of the environment and natural ecosystems of Luštica.

Old stone Guvno in Babunci

Fig. i.21

Historically Guvno is a place for milling wheat and a place of gathering for village people



"At the core of an adaptive **ecosystem approach** to sustainability and health is the premise that a sustainable society maintains itself in the context of the larger ecological system that it is part of. The formulation of a sustainable society involves realizing a vision of how the landscape of human and natural ecosystems should co-evolve as a self-organizing entity."

"**Monitoring** is the activity of observing the human and natural systems and synthesizing the observations together into a narrative of how the situation has actually unfolded and how it might unfold in the future. This narrative is used as the basis for governance and management, that is for learning, revisioning, and adapting human activities as the human and natural ecosystems co-evolve as a self-organizing entity."

Bunch, McCarthy, Kay, Waltner-Toews

"**Management** is the activity [that] involves the development and implementation of strategies to promote or discourage specific forms of self-organization in the context of the communal vision and plan. This means maintaining the context for the self-organizing complex (SOHO) systems, rather than intervening in the system in a mechanical way."

Kay and Schneider, 1994

*⁴ **attractor** - is the term adopted from the ecosystem approach. It describes specific current conditions of a certain system as it strives for the state of a dynamic equilibrium in constant interaction with its surroundings.

Before any measures and actions can be taken as an attempt to solve these serious problems, one has to understand the complexity involved, not only in the presented problematic conditions and their origins, but also the complexities pertaining to the overall operational and organizational principles and the interaction of the two interlinked ecosystems on Luštica. This thesis is intended to initiate a comprehensive investigative method that will coherently systematize and process a wide body of heterogeneous and seemingly disparate information. By generating series of maps, diagrams, and narratives, the analytical process will enable a thorough and a priori understanding of Luštica. To this end, a new sophisticated approach will be utilized and adapted for this thesis from ecological theoreticians and practitioners who have attempted, in a wide range of work and research, to provide an intricate and comprehensive framework with the principal purpose of understanding the dynamics and complexities innate to all ecosystems. Monitoring stability, planning, and estimating the implementations of interventions, represent vital processes and *sine qua non* conditions for ecosystem management. Such an ecosystem approach with its sophisticated analytical and synthetic techniques will become an appropriate and indispensable methodology for unraveling the specific complexity and heterogeneity of Luštica's interspersed ecosystems.

There are several distinguished steps in a comprehensive ecosystem approach like that of James Kay and his collaborators. Initially, an organizational principle or *holarchy* has to be established in order to provide necessary perspective and reference points in the analytical process. In essence, the holarchy represents the relational structure of the studied ecosystem in reference to the larger context and to its smaller divisions (*natural communities, populations and individuals*). At each level then, a detailed spatial and temporal interdisciplinary dissection is developed integrating various fields of consideration and influence such as biological, economic, cultural, geographic, political, social, etc. However, narrower the focus of the analysis in the holarchy, the more intensified and detailed the information becomes. Based on the holarchy, systematic analysis distills the most important behaviours and current conditions of the self-organized ecosystems on the Luštica peninsula. These are defined as the existing *attractors**⁴ and their respective narratives. Origins are recognized, as well as the anticipated future direction for these conditions. Whether the classification is positive or negative, it is the very identification and thorough understanding of the system and its attractors and narratives that establishes the foundation for the adequate goals and strategic initiatives to unfold.



Composite Map of Luštica
Fig.1.22
 Complexity and heterogeneity
 innate to Luštica's ecosystems

Once the understanding is acquired from detailed exploration and investigation and once the *genius loci* of Luštica is uncovered, it becomes a natural process to follow the steps which will encourage its continuous thriving. The purpose of the thesis then becomes the protection and enhancement of Luštica's natural and cultural heritage which will directly reinforce their interdependent coexistence and a future symbiotic and above all, healthy evolution. Such an idea is embodied as a concrete project for the Luštica peninsula - the proposal for a Heritage Park formation. By definition, such a Heritage Park would be multipurpose, representing a hybrid between a broader urban and bioregional planning, and a standard park design for a national park or nature reserve. As for every multifunctional strategy, the ecosystem approach further suggests the formation and stipulation of a series of strategic initiatives aimed primarily at the preservation and strengthening of the *genius loci*. Goals, management principles and monitoring are prescribed in the plan as fundamental elements which will ensure the park's stability and healthy future evolution. For their easier and more effective implementation, the Luštica study area is further divided into different areas and zones - Management Units - depending on specific natural, cultural and landscape values and characteristics of specific areas or places on the peninsula.

The last part of the thesis is a case study. In this final chapter of the book *The Fortifications of Luštica* are introduced and carefully explored as one of the most important and influential elements for the future development of the peninsula. A complete understanding of the fortifications' present condition is obtained by utilizing the same systematic principles of analysis and synthesis as described and applied in a more general way with previous thesis sections. The context, the design, and most importantly, the experience of the fortifications are vividly depicted in the first part of this chapter revealing the forts' hidden spirit. Consequently, these narratives and the uncovered *genius loci* become the essential prerequisites for envisioning the fortifications' prospective evolution. Based on these specific narratives, and by providing relevant and efficacious precedents, the second synthetic component of the chapter develops the design language and the guidelines for attuning to the *genius loci* which will eventually assure a healthy future for the fortifications, and equally the future of the entire peninsula.



Embryonic Stage the contextual framework



the prayer

Matter, of this is the cosmos, sun, earth and life made

Sun, shine that we may live

Earth – home

Oceans – ancient home

Atmosphere, protect and sustain us

Clouds, rain, rivers and streams, replenish us from the sea

Plants – live and breathe that we may breathe, eat and live

Animals, kin.

*Decomposers, reconstitute the wastes of life and death so
that life may endure.*

Man, seek the path of benign planetary enzyme,

aspire to be the world's physician.

Heal the earth and thyself.

Ian McHarg, Design with Nature

Living today means living in the environmental crisis which is omnipresent and globally conceived as the major threat to our civilization, especially in the years to come. It is thus apparent and quite easily ascertained that we live in a decisive time burdened by not only our own life expectancies but also by that of the generations to come. The way people of today live will determine how and if the people of tomorrow will live. Therefore, our actions, our attitudes, our *'everything'* now counts towards the future.

How we live implies desire for healthier modes of living, a less degraded and defaced environment, and a generally more inspiring and uplifting cultural milieu. Accordingly, a specific related terminology was established alongside and within the extensive body of work of ecologist and environmentalist. Terms such as *'green buildings'*, *'deep ecology'*, *'environmentalism'*, *'sustainability'*, *'bioclimatic design'*, *'bioregional thinking'* and other thematic variations have been coined one after another, and some even simultaneously with each other, yet all of them portray the same essential urge to act upon the very problematic situation our terrestrial environment currently encounters. Both contemporary environmental theory and its parallel practices reflect a profound and fundamental aspiration for the culture to come to terms with nature realizing that until ecology and healthy thinking enter all spheres of our existence on the planet, there will be no rest, no comfort, no affluent future guaranteed for our children.*⁵

The present condition of the Luštica peninsula epitomizes the conditions in which most of the surrounding Montenegrin and other Adriatic coastal regions are found as part of the global environmental crisis. Luštica shares similar, site-specific potentials and problems as do many developing countries and their undeveloped regions. Many presently struggle with a global hyper-tourism and uncontrollable development. Ensuring a healthy future on Luštica could indicate a success and health on the earth. If Luštica can be preserved as a region of rich natural places and strong local histories and traditions, then there is yet some hope for the regions of the globe in confrontation with the impacts of global civilizations.

Ecology - the study of the interactions of organisms, populations, and biological species (including humans) with their living and nonliving environment; **ecosystem** - the composition change and stability of geographically localized groups of species, and the flow energy and matter within such groups of species

Istock, 1973.

"Green architecture or sustainable architecture are simply different terms for designing with nature and designing in an environmentally responsible way."

Ken Yeang, Designing with Nature

Sustainability - meeting the needs of the present without compromising the ability of future generations to meet their own needs.

McDonough, 1992

Bioclimatic Architecture - the description of a more building-specific term [that] means an approach to design which is inspired by nature and which applies a sustained logic to every aspect of the project, focused on optimizing and using the environment. The logic covers conditions of setting, economy, construction, building management and individual health and well-being, in addition to building physics.

David Lloyd Jones, Architecture and the Environment

Deep ecology - a philosophy that calls for a profound shift in our attitudes and behavior based on voluntary simplicity; rejection of anthropocentric attitudes; intimate contact with nature; decentralization of power; support for cultural and biological diversity; a belief in the sacredness of nature; and direct personal action to protect nature, improve the environment, and bring about fundamental societal change.

<http://highered.mcgraw-hill.com/sites/>

0070294267/student_view0/glossary_a-d.html

*⁵The two paragraphs and the quotes in the margins are the extracts from the essay on ECoPhilosophy behind the thesis. [Refer to the Appendix for the full version of the text.]

Luštica Peninsula

a personal narrative



St. Nedelja Church, Zabrđe

Fig. 1.1

The high spiritual density felt on Luštica is in large part owed to a multitude of Orthodox churches, their exceptional positioning, and their rich cultural inheritance

I visited Luštica for the first time in 1994 as part of a day long field-trip from Herceg Novi. I traveled by boat as most tourists still do. Luštica's presence within the surrounding landscape could be described as silent yet salient. Geographically, the Luštica peninsula forms the Bay of Boka Kotorska itself. Not a lot of tourists know, however, what the name Luštica actually signifies. Most know of resort names such as Rose, Žanjice and Mirište, all situated on the Luštica coastline, where they go on one day field-trips usually by boat from the town of Herceg Novi or its surroundings. In fact, one could expect approximately two visits to Luštica during an affordable, and hence average, two week vacation in the economically tormented country such as Montenegro.

In 1994, Žanjice could hardly bare the name of a tourist resort. Tourism supporting services for the Žanjice beach did not exist, except for one restaurant and one café-bar located far apart from each other. Most of the services were provided by the 'walking shops', i.e. people with mobile freezers and stands who walked around the beach and sold goods such as food, drinks, and souvenirs. More often than not, a tourist could get a freshly made doughnut, or a pancake, with an ice-cold soft drink just pulled out of the cooler. Nonetheless, many visitors/tourists would bring their own food or drinks for the reason of not being sure what to expect from a seemingly 'uninhabited' and semi-urbanized beach resort. After all, it was a 'one-day-field trip' to wilderness. Tourists tended to bring things with them as they would bring to any other picnic or a similar type of activity.

Today on the other hand, the pristine nature of the Luštica resorts provides tourists with something unique in these 'modern times', where the rate of the urban sprawl worldwide increases exponentially, rendering accessible pristine sites as rarities. Until recently, on Luštica, the water, air, and the entire natural environment were all pollutant free. The sea was extremely clean and clear, the air was fresh and full of healthy sea iodine, and the sky was shiny blue and cloudless most of the time. Nature on Luštica was at her best, intact and unspoiled by human activity. Luštica appeared like a paradise on Earth.



Luštica Peninsula

Fig. 1.2

View of Boka's gateway looking west from the belvedere of St. Peter's church

There was yet something else about this idiosyncratic place. I remember vividly the indescribable sensation I had felt the first day I set foot on Luštica's land. It was a feeling of an unusual energy unknown to me, a sense of some kind of a divine presence that permeated the vegetation, the beach, the people, this entire pure and untouched setting. I was not sure what caused such an exceptional phenomenon. Was this special feeling induced by being utterly immersed into natural surrounding, by being so remote and isolated from anything cultural? Was the feeling of content and unexplainable happiness the sole result of just being at the beach, surrounded by the natural elements - the blue sky, the crystal sea, with the sun in the eyes and the wind in the hair?

I was not certain then. Nonetheless, I was absolutely sure that there was some universal force, a high level of spiritual density that seemed to grow stronger each time I came back. In the end I believed, one would get a completely different feeling of the beach and the surrounding environment on the peninsula, than one would in any 'urbanized' beach of Herceg Novi just a couple of miles away in the bay. A visitor on Luštica could somehow feel utterly connected to nature herself, to its laws and principles, to the experience of just being alive and integrated with the surrounding at that specific time and at that particular place.

Such land seemed to me completely uninhabited. For most visitors like me, this enchanting place appeared to be just a tourist resort, a place of escape from an ordinary urban vacation, a place for recreation and pleasure, where nature happens to be an integral part of rest, contemplation, and play – a perfect place for Roman *otium*. What I did not know at the time, however, was that there are people who actually live on the peninsula throughout the year, although the rustic, bucolic appearance of the very underdeveloped environment suggested otherwise. There were no showers or public washrooms, nor any resort services whatsoever. I was not aware of many medieval villages accompanied by a multitude of humble local Orthodox churches, nor was I aware of ancient olive groves, vineyards and astonishing belvederes that existed throughout the Luštica mainland.



"Until recently there persisted among Europeans the obscure awareness of a mystic solidarity with the land of one's birth. It was not a commonplace love of country or province; it was not admiration of a familiar landscape or veneration of ancestors buried, generation after generation, around the village church. It was something entirely different: the mystic experience of autochthony, of being indigenous, the profound sense of having emerged from the local ground, the sense that the earth had given birth to us, much as it had given birth, in its inexhaustible fertility, to rocks and streams and flowers....The obscure memory of a pre-existence in the womb of the earth has had significant consequences. It has produced among men a women a feeling of cosmic relatedness to the environment; one could even say that at one period men were less aware of belonging to the human species than of a kind of cosmic-biologic participation in the life of their landscape....This sort of experience produced a mystic link with place, whose intensity is till echoed in folklore and popular tradition."

Mircea Eliade

Luštica's coast
Fig. 1.3
In-tact, unspoiled and virgin beauty predominates Luštica's land-seascape

For my summer vacation I kept coming back to Herceg Novi every year due to several reasons. First, no visa or passport were required. I would need both to go to any other foreign sea resort. Secondly, domestic resorts were always more affordable than the foreign ones, and I already knew the area, the mentality and the local people. And finally, while acquiring appreciation and admiration for both natural beauties of the region and its rich cultural layering, I also started to grasp the most intriguing phenomenon found on the peninsula, this mysterious presence of profound energy, a hovering spirit of Luštica.

With frequent annual visits to the peninsula, it almost came naturally that I started noticing many changes that affected its development. There were more and more touring boats in the bay, especially in the section between Herceg Novi and Luštica, and consequently more and more tourists each year on its resorts such as Rose and Žanjice. This increase in the number of visitors directly influenced the rise of numerous new structures/facilities, and unfortunately, it explicitly brought the unavoidable by-products of tourism – environmental pollution, disturbance of local ecosystems and noise. The Luštica resorts started to transform into something completely different, something very undesirable and unattractive.

“Erect, the building stands on its rock base. The building’s repose highlights the rock’s obscure support, solid yet unconstructed. Standing there, the building holds its head high against the swirling storm, revealing its violence. The splendour and luminosity of the stones, seemingly a gift from the sun, underline the light of day, the immensity of the sky, darkness of night. Its steadfast silhouette makes the invisible region of the sky visible. The solidity of the object contrasts the surge of the waves, its immutable calm emphasizing their impetuous onslaught. Tree and grass, eagle and bull, snake and cricket thus assume their outer form and reveal their true nature.”

Martin Heidegger

In the meantime, my interest in Luštica overall grew stronger, so I found out more about the peninsula: its strategic value, its geomorphology, and a bit of its cultural history. I started to more broadly grasp its *genius loci*. The findings made me realize the complexity and hence the beauty of the location, and how significant it is in relation to the rest of the Montenegro coast. Year after year, the more I started to appreciate Luštica and its precious value, the more its condition worsened. It was not only due to unplanned and extensive urbanization, but also because of the actual consequences of irresponsible human activities. To give just an example, I noticed the decreased number of small fish boats that light up the sea surface at twilight. This could have implied some deeper economic problems, but a more probable reason was the depleted fish resources due to unregulated over-fishing to feed an increasing tourist demands. This was just one example of the indirect consequences of human ignorance towards the surrounding environment.



Twilight from Luštica

Fig. 1.4

Mirror-like surface of Boka's waters sprinkled with *ferali* - fishermen's boat lights

Upon my immigration to Canada, I missed a couple of seasons on the Adriatic coast of Montenegro. I went back two years ago, after former Yugoslavia underwent many phases and changes in its political life and an overall national restructuring. The environment along the coast of Montenegro had changed as well. Bigger towns such as Herceg Novi experienced less drastic changes than some other smaller towns and nearby tourist resorts. Many new constructions were built devoid of any environmental awareness or respect for the local traditions and, as a result, the character of some of these resorts started to lose its original authenticity. Sadly, the transformational powers of global culturalization left very apparent and undeletable traces on Luštica's resorts as well.

It is these changes (most for the worse), which has made me realize that something has to be done to prevent the current deterioration of the environment and to re-evaluate, reconsider and potentially redirect further human development towards a more sustainable and ultimately more environmentally healthy site evolution.

I saw the potential for the responsible and discreet response to natural beauty that could begin to alter and reshape our mental, often insatiable, urges for pleasure, control and conquest of the unknown. I felt the potential to educate and to enhance the awareness and understanding for the natural principles and systems. On Luštica I saw the potential for developing a strategic plan for a sustainable community and healthy living in accord with nature; to develop creative design solutions that could simultaneously serve our cultural needs while still maintaining the respect and reverence for the natural ways. Finally, I sensed the potential for the reconciliation between man and nature whereby the illusive dichotomy and alienation dissipate and are replaced by a new clear vision of symbiotic connection, interdependence, profound unity between the two. Accordingly, I attempted to develop a method, a process, upon which such an understanding and a respective shift could take place. In fact, I tried to personify the aforementioned vision as an alternative way of approaching design and planning, with an ultimate goal which results in sensitive and sustainable site development, in accord with the natural and cultural systems – new environmentally healthy solutions for the prosperous future development and implementation of eco-land-seascape architecture.



"People cannot live apart from nature; that is the first principle of the conservationists. And yet, people cannot live in nature without changing it. But this is true of all creatures; they depend upon nature, and they change it. What we call nature is, in a sense, the sum of all the changes made by the various creatures and natural forces in their intricate actions and influences upon each other and upon their places. ...The making of these differences is the making of the world. ...Humans, like all other creatures, must make a difference; otherwise, they cannot live. But unlike other creatures, humans must make a choice as to the kind and scale of the difference they make. If they choose to make too small a difference, they diminish their humanity. If they choose to make too great a difference, they diminish nature, and narrow their subsequent choices; ultimately, they diminish or destroy themselves. Nature, then, is not only our source but also our limit and measure."

Wendell Berry
Getting Along with Nature, 1982

An old house in Žanjice

Fig. 1.5

The image suggests a sense of harmonious and healthy co-existence between natural and cultural - a true reconciliation and balance between humanity and nature

Designing is living

Every vital process, as every living being, has to have a certain operative structure, a set of rules or principles that govern its way of existence. The same is true for every research and design process. It is also true that one who undertakes such a process is constantly looking for a certain framework, a methodology which would govern the process of creation and enable him to anticipate and influence accordingly its future evolution, thereby assuring its quality and success. In light of the statement above, designing should be seen as a never-ending process. It cannot be linear and always predictable. At its most desirable, it is dynamic, adaptable and continuously evolving process, as life itself.

As a research and design process, this thesis also searched for its framework, its generating structural tool. Complex and sophisticated ecosystems like Luštica need a complex and sophisticated methodology which puts this thesis into an even greater need for finding an adequate methodology whereby all necessary issues addressing the sites' future evolution would be adequately identified, understood and realized. Conventional scientific approaches with "linear causality and stochastic properties"^{*6} seem inappropriate and insufficient for understanding the peninsula, its complexity, heterogeneity, organization and the operating simultaneity of its systems.

^{*6} *The eco-system approach - addressing the complexity*
[Dr. James Kay, 1999]

An ecosystem approach for Luštica's future development represents an alternative methodology that addresses the challenge of complexity and the dynamics innate to any living and hence self-organized system. It originated as a result of many theoretical and practical works in the realm of still emerging and increasingly popular ecological and environmental sciences. Ian McHarg, James Kay, Timothy Allen, Ken Yeang, and Thomas Hoekstra are just a few influential names amongst many scholars, ecologists and environmentalists whose work, although created in different time periods and with various impacts, has formed the basics for the present ecosystem methodology, and has equally instigated this thesis development.

In the roots of the approach is the fact that every ecosystem is unique, and has its own distinctive set of complexities and particular interconnectedness of its elements. Thus the strength of the proposed approach for the thesis relies intrinsically on multidisciplinary integration and analytical inspection of ecosystems' dynamic evolution in both space and time. As a result, it provides a comprehensive understanding and crystallization of the overall complexity as well as the organizational and operational fundamentals of the individual elements.

For such a sophisticated process there has to be a certain structural plan involved that assures accurate and relevant collection, identification, classification and organization of researched information. In order to understand the complexity of any site's organizational and operational processes, one has to initiate the investigation by establishing the hierarchical structure; that is, to analyze the site within larger contextual boundaries and within its own sub divisions. Therefore, both the wider perspective (wider environment, environment, and wider system) and the groups of integrated smaller units (communities, populations, and individuals) are introduced as integral parts of the ecosystem analysis.^{*7} Essentially, they provide a wider context, a more inclusive perspective and an understanding of how individual elements comprise the whole of a system, and equally how this system relates to other systems and external factors of the larger environment. In fact, they assist in acquiring the so-called big picture.

"[A lake] forms a little world within itself...Nowhere can one see more clearly illustrated what may be called the sensibility of such an organic complex, expressed by the fact that whatever affects any species belonging to it, must have its influence of some sort upon the whole assemblage...a comprehensive survey of the whole [is]... a condition to a satisfactory understanding of any part."

Stephen A. Forbes,
The Lake as a Microcosm

^{*7}*This type of hierarchical thinking and holistic integrative approach is innate to ecology and other environmental sciences. As such, both can be easily traced as the kernel in the work of James Kay on holons, propensities and canons where the holarchy [see Pg.44] is defined as "a generalized version of a traditional hierarchy with reciprocal power relationships between levels rather than a preponderance of power exerted from the top downwards" [J.J.Kay, 1999]. Similar structuring concept is depicted in the book "Toward a Unified Ecology" by Allen and Hoekstra, when they describe the ecological grain and extent as well as the levels of organization pertinent to all ecosystems.*

This analytical and synthetic methodology is realized principally in a form of mapping, a very effective visual method essential for generating a series of corresponding narratives. In this case, mapping presents a consistent, clear and very systematic organization, processing and layering of very disperse and diverse information from various sources all unified under and integrated into one whole with a sole purpose of a more comprehensive understanding of the given data. This is also proven to be a very efficacious way to break down the site complexities into smaller, manageable entities with their own meaning and identity. At the same time, this method of mapping becomes a fundamental prerequisite for finding new hidden relationships between the whole and the parts, and between the parts themselves.*⁸

*⁸ Similar mapping method aided by a series of diagrams and sketches was used by **Ian McHarg** in his book "**Design with Nature**" in which he outlined and comprehensively illustrated the design principles and guidelines for successful and ecologically sustainable development of our environments

"Although systems analysis is most commonly encountered in ecology as a method, principally the mathematics model, it has overtones of a philosophy...or even...an ideology."

McIntosh 1985

The ecosystem approach for the Luštica peninsula used in this thesis represents a fusion of analytical and synthetic techniques. It is a methodological tool to reveal all underlying factors, influences and critical relationships within a wide spectrum of layered information relevant to the study area. The information is crucial for determining the direction of initiatives, goals, and adequate management strategies, ultimately targeted toward the resilience and survival of threatened ecosystems and/or the protection and improvement of healthy ones. The ecosystem approach provides the backbone for the thesis work by generating factual and technical information and the corresponding ecosystem narratives. Similarly, it assists in ascertaining relevant social, economic, political, cultural and ecological aspects embedded in the richly layered conditions found on Luštica. Such a well structured and all encompassing methodology enables the investigation and facilitates the process of finding and uncovering the quintessential elements and underlying forces that shape the peninsula's identity, which are thus essential for acquiring the sense of Luštica, for determining its *Genius Loci*.



*"You know, I think if people stay somewhere long enough – even white people – the spirits will begin to speak to them. It's the power of the spirits coming up from the land. The spirits and the old powers aren't lost, they just need people to be around long enough and the spirits will begin to influence them." *9*

In its open search for the essential dynamics of a place, the ecosystem approach can co-incide with a search for a site's *genius loci*. The Latin origin of *genius loci* or 'sense of place' translates as the genius or the spirit of a place. (*genius* = genius, spirit; *loci* = of place; a genitive of the Latin word *locus*). In ancient Roman culture, strong mythological connotations were associated with the term. It essentially meant the guardian spirit or generally the protective spirit of a place. In this polytheistic period, mythology played an intrinsic role in lives of ancient people. The gods were everywhere permeating both physical and metaphysical realm and equally influenced every aspect of human existence. Therefore, Romans saw certain places inhabited by gods at all times. It is evident how some of the contemporary meanings and associations with *genius loci* still maintain this notion of divine presence and divinities involved with particular places.

Genius Loci Image

Fig. 1.6 (top)
Silhouette of Prevlaka and Mamula Island from the shade of the trellis in the village Eraci

*9 The words of a Native American elder as recorded by **Gary Snyder** in his book **"The Practice of the Wild,"** pg.39

"The exit from the humanized world, whether voluntary or involuntary, enables the recovery of vital forces led astray or left dormant by society."

François Béguin

Since antiquity, the meaning of *genius loci* has not changed significantly. It has been used and applied in many different fields and in various capacities. *Alexander Pope*, an English poet, advocated its importance in garden design of 18th century England. In a modern context, *Aldo Rossi* in his book on *"The Architecture of the City"* draws his definitions, descriptions and inspirations for *the locus* directly from the idea of a local divinity, the 'situation' of a particular place, its *Genius Loci*. A more recent, and not so explicit, application of the term is found in the work of *Christophe Girot*, a French landscapist. In his essay *"Four Trace Concepts in Landscape Architecture"* he indirectly or perhaps coincidentally, refers to *Genius Loci* when he portrays his first step in the landscape investigation and design. He sees the landing as "touching ground and reaching for the confines of an unknown world," where "one feels before one thinks", and where "everything is apprehended with wonderment and curiosity, with subjective and interpretative eyes". The presence of subjectivity in discovering and acquiring the sense of a place is also apparent in yet another contemporary landscape work. Namely, in search for *Ta Cenc* sense of place on Malta, *Rick Haldenby* overtly acknowledges that capturing of the main aspects of *genius loci* is not rooted in factual, but rather is symbolic, intuitive and very impressionable.

Like its historical precedents, the thesis also uses *genius loci* to refer to a distinctive atmosphere of a place, its indescribable charm and quality. *Genius loci* is defined in the work as a particular quintessential characteristic of a place, one which consists of many interdependent, underlying conditions crucial for the understanding of that place. Throughout the book, *genius loci* is also used interchangeably with the long chain of translations and descriptions which historically and conceptually have the same meaning, one referring back to the original notion of the spirit, the deity of a place.

In the thesis work, however, *genius loci* is also associated with a genuine personal feeling of content, cumulative energy, and a higher spiritual density as a result of experiences directly drawn from the thesis site. For this purpose, a new term is coined to address this widened spectrum, the plethora of new added meanings. *Spiritus Movens* thus represents not only the spirit that resides in a place, but rather a moving spirit, or spirit that animates.

In its most fundamental sense, *Spiritus Movens* is the sum of all forces, of all visible and invisible traces of existence, of all stories told and untold, and all that has passed through, lived on, left or vanished from the site. It is at once a memory and an instant view towards future. Consequently it manifests itself as a completely permeating and presiding energy of a place that affects everything in its realm.

To discover *Spiritus Movens*, is to discover these inner forces of a place; to decipher the murmur of the trees and the whisper of the buildings. To uncover such potential is to feel the belonging, the synergic bonding and profound unity with a place. In order to understand it, one has to look under every stone, into every nest, glance between the doors and through windows of past and present. One has to try to find hidden structures, invisible webs, peculiar phenomena and intrinsic anomalies. Ultimately, one has to search for secret connections, underground pathways and streams of meaning, for an intimate and honest response to its charming play between the earth, sea, wind and sky; for the capacity upon which the site builds its way to eternity.

"Genius of place symbolizes the living ecological relationship between a particular location and the persons who have derived from it and added to it the various aspects of their humanness. No landscape, however grandiose or fertile, can express its full potential richness until it has been given its myth by the love, works, and arts of human beings."

René Dubos



In search of *Spiritus Movens* analyticum



Lines written a few miles above Tintern Abbey

*[...] And I have felt
A presence that disturbs me with the joy
Of elevated thoughts: a sense sublime
Of something far more deeply interfused,
Whose dwelling is the light of setting suns,
And the round ocean, and the living air
And the Blue sky, and in the minds of man –
A motion and a spirit that impels
All thinking things, all objects of all thought,
And rolls through all things. Therefore am I still
A lover of the meadows and the woods,
And mountains; and of all that we behold
From this green earth; of all the mighty world
Of eye, and ear,--both what they half create,
And what perceive; well pleased to recognize
In nature and the language of the sense,
The anchor of my purest thoughts, the nurse,
The guide, the guardian of my heart, and soul
Of all my moral being. [...]*

William Wordsworth, 1798





"To know the spirit of a place is to realize that you are a part of a part and that the whole is made of parts, each of which is whole. You start with the part you are whole in."

Gary Snyder
The Practice of the Wild

The context of the Luštica Peninsula

Fig. 2.1

The satellite image showing the Luštica situation in relation to the Mediterranean Sea and the Adriatic Sea

The Ecosystems Holarchy

Every living organism consists of a complex set of interconnected and interdependent processes. These processes also determine the direction in which a living organism is going to change. At the same time, there are many external factors that influence an organism and its development with various intensities. Internal processes and larger, external influences add to the complexity of understanding such a constantly evolving organism. This is also true for any ecosystem. In order to understand the complexity of ecosystem's organizational and operational processes one has to initiate the investigative expedition by establishing its fit in a hierarchical structure, and analyze the ecosystem both within the larger contextual boundaries and within its own sub-divisions (**Fig. 2.2**). Therefore, the wider perspective (wider environment, environment, and wider system) and the groups of integrated smaller units (communities, populations, and individuals) will be considered using an ABC (abiotic, biotic, cultural) analysis. The result of this hierarchical method or the *holarchy* will ascertain their most significant characteristics and specific behaviours regarding their function, organization and their interactive principles.

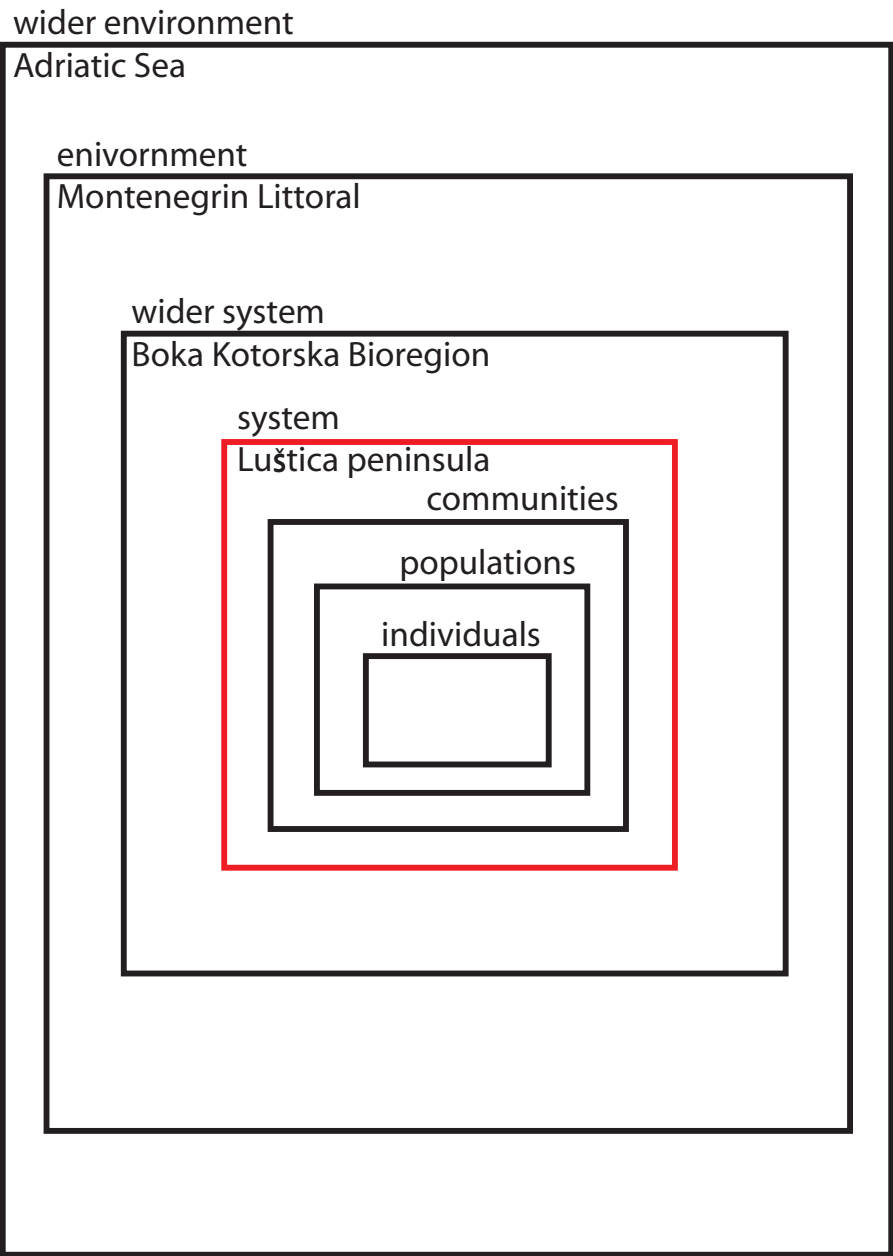


Fig. 2.2
The Ecosystem Hierarchy Diagram

wider environment

Adriatic Sea



Adriatic Sea
Fig. 2.3
Contextual Map

The main study area for this thesis, Luštica peninsula, is situated in the southwestern part of the Balkan Peninsula along the Adriatic seacoast. The **Adriatic Sea** is the largest ecosystem description and geomorphologic entity directly relevant to the Luštica ecosystem. *Mare Hadriaticum* or the Adriatic Sea is an arm of the Mediterranean Sea separating the Italian Peninsula from the Balkan Peninsula and the Dalmatian hinterland (**Fig. 2.3**). The Apennine Mountains and the Dinaric Alps, with its adjacent mountain ranges, form two mountain spines situated on narrow coastal shorelines. The Adriatic western coast is Italian, while the eastern coast is shared by former Yugoslavian republics: Slovenia, Croatia, Bosnia and Herzegovina, Serbia and Montenegro, and Albania at the very southeast end.

The Adriatic extends northwest from 40° to 45° 45' N and 12° to 20° E., with an extreme length of about 770 km (480 miles), and a mean width of about 160 km (100 miles). The narrowest distance, only 72 km (45 miles), is located at the Strait of Otranto, or the Otrant Door, through which it connects at the south with the Mediterranean Sea via the Ionian Sea. Many islands of the very jagged eastern coast reduce the width of the open sea to 56km (90 miles) in some areas. The Adriatic's total surface area is about 160,000 km² (60,000 square miles).^{*10}

^{*10}www.gzs-dd.si/kod&kam/od&kam_en/atlas_Eadriatic_coast.htm

organizing principle	system perspective	influences
ABIOTIC	<p>Airshed - climatic</p> <p>Watershade - aquatic</p> <p>Physiography</p>	<ul style="list-style-type: none"> • Warm and dry Mediterranean climate zone characterized by abundant sunshine and strong local winds • The main Adriatic current enters and exits through Otrant Door – warmer and slower along eastern coastal parts, cooler and faster along western coastal parts • Sea bed is set between two ranges: Apennine and Dinaric Alps with narrow coastal areas (except in southern Italy) • Division of Adriatic in two parts: <ul style="list-style-type: none"> - northern Adriatic - shallow (max. depth - 50m) - southern Adriatic - deep (max. depth -1300m) • Adriatic tidal movements are slight. The amphidromic point (tidal amplitude is 0) is just off the northwestern shore, near Ancona. Max. of 40cm in southern and up to 1m in northern parts. • The average annual water temperature is 11°C (low of 7°C in the winter to high of 25°C in the summer) where southern parts usually have slightly warmer temperatures throughout the year (due to a warm current that enters from the Mediterranean sea) • Average wave heights oscillate 0.5m-1.5m, and rarely (during extreme weather) exceed 5m.
BIOTIC	<p>Wildlife</p> <p>Landscape</p>	<ul style="list-style-type: none"> • Typical Mediterranean and sub-Mediterranean flora and fauna, both land and sea. (Black pine, cedar, oak, Mediterranean macquis; lizard, snake, seagull; dolphin, sardine, oyster, lobster). • Coastal and insular: Gulf of Trieste, Gulf of Kvarner, Bay of Boka Kotorska; Istria, Pelješac and Luštica peninsulas; Islands of Brioni, Kornati; Krk, Pag, Hvar, Brač, Korčula, Mljet, St. Marko, St. Nikola, St. Stefan, • Preserved natural ambiances – uninhabited islands • Shape and interaction of coastal regions with the Sea.
CULTURAL	<p>History</p> <p>Population</p> <p>Human use</p>	<ul style="list-style-type: none"> • Ethnicity and divisions - very mixed especially along the eastern ex-Yugoslavian territories. • Density (urban centers and migrations) • Tourism – seasonal oscillations; foreigners • very active demographic zone as early as 1st millennium BC (Illyrians, Greeks, Romans) • very dynamic history of continual conquests and socio-political changes • Tourism, transportation, fishing • Definition of conservation and protection areas: National Parks, Nature Reserves, Nature Monuments. • Traditional Mediterranean building typology (stone houses) and new-modern city developments – various densities depending on the region • Terraced land cultivation; agriculture and cattle raising; Mediterranean crops (potato, grape, olive, fig, orange, lemon)

Table #1
Fig. 2.4

ABC Analysis of the wider environment / Adriatic Sea & Eastern Adriatic Coast

Tectonically, the Adriatic basin is split into two parts: the northwestern, which is shallow with a floor of sand and silt, generally no deeper than 100 meters; and the southeastern, which is much deeper, slightly wider and that constitutes more than 90 per cent of the total sea volume (**Fig. 2.5**). Unlike the northern part of the Adriatic with many islands and shallow shoreline, the southern Adriatic is characterized by great depths and virtually no islands.

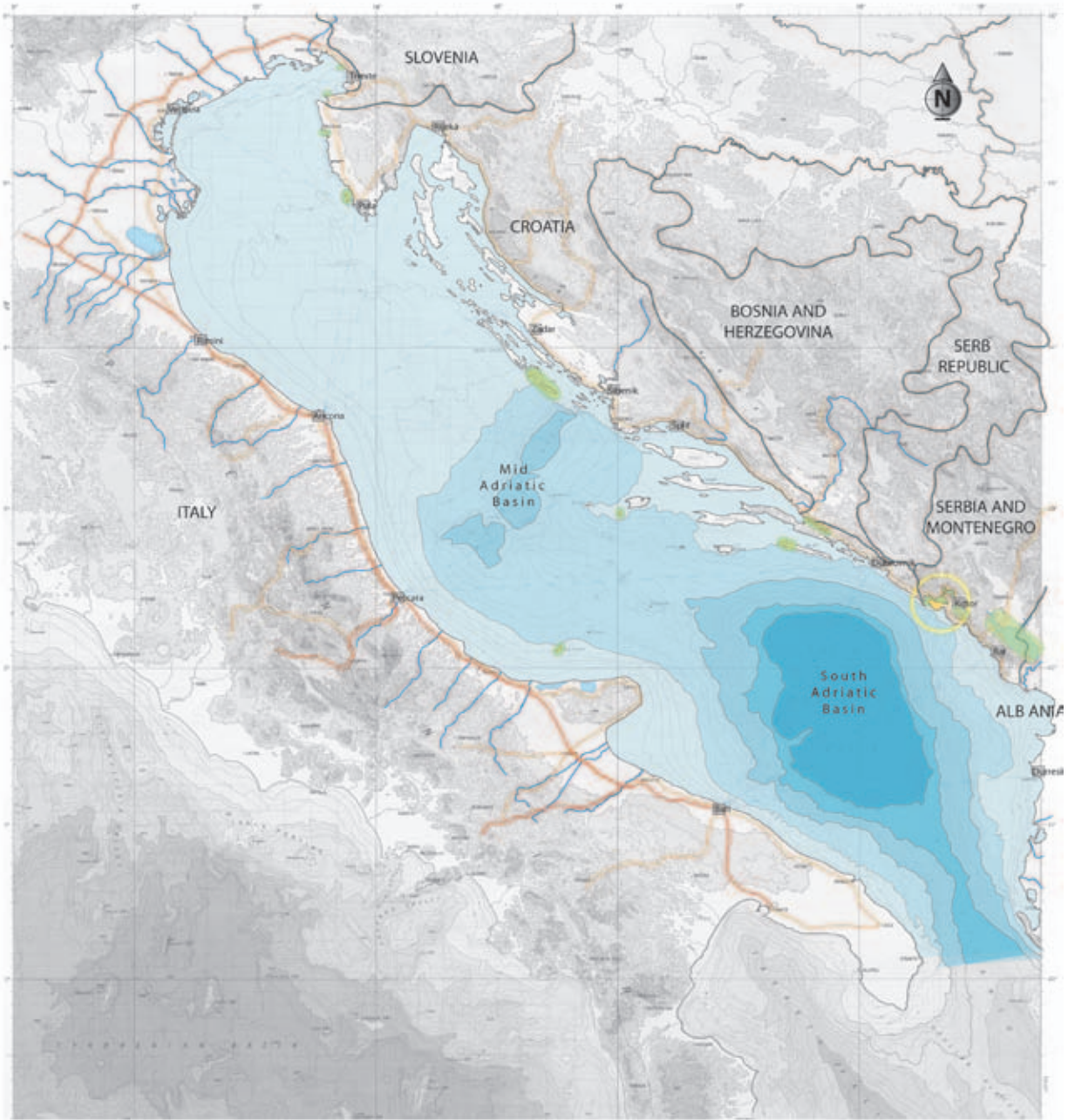
There is one major sea current on the Adriatic. It enters through the Otrant Door from the Ionian Sea and the Mediterranean as a warm current and then runs along the Albanian and the Montenegrin coast. From there, it travels north along the Dalmatian archipelago, turns around to the west in the Bay of Trieste cooling down slightly, and returns south along the Italian coast on the western side of the Adriatic basin. The speed of the current varies between the eastern and the western Adriatic due to the relief difference of the two coasts. It is slower along the eastern, jagged coastline, and faster along the less indented western coast which does not impede the flow of the current. Because of the sea current and the profusion of water from the many rivers that empty into the Adriatic, there are also slight discrepancies in temperature and salinity of the sea between the two coasts, with eastern being slightly warmer with higher salinity level.

There are many different winds dominating the Adriatic Sea. They are mainly seasonal and all have different properties influencing climate and the entire biotic and abiotic spectrum. Namely, there is *bura*, a predominantly northeast cold wind that makes navigation during winter dangerous. *Sirocco*, or *jugo*, is a southern, mostly humid wind, which brings rain in the winter. Finally, there is *maestral*, usually a western wind, which brings nice weather and helps refresh the hot air during summer.

Eastern Adriatic coastline

The **Eastern Adriatic coastline** geographically represents the bordering region between high mountain ranges of the Dinaric Alps and the shoreline of eastern Adriatic Sea (**Fig. 2.6**). This mostly narrow belt of low cretaceous terrain shares the same tectonic history and the geological properties of the Dinaric mountain ranges behind. Its predominantly bold and rocky land made of porous limestone has resulted in a morphologic variety.

Adriatic Sea Map



Legend



Adriatic Sea Map

Fig. 2.5

Bathymetric Base Chart with other major influential elements

With many islands, bays, capes and peninsulas, the coastline stretches in the northwest-southeast direction parallel to the sea and is divided into the following sections: the *Gulf of Trieste*, the *Istria Peninsula*, the *Gulf of Kvarner*, *Northern Dalmatia*, *Central Dalmatia*, *Southern Dalmatia*, the **Montenegrin littoral**, which is the coastline of the Luštica peninsula, and the Albanian coastline. The coastline's length exceeds 5,000km with a jagged shoreline on both the mainland and the island-fringe that extends from the *Istrian Peninsula* in the northwestern part to as far south as *Dubrovnik*. There are more than one thousand islands in this part of the Adriatic, 66 of which are inhabited. Most of them are long and narrow following the same northwestern southeastern stretch of the mainland. Rising abruptly to elevations of a few hundred feet, the islands have similar relief characteristics to the mainland where even more drastic elevation changes occur. Notably the **Bay of Boka Kotorska** (*Bocche di Cattaro* - named after the town of Kotor), in the southern part of the Eastern Adriatic hosts lofty mountains that often fall directly to the sea creating magnificent landscape contrasts.

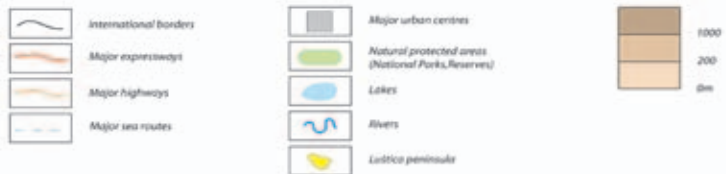
The massive *Dinaric Alps* represent not only the eastern frontier of this area, but also a physical barrier providing necessary protection from cold in-land air penetration, and consequently allow for the preservation of warmer air-fronts coming in from the Mediterranean. Therefore, the southern parts have a mild Mediterranean climate while the northern parts have a slightly colder sub-Mediterranean climate. The prevalent colour of the rocks is a light, dead grey, contrasted with the dark vegetation in some areas, especially in the south.

From the beginning of ancient civilizations, the Adriatic has been heavily populated as it was one of the major Mediterranean transport arteries. A target for Greek colonists and later a popular and prosperous Roman province, this area provided a foundation for the cultural developments on eastern and western coasts. Major cities today are Trieste (Italy); Koper, Portorož, Piran (Slovenia); Pula, Rovinj, Rijeka, Zadar, Šibenik, Split, Dubrovnik (Croatia); Herceg Novi, Kotor, Tivat, Budva, Bar (Serbia and Montenegro); and Durres (Albania). Due to its unique geographical beauty, warm Mediterranean climate, and rich cultural heritage, the Adriatic has also become a popular tourist destination in Europe. Besides large coastal cities and cultural centres, the eastern Adriatic coast hosts numerous smaller tourist towns and villages that render and equally contribute to its unique landscape character.

Eastern Adriatic Coast Map



Legend



Eastern Adriatic Coast Map

Fig. 2.6

Topographic Base Chart with other influential elements

environment

Montenegrin Littoral



Montenegrin Littoral

Fig. 2.7
Contextual Map

Montenegrin Littoral, the next scale down in the holarchy, occupies the southeastern end of the Adriatic coast and sits along the coast of Montenegro, a former Yugoslavian republic currently in federation with Serbia. Besides the highlands of inland Montenegro and the plains of *Lake Skadar*, this coastal region represents an idiosyncratic geomorphic entity within the political borders of the Republic of Montenegro. Geographically and tectonically, the Montenegrin littoral is an actual extension of the Dalmatian coast sharing many of its natural and cultural characteristics. This long yet narrow strip of land, only a few kilometers wide (southwest-northeast direction), stretches from the end of a mountain range backdrop of Dubrovnik, in the northwest, to the town of Ulcinj and the very end of Montenegro's coast bordering with Albania in the southeast. The length of the coastline is 294 km, 52 km of which are beaches. Deep waters are typical for this part of the Adriatic. They reach about 1330m southwest of Luštica where the Adriatic Sea, between the Italian and the Montenegrin coast, is also the widest (211km or 114Nm). Bays, inlets, capes and peninsulas of various sizes characterize the region. A high indentation of the littoral is similar to the rest of the eastern Adriatic coast, exception being the smaller number of islands due to respective increase in sea depth. Another physiographic difference of this coast is the sea's deep penetration into the Dinaric mass of the mainland, creating a unique and unmatched bay, Boka Kotorska (**Fig. 2.10**).

Table #2

Fig. 2.8 (opposite page)
ABC analysis of the environment
/ Montenegrin Littoral

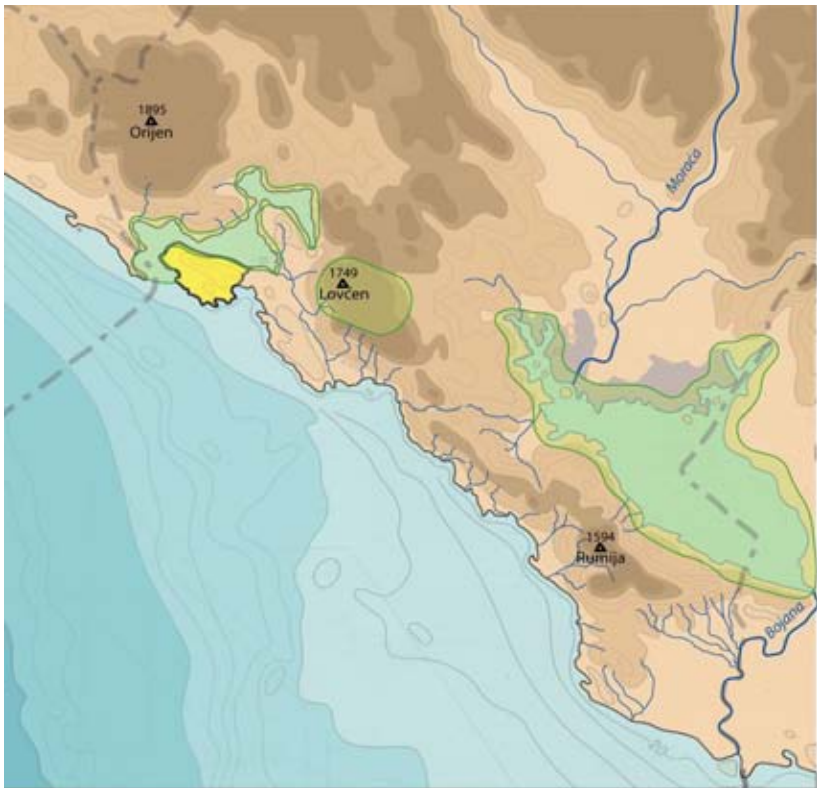
organizing principle	system perspective	influences
ABIOTIC	<p>Airshed - climatic</p> <p>Watershade - aquatic</p> <p>Physiography</p>	<ul style="list-style-type: none"> • General Climate: warm with abundant sunshine (summer) and rain (winter); some regional variations - microclimates. • Winds: north bura, south jugo, sirocco and maestral. • Minimal tidal oscillations (greater depths of the southern Adriatic) • Sea current: moderate and in northwest direction along the coast. • Average sea temperatures and salinity - slightly higher than in the northern parts of the Adriatic • non-navigable rivers/streams (steep slopes and shallow riverbeds) mostly seasonal-abundant with water due to high participation (fall through spring); exception - Bojana river • narrow hilly bend of coastal land ringed by the extent of Dinaric alps as backdrop (Mt. Lovćen, Mt Orijen, Mt Rumija); many bays, inlets, peninsulas, few smaller islands • 3 distinctive sub-regions: <ul style="list-style-type: none"> - Riviera of Boka Kotorska - Riviera of Budva - Riviera of Bar, Ulcinj and Bojana River valley
BIOTIC	<p>Wildlife</p> <p>Landscape</p>	<ul style="list-style-type: none"> • Typical of the southeastern Adriatic coast: <ul style="list-style-type: none"> - abundance of coniferous (pine, cypress), deciduous (oak, cedar, Sweet bay), and macquis forests - abundance of insects, birds, reptiles, and other smaller animals adapted to the harsh Mediterranean climate and relief (spider, seagull, snake, rabbit) - rich marine wildlife: blue and white fish, shells, crabs, squids • Localized ragged areas, mostly forested • Grazing fields, slopes and valleys; dried marsh areas for cultivation purposes; farm lands • Shoreline ambient diversity: alluvial plain, marsh, cliffs, sandy and rocky beaches, steep slopes subjected to severe erosion
CULTURAL	<p>History</p> <p>Population</p> <p>Human use</p>	<ul style="list-style-type: none"> • Archaeological evidences of different pre-historic and historic periods (Illyrian, Greek and Roman settlements, Venetian and Austrian rule) • Ethnicity – mainly Serbian Orthodox, some Catholic and Muslim • High density in urban centres • Seasonal migrations and changes (education, tourism) • Tourism: instrumental economic component – seasonal with the exception of Igalo (healing bath-centre) • Fishing, salt industry, transportation-international airport and seaports • Terraced land and river valleys cultivation; agriculture and cattle raising; Mediterranean crops (potato, grapes, olives, figs, oranges, lemons) • Conservation of natural and cultural heritage initiatives • Shoreline: urban, suburban, rural; few larger town centres • Inland: mostly rural; scattered villages and rural settlements • Air Pollution: international airport and road traffic • Water Pollution: town's sewage and agricultural runoff (steep mountain slopes-erosion); rivers infiltration during rain season

As it is true for Dalmatia and the rest of the Adriatic, the proximity of the sea has had a profound influence on the cultural development of this coastal area.



Montenegrin Littoral
Fig. 2.9
Photo of typical Montenegrin coastal condition with the town of Bar to the right

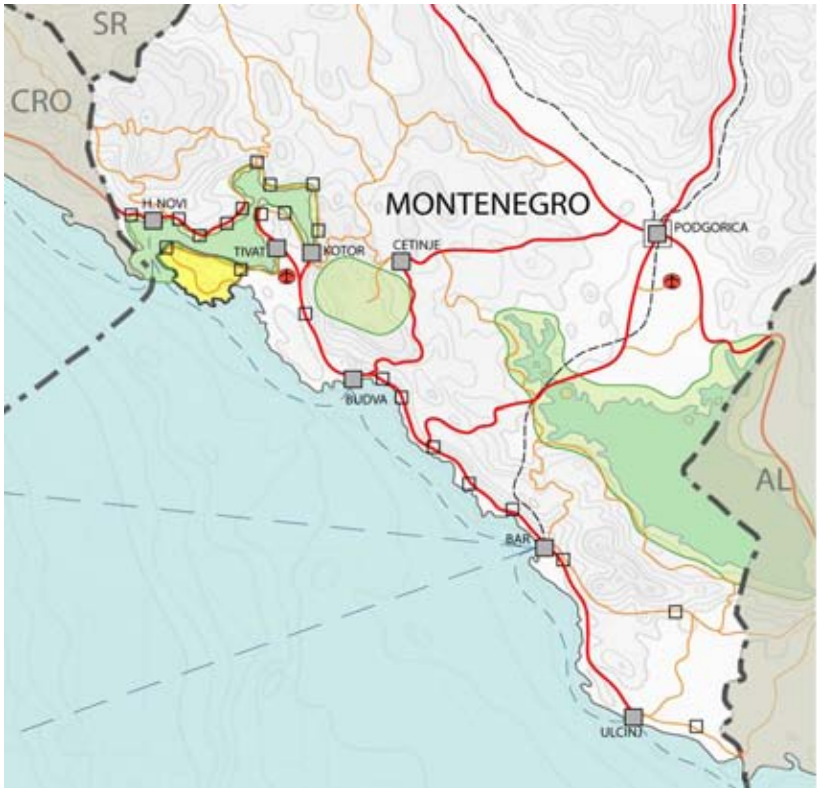
Narrow bands of sea-adjacent lowland, a severe contrast between different physiographic elements such as abrupt falls of the neighbouring mountain ranges and often drastic elevation changes as well as related economic and political problems in the recent past, have resulted in the development of fewer and smaller coastal towns. These towns, mostly predetermined by their historically important strategic location such as Herceg Novi, Risan, Kotor and Budva, and by the evolving needs of the contemporary society (Tivat, Bar, Ulcinj), are not only the cultural centres and the highest density areas where the most of the region's people live and work, but are also now centres for exponentially growing tourism and its by-products (**Fig. 2.11**). The remaining population of the Montenegrin littoral lives in either the suburban areas around towns or smaller, scattered settlements and villages mainly located along the shoreline, or on gentler slopes of a mountainous terrain. Most of these low density settlements constantly experience migration problems as people gravitate towards larger local or regional centres. Although the majority of the population is Serbian and Montenegrin, demographically Montenegro's coast matches the diversity of its geography.



Montenegrin Littoral Geographic Map

- Rivers
 - Skadar Lake
 - Flood plain
 - Lustica peninsula
 - Protected areas (UNESCO)
 - National park Lovcen
 - Mountain peaks
-
- 1000
 - 500
 - 200
 - 0m
 - 100
 - 200
 - 500

Montenegrin Littoral Map
Fig. 2.10-2.11 (top&bottom)
 Maps show major natural and man-made elements



Montenegrin Littoral Political-Infrastructural Map

- International border
- Major roads
- Minor roads
- Rail road
- Major Sea routes
- Capital
- Urban centres
- Urban settlements
- International Airports
- Lustica peninsula
- Protected areas (UNESCO)
- National park Lovcen
- Adriatic Sea
- Skadar Lake

wider system

Boka Kotorska Bioregion



Boka Kotorska Bay
Fig. 2.12
Contextual Map

The next scale down on the hierarchy is the **Boka Kotorska Bioregion** which occupies the northwestern part of the Montenegrin littoral and directly corresponds to the geography of the Bay of Boka Kotorska. Situated along the Adriatic coast, the entire region on remaining three sides is surrounded by the massive *Dinaric Alps* stretching northwest-southeast parallel to the Adriatic Sea. More specifically, it is the sea that has penetrated deeply into this Dinaric mass and virtually carved out this exquisite natural setting unique to the entire Adriatic. The surrounding mountain ranges of *Orien* (1859m) and *Lovćen* (1749m), separate Boka Kotorska from the highlands of Montenegro but also create a magnificent shield-like backdrop that falls abruptly with its steep slopes to meet the sea in a dramatic and distinctive way. At the foot of the Lovćen Mountain in the southeastern part of this bioregion, there is a plain called *Grbalj* that separates it from the rest of the Montenegrin littoral. Besides the smaller valleys of *Sutorina*, *Morinj* and *Kotor*, depressed between the robust mountain slopes, Grbalj's plain is a geographic rarity for the flat and fertile region. Moreover, it stretches parallel to the Adriatic coast and further northwest gradually undulating and rising into a hilly peninsula called **Luštica**. As the very south edge of this bioregion, Luštica splits the waters of the Boka Kotorska bay from the open Adriatic Sea and signifies its instrumental role in defining the overall bioregional identity.

Table #3
Fig. 2.13 (opposite page)
ABC analysis of the wider system
/ Boka Kotorska Bioregion

organizing principle	system perspective	influences
ABIOTIC	Airshed - climatic	<ul style="list-style-type: none"> • General Microclimate: moderate Mediterranean-subtropical with warm summers and mild winters with abundant rainfall; small temperature oscillations. • Climatic variations: average annual temperatures from 15-16°C for the bay's coastal regions (Tivat, Herceg Novi) and around 10°C for the higher in-land regions (Crkvice). Similar oscillation in participation, humidity and hours of sun exposure per year. • 4 dominant Winds: north winter bura, south winter jugo, south all year long scirocco and west summer maestral
	Watershade - aquatic	<ul style="list-style-type: none"> • Unknown water table of mostly seasonal river and streams; 5 smaller rivers: Škurda, Ljuta, Široka, Gradiošnica, and Sutorina • Sea temperatures oscillate between 9°C (February) and 27°C (July) • Summer Air temperatures (22-26°C) allow for a 5 month tourist season. • Turbidity changes from min. of 3m (fall) to max. of 15m (summer) inside the bay; 27m max. just outside of the bay • Daily tidal amplitude of 22cm (absolute of 125cm); • Salinity varies drastically from 6 to 38.2 ‰
	Physiography	<ul style="list-style-type: none"> • dramatic drop of surrounding mountains into the sea with a few smaller river valleys, and hilly slopes of Luštica and Grbalj • 4 distinctive bays with corresponding narrow bends of coastal lowland: Bay of Kotor (average depth of 27.0m), Bay of Risan (25.7m), Bay of Tivat (25.5m), Bay of Herceg Novi (31.0m).
BIOTIC	Wildlife	<ul style="list-style-type: none"> • Typical for the southeastern Adriatic region <ul style="list-style-type: none"> - abundance of coniferous (pine, cypress), deciduous (oak, cedar, Sweet bay), and macquis forests - abundance of insects, birds, reptiles, and other smaller animals adapted to the harsh Mediterranean climate and relief (spider, seagull, snake, rabbit) - rich marine wildlife: blue and white fish, shells, crabs, squids
	Landscape	<ul style="list-style-type: none"> • Naturalization of areas left or rarely used by man • Localized ragged areas, mostly forested; • Grazing fields and slopes, cultivated valleys and terraced slopes • Shoreline ambient diversity: alluvial plain, marsh, cliffs, sandy and pebble beaches, steep slopes subjected to severe erosion
CULTURAL	History	<ul style="list-style-type: none"> • Rich layers of historical significance: pre-historic caves, burial grounds, ancient foundations, medieval fortresses, churches
	Population	<ul style="list-style-type: none"> • Mostly along the shoreline with high density in urban centres and low to none in rural/natural areas • seasonal shifting due to tourism and education
	Human use	<ul style="list-style-type: none"> • Predominantly seasonal tourism; fishing and other sea-oriented economies; nautical activities (sports and recreation) • Industrial (Kotor, Tivat, Perast) and military (Kumbor, Luštica) • Agriculture and cattle raising; Mediterranean crops (potato, grape, olive, fig, orange, lemon); oyster and muscle farming • Air Pollution: international airport (Tivat) and road traffic • Water Pollution: waste waters/materials from sewage, industry, ships, erosive agricultural surfaces, river infiltration (rain season)
	Traffic	<ul style="list-style-type: none"> • Regional highway; international airport; city marinas and docks



Boka Kotorska Bay

Fig. 2.14 (top)

Relief Model of Boka Kotorska

Fig. 2.15 (bottom)

Image of the Bay of Kotor in the foreground



Just like the Adriatic coast, the bay of Boka Kotorska is jagged. It consists of four smaller interconnected bays: the *Bay of Kotor*, the *Bay of Risan*, the *Bay of Tivat* and the *Bay of Herceg Novi*; the names are given according to the corresponding coastal towns respectively. The total area of Boka Kotorska bay is 87,3 km², the volume is 2,4 x 10⁶ km³ with the maximum depth of 60 metres measured in the bay of Herceg Novi and the average depth of 27.3 metres. The overall perimeter of the bay is 105.7 km. It is believed that the bay was formed by fluvial erosion in Pleistocene.*⁹

*⁹ prof. Bešić, Zarija. Dr. Pavić, Andrija. *Geoloski Sastav Boke Kotsorske i Njena Geomorfologija. BOKA Vol. 10/II. Herceg Novi. 1979.*



Verige Straits

Fig. 2.16

View North of the narrowest section of Boka Kotorska Bay with the town of Perast and a rocky mountain as a backdrop

Even though the bioregional climatic zone generally matches the Adriatic, and its milder version of the Mediterranean climate, the high massive mountain ranges that surround the Boka Kotorska region set the conditions creating a micro-climate formation with its specific sub-tropic characteristics unique to this area. Its most important feature is the great diversity of weather on such a small territory. For example, in the mainland mountainous backdrop of the Boka Kotorska bay, above a coastal town of Risan, there is a small place called Crkvice, where the annual precipitation of 5317mm is the maximum recorded in Europe. To contrast, the Luštica peninsula, which is in relative proximity, has more than 2,400 hours of sun per year, with the maximum sun exposure in the entire region. Similarly, the average annual temperature of Crkvice is 9.4°C whereas in Herceg Novi it is 16.2°C. As a result of the described richness of both relief and climatic characteristics, this region also hosts a quite astonishing biodiversity.

Riviera of Herceg Novi
Fig. 2.17
View North to the town of Igalo



Geopolitically, the Boka Kotorska region borders with Croatia to the west and Serbia to the northwest. Specifically, this western edge consisting of the Prevlaka peninsula and the Kobilica hill (452m) is still under a territorial dispute due to the recent civil war in 1991 to 1995, which resulted in the separation of the Yugoslavian republics. Historically, this area has always been a powerful strategic location and an integral part of Boka Kotorska. As the entrance to the bay, it has been vital for control of the region, and as such, always a military zone. Following the civil war, it eventually became no-man's land with an uncertain future and unresolved political existence.

Riviera of Herceg Novi
Fig. 2.18
View South to the cape
of Sv. Nedelja





Village Kamenari

Fig. 2.19

Typical 'edge' condition along the coast of Boka Kotorska Bay with stone houses and the perimeter road in the immediate proximity of the shoreline

Administratively, the Boka Kotorska region is divided into three governing municipalities with towns at their cultural, economic and political centres: Herceg Novi, Kotor and Tivat. Most of the region's population inhabit these towns situated along the coast. The remaining population either occupies the periphery of suburban coastal areas or is scattered around small, rural settlements and villages in the valleys or minor hills in the bay's hinterland. Throughout the ages man has gravitated towards the lower and coastal regions of the bay. Today it is almost impossible to find a single accessible location along the coast devoid of human settlement or some trace of human activity. The only exception is the Luštica peninsula due to its predominantly uninhabited landscape.



Herceg Novi in the Night

Fig. 2.20

The most compelling picture of the symbiosis of man and nature in the bay is during the night when the sea surface along the edge, where the land and water merge, reflects the coastline lights forming what appears to be a glowing ring with two parallel bends stretching around.

Boka Mapping

n a t u r a l

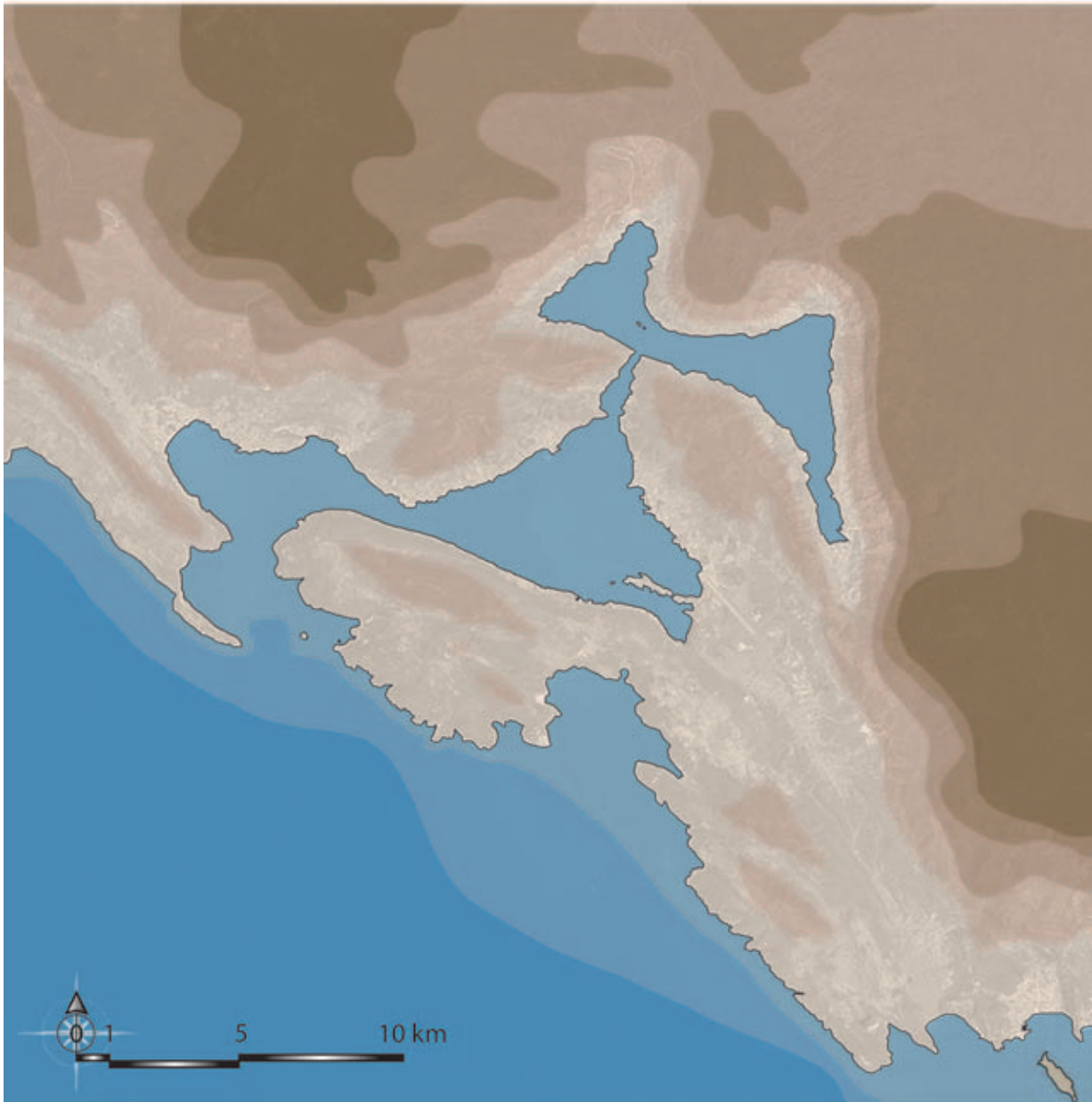


Boka Kotorska

Fig. 2.21

View to northwest over
the town of Kotor

Topography



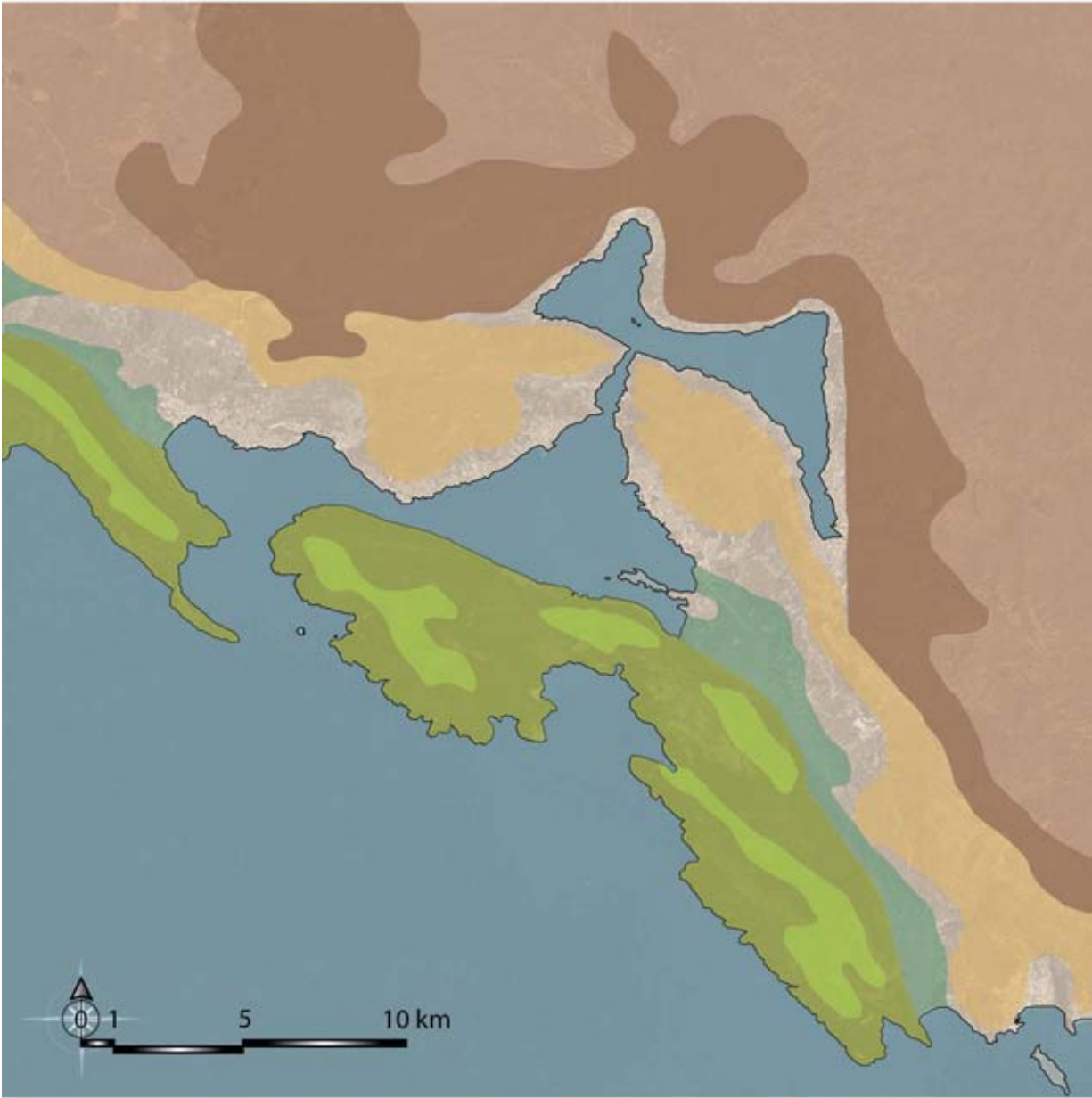
Legend



The sea is very deep along this part of the Montenegrin coast which results in only a few islands unlike the rest of the Eastern Adriatic coast. Conversely, the shallow waters (avg. of 27.3m) deeply penetrate Montenegrin highlands creating a drastic drop of terrain characteristic for the Boka Kotorska region. The top of the mountain Lovćen (dark brown area to the right) is set at 1,749m and is only a few kilometers away from the coastal town of Kotor. These astonishing contrasts in relief elements are the basis for all other exceptional attributes, heterogeneity and uniqueness of Boka Kotorska.

Topography Map
Fig. 2.22

Physiographic Regions

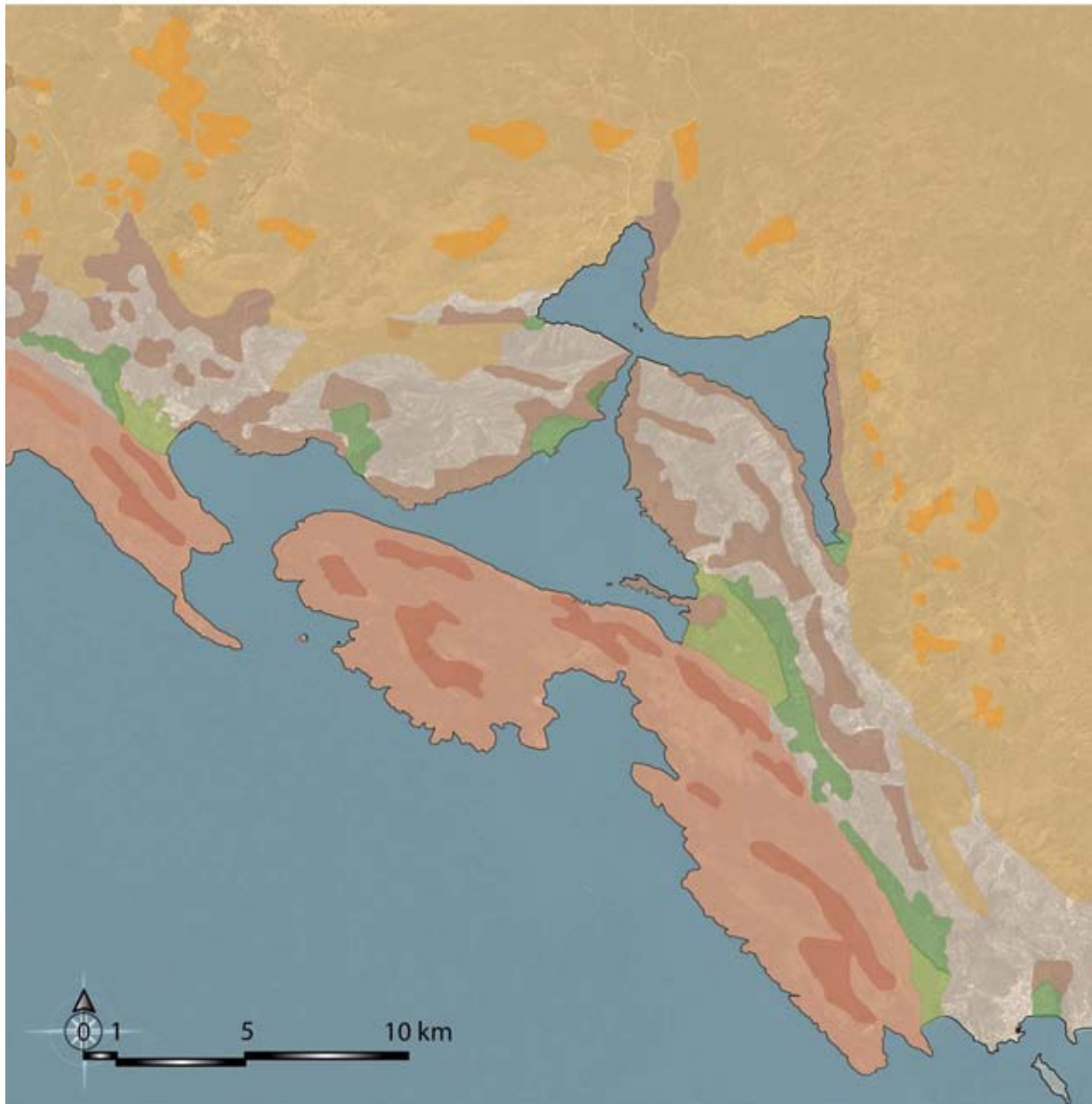


Legend	 Valleys and fields in Mediterranean zone	 Moderate slopes	 Steep slopes bordering the carstic plateau
	 Slopes and hills in Mediterranean zone	 Hills in the central zone	 Adriatic Sea
	 Alluvial valleys	 Carstic plateau	










Physiographic Regions Map
Fig. 2.23

The topographic density on such a small territory predisposes a variety of different physiographic regions with ranging slopes. Their distribution however, seems to be congruent with the stretch of the Dinaric Alps in the northwest-southeast direction. The further the regions are from the Montenegrin highlands (Carstic plateau), the lesser is the slope of the undulating terrain.

Soil Distribution



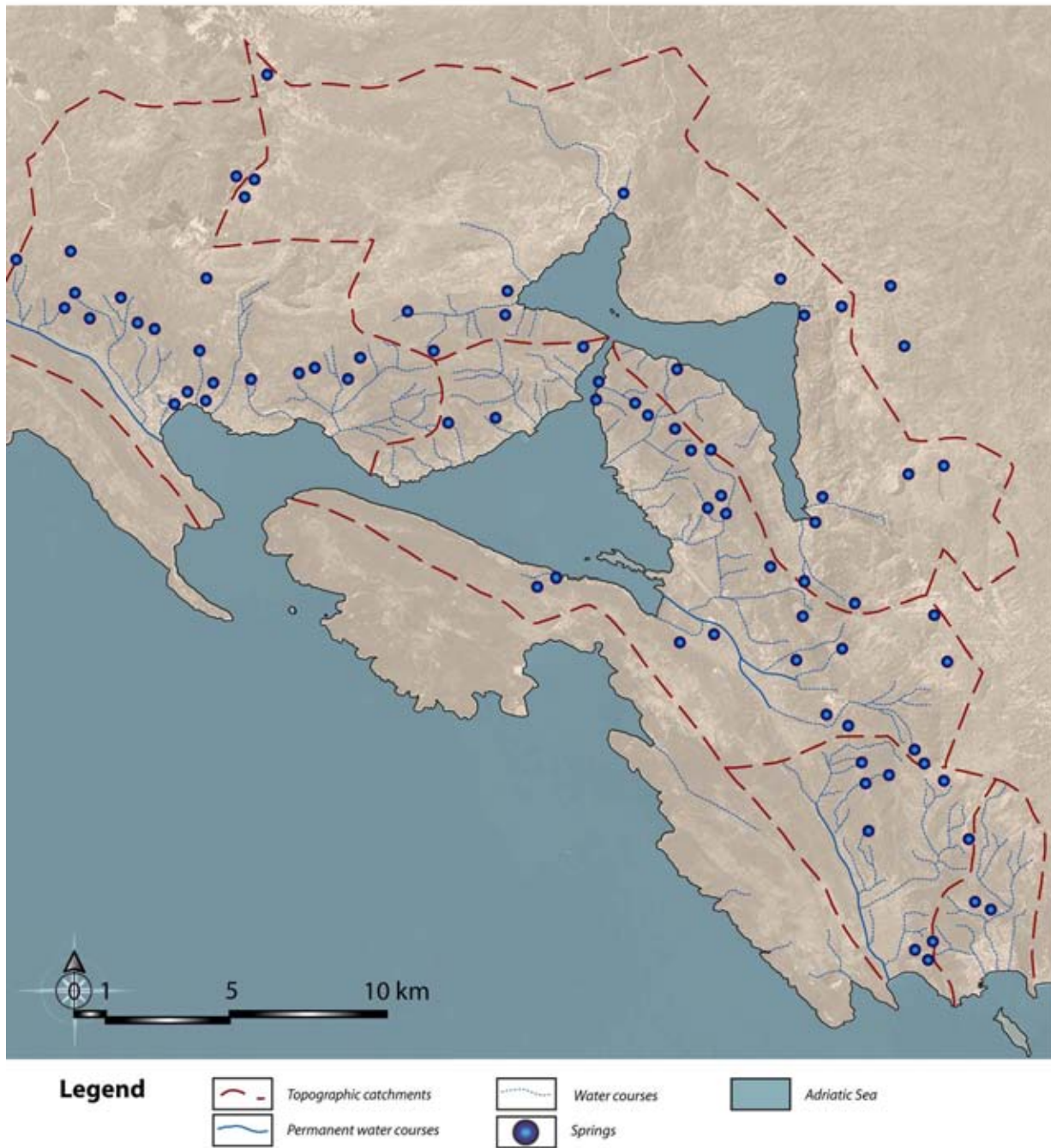
Legend

	<i>Terra rossa</i>		<i>Alluvial loamy deep soils</i>		<i>Shallow Cambic Calcimelanosols</i>
	<i>Shallow Terra rossa</i>		<i>Alluvial-deluvial deep soils</i>		<i>Rendzinas on calcareous weathered rock</i>
	<i>Anthropogenized Mediterranean Cambisols</i>		<i>Mediterranean eroded Cambisol</i>		<i>Adriatic Sea</i>

The variety and distribution of the soils are mainly conditioned by the topographic variability and rich geologic history of the Boka Kotorska region. The distribution often corresponds with the physiographic regions. The most productive (fertile) soils are the alluvial, which directly match the alluvial planes and river valleys.

Soil Distribution Map
Fig. 2.24

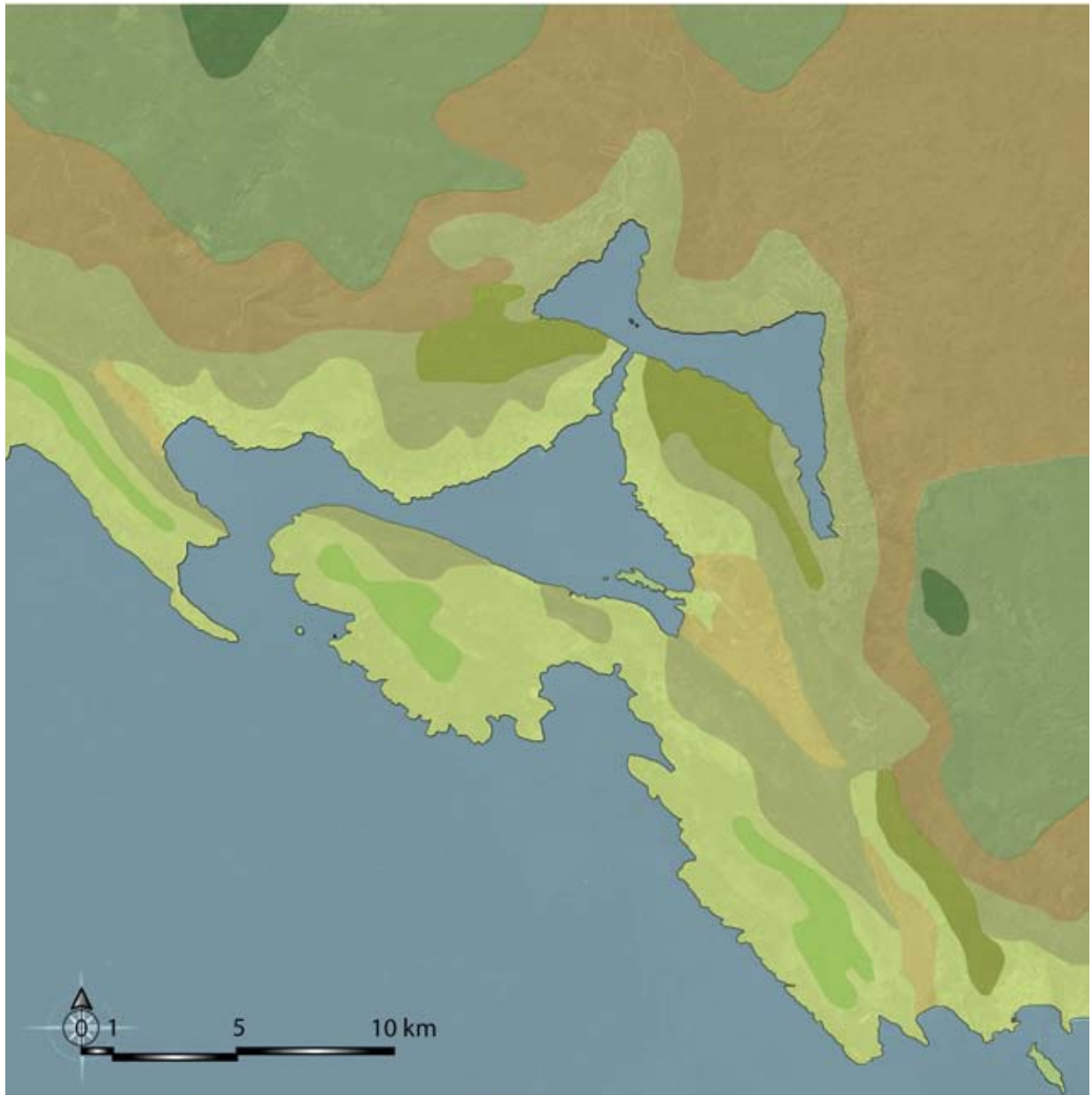
Hydrography












Hydrography Map
Fig. 2.25

Boka Kotorska does not have any large (navigable) rivers. This is characteristic for the limestone terrain and steep slopes of the Dinaric Alps along the Eastern Adriatic coast. There are only a few smaller, permanent water courses in the adjoining valleys. Also typical for this region is the abundance of run-off seasonal streams and springs.

Vegetation



Legend

	Holly oak macquis		Ash and Sweet bay tree forests		European beach forests
	Semideciduous forest of oak and pistache		Italian Oak and Welden's Laburnum; And Sweet bay tree and Spanish chesnut forests		Mediterranean juniper scrub
	Oriental Hornbeam and Sweet bay tree forests		Pubescent Oak and Hop hornbeam forests		Adriatic Sea

The diversity and distribution of vegetation are influenced primarily by already mapped geographic factors, but also by anthropogenic ones. Two major zones are distinguished: *Eu-Mediterranean* - the coastal belt (lighter colours) and *Sub-Mediterranean* - hinterland (brown and two dark greens). The primeval vegetation of the Eu-Mediterranean zone was the evergreen forest of *holm oak* (*quercus ilex*) which almost entirely disappeared after centuries of clear cutting and coinciding decomposition of the substratum. The majority of this impoverished terrain is now covered by *macchia* or *macquis* and related plant coverings.

Vegetation Map
Fig. 2.26

Boka Mapping

c u l t u r a l



Boka Kotorska

Fig. 2.27

View of the ship cruising the calm 'mirror-like' waters of the bay

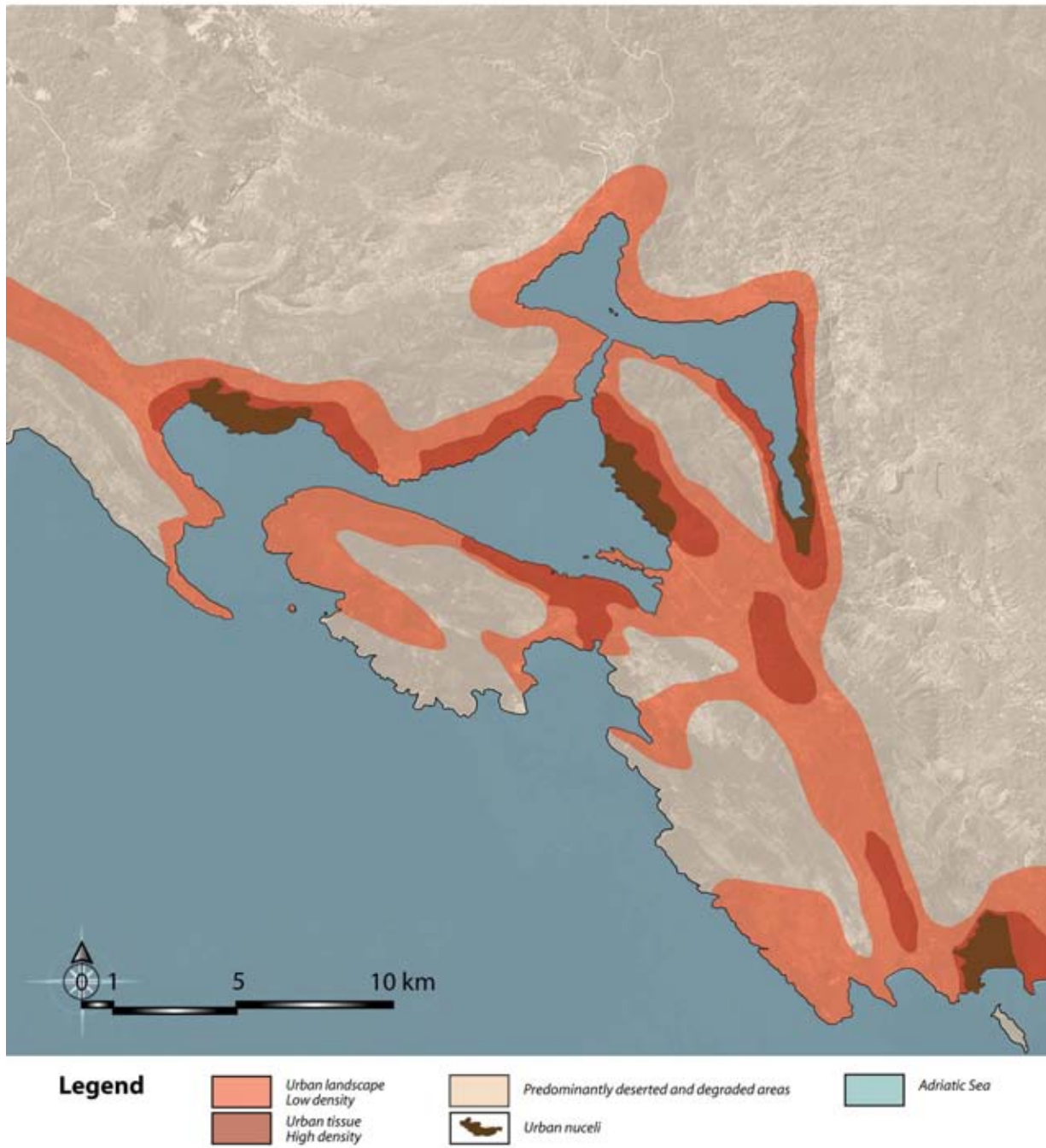
Administration



The Boka Kotorska region is administrated by three municipalities with name-matching towns as their cultural, economic and political centres: *Herceg Novi*, *Tivat* and *Kotor*. These municipal communities are further divided into parishes.

Administrative Situation Map
Fig. 2.28

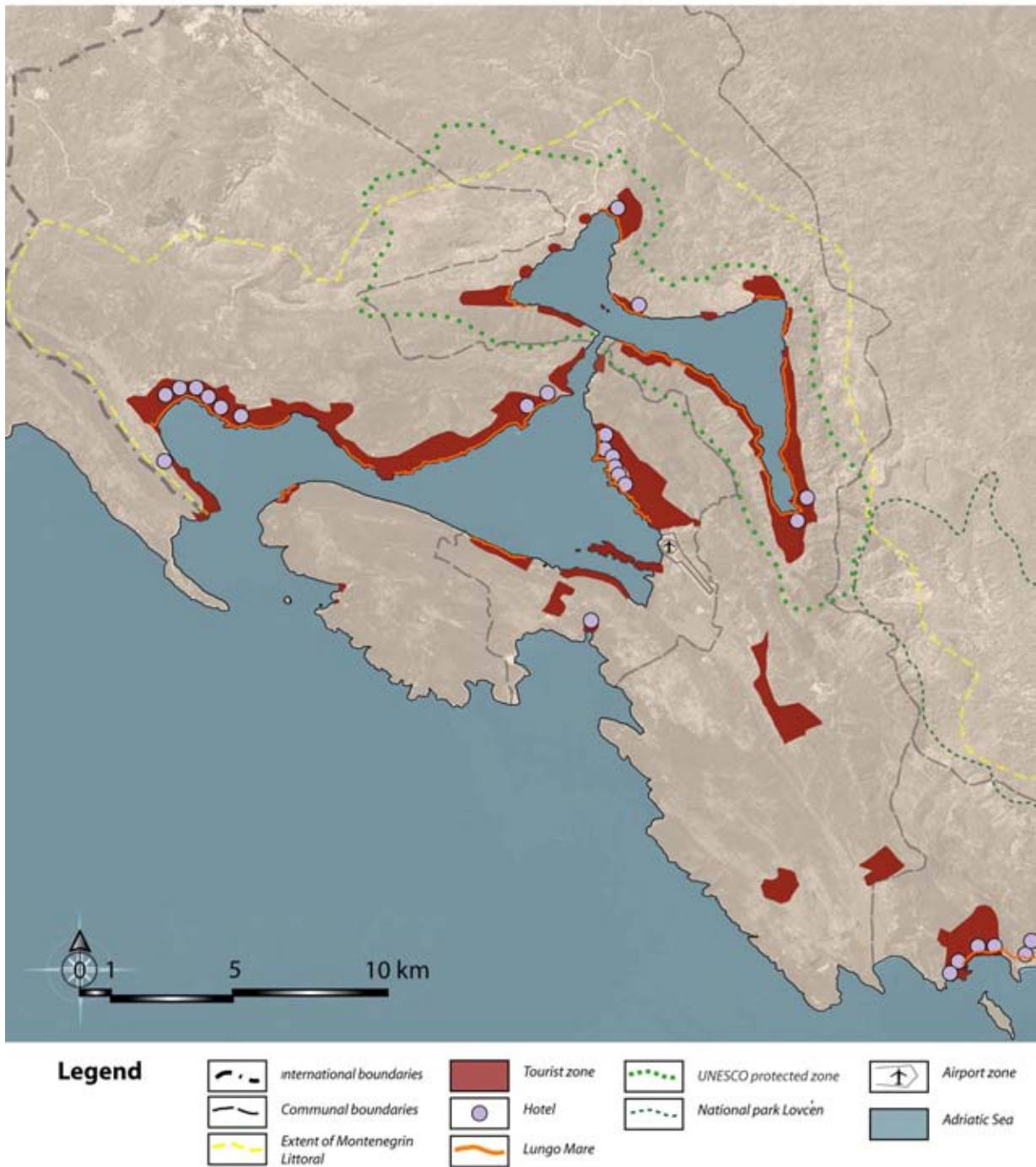
Extent of Technoecosystem



Extent of TechnoEcosystem Map
Fig. 2.29

Technoecosystem is a form of cultural ecosystem in the 20th century comprised of road and infrastructural corridors, urban nuclei, extensive housing, leftover former agricultural land, large industrial, tourist and military complexes, and, finally, “wasteland” composed of degraded and polluted soil [Božović 1987]. It also signifies the urban development and its influential systems. Notably, the affected areas are mostly found in the coastal belt and valleys. The towns of Herceg Novi, Kotor, Tivat and Budva are the urban nuclei with the highest density and intensity of urbanization which gradually dissipate towards the perimeters.

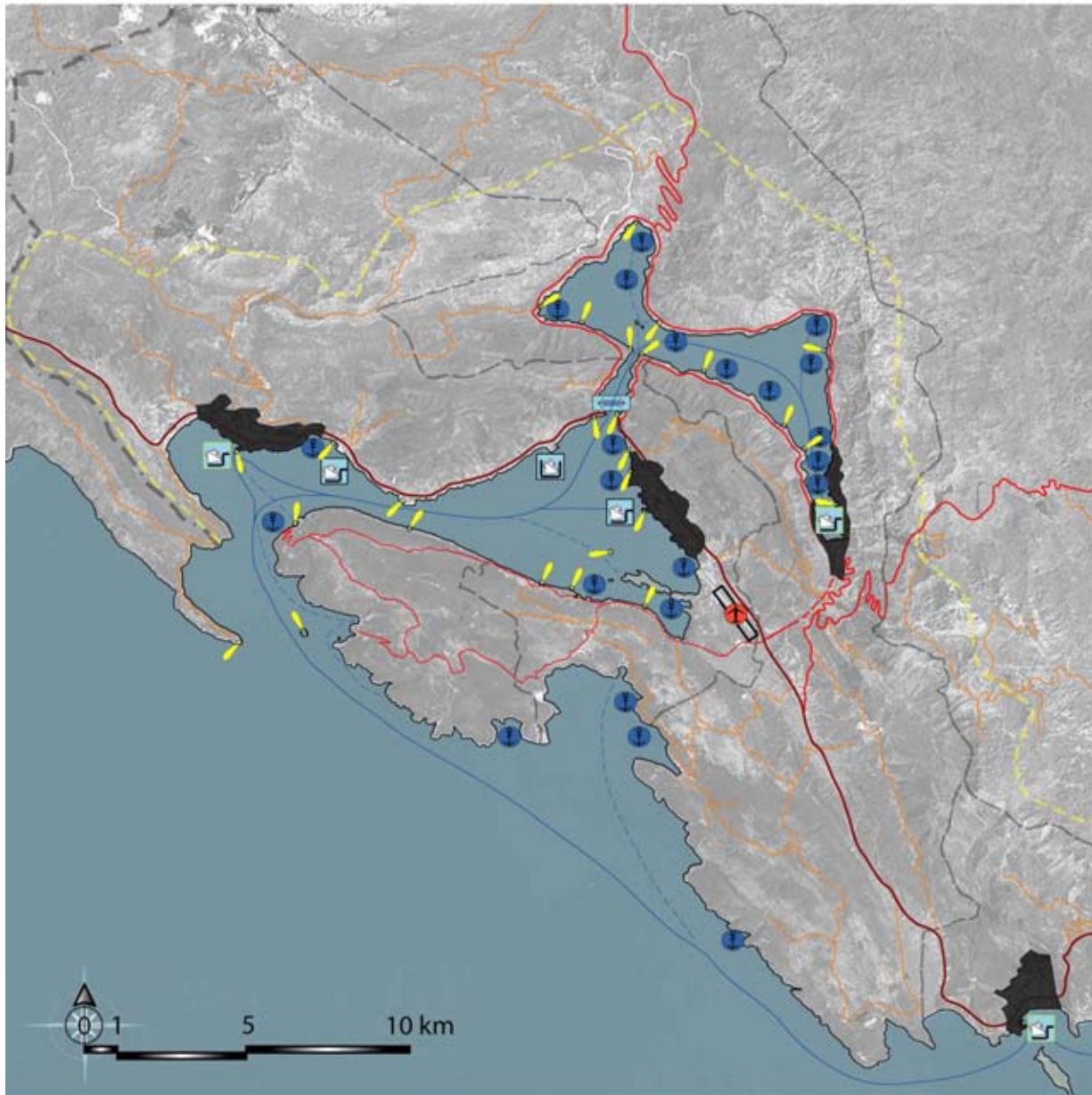
Tourism



One of the major economies of the region is tourism. The tourist zone extends primarily along the coast, closest to the sea. Naturally, major tourism centres and hotels are situated in the towns such as Herceg Novi, Tivat and Budva utilizing the proximity of the international airport. Aside from the beautiful and rich sea-scape as the kernel for tourism, there is also the *National park Lovćen* nearby as an additional attraction of the region.

Tourism Map
Fig. 2.30

Infrastructure & Traffic



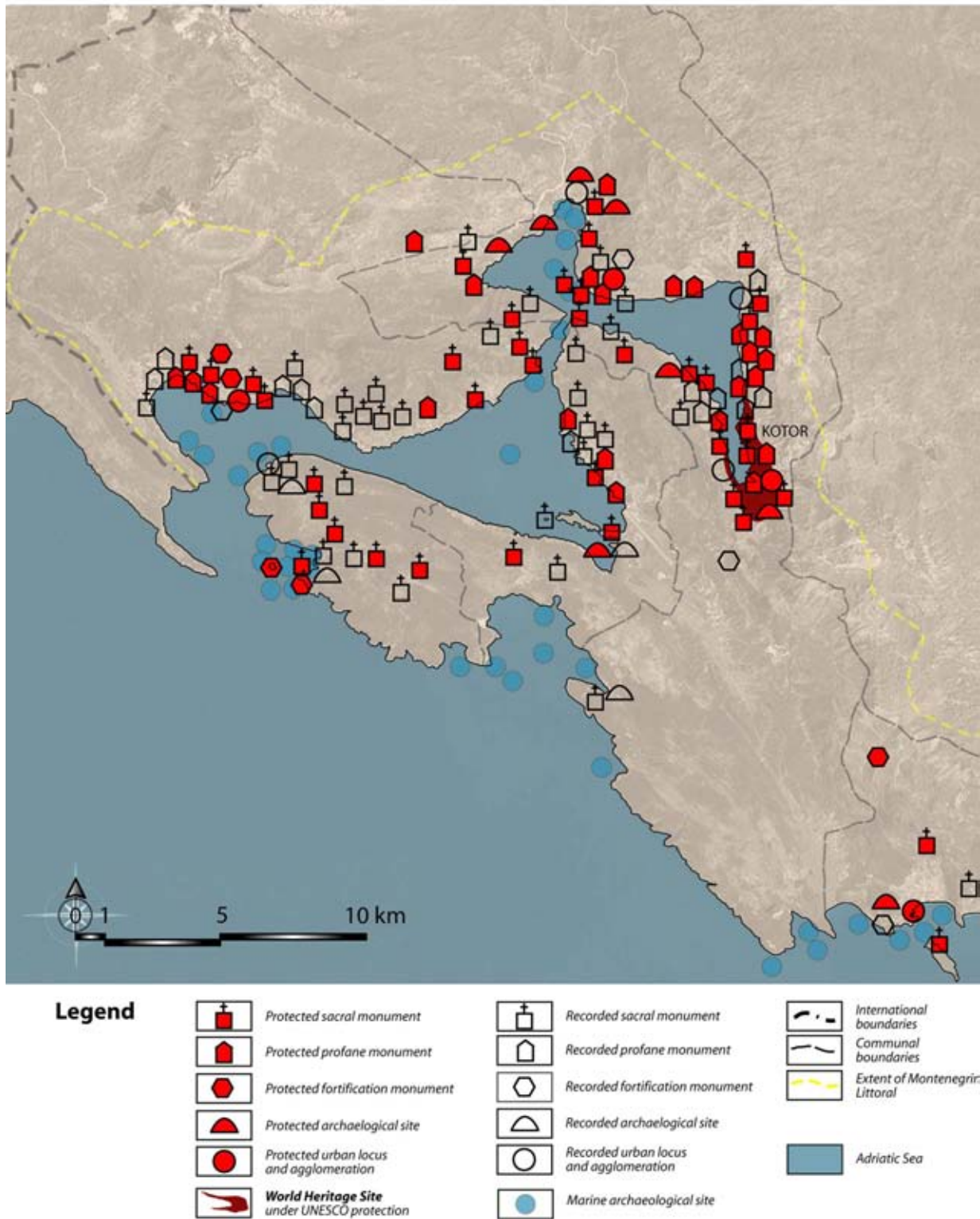
Legend

	International boundaries		Adriatic Highway		International Harbor		Ferry
	Municipality boundaries		Major roads		Seaport		International airport
	Montenegrin Littoral boundaries		Minor roads		Shipyard		Cover and anchorage location
	Community centres		Major sea route		Beacon/Lighthouse		Adriatic Sea
			Tourist routes				

Infrastructure & Traffic Map
Fig.2.31

The geography of Boka Kotorska predetermined its coastal areas to be the dominant infrastructural zone. Aided by the ferry boats, the Adriatic Highway and other major roads follow the accessible valleys and the jagged coastline of the bay. Marine traffic and sailing have always been the focus and favorable faculties of this maritime region. Due to a generally impassable terrain there is no rail infrastructure. However, the contact and access to the region is increased immensely by the international airport (Tivat).

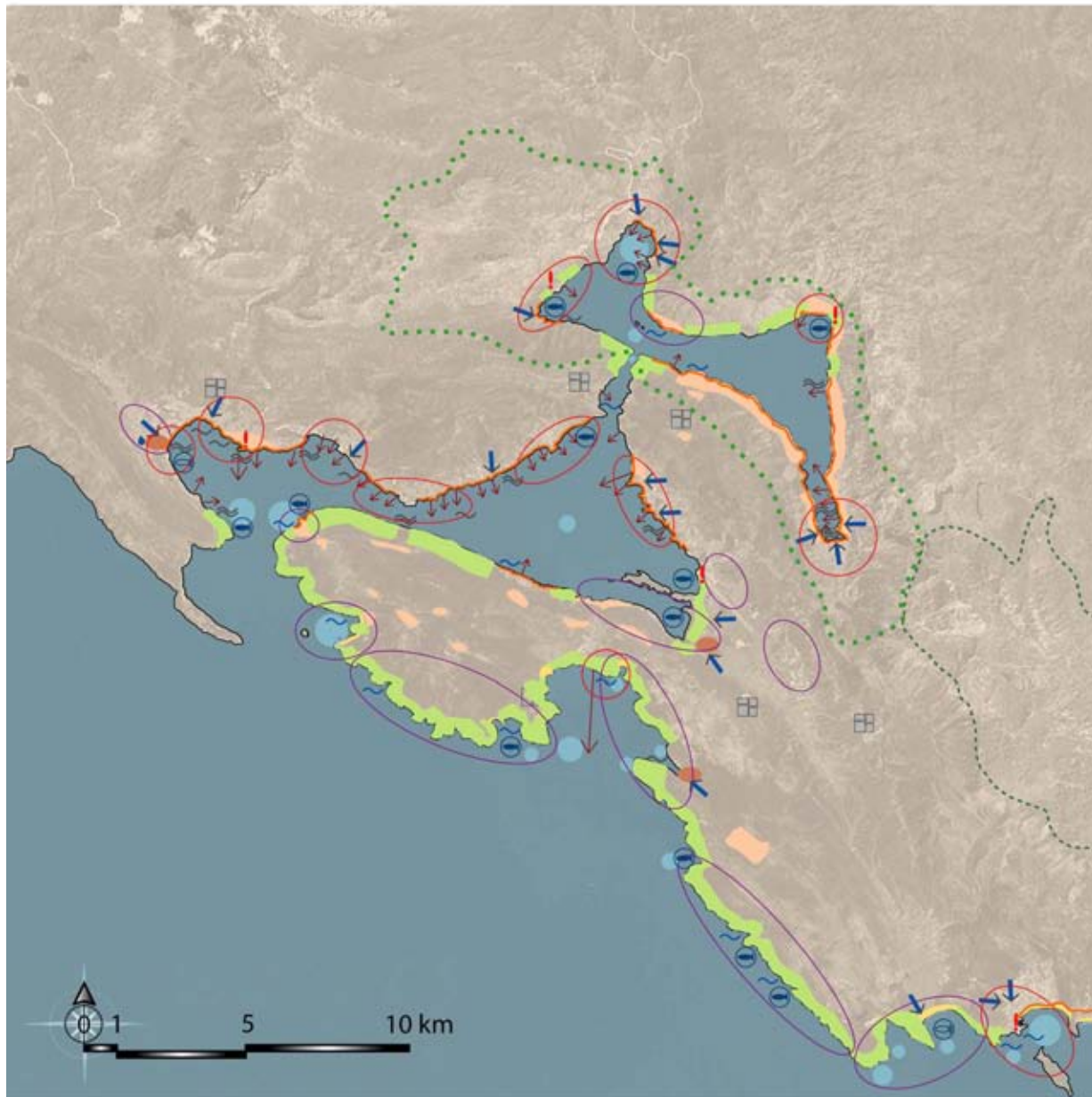
Cultural Heritage



Centuries of different cultural influences on the region resulted in rich cultural layering. A noticeably large number of sacral, profane and fortified monuments are grouped around the cultural centres, Kotor being the most prominent and as such, included in the World's Heritage Sites protected by UNESCO. However, not all monuments are included here and many are yet to be recorded and protected.

Cultural Heritage Map
Fig. 2.32

Ecology-problems & potentials



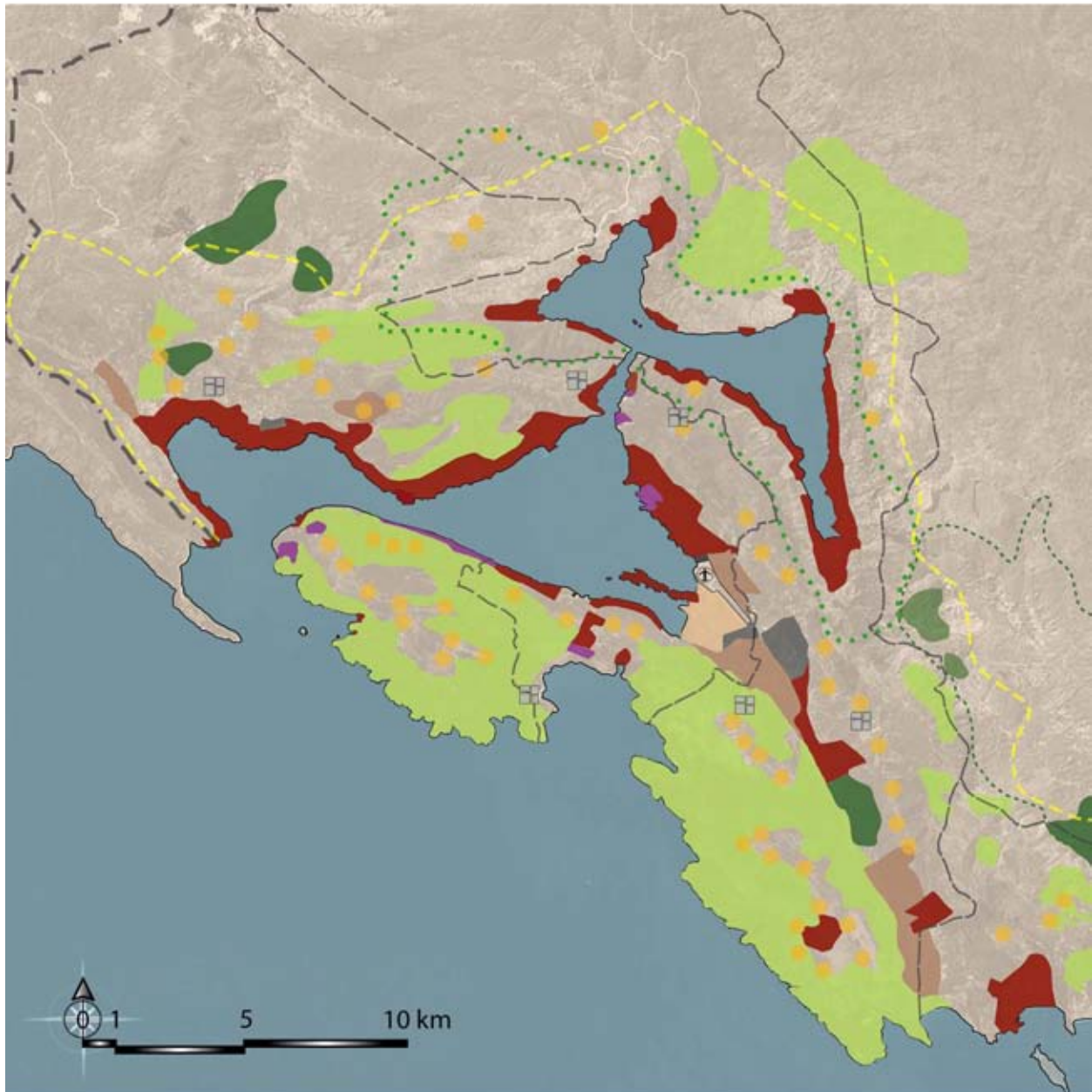
Legend

	Sewage drainpipe location		Unbuilt area		Mud bath		Lungo mare
	Flood current		Ambience locus		Fish breeding area		UNESCO protected zone
	Flammable materials location		Beach area		Potential area for marine culture		National park Lovćen
	Quarry zone		Attractive zone		Good bathing water quality		Adriatic Sea
	Poor bathing water quality		Minteral water spring		Marine arhaeological site		
	Very poor bathing water quality						
	Conflict zone						


















Ecology-Problems&Potentials Map
Fig. 2.33
 Coastal condition

Compactness and diversity is reflected in the ecologic domain of Boka Kotorska as well. Even though protected by UNESCO, the waters of Boka are polluted by sewage draining and run-offs of flood currents identified as major problems in the coastal belt. This directly harms the environment impeding also sea-oriented potentials such as tourism development and farming marine cultures. In contrast, the areas with low or no urban development (Luštica), are considered healthy, attractive and hence potent in various capacities (eco-tourism, fish breeding, etc.).

Zoning & Land Use



Legend

	International boundaries		Maquis zone		UNESCO protected zone
	Communal boundaries		Woodlot and forest zone		National park
	Extent of Montenegrin Littoral		Agricultural zone		Quarry zone
	Urban areas		Marine culture zone		Airport zone
	Rural areas		Industrial zone		Adriatic Sea
			Special usage zone		
			Tourist zone		

The land use in Boka Kotorska reflects the diversity of other related components. Such is the Grbalj valley with marine culture, agricultural, tourist, industrial and forested zones. The major characteristic for this region, however, is the extent of the urban areas which spread along the jagged coastline of the bay corresponding to the distribution of tourist zones. The areas on Luštica and neighbouring Grbalj are almost completely undeveloped (maquis zone) with numerous rural agglomerations.

Zoning & Land Use Map
Fig. 2.34



Luštica Peninsula
Fig. 2.35
 Contextual Map

Luštica, the study area of this thesis, is a hilly peninsula situated along the southeastern Adriatic coast in the southwest part of Montenegro. Its very jagged coastline spreads in the southeast-northwest direction 13.2 km in length. The total area of the peninsula is 47 km². The total perimeter is 35 km, and makes for 12% of the overall Montenegro coastline. Luštica is widest between the coastal village *Petrovići* and *Cape Veslo* with the length of 5.9 km. It is narrowest between the coastal village of *Bazdan* in the bay of Tivat, and the inlet of *Pržno* in the bay of *Trašte*. This 2.3 km-wide narrow band of land also represents the land connection to the mainland of *Donji Grbalj* valley. Besides the *Prevlaka* peninsula and *Mamula Island*, Luštica's powerful strategic location marks the entrance to the bay of Boka Kotorska, easily controlled from Luštica's hill-tops. The highest point on the Luštica peninsula is at the *Obosnik* hill with the height of 586m above sea level. The geographical location is, therefore, one of the most important aspects of Luštica's character, which has in turn, greatly influenced the shape of its cultural development.

Table #4
Fig. 2.36 (opposite page)
 ABC analysis of the system
 / Luštica Peninsula

organizing principle	system perspective	influences
ABIOTIC	<p>Airshed - climatic</p> <p>Watershade - aquatic</p> <p>Physiography</p>	<ul style="list-style-type: none"> • Microclimate: shared characteristics of nearby Herceg Novi microclimate with some discrepancies - warm sunny summers, mild rainy winters and very slight temperature oscillations; Sunniest place in the Boka Kotorska region- min. 2426 h/year. Relative humidity fluctuations: spring-69%; summer-63%; fall-71%; winter-68%; Average annual temperature of 16.2°C. Participation of 1920mm/year (72.4% during fall and winter, and 27.6% during spring and summer months) • Influential winds: cold and dry north wind bura and humid and warm south wind jugo (mostly during cold seasons); periodic summer wind maestral is sometimes replaced at dusk by a small wind from the land- burin • Average annual sea temperature: in-bay 19.4°C; open-sea 18.5°C; one of the warmest coastal regions in the Adriatic • Salinity varies: in bay from 21.82‰ (April) to 37.72‰ (July); open- sea from 38.22‰ to 38.48‰ • Turbidity varies: in-side from 5.74m (November) to 17m (June); open sea – max. 56m; bay's entrance – max. 23m • Sea waves: in side-max. 60cm (bura); open sea- max. 5m (jugo) • small tidal movements and mild sea currents in the bay (slightly bigger and stronger movements along southern parts towards open sea). Northwest direction sea current - 1km/h • seasonal current (Rijeka), occasional streams and water wells • isolation of the peninsula from the mainland Dinaric massive • 2 main regions: - southern moderately sloped exposition indents freely towards open sea; northern with more drastic drop shapes Herceg Novi Bay and Tivat Bay; middle valley region • sea depth varies – from several meter at smaller bays to drastic drops towards open sea (125m). • series of smaller bays, islands, inlets, and capes along the coast, and inland valleys; peak Obosnik at 586m • porous lime stone; terra rossa
BIOTIC	<p>Wildlife</p> <p>Landscape</p>	<ul style="list-style-type: none"> • isolation of peninsula allows for potential development of endemic and unique species in both flora and fauna, and less chances for migration of species (reduced exotics) • flora: mostly Holly oak macquis; areas of Hornbeam and Sweet bay trees, and semi-deciduous forests of oak and pistache • fauna: spider, snake, field mouse, rabbit, boar, seagull, and characteristic wild dog called Čagalj ; rich in marine species: red porgy, mullet, sardine, shellfish, shrimp, oysters, squid, octopus • Significant areas of pristine natural conditions • several relief specific landscape ambiances; <ul style="list-style-type: none"> - insular (3 islands) with anthropomorphic elements - Varied coastal and pre-coastal: sandy and pebble beaches, cliffs, grottoes, caves, small depressed cultivated valleys - Undulated inland: grazing valleys and hills, terraced land
CULTURAL	<p>History</p> <p>Population</p> <p>Human use</p> <p>Traffic</p>	<ul style="list-style-type: none"> • archaeological sites; evidences of cultural continuum: Illyrian, Greek, Roman, medieval settlements; rich cultural heritage • important role of churches as cultural centres and strongholds: 20 of Herceg Novi, and 7 of Tivat community on Luštica • strategic important terrain: predetermined military activity for ages: fortifications, tunnels, submarine dig-outs • seasonal shifting due to tourism and education • Herceg Novi community: mostly in rural in-land areas: a dozen small villages with 327 permanent residents (Zabrđe, Klinci, Mrkovi, Radovanići) including Rose – urbanized coastal settlement • Tivat community: mostly urbanized areas with greater density, both coastal and in-land; 740 residents (Krašići, Gošići and Radovići) • coastal areas: seasonal tourism, fishing and nautical activities • in-land: cattle raising and agriculture: potatoes, olives, grapes • gradual demilitarization of strategically important locations • Potential change from uninhabited and degraded areas to seasonal cottage/tourist recreation areas • Vehicular: 1 lane paved roads; denser infrastructure of unpaved roads and pedestrian paths • Nautical: very dense due to tourist resorts and fishing; many small docks (Rose, Dobreč, Žanjice, Mirište, Krašići, Bijelila)
ENERGETICS	Energy	<ul style="list-style-type: none"> • Mostly undisturbed energy cycles and detrital matter flow via water/sea water, wildlife • Solar, wind, and sea water (tidal) energy potentials • Economic: revitalization of deteriorated agricultural land, olive groves, vineyards and medieval villages • Economic: recognition of eco-tourism potential and adequate techniques for implementation



Luštica Peninsula

Fig. 2.37

The geographic context of the peninsula with the bay of Tivat

Luštica Peninsula

Fig. 2.38

View of the *Obosnik* hill and eastern part of the peninsula



There is no etymological certainty regarding the word Luštica. According to Sava Nakićenović, renowned historian and Orthodox priest of the Boka Kotorska region, the peninsula is named after its egg shape – Luštica meaning egg-shell [*ljuska* - in Serbian]. However, there is more credibility in the Latin origin of the word ‘lustica’, whose closest translation means shine or illumination. Since Luštica’s sun exposure is higher than in other parts of the region, and since it experienced a strong Roman influence in the past, there is enough evidence to believe in the latter etymological postulate. The first time Luštica had appeared in formal documents was in the early part of the 13th Century. Due to its geographic location, Luštica was under different occupation and rulers and thus it shared the cultural destiny of the Boka Kotorska region. Administratively, Luštica was once an independent community during the pre-war Kingdom of Yugoslavia. Today, Luštica’s larger north-western part belongs to the Herceg Novi community, while the south-eastern is administrated by the Tivat community.

The following pages contain natural, landscape and cultural maps of Luštica and their corresponding narratives. They are an integral part of the ecosystem approach and as such, their role is fundamental in the overall analysis of the peninsula. Dissecting a complex and heterogeneous body of information into a comprehensive set of illustrated maps and narratives, enables and facilitates the search and discovery of Luštica’s Spiritus Movens.

Luštica Peninsula

Fig. 2.39

View of the coastal town *Rose* and the western part of the peninsula



Narratives - mapping *natural*



Luštica Peninsula

Fig. 2.40

View of a natural pebble beach
in the inlet of Zlatna Luka

Fig. 2.41

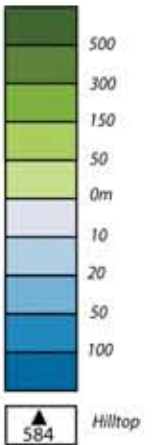
View of the typical south coast
- macquis forest & rocky cliffs



Topography



Legend



Luštica Topography Map
Fig. 2.42

1:30,000

As is true for the Eastern Adriatic coast, the topography of Luštica stretches in the northwest-southeast direction revealing two distinct areas: the northern elongated part consisted of Obosnik hill (584m) and its steep slopes, and the southern rounded part characterized by smaller undulating hills and the central valley. The coasts of the peninsula are steep; the northern is accessible and almost linear, whereas the others, especially in the south, are jagged, generally inaccessible and indented by many inlets and bays. The sea depths increase drastically towards the open sea.



Luštica Physiography
Fig. 2.43
View of the inland plato covered in vegetation



Luštica Physiography
Fig. 2.44
View of the Mirišće inlet and its hilly backdrop with Obosnik



Physiography



Legend

- Valleys and fields (gradient slope 0-15%)
- Hilltops and slopes (gradient slope 15-45%)
- Hilltops and steep slopes (gradient slope over 45%)
- Flats in coastal zone (gradient slope 0-15%)
- Steep slopes in coastal zone (gradient slope over 45%)
- Adriatic Sea

Luštica Physiography Map
Fig. 2.45

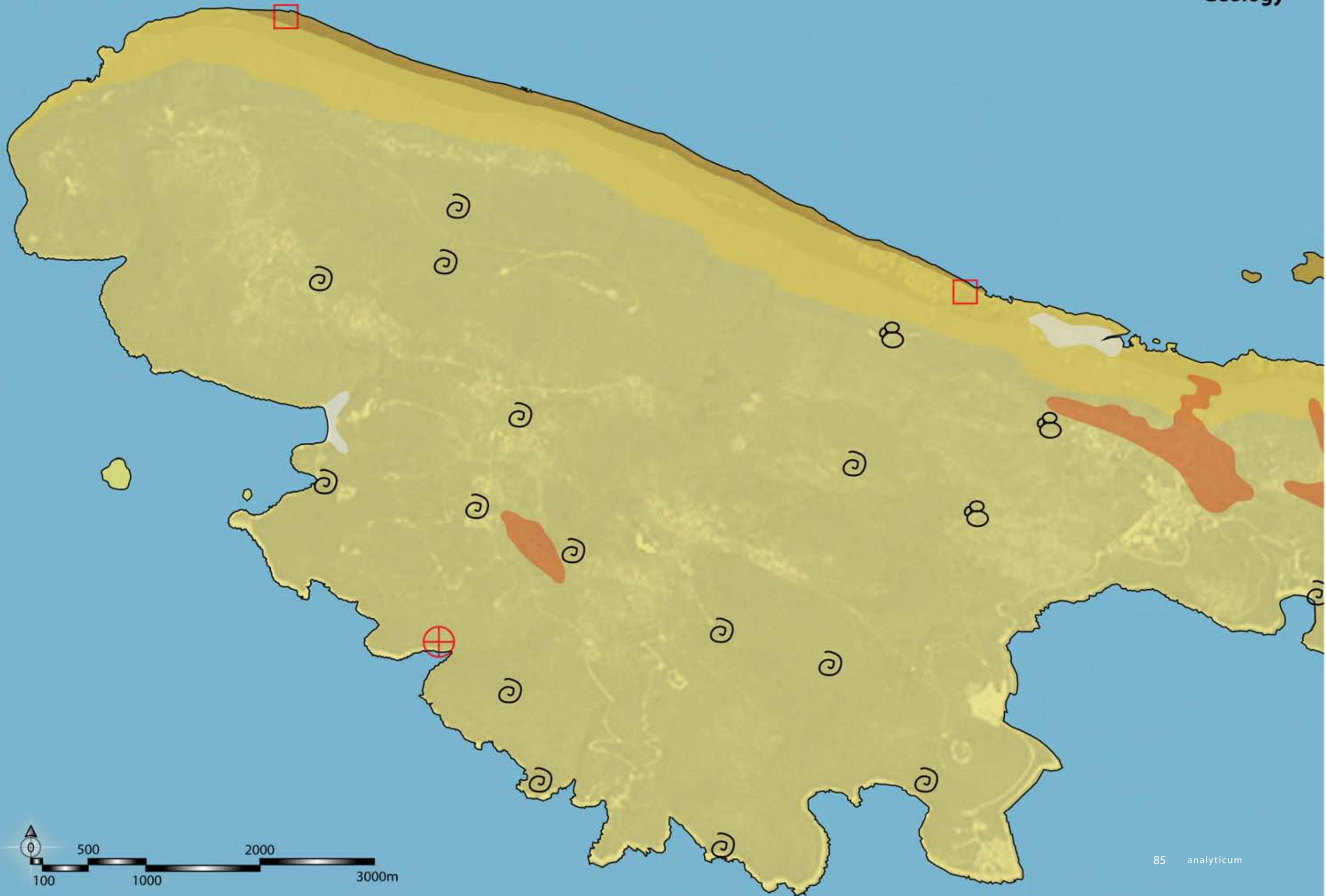
1:30,000

Drawn directly from the topographic features, several physiographic zones are distinguished on Luštica with respect to their gradient slope. With the exceptions of centralized in-land valleys and fields, and steep slopes of Obosnik, the majority of the peninsula is under moderately sloped, undulating terrain.

Cretaceous Limestone
Fig. 2.46-2.49
Images of limestone from
rocky mass to beach pebbles



Geology



- Legend**
- Cretaceous layered limestone
 - Dolomite
 - Layered dolomitic limestone
 - Flysche
 - Terra rossa
 - Deluvium
 - Marine macrofauna
 - Microfauna
 - Borehole 2368.1
 - Aluminum ore deposit
 - Adriatic Sea



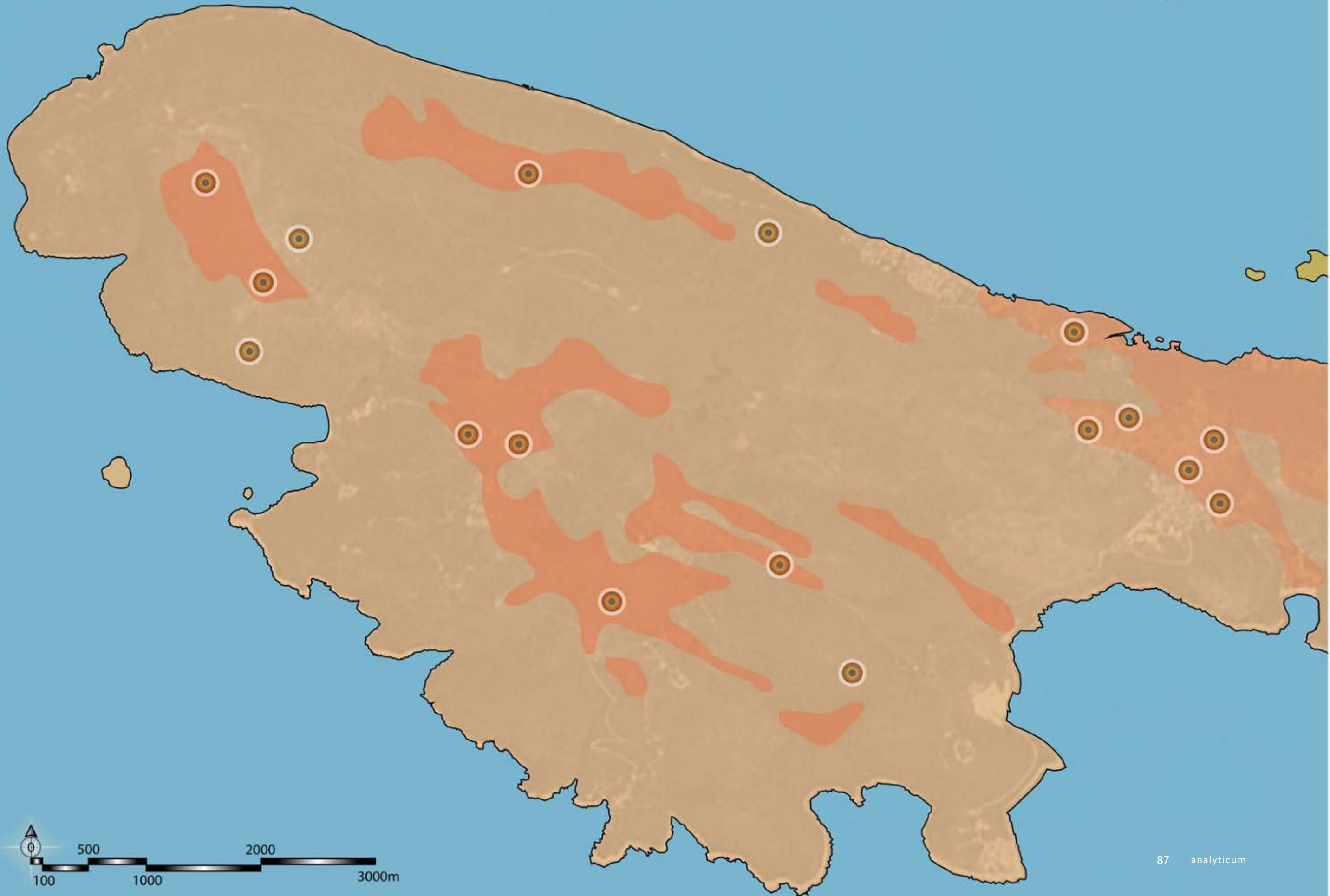
Luštica Geology Map
Fig. 2.50
1:30,000

Despite the geographic complexity of the Boka Kotorska region, Luštica's geologic map is quite homogenous and unified. Aside from the northern heterogeneous parts of flysche, layered dolomitic limestone and dolomite, the entire peninsula is made of Cretaceous layered limestone. Only some sporadic traces of deluvial (Žanjice and Bijelila) and terra rossa are evident.

Red Brownized Soil - Terra Rossa
Fig. 2.51-2.53
Images show the scarcity of
the soil and the dominance
of the rocky limestone



Soil Distribution



Legend

-  Red brownized soil (Terra rossa) on hard limestones, shallow
-  Red brownized soil (Terra rossa) on hard limestones, re-deposited
-  Mediterranean eroded cambisol on flysch
-  Anthropogenized-Cambisols on calcareous-silicate rocks
-  Marine macrofauna
-  Adriatic Sea

Luštica Soil Distribution Map
Fig. 2.54

1:30,000

Similar to the geology, the soil distribution of Luštica is consistent throughout. The peninsula is covered with shallow red brownized soil, with patches of re-deposited terra rossa.

Water Features

Fig. 2.55 (top)

Image of the mouth of the stream *Rijeka* in *Bijelila*

Fig. 2.56 (middle)

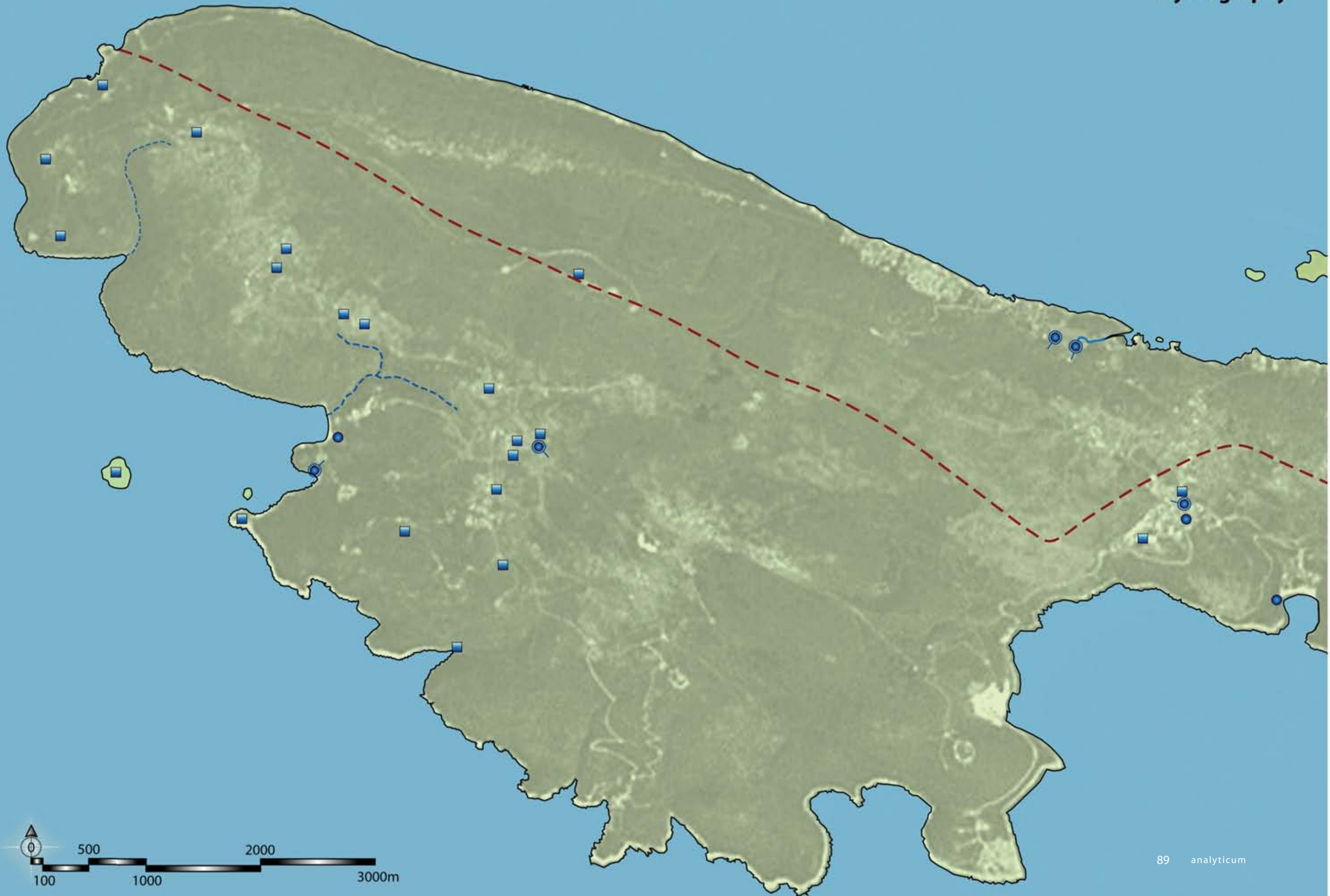
The well and the water cistern near *St. Nicholas* church in *Radovanići*

Fig. 2.57 (bottom)

Surface water accumulation - a pond - adjacent to the well and the water cistern



Hydrography



Legend

- Topographic catchment
- Seasonal water course
- Occasional water course
- Spring / natural water accumulation
- Well
- Water cistern always with water
- Adriatic Sea

Luštica Hydrography Map
Fig. 2.58

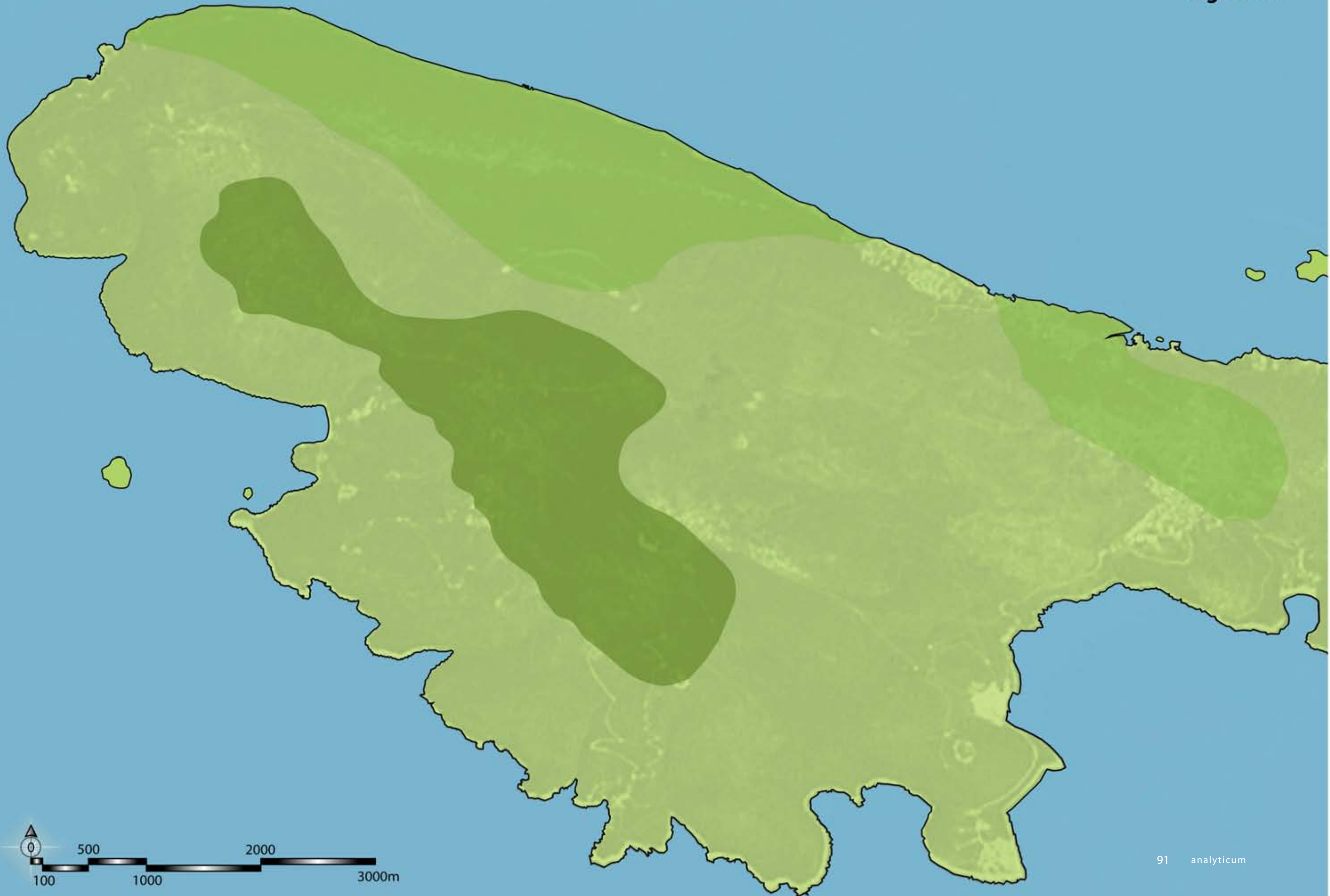
1:30,000

Unlike other parts of Boka Kotorska, Luštica is generally dry, lacking in water sources. There are no potable sources or permanent water courses. It is mainly due to the porous limestone terrain and extremely low water table. The exceptions are one seasonal water course Rijeka in Bijelila, occasional streams, and a few springs with naturally accumulated water, mainly non potable. Consequently, many water cisterns have been built throughout the peninsula as the only source of potable water, collecting and filtering rainfall.





Vegetation
Fig. 2.59-2.61
Images of various plant types
that together comprise
a thick *macquis* forest



Vegetation



Legend

-  Holly oak macquis
-  Oriental Hornbeam and Sweet bay tree forests
-  Semideciduous forest of oak and pistache
-  Adriatic Sea

Luštica Vegetation Map
Fig. 2.62

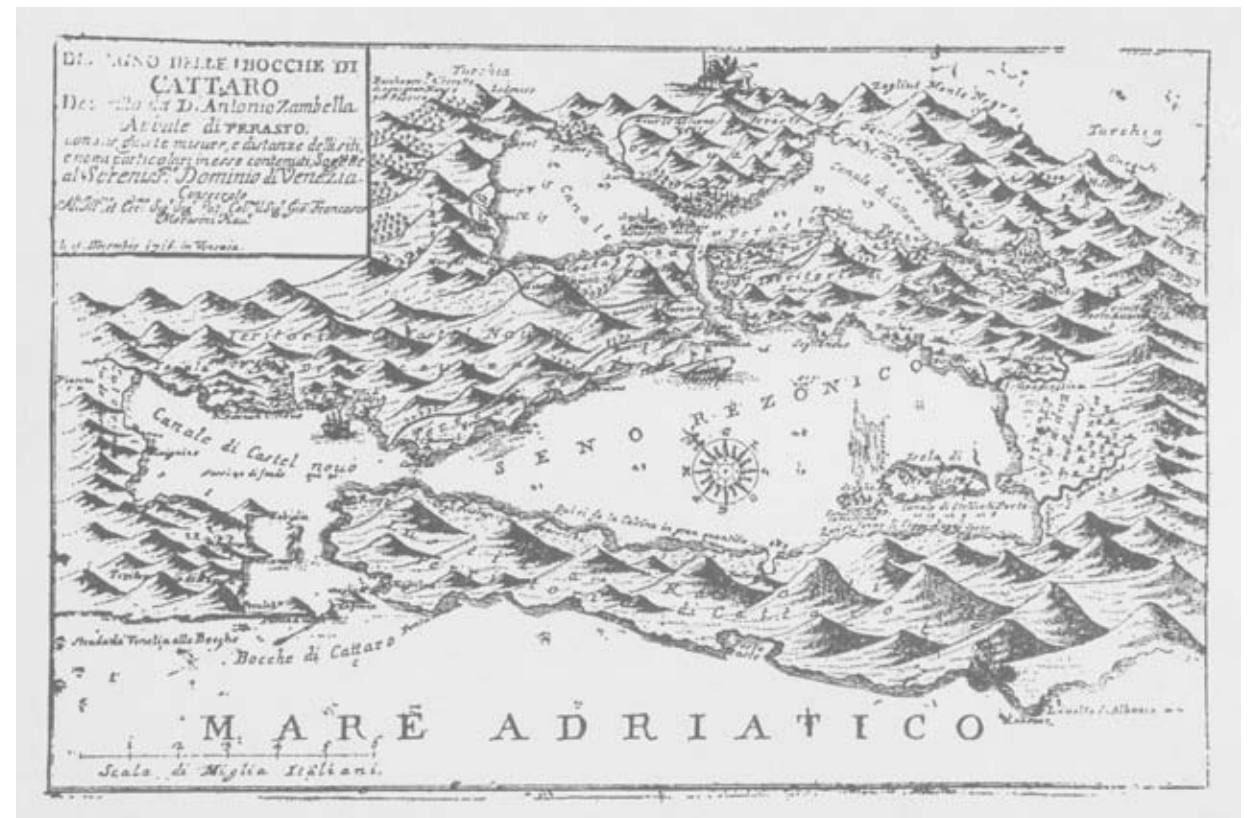
1:30,000

As part of the Eu-Mediterranean vegetation zone, Luštica was originally covered with a coniferous Holm Oak forest. After centuries of de-forestation, the low tapestry of macquis predominates its impoverished rocky terrain. The exceptions are two zones of semi-deciduous and deciduous forests found in the central and northern parts of the peninsula.

Narratives - mapping *history & landscape*

As noted earlier, the Luštica peninsula is one inseparable and integral part of the Boka Kotorska region, although its geographical predisposition as being an isolated peninsula suggests otherwise. The peninsula and the surrounding bay region have been frequently inhabited for over 4,000 years. Painting excavations and the accidental discovery of a Neolithic axe suggest the presence of pre-historic man. Evidence of early Illyrian culture has been found extensively throughout the area. Illyrians were Luštica's first scientifically proven inhabitants as well as the area's cultural founders – the first in many layers of a very rich cultural heritage.

Geographic Map of Boka Kotorska
Fig. 2.63
The old map from 1716 drawn by
Antonio Zambella, an abbot
from the town of Perast





After the Illyrian dominion, and the occasional Greek colonization of coastal regions based on the free naval-trade economy, the area fell under the Roman rule at the beginning of the common era. Originally, the region was a part of the Roman province of *Dalmatia*, and was later included in the Eastern Roman Empire or *Byzantine* that continued to prosper imperially long after the fall of the Western Roman Empire in 476 A.D. During that period, the Balkan Peninsula became settled by Slavs, nomadic people constantly on the move in search for fertile land and better living conditions. Spreading their territories, Slavs gradually moved south until reaching the Adriatic coast. They gradually accepted the Byzantine culture and the Christian religion, which both remained strong in the East until the Turkish invasion.

Roman Floor Mosaic from Risan

Fig. 2.64

Similar floor mosaic with traces of red and white tiles was found during the excavation of the archaeological site at St. John's church in Žanjice. The existing church is believed to be built on the foundations of an early Roman Christian basilica.

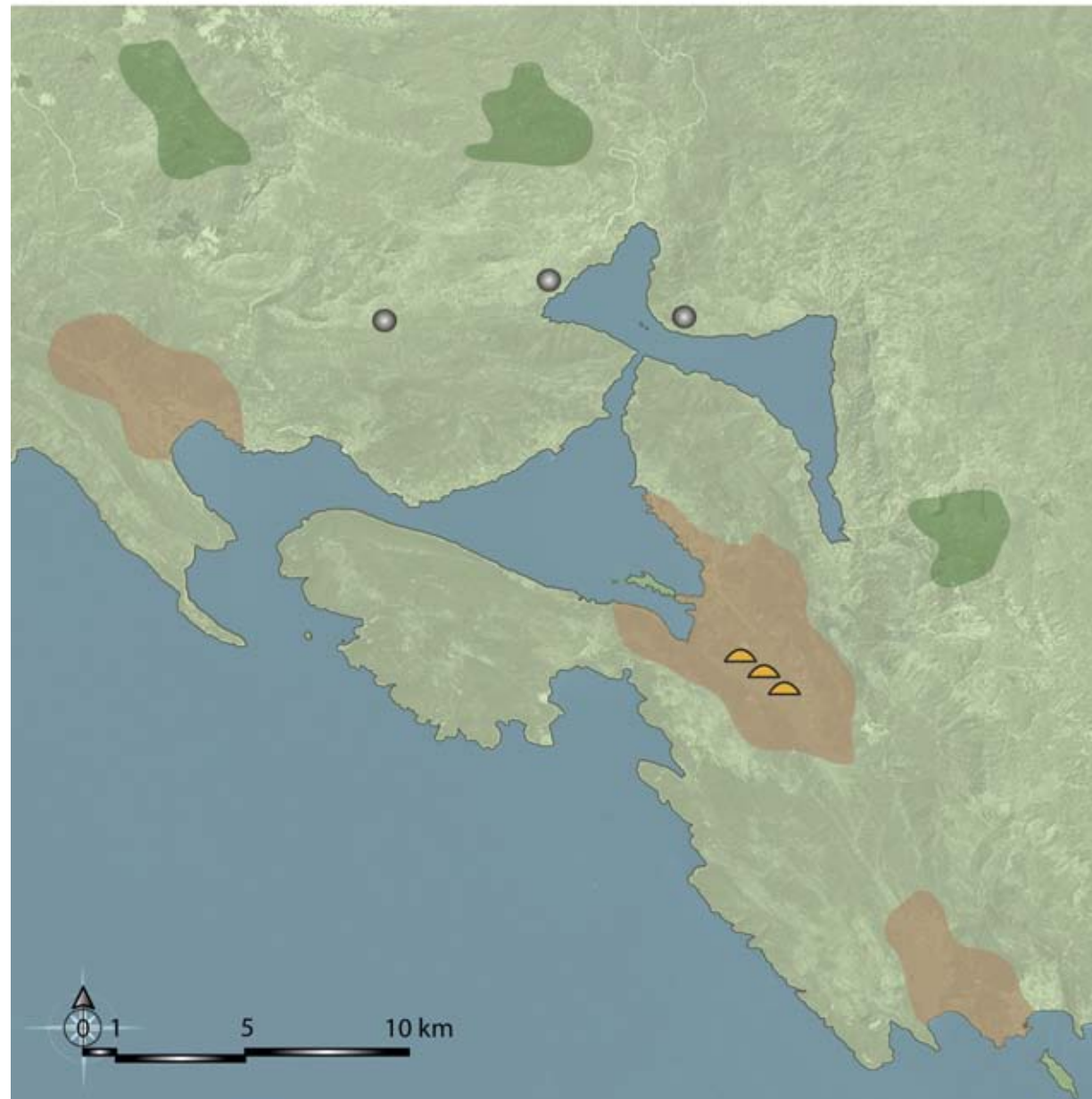
[Pušić, Ilija. *Arheološki Lokalitet. Boka, Vol.1. Pg. 15*]

Since that time, Serbian predecessors started forming the first local and regional states, building the first Orthodox churches and inhabiting the territories of today's Serbia and Montenegro (*Duklja* and *Raška*). This region was in the hands of the Serbian royal dynasty of *Nemanjići* in the year of 1185. From this year on, the entire Boka Kotorska Bay, including the Luštica peninsula belonged to the Serbian medieval state. The first official document mentioning Luštica's name dates back to the rule of the Serbian king Radoslav (1223-1234) who gave away the peninsula to the town of Kotor as his royal gift along with the adjoining territories of *Krtoli* and *Donji Grbalj*. Later, during the reign of the Serbian Tsar Dušan (circa 1351), this gift was officially confirmed by another royal document. For years this area thrived in peace and prosperity. Numerous sacral artefacts date back to this period between the 13th and 14th century, before the invasion of Turks on the Balkan Peninsula, and before Venetian rule.

The political situation changed drastically in 15th century when the Venetian Republic also became interested in this rich and strategically important region. In the centuries that followed many wars were fought between the foreign rulers, mostly between the Venetian Republic and the Ottoman Empire. There were also some attempts of the local, mostly Serbian population, to seek independence and freedom under much more powerful and relentless invaders. The built infrastructure of many forts, castles and defense towers from this period survives today and attests to the very active military history of the region. After almost four centuries of a predominantly Venetian rule (1420-1797), there were a few short periods of Austrian (1797-1806), Russian (1806-1807) and French (1807-1813) occupations that resulted in the reign of the Austrian monarchy for another century (1814-1918). After the First World War, Luštica was part of a newly formed Kingdom of Yugoslavia. Following the Second World War, Luštica became a part of the Republic of Montenegro as it still is today.

The following maps illustrate the development of the Luštica landscape within the larger Boka Kotorska region. A cross-section of historical landscape transformation was taken at five distinctive periods over a time span of 4,000 years. These five scenarios represent clearly visible cultural and landscape contours that had formed at the most influential and peak moments of communal prosperity in each time period.

Preurban Period



Legend

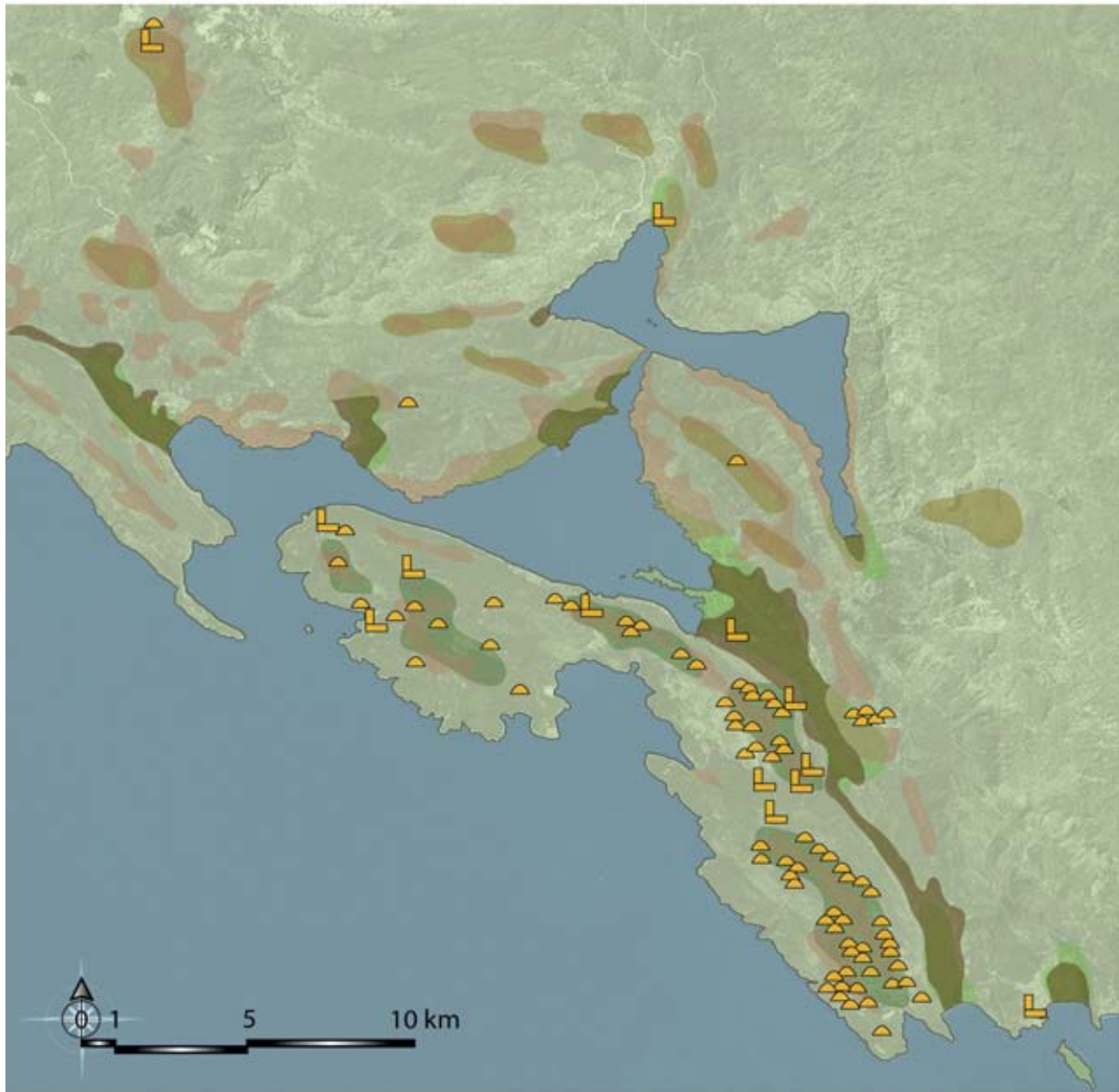
	Sparsely populated and predominantly natural		Cave sites		Adriatic Sea
	Local clearings		Burial mounds		
	Cleared and partly cultivated land				

This historical period covers a landscape conditions between **the first centuries of the 2nd millennium and 6th century B.C.** when the first farming practices were initiated in the region. Due mainly to the Bronze Age traditions of a hunting-gathering and nomadic lifestyle, there is little or no evidence attesting to any cultural or consequent landscape development prior to this period. Artifacts from burial mounds and other archaeological discoveries, however, confirm the existence of a stabilized anthropogenic influence and a well-organized community starting in the 2nd millennium B.C. in the area of *Solila Field* and *Gomilica* (centre). Similar systems are believed to be in the place of present-day *Budva* (bottom right). Areas with the lack of water in the limestone zone, such as *Luštica* and *Donji Grbalj*, involved substantially less human activity and no impact on the cultural landscape.

Boka Kotorska Mapping
History & Landscape
Fig. 2.65
Preurban period

Protourban Period

This period describes the integrated influences of Illyrian settlements and Greek colonies on the cultivated landscape *between 6th and 2nd century B.C.* The cultural development and corresponding landscape modifications culminating in **the 4th and 3rd century B.C.** were a direct result of flourishing economies typical for the period and for this region. These are *the trade, Mediterranean agriculture* (growing wheat, olives, and grapes with auxiliary crops-figs, pomegranates, carob etc.), and *raising livestock*. Many scattered artifacts found throughout the region (especially in the areas of *Luštica, Krtoli, and Grbalj*) confirm predominantly independent and self-sufficient settlements that only started to function in the 3rd century B.C. as a network and lead to the formation of communities resembling a Greek polis. The prevailing economy of these densely populated areas was livestock grazing on pastures, although agricultural activities were also practiced. Localities such as *St. Luka in Krtoli, Budva* and *Risan* were the most important centres in this period.

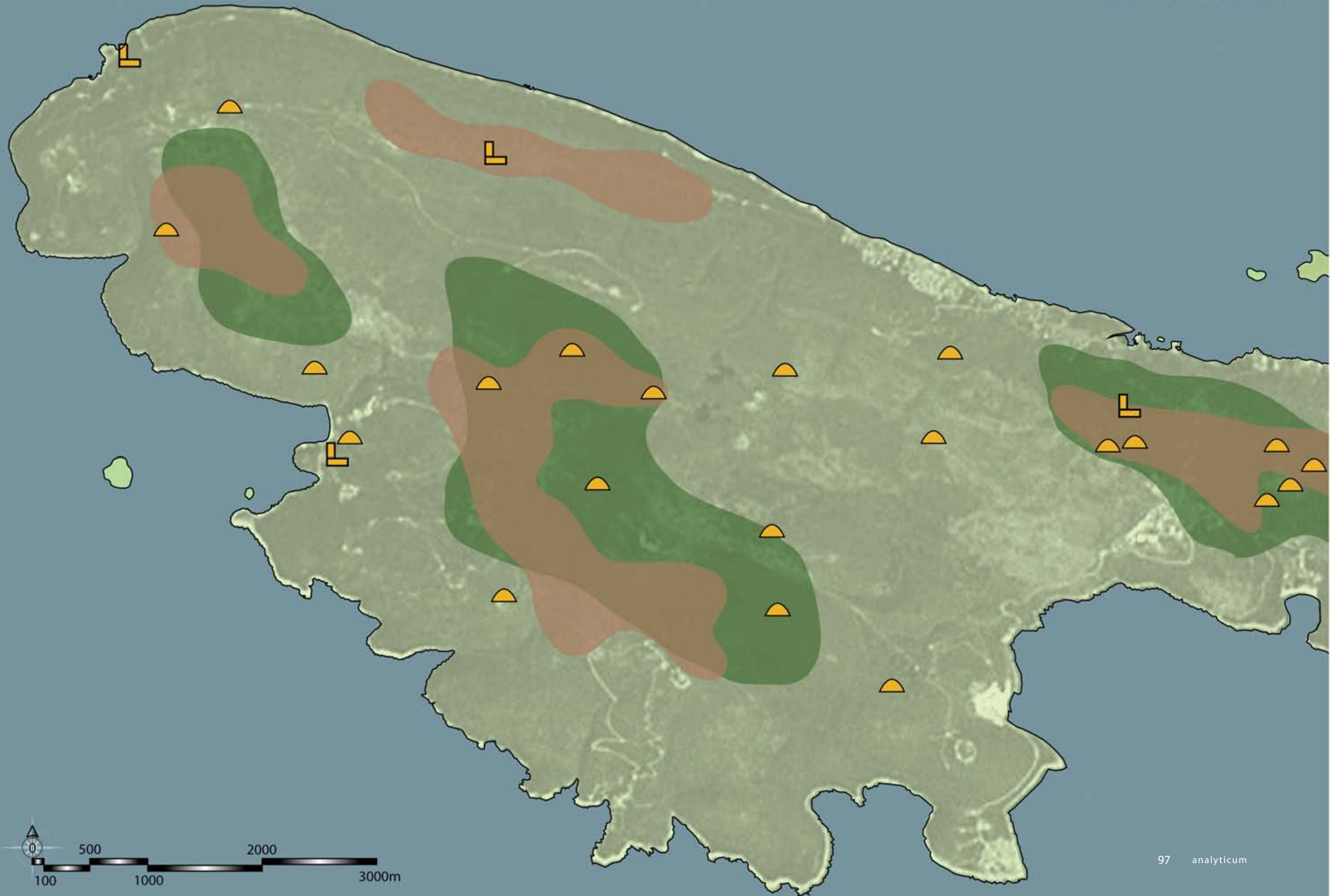


Boka Kotorska
Mapping History & Landscape
Fig. 2.66
Protourban period







Legend

1:200,000	Sparsely populated and predominantly natural	Pastoral and agricultural highland areas	Remains of masonry
	Arable land	Lowland pasture	Stone cairn
	Arable with restrictions	Pasture and Mediterranean crops	Adriatic Sea

Protourban Period



Legend

-  Stone cairn
-  Remains of masonry
-  Arable land with restrictions
-  Pasture and Mediterranean crops
-  Sparsely populated and predominantly natural
-  Adriatic Sea

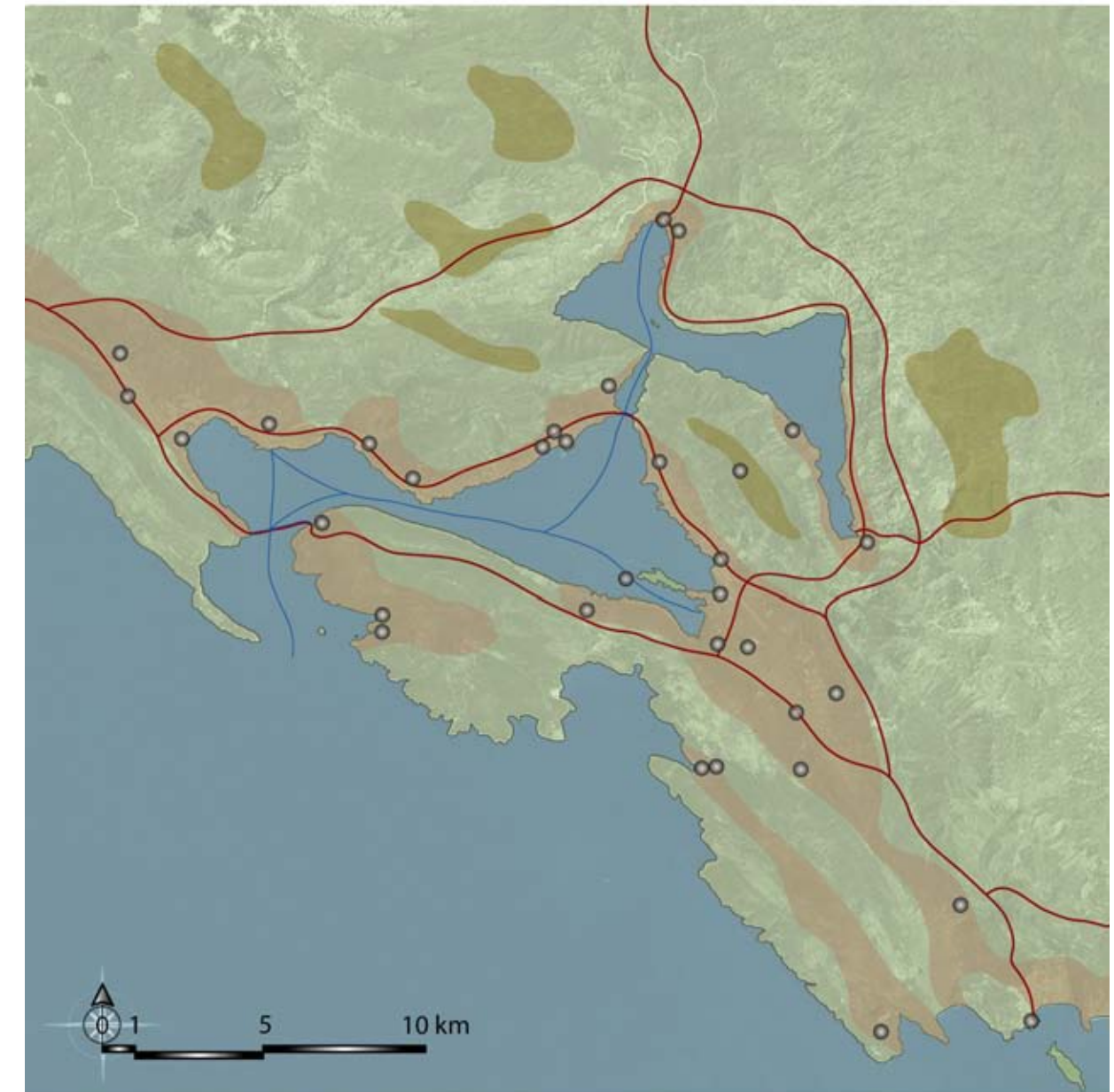


Luštica Mapping
History & Landscape

1:30,000

Fig. 2.67
Protourban period

Roman Period



Boka Kotorska
Mapping History & Landscape
Fig. 2.68
Roman period

This period brought the most influential characteristic for the region's landscape in the form of an agrarian dispersed city, reaching its maturity in the 2nd and 3rd century A.D. Initially, Romans selected the coastal bends and alluvial planes as the most productive land for intensive cultivation thereby increasing the level of resource utilization. Similarly, they increased the overall integration of the spaces around the bay by creating a powerful network of roads, dispersing the settlements and by utilizing marine transportation as an easy all-year round access. This improved the communication, distribution of resources and created a linear, dispersed network of interconnected settlements and corresponding agrarian landscape wherein the city centres lost their original primacy. The exception was *Butua* (Budva) sustaining the cultural importance it had during the Hellenistic period and emerging *Acruvium* (debatable ancient location) taking over the central role from the Illyrian *Risnium*.

Roman Period



Legend

- Important Roman sites
- Major Roman Road
- Major marine route
- Ferry route
- Intensively cultivated land
- Sparsely populated and predominately natural
- Adriatic Sea

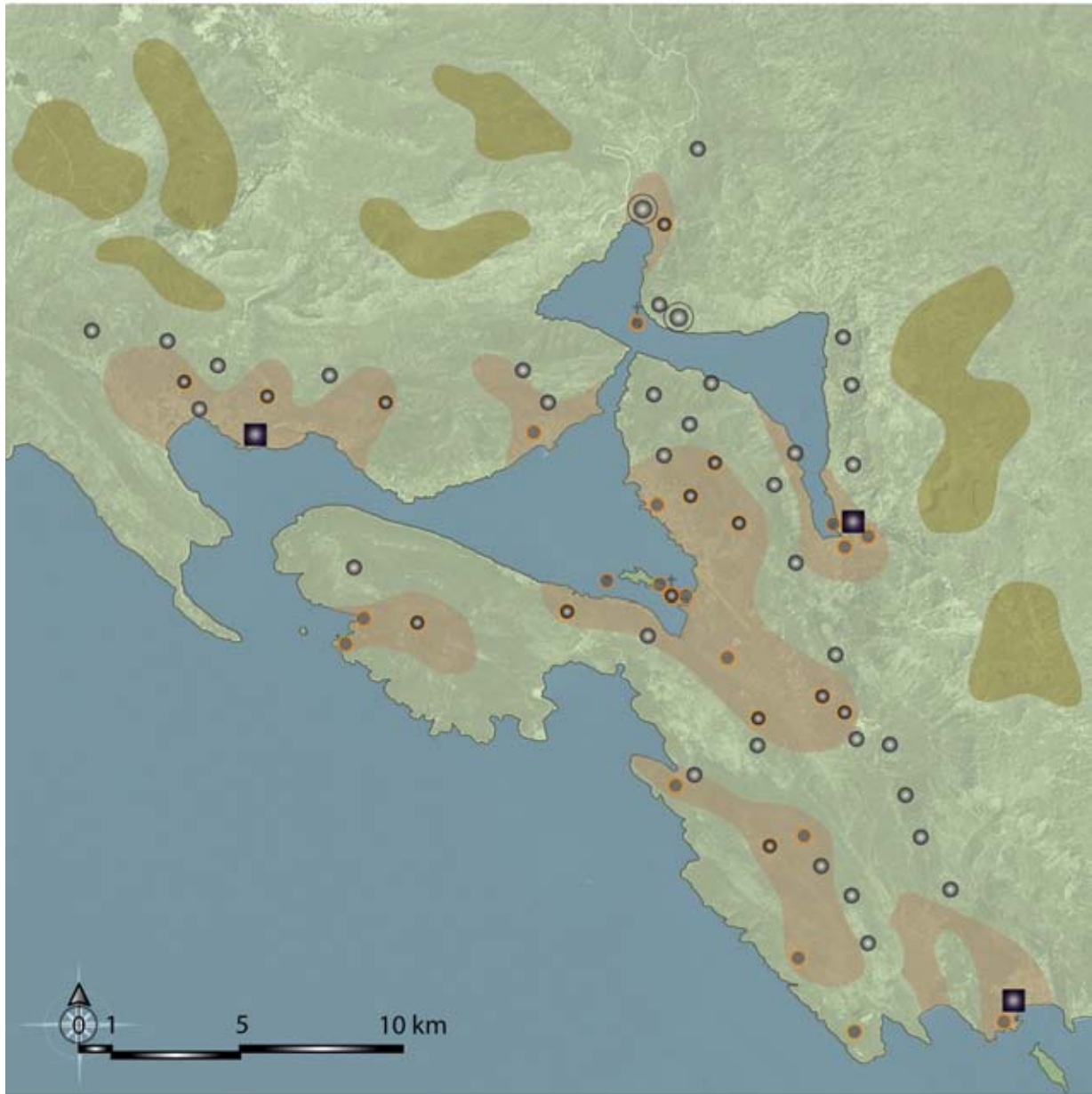
Luštica Mapping
History & Landscape

1:30,000

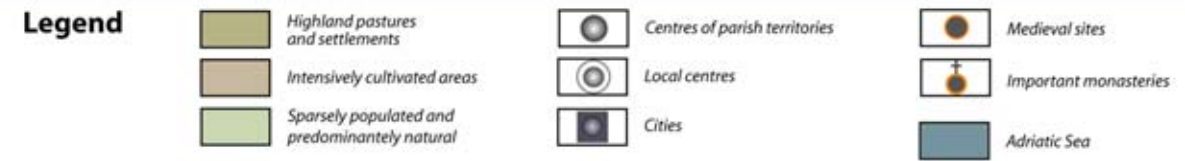
Fig. 2.69
Roman period

Medieval Period

Technically, this period covers times from the 5th to 15th century. However, the period of significant cultural and landscape changes began in the 9th and 10th century with the thriving of pre-Romanic church constructions, general inclination towards the resource optimization and with the gradual emergence of municipal communities which climaxed in the 13th and 14th century. The initial transformation process was contained within particular districts, fertile basins and river valleys with their immediate surroundings. The four medieval districts of Boka were situated around Budva, Grbalj, Risan and Herceg Novi. Clear evidence of rapid landscape changes emerged in the 12th century with the clear-cutting and deforestation of these areas in favour of intensive cultivation. Consequently, city centres such as Kotor grew and prospered on the complementing relationship between city-trade and manufacturing, and livestock raising and agricultural food production in the surrounding villages. The final stage was decadent and regressive for the landscape. This city-village symbiosis deteriorated as a result of excessive land exploitation, socio-political turmoil and increased instability of the Serbian state arisen by the invasion of Turks.



Boka Kotorska
Mapping History & Landscape
Fig. 2.70
Medieval period



Medieval Period



Legend

- Medieval sites
- Centres of parish territories
- Intensively cultivated land
- Sparsely populated and predominantly natural
- Adriatic Sea

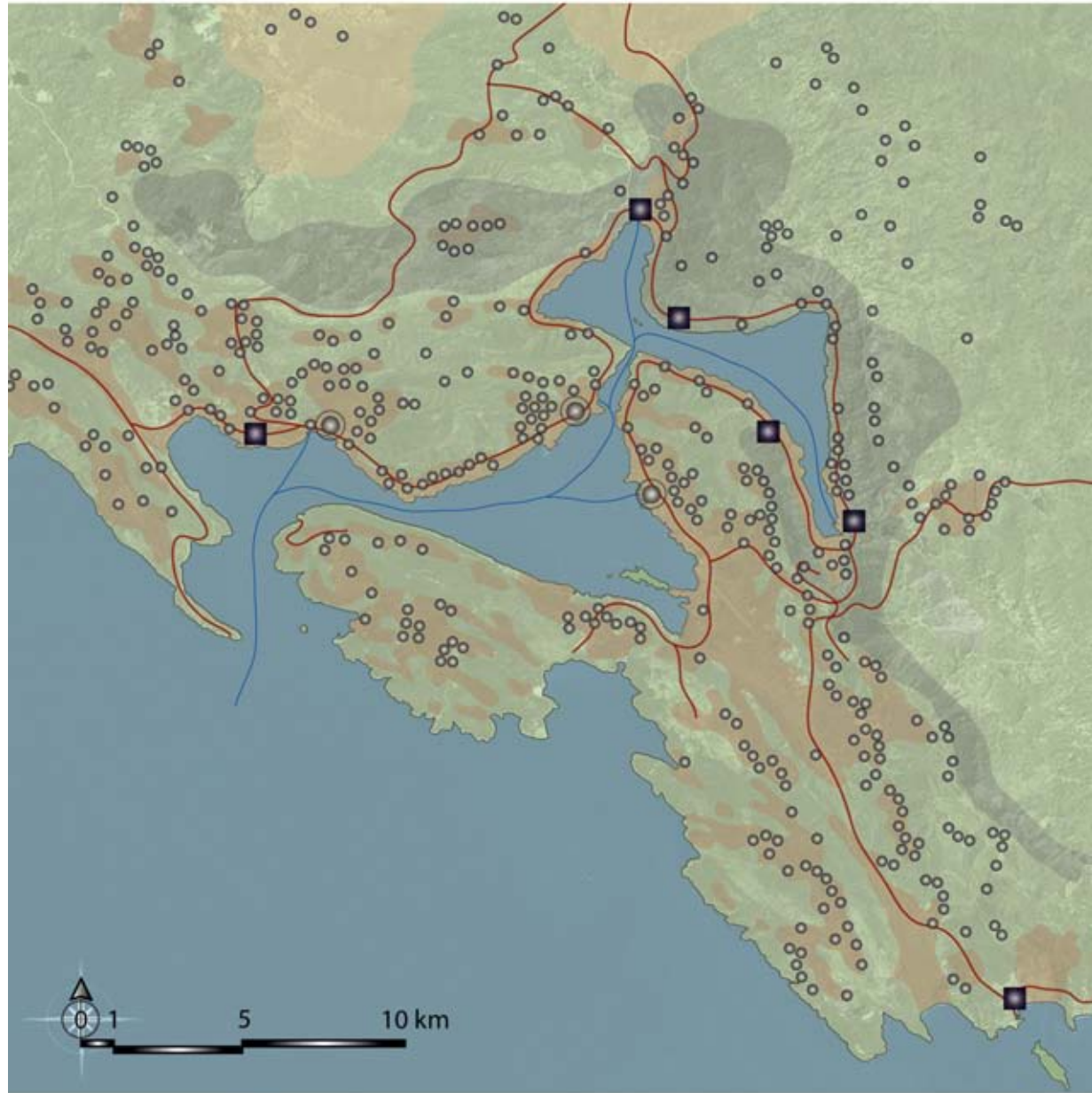


Luštica Mapping
History & Landscape

1:30,000

Fig. 2.71
Medieval period

Protoindustrial Period



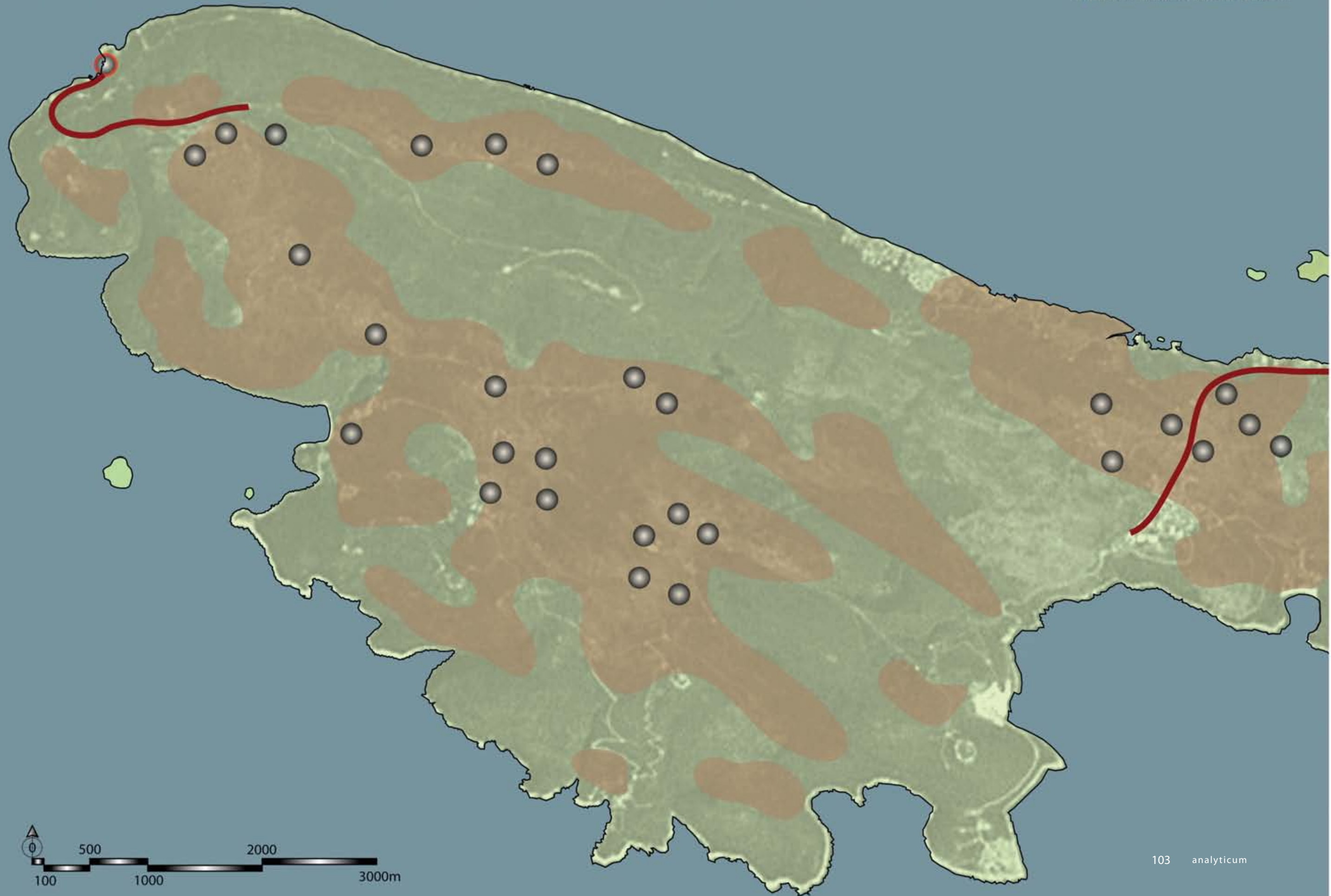
Boka Kotorska
Mapping History & Landscape
Fig. 2.72
Protoindustrial period

Legend

- | | | |
|-------------------------------------|----------------------------------|---|
| Degraded areas | Concentrations of village houses | Major roads by the end of 19th. century |
| Severely eroded areas | Recent agglomerations | Major marine routes |
| Cultivated land | Historic nuclei | Adriatic Sea |
| Partly preserved natural vegetation | | |

This period corresponds to cultural landscape changes from the 18th century up until the 1960s. During the distinctive transformational phases of Venetian, Austrian and post-Austrian periods, and despite respective fluctuations, the cultural ecosystem significantly expanded and took control over the entire landscape of Boka Kotorska by utilizing all available resources. The flourishing period between the years 1850 and 1890 constituted a drastic population increase, densification of coastal areas and intensification of road infrastructure and sea traffic driven by military-oriented politics. This resulted in an integrated dispersed network of settlements and cultivated landscape reminiscent of the Roman period with historic nuclei and emergent agglomerations as dominant cultural nodes. The culmination of this newly formed techno-ecosystem strained the surrounding landscape beyond the point of natural rejuvenation. The model failed and the consequences are still evident in the presently degraded, imbalanced and neglected landscape (only around 20% of available land actively used) where current anthropogenic influences driven by tourism, urban sprawl and industrialization further deteriorate the environment.

Protoindustrial Period



Legend

- Concentration of village houses
- Customs centre - Rose
- Major road
- Cultivated land
- Partly preserved natural vegetation
- Adriatic Sea



Luštica Mapping
History & Landscape

1:30,000

Fig. 2.73
Protoindustrial period

Narratives - mapping *cultural*

Cultural Traces
Fig. 2.74 (top)
The village *Babunci* - a typical homestead fenced with stone wall



Cultural Traces
Fig. 2.75 (bottom)
19th c. Austrian fortification - an artillery location at the roof terrace





Legend

- Communal boundaries
- Parish boundaries
- "Morsko Dobro" administrative zone
- Centres
- Adriatic Sea

Luštica Administration Map
Fig. 2.76

1:30,000

The Luštica peninsula is divided in two administrative municipalities. The western part belongs to the Herceg Novi community and is further split into six parishes with name-matching settlements as centres. Similarly, the eastern part is divided into three parishes and is administrated by the Tivat community.



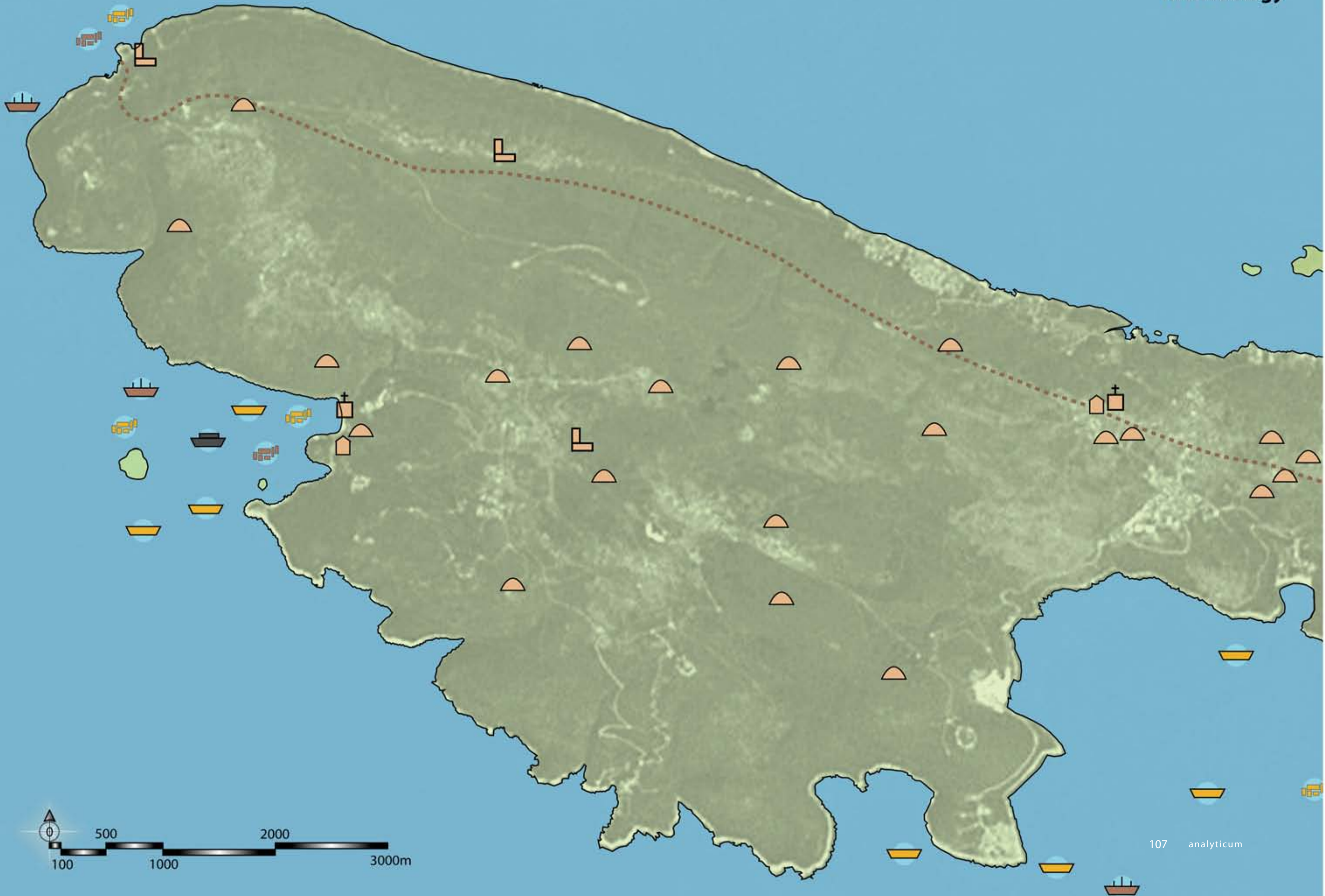
Archaeology of Luštica
Fig. 2.77 (top left)
2nd century B.C. amphora found
in the Žanjice inlet
Fig. 2.78 (top right)
Remains of a preromanic church
found in *Malo Rose* (Little Rose)



Archaeology of Luštica
Fig. 2.79 (bottom left)
Artefacts from 6th century found near
the island *Mala Gospa*, *Mirište* inlet
Fig. 2.80 (bottom right)
Image of one of many marine
archaeological sites around Luštica



Archaeology



Legend

- Burial mound - Tumuli
- Settlement
- Remains of architecture
- Church
- Antique shipwreck
- Medieval shipwreck
- 19th & 20th century shipwreck
- Scattered antique artefacts
- Scattered medieval artefacts
- Presumed ancient Roman road
- Adriatic Sea

Luštica Archaeology Map
Fig. 2.81

1:30,000

Numerous archaeological sites from different time periods found on Luštica attest to its rich historic layering. From the Neolithic axe and Illyrian burial mounds, to Byzantine basilica [see Fig. 2.101] and shipwreck artefacts, these scattered archaeological remains speak clearly of cultural continuum and human activity on the peninsula originated more than 4,000 years ago.



The Paths of Luštica

Fig. 2.82 (top)

The major paved road going downhill to the hamlet *Rose*

Fig. 2.83 (middle)

A typical unpaved route

Fig. 2.84 (bottom)

A typical overgrown and unpaved route used only by pedestrians



Infrastructure



Legend

- Major paved road
- Minor paved road
- Major unpaved route
- Minor unpaved route
- Trail
- Major sea route
- Tourist route
- Sea dock
- Proposed loading dock
- Boat shelter and/or anchorage location
- Beacon/lighthouse
- Adriatic Sea

Luštica Infrastructure Map
Fig. 2.85

1:30,000

For communication, the undeveloped Luštica peninsula relies on low-profile land infrastructure and intensified marine transportation. The land traffic is regulated by a paved primary ring road, about 3m wide, branching minor roads, and a network of secondary unpaved paths and trails which are denser around the in-land villages. The major docking areas on Luštica are in the hamlet Rose, Žanjice and Mirište resorts in the west; and in the coastal settlements of Krašići and Bijelila in the eastern part of the peninsula.

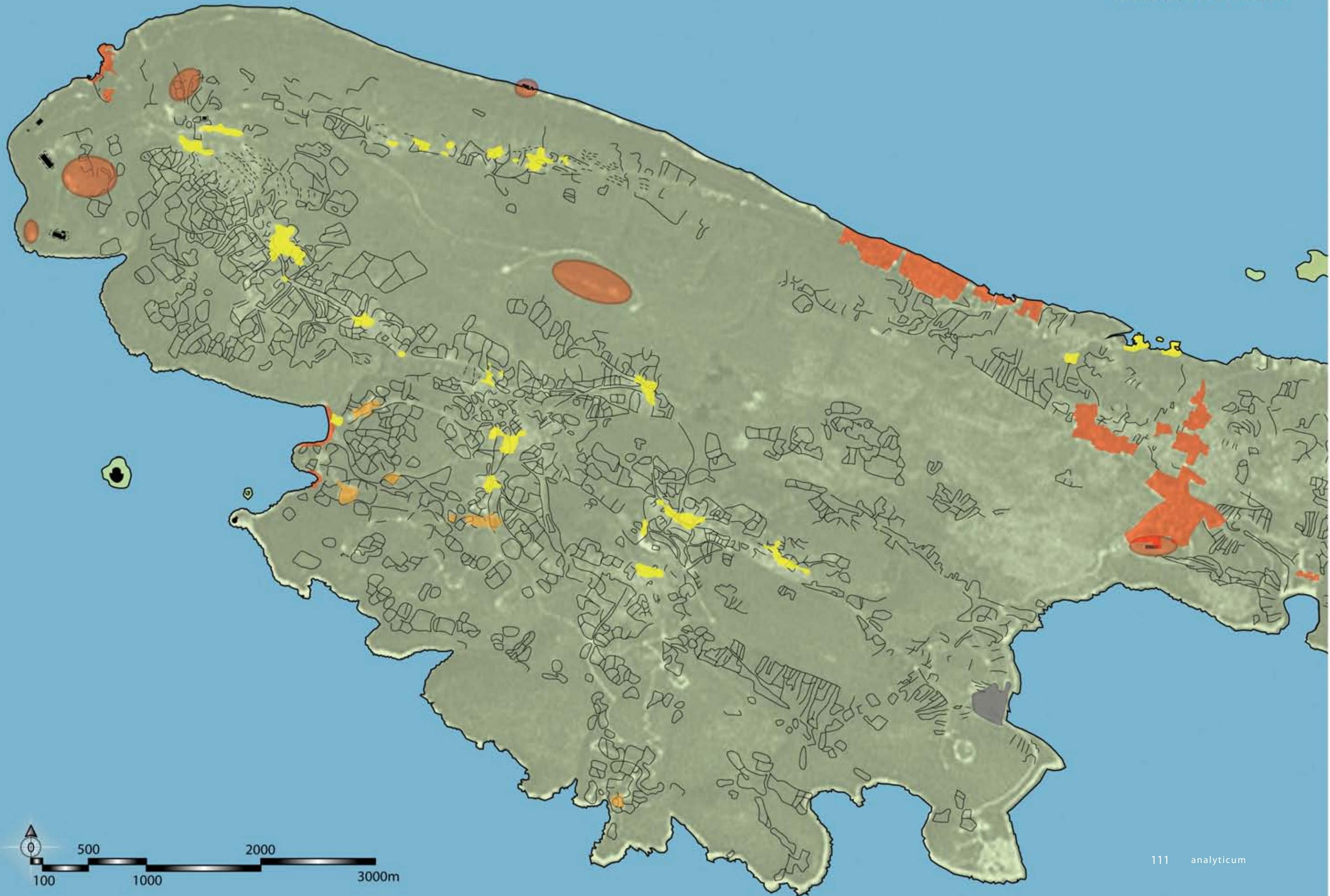
Luštica's Built Environment
Fig. 2.86 (top)
St. Sava church in the village *Klinci*



Luštica's Built Environment
Fig. 2.87 (bottom)
A courtyard of the homestead
in the village *Babunci*



Built Environment



Legend

- Fortification
- Piled stone wall - medja
- Stone retaining wall
- Urbanized area
- Proposed urbanization area
- Rural nuclei
- Quarry area
- Military area
- Unbuilt area
- Adriatic Sea

Luštica Built Environment Map
Fig. 2.88

1:30,000

The dominant natural environment of Luštica has been gradually but continuously influenced by the built form throughout the centuries of cultural activity. Prevailing is a system of stone walls particularly intensified in the areas of cultivation and around the village house complexes. The impact of the recent urbanization is substantially greater in the administrative sector of Tivat (Krašići and Radovići) than in the western parts of the peninsula, with Rose and Žanjice being the most affected areas. Individual fortifications and fragmented military zones are also a significant part of the built environment.

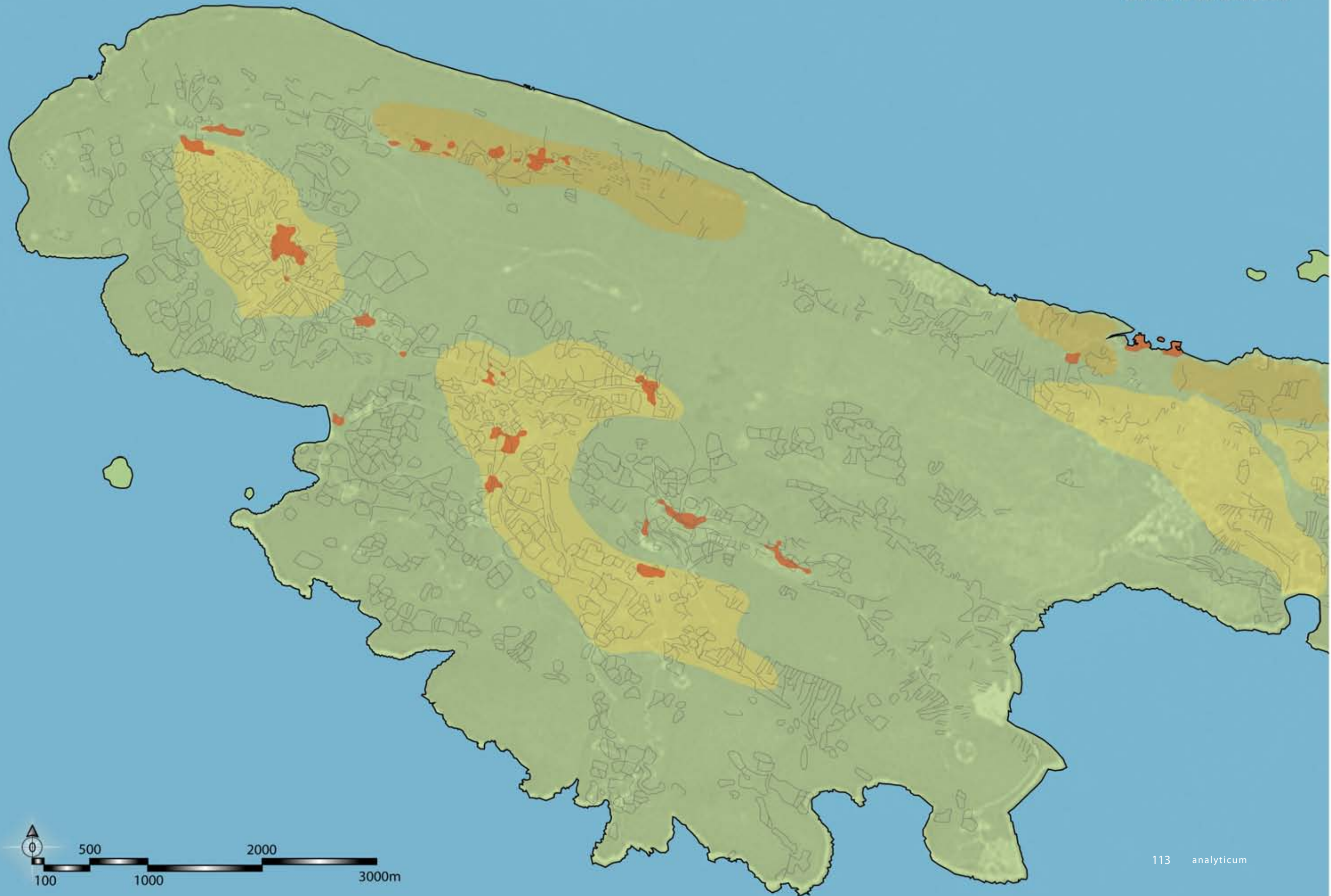
Luštica's land use
Fig. 2.89 (top)
Arable land is in the central
inland area of the peninsula



Luštica's land use
Fig. 2.90 (bottom)
Restricted arable land in *Zabrđe*
due to steep slopes of *Obosnik*



Land Use Classes



Legend

- Arable
- Arable with restrictions
- Mediterranean rough pastures
- Rural nuclei
- Stone walls - medje
- Adriatic Sea

Luštica Land Use Classes Map
Fig. 2.91

1:30,000

Most areas suitable and used for growing crops on Luštica are relatively flat lands of the central plane of the peninsula. Some additional arable land is found around the village of Zabrđe where the steep slopes of Obosnik inside the bay restricted land use to terraced cultivation. Natural areas associated with the inland villages serve as typical Mediterranean pastures.

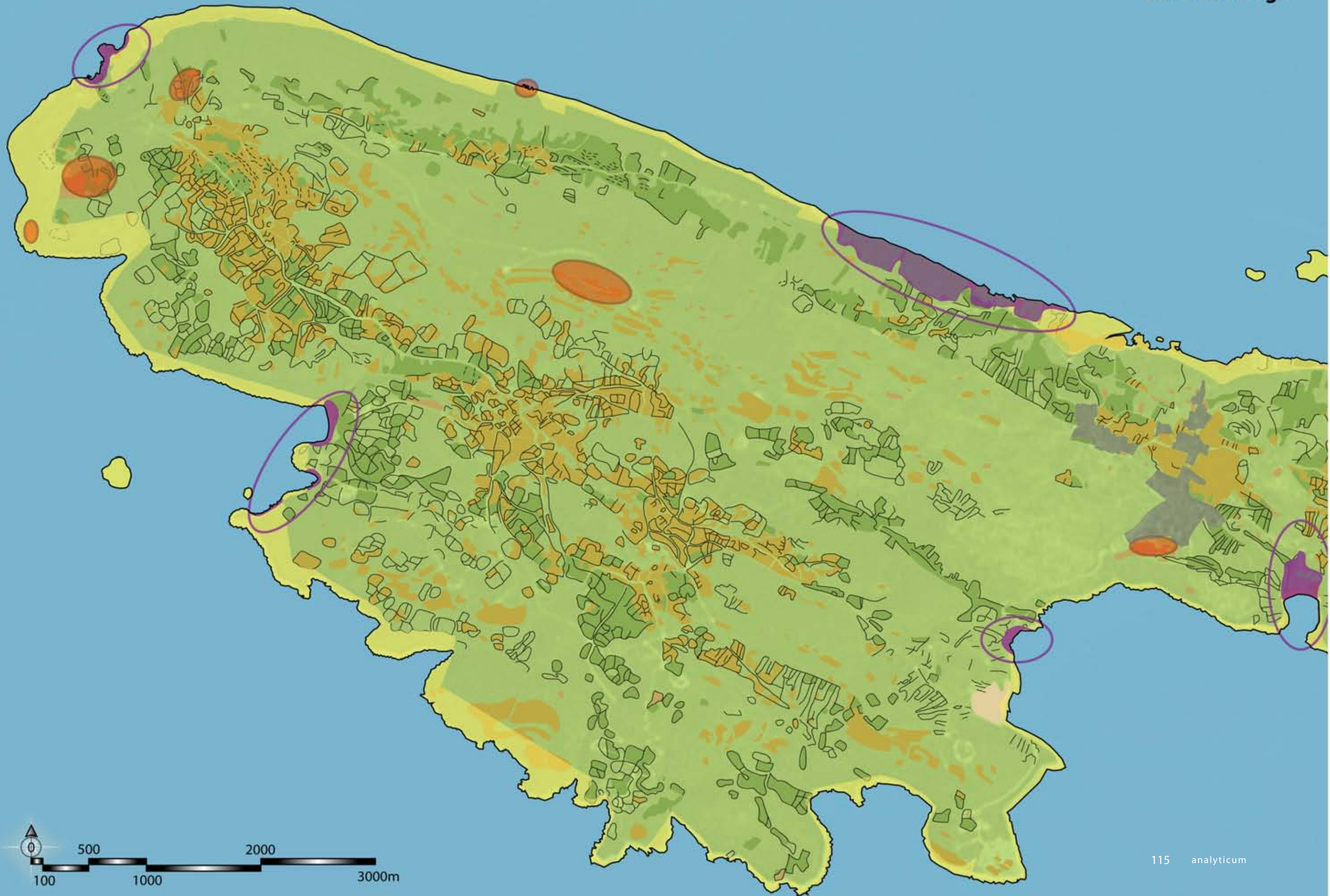
Luštica's land coverage
Fig. 2.92 (top)
A typical inland landscape -
olive groves and piled stone walls



Luštica's land coverage
Fig. 2.93 (bottom)
The quarry zone in the Trašte bay



Land Coverage



- Legend**
- Macquis
 - Vineyards and/or olive groves
 - Cultivated fields
 - Cleared area
 - "Morsko Dobro" administrative zone
 - Tourist zone
 - Urbanized zone
 - Military zone
 - Quarry zone
 - Stone walls - medje
 - Adriatic Sea

Luštica Land Coverage Map
Fig. 2.94
 1:30,000

Although predominantly intact, Luštica's land has a mosaic quality. Tapestry of macquis vegetation is interspersed by chains of stone walls, and patches of agricultural land, vineyards, olive groves and cleared pasture areas grouped mainly around the flat lands of the peninsula's fields and valleys. Military and quarry zones together with tourist and congruent urbanization zones also have a considerable impact on the land of the peninsula.

"Our is a time that would have sent the Greeks to their Oracles. We fail at our peril to consult our own."

H.C. Goddard

Holy tree
Fig. 2.95
The image shows the ancient olive tree, one of the oldest on Luštica, that happens to be in the middle of a poorly designed and inadequate restaurant - the immediate proximity to the nearby church of *St. John, Žanjice*



The main impetus of the presented site analysis and mapping and the respective narratives that have been developed is to apprehend the multifaceted and layered character of the Luštica peninsula. This process of methodological dissection of such a complex system into smaller, singular and easier-to-understand elements is crucial, not only for ascertaining Luštica's past, but more importantly, for distilling the most influential elements affecting the direction of its future evolution. This section will specifically focus on determining and classifying those current conditions as a necessary prerequisite to designing a development proposal for the peninsula's healthy future.

From the preceding analysis, it could be deduced that Luštica represents a unique whole consisted of two historically interdependent systems, natural and man-made. Only fairly recently has the peninsula started to experience a series of critical changes to its environment that have severely compromised this historically interconnected and mutually beneficial relationship. Namely, drastic changes imposed by the man-made (cultural) domain have resulted in consequent changes in the natural realm and the complete disruption of the corresponding ecosystems. At the moment, the old, well established and dynamically stabilized conditions of Luštica's interactive systems, its long term *attractors*, are on the verge of instability and collapse, while new undesirable ones have already emerged and are leading the entire system towards alienating and ecologically disturbing conditions. Thus, it is crucial to describe and evaluate both of these scenarios, the old and the new attractors, in order to assure an accurate assessment of a possible ecologically stable, environmentally unthreatening and culturally prosperous future development of the Luštica peninsula.

In this approach, it is of prime importance to maintain the historically inherited symbiotic relationship between the two systems typical of the historic attractor. By safeguarding and encouraging *the potentials* (conditions that enhance Spiritus Movens) and by determining and eliminating *the problems* or conditions that hinder it by promoting a harmful environment, the Luštica peninsula will have an opportunity to grow and evolve into a safe, proactive and healthy site for all interdependent systems involved without abandoning its rootedness. The Ecology Map of Luštica (**Fig. 2.96**) clearly distinguishes the zones of potential from the problematic areas of the peninsula.



St. Hariton Church in Gornji Klinci

Fig. 2.96

This image epitomizes the present Luštica's condition as being both profoundly potent and increasingly problematic.

This church represents a valuable heritage building set in a powerful natural location, isolated and left to dissipation and the time erosion.

Ecology



Legend

- Sewage drainpipe location
- Quarry zone
- Military zone
- NATO bombed area
- Conflict zone
- High erosion zone
- Garbage Depot
- Fire in 2003
- Urban sprawl
- Ambience locus
- Beach area
- Attractive zone
- Cave/Grotto location
- Very old olive trees
- Potential area for marine culture
- Good bathing water quality
- Excellent bathing water quality
- Lunga mare
- Piled stone walls - medje
- Adriatic Sea

Luštica Ecology Map
Fig. 2.97

1:30,000

An unique situation of Luštica's ecology is primarily owed to a special integration of natural and anthropogenic elements. Problematic areas are sporadic and somewhat negligible in comparison to vast, ecologically unspoiled areas of the peninsula. Aside from the quarry zone, environmentally disturbing are the urbanized areas around Rose, Krašići, and Radovići, and increasingly tourism-strained zones around Mirište and Arza (see Pg. 263). The potential lies in the symbiotic integration of natural and cultural systems and healthy utilization of natural resources such as sustainable land cultivation and eco-tourism.

**Luštica and its
*Spiritus Movens***
long term attractors

A House in the rock, Bijelila
Fig. 2.98

A symbiosis between man and nature is rooted in old building traditions which were not only climate responsive but also site specific



Before new rapid changes started to occur approximately 10 to 15 years ago, Luštica was in a state of dynamic equilibrium between the natural and cultural activity for many years. Village people, the only inhabitants of the peninsula, cultivated the land, raised cattle, nurtured vineyards and olive groves producing enough goods for their own local needs. They dwelled modestly, lightly, and hence, in an environmentally sustainable way. They lived in accord with a natural organization of life and its laws, the same way their ancestors had lived for centuries.

*Old Stone Olive Mill in the
basement of a house in Zabrđe*
Fig. 2.99

The image illustrates one of a few old stone mills, still in use. It has been graining olives for more than three centuries and only recently its use has started to diminish gradually



By building climatically responsive buildings and by cherishing old traditions of carpentry, stone craftsmanship, fishing, sailing, olivery, and wine making, they have established a historical balance with the natural laws and principles of the site, while cherishing old cultural traditions inherited from their ancestors. Such a long term attractor is represented mostly by these vernacular practices preserved and rooted in local customs and traditions.

At the same time, much of the Luštica peninsula remained an intact environment, left to be governed by natural self-organizing systems. The sea water was crystal clear, clean, and pollutant free. During the summer the beaches were lightly occupied, mostly by locals or an occasional tourist on a field trip. Minimal infrastructure also did not impede with the needs of the locals. Narrow, one-lane roads, some dating from the end of the 19th century and many still unpaved, served the purpose of the light traffic of the local population. The air was also clean because there were no excessive vehicular air pollutants. The off-coast condition was similar. Bucolic scenery predominated the inland with scattered old stone houses grouped in small villages, isolated churches, and a profusion of dry stone walls. Centuries-old olive groves, vineyards and cultivated land grew in harmony with the surrounding native macquis vegetation and the undulated rocky terrain. The entire built environment was surrounded and permeated by nature. They complimented each other and co-existed symbiotically.

Unfortunately today, after almost two decades of modernization, only fragments are left of the once healthy biotic and cultural attractor. Old building traditions are being increasingly neglected. Other vernacular practices such as traditional carpentry and stone craftsmanship are almost completely forgotten as they are being gradually substituted by new technologies. Nonetheless, the old, long term underlying conditions have been strong enough to maintain the balance between the built and natural environments. They sustained the original symbiosis in the development of the two systems. If adequately protected and fostered, these desirable and positive conditions of unthreatened ecosystems and their remaining fragments represent the potential necessary for the future healthy evolution of the peninsula.

"Man is a product of nature. He has been created according to the laws of nature. If he is sufficiently aware of those laws, if he obeys them and harmonizes his life with the perpetual flux of nature, then he will obtain [for himself] a conscious sensation of harmony that will be beneficial to him."

Le Corbusier, Paris 1967

Historical Conditions
Fig. 2.100
View of the back stone terrace
with wine trellis of an old house
in Zabrdje



Historical Conditions
Fig. 2.101
View of the old stone house in
Bijelila, built on a small island.
The image suggests the idea of
historic symbiosis of natural
and man-made elements.





Historical Conditions

Fig. 2.102

St. John's church in Žanjice,
and the surrounding context.

It is believed that the church
was built on the foundations
of an old basilica from
the Byzantine period.

[Crnogorčević, *Churches in Luštica*
Pg. 9-10]

An Urban Locus

Fig. 2.103

The coastal hamlet of *Rose* and its historic nucleus. Since Roman times, this area has been frequently occupied



St. Nicholas Church in Radovanići

Fig. 2.104

The oldest church in Luštica and one of the oldest in Boka Kotorska, is believed to be built in 13th century, although the oral tradition suggests that it was consecrated by *St. Sava*, the first Serbian Archbishop in 1117. [*Crnogorčević*, Pg. 4]



A Rural Locus

Fig. 2.105

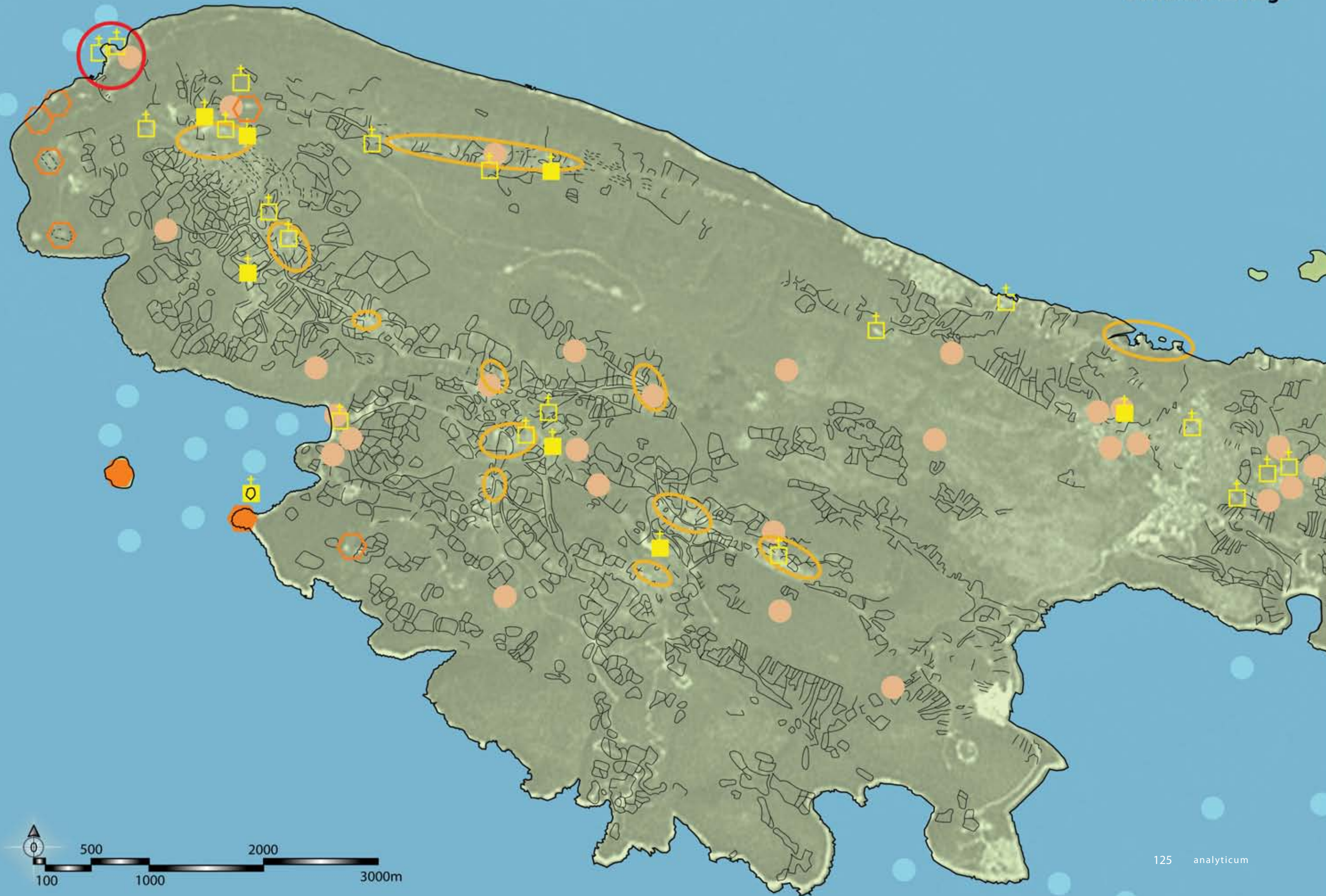
The village of *Mardari* - a typical agglomeration of old stone houses occupied by the same family usually comprised of several generations living together













Cultural Heritage Map of Luštica

Fig. 2.105 (opposite side)

Cultural Heritage



Legend

-  Protected sacred monument
-  Protected fortification monument
-  Recorded sacred monument
-  Recorded fortification monument
-  Recorded archaeological site
-  Marine archaeological site
-  Urban ambient locus
-  Rural ambient locus
-  Piled stone retaining walls
-  Adriatic Sea

Luštica Cultural Heritage Map
Fig. 2.106

1:30,000

Both archaeology and the mapping of the cultural heritage confirm rich layering over the course of four millennia of human activity in the area. Aside from burial mounds, the network of stone walls is one of the first and still prevailing cultural imprints on Luštica. Invaluable cultural wealth is preserved in the form of numerous Orthodox churches dating back to the medieval period. They were spiritual and cultural hearts of the surrounding village complexes which also represent a cultural heritage worth protecting and enhancing. The fortifications on Luštica are the most recently built edifices but equally potent and valuable as cultural inheritance.

A New Luštica Pathology a modern attractor of recent origin

A New House in Zambelići

Fig. 2.107

The image reveals the problematic character of new constructions. With no site integration, with no consideration to traditional building techniques and with no climatic response these buildings rather promote a modern *Tabula Rasa* approach



An attractor, like the historical balance between nature and culture on Luštica, becomes destabilized once exposed to a new set of external factors. After its equilibrium is disrupted, an ecosystem inevitably seeks ways to recover it by adapting to the newly imposed underlying conditions. Such a basic theoretical ecosystem scenario precisely portrays the current situation of the ecosystems found on the Luštica peninsula. A new attractor has started to appear as a result of drastic and rapid changes in the realm of the built environment and modern tourism. Logically, the natural, unbuilt environment has also become affected. Since this attractor has already emerged and is currently being integrated into the dynamics of the peninsula's ecosystems, the modernization pressures for the entire bay region are termed as modern conditions of recent origin.

Regrettably, such underlying conditions which affect Luštica today mirror the same conditions which many coastal regions of the Adriatic and Mediterranean are dealing with at present. These conditions lead Luštica's system and its environment into an unpredictable, unstable and above all, environmentally threatening future. They represent an undesirable and negative attractor. As such, the following conditions in this section constitute the problems that Luštica currently experiences. They require a proper diagnosis and healing solutions in order to ensure a healthy evolution of the peninsula's ecosystems and the overall environment.

"Our ultimate failure as humans, is to become not a crowning glory of the earth, but the instrument of its degradation."

**Thomas Berry,
The Dream of the Earth**

1. Uncontrollable Urbanization

Even though Luštica is geographically quite isolated from other parts of the Boka Kotorska bay and the rest of the Montenegrin Littoral, its current and predominately rural condition shares similar problems with more urbanized parts of the surrounding coastal region. Popular summer vacation homes and cottages are being built rapidly every year without zoning or building permits, and often without established urban plans. Motivated only by speculation, and with no professional assistance, the owners are usually completely unaware of many threatening consequences of their actions. Following this trend of hyper tourism, besides residential houses, many other tourism building types are being constructed such as bars, cafés, restaurants, and hotels, all without a much-needed professional vision of an urban plan. The roots of this problem partly lie in the politics of the former Yugoslavia, its tourism techniques and the overall economic policies of a post-war socialist and nonaligned-nation. The current government, seeking tourist revenue, is also partly responsible for not taking any measures, or perhaps ones not strong enough to resolve or to control this negative phenomenon.

The Coastal Town of Krašići

Fig. 2.108

The image portrays the urban density of both planned and unplanned buildings along the coast of the peninsula. These are mainly seasonal residences built as a result of a recent booming of tourism in the area



The problem of lack of government will is exacerbated by lack of a proper legal body that would ensure adequate implementation of its by-laws and control urban-growth particularly that affecting the immediate coastal areas. Presently Luštica is experiencing unauthorized privatization of beaches and public land immediately adjoining the sea, especially in the coastal hamlet of Rose and its growing urban surrounding. Although the narrow bands of land next to the sea are under the legal provisions of the government organization of “Morsko Dobro” that protects, controls, and develops these natural or built areas, there are many situations when these otherwise publicly accessible areas become illegally fenced and privatized. Not only does this prevent responsible public actors, in this case the “Morsko Dobro” organization, to provide a consistent, environmentally conscious and consequently desirable coastal development in these built areas, but it also breaks the continuity and integrity of this delicate band of land bordering the sea.

Problematic Urbanization
Fig. 2.109-2.112
 The images show the current building practices in the area. They are characterized by a complete neglect and disregard for the pre-existing site conditions, natural environment and the overall inherited potential.



Next to an uncontrollable sprawl of privately managed public properties and illegal privatization of public beaches and coastal areas, another problematic issue is the creation of what is here referred to as a 'tomato tourism' syndrome - an informal but generally accepted term in the economics of the region. This term is associated with several descriptions. The first one implies a complete anarchy pertaining to an independent, unofficial and hence unauthorized market run by individuals who set up mobile 'shops', usually small stands, selling merchandise to tourists. More often than not, especially in the recent past, a mobile shop included only a cardboard box that served as product shelves (or any other improvised stand). If cold drinks or fresh fruits were sold, freezers were often used. Therefore, tourists could buy virtually any goods on the beach, including vegetables such as tomatoes (hence the term 'tomato tourism'). The sellers would usually walk along the beach, along the promenade or sea water front or localize in one place for some time.

Aesthetic appearance and lack of market professionalism aside, there is a positive connotation to this syndrome. Seemingly chaotic, unsupervised and unprofessional, tomato tourism carries a certain charm. It adds a special flavour to the region, to a particular mentality and culture, and is what distinguishes this place from many other tourist regions worldwide. Resembling the practice of bargaining in countries such as Greece and Turkey, this non-conventional situation symbolizes a local custom and integral part of everyday local commerce.

By contrast, however, there is yet another, more problematic description of the same syndrome. It refers to the situation in which tourists bring their own goods to the beach even though there are restaurants and other food facilities to serve their needs. Sometimes they bring along full meals and even vegetables such as onions and tomatoes. Consequently, there are many tourists who picnic in the middle of the beach where no picnic setting is available or prescribed. Besides obvious economic drawbacks for the local business owners, this 'popular' but undesired syndrome, without any supporting planning or facilities, directly increases litter and pollution of beach areas and the sea. The cause of both scenarios could be traced to the economic turmoil of a war-torn country where standards and financial struggles do not allow most domestic tourists to afford alternatives.

"Money is our measure, convenience is its cohort, the short term is its span, and the devil may take the hindmost is the morality."

Ian McHarg
Design with Nature

2. Dilapidation of valuable monuments

Probably, the most problematic issue concerning the built environment on Luštica is the dilapidation of historically valuable monuments. Several building typologies are being compromised by severe disregard and decay. The first are the deserted old village houses most of which are left empty due to another negative condition, the continuous migration of rural population towards urban centres. Many are centuries-old, representing a valuable cultural heritage. A large number of the houses is in a dilapidated state also because of the powerful earthquake that hit the entire region in 1979, leaving many in complete ruins. Some, however, have simply been neglected and left abandoned for ages.



Village houses in Mrkovi

Fig. 2.113

The image shows an abandoned stone house with no roof and its front courtyard, both in a very neglected and dilapidated state. Yet to the left is another building complex, occupied and fully functional. This condition is typical for many villages throughout Luštica's inland.

The second type of monuments in crisis is a group of Orthodox churches. Most of them were built in medieval times, some as early as 13th century. They are in a slightly better condition than the village houses. This is partly because they have been more frequently used - some were even renovated - but most importantly, because these sacred monuments symbolize the Serbian Orthodox religion and small community centres of cultural heritage. The lack of financing, however, and absence of proper care and maintenance due to a population decrease, leave these invaluable heritage monuments in danger of being completely neglected and exposed to the mercy of time erosion.



St. Hariton Church in Gornji Klinci
Fig. 2.114
 This is the only church in Luštica that is completely neglected and non functional. Its ruinous state seeks immediate attention.

A third group of valuable monuments left in complete state of neglect are military artifacts. Most are fortifications built at the end of 19th and the beginning of 20th century by the Austro-Hungarian army that had control over the region. All of them share the destiny of the aforementioned monuments; they are dead and ruinous objects that currently serve no function; left to natural processes of overgrowing and the ultimate decay; yet they still carry a great potential for future use and occupation.*¹¹

**¹¹ a more comprehensive description of a ruinous state and other more specific issues regarding the fortifications on Luštica can be found later in the book - Chapter 4*



Fort Mamula and Mamula Island
Fig. 2.115
 Built at the end of 19th century this fortification has no current occupation. It has been abandoned for more than 60 years and is now completely overgrown with vegetation. [refer to Chapter 4]

3. Pollution and destruction of natural environment

Another aspect influenced and directly related to uncontrollable urbanization and expansion of tourism on Luštica is the pollution of the natural environment. Unfortunately, it is an inevitable by-product of almost all human activities. Not only do tourists litter and pollute the environment, especially in the incipient resorts where proper cleaning and maintenance procedures are not yet established, but the irresponsible and often ignorant changes humans impose on the surrounding landscape and seascape disrupts local ecosystems. For example, the breeding ground for local, edible fish species coincides with the local scuba diving resort. As well, building the camp ground or a hotel complex in the middle of a nesting ground for local birds, or on the favorable location for migratory bird species, is irresponsible and threatening for the surrounding ecosystems. Any changes made without sophisticated systemic understanding of local ecosystems could cause irreversible and even fatal consequences to parts or to the entire natural ecosystems of Luštica.

Pollution and Litter

Fig. 2.116-2.117 (top)

The images show the sea pollution as a result of a complete disregard and irresponsibility of humans who constantly perceive the sea as a garbage disposal.

Fig. 2.118-2.119 (bottom)

These images show historically and economically valuable locations of *Krečane* that recently have been converted into garbage depots.



An additional example of disregard for natural systems and bio-diversity is excessive impoverishing of the natural marine resources, predominantly fish, squid and oysters. As tourism grows in Boka Kotorska, more produce is required and there appears to be no time for natural replenishing processes to take place, especially when the breeding grounds are being depleted as well. A more environmentally threatening specific problem is the practice of a fishing technique using under-water explosives. Although this kind of fishing is illegal, many fishermen continue to practice this traditional, yet uncontrollable and dangerous technique. Sadly, this activity not only excessively impoverishes Luštica's coastal fish resources, but it destroys their breeding grounds, and even worse, destroys the rest of what is known to be extremely rich marine flora and fauna at the bottom of the sea.

Throughout history Luštica's very prominent strategic location predestined its lands to constantly be under military occupation. Luštica's hilltops have been repeatedly used for defense and protection purposes, as well as military control over the entire Boka Kotorska Bay. Many old fortification artifacts, tunnels, and some other more recent modern constructions are scattered throughout Luštica. Ironically, on one hand, the military zone has hindered almost all activities on the peninsula and left many areas undeveloped, especially the western and southwestern parts. On the other hand, monumental military constructions and related activities have imposed a huge stress on the surrounding landscape unavoidably leading to pollution and disturbance of its natural ecosystems. At present, the Luštica area is in the process of demilitarization, meaning that military maneuvers or any other military activities that could further harm the environment are no longer performed.^{*12} Nevertheless, due to the fact that Luštica was still considered to be an active military zone in 1999, the NATO 'peacekeeping' campaign heavily and needlessly bombed some areas on the peninsula with depleted uranium, a dangerous radioactive substance. Contaminated areas, especially around the Mirište inlet and Cape Arza, experienced a very high level of radiation. Even though the decontamination process took place in the following years, the health level of affected areas is still debated in the public sector.

4. Military Activity

^{*12} refer to *The Fortifications of Luštica* in Chapter 4, for additional information on military activity



Heritage Park Luštica syntheticum



*“[Let this be] a personal testament to the power and importance of sun, moon, and stars, the changing seasons, seedtime and harvest, clouds, rain and rivers, the oceans and the forests, the creatures and the herbs. They are with us now, **co-tenants** of the phenomenal universe, participating in that timeless yearning that is **evolution**, vivid expression of **time past**, essential **partners in survival** and with us now involved in the **creation of the future**.*

*Our eyes do not divide us from the world, but unite us with it. Let this be known to be true. Let us then abandon the simplicity of separation and give **unity** its due. Let us abandon the self-mutilation which has been our way and give expression to the potential **harmony of man-nature**. The world is abundant, we require only a deference born of understanding to fulfill man’s promise. Man is that uniquely **conscious creature** who can perceive and express. He must become the **steward of the biosphere**. To do this he must **design with nature**.”*

Ian McHarg, Design with Nature





Genius Loci Diagram

Fig. 3.1

An intuitive sketch of the underlying factors that shape, influence and determine *Spiritus Movens* of the Luštica peninsula

A Park Proposal for Luštica

"For the moment, it seems, we have lost touch. Perhaps, before we can progress, we must look back. We must return to the fundamental wisdom of the gopher building a home and village and the beaver engineering a dam. We must apply the planning approach of the farmer working from day to day in the fields, fully aware of nature's forces, forms, and features, respecting and responding to them, adapting them to a purpose. We must develop a deeper understanding of our physical and spiritual ties to the earth. We must rediscover nature."

**John O. Simonds,
Landscape Architecture**

Based on the analysis of the Luštica peninsula, it is evident that many underlying conditions of recent origin do not lead towards the desired state of a culturally, economically, and especially ecologically thriving dynamic system. It has also been established that some remaining fragments of the old, long term, attractor should be conserved and recovered in order to keep the existing ecosystems in their desirable state. A strategic planning and design proposal should be recognized and created accordingly to permit the occurrence of these changes on the peninsula while ensuring a healthier and environmentally responsible future development. Derived directly from the search for Luštica's *genius loci* or spirit of the place, the proposed initiatives, on the most general level, should entail the preservation and strengthening of the *Spiritus Movens* and the conditions essential for its existence. At the same time, these initiatives should address specific problems and attempt to resolve them in consultation with Luštica's sense of a place.

Luštica's uniqueness needs preserving. The only feasible solution that could potentially deal with all complexities relevant to the Luštica peninsula and its past, present and future conditions, is a proposal for a Natural and Cultural Heritage Park. Aside from being heritage-oriented, the park should also be diagnosed as a multipurpose park because of a multitude of underlying factors composing the peninsula's invaluable rich character. Natural diversity, exceptional beauty, vegetation preservation, traditional cultivation of the land, rich cultural heritage in the form of abundant archaeological sites and historic edifices, are just a few examples of factors that comprise Luštica's complex layering. A park proposal, therefore, attempts to address all these issues in a very conscious, cohesive and integrative way, providing solutions for current problems and strengthening, as well as promoting existing healthy and beneficial conditions.



Heritage Park Luštica

Fig. 3.2

Proposed signage for Luštica Park derived from the existing National Park sign

Initially, the proposal for the Cultural and Natural Heritage Park Luštica has a strong incentive to maintain the prevailing centuries-old harmony between man and nature; to enhance and propagate this culture-nature symbiosis on the peninsula in sympathy with pre-industrial and pre-modern principles. It also aspires to restore and revive structures now in a ruin state, prevent their further dilapidation, and strictly control further urbanization. The park formation promotes ecological consciousness in an organized, purposeful and practical way by enforcing a healthy community development and sustainable living models. Similarly, it reinforces and re-introduces gradually dissipating ideas of stewardship, connection and engagement with the local environments, thereby facilitating a desirable process of understanding and re-discovery of nature and its principles. Ideologically, the park tends to reconcile not only man and nature but also man with man – to mediate between two opposing political regimes, capitalism and communism, by providing an economic prosperity, public services and community-oriented policies. In essence, the park strives for a successful future evolution of Luštica solely in accord with the already existing and authentic *Spiritus Movens*. This implies both conservation and development strategies which, in a deliberate, altruistic, naturalistic, and above all, adequate way, ensure the overall *health* and thriving of integrated cultural and natural systems and their inheritance.

Luštica as a Heritage Park

programmatic theme 1

Due to its unique nature, Luštica should be given special consideration when it comes to a park classification. According to its size, the peninsula should fall under the category of a National Park. Since its natural biodiversity and potentially exceptional ecological values are neither researched nor assessed yet, its known characteristics would logically put Luštica into the next category of protected sites in Serbia and Montenegro - Nature Reserves. However, this nomenclature of being a Nature Reserve is not appropriate as it does not address all the complexities and riches of the peninsula, especially not those with respect to its cultural aspect and present phenomena. Thus, Luštica aspires to be a new typology that is a combination of existing park categories. This hybrid acquires the title of a *Natural and Cultural Heritage Park*. According to the definition of the park **Tá Cenc**, in Gozo, Malta, a Heritage Park is defined as:

“a relatively large rural area or wilderness area which contains features of outstanding archaeological, ecological, geological or landscape value significant enough to justify protection, to which restricted access is allowed for the appreciation of these features for educational, touristic or research purposes. The title Heritage Park carries with it the full responsibility for conservation, enhancement and interpretation of the natural, archaeological, and scenic resources of the area, emphasizing the indivisibility of the natural park and the archaeological park and thus the integrity of the natural and cultural heritage.”^{*13}

^{*13} *Tá Cenc Heritage Park, Gozo, Malta
Report and Management Plan
[Rick Haldenby, 1999]*



Heritage Park Luštica

Fig. 3.3

Stone walls and terraced olive groves typical for the Luštica hinterland are one of the natural/cultural features of traditional interaction between man and nature. It is a cultural heritage of a distinct character with significant aesthetic and representative value.

Although it is internally heterogeneous, Luštica has a general coherence based on its strategic location, geography and geology. It also has a predominantly undeveloped state of its natural environment. In addition to the evident consistency in natural conditions, there is also a cultural continuum that enriches Luštica enabling it to fall simultaneously under several IUCN (**The World Conservation Union**) classifications for National Parks and Protected Areas. Since the peninsula includes areas with *“one, or more, specific natural or natural/cultural feature which is of outstanding or unique value because of its inherent rarity, representative or aesthetic qualities or cultural significance”*, therefore by definition Luštica falls into **Category III - Natural Monument**: protected area managed mainly for conservation of specific natural features. It also could fall under **Category IV** as there is an *“area of land, with coast and sea as appropriate, where the interaction of people and nature over time has produced an area of distinct character with significant aesthetic, ecological and/or cultural value, and often with high biological diversity. Safeguarding the integrity of this traditional interaction is vital to the protection, maintenance and evolution of such an area.”* While the above definitions clearly reveal unique qualities of Luštica Park, they also hint towards a versatile and hybrid nature of its development, organization and management.

Luštica as a Multipurpose Park

programmatic theme 2

According to the IUCN Multiple Classifications:

*“protected areas of different categories are often contiguous; sometimes one category ‘nests’ within another. Thus many **Category V** (Protected Landscape/Seascape) areas contain within them **Category I** (Strict Nature Reserve: protected area managed mainly for science) and **Category IV** (Habitat/Species Management Area) areas; some will adjoin **Category II** areas (National Park: protected area managed mainly for ecosystem protection and recreation). This is entirely consistent with the application of the system, providing such areas are identified separately for accounting and reporting purposes. Although there are obvious benefits in having the entire area within the responsibility of one management authority, this may not always be appropriate; in such cases, close cooperation between authorities will be essential.”^{*14}*

The Luštica Park is clearly a multipurpose park. It promotes healthy living, environmental education, ecological consciousness, scientific research, leisure and recreation. It also allows for future sustainable development of the entire peninsula and its communities – culturally, economically, socially and politically. It is a place where people live, work, learn, teach, research, visit and spend their vacation. It is a place for contemplation, spiritual emancipation, meditation, introspection and mind-and-body-recreation. It preserves old, authentic traditions embracing new sustainable technologies for the improvement of natural and cultural environmental conditions. It advocates their mutual coexistence and maintains their inherited symbiosis. As a result, it aspires to become a new paradigm for sustainable development of sub-Mediterranean coastal regions, compromising thriving tourism economies and generally, cultural aspirations with a desired natural balance and management of healthy environments. Therefore, the park in its true nature represents a hybrid of bio-regional planning, ecological site development and evolution, as well as heritage park formation.

^{*14} these classifications and the forthcoming definitions are all acquired from the following web site: <http://www.geocities.com/Yosemite/3712/parkiucn.html>



Multipurpose Park Luštica

Fig. 3.4

Žanjice beach and its surroundings are no longer considered as a habitat, a nature reserve or a protection area since it has recently been under a tremendous impact of the urbanization and booming tourism which diminished its biodiversity and ecological potential. Presently, it's multipurpose quality involves a more culturally acceptable variety of purposes such as recreation, work, development and cultivation.

The etymology of the word *park* is important to ensure the precision in this particular nomenclature. According to the Oxford Advanced Learner's dictionary, the term park has several meanings:

- 1) a public garden or area of land in a town where people go to walk, play, relax, etc.
- 2) an enclosed area of land, usually with fields and trees, attached to a large country house.
- 3) (in compounds) an area of land used for a particular purpose: an industrial park (See also amusement park, ballpark, car park, national park, safari park, theme park)
- 4) a piece of land for playing sports, especially basketball.

The Luštica Park would fall in the category of national parks, that is, an area of land used for a particular purpose. In the scenario of this work, however, Luštica has many purposes ascribed to its area of land: work, play, recreation, protected areas, restricted access areas, development areas, etc. Consequently, it signifies an area with multiple purposes - a multipurpose park.

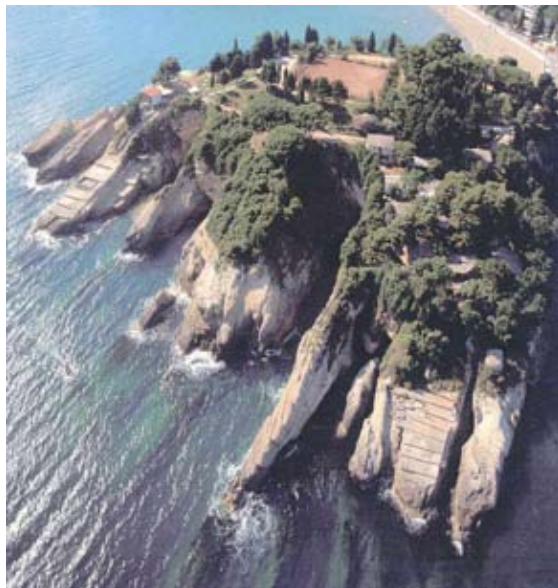
General Objectives

Given that a Heritage Park provision does not yet exist in the constitution and classification for protection and management of natural/cultural sites in Serbia and Montenegro, it is important to specify the principal purpose behind its formation. Before venturing into design and management policy of the Luštica Heritage Park, general objectives and specific goals have to be clearly defined to ensure the validity and credibility of its creation. The following stipulations, therefore, should be viewed as a principal set of rules whose realization is crucial for the successful fulfillment of the vision invested in Luštica's future. The major objectives for the Luštica Heritage Park proposal are:

- To determine the optimum occupancy load for the peninsula and design techniques for developing the park so it can serve as a self-sufficient mechanism for conservation, protection and development of its assets, i.e. to maintain the corresponding economic and ecologic sustainability
- To provide effective and efficient services and necessary resource utilization for local communities in Luštica encouraging their healthy thriving
- To promote education programs and greater appreciation by visitors of the values of the park and its heritage
- To design appropriate park infrastructure and adjoining facilities in accord with the desired enhancement of Luštica's *Spiritus Movens*
- To outline specific guidelines and principles upon which the park will be designed, organized, and managed

"[W]e belong here because human beings are part of the natural order, related to all other forms of life, responding to much the same laws, and no less dependent on a healthy and diverse environment. This condition of being part of nature brings with it certain responsibilities and restraints. To damage a system which allows an infinite number of life forms to coexist, to destroy what we cannot possibly replace, would not only be irresponsible, it would threaten our own survival. Therefore, the first of our obligations is to discover the laws of nature and follow them; we can then lead secure and creative lives and contribute to the well-being of the earth and its inhabitants."

J.B Jackson,
A Pair of Ideal Landscapes



Symbiosis of man and nature

Fig. 3.5

Image of the Montenegrin coastal settlement where natural and man-made elements are in tune with each other. It seems that nature was re-discovered first, and then enhanced by human interventions.



Symbiosis of man and nature

Fig. 3.6

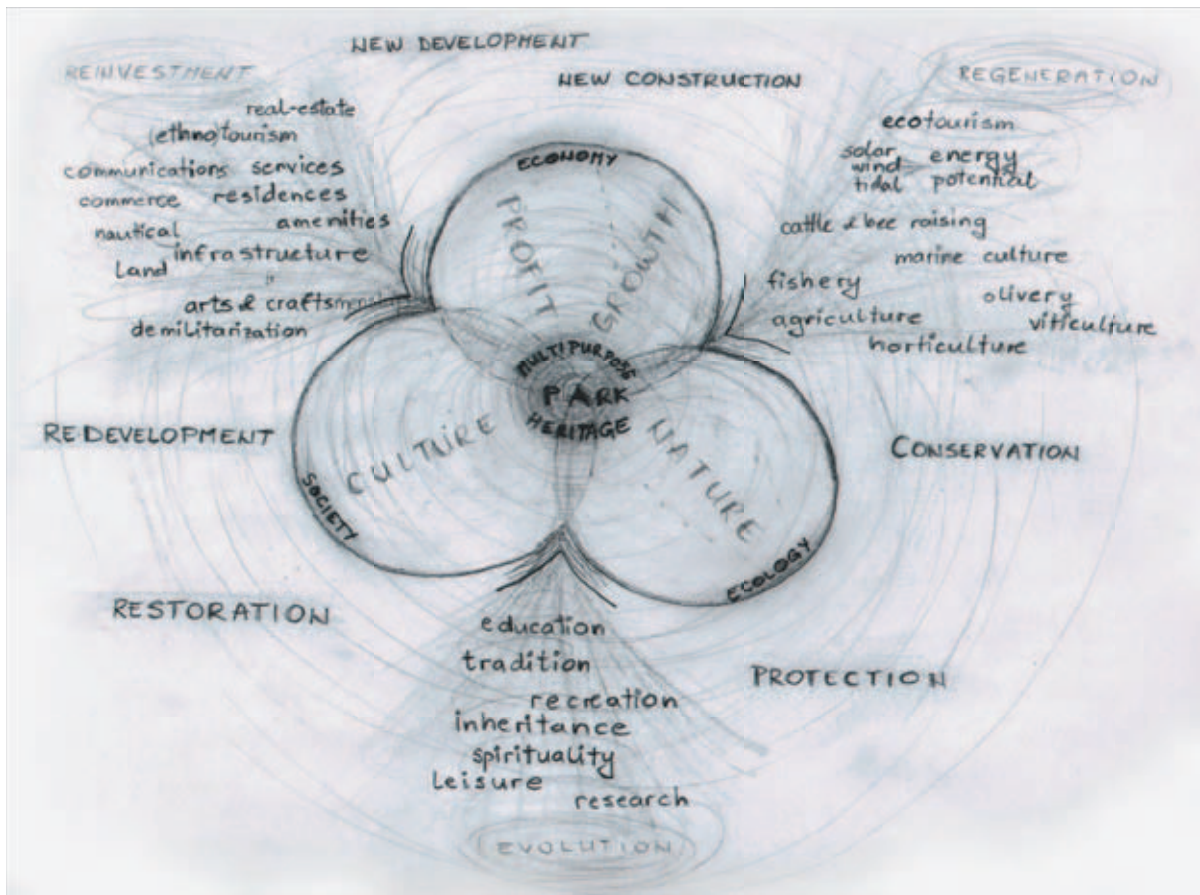
Image of the Montenegrin medieval town of Ulcinj. It appears as if a fortified walls and the entire town emerged from the local rocky terrain and the sea; natural forces complimented by human activity

specific goals

- Extending the *Spiritus Movens* of the whole Luštica site, by strengthening all the elements, natural and man-made that promote its character, and eliminate those that hinder it
 - ▶ Building regulations pertaining to building size, height, typology, materiality, building practices and technologies, purpose (zoning)
 - ▶ Policies/ guidelines for urban development control - and a site master plan
 - ▶ Bylaws and bylaw enforcement to prevent privatization of public coastal areas, beaches, water fronts - the unique relationship between areas of historic man-made development and its natural surroundings

- Propose specific conservation areas as highly protected park-like territories or natural reserves with little or no human activity allowed in order to preserve existing ecosystems, endemic beauty, serenity and the overall naturalness

- Detect potential areas for further urban and tourism development, allowing its growth, with responsible provisions in accord with a priori understanding of the complexities pertaining to each sub-region and its evolving ecosystems [*refer to Multipurpose zone C of Re-development areas, Pg. 164*]



Conceptual Diagram for the Luštica Heritage Park proposal
Fig. 3.7

An intuitive sketch of the primary systems in interaction. Ecological and environmental (cultural and natural) sustainability as well as the overall healthy future of the peninsula could be achieved through integration and dynamic balance between the three influential spheres

- ☐ Propose a heritage park stressing the preservation of the peninsula's identity consisting of natural and man-made elements and their co-existence
- ☐ Identify endangered endemic species and stipulate measures for their protection and that of their habitats – both land and sea
- ☐ Safeguard historic monuments from maltreatment and destruction through:

 - ▶ Urban development under the regulation of conservationists and urban planners
 - ▶ Renovation proposals for dilapidated historic sites such as forts, with potential for new use in sympathy with the site's *genius loci*
 - ▶ Co-existence of tourist and conservational principles for economic progress of the area

- Promote educational prospects to integrate natural beauty and historic heritage into the life of the region
 - ▶ Encourage music festivals and similar events as a way of promoting the scenic beauty and serenity of the area; apply measures for safeguarding the surrounding environment and pollution prevention during the events
 - ▶ Raise public awareness with campaigns pertaining to the issues of ecology on the peninsula and its historic layering through reorganized and reformed tourism
 - ▶ Organize workshops, summer schools and similar educational models to sustain local customs and enhance the cultural inheritance
 - ▶ Foster the revival of traditional artistries such as olivery, viticulture, carpentry, stone and lime production

- Migration mitigation and potential population increase
 - ▶ Create competitive work opportunities based on agriculture, marine-based economies, and tourism to prevent people from moving to more urbanized areas and city centres
 - ▶ Attract new inhabitants with the revitalization of old villages and rural centres
 - ▶ Regulate land use especially for new land owners: annual planting of olive trees should be mandatory for every house hold as well as the land cultivation throughout the year
 - ▶ Limit seasonal housing and educate cottage owners in a land-stewardship ideology vital for the life of the peninsula

☐ Traffic and pollution initiatives

- ▶ Maintain low motorized traffic volumes, i.e. no unnecessary widening of roads; reduce pollution, noise and disruption of local natural systems
- ▶ Provide alternative terrain vehicles powered by solar energy (UV carts, vans and even smaller busses for local transportation)
- ▶ Provide a system of trails and tracks to enhance pedestrian access and circulation throughout the peninsula; priority should be given to the existing, facilitating new ones
- ▶ Create *buffer zones* between the international airport and the research site (relocation is impossible due to limited flat areas of the region necessary for the operation of the airport).

“Walking is the great adventure, the first meditation, a practice of heartiness and soul primary to humankind. Walking is the exact balance of spirit and humility.”

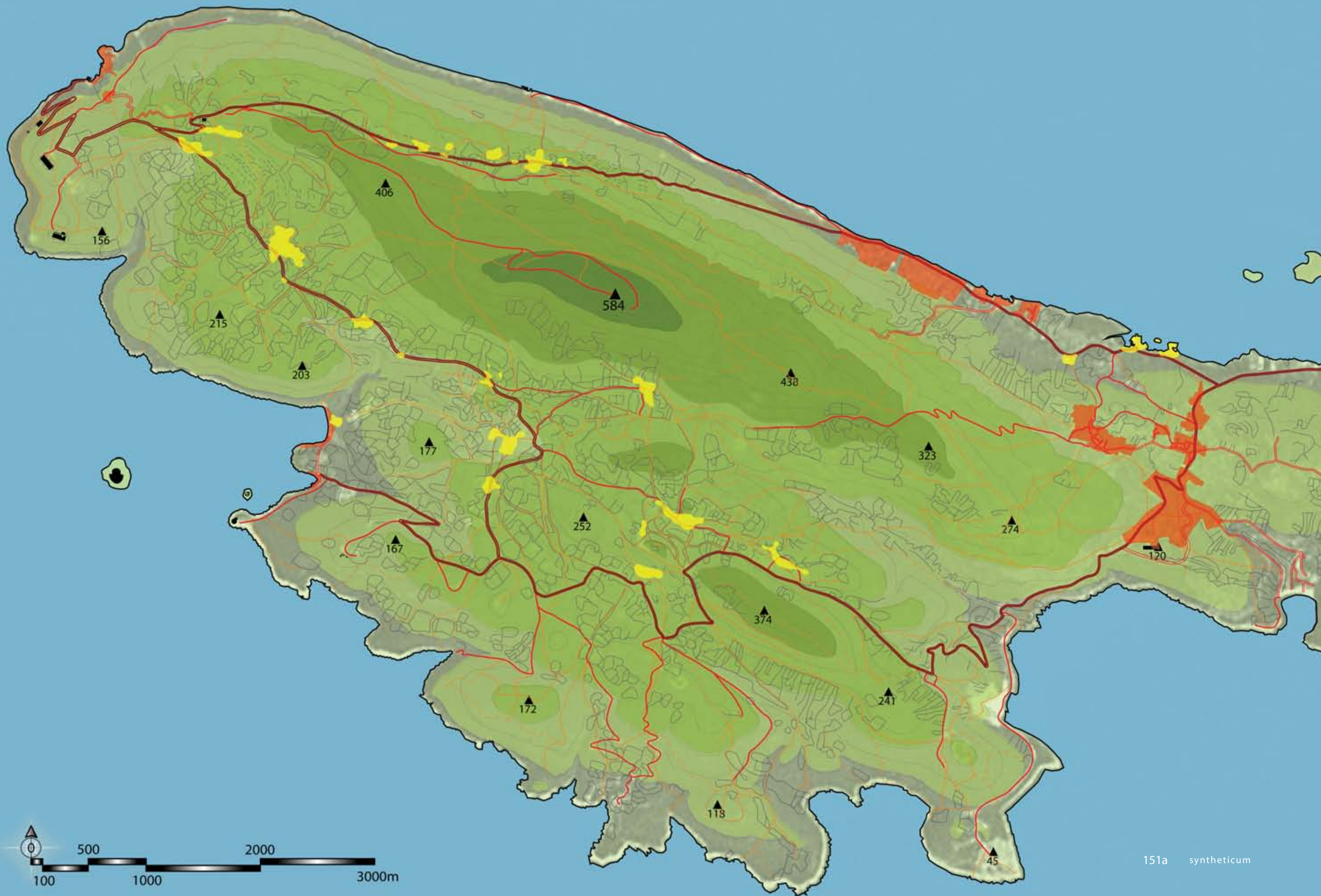
Gary Snyder
The Practice of the Wild

- ☐ Integrate individual building elements and monuments, and sites, into one interlinked infrastructure. Ensure the connection of various heritage sites, and no access to areas designated for wild life preservation and strictly protected natural reserves

Spiritus Movens Revisited

composite mapping

This section focuses on the portrayal and re-capturing of important attributes of the *Spiritus Movens* and its propensities from the previous chapter. They are directly or indirectly addressed in a set of composite maps with the main purpose of illustrating the process of concept development and goals behind the Heritage Park design. The following maps should be seen as a prerequisite for understanding the hidden relationships between various components and elements comprising the Luštica Heritage Park and its *Spiritus Movens*. However, the maps are not in any particular order nor do they show all possible ways of superimposing different elements. They are presented here merely to exemplify the method for integration and synthesis of influential factors and their potential.



Composite

Built Environment

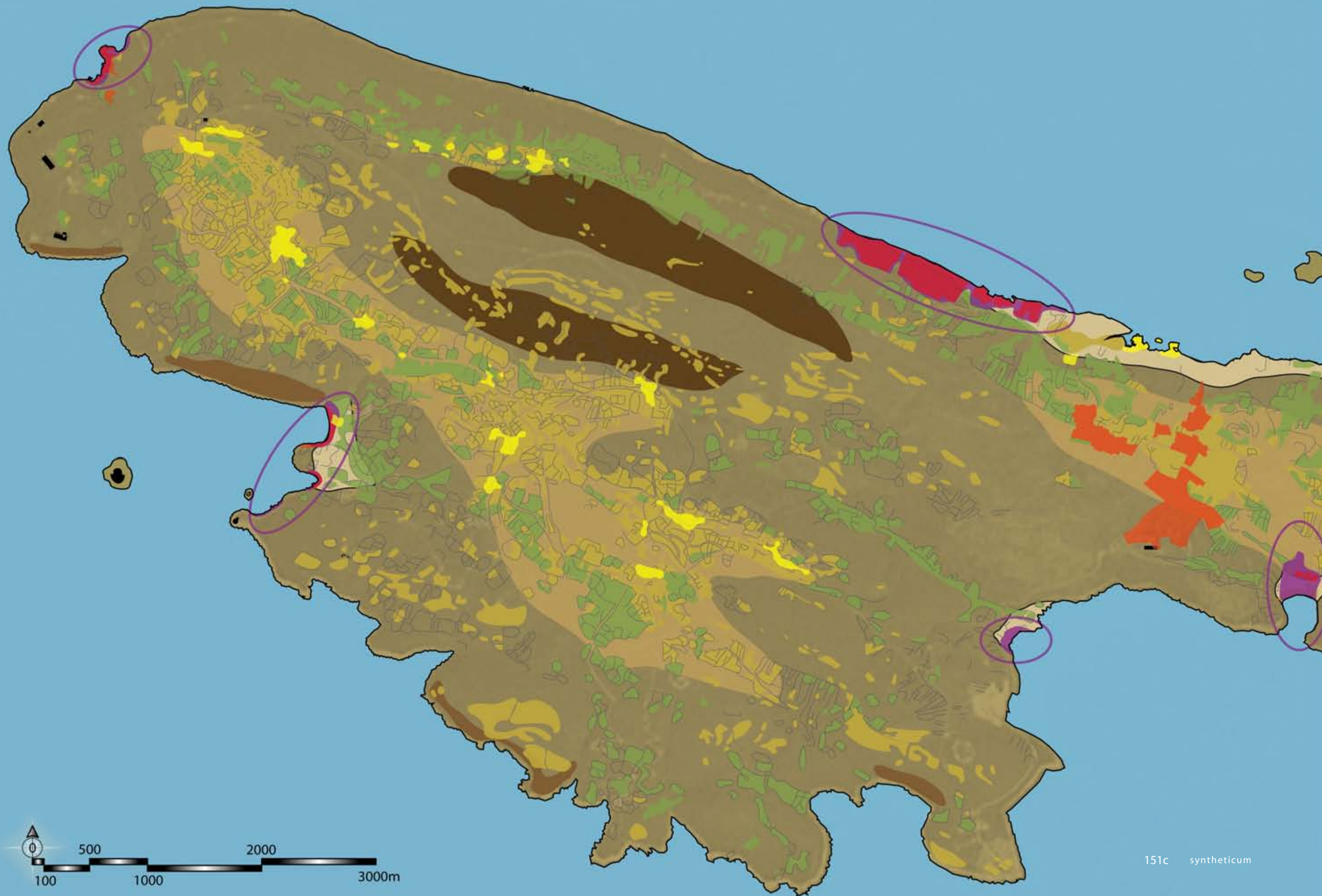
Infrastructure

Topography

Luštica Composite Map 1
Fig. 3.8

1:30,000

The topography of Luštica has significantly influenced the historical development of its built environment and infrastructure. Aside from coastal settlements of Rose and Krašići, the majority of old villages were formed in the central planes and valleys between the hill tops. A major road was developed to connect the village nuclei; it primarily extended along the topographic features. Although a network of stone walls appears irregular and chaotic, it is more intensified in the central areas of the peninsula and around the villages and arterial roads.



Composite

Built Environment

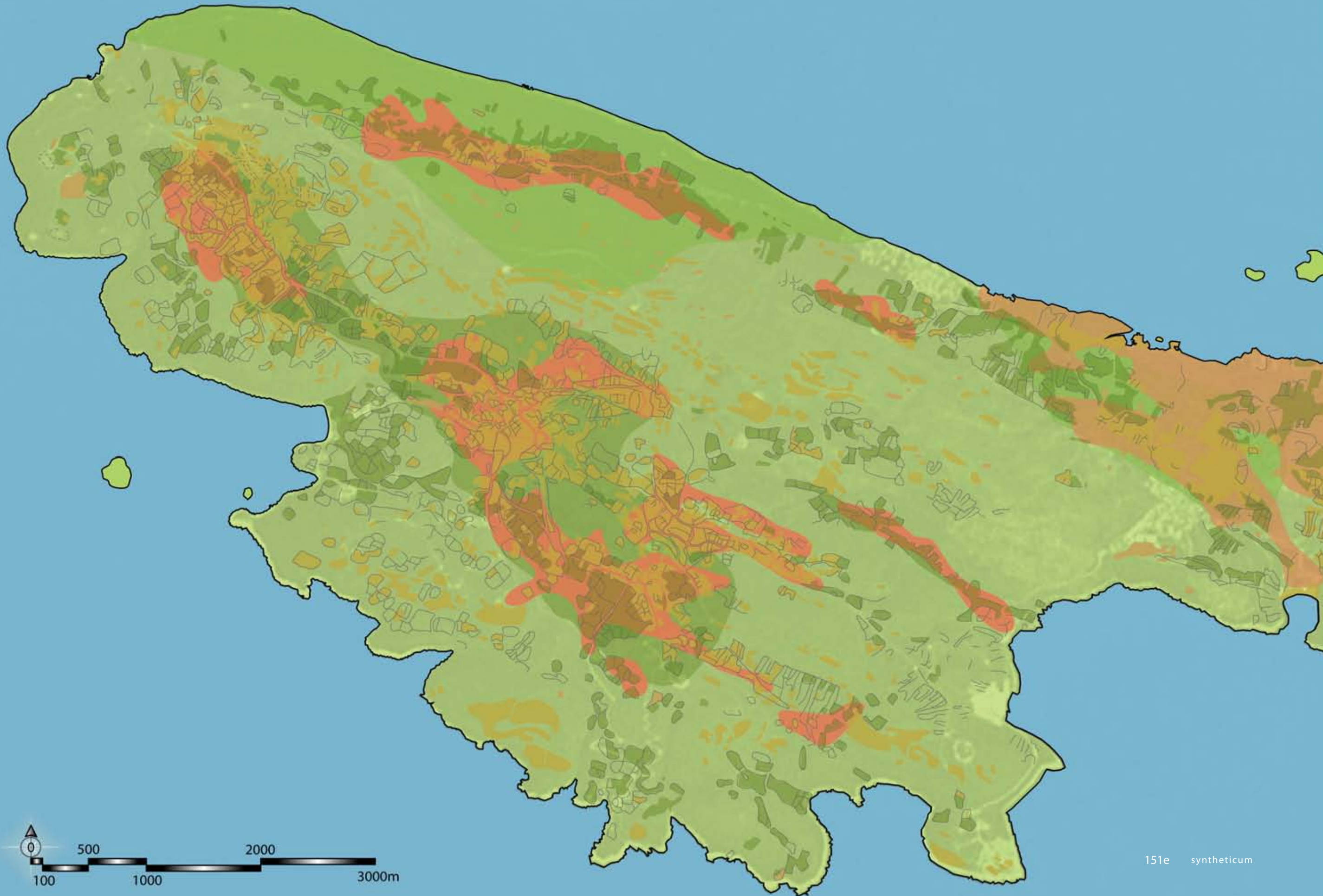
Land Coverage

Physiography

Luštica Composite Map 2
Fig. 3.9

1:30,000

The physiography of Luštica has significant impact on the land coverage distribution and typology. The majority of cultivated and settled land occupies inland valleys and fields with a gradient slope of 0%-15% (central and western parts of the peninsula), while coastal flat lands and beaches are predominantly tourism-oriented, urbanized areas such as Rose, Žanjice and Krašići. The remaining undulated terrain with hilltops and a gradient slope of 15%-45% are mainly covered with macquis forests and scattered cultivated areas, with the exception of an elongated section in the northern part of the peninsula which is terraced and intensely cultivated around the village Zabrde.



Composite

Land Coverage

Soil Distribution

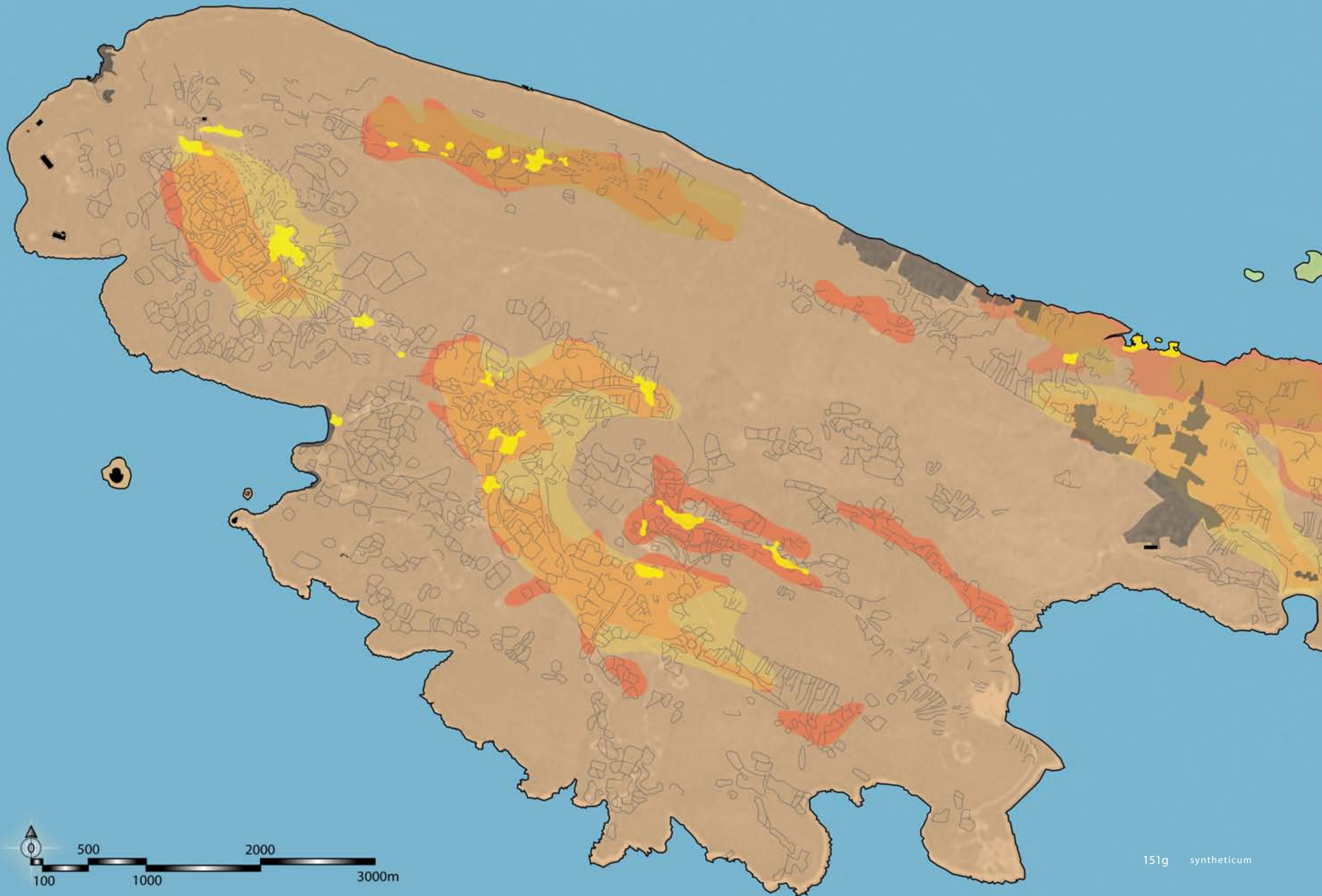
Vegetation

Luštica Composite Map 3

Fig.3.10

1:30,000

Cultivated land along with vineyards and olive groves tend to overlap with the most productive soil on Luštica (re-deposited terra rossa) especially in the area of Zabrđe (northern bend of fertile land). It is interesting to observe the congruence of these areas with specific vegetation species. Namely, the central inland and predominantly cultivated areas are covered with the semi-deciduous forest of oak and pistache, while the northern part of the peninsula, including the terraced cultivated land of Zabrđe is under Oriental Hornbeam and Sweet Bay tree forests.



Composite

Built Environment

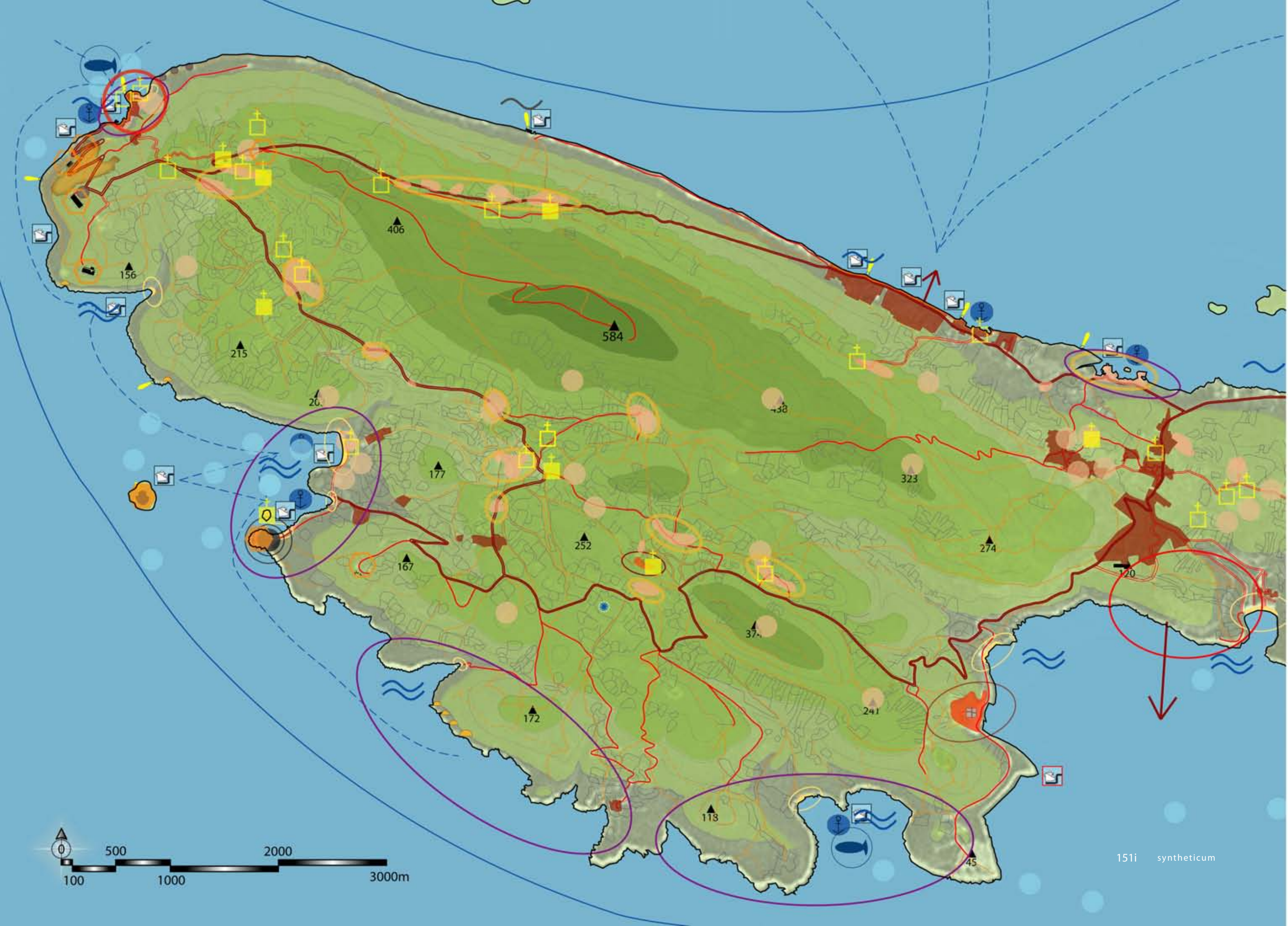
Land Use

Soil Distribution

Luštica Composite Map 4
Fig. 3.11

1:30,000

The majority of the peninsula's arable land corresponds with the most productive soil, re-deposited terra rossa. This shows how the central and western areas of Luštica were used and settled not only because of the flatness of the land but also because of the fertility of the soil. Similarly, the zone around the Zabrđe village directly corresponds to the re-deposited terra rossa soil. However, this arable land is used with restrictions due to steep slopes of the Obosnik hill.

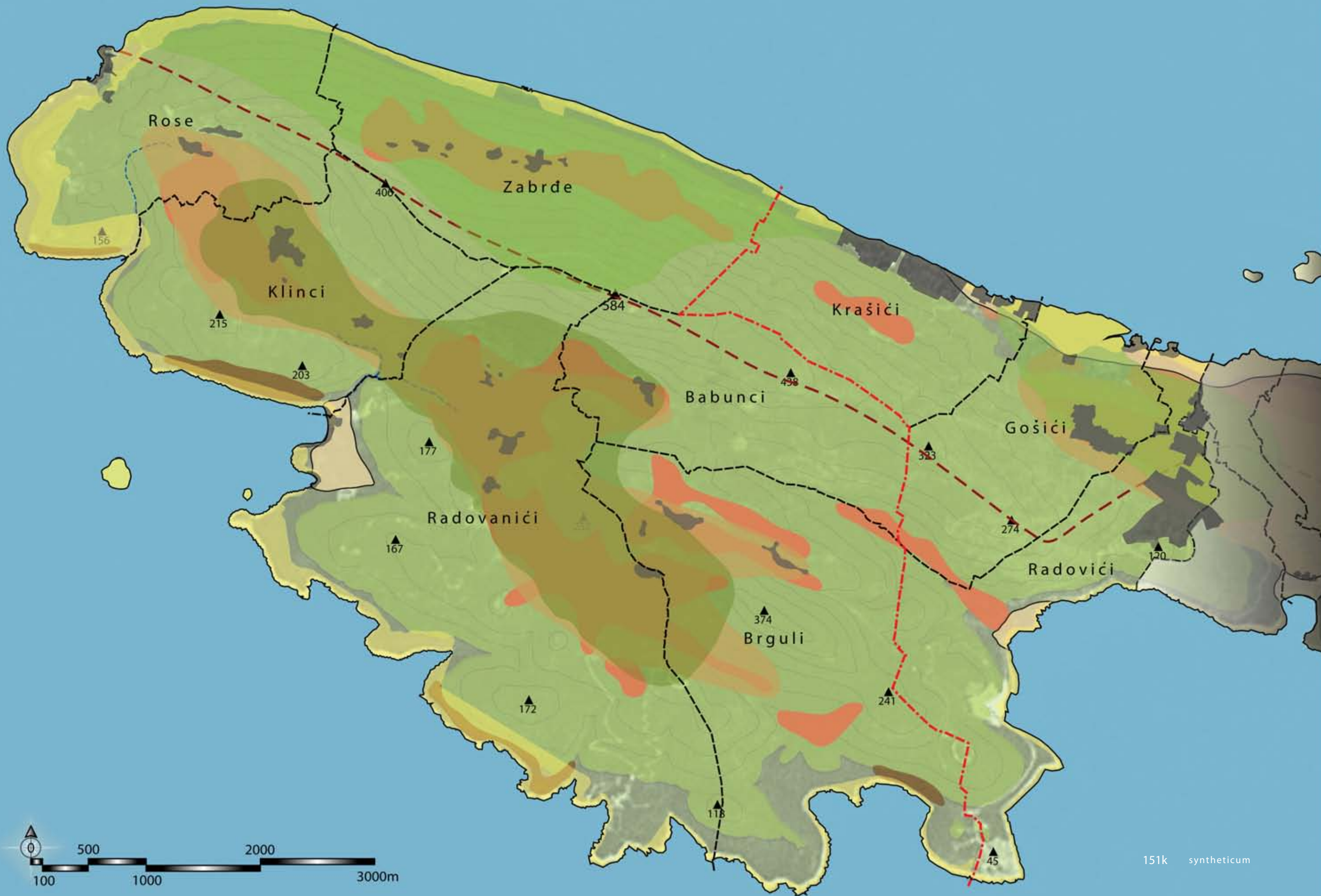


Composite

- Cultural Heritage
- Infrastructure
- Ecology
- Topography

Luštica Composite Map 5
Fig. 3.12
 1:30,000

Although heritage sites and ecologically important locations are mainly scattered around the peninsula, they appear organized and interconnected once an infrastructure network of roads, paths and trails is superimposed. Simultaneously, several culturally valuable sites are also topographically accentuated. A few isolated churches and Illyrian burial mounds are situated on prominent locations such as hill tops or natural belvederes. The most historically active areas with an important cultural inheritance harmonize with present attractive locations of intensely occupied tourist resorts (Rose and Žanjice). These coastal zones are also an ecological imperative, since they carry much potential while being very conflicting and problematic for the environment.



Composite

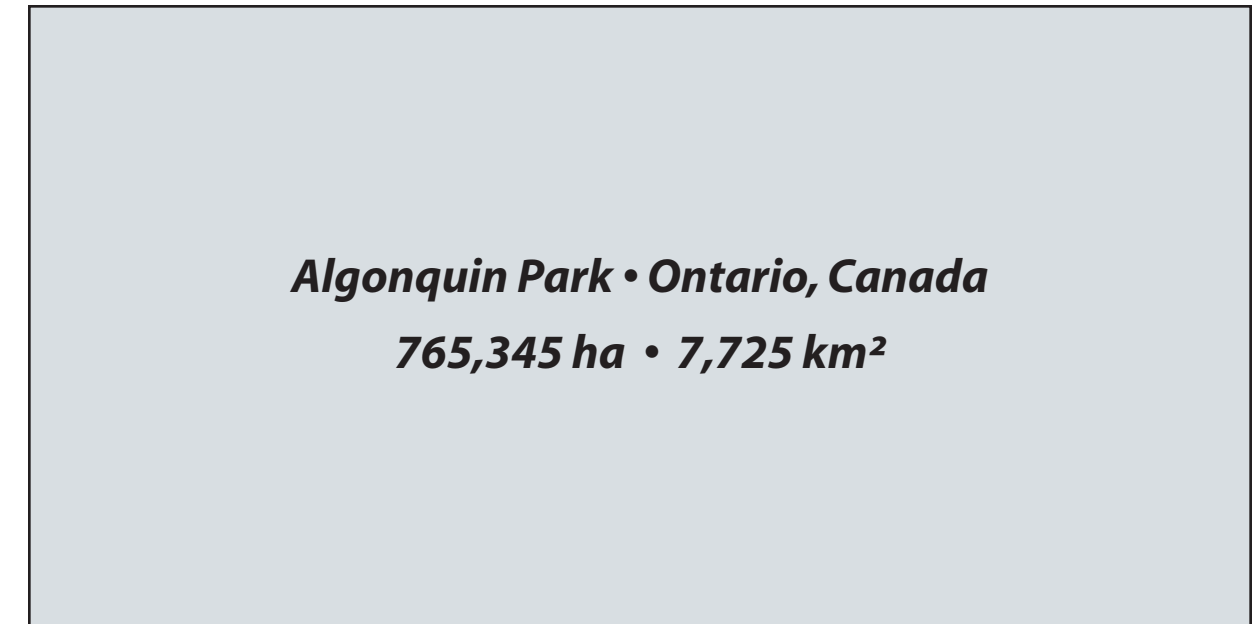
- Political Boundaries
- Hydrography
- Vegetation
- Soil Distribution
- Physiography
- Topography

Luštica Composite Map 6
Fig. 3.13

1:30,000

This map shows a clear distinction between man-made, political and natural boundaries created by hydrographic, topographic and physiographic predispositions and by vegetation and soil distribution. This overlapping characterizes the relationship between corresponding administrative management units (culture-based) and proposed alternative - landscape management units (nature-based) to be formed in relation to ecology and natural features of the peninsula.

Heritage Park Design
park size context



Park Size Context Diagram
Fig.3.14

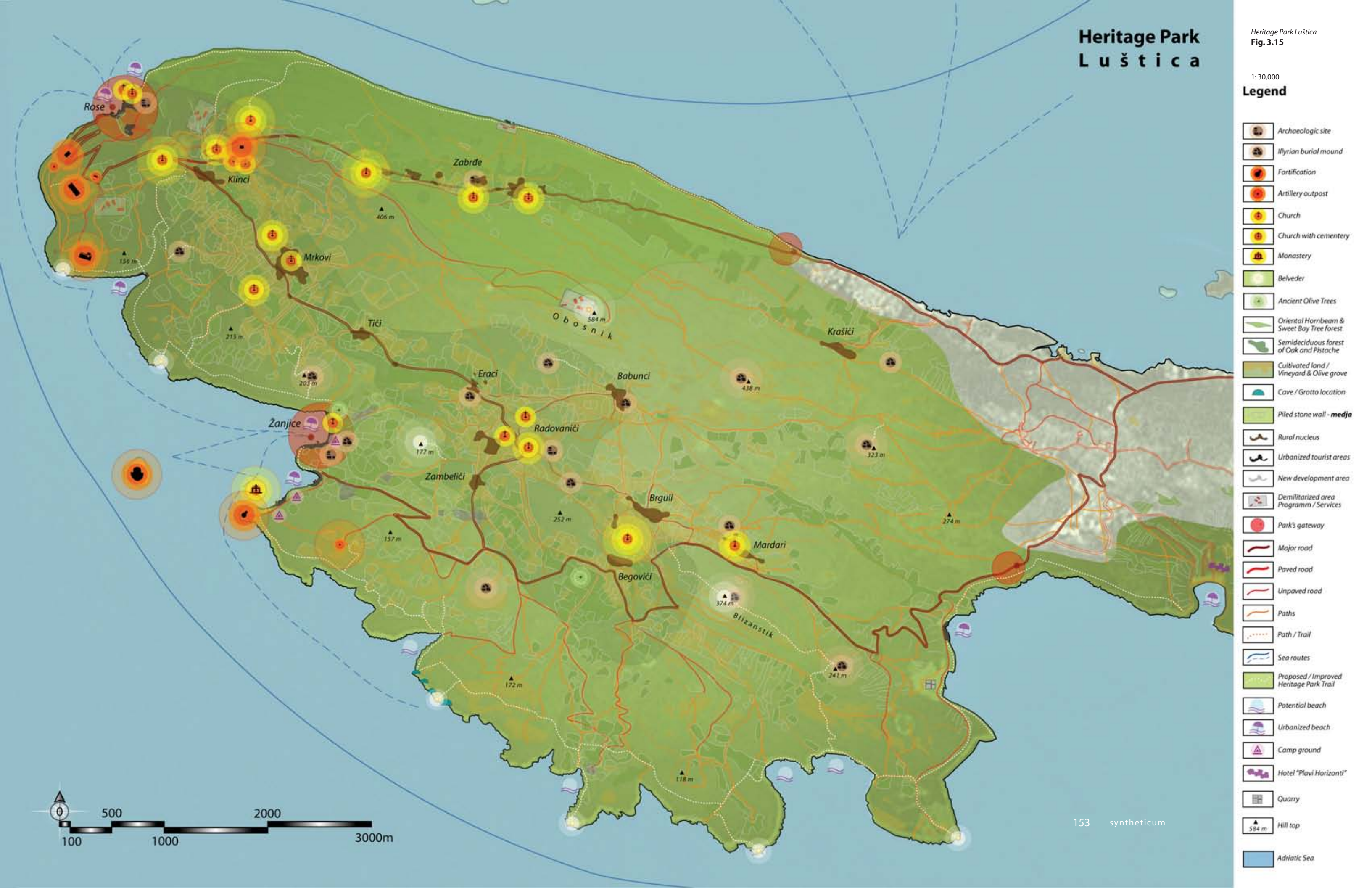
Heritage Park Luštica

Heritage Park Luštica
Fig.3.15

1:30,000

Legend

-  Archaeologic site
-  Illyrian burial mound
-  Fortification
-  Artillery outpost
-  Church
-  Church with cemetery
-  Monastery
-  Belveder
-  Ancient Olive Trees
-  Oriental Hornbeam & Sweet Bay Tree forest
-  Semideciduous forest of Oak and Pistache
-  Cultivated land / Vineyard & Olive grove
-  Cave / Grotto location
-  Piled stone wall - medja
-  Rural nucleus
-  Urbanized tourist areas
-  New development area
-  Demilitarized area Program / Services
-  Park's gateway
-  Major road
-  Paved road
-  Unpaved road
-  Paths
-  Path / Trail
-  Sea routes
-  Proposed / Improved Heritage Park Trail
-  Potential beach
-  Urbanized beach
-  Camp ground
-  Hotel "Plavi Horizonti"
-  Quarry
-  Hill top
-  Adriatic Sea



Prescribed Zones of the Multipurpose Park

organizing principle	description	location	regulation
Zones of High Protection A	nature reserves biodiversity / endemic species protection	ecologically sensitive zones • mainly coastal regions (sea & land, S & SE rocky cliffs of the peninsula) • highly erosive areas (Obosnik)	• restricted human activity • strict prohibitions on environmentally threatening activities (dynamite fishing) • exceptions: archaeological / scientific research and monitoring; isolated ascetic sites
Zones of Conservation B	cultural & natural monuments	individual monuments with a determined heritage value • scattered and/or grouped throughout the peninsula	• protection of locations with exceptional natural and cultural value (ecological, historic, aesthetic) • creation of <i>buffer zones</i> and natural corridors • record & report all non-protected monuments • design rules & regulations for their future use
Zones of Re-development C	revitalization renovation & restoration of natural and cultural areas	cultural • old villages • Orthodox churches • fortifications natural • areas under erosion • areas degraded by 1999NATO bombing & 2003 fire	• planting of original native vegetation (ancient) rejuvenation and rehabilitation of affected areas • creation of <i>buffer zones</i> and natural corridors • record & report all non-protected monuments • design rules & regulations for their future use • reviatlization precedents (old villages near Tivat)
Zones of Highly Limited New Development D	eco-tourism & controlled urbanization	• already existing structures & areas found throughout the peninsula (Rose & Žanjice) • locations with an incipient urbanization and a very few new areas predisposed for mixed rural & urban growth	• prioritize urbanized areas in accordance with General (GUP) and Detailed (DUP) Urban Plan • design and strictly implement specific architectural guidelines and regulations • consider new environmentally friendly community oriented and economically sustainable developments • site specific design (<i>Spiritus Movers</i>) based on succesful precedents (Sea Ranch, Dewees Island)
Zones of Cultivation E	agriculture olivery & horticulture	• mainly central in-land areas around old villages (areas of historic settlements) • areas of the best cultivation conditions (soil, physiography water and topography)	• old customs and traditional trades revival • implementation of new technologies based on mandatory consultation with past traditions • revitalization and reinhabitation of rural areas in accordance with re-development principles as perscribed for old village zones) • develop economic and sustainable models for increased and more efficacious production
Zones of Eco-tourism F	recreation leisure & vacation	• major tourist areas (Rose, Žanjice) - with higher yet controlled intensity • site seeing throughout the peninsula - lower intensity	• containment of threatening, uncontrolled urban sprawl driven by tourism • introduction of new tourism techniques, more sustainable and ecology-driven models: ethno tourism; educational tours; recreational facilities • creation of <i>buffer zones</i>
Zones of Future Enterprise G	research exploration & experimentation	• mainly in undeveloped and degraded areas of Luštica • coastal areas with rich marine biodiversity • around existing and new archaeological sites	• proposal for research centre within the Heritage Park (Marine, floral and faunal, archaeological) • stipulate procedures for constant monitoring of local ecosystems to ensure their protection and enhancement as well as the potential discovery of endemic and rare floral and faunal species • detect potent areas for experimentation

Table #5
Fig. 3.16
Multipurpose Zones of Luštica

Multipurpose Park Luštica



Legend

- Protection**
- Nature Reserve
- Sensitive Area
- Conservation**
- Cultural Monument
- Fortification
- Cultural Monument
- Church
- Natural Monument
- Ancient Olive Tree
- Natural Monument
- Cave / Grotto
- Re-development**
- Individual Monument
- Village Houses within Rural nucleus
- Demilitarized area Program / Services
- Re-planting of fire-deforsted area
- New development**
- Buffer zone / Low urbanization
- Area under DUP / Medium urbanization
- Urbanized nucleus / Intensive Tourism
- Cultivation**
- Primary Cultivated land Vineyard & Olive grove
- Scattered Secondary Cultivation land
- Piled stone wall - medja
- Major road
- Paved road
- Unpaved road
- Sea routes
- Adriatic Sea



Luštica Multipurpose Park Map
Fig. 3.17
1:30,000

“To protect nature and maintain natural processes in an undisturbed state in order to have ecologically representative examples of the natural environment available for scientific study, environmental monitoring and education, and for the maintenance of genetic resources in a dynamic and evolutionary state.”

Luštica’s natural areas encompass highly protected and ecologically important sites both on land and in sea places, where human activities are either highly restricted or prohibited, and depend on the given characteristics and conditions of each site. Such ecologically imperative sites that need to be preserved intact and free of any activity are bird nesting grounds, fish breeding grounds, especially in bays and inlets, and often terrestrial wild life habitats. Such sites are located mainly in the southern part of the peninsula, the Obosnik slopes, some coastal areas on the western part of the peninsula, eastern sections of the Bay of Trašte, and inland corridors, patches and smaller areas between villages, cultivated lands and road infrastructure.

- ▶ ‘Dynamite fishing’ and other environmentally threatening types of fishing should be strictly prohibited.
- ▶ Some exceptions to archaeological research on land and sea and scientific research can be allowed with restricted human activities (exploration of underwater caves-research and monitoring) or potential for isolated ascetic sites.
- ▶ Research local ecosystems and attempt their enhancement if necessary and where required (eg. Oasis experiment^{*15}).
- ▶ Constant monitoring and management of such areas [refer to respective sections further in this chapter].

*15 The Oasis idea represents a proposed experiment which would provide water retention intervention at a specific site on Luštica, and thus allow for a potential emergence of new ecosystems otherwise non-existent due to the surficial water deficiency and generally a very low water table



Birds resting grounds
Fig. 3.18

Grotto & Caves
Fig. 3.19 & 3.20



“To protect and preserve nationally significant natural features because of their special interest or unique characteristics. These are relatively small areas focused on protection of specific features.”

- ▶ Protect singular locations due to their exceptional natural value – ecological or aesthetic – such as caves, grottoes, ancient olive groves, endemic species localities.
- ▶ Protect large areas of natural intact environments to preserve areas or notable sites of ‘scenic beauty’ of the region.
- ▶ Create **buffer zones** between distinguished areas within the heritage park. Agricultural land, olive groves and vineyards placed between natural reserves and inland village zones could become such zones where, again, human activity is kept to an absolute minimum.
- ▶ Consider a system of **natural corridors**, especially for the natural reserve to connect to the main land of Grbalj and its natural, intact zones of wilderness, allowing the movement of species, and preventing seclusion and isolation that poses a potential threat to their survival.



An ancient olive tree

Fig. 3.21

This olive tree is believed to be the oldest on the peninsula. According to the oral tradition of the villagers, it is apparently more than 800 years old. Its age, however would have to be determined by a professional olive horticulturist

Zones of Conservation

cultural monuments

B

“To protect and preserve nationally significant cultural features because of their special interest or unique characteristics. These are relatively small areas focused on protection of specific features”

These are singular cultural monuments of exceptional historic value for the region. Their safeguarding and protection is crucial for the maintenance of the cultural integrity, historic continuum and the preservation of old traditions.

- ▶ Protect singular locations with exceptional cultural significance – such as archaeological sites (found on land and in the sea), old village houses, medieval Orthodox churches and fortifications.
- ▶ Record all of the existing monuments that have not yet been protected in a comprehensive database and prepare proposal for their conservation.
- ▶ Design specific measures for already protected and proposed monuments which would ensure their maintenance or renovation. Consider their future use or occupation.



The Voice of the Monuments

"We have often been burnt in fires, flooded with waters, struck by earthquakes, afflicted by wars and many perils, left alone and neglected... to remain present till this very day and reach you in this very condition. Defying the plights, we kept counting the centuries and bidding farewell to many generations. There are still some amongst us who with patience, hope and desire await your help; when you feel the aid is necessary and you are capable of providing it."

**Dr. Markovic & Dr. Vujicic,
The Cultural Monuments
of Montenegro, 1997**

*The church and the monastery of
Virgin's Presentation, Žanjice*

Fig. 3.22

This church was built in medieval times (15th or 16th century), and represents an invaluable cultural heritage

These areas signify natural localities with characteristic conditions as a result of primarily man-made activities. The majority of these conditions are considered environmentally problematic, requiring immediate incentives for the restoration of the original, pre-disturbed states.

☐ **Area contaminated by depleted uranium from 1999 NATO bombing**

Although this area is believed to be decontaminated a few years after, there is a feeling that more intervention is required to bring the ecology back to the original pre-disturbed state. There is also a potential for rejuvenation and introduction of a memorial park.

☐ **Areas under severe erosion**

These are areas disturbed and degraded by stone quarry activities. Re-consideration and re-evaluation of further activities should bring the desired control over these places to ensure their future ecologic sustainability.

☐ **Areas degraded by the 2003 fire**

This is an opportunity to re-plant the areas with the original/ancient native vegetation: the *Holm Oak* forest, a coniferous Mediterranean oak. The reforestation should signify the new ecologically oriented politics of the region and represent an opportunity for re-introduction and regeneration of other ancient ecosystems.





Natural Redevelopment Areas
Fig. 3.23 (top)
The quarry zone is in a continuously degrading state of the landscape



Natural Redevelopment Areas
Fig. 3.24
The coastal hamlet of Rose and the landscape scar of the 2003 fire

Cultural re-development areas include notable existing structures, individual or grouped, whose present condition suggests an immediate need for revitalization, renovation or restoration. As many of the edifices are also monuments, these re-development zones and their elements partially coincide with the cultural monuments outlined in the preceding section. The following are specific areas of re-development focus:

▣ **Revitalization of old villages**

Reconstruction and renovation of houses and lots found within the villages throughout Luštica have cultural priority. Once renovated and fully functional, these revitalized artifacts will be considered as new potential for permanent or seasonal residences. Special consideration should be given to the prospective revival of old, traditional artistries such as olivery, winery, carpentry, stone and lime production and land cultivation. These activities represent potential for *ethno-tourism*.

▣ **Reconstruction, renovation and re-animation of old Austro-Hungarian fortifications and deserted military objects**

The forts and military artifacts of Luštica are presently found in a dilapidated and abandoned state. They carry, however, an extraordinary potential for the future development of the park and their own individual evolution. Their contemplative qualities, for example, should be strongly considered and adequately encouraged so that possibly some of them remain unoccupied - 'functionless' per se. The following suggestions for future usage of the fortifications are hence just an indication of their prospective which offers an unofficial, intuitive idea for their re-animation.^{*16}

^{*16} The entire section of the thesis book is dedicated to this particular theme of the fortifications on Luštica. For more details and specific issues in relation to this particular zone refer to Chapter 4

- ▶ *Oskoruša Fort* could become a recreation centre, landscaped garden/sculpture and an occasional event space with temporary installations accentuating its existing experiential qualities.



A house court in Babunci

Fig. 3.25

Many old houses are abandoned and left to dilapidation because new generations are migrating to urban areas leaving no one to maintain these centuries old households.

- ▶ *Klinci Fort* – a tourist or cultural centre with gallery/museum facilities to accommodate both visitors and local needs.
- ▶ *Kabala Fort* – a seafood restaurant with the roof terrace as an observation deck.
- ▶ *Luštica Fort* – a research centre for the ecologic and environmental control over the peninsula and its coastal marine areas.
- ▶ *Ukop submarine tunnel* – performance stage/open air auditorium for annual festivals and occasional local events.

▣ **Restoration and maintenance of old Orthodox churches**

The churches on Luštica represent an invaluable cultural heritage. Besides the historic significance, the spirituality of these sacred monuments greatly contributes to the peninsula's sense of a place. It is therefore crucial, to prescribe the initiatives for their protection, rejuvenation and management.

Initially, all churches on Luštica should be thoroughly surveyed in order to create a comprehensive database pertaining to their present condition and characteristic features. This is a necessary and fundamental step for their accreditation and recognition as important cultural heritage sites of the region. Specific examples of the initiatives for safeguarding and future development of the churches are:

- ▶ Restore invaluable and unique medieval frescos found in the church of *St. Petka*
- ▶ Complete restoration and renovation of the church *St. Hariton* in the village of *Klinci* which would make the currently abandoned church functional again
- ▶ Provide restrictions to development in proximity of already isolated religious monuments – in a radius of 1km - to enhance peace, solitude and sacredness of their surroundings (*St. Hariton*, *St. Pantelija*, and *St. Peter*). Similarly to the church and monastery of *St. Virgin's Presentation* in *Žanjice*, propose the conversion of such areas and corresponding churches into monasteries where ascetic life could be practiced. This would ensure both their preservation and maintenance while promoting the spiritual qualities of the Luštica peninsula.



St. Hariton, Gornji Klinci

Fig. 3.26

This is the only church presently inoperative and hence in a dire need for immediate restoration and revitalization

Zones of Highly Limited New Development

D

New development on Luštica should be strictly controlled and planned in accord with principles and guidelines for the design and development of the Heritage Park. On a general level, new development for Luštica should adopt the following approach from Malta's *Tá Cenc Heritage Park* management plan: "[new structures should be] inserted into the environment with discretion and sensitivity, placing a high value on the existing qualities of the place, its natural beauty and the traditional patterns of settlement, building forms, construction materials and detailing."¹⁷

¹⁷ Tá Cenc Heritage Park,
Park Management Plan,
[Rick Haldenby, 1999]

These re-development areas should be classified in three different categories according to their priority within the development:

☐ **Already built structures**

These include individual buildings in need of reconstruction/reuse and addition. They should be prioritized in the new development as the next step to the aforementioned restoration and reconstruction - (as indicated in the previous section on *Zones of Re-development* in this plan)

☐ **Already urbanized areas**

These are areas designated for future urban growth in accordance with the proposed *GUP (General Urban Plan)* and *DUP (Detailed Urban Plan)* designed and developed for Rose, Zambelići, and Žanjice by the Herceg Novi urban department. New development should have explicit density and capacity limits controlling the rate of urban growth (not generally stipulated by the present urban plans); this is fundamental for the park's management to shape better the impact that new urban fabric has on the surrounding environment. Specific guidelines should be provided for the building *size* and *height limits*, *material* and *technologies* used.

- ▶ Building size should be in accord with the topography and existing conditions of a building site location. Large building complexes should be avoided, and instead small-scale vernacular houses encouraged



Žanjice and Mirište inlets

Fig. 3.27

This is a very attractive tourist zone where most of the new developments are already occurring



The coastal hamlet of Rose

Fig. 3.28

In the past this was an ancient Roman settlement; presently it is a very attractive tourist location where continuous urban growth is experienced each year

- ▶ Building heights should be limited to a height of the surrounding building context or vegetation. To maintain the undisturbed scenic appearance in the natural areas, no building shall be erected higher than the neighbouring tree tops (**Fig. 3.31** and **Fig. 3.32**)
- ▶ Only natural building materials should be allowed for construction on the peninsula with priority given to locally quarried stone or other materials found within the region
- ▶ Old building traditions should be respected and practiced at all times with special attention given to the climatic building response characteristic for vernacular typologies found on the peninsula and in the surrounding region. [*refer to the Appendix on Building Traditions, Pg. 297*]
- ▶ Integration of contemporary sustainable building practices should be mandatory for all types of new development. Such are photovoltaic system integration and other alternative renewable energy sources, adequate waste and sewage treatment, and water filtration [*see Pg. 308 in the Appendix*]

■ **Completely new developments**

New projects on new sites should be considered as the last option for the areas where the urban growth is anticipated and presently in its incipient stage. Such areas should be planned and designed as seasonal residences based on successful sustainable community models. The early stages of the 1960s *Sea Ranch* development in California, is one of the earliest and still best examples of such developments.^{*18} Such new projects should be environmentally friendly, sustainable, and community oriented developments in accord with the existing conditions and the spirit of the place. One such potential area is situated around the village *Zambelići*, in the central part of the peninsula and east of the *Žanjice* resort [*refer to Fig. 3.18, Pg. 155*], where a large number of seasonal houses/cottages has already been built. This area could be suitable for a 'villa zone' wherein specific attention would be given to a high profile and quality of construction governed and controlled by a series of design guidelines as in the preceding example of existing already urbanized areas.

^{*18} Refer to Fig. i.8 in the introduction



Design Guidelines and Principles

Fig. 3.29 & Fig. 3.30

An example of a successful building integration with the surrounding land-seascape. If building is to be built higher than the surrounding macquis tapestry (3-4m), trees have to be planted for shading purposes but primarily to maintain the scenic continuity and avoid 'wounds' in the greenery.

Design Guidelines and Principles

Fig. 3.31

Another example of effective building integration with the surrounding. In this case, the building was made of stone and literally built out of stone. This supports the site specific design and suggests the harmonious co-existence of cultural and natural elements

These are agricultural and horticultural lands where crops such as wheat, olives, fruits and vegetables are grown and herding (cows, sheep, pigs and goats) occurs. These areas represent mostly flat or terraced lands covering most of the inland plains of the peninsula. Although some of the lands are still scattered around the perimeter of the local hills, historically, they have been kept in the vicinity of old villages as their integral part representing the main source of economy and general subsistence for the village people. Thus the following principles should be viewed as necessary for their revitalization.

- ▶ Initially, these areas should be considered and incorporated into the revitalization process of the old villages and developed accordingly
- ▶ The old traditions - the ideas of stewardship, interdependence and nurturing of the land - should be revisited, reinforced and promoted so that they serve as foundations and reference for emergent technologies and practices. Old customs could be reintroduced and revived as the sustainable practices of the past. (One such custom was mandatory planting of 30 olive plantlets by young bridegrooms before their wedding).
- ▶ Pastures and cattle-raising should be an integral part of the revitalization process as their products represent essential economies for the locals.
- ▶ There is also a great opportunity to establish a local market for the trade of goods at local and inter-communal levels since many products are unique to this region and of exceptional quality (premium quality of olives, olive oil, prosciutto, special cheese in olive oil, bearberry brandy and jam, etc.).
- ▶ Given the climate, vast uninhabited areas of pristine, in-tact nature and the abundance of healthful herbs and plants growing on Luštica, there is yet another great prospect – **bee raising**. Some locals have practiced this old tradition, but not extensively and not to its fullest potential.



Zones of Cultivation

Fig. 3.32 (top)

View of the typical inland condition - flat plains covered in agricultural land and olive groves

Fig. 3.33 (bottom)

A typical village complex surrounded by vegetation and cultivated terraced land



olivery & horticulture

Similar to the region of *Langhe*, south of Turin in Italy, where wine making is still treated as artisan process, and where people continue to depend on the wine-making economy, Luštica should embrace its centuries-old traditions and its artistry of olivery – an art of growing olives and making olive oil. As in the Langhe region, the quality and type of soil, the position and climatic characteristics of the Luštica peninsula, as well as the techniques for growth, treatment, production and storage of olive oil, have endowed the people and the land of Luštica with centuries of admiration and reputation for this artistry. Thus, the major agricultural-related economy on Luštica should be olivery, as in the times of its past prosperity. This will not only enhance the economic strength of the region, but also keep Luštica timeless and sustainable, regardless of the changes that globalization, tourism and its politics might impose. After all, olivery is one of essential facets of Luštica's *Spiritus Movens*, and its preservation and enhancement would indisputably preserve and strengthen the spirit of the place.

Secondary related horticultures such as grapes and bearberries should be regarded in a similar manner. The former is also a renowned and distinguished culture of Luštica's past that has only recently fallen to dissipation. The latter culture could represent another future potential as it is endemic for Luštica and because of its abundance and labor-free cultivation (still considered as a wild-culture which grows on its own).



An Old Olive Grove, Žanjice

Fig. 3.34

True nature of Luštica Heritage Park, its hybrid and versatile nature, is revealed in this particular area of the Žanjice resort. It is an ancient settlement location, a flat cultivation land, one of the oldest olive groves on the peninsula, an archaeological site, an Orthodox church locality and a tourist resort.

Aside from densely urbanized areas of Krašiči, there are two other major urban tourist areas, Rose and Žanjice. Rose is an ancient coastal town with a rich cultural background that has only recently become a target for tourism. Žanjice is an ancient location which lately has become a popular tourist destination due to its pebble beaches, flat backdrop-setting, ancient olive groves and its exceptional scenery of islands, coves, greenery, and land-seascape. Urban sprawl is now present around these two areas. The containment of this threatening, uncontrolled growth needs to take place immediately, and their future development should be in accord with the local ecologies and the spirit of the place.

^{*19} **Intensive tourism** – is referring to the areas with high density and concentration of tourism. The opposite would be **extensive tourism** which means less denser, not centralized and generally widespread tourism over the larger area. This terminology was adopted from the intensive and extensive modes of raising cattle.

Buffer zones should be established between the two concentrated areas of intensive^{*19} tourism and neighboring zones. First, this means keeping tourism development to a focused minimum not impinging on the sense of remoteness and isolation that prevails as the dominant characteristic of the rest of the peninsula. Secondly, the buffer zones should be designed in the form of controlled park areas to gradually introduce a complete natural surrounding to visitors. Consequently, the buffer zones not only serve as outer limits of tourist, urban development, but also as a mediator or transitional areas where nature is kept intact by structuring with man-made elements in the form of a ‘designed’ garden or *parkscape*. Agricultural land, olive groves and vineyards could represent these zones where, again, urban development is kept to an absolute minimum. Similar buffer zones are also proposed between other distinguished areas within the heritage park, for example, between natural reserves and inland village zones.



A Restaurant in Rose

Fig. 3.35

One of three restaurants in Rose is situated along the narrow promenade right next to the sea shore.

Conflict zones where incompatible uses collide should be recognized and analyzed separately. One such zone is the Mirište cove and beach where only, in recent years new commercial and tourist developments have started to appear. Such obvious land use conflicts disturb the tranquility of the natural environment. In the areas around the Mirište cove, such developments destroy the sense of remoteness and solitude required for the nearby monastery and its monk, who lives in accord with ascetic and natural rhythms.

Pedestrian trails and adjoining recreational artifacts such as pools, shelters, monuments, and services should also enrich the existing tourist potential, facilitating movement throughout the site with priority given to pedestrian traffic. Eco-tourism potential should be identified and fostered within the following disciplines: 'ethno tourism' in villages, 'religious touring' – church visits and respective educational tours; guided tours incorporating visits to various cultural monuments, and also recreational activities such as scuba diving, anchoring, paragliding, water skiing, bicycling, walking, and hiking.

New tourism-based initiatives, aside from being eco-tourism oriented, should primarily maintain the existing character of being a day resort, a place to visit, a one day field-trip from the surrounding high-tourism areas of Herceg Novi (by sea) or Tivat (by land). Special promotions should not be encouraged. It is crucial to keep eco-tourism development as 'low-profile' as possible, instead promoting its high-quality level in keeping with the existing sense of the place in the recreation-centered areas around attractive beaches such as Žanjice and Rose. In essence, any Luštica tourism initiatives should sustain a *medium-to-high-intensity day-to-day use* within the controlled and contained tourism centres, and a very-low-intensity level in the areas of the wilderness spread over the peninsula. The exception is the nature reserves and other specifically enforced areas where human activities are limited or prohibited.



Mirište Beach

Fig. 3.36

Beside the Žanjice beach, this is one of the most attractive resort locations on Luštica, where all necessary tourism facilities are already provided



The Main Sea Dock in Rose

Fig. 3.37

This is the main sea dock in Rose that is also often used by tourists as a fishing outpost

These are the areas of future research, exploration and experimentation on Luštica. Since there is a lot to be researched on the peninsula, a research centre could be part of the Heritage Park's proposal. Archaeological sites have to be explored and investigated in greater depth. There is also high potential for new ones yet to be found due to the rich cultural history of the area. Marine research would be another highly recommended new enterprise since the coastal areas of the Luštica peninsula conceal a rich marine biodiversity in addition to already mentioned archaeological sites and an abundance of lost underwater artefacts. Smaller research stations along the coast could be installed, un-installed and repositioned in accord with the location of research initiatives and material required.

The majority of Luštica wildlife is preserved in its intact condition, so there is a wide spectrum of possible research areas in the habitats as well as in organization and operational principles of the existing ecosystems. There is also a potential for the discovery of endemic or rare species due to the 'peninsular' semi-isolated character and corresponding predispositions. For example, locals believe that the rare plant yellow bedstraw [*ivanvijet*] only grows on Luštica and in Jerusalem. Therefore, there is a strong need for a detailed investigation and research of floral and faunal species on the peninsula in order to prove such claims and possibly find similar endemic conditions.



Aloe Vera Plant

Fig. 3.38

Many plant species on Luštica are not native to the region but were rather brought by local sailors from different parts of the globe. They successfully adjusted and found home on the peninsula due to mild (Eu-Mediterranean) climate.



A Spider

Fig. 3.39

A thick, intact macquis forest on Luštica is inundated by numerous insects. There is a strong reason to believe some unique and endemic species exist on the peninsula because of its geographic isolation from the rest of the region.

Luštica Management

The main goals of Luštica Park management are:

- ☐ **Scientific research**
- ☐ **Wilderness protection**
- ☐ **Preservation of species and genetic diversity**
- ☐ **Maintenance of environmental services**
- ☐ **Protection of specific natural and cultural features**
- ☐ **Tourism and recreation**
- ☐ **Education**
- ☐ **Sustainable use of resources from natural ecosystems**
- ☐ **Maintenance and enhancement of cultural and traditional attributes**

The first step in implementing strategic goals for Luštica is to find an appropriate governing body and a consequent authority with the power, credibility and competence for their successful realization. The implementation process should include more than management through the local heritage administration. Preparing a thorough analysis and a consequent proposal for political and economic approval support of *UNESCO* for Luštica and its future development campaign would be the most favored strategy. Before that, however, public consensus and a unifying governing body would have to be formed among actors on all governing levels and in different professional disciplines, some of whom already have some authority over the peninsula. On the municipal level, they would include city halls from Herceg Novi and Tivat and their departments for urban planning. On the regional level, the *Institute for Cultural Monument Conservation* from Kotor is another party that should be involved. The “*Morsko Dobro*” organization and other professional firms are already preparing detailed plans for the development of coastal regions. Many other parties such as the ministries of Tourism, Cultural and Natural Heritage, Environmental Development and Transportation, would have great input in the process. On a more individual level, teams and smaller groups of specialists in many different disciplines would also be a vital component in the overall implementation process. Finally, the responsibilities would be shared not only by official governing organizations and by teams of professionals, but equally by the members or representatives of the local communities, both permanent and seasonal inhabitants.

Governing Body

Everything about the Luštica peninsula is complex. Its uncertain future appears to be tied to its past and present conditions. Finding answers to countless questions would mean solving all problems at once, which is unrealistic. An alternative to living with the ongoing problems pressuring on the peninsula's natural and cultural heritage created by urban and rural migration and uncontrollable tourism and its side effects, would be a vision that would address all issues pertaining to the current situation on Luštica in an open-ended and flexible way. In this case, a most viable and potent solution would be to convert the peninsula into a Natural and Cultural Heritage Park, one governed by a controlling and operational management body. Under park legislation many issues of control, regulations, laws and by-laws would be addressed, if not immediately resolved. For example, the governing body would be responsible for producing a general urban plan and its implementation and regulation. It would curtail present, and prevent further uncontrollable and unplanned development in urban areas. It would provide more jobs in park maintenance, tourism, construction and garner groups of professionals for various restoration and renovation projects. Lastly, it would present a great opportunity for diverse research teams, ranging from environmentalists interested in further exploration of local ecosystems, potential endemic and indigenous species, to cultural historians and archaeologists primarily occupied with recreation of a rich and densely layered past of the area. This is all to be added to the amount of work needed in order to preserve the cultural heritage solely carried by Orthodox churches. The new governing body would also be required to re-establish and re-assess existing tourism techniques and propose new ones founded on ecological and environmental thinking. This brings teams of professionals together; it enhances collaboration and leads up to an integrated system of individuals and groups working towards the same goal – initial preservation and consequent management of all natural and cultural heritages found on the peninsula, as well as assurance of their future healthy symbiotic evolution.

In order to perform the previously described research steps and implement proposed initiatives and goals, the Luštica peninsula is to be split into a series of management units (MUs); areas that are smaller and easier to manage. In the past, the peninsula was divided into small parish communities with villages as their centres. This political division based solely on cultural organization, with no reference to natural environments and their ecosystems still prevails today. Nevertheless, nature-based systems and corresponding landscapes should be equally incorporated into a management organism to ensure the realization of proposed objectives and goals for the Heritage Park. Integrated political and landscape management units would thus enhance reconciliation and symbiosis of cultural and natural systems, thereby providing means for a dynamic and healthy future development of the Luštica peninsula.

Management Units

c u l t u r e - b a s e d

The culture-based management units correspond to the existing parish boundaries around the major rural or urban settlements which they are also named after. They vary in size and have unique characteristics despite their seemingly homogeneous land coverage and context. The present condition of each MU will be the basis for the developing and monitoring of the cultural environments, their status and processes. Interventions, if required, will be allowed with regards to each MU condition at the various levels of the hierarchical ecosystem scale^{*20}, the system's communities, populations and individuals such as village settlements, individual buildings, property lines and stone walls, roads and paths. This is already used for data collection and creation of various statistics necessary for the culture-oriented management. In addition, these *culture-based* MUs can be employed in tourism-development to provide a comprehensive overview of various park elements found in each parish. The management units are as follows:

^{*20} refer to the ecosystems holarchy in Chapter 2, Pg. 44

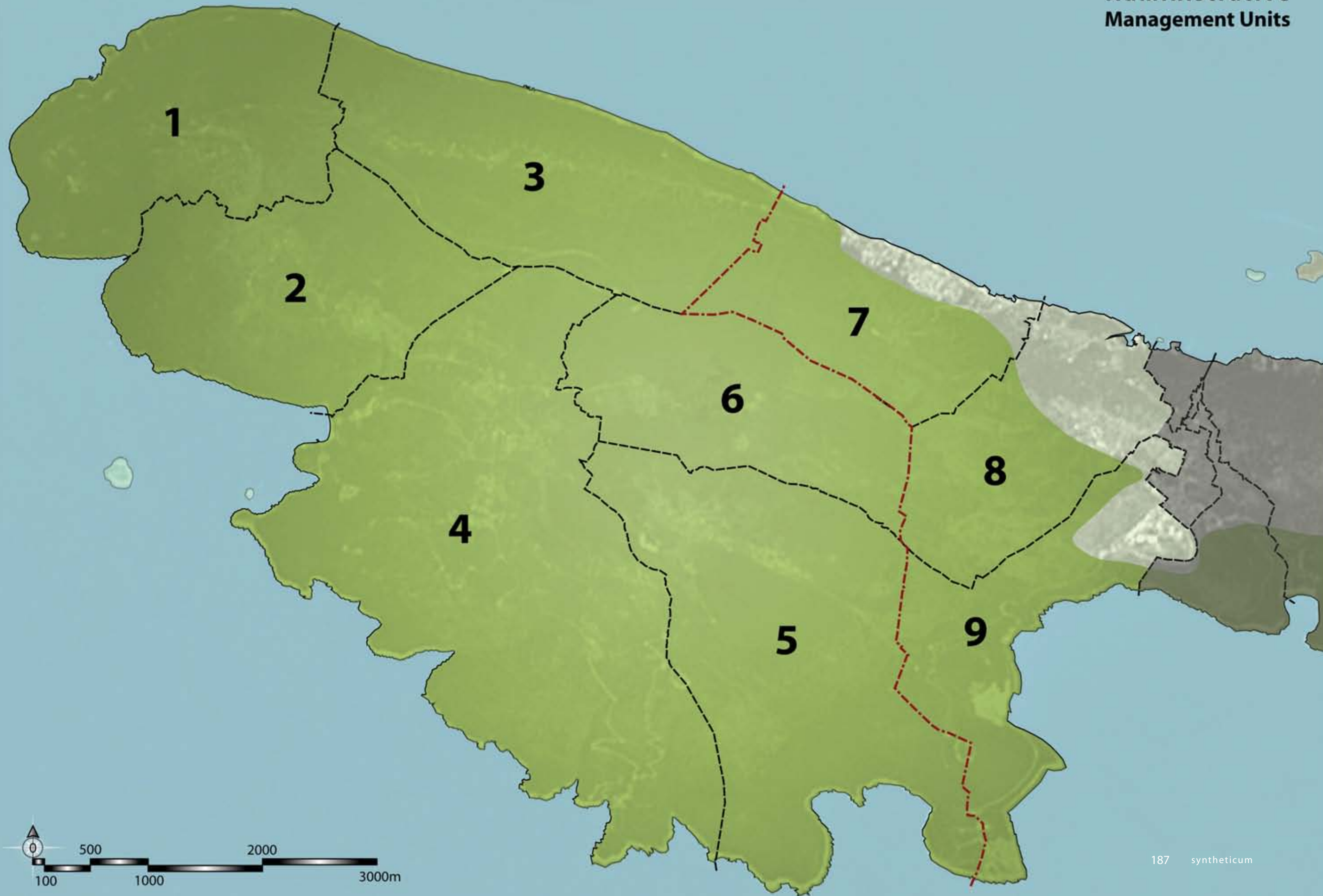
Herceg Novi Municipality

1. *Rose Management Unit*
2. *Klinici Management Unit*
3. *Zabrđe Management Unit*
4. *Radovanići Management Unit*
5. *Brguli Management Unit*
6. *Babunci Management Unit*





Tivat Municipality

7. *Krašići Management Unit*
8. *Gošići Management Unit*
9. *Radovići Management Unit*

Administrative Management Units



Legend

-  Communal boundaries
-  Parish boundaries
-  Management Units
-  Adriatic Sea

Luštica Administrative MUs
Fig. 3.40

1:30,000

Management Units nature-based

It is important to note that the described administrative units are intended predominantly for political and economic control/management over the land and other culturally derived purposes. More appropriate and sustainable alternatives for the management and monitoring of ecosystems, however, would be *nature-based* or *landscape management units*. The newly proposed MUs are beneficial for land use, environmental control, natural ecosystems analysis and generally, for ecologic initiatives in the future development of the peninsula. They are based on the natural characteristics and physical predisposition of each unit, rather than on artificially created boundaries of municipal territory. Within the nature-based MUs, priority would be given to natural systems and their propensities. As such, their realization would endow the current management organism with additional and often crucial information pertaining to the natural environments, ecosystems and their corresponding organizational and operational principles, that are often left neglected in planning and development projects. The MUs are the following:

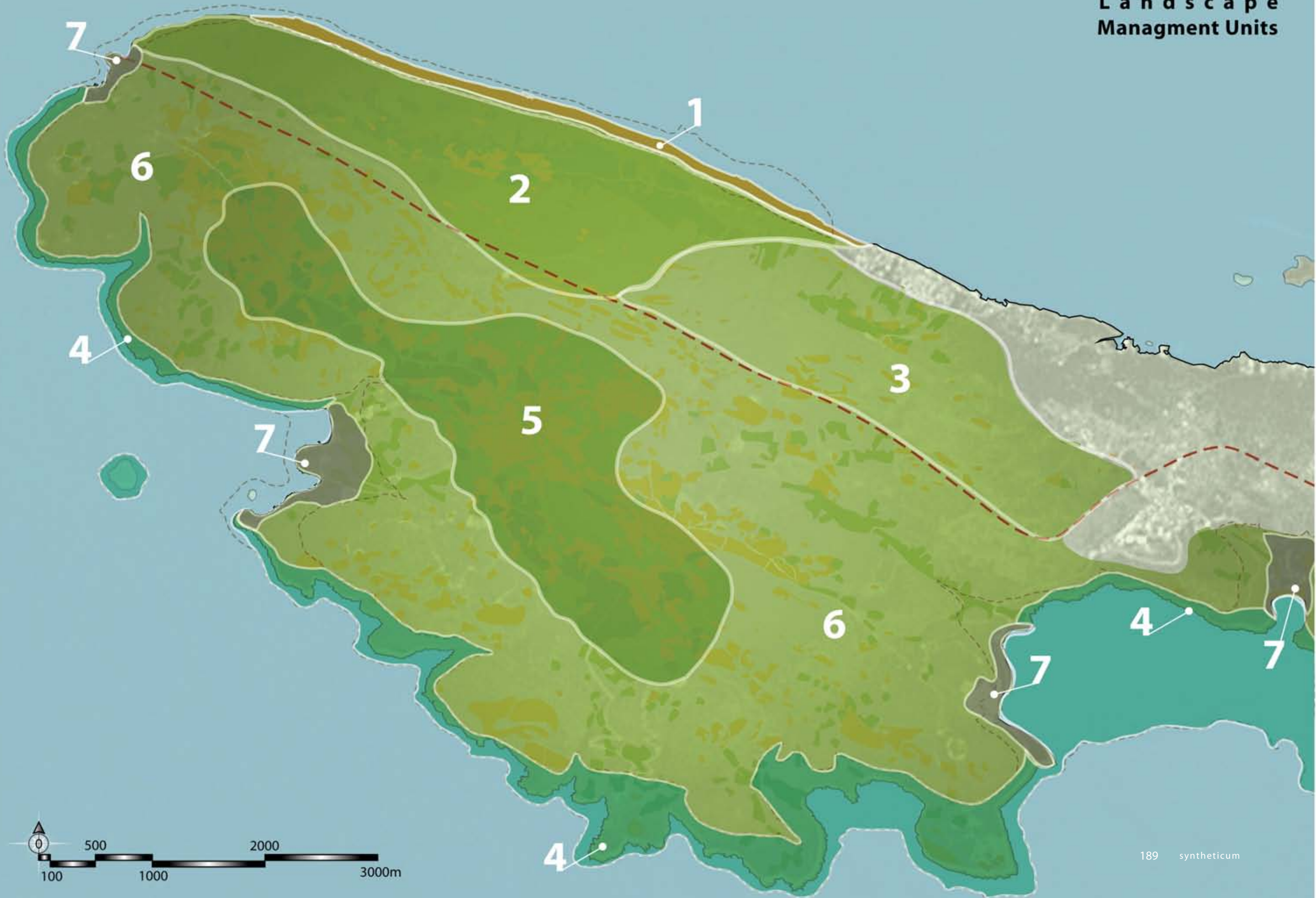
Northern Sector

1. *Coastal flysche shoreline MU*
2. *In-land Oriental Hornbeam & Sweet Bay Tree Forest MU*
3. *In-land Macquis Forest MU (Obosnik slopes)*

Southern Sector

4. *Costal cliffs MU*
5. *In-land Semi deciduous Oak & Pistache Forest MU*
6. *In-land Macquis Forest MU (undulating hills)*
7. *Urbanized bays and inlets MU*

Landscape Management Units



Legend

- Topographic catchment
- Coastal Zone from -25m to +50m
- Management Units
- Adriatic Sea

Luštica Landscape MUs
Fig. 3.41

1:30,000

management unit

1. ROSE



The **Rose Management Unit** covers the north-west corner of the peninsula and has the coastal town of Rose as its centre and only coastal settlement. Historically, Rose played a significant role in the destiny of the peninsula. It was originally a settlement of Greek colonists, and later in Roman times became the town of *Resinum*. Rose was also a ferry centre with an ancient road connecting Roman cities of *Epidaurum* (Cavtat) and *Agruovium* (believed to be in the location of today's Gošići village), and further down to *Butua* (Budva) to *Ulcinium* (Ulcinj) and even further to *Scodr* (Scutari).

Many archeological sites can be found in this area, both on land and in pre-coastal areas at the bottom of the sea, attesting the rich and very active cultural history. The majority of its land is covered with macquis forest typical to Luštica, with some arable land around the inland villages and completely uninhabited coastal regions with the exception of Rose. Characteristic for this MU is its powerful strategic location predetermining this area for military activity. Most of Luštica's abandoned fortifications are situated here with some still active military zones in the close proximity. In addition, there are seven churches and several important archaeological sites that make this MU interesting with respect to its cultural heritage.



The **Klinci Management Unit** borders the Rose MU on the south and its coastal region extends from the inlet of *Dobreč* to the inlet of *Žanjice* in a pristine, natural condition of steep and inaccessible rocky cliffs. The exceptions are the already mentioned inlets and corresponding beaches of *Dobreč* and *Žanjice*. Most of the MU boundaries are defined by natural topographic characteristics like the north border with *Zabrđe* MU, where the border line follows the ridge of the *Obosnik* hill and similarly corresponds to the topographic catchment line.

This MU also has inland rural developments and is centered around the village of *Mrkovi*. The major road in *Luštica* passes through villages of *Mrkovi* and *Tići*, and splits the entire management unit in two almost equal parts. The most arable land and cultivated areas are gathered around that road in the central area and to the west and to the south towards the coastal region intermingling with thick *macquis* forests. The eastern part of the management unit is completely natural, covered in *macquis* and gradually sloped northwards. Besides interesting and traditional old stone houses and one Turkish observation and defense tower, there are also three medieval Orthodox churches and a couple of burial mounds from the Illyrian period.

management unit

3. ZABRĐE



The **Zabrdje Management Unit** is the only one of Herceg Novi's parishes that, geographically speaking, entirely belongs to the inside of the Boka Kotorska Bay, directly overlooking the *Kumbor Strait* and the bays of Herceg Novi and Tivat. The MU is located on the steep, consistent slope of the Obosnik hill and is mostly covered in *Oriental Hornbeam* and *Sweet Bay tree* forests. The rural areas and primarily terraced cultivated land are located along the major road *Rose-Radovići*, crossing the management unit diagonally on its way down to the coast of *Krašići*. The village and rural community of *Zabrdje* are formed by three elongated joined-house complexes.

There are also two areas that belong to the military zone in this MU. One is the Obosnik hill-top and the other is *Pristan*, a coastal military area directly across the *Kumbor* military zone. This MU is the least populated when compared to the number of inhabitants per area it occupies. There are, however three Orthodox churches situated on a terraced land above the main road, offering astonishing vistas towards the bay's hinterland. In addition, one of the house complexes still has an old medieval olive mill and press in operation.

The **Radovanići Management Unit** is territorially the largest. It occupies most of the southwestern edge of the peninsula as well as a large portion of the central in-land valley that stretches in a northwest - southeast direction. It can be divided in two distinct zones: the coastal zone and the inland zone. In the coastal zone, there are two different areas of interest; the tourist area between *Žanjice* beach and *Cape Arza* which is one of the most attractive areas on the peninsula, and the remaining, longer coastal section of inaccessible steep rocky cliffs that hosts several caves and grottoes, and is therefore also an appealing natural region.



The in-land zone is dominated mostly by Luštica's typical rural landscape of scattered villages and agricultural land mixed with vineyards and olive groves. The particularly dense areas are in the central part of this MU along the meandering Luštica road. Most of the MU is covered with macquis forests except the central area where semi-deciduous forests of oak and pistache predominate.

Similar to the Rose MU, this MU has the most multi layered characteristics typical to Luštica; it is rich with monuments from all cultural periods of Luštica's history, from Illyrian burial mounds to Austro-Hungarian fortifications built at the beginning of the 20th century. There are four Orthodox churches and one monastery situated on the small island in the inlet of *Mirište* near the Cape Arza. The *Mamula Island* is another natural element with cultural imprints that plays an important role in the peninsula's overall narrative, and hence deserves special attention within this MU.

management unit

5. BRGULI



The **Brguli Management Unit** is located in the south and central part of Luštica. It mostly occupies the inland terrain of the peninsula and only its southern part borders with the open Adriatic Sea. Geographically, this coastal area has the same characteristics as the neighboring Radovići MU. Steep rocky cliffs predominate its coastal zone with the exception of the larger inlet of *Dobra Luka* that is still in its intact natural condition. Most of the rural areas are located in the north and northwestern parts of the management unit in Luštica's inland valley. The villages of *Brguli* and *Mardari* represent the rural nuclei with the surrounding mix of agricultural land, vineyards, olive groves and cleared pasture lands. Central to the area is the hill *Blizanstik* (374m) that separates the northern, denser rural area from cultivated parcels in the southern more intact natural parts. It is fully covered with thick macquis forests, with the exception of an eastern part of the MU which is populated by semi-deciduous forests of oak and pistache.

This area also has some traces of cultural activity from as early as the Illyrian periods. There are two Orthodox churches in this MU, both recently renovated. Ecological and environmental significance in the Brguli MU is focused on the area around the hill whose southern slopes currently suffer severe erosion due to neglect and irresponsible human activity.



The **Babunci Management Unit** is small territorially and the only parish that does not have access to the sea. It is located in the centre of the peninsula, on the southern and eastern slopes of the *Obosnik* hill (584m) and has the highest overall altitude above sea level. Topographically, it is split in two parts: the southern part with an altitude between 150m and 300m where rural landscape dominates and the only village of Babunci is situated, and the northern part with an altitude between 300m and 580m where most of the land is in a natural state, covered with thick macquis forest and smaller sporadic pastures or cultivated clearances.

This is the only MU that does not have a church. However, it has one of the best preserved and authentic village house complexes dating back several hundred years to the medieval period. Some houses, although abandoned, are well preserved and others still inhabited by villagers. In addition, there are a couple of Illyrian burial mounds found in this MU.

management unit

7. KRAŠIĆI



The **Krašići Management Unit** is situated along the northern coast of the Luštica peninsula on the gradual but steep slopes of the Obosnik hill. Territorially, this MU belongs to the inside of the Boka Kotorska Bay and hence has similar predispositions to the neighboring Zabrdje MU, which it borders to the west. It is split in two distinguished zones: the southern inland, mostly natural zone, and the northern coastal, mainly urban zone. The southern part is covered with thick macquis forests with cultivated land and clearings gathered around the only in-land village of Krašići located in the centre of the management unit. The northern coastal zone has recently become highly urbanized and consists mostly of seasonal houses and cottages built along and around the major road that runs down the coast and connects Rose and Zabrdje villages with other coastal in-bay settlements and the town of *Tivat*.

In comparison to other MUs, this one is densely populated in the Krašići urban zone, especially during the tourist season. It belongs to the Tivat municipality and consequently has different governing regulations that ultimately have led this area to its current urban state. In terms of cultural heritage, there is only one church found in the proximity of the Krašići village and one Illyrian burial mound.



The **Gošići Management Unit** also belongs to the Tivat municipality and is located in the eastern-central part of the peninsula. Most of its area is inland with the exception of a kilometer-long coastal section in the northern part. It could also be divided in two distinguished areas: the southwestern, mostly natural, and the northeastern, consisting of rural and urban zones. The southwestern part has rare clearings and almost no cultivated areas. It is fully covered in macquis forests, whereas the northwestern part is covered with many cultivated areas and hosts Oriental Hornbeam and Sweet Bay tree forests.

This MU is unique since it has both rural and urbanized areas in close vicinity. The Gošići village, too, recently became highly urbanized and tourism oriented by municipal politics of Tivat. However, the coastal area of *Bijelila* has maintained its rural ambience and preserved the old medieval houses that represent an important cultural heritage. Environmental significance is placed on the area around *Bijelila* where the only seasonal stream, *Rijeka*, is found with two wells, *Ubluč* and *Vir* that require special attention.

Archaeologically, this area is very rich because it has been populated since the early pre-Illyrian time. In addition, the ancient Roman town of *Agruvium* was believed to have been located in the present location of Gošići. Many archaeological sites were found in this area including remains of Illyrian settlements and burial mounds, as well as ancient Roman material, all attesting to its very active history. There is also one of the oldest Orthodox churches (*St. Luke*) on the peninsula found in close vicinity to Gošići, believed to have been built on the foundations of an early Christian basilica.

management unit

9. RADOVIĆI



This **Radovići Management Unit** is located in the southeastern part of the peninsula. It is very long and is the only MU that has coastal areas both along the inside and outside of the Boka Kotorska Bay. Consequently, it is divided in three distinctive parts: the hinterland and coastal area of the *Trašte Bay*, the coastal area within the bay of Tivat, and the in-land part around the urbanized area Radovići. The western coastal hinterland of the *Trašte Bay* is characterized by a mostly natural environment, covered with macquis forests and very little cultivated areas. The greenery is broken by a winding, major road of Luštica and by some minor (unpaved) roads that connect two other significant zones of this sub-region: the beach area *Oblatno* and the quarry. The *Oblatno* beach is still in its incipient tourist development stage while the quarry deserves special attention and re-assessment due to its strong environmental imposition.

The coastal area in the north part of the MU, however, has quite a different character from the one described in the south. Its rustic and more tamed landscape character with a coastal settlement is similar to the neighboring *Bijelila* area in the *Gošići* MU. Well preserved old stone houses are found clustered in the immediate proximity of the coast with a typical macquis forest backdrop. The central inland sub-region is organized around and mostly covered by the urban development of Radovići. It is the most populated area of the peninsula and its current state is a result of identifiable political and economic strategies, mostly tourism driven, of the Tivat municipal government. On the outskirts of the southern part of Radovići, there is a military zone which shares the destiny of other military zones on the peninsula. It is in the process of demilitarization and a partial dilapidation of its built form. The cultural heritage of this particular MU is mainly represented by traditional old stone houses, while other historically valuable and archaeologically significant sites are yet to be researched.

Monitoring

Before any planning, design or built interventions, extensive documentation of the area should be gathered. Much of the historical documentation and artefacts are scattered around the neighboring cultural centres such as Herceg Novi, Tivat and Kotor in a variety of institutions. Some of the materials are even found in the international city centres due to the fact that the entire region was under different foreign occupations throughout the course of its history. This, however, represents only a small portion of what needs to be gathered, updated, measured, investigated and researched.

The entire peninsula of Luštica needs to be surveyed. Special consideration should be given to the seldom documented built environment of rural inland villages and fortification objects found on the periphery of the western peninsular part. Similarly, the natural environment should also be fully documented and researched, especially the pristine sites on the land, the underwater ecosystems and their rich biodiversity. Data will be gathered upon finishing these extensive surveys, then classified and organized in both a larger map and a management unit format to allow planners and designers to draw conclusions.

There would be two main categories of research with different analytical components. Each should require a detailed investigation performed by specialists and professionals in their specific field of study.

Man-made information to be assembled

- ▣ Building typologies
- ▣ Type and state of the monuments
- ▣ Architectural quality and state of the buildings
- ▣ Level and health standards or residential buildings
- ▣ Renewal, renovation and revitalization plans
- ▣ Density
- ▣ Ownership
- ▣ Type and state of ground
- ▣ Statistics about the land use
- ▣ Archaeological investigations
- ▣ Past and present urban strategies
- ▣ Building and other inherited traditions
- ▣ Tourism techniques and alternatives
- ▣ Sustainable modes of life
- ▣ Renewable Energy Sources

Natural ecosystems information to be assembled

- ▣ Relief map
- ▣ Hydrologic maps
- ▣ Soil and terrain maps
- ▣ Climatic properties
- ▣ Vegetation patterns; species
- ▣ Animal kingdom; species
- ▣ Endemic species locations
- ▣ Natural wonders (caves, grottoes)
- ▣ Water retention and filtration techniques
- ▣ Marine biodiversity; colonies;
- ▣ Ecologically significant areas; sensitivities

IV The Fortifications of Luštica specificum



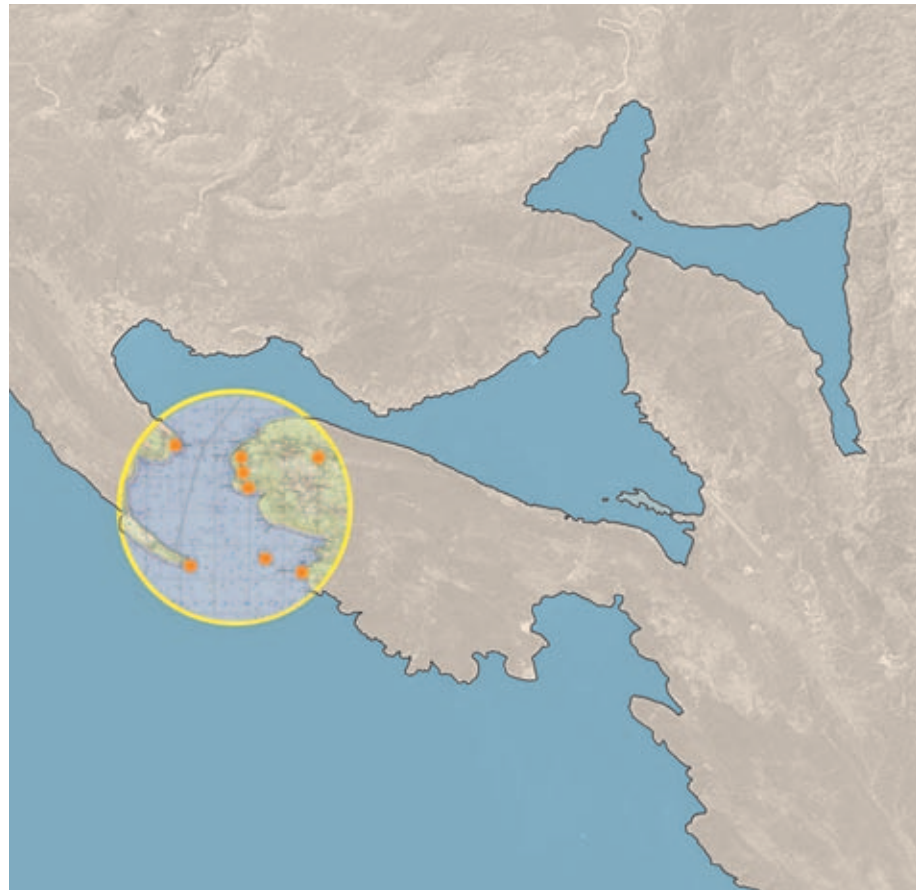
Whether one explores Luštica by foot or travels by boat, it is quite certain that sooner or later he will notice monumental stone buildings rising from the ground like giant creatures overlooking the surrounding terrain. Their crippled bodies, the multitude of wrinkles on their stone faces, their proud foreheads stained with washed-up rust are a painful reminder of blood spilled for an unknown cause. Moreover, the mysterious shadows that stream out of their rectangular eyes evoke their bold military past. One cannot help but think of them as audacious soldiers frozen in the moment of their post-battle agony or relief, their victorious defeat or their defeated victory. It is hard to read their faces or penetrate their murky eyes.

One thing is for certain though, they are the standing witnesses of Luštica's fierce past. Within these pompous, robust stone giants, the dark side of Luštica's character is both hidden and revealed. Their thick walls, their plenteous small windows and doors, their pure geometric forms all tell stories of wars, destruction, power, violence, imprisonment, injustice, cruelty and death. Yet there exist other resonating stories of patriotism, sacrifice and fights for freedom. These stories, intertwined and perplexed, have probably never been written, nor have they been told. They are rather somehow passed on by whispers of the wind, by murmurs of the sea. While standing in the defense chambers, leaning against their walls, walking on their roofs, or resting on their stone stairs, one feels; one does not see. One hears... screams of the past, gunshots and cannonades, the unbearable sounds of silence in anticipation of a battle for life or death.

As noted in the thesis introduction, this chapter on the Fortifications of Luštica is a case study on a particular element found within the Luštica Heritage Park. It exemplifies a specific, comprehensively created strategy as a model of how to design and plan a successful and healthy evolution of the Luštica peninsula and its comprising elements.

This chapter could also be viewed as a small thesis in itself. It has both analytic and synthetic components that form a powerful tool for any research and corresponding design development within the proposed Luštica Heritage Park. The chapter begins with a historic and contextual investigation of the fortifications found on Luštica and its surroundings: background information and the purpose of their conception, their original design and most importantly, the experience associated with a visit to the forts' spaces and their setting. These narratives provide a better and clearer picture of the fortifications, their present state and future potential. The synthesis section of this chapter reveals the hidden Spiritus Movens of the forts, and with the attunement section and relevant examples, it lays down the foundations for the future evolution and consequent initiatives. The chapter goes into an even more detailed exploration by focusing on two specific sites, followed by the general design guidelines for the future development of the fortifications and their practical implementation.

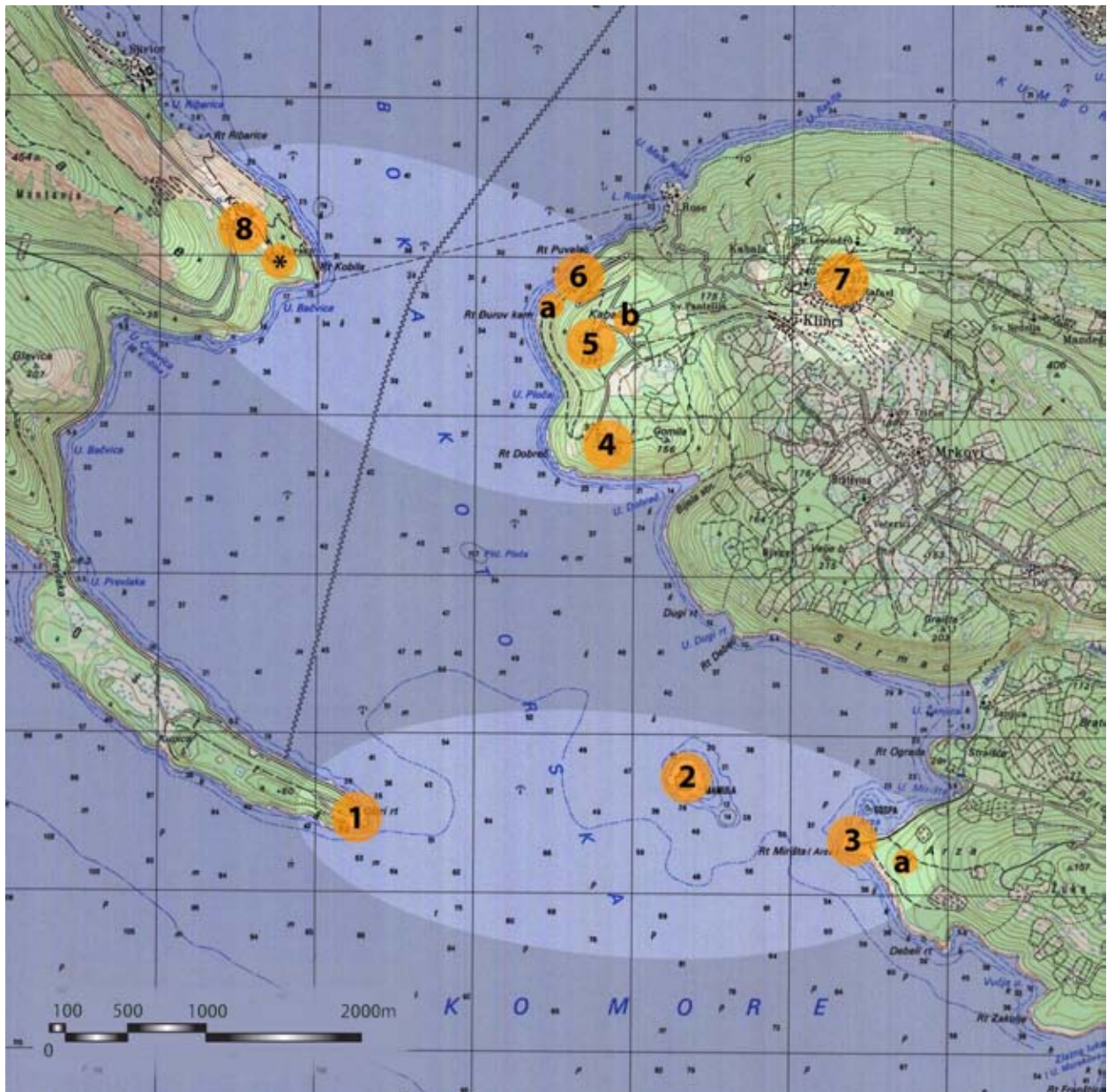
Within these narratives rests the main reason for selecting the fortifications as a model for a healthy development. Their characteristic conditions, with particular stress on the experiential component are what makes the forts exceptional in relation to other park elements. As such, they are the most compelling artifacts on Luštica with the greatest potential and suitability for the realization of the Heritage Park proposal and overall vision for the peninsula as portrayed in the previous chapter. Carrying the most promising prospective, the fortifications of Luštica are the leading elements towards a healthy architecture and future healthy evolution of the peninsula.



Boka Kotorska Entrance
Fig. 4.1
Key Map

Most of the fortifications on Luštica date from the second half of the 19th century when the Boka Kotorska region was under occupation of the Austro-Hungarian Empire (1815-1918). They were originally conceived as a series of defense objects deliberately positioned at the entrance of the bay to ensure military protection, total control of access, as well as marine-trade supervision of the Boka Kotorska waters. Keeping in mind the geographic, and very powerful strategic location of the Luštica peninsula, it is not surprising to find most of the defence fortified objects and other military infrastructure, such as tunnels, dig-outs and artillery locations placed along the perimeter of the western coast. The Austro-Hungarian fortification system in this area can be divided in two major groups of defence objects. The first group marks the entry to the Boka Kotorska Bay and includes three fortifications and one adjoining artillery location. This represents the first defence line, also referred to as *the Gateway of Boka*. The second group consists of military objects situated further in the bay along both coasts, supported by another fortification positioned in Luštica's hinterland as a back-up artillery stronghold.

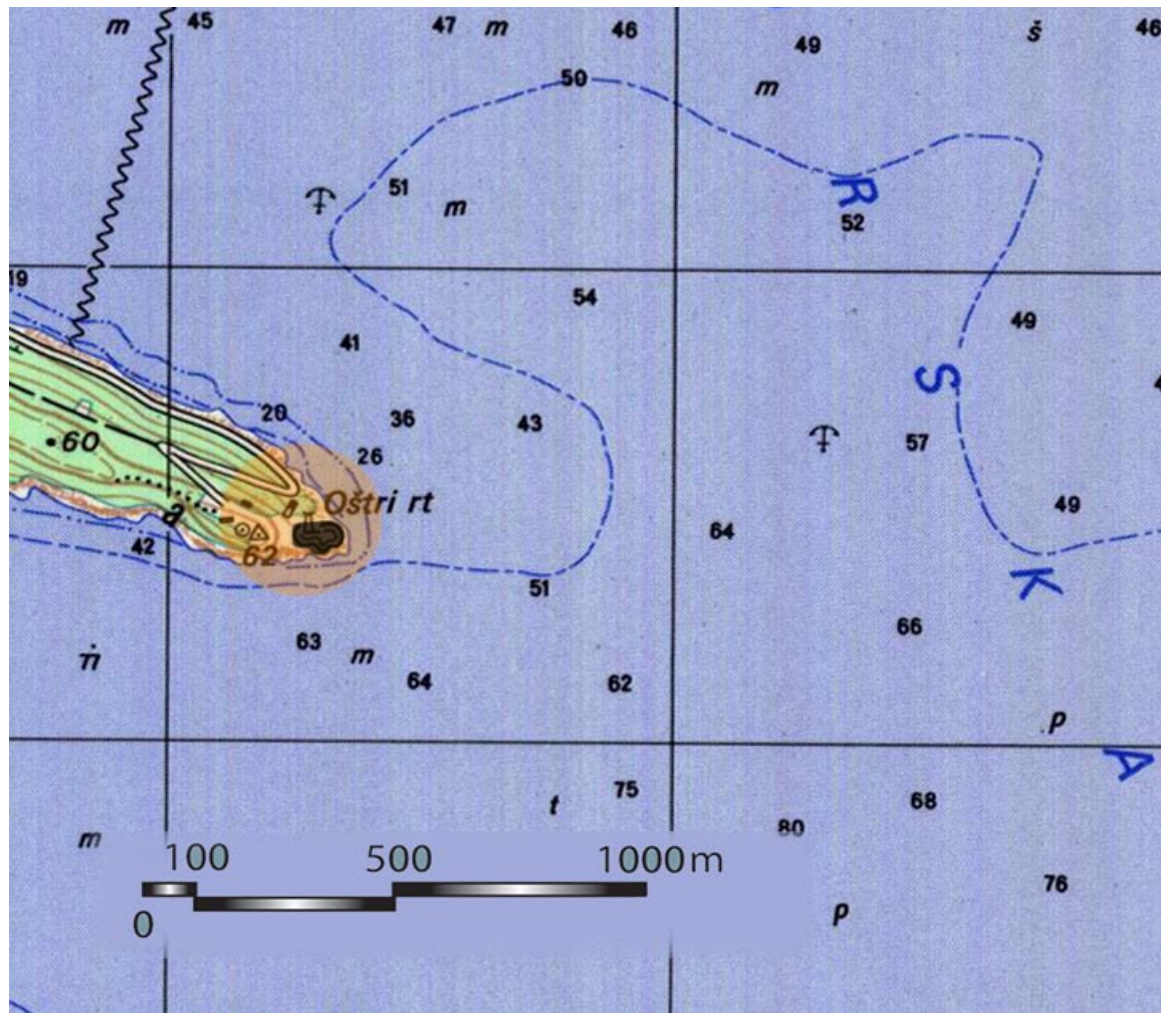
Topographic Map
Fig. 4.2
 Strategic Defence and Control System



List of Military Defence Objects

The forts in the first line of defence utilize circular or partially rounded volumes strategically designed for radial control and better defense efficiency, whereas the forts inside the bay are predominantly rectangular in form. All of them, however, are characterized by true monumentality, striking precision of building techniques and efficiency of architectural forms. At the same time, they are specifically positioned and designed to directly correspond to the surrounding topography and consequently maximize their strategic potential and military capacity.

1. Fort Oštro
2. Fort Mamula
3. Fort Arza
- 3a Gornja Arza artillery location
4. Fort Luštica
5. Fort Oskoruša
- 5b Kabala Barrack
6. Fort Kabala
- 6a Kabala artillery location
7. Fort Klinci
8. Fort Kobilja
- 8* Fort Tursko originally built by Turks during their reign of Herceg Novi region

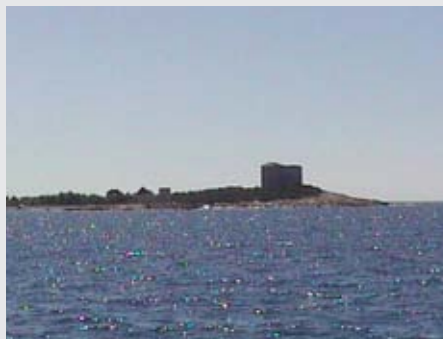
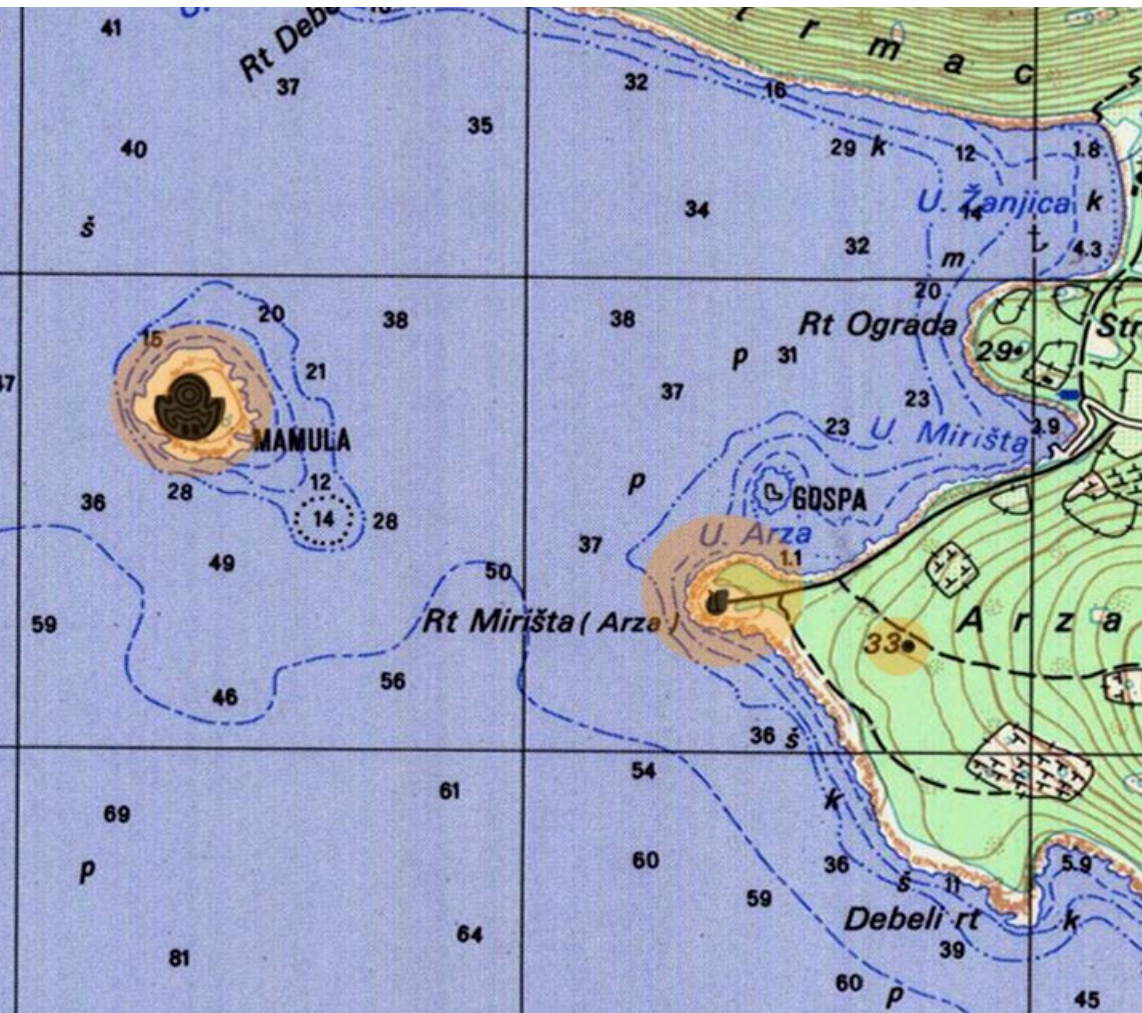


The Gateway of Boka -
The First Line of Defence
Fig. 4.3
Topographic Map



Individual Panoramic Views of
Boka Gateway Triad
Fig. 4.4
Fort Oštra and Prevlaka Peninsula

Topographically, the entrance to the bay is shaped by three distinct relief elements: a long, narrow peninsula known as *Prevlaka*, the *Mamula Island* and *Cape Mirište*. As a response to these natural features and their strategic military conditions, three fortification objects have been positioned and designed respectively - *Fort Oštro*, *Fort Mamula*, and *Fort Arza*.



Individual Panoramic Views of the Boka Gateway Triad
Fig. 4.5 (left)
 Fort Mamula and Mamula Island
Fig. 4.6 (right)
 Fort Arza and Cape Mirišta

This triad of forts represents not only a powerful infrastructure for the first defense line and immediate access control to the bay, but also a harmonious marriage between the surrounding land-seascape and architectural form driven by geometry and military efficiency. In essence, they become monumental landmarks, an authentic gateway to the Boka Kotorska Bay.



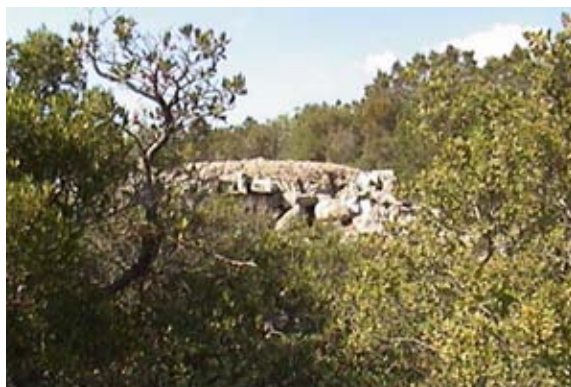
The Triad Markers
Fig. 4.7
 The view on Boka Gateway
 looking west from *Gornja Arza*

Comparatively smaller than the other two, Fort Arza was not conceived as a heavy artillery stronghold. As defence support, an additional artillery position was established up-hill from Cape Mirište, in the area of *Gornja Arza*. From this prominent location, the entire Boka Gateway can be easily controlled and protected.

Details of Gornja Arza Artillery Location
Fig. 4.8, 4.9
 (left top&bottom)

Remains of the cannon infrastructure
Fig. 4.10 (top-right)

Stairs and the tunnel
Fig. 4.11 (bottom-right)
 Interior of the bunker

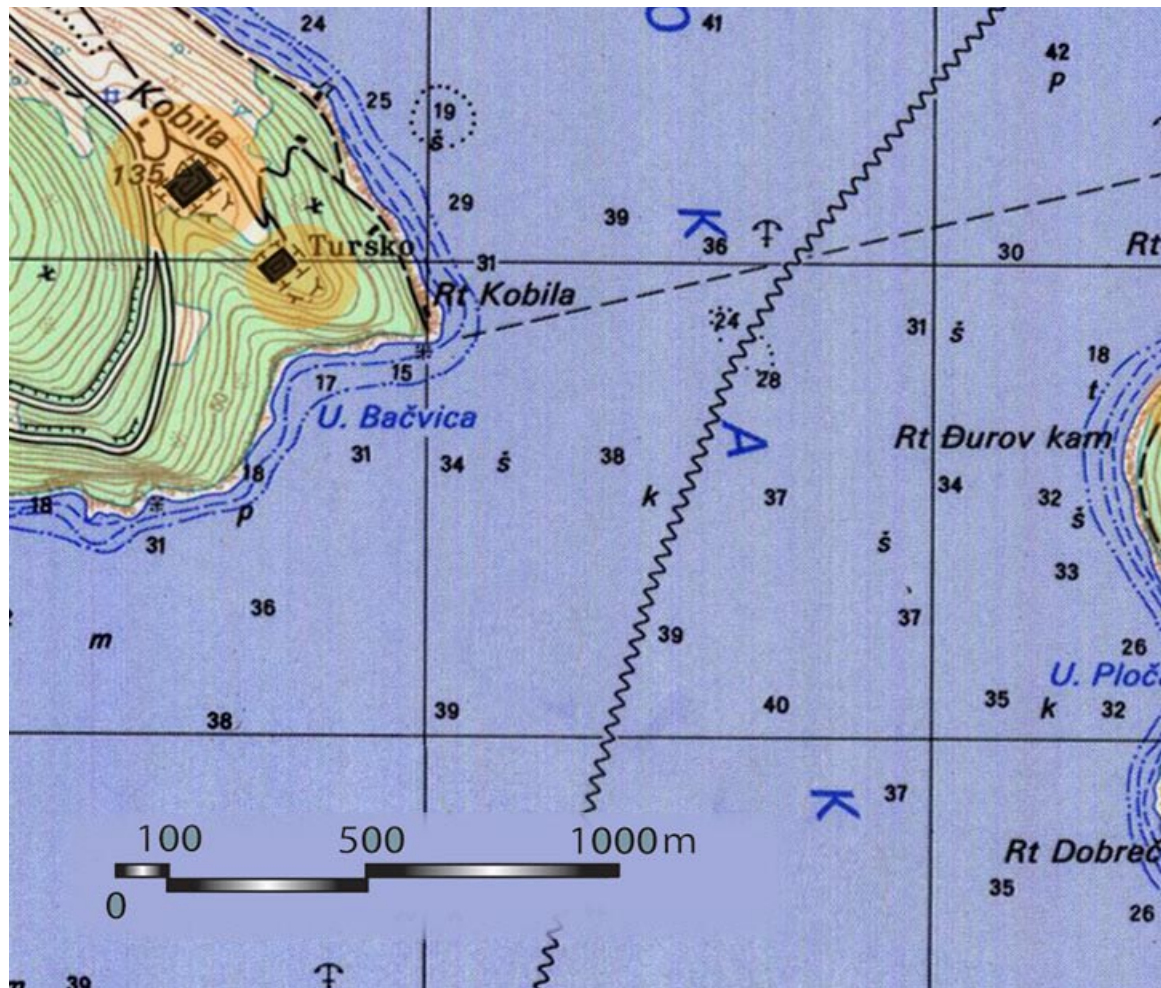




Fort Mamula and Mamula Island
Fig. 4.12
View northwest



Fort Arza
Fig. 4.13
View east - from the boat

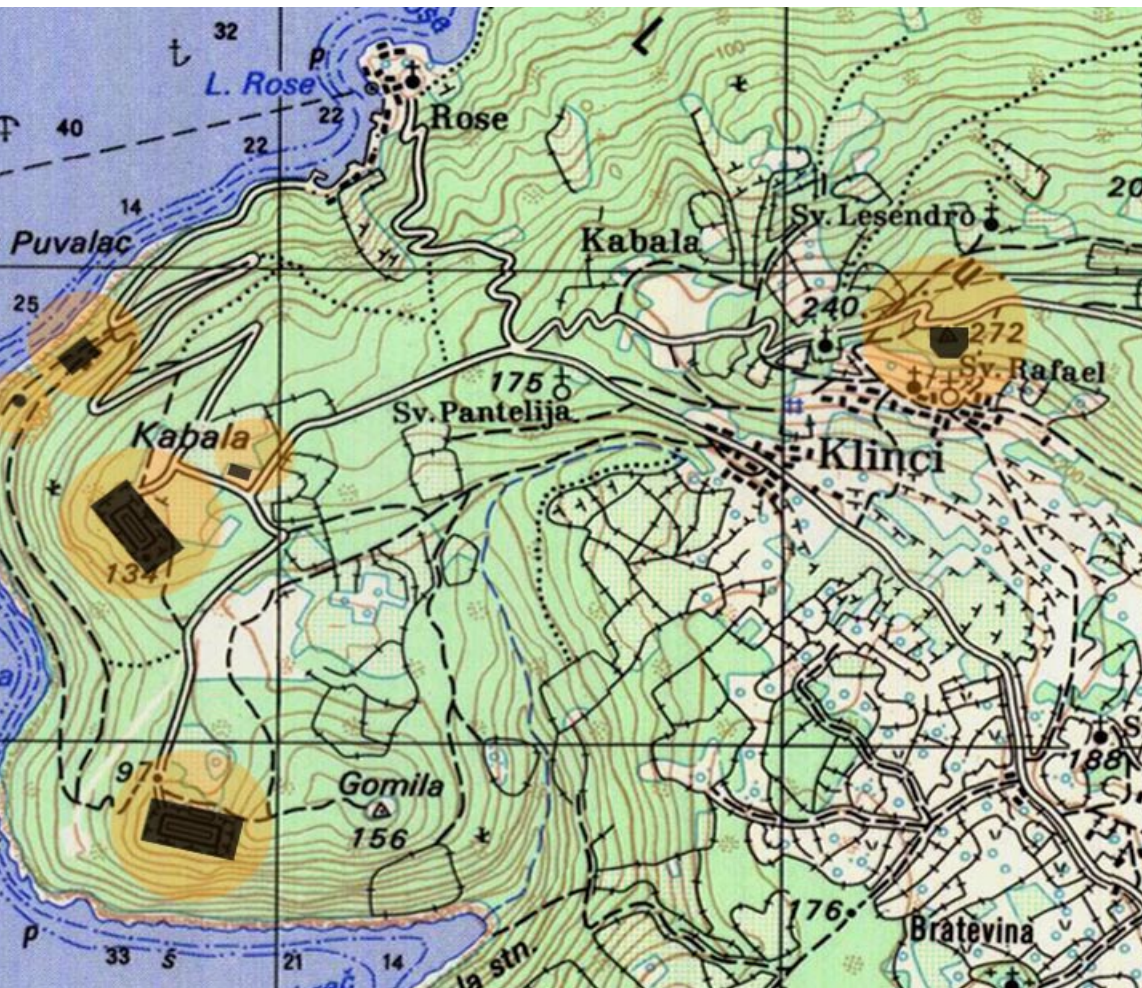


The Second Line of Defence
Fig. 4.14
 Topographic Map

Further in the bay, nature has created yet another geographically distinct element in the form of straits between *Cape Kobila* and the most indented western part of the Luštica peninsula. This powerful strategic location is also marked by a series of defence fortifications positioned on both sides of the straits. This second line of defence is established by *Fort Kobila* and *Fort Tursko*, found on the western face of the strait, and

Fig. 4.15
 Panoramic View to south of Prevlaka Peninsula and the entrance bay from the roof of Fort Oskoruša





by Fort Luštica or Fort Lazine, Fort Oskoruša, and a smaller defence building Fort Kabala located on the eastern side of the strait.



Fig. 4.16
View to west, from Fort Oskoruša to Fort Tursko and Fort Kobilica positioned along the ridge of the adjacent Cape Kobilica

Fig. 4.17
View to southeast, from Fort Oskoruša to Fort Luštica buried in the surrounding terrain



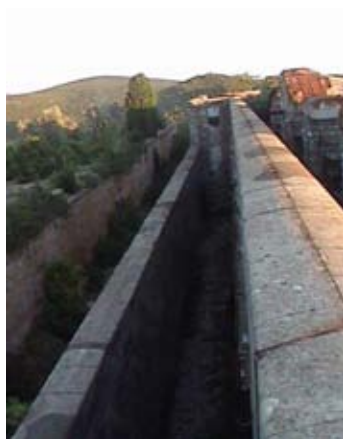
Fig. 4.18
View of Fort Oskoruša
looking southeast

In the Luštica peninsula domain, the first two fortifications are similar as they have a rectangular central building, circumscribed by a wide and tall defense trench. Both *Fort Luštica* and *Fort Oskoruša* are positioned further inland, corresponding to the surrounding topography. They are partially buried into the summits of the local hills, at 97m and 134m respectively overlooking the entrance to the bay and establishing a vital control point for the inner bay of Herceg Novi. Both fortifications, therefore, represented crucial positions, not only as the foundation for the second defense line, but also as a backup support for the fortifications in the first line.

Detail Views of Fort Oskoruša

Fig. 4.19 (left)
Defence trench, building corridor
and the roof stone wall parapet

Fig. 4.20 (right)
Fort's entrance buried into
the surrounding terrain



The third fortification, *Fort Kabala*, is smaller and also rectangular in shape. It is situated on the slope of a hill much closer to the sea at about 50m above sea level. Similar to the Arza condition, this fortification does not have any artillery positions within its building envelope. Nonetheless, there is a special location near the fort designed as an artillery stronghold. Further up the hill, along the road, a stone barrack was also built.



View of Fort Kabala looking southwest
Fig. 4.21
Surrounding Context



View of Fort Kabala looking southwest
Fig. 4.22
Close up



Fig. 4.23
Fort Kabala from the path downhill



Fig. 4.24
Kabala artillery position
near Fort Kabala



Fig. 4.25
Stone Barrack near Fort Oskoruša

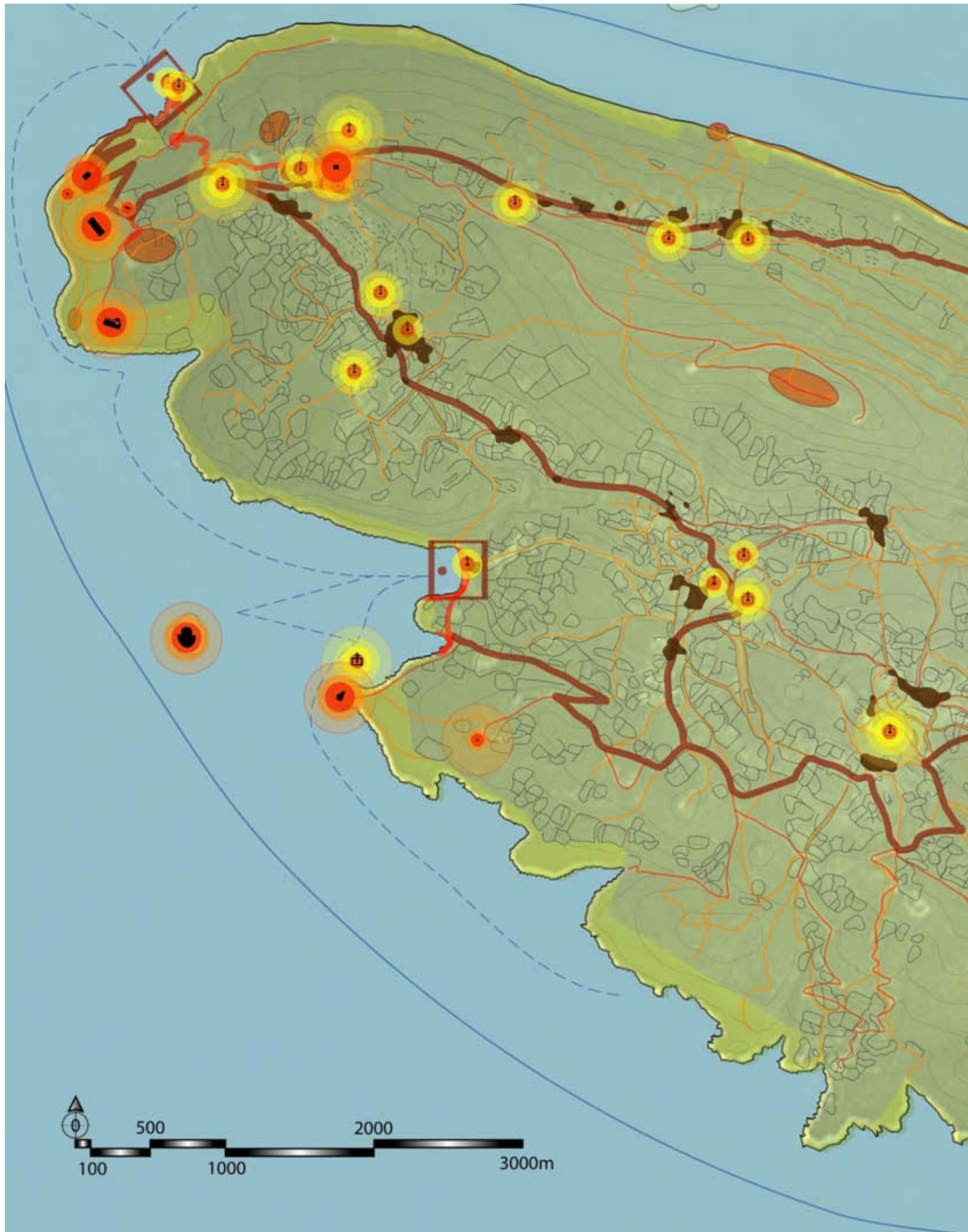


Fort Klinci
Fig. 4.26 (left)
The access road and
the surrounding context
Fig. 4.27 (right)
The entrance and the north facade

The chain of military defense objects built by the Austro Hungarian army is completed by another, differently designed fort located further inland, up-hill from the village Klinci. Like the other fortifications, Fort Klinci is also situated on the summit of a local hill. However, this location is on a higher elevation at 240m, providing this fort with an even better overview of the surroundings, both inland and sea-born. The fort's base is also rectangular, although it has a rather unusual half-hexagon open terrace on its south side, used as an artillery stronghold from which the entire west end of the peninsula could be observed, controlled, and protected.



Fort Klinci
Fig. 4.28
View of the south-facing
hexagon terrace



Fortifications & Heritage Park



Legend

-  Fortification
-  Artillery outpost
-  Church
-  Church with cemetery
-  Piled stone wall - *medja*
-  Urban nucleus
-  Rural nucleus
-  Military zone
-  "Morsko Dobro" zone
-  Major road
-  Paved road
-  Unpaved road
-  Paths
-  Sea routes
-  Park's gateway
-  Heritage Park
-  Adriatic Sea

Luštica Heritage Park Map
Fig. 4.29

1:30,000

This modified Heritage Park map accentuates the fortifications and military locations as a group of very important and equally influential elements in the park formation. Other park components such as Orthodox churches, village and urban nuclei, along with the park's gates and a network of roads, paths and stone walls are also included to indicate the affiliations between them and the fortifications within the Heritage Park context. The relationship between the churches and the forts is of particular importance due to their 'sacredness' as described further in the experience section of this chapter.

Artefacts

d e s i g n

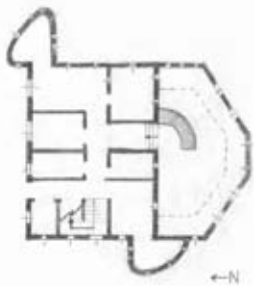


Fig. 4.30
Fort Luštica
the trench wall detail

Fig. 4.31
Fort Klinci



Fig. 4.32 (bottom)
Sketch ground plan of Fort Klinci



Although varying in size and formal geometric morphology, the Austro-Hungarian fortifications share many typological and other similarities in addition to the obvious functionality. All forts are built of regular, hand-carved white and gray stone blocks locally quarried. Most walls are very thick, ranging from 0.5m to 1m in width for the external walls - and have numerous openings carefully designed to maximize defense efficiency. The majority of the structures were built on two floors. The intermediate floor structures (floors and ceilings) are usually made of stone, wood or steel and the ceiling structures are Prussian vaults (Fig.4.36). They combine a steel I-beam system with intermittent concrete vaulting employed in between. The stairs were typically built out of hand-carved stone and also designed efficiently to facilitate the defense. They are normally large in size to allow for easier and faster circulation between the floors.

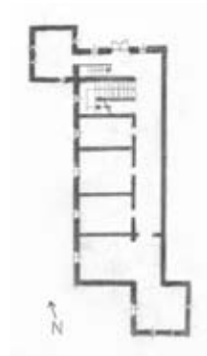


Fig. 4.33
Sketch ground plan of Fort Kabala



Interior views of the forts
Fig. 4.34 (left)
Spiral stone stairs at Fort Arza
Fig. 4.35 (top-right)
Fort Kabala typical room detail
Fig. 4.36 (bottom-right)
Prussian Vault Detail

Most defense buildings such as Fort Mamula and Fort Oskoruša have roof access, where heavy artillery is often located. Roof occupancy is a simple issue of maximization of defense purposes.

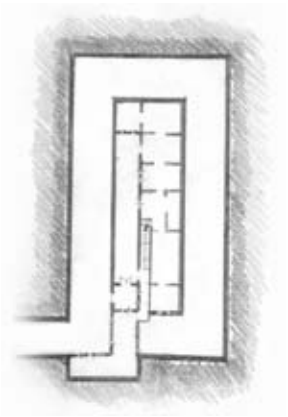


Fig. 4.37 (top)
Sketch ground plan of semi-buried
Forts Oskoruša and Luštica



The Roof of Fort Oskoruša

Fig. 4.38 (left)

View southeast

Fig. 4.39 (right)

View northwest overlooking the
bay and the town of Herceg Novi



It is also important to mention that these forts were permanently occupied with soldiers who fought, slept, ate, kept watch and lived there during their military involvement. In addition to sleeping quarters, dining areas and kitchens, architects and engineers also included large water accumulation chambers. Given the lack of water sources on Luštica, large cisterns were historically the main source of water for the soldiers and consequently, crucial in the overall design of forts. Usually they were integrated as part of the defense towers and placed in the basements or as subterranean structures adjoining the main buildings.

The Water Elements

Fig. 4.40 (left)

A pipe to subterranean water cistern
in the corridor of Fort Oskoruša

Fig. 4.41 (right)

A well and subterranean water
cistern in the centre of Fort Arza





Ex-military submarine tunnel Ukop

Fig. 4.42

The entrance to the abandoned 140m long tunnel was used as a submarine shelter and repair location during military activity in the area. The channel in the middle is covered with a temporary wood platform for local festival purposes. [refer to the forthcoming section on the Ukop scenario for more details]

The forts of Luštica were also occupied and heavily used, especially during the two World Wars. Some even changed their original function. Fort Mamula on the island of Mamula, for example, became a high security jail for political prisoners, domestic revolutionaries, and local freedom fighters. After the Second World War, when the peninsula became part of the newly formed Yugoslav Republic, the Yugoslavian army also recognized the strategic importance of the peninsula and therefore continued its military activity. In response to fast growing military progress, especially in the marine domain, new submarine shelters, subterranean structures, and tunnels were built. Only some of the older artillery locations were kept operational. Over time, however, most of the old Austro-Hungarian fortifications became less functional and were eventually abandoned in the years to come. Despite attempts to renovate, reconstruct, and repair partially destroyed forts after the Second World War, the present ruins testify otherwise. Many were left to dilapidate and erode up to this very day. At present, these buildings are overgrown with vegetation, in a ruinous state as a result of years of neglect and no newly found purpose.

Experience

genius loci

Fig. 4.43
Entrance to Fort Luštica

Seldom do we have the chance to see virgin darkness, unmarred by electric light pollution. Seldom do we have the chance to be taken out of our little selves into the larger self of the whole universe. To see the universe thus, as an unbroken whole, is to conceive, or to vividly remember, the metaphysical foundations of our being, an experience which normally evokes awe, humility and respect. This kind of knowledge, of the order enfolded into the universe, comes only from direct ecstatic experience and cannot be transferred from one person to another.

Suzi Gablik
The Ecological Imperative



Despite their obsolescence and abandonment, there is something extraordinary about the fortifications in their present state. Most of them have been deserted for more than 60 years. During this period, barely any feet have walked their stairs, floors or their roofs. Only Fort Arza is frequently visited by tourists during summer seasons due to its dominant location and closeness to recently widely accessed tourist areas. This abandonment of once heavily used buildings has been fully embraced by the hands of Nature. She has taken over and almost completely redesigned the complexes into wondrous magical settings where rigorous rough stone surfaces and bold, fierce, man-made gestures are smoothed and subdued by gentle, subtle and soft interventions of leafy vegetation. It is quite astonishing to see how Nature has literally swallowed some of the stone structures, whereas some of them she almost deliberately left intact revealing their graceful and proud postures.



Fig. 4.44
Fort Kabala north wing

Fig. 4.45
"Eyes" of Fort Oskoruša



Fig. 4.46
"Gate" to the main complex
of Fort Oskoruša

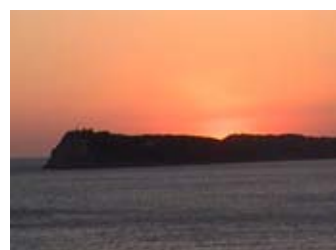


Fig. 4.47
Front entrance to Fort Kabala



To see this play between the rectilinear white and gray stone mass intertwined and enmeshed by irregular dispersed bands, patches and piles of greenery; to see the masses virtually move around as you approach and pass by them, is surreal and exhilarating. It directly triggers the imagination, evoking enchanted castles from fairy tales and legends, or even brings to mind Buddhist shrines and temples of the Far East, consumed by Indonesian jungles and left deserted for centuries. Mythically isolated and long forgotten, the edifices have supernatural qualities and a certain mystery while hiding within them either a great danger or a great treasure...

The only danger in these forts, however, is to get scratched by thorny bushes that seem to follow you around, get bitten by insects which inundate the shady exterior spaces, or become nervous about the bats that inhabit most of the gloomy interiors. The treasure, on the other hand, is immeasurable. The treasure is an experience, a quite extraordinary experience. It is the feeling that overwhelms you as you walk the hallways, chambers and rooms, as you scale the stairs, lean against the walls, as you look through windows and openings, once you jump over the holes in the damaged floors, and finally, as you climb the roof tops, stand there, inhale deeply and look around. It is the feeling that surpasses the initial eeriness and even fear of dark places, bringing to mind fighting, destruction and death. Once you reach the top, once the sun shrinks your pupils, once Nature opens up and embraces you - the luxuriant greenery, the endless blueness of the sky and the sea - all remaining shivers, all shouts, cannonades and gunshots, all past echoes are gone. You begin to hear the sound of silence, the sound of nature, the sounds of inside and outside merging into one. You become harmonious with the surroundings, the building, the landscape, the sky, and the sea; you become one with Nature. As you inhale, the wind whispers. You exhale, the sea murmurs. Then you pause for a second... and everything stops... eternity opens. Time and space merge within your next breath. You enjoy the mere existence, deep in contemplation, unified with time and space. No meanings, no reasoning. No questions asked, no answers given... Just mere existence... Life as is...



"The separation that occurs in a gallery between spectator and artwork is impossible when the 'work' surrounds you and extends for a hundred miles in all directions.... For me, art isn't something you carry up to an East Side Manhattan apartment in an elevator."

James Turrell,
Roden Crater in Arizona desert

Harmonious "Sun-ergizing"
Fig. 4.48-4.53
The Sun Set from Fort Arza

Experiencing the fortifications of Luštica - looking at them, walking through them, listening to them - they carry some of the poetic grandeur of Roman antiquities as convincingly captured by Giovanni Battista Piranesi in his etchings. Tumbling ruins overgrown by vegetation recall the buildings' long forgotten past. Their overwhelming monumentality impressively conjures past magnificence, hinting towards the notion that these extraordinary places possess something beyond the Romantic setting, something unreal and perhaps surreal.



Fig. 4.54 & Fig. 4.55
Piranesi's etchings of Roman ruins

The sensuous mood embodied by Piranesi is similar to the feeling awakened while being on the roof tops of the fortifications. It is a feeling of remoteness, separation from the ordinary, being far away from reality, in a dreamlike world, where anything is possible and where the sense of wonder is omnipresent. While Piranesi's utilization of these imaginative settings can be understood as the architectural backdrops framing the spaces for public display, the Luštica fortifications can be seen as nature's background for the revelation of her fecundity and healing powers, providing us with lessons of life and creation. Or rather, the forts represent a stage, a setting, where the public display of Piranesian wandering characters is substituted by solitude, contemplation and veneration. They represent special spaces where nature and culture are brought together in a unique way, or better yet, where culture was brought and then retreated, thus enabling one to retain cultural ties while being utterly immersed in the natural surroundings, in the wilderness itself; absolutely free of any human activity, away from 'civilized tepidness' and 'cultural tameness'. It is the wilderness portrayed in the words of Wendell Berry:

"a place where nature is given a free hand, where people go only as guests, [a place that] functions whether we intend it or not, as a sacred grove – a place we respect and leave alone, not because we understand well what goes on there, but because we do not."



Fig. 4.56-4.59
The Greenery - The Wilderness

Fig. 4.60
The Sky



Fig. 4.61
The Sanctuary



Fig. 4.62
The Sea



Since the beginning of human history, there have always been places on earth which radiated with strong forces, perceived to carry high energy fields. These profoundly unusual locations in nature have always been revered as sacred. Men would go there to observe the stars and the moon, to communicate with the omnipresent gods, to admire the magic of the universe, or to contemplate life and meaning of their terrestrial existence. Since *Stonehenge* such places were marked in our physical world as shrines or temples, and carried forward in our collective sub-consciousness as special locations of high spiritual intensity. The sacredness of Luštica's fortification sites seems predictable and comes naturally only if they are seen through the light of their characteristic identity, their situation, and their condition. In this 'sacredness' they vastly resemble the churches in Luštica and their consecrated spaces.

The churches and fortifications of Luštica elevate their stone structures from particular locations in the landscape. Their unique building typologies, founding, and grounding make them meditative spots. It is reasonable to conclude they all possess Genius Locus, spirit of the place, the spirit of the Luštica peninsula that seems to inhabit them. The buildings were given enough time to adjust to the surroundings and consequently, for the surroundings to accept them, allowing the Genius Locus to freely permeate. It feels as though the spirit hovers above these sites, like an aura or some other radiating energy manifestation usually perceived as charm or sacredness. This floating spirit is reminiscent of an aureole above a saint's head found on Orthodox frescos or the sun above an open sea horizon.



Kabala Barrack

Fig. 4.63

Within the temple beneath the sky

"Certain places are perceived to be of high spiritual density because of plant or animal habitat intensities, or associations with legend, or connections with human totemic ancestry, or because of geomorphological anomaly, or some combination of qualities. These places are gates through which one can – it would be said – more easily be touched by a larger-than-human, larger-than-personal, view."

Gary Snyder

The Practice of the Wild

Despite their similarities, there is one difference between fortifications and churches, especially when it comes to their sacredness. In essence, the difference could be understood by considering the difference between two very alike terms, sacred and spiritual. In their difference lies the fundamental distinction between the sanctity of fortifications and church sites in Luštica. According to the Oxford Advanced Learner's Dictionary, sacred has three meanings:

1 - connected with God or a god or considered to be holy;

2 - regarded with great respect;

3 - regarded as very important, solemn

Similarly, the dictionary provides the following meanings for the word spiritual:

1 - of the human spirit or soul, not of physical things

2 - of the Church or of religion

From the two definitions it can be concluded that there is some strictness to religious connotations felt in the word spiritual. It is a matter of human condition, of church and evidently of the non-physical, whereas, sacred may have more 'secular' connotations. It could mean both of physical and non-physical, of material as well as holy, in the context of a God. Therefore, the major phenomenological difference between the fortifications and the churches is that the churches represent *spiritual* places that are religiously charged, where certain dogmas and traditions must be revered and cannot be refused. In contrast, the fortifications can be seen as sacred places where there is room for the secular, physical, and even profane. The fortifications are more *comfortable* locations for contemplation because they represent spaces devoid of any institutional church-based connotations and meanings. They do not impose the rigor, austerity and norms of the religion. On the contrary, they are recognized as less limiting and more liberating sacred experiences.

The forts might be seen less as a destination for spirituality, as churches are commonly referred to, but rather as a vehicle for acquiring the deep state of the 'body-mind and surrounding' harmony. Their sacredness has a sensuous, more carnal, context and consequently it reminds one of the sacred groves of old polytheist cultures, native groups of North America, Africa and Australia, even the pre-Christian pagan tribes of Europe, where nature was revered as the omnipresent goddess.



The Pilgrimage

Fig. 4.64

Road to St. Pantelija Church

Fig. 4.65

Road to Fort Arza



The Gateway

Fig. 4.66

St. Trifun Church

Fig. 4.67

Fort Luštica



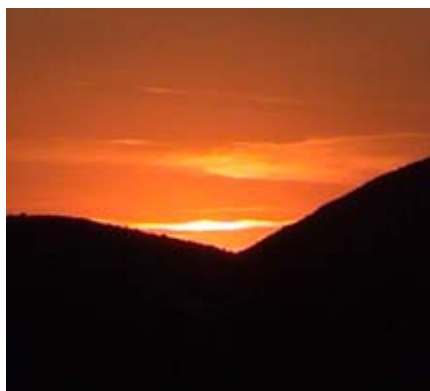
The Meaning

Fig. 4.68

Cross in St. Sava Church

Fig. 4.69

Sunset over the dip in the landscape



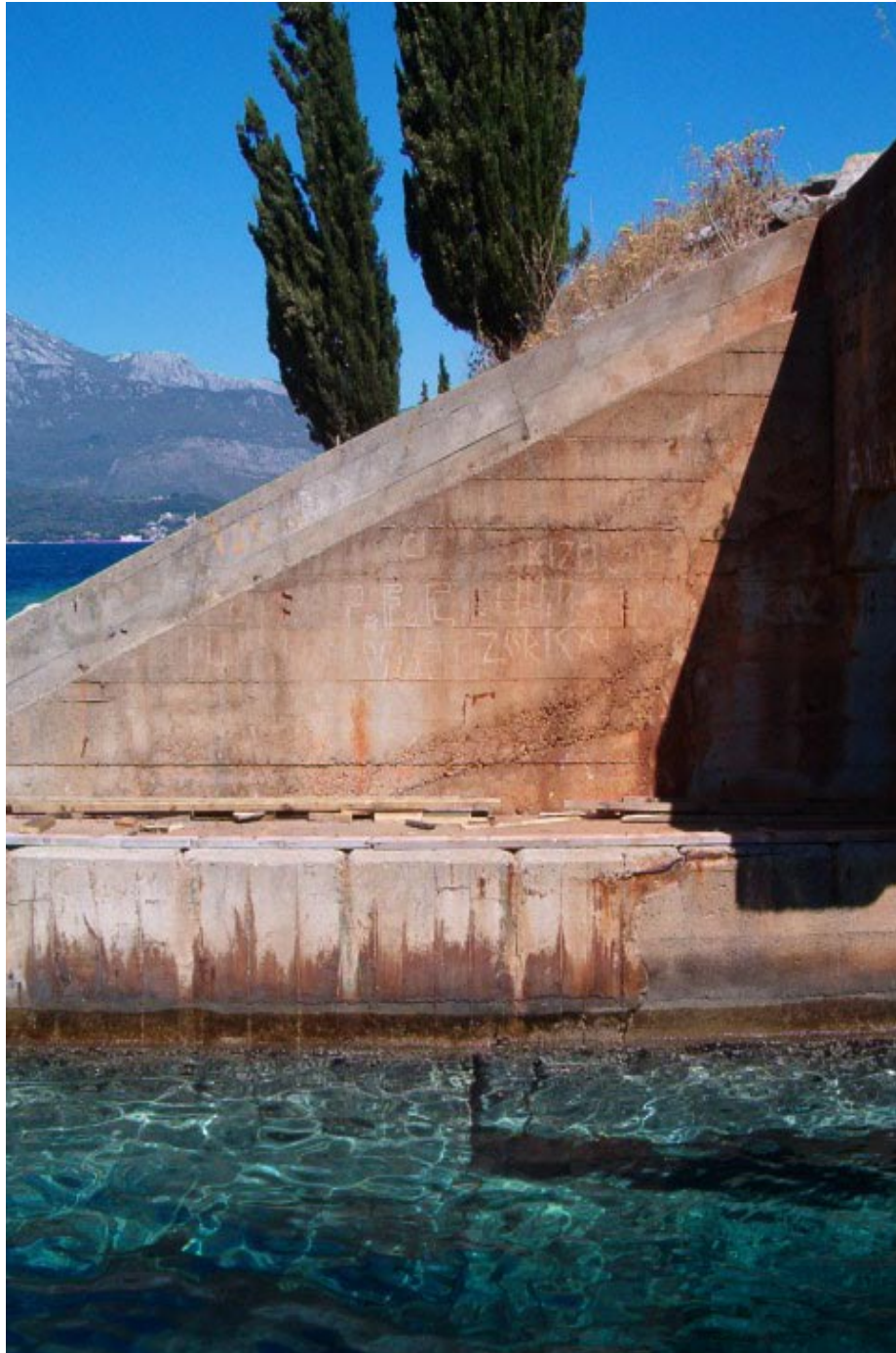
This is not to say the fortifications do not possess any spiritual qualities of churches. Despite their secular appearance, they can be very inspirational and extremely up-lifting, given the flexibility of imagination and introspective freedom. The liberation of thoughts, intuitions, feelings and sensations all stirred up by dusk or dawn reminds one of the transcendentalists and their search for the 'higher truth' of deity in Nature. Being completely absorbed by the natural world in the fort-setting, one is able to become part of the spiritual reality latent in the matter of the surroundings; of years passed, of moments present, of intuitions and foresights - all suspended in the air, suspended introspectively between feelings, consciousness, perceptions and thoughts. Here, one is given the opportunity to transcend these realities, to indulge in the world of invisible spiritual reality, surpassing sensuous perceptiveness, experiential qualities of time, space and matter; or rather to acknowledge the 'higher truth' of being inseparable from Nature, from God, from the Universe...

Fig. 4.70

Oculus in the centre of Fort Arza



"The first task of art consists in giving shape to what is objective in itself, i.e. the physical inner life of its own a meaning and a form which remains external to it because this



world of nature, the external environment of the spirit, and so to build into what has no meaning and form are not immanent in the objective world itself."

G.W.F. Hegel, from *Ästhetik*, 1818





1897 WACHHAUS CABALLA

Fig. 4.71

A stone tablet inscription
above the entry door to Fort Kabala

Currently there is a great deal of debate within the Herceg Novi municipality in the realm of urban and tourism planning, conservation and protection agencies, cultural heritage institutions and offices. Presumably, politicians and bureaucrats are considering the future destiny of the dilapidated fortifications on Luštica. According to one side, a new purpose should be found for these objects, and thus, they should be renovated, reconstructed, restored and adapted accordingly to suit the new, mainly tourism driven economies of the region. Yet the other side sees the fortifications as cultural monuments worth preserving and advocates their renovation but to a different end. Conservation authorities see them as museum pieces seated in the intact, unspoiled landscape. Luštica's future development, however, is probably still set aside as a less prioritized cultural concern. These two views still present the existent dialogue, the two opposing forces that radiate from the issue of the future destiny of these monuments.

Undoubtedly, the fortifications should be given special consideration because of their unique condition. On the one hand, they had an important past, a particular function and consequently, a specific character that developed over time. These structures bear strong cultural connotations given their imperative role in the history of the region, being heavily used and built by man.

On the other hand, their current state suggests otherwise. Presently they are abandoned and desolated, in a ruinous state, entirely taken over by natural forces and eaten by vegetation. Simply, they are reverted to a wild state representing nature itself, a *wilderness* in a sense they are completely devoid of human use or activity.

Given these two aspects, one can conclude that the monuments today do not belong to any of the two systems, natural or man-made. They are not entirely part of the natural environment, but they could not be considered a built environment either, as they no longer have a function. They are rather a bit of both. Formerly cultural constructions with a specific function, today they are a naturalized habitat of autochthon vegetation, representing the middle ground between the two. They symbolize the potential for reconciliation, symbiosis and coexistence of the two historically and presently conflicting sides - the natural and the cultural.

The difficulty in finding an appropriate solution for the existing condition lies in the compromise or in the satisfaction of both sides. How does one find a new use, within the context of tourism-oriented, profit-driven politics, and still maintain the forts' ecological and nature friendly environment, while preserving their historic and heritage values? How does one find a new function and maintain their compelling charm? The ultimate question is: what is the new vision for the fortifications wherein their present *Spiritus Movers* will not be lost, but rather enhanced?



Piazza Navona, Rome, Italy

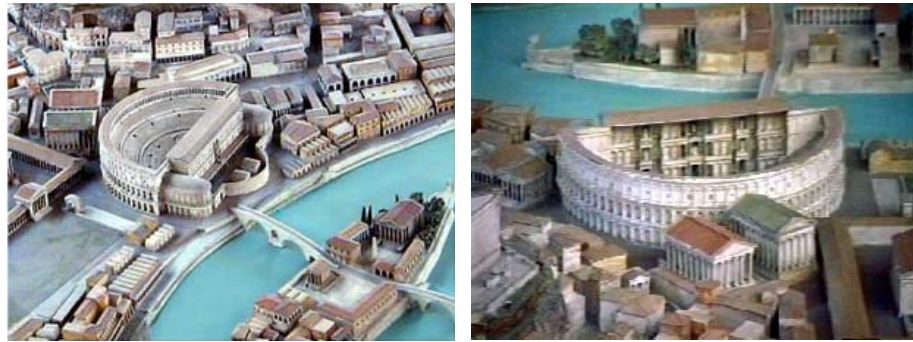
Fig. 4.72

A post card suggesting the *cultural continuum* - connection of the past and the present as a way of maintaining the identity and hence assuring a meaningful future

Teatro di Marcello

Fig. 4.73 & Fig. 4.74

A model of Theatre of Marcellus in the urban context of Imperial Rome

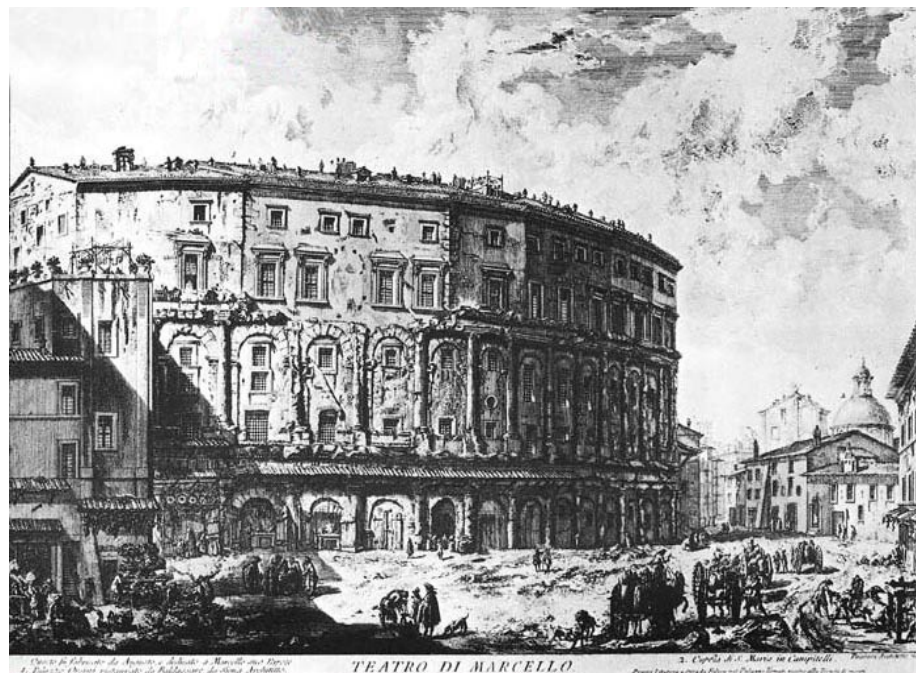


Similar scenarios, in which old, abandoned artefacts are in need of new meanings, or a continuation of their identity, can be found in any culturally charged and historically rich area. If we look at the city of Rome, for example, we recognize its historic struggle. After being destroyed repeatedly throughout history it found its post-imperial identity and re-established itself as the new centre within the constantly evolving cultural continuum. A more specific example within the historic centre of Imperial Rome would be *Teatro di Marcello* - the old Imperial theatre of Marcellus found at the bottom of *Capitoline Hill* close to the Tiber Island. This monument underwent many functional and formal changes throughout its two-millennial existence. In the early Christian times, after the fall of the Roman Empire, its robust structural vaults, arcades, and peripheral ground related spaces were used as a market place. The upper structures and theatre spaces were modified and converted into a fortified, castle-like home for wealthy medieval families in the 12th century.

Teatro di Marcello

Fig. 4.75

Piranesi's etching of the theatre showing its urban context and condition in the 18th century Rome



The following centuries brought further modifications and alterations to the original structure so that the entire south side - original theatrical spaces with stage and seating areas - was converted into residential and living quarters. Finally, new structures were added; first to the west side utilizing what were then contemporary, neoclassical courtyard type buildings, and recently to the east side hosting more modern residential typologies of the mid 20th century. Only the north side has preserved its original look with the theatre façade still intact. Nonetheless, due to aesthetic and structural reasons, there was a recent façade addition/restoration to its north-western part that recreated an identical appearance of the theatre's original façade. Different colour and texture of the stone were deliberately used to emphasize and distinguish the new from the old. The entire northern part of the theatre building was incorporated in the surrounding archaeological site, and its original museum-like vaults and arcades occasionally host small concerts by local soloists.



This theatre building is an excellent example of how a structure can become virtually a living organism that evolves and changes through time^{*21}. The most effective part of this process is to see all the historic layers of the structure; to recognize its various parts within the building complex and how they correspond to its rich and active past. In order for a building to be successful, to justify its existence and presence, it is crucial for it to continue its life, and not necessarily its function alone. A true and genuine piece of architecture continues to live, while being uninterruptedly incorporated into the life of its surrounding, responding to its contemporary needs and desires, and most importantly, being in tune with its own identity.

^{*21} *This notion of building being an organism is evident in many architectural philosophies of the past and present, but it is explicit in Organic architecture which definition many architects have individually distill.*

"...by organic architecture I mean an architecture from within, outward in harmony, with the conditions of its being as distinguished from one that is applied without."

Frank Lloyd Wright, 1914

"Organism is not. In organism it is becoming."

Louis Sullivan, Wright's mentor

Teatro di Marcello

Fig. 4.76

Present day theatre in the context of surrounding archaeological site. Northern facade reveals different building components attesting its cultural continuity through centuries

"An organic approach to architecture, therefore, suggests the idea of an intuitive and poetic response to nature, augmented by the passage of time. Gothic cathedral architecture can be seen as organic in form and expression - in part because of its relatively free compositional possibilities as oppose to the symmetrical rules of Classicism, but more importantly because these cathedrals took many decades to build and, in most cases, were the outcome of many minds. Traditionally, architecture that appears most organic is that which has evolved, changed, grown and shrunk through time. A building, down the years, does not only change its shape, form and internal arrangements, it somehow seems to become settled into the landscape. This integration into a setting can be both the result of familiarity - a building becomes, in the subconscious, a feature in the recognition or the recollection of a particular place - and of physical absorption : materials submit to weathering, vegetation grows up, neighboring buildings are introduced and accommodated, and borders are redefined."

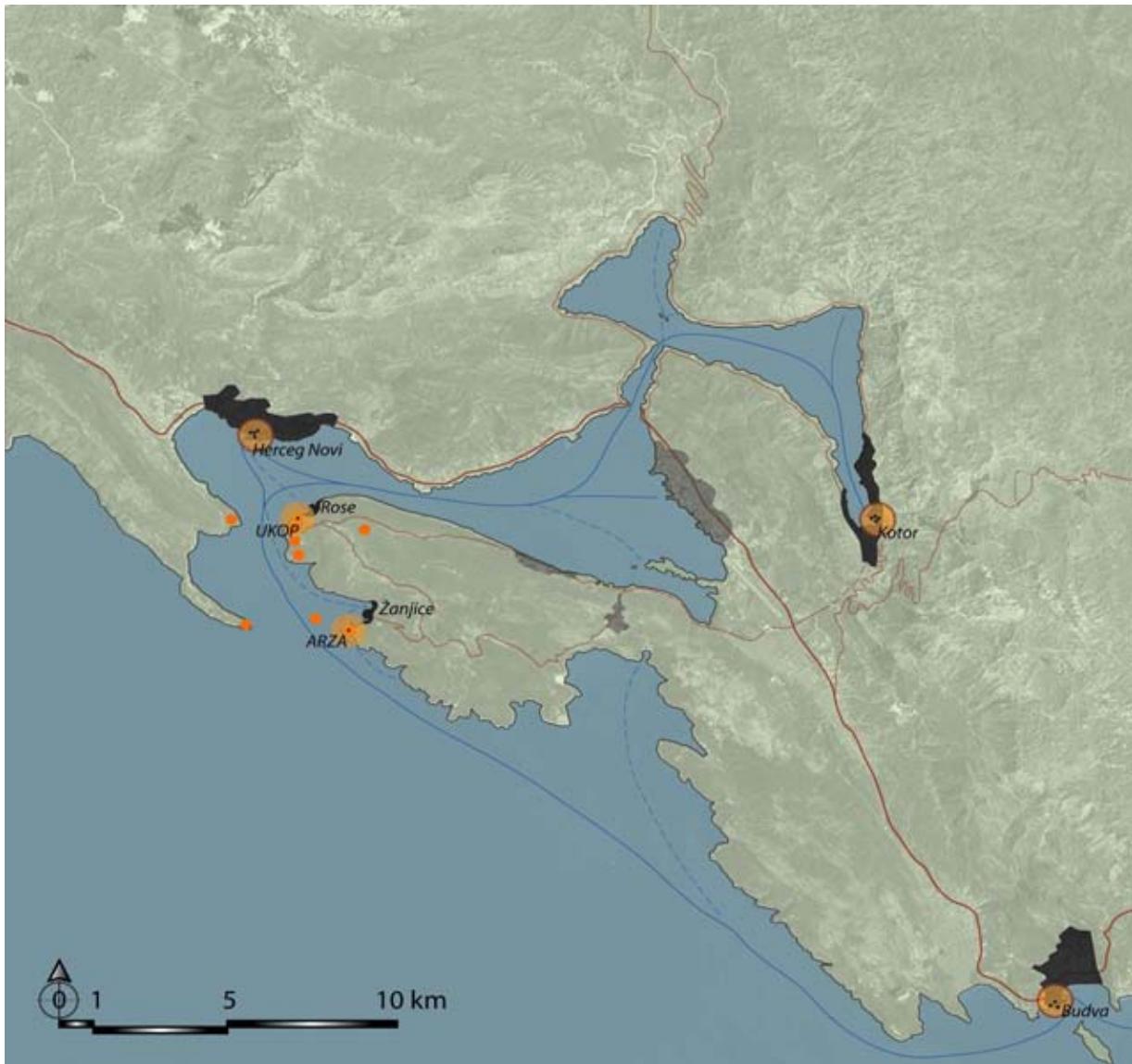
The Roots of Green Architecture

Additional illustrations could be utilized here to further portray the notion of *attunement* of the building's potential occupancy and anticipated future with its existing identity. The examples, however, will represent territorially closer and typologically more comparable buildings. Medieval fortifications found in the historic cultural centres of the Boka Kotorska Bay were originally designed and constructed solely for protection and defense purposes. Though their monumental appearance still dominates the surrounding land-seascape of coastal towns, the medieval forts of Herceg Novi, Kotor and Budva play a completely different role at present. After years of neglect, virtually all of them were revived and re-occupied. In a tourism thriving region this means they function mainly as tourism supporting artefacts hosting a variety of uses, from restaurants and cafes to night clubs, cinemas and theatres.

Boka Context Map

Fig. 4.77

Similar scenarios of inhabiting and reviving historical monuments, such as medieval fortifications, are practiced in the medieval town of Herceg Novi and other fortified historic centres of Boka Kotorska - Kotor and Budva. Proximity of tourism destinations and ex-military objects on Luštica presumably sets the future lives of these deserted monuments in motion as well.





Forte Mare in the Herceg Novi context
Fig. 4.78
 South fortification of the town in the foreground with cinema and night club established at its roof tops

This revival scenario of finding a tourism-based purpose for old structures is practiced most effectively in the town of Herceg Novi, in proximity of the Luštica peninsula. For example, the roof of the *Forte Mare* fort, previously used as a south watch tower of the town, has been converted into an open-air cinema and night club with scenic views of the entire town and its surroundings. Another example is the *Kanli Fort*, the northern defense tower of the town, whose interior spaces were adapted to facilitate an auditorium with more than 500 seats. This place is also used as an open air cinema and its large stage accommodates a variety of performances, from theatre plays to musical concerts. One of the most popular summer festivals in the Montenegrin Littoral is organized annually in the spaces of Kanli Fort.



Kanli Fort in the Herceg Novi context
Fig. 4.79
 North fortification of the town in the foreground with the auditorium and stage at its roof terrace



Traditional Folklore Performance

Fig. 4.80

During on of the most popular festival in Herceg Novi, the dancers get together and perform traditional Montenegrin folklore

Teatro di Marcello original Roman column within the wall of a new 1950s apartment building

Fig. 4.81

Preserving the historic identity even in its fragmentary form seems to pay due respect to its past and somehow enlightens the present to ensure a meaningful future evolution



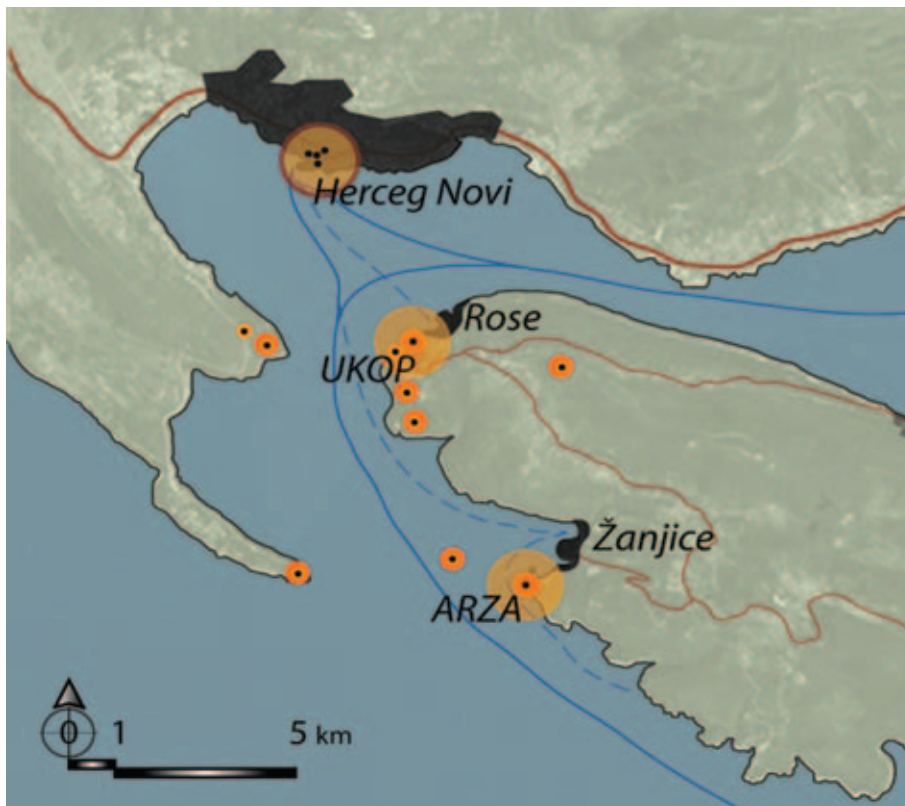
As pointed out earlier, being true to its identity means in these cases that people have to recognize the building potential, its fundamental characteristics, its past and its present condition - the sense of the place - in order to predict or envision its successful future evolution. In the example of the *Teatro di Marcello*, the robust and heavy enclosed structures and spaces of the theatre offer security, durability and permanence. Therefore, they were predestined to become medieval castle-like fortifications. They were a secure resort for wealthy families, later transformed into residential spaces in the times of densification of Rome's historic centre.

Similarly, large open spaces, interior volumes and exterior terraces of *Forte Mare Fort*, *Kanli Fort*, and other similar historic monuments situated in the medieval town of Herceg Novi - a very dynamic cultural centre with thriving tourism - could also take on a cultural and tourism based occupation with adequate amenities.



Medieval Town of Herceg Novi
Fig. 4.82
 The famous, old Clock Tower and the steps are amongst the most popular locations found in the central square of the tourism-oriented town of Herceg Novi.

To put this into perspective, Luštica's Austro-Hungarian fortifications and some of the newly abandoned military locations also carry the potential to continue their existence, to find new meanings and consequently to *keep on living their own destinies*. As such, they should be dealt with in a similar manner to the examples portrayed previously.



Herceg Novi Close-up Context Map
Fig. 4.83
 The map shows the proximity of the cultural and tourist centre of Herceg Novi and Luštica's fortifications with *Ukop Locus* and *Fort Arza* being the focus of the succeeding investigation

Entrance Festival at Ukop

Fig. 4.84

Photo-montage unveiling the merging character of the setting and the newly established event



Entrance, a multi-day rave festival, is organized every summer during the first week of August at the abandoned ex-military submarine tunnel in the close proximity of Rose - small coastal settlement in the north-western part of the peninsula overlooking the bay of Herceg Novi and its Riviera. Every night of the festival fans come by boats from all over the place to experience the renowned electronic music played by some of the best domestic and foreign DJs. They *rave* until the break of dawn and then leave to rest while the festival site is cleaned and prepared for the subsequent night. The festivity site - *Ukop* - consists of a large tunnel previously used as a submarine shelter/repair location, two adjoining smaller tunnels, and the dock area in front. These structures were built for military purposes and as such were purely functional and devoid of any aesthetic considerations. Their *infrastructural* spaces suggest they should be looked at as *engineering* rather than *architecture*.



Ukop Locus context

Fig. 4.85

Extended between the hill and the sea flatness of the site as a 'cultural pocket' in the natural surrounding

In order to better understand the character of Ukop's spaces and its connection to the festival, one should consider the subway tunnels in our major cities. Their sole purpose is to be structurally sound and to allow movement of trains underground. Left alone and deserted, however, these volumes have capacity to offer a completely different dimension. It seems they can acquire a character of their own, become entirely transformed and start anew.

"At times, the project takes on a life of its own. It then transforms into a volatile animal, with restless legs and insecure eyes. If its transformations are not understood, or if its desires are not satisfied beyond the most basic, it becomes a monster. If everything that seems evident or beautiful about it is fixed, it looks ridiculous. If it is overly restrained, it stops breathing and dies."

Alvaro Siza, Daidalos 5, 1982



Ukop land-seascape context

Fig. 4.86

Fragmented panorama showing the built environment surrounded by natural environment

Specifically at Ukop, almost soulless personality of concrete forms became a fully rendered armature in the hands of nature after ages of neglect and seclusion. Its abandonment and loss of functionality allowed the submarine tunnel to gain a new identity and to connect to nature. Previously sharp, sterile cuts of concrete forms in the natural landscape are now characteristic, naturally colored facets that do not juxtapose their surroundings but rather harmoniously assimilate into them.

The cut in the landscape

Fig. 4.87

The submarine tunnel with the wood platform bridging the two sides





The colour of the concrete now matches the colour of the adjacent stone and earth. They look like the rectilinear forms – despite the contrasting amorphous stone and earth mass that surround them - belonging to the site as if they were built in the same time in its geologic history. Also, the vegetation similarly integrates and blurs the distinction between built and natural elements. It gradually grows around the perimeter of the tunnels, softening the edges between concrete forms and its immediate *wild* surrounding.

Assimilation or camouflage

Fig. 4.88 (top left)

Matching colours of concrete and the surrounding terrain

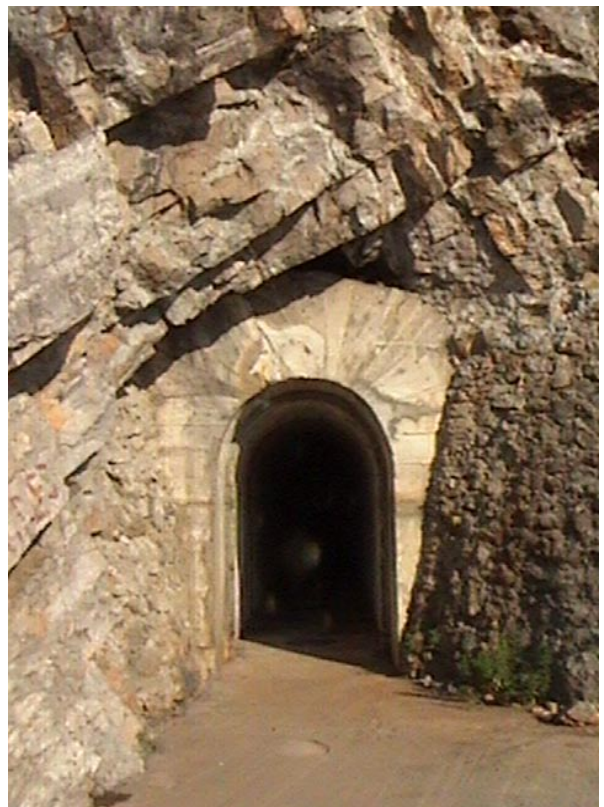
Fig. 4.89 (bottom left)

Detail of naturally coloured

green concrete

Fig. 4.90 (right)

The entry to the pedestrian tunnel carved out of stone/built into the hill



Ukop close-up landscape context

Fig. 4.91

Panoramic view of the tunnels,
the hill, and Fort Kabala





Tunnel - Womb - Cave

Fig. 4.92 (left)

The interior of the submarine tunnel

Fig. 4.93 (right)

The interior of Sybil's cave, Cuma, Italy



...It was a very calm summer night and the stone we were walking on was still hot from the sun that had recently vanished behind the dark silhouette of the hill in the west. The boat was already full and we were looking for the last available spots at the top of the deck, standing in soothing anxiety. While the lights of Herceg Novi behind us gradually faded away, the darkness in front of us grew. It had already swallowed the boats ahead of us. The humming sound of the motor was ripping apart not only the smooth sea surface but also the impeccable silence of the night above and around. The anxiety swelled... It seemed as if we were not moving at all, as if time and space had stopped. Only the light dots of Herceg Novi behind us, like hundreds of blinking eyes, were the proof of our movement, of our existence. All of a sudden, a new sound started to synchronize with the constant motor roar. It grew bigger, stronger, bolder. Finally, the source was revealed in front of us in the form of a spectacular game of lights. Very colorful and moving, they grew bigger, stronger and bolder as well. And there it was, ENTRANCE 2004 rave party...

At the same time, there is something mysterious and uncanny about this submarine tunnel. The interior darkness hides the stories of a military past, stripped of any function or activity; it becomes a playground for our imagination and subconsciously unfolding material explicitly enriching the tunnel's perception. Mythologies of the cave and of the womb, for example, are the first connotations brought to light while our senses are being provoked by their mesmerizing appearance. This setting seems only appropriate to host a similarly perceived cultural phenomenon such as a multi-day rave festival. Lusciousness, sensuality and seduction combined with intrigue, apprehension and even a certain level of discomfort are only a few experiences associated with the rave festivity and the submarine tunnel.



Entrance Main stage

Fig. 4.94

Sea of ravers in front of the DJ stage with the rocky hill as a backdrop

Integrated into one manifestation, they seem to feed of each other and amplify the portrayed experiences resulting in our absolute submission to their overwhelming powers. Therefore, the success of re-inhabiting the abandoned, obsolete space explicitly lies in the congruence between that space and its newly animated content. As with the previously described forts, the sense of the place, its spirit, was understood and somehow consulted.



...the music was overpowering. The setting was enchanting. One side was bordered by the sea, and the other by a rocky hill covered with thick Mediterranean macquis vegetation. The concrete podium was packed with people, all in motion, all dancing to the beat like a raving sea. There was something both disturbing and yet compellingly beautiful about this dance, about these body movements. There was something of primeval quality to it, pagan, carnal, seductive, but again honest, spontaneous and beautiful... like a chant...like a ritual. Was it the setting that provided such an atmosphere? Was the 'tribal - trance - techno' music fusion? Or was it both?

*Entrance electronic music festival
Fig. 4.95 (top-left)
 Luštica, Rose and Ukop at night
Fig. 4.96-4.100
 Fusion images of the setting,
 people and the festivity*

Besides the matching personalities of the festivity and the setting, attuning to underlying conditions of the place, its *topos*, is also supported by their interlinked temporal and spatial scales in respect to their natural surrounding. Namely, the festival happens only once a year for the duration of several days. In 2002, the first year of the festival, the party lasted for two days, whereas the last one, Entrance 2004, lasted for five. This directly imposes a transient quality to this event and hence a periodical celebration of this very potent location.

...in the distance, further down the concrete dock extended between the mountain and the sea, across this body-saturated dance podium, there was a dimly lit monumental cave-like opening - a submarine dig-out. It looked like a gigantic rectilinear mouth of the hill within which colorful lights inhabited the enormous void between the heads of the crowd and the vaulted concrete ceiling. And under the rumble of dancing feet, below the vibrating wooden deck, the dark sea was splashing the concrete banks of the tunnel... surrounded by nature, swallowed by nature, a part of nature, with the music as the only guide, parameter, reference point, the beginning and the end...

Ukop site - a few days after the festival

Fig. 4.101

Landseascape view along the edge of the concrete padio from the wood platform. Tranquility replaces the traces of previous tumultuous nights



Being at *Ukop* a few days after the rave festival, when traces of the previous tumultuous nights could still be seen, felt, and touched, one is given an extraordinary opportunity to experience the site in a completely different light. Particularly the wood platform went virtually unnoticed during the festival since it was perceived as a continuation of the concrete *podium* stretching between the hill and the sea. Without thousands of ravers from the previous nights, a visitor can clearly appreciate its unique character - its simplicity of design and construction, and yet its compelling impact.

The transformational impact of the bridge on the entrance of the submarine tunnel

Fig. 4.102 (left)

The interior view with the bridge

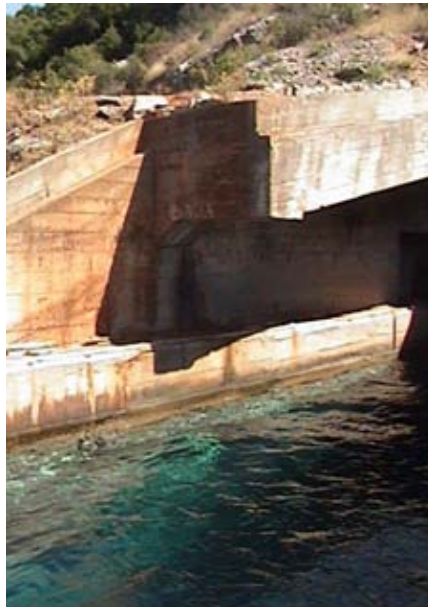
Fig. 4.103 (right)

The interior view without the bridge



A purely functional gesture of bridging the submarine channel and connecting the two sides has imposed an incredible transformation on the tunnel and its surrounding. This spatial and perceptive change is fully realized a week later, once the entire platform is removed, once everything goes back to 'normal'. Then, one is able to admire the boldness of the tunnel's forms cutting through the hill above, penetrating the sea below. One is able to enjoy the interactive play of the glittering turquoise sea in the channel, casting reflections on the reddish brown concrete surfaces around.

Going back to 'normal' also meant going from one side of Ukop to the other, crossing the width of a 6 meter channel. In reality, without a bridge platform, one would have to walk all the way to the end of the 140 meter tunnel and come out on the other side, or alternatively climb the steep hill around the 'mouth' of the 10 meter long tunnel, crossing it above the entrance where the hill and the surrounding landscape are undisturbed and continuous. Consequently, it feels like the channel does not want to be bridged permanently for it would potentially compromise its predetermined character. The tunnel rather wants to be true to its original identity - to maintain its existing dialogue with the natural surroundings and to keep its genuine presence of being a substantial man-made construct, a deep submarine cut into the natural landscape, very proud of its military past.



The Game of shadows and forms at the mouth of the submarine tunnel
Fig. 4.104 (top)
 View from the tunnel looking out through the unbridged entrance
Fig. 4.105 (middle)
 Bridged entrance
Fig. 4.106 (bottom)
 Unbridged entrance

From the preceding portrayals it could be deduced that the temporary changes to the site and the periodic occurrences of the festival are appropriate. First, the temporal scale of the festival and the site are synchronized with the natural orders, since they evoke periodic changes found in all natural cycles. Secondly, this transience of the festival and changes to the site represent the *temporal* mediator between the existing and the emerging meaning of this former military locus. Essentially, the rave festival has initiated and now facilitates the transitional phase in finding a new meaning for the abandoned site.

Submarine tunnel and the bridge

Fig. 4.107

Photo-montage shows only a portion of the wood platform/bridge installed for Entrance festival suggesting the *transformative powers, versatility and flexibility, it has over the setting*





Ukop's podium - the stretch between the hill and the sea

Fig. 4.108 (left)

During the festival

Fig. 4.109 (right)

After the festival



As mentioned earlier, the spatial scale plays a crucial role in harmonizing the existing sense of the place and the new animation. It is a completely different experience being at Ukop with thousands of ravers and apprehending its dimensions alone a few days later. Enclosed by a steep rocky hill, a massive dynamic sea and endless sky, one initially becomes overshadowed by natural forces. Simultaneously, the size of the tunnel and the overall infrastructure are also responsible for the overpowering effect on a visitor.

The Entrance to the submarine tunnel

Fig. 4.110 (left)

Multitude of ravers during the festival diminish the scale of the tunnel

Fig. 4.111 (right)

A couple of days later, a few visitors inhabiting the interior reveal its true character



Built for submarines, the tunnel appears to be monumental in relation to man. It is however, a void space and an object in scale of the surrounding landscape. Therefore, constructed by man and yet in complete natural ambience, Ukop's rudimentary appearance now happens to be a *spatial* mediator between man and nature, a place of their potential reconciliation. Such uniquely rendered space - its scale and character - becomes a stage for the *rave* of the festival and the *rave* of the natural forces colliding, merging and synergizing.



The submarine tunnel
Fig. 4.112 - 4.115
 Colossal scale and *semi-naturalized*
semi-man-made state of the tunnel
 and its immediate surroundings

In conclusion, the appropriateness of the festival - its crude nature, its spatial and temporal scale in response to the site and the surrounding - allows man to reconnect with nature, while appreciating its cultural and natural environments. The reconciliation between man and nature epitomizes the way in which Luštica should be considered and envisioned. It means bringing *life* back to Luštica by animation and reviving its abandoned spaces, ensuring the protection and enhancement of its Spiritus Movens. This means raising the awareness of its military past and, on a more general level, revealing other cultural and natural potentials currently hidden or neglected, in order to assist and encourage a more responsible development, so that both environments benefit, evolve symbiotically and ultimately reconcile.

Entrance festival thus represents a valuable example of how new energies and visions have found a suitable location in need for new meanings, and how in accord with the place's own characteristics, its identity, and its spirit. They consequently re-created the place, provided it with a new meaning and a new life as the continuation and integration with the old.

^{*22} Similar to ENTRANCE, the Burning Man is also an annual festival in **Black Rock Desert** near **Gerlach**, Northwestern Nevada, US. Although for many outsiders it represents a week-long, extravagant rave in the middle of the desert, The Burning Man, for most participants, symbolizes a way of life; an educational process: a self-sustaining community, an experiential socio-cultural manifesto. This arts festival stands for the individuality of people, the opportunity for everyone to be free and to express their own desires. It also allows people to reconnect to nature regardless of how hostile and perilous the desert may be. Away from everyday life and civilization, the desert and the festival indisputably offer a transcending experience for all involved. In tandem, the festival allows for environmental awareness to come to life. Aside from self-sustainability, the **Leave no Trace rule** is fully enforced, resulting in a stunning disappearance of the magical world that was built for the festival. A few weeks later, the desert is renewed as if nothing happened to the site.

Although a potent model, *Entrance* festival at Ukop is far from being fully realized given its present state and the potential buried in the site. The experientially based arguments in the previous paragraphs were targeted towards the portrayal of the incipient stage in which this potent site is currently found. Instigating the revival by the re-inhabitation of an abandoned site becomes the first and foremost step in the long process of the site's evolution. However, it would be necessary to constantly monitor the process of change in respect to both environments; the 'response' of the natural surroundings, i.e. the ecological consequences on the natural environment as well as the response of the local community and the festival participants. For instance, the *Entrance* festival produces lots of garbage due to the large volume of attendants, creating a potential threat to the natural surroundings. The major concern of the local community of Rose is ensuring a high level of sanitation during and after the festival. The measures dealing with such problems should raise the level of the ecological awareness among people, especially students who attend the festival the most. Some of these measures could be the following: installation of eco-mobile toilets, use of disposable and decomposing materials (paper instead of plastic cups) and the eco-environmentally oriented advertisement for the festival. Conversely, the visitors would in general like to have more room for seating, socializing and dancing. In addressing these issues, future initiatives will have to incorporate architectural interventions as well. All strategic initiatives should reflect these responses and concerns and be in tune with the evolving sense of the place. In the future, other beneficial concepts, not limited to music, including ecological awareness and community building could be borrowed from similarly envisioned festivals already occurring throughout the world, such as *The Burning Man*, in Nevada, US.^{*22}

The Burning Man Festival
Fig. 4.116 (bottom left)
 Man-made city/camp in the natural setting of the desert
Fig. 4.117 (bottom right)
 the last night of the festivity - the fire (works) of the Burning Man





Voof Festival, Germany

Fig. 4.118

Similar festivals are organized throughout Europe where this 'rave' culture has its peak especially in Germany. The multi-day festivals are quite frequent during summers and are usually situated deliberately in the natural intact environments or areas away from 'civilized everyday' life. Voof festival, for example, is organized annually in the forested countryside of a small German village between Berlin and Hamburg.

Whether as a direct functional initiative reflecting participants' responses or as necessary aesthetic site improvements - permanent or temporary - some landscape-architecture interventions are necessary on the site. The preceding analysis strongly advocates festival's temporary, annual recurrence, so the bridge should remain as a removable installation. Perhaps in the future, the scale of the manifestation and the frequency might change. As a result, Ukop might become the host for a variety of cultural events, a unique setting for multipurpose performances with nature as an inseparable backdrop and hence an inalienable participant. To this end, the stage - or even a few smaller ones, depending on the performance - would maintain its mobile quality of always changing its location, size and character, imitating changing natural cycles. Yet perhaps some permanent infrastructure could be incorporated to support this idea. Presumably the seating podiums, step-up platforms, terraces, stairs and ramps could be integrated in the existing landscape. They could be permanently built in the sides of the hill, incorporated and designed in accord with the existing site conditions, tunnels' infrastructure and concrete docks as well as with the existing landscape, so that the harmonious integration would facilitate the notion of an out-door performance or auditorium space.

Due to its extremely potent aural qualities and enchanting setting, the submarine tunnel could also be used for sonic experimentation as a unique architectural installation space situated close to Rose, a thriving tourism destination. As a result, the Ukop site could become an exhilarating exhibition space, not only for audio installations but also for a variety of visual arts, set on the threshold between the cultural and natural realms. This cultural event set in nature could enhance the present process of revival, complimenting the newly found animation of the space, thus creating an entity with a prosperous future.



The interior of the submarine tunnel
Fig. 4.119 (top) & 4.120 (bottom)

A few days after the festival, the wood platform was still not removed so the coolness and shade of the tunnel's interior were used by a group of local sports enthusiasts for the 'kockice' tournament. A cool, flat, and softer wood surface serves as a great alternative to the hot and hard concrete surface outside of the tunnel or at any other suitable area for the game. Kockice [squares] is a popular sport game which is a mixture of volleyball, tennis and soccer. This suggests another type of activity that could take place in the submarine tunnel and its surroundings.





Finally, in the long run, the idea of contextual and conceptual interconnection and integration of individual elements should be considered at the scale of surrounding sites, even at the scale of the entire peninsula. This would entail a creation of interconnected infrastructure of usable and non-usable, functional and nonfunctional, outdoor and indoor, experiential spaces for recreation, leisure, contemplation, education and spiritual elevation. The vision also includes a formation of park amenities where cultural and natural merge, thereby creating genuine spaces of reconciliation between man and nature.

The mouth of the submarine tunnel
Fig. 4.121 & 4.122

In the absence of the woo platform, the 6m deep channel and the surrounding concrete structure become a very practical diving setting. The two projecting wings of the tunnel provide approximately 5m high diving platforms, while the top of the tunnel podium is set at about 10m above the water level. Similar to the previous *Kockice* example, this animation suggests yet another incidental scenario that could be organized into a more frequent public event occurring at this potent location.

Fort Arza Context

Fig. 4.123

Photo-montage unveils the conflicting condition of the fort's setting. In resolution of this problematic condition lies a new meaning for the fort's future



Before venturing into a detailed fort's portrayal, it is important to acknowledge that Fort Arza lies in a very characteristic zone which exemplifies Luštica's present condition in general. The area carries much potential but it is also recognized by local authorities as a problematic site due to many different and rather conflicting prospects put forward by different interest parties.

Although a detailed urban plan for this area does not exist yet and it is currently put into the consideration for development by local planning authorities, some **developers** and **private planning firms** have already established their initiatives and consequently created proposals targeted towards the urbanization of the entire area and the conversion of this extraordinary natural setting into a tourist resort with the beach as a central amenity. **Serbian Orthodox Church**, on the other hand, strongly believes in the sanctity of the island nearby and its monastery of *St. Virgin's Presentation*. Thus the church authorities advocate the protection of this *holy land* by keeping its surrounding in its intact natural condition with as least disruption as possible. This would promote desired solitude, isolation, and serenity of the ascetic life necessary for the monk who inhabits the island and any other pious visitor seeking such qualities in the place. Similarly, some *heritage institutes* suggest protection and conservation of the cultural heritage of the area, but in a more tourism oriented way. In addition, there are some other independent parties seeking their own interests which are, unfortunately, self and profit oriented and as such they do not ensure the prosperous, i.e. sustainable future of the area. From this, there is a strong reason to believe that the solution rests in the compromise between the two extremes – the safeguarding of the present natural and cultural heritage with a very low-profile and low-impact development such as a *camp-ground*.

The proposed solution would be in tune with new site tendencies and the existing conditions - *Spiritus Movens* - since a form of a camp-ground already exists in the area but rather in a free, disorganized and unplanned manner. Its sensitive, low-impact and site-specific improvement and development could also represent an economically and environmentally sustainable embodiment of principles outlined for the *natural and cultural heritage park* proposal.

Given this problematic condition and inherent potential, **Fort Arza** is another exemplar scenario pertinent to the idea of reinterpreting and reinvigorating the fortifications on Luštica. Similar to the Ukop's case, Fort *Arza* and its specific present conditions also address the issues of change, transition between original and newly unfolding meanings, conceptual and scalar appropriateness, and *attunement* in respect to the building, the surrounding, and their shared future vision. Providing another illustration would be beneficial for two major reasons. First, *Fort Arza* is the only other abandoned former military location on Luštica, besides Ukop, that is frequently visited and still used. Secondly, if another prospect is provided with a full range of similarities and differences, a potent dialogue between the two forts could emerge. Consequently, parallels drawn from this dialogue would facilitate strategies designed to implement the suggested integration and incorporation of other sites into one harmonious complementing whole - *the natural and cultural heritage park*.

Fort Arza

Fig. 4.124

The path leading from Mirište to Fort Arza intersects thick vegetation





Fort Arza Context

Fig. 4.125 (top)

View looking southwest from the Inlet *Mirište* and its pebble beach

Fig. 4.126 (bottom-left)

View looking north from the open sea to the *cape Mirište*

Fig. 4.127 (bottom-right)

Close-up of Fort Arza, the cape, and its surrounding rocky terrain

Geographically, Fort Arza is located on the south-western part of the peninsula, at the *cape Mirište*. With two other fortifications, *Fort Oštra* and *Fort Mamula*, this rounded stone building was designed as a gateway and first defense line for the Boka Kotorska Bay during the second half of the 19th century. Archaeological discoveries in this area have shown that this potent location had a previous historic significance as well. The location of the ancient archaeological find matches the present fortification location wherein some remains of artefacts and scattered skeletons were found attesting to its ancient occupation.^{*23} Research has not ascertained whether this was a military outpost, burial mound or a place of worship - a shrine. The fact is, that *Spiritus Movens* hides largely in the powerful natural setting of this predominantly rocky terrain and less so in a type of occupation it carries.

^{*23} Nakićenović, Sava. *Boka, Antropogeografska Studija. Beograd. 1918. Pg.203*



Fort Arza Context

Fig. 4.128 (left)

An ancient locality - present monumentality - beneath the sky

Fig. 4.129 (right)

The greenery and the path of pilgrimage

Fort Arza context

Fig. 4.130

View looking southeast to the island and monastery of St. Virgin's Presentation, the inlet, the beach and the cape Mirište.



After the Second World War, Fort Arza has shared the identical destiny of all other Austro-Hungarian forts. This fortification has been abandoned, left alone to *nature* and its processes. No further use has been established for its spaces. Nevertheless, the prominent location and easy access to this building have greatly influenced its present state. Years of non-functionality and accessibility have primarily allowed for the spontaneous and hence successful evolution of the place. Human occupation and utilization - often shortsighted when it comes to historically valuable monuments - have not been impatiently imposed on the building and its current condition. Instead, its present semi-naturalized state and the spirit of the place have started to dictate and shape the way for its future use. The symbiosis with the surrounding landscape, the monumentality and the powerful *topos* of Fort Arza - the essentials to its *genius loci* - have therefore created a stage on which new meanings and new activities will form as a direct result of a continuous and gradually increasing engagement of its visitors.

Spontaneous evolution of the place

Fig. 4.131

The roof and the terrace of Fort Arza beside miraculous 'out-of-stone-grown' vegetation provides a perfect contemplative setting for the visitors seeking tranquility and solitude



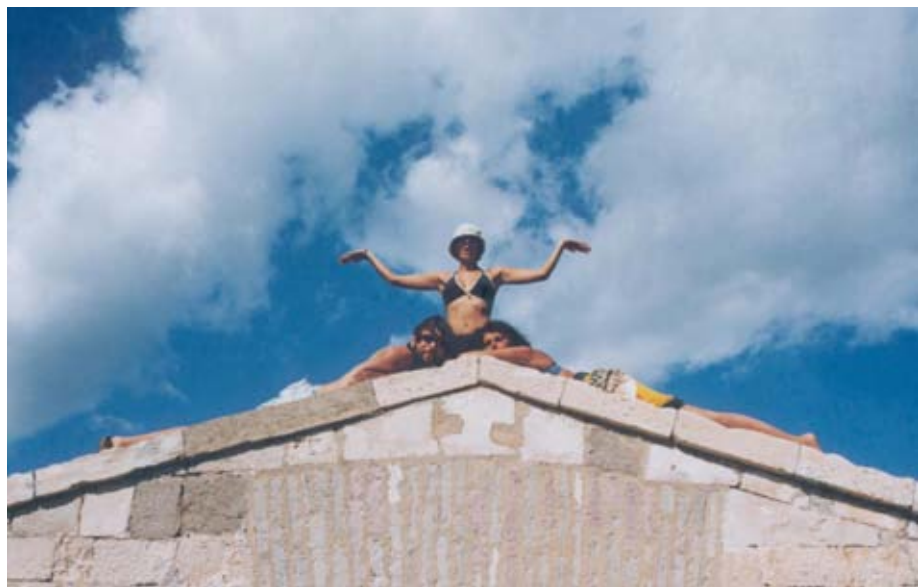


The Panorama from Arza

Fig. 4.132

Tranquility, stillness, and spiritual growth are offered in the nature's rhythms, gestures, and mimicry

No formal functionality is yet prescribed to Fort Arza and its spaces. No developer has invested money and turned this monument into a usable, profit – making space; no *modus operandi* of any kind was yet given to this fortification. Nonetheless, people continue to use it frequently during the summer. It serves as a temporary shelter from the hot summer sun, strong occasional winds and the rain. Its robust, large interior volumes are often occupied by homeless people during the summer. It acts as a sleeping quarter, but it is also a lookout point. The roof top and terrace offer a unique panoramic view of the surroundings and the entrance to the bay of Boka Kotorska. People go there to rest, to be alone, contemplate, enjoy natural beauty, sleep, to cool down, to read a book, or just to be there, to experience something extraordinary.



Meditation Spot

Fig. 4.133

On the roof top of Fort Arza
sky is the limit

Framing Windows

Fig. 4.134

Beside roof tops, there are shaded
interior spaces which also provide
spectacular panoramic views of
the surrounding landseascape
seen and experienced vis-a-vie
building openings





The Living Room
Fig. 4.135
 Improvised beds and table; large opening providing light, air...living



Shaded Playing Ground
Fig. 4.136
 Massive interior vaults provide enough room even for the game of badminton

Therefore, the future use, the formal *etiquette* - of any that were to be given to this location - should be in accord with these already existing uses. The new function should embrace all currently occurring conditions, enhancing and extending them further into one integrated and meaningful entity; it should consider them as a basis for the future building development as they are a spontaneous continuation of the fort's broken past, a natural progression in the evolution of the place. In essence, consulting with them represents the consultation with the sense of the place, with *Spiritus Movens*. Consequently, this process is both mandatory and necessary to ensure the prosperous and harmonious future for the building and its location.

One with Nature

Fig. 4.137

Fort Arza represents a natural extension of the surrounding terrain by virtue of its materiality, vertical positioning between the earth and the sky



...as if the time has cured the darkness
with forgetfulness...
as if voices of soldiers are echoing in
the whistle of the wind...
stories of wives and children at home...
prayers, whispers and laughs...
while sitting or leaning against the
robust stones,
they rest their eyes, their spirit, their
bones...
over the green fury giants, they drift
astray; lost between the blueness, from
above and below, from far away...
even when it's dark, windy and stormy
outside,
even with the raving sea around,
the warmth on the inside...
the calm and the comfort amongst the
thick walls are found...

One just has to be able to listen carefully, to be attuned with the *Spiritus Movens*; to listen to the whisper of the spirit and to hear the wind of the place...to hear the storytelling... it is a massive stone monument. It marks the entrance to the bay alongside with two other fortifications. It was used as a defence fort in times of turmoil and occupation of this region. It needs to be seen during the day and night like a lighthouse...it is already a shelter from wind, rain and sun... It is another man-made element left for nature to re-inhabit. Plants seem to like it. They want to climb it. The greenery wants to stretch its soothing leafy arms and embrace it like all other rough stone surfaces around... The greenery wants to continue its stretch upwards towards sky, towards heavens...like a tree...an olive tree...the oldest of all...the wise one...the holy one...

One with the surrounding
landseascape

Fig. 4.138

Harmonization of the fort with the surrounding is accentuated by its special positioning as it is well experienced from its roof tops





Finding a new genuine meaning
Fig. 4.139-4.141
 Natural merging of the fort, its
 context, and the surrounding

Arza wants to be worthy and powerful again... it likes people too, and not only the birds and the wind which frequently visit its roofs...it wants to be inhabited, but not in multitudes; rather individually, because then it maintains its monumentality, its superiority and dominance over the site...only then can it easily communicate with the visitor...only then can it enjoy its sunrises and sunsets... Arza is proud, she is bold and even pretentious. She deserves it...she has a sacred and courageous past to prove it...let then her be, what she desires to be... let Arza be what it already is...

...a special place... a sanctuary, a shrine... a *modern shrine*. Let Arza be a place where one feels the geological time, where man-made time seems to stop; a place where one easily harmonizes with the physical world around and strongly feels belonging and communion with it. Let Fort Arza remain as a place where one feels a high spiritual density, and equally understands the deeper meanings and the grand harmonies of the universe by simply standing firmly on the surface of the earth, by simply breathing...

...let her be *the rustle of Nature's life silenced in the stillness of thought.* ...^{*24}

^{*24} G.W.F. Hegel, from *Philosophy of Nature*

Design Guidelines

Game of Shadows

Fig. 4.142

Simple trellis design with rich & mesmerizing experiential results



"Your *Genius*, the *Genius of the Place*, and the GREAT GENIUS have at last prevail'd. I shall no longer resist the passion growing in me for Things of a *natural* kind; where neither *Art* nor the *Conceit* or *Caprice* of Man has spoil'd their *genuine Order*, by breaking in upon that *primitive State*. Even the rude *Rocks*, the mossy *Caverns*, the irregular unwrought *Grotto's* and broken *Falls* of Waters, with all the horrid *Graces* of the *Wilderness* itself, as representing NATURE more, will be the more engaging, and appear with a *Magnificence* beyond the formal Mockery of princely Gardens.

The Moralists,
a Philosophical Rhapsody
3rd Earl of Shaftesbury, 1709

From the two preceding scenarios, it is evident that fortifications on Luštica are very potent locations, historically charged and experientially prolific. They are a future potential carrying a rich source of new meanings, content and programs. These can be envisioned and realized only if in accord with the existing conditions. At times, fortification initiatives are purposely left open-ended, while many are being regulatory and very specific. The distinction and balance between the two cases however, is brought by the aforementioned *attunement* principles and in consultation with the *sense of the place*. Therefore, the following paragraphs should be seen less as a project design proposal per se, but rather as a set of guidelines for the future reuse and revitalization of Luštica's fortifications - a prescribed vision for their *healthy* evolution.

On this journey to new animation, it is crucial to let all fortifications become accessible, and let people spontaneously find their new meaning. This interaction between people and the buildings will allow for a new destiny of these edifices to take shape. If the buildings are rushed into new investments, finding them a new function without prior, comprehensive understanding of the place and its meaning, they will fall into the trap of being no different from other, current re-development practices where historical monuments are turned into facilities for individual benefit and profit making or left as museum pieces, conserved and frozen in time, only to be viewed and with no future use. These practices lead the monuments towards discontinuity with their past and to a problematic, meaningless future. It is because *time* is essential in acquiring deeper meaning and understanding of the spirit of the place and simultaneously *time* represents 'the hardest to afford' of all commodities in the present fast-paced, profit oriented culture. Thus in rushed pre-conceptualizations for monuments' re-development, current practices have *no time* to allow 'natural' consultation with *Spiritus Movens* leaving the objects to become disjointed from their identity and potentially great future.

Instead, if time permits new meanings and directions to take form, Luštica and the *timeless* quality^{*25} innate to its *sense of the place* offer a great potential for the alternative.

^{*25} These notions of a sufficient time-allowance and the sense of the place as being the essential precursors to a design are also sensed in the quoted paragraph below.

[Also see the side note on **Organic Approach** to architecture - Pg. 239]

"In America, rightly or wrongly, we planners approach our problems in a less contemplative frame of mind. We are 'less sensitive' (of which fact we are proud) and 'more practical' (a pathetic misnomer). We are rushed by pressure of time, economics, and the present public temperament. The planning process is accelerated, sometimes to the point of frenzy. But the principle remains the same - to realize a project on a site effectively, we must fully understand the program, and we must be fully aware of the physical properties of the site and of the total site environs. Our planning then becomes the science and art of arranging the best possible relationships."

John O. Simonds
Landscape Architecture

Abandoned fortifications on Luštica should be given a sufficient time for the sense of the place to emerge, communicating the future destiny of these objects. Once sufficient time is passed, people can adjust their needs (mostly tourism-based), and find a compromise for the forts' future use. As argued before, time and accessibility are required for a spontaneous and successful evolution of the place to occur. This gradual shift from its military function to abandoned naturalized objects, and eventually to their new meaning and occupancy requires special attention. The following steps should be followed before any further investigation into the future of the fortifications is considered.

...like a HOUSE...

"Therefore, let us build houses that restore to man the life-giving, life-enhancing elements of nature. This means an architecture that begins with the nature of the site. Which means taking the first great step toward assuring a worthy architecture, for in the rightness of a house on the land we sense a fitness we call beauty."

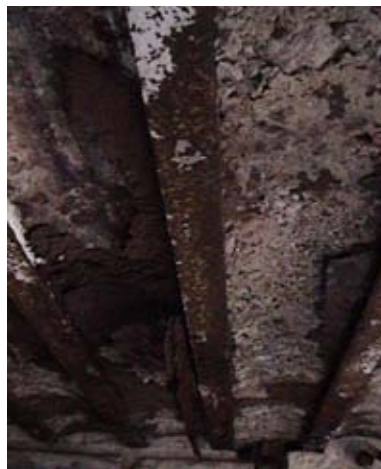
Frank Lloyd Wright

...like a GARDEN...

"I have found it helpful to think of a garden as sculpture. Not sculpture in the ordinary sense of an object to be viewed. But sculpture that is large enough and perforated enough to walk through. And open enough to present no barrier to movement, and broken enough to guide the experience which is essentially a communion with the sky. This is a garden."

James C. Rose, 1958

- 1) The fortifications should be entirely cleaned of all pollutants, garbage and any foreign object that might compromise the safety, health, and appearance of their environments
- 2) A park-trail system of existing and newly proposed pedestrian paths should be implemented to allow easy access to the fortifications.
- 3) Excessive, undesired vegetation should be removed to reveal important building sections and prevent further deterioration of parts severely damaged by its wild growth.
- 4) All instances of threatening or dangerous building conditions, such as sharp rusted metal pieces or ruinous structures in danger of collapse should be resolved to ensure safety while preserving the building's original features
- 5) Restore, re-build and renovate building parts in dire need of immediate assistance (either found as unsafe, as per Step 4, or to prevent their further deterioration). Ensure that these modifications do not alter the original appearance and overall layout of the building components
- 6) Provide sufficient lighting, garbage dispensers and other required equipment necessary for the future safety, continuous protection and basic maintenance of the fortifications and their immediate surroundings



*Present Conditions on the Exterior
- in a dire need for immediate actions*

Fig. 4.143 (top-left)

Exterior terrace and a ruinous concrete platform at Fort Klinci

Fig. 4.144 (top-right)

Roof top/terrace at Fort Oskoruša

Fig. 4.145 (bottom-left)

Garbage depot at Gornja Arza
Artillery Location

Fig. 4.146 (bottom-right)

Overgrown entrance to Fort Luštica

*Present Conditions on the Interior
- in a dire need for immediate actions*

Fig. 4.147 (top-left)

Obstructed stairway to the fallen roof of Fort Luštica

Fig. 4.148 (top-right)

Ruinous spiral stairs of Fort Arza

Fig. 4.149 (bottom-left)

A hole in the ruinous floor at Fort Kabala

Fig. 4.150 (bottom-right)

Ruinous Prussian Ceiling at Fort Oskoruša

The completion of these fundamental steps would set the stage for any subsequent investigation or design initiative to ascertain the forts' future usage, new occupancy and their functionality. This process would serve as an initial step in finding new meanings and means of inhabiting the desolated spaces. By frequent interaction between the environment, buildings and visitors, and ensuring that no rapid shortsighted initiatives are taking place, the new events will eventually occur. Subsequently, new natural meanings will appear in accord with the sense of the place, as described in the scenarios of Ukop and Arza. These emerging energies will determine the new vision and the genuine future of these objects.

The forts may turn into building programs and tourism-based facilities, such as residential apartments, restaurants, cafes and performance spaces. They could also be converted into research or tourist park-orientation centres. Another possibility for their animation is to remain as contemplation spots and garden spaces. Whatever the function and re-inhabiting program may be, the matter rests in their individual characteristics and existing needs of the local population. Despite the versatility and wide spectrum of opportunities for their future re-development, the following guidelines should be observed in order to initially safeguard their *Spiritus Movens*, and then set a foundational background for new strategies, ideas and architectural implementations could. These should also be seen as mandatory steps before any design initiatives are undertaken.

- 1) Keep the original building design – its plans, sections and elevations – organization and distribution of the openings as well as the roof tops and their characteristics
- 2) Adapt new programs to suit the existing exterior and interior layouts
- 3) Ensure the buildings are seismically and statically sound
- 4) Repair all ruinous parts, sections of the buildings on the exterior while maintaining the original design
- 5) Safeguard original stone steps and floors, and restore the removed or destroyed stone floors in the interiors
- 6) Ensure protection and restoration of the original *Prussian ceilings* in all interiors
- 7) Maintain the existing native greenery and all valuable vegetation species found on site, and incorporate them with the future functions/new usages of the spaces



Pristan military zone

Fig. 4.151-4.153

North coast of Luštica harbors a military zone soon to be completely demilitarized. The entire building complexes are planned to be sold to private investors and potential developers.



Fairly recently, the entire military activity on the peninsula has started to diminish drastically, and most military buildings and locations will soon be abandoned. If not properly taken care of, they will share the destiny of previously described, desolate fortifications. Consequently, their future use should be modeled after Ukop and Arza sites, although their aesthetic and historic value may be questioned as a cultural heritage.

Looking outward from within

Fig. 4.154

View from Fort Arza towards the beach and the inlet of Mirište. Introspection is the most fundamental component and the initial step in designing anything.

"So much emphasis can be put on the individual as maker and perceiver that the external world loses the objective standing; reality 'out there' seems to be only a 'human construct.'"

Yi-Fu Tuan

Why do we humans always have to prescribe a certain usage to everything and anything, as if without a label it would not exist; as if it would not have an identity or meaning? What would be the etiquette given to nature? Or perhaps one should essentially ask what is the use or function of nature? Is there any other than just to be, to change, to cycle, to evolve and to be alive; to be 'something' rather than 'nothing' as it relates to the governing principal of creation? What would be, then, the etiquette given to nature? This preoccupation seems to be pointless, if not completely delusional. It is a misconception we created as a pure result of our alienation from nature, as an inevitable consequence of both our phenomenological and physiological separation from her recurring cycles, her laws and her natural ways that go far beyond our often limited anthropocentric comprehension. We belong to nature; we are part of nature no matter what we do, no matter what point of view we take - theological, Darwinian, transcendentalists', or any other. There is no doubt that we humans have our own natural processes and that we, whether willingly or not, follow the natural cycles of birth, death and rebirth. In this, we are no different from any plant or animal life on Earth. However, it seems that it is also in our nature to try to name everything and to give a certain meaning to everything; and what fundamentally distinguishes us from the natural world are our 'mental appetites' and specifically, our obsession with control and power. Yet it seems that in nature there is no meaning other than the one we invest. It also seems that no other form of life desires the control over any other, nor is there any living being seeking to part itself from the natural realm. 'Things' and beings 'out there' follow their natural path, this invisible omnipresent directive. They obey the unwritten rules of cyclical processes and laws of evolution, natural selection, of Nature herself. So should we, even more so if and when we are in her realm. We should be able to recognize these higher forces of nature - this invisible principle by which everything and anything is governed. Then we should be able to understand the Spiritus Movens of the world, an enduring code of nature, to accept it and to obey it. Ultimately, we should reverence nature and only then are we going to be capable of reuniting with her and forming a new partnership, a symbiotic relationship wherein we are, indeed, an integral part of it...only then will we stop seeing nature as a place to visit, but rather see it as our home!



The Old Man and the Sea

Fig. 4.155

There is a certain yet unexplainable quality in sensing the 'natural cycles... listening to its sounds, watching its colours... there is a certain yet unexplainable feeling of being a part of this natural wonder - unbelievably simple yet so sublime and beautiful - the setting of the sun...

With this philosophy as a main precursor and design impetus, with this 'ecology of mind', therefore, the initiatives for revitalization of the fortifications should be developed and fully realized. No pre-conceptualized meaning, etiquette nor function should be given to any of the forts until the meaning itself as a natural path and the spontaneous next step in the evolution of the place is suggested to us by the existing site qualities, by *Spiritus Movens...* until the rebirth of the forts' anima comes forth and unfolds by the buildings themselves...

"...[since] under capitalism [it] has no choice but to serve the interest of the status quo, architecture today [is] obliged to return to pure architecture, to form without utopia; in the best cases to sublime uselessness."

Manfredo Tafuri, Italian historian and critic



Boka Gateway in the Twilight

Fig. 4.156

Photomontage showing the proposed condition for the forts marking the entrance to the Bay of Boka Kotorska. Electricity for the proposed lighting design would be produced locally by building integrated solar panels thus supporting the idea and the overall philosophy of sustainable and healthy development

C Towards a Healthy Architecture conclusion



“We need to step outside the man-made environment not in order to leave the technological world behind, but so that we may find the right path of development, more in tune with natural processes than with the will to dominate and destroy. It is to serve the shift in our ways of seeing and valuing from the Cartesian self to...the ecological self-the individual plus environment, the species plus environment – for they are essentially symbiotic.

The historic mission of our time is a new cultural coding for the ecological age - a new, more integral language of being and value that can overcome the devastating consequences of the existing mode of cultural coding. Creating art which is integral with this new coding may well be the next phase of our aesthetic tradition, but the creation of an ecological context for every aspect of life – for all professions occupations and activities – is the primary task now facing our entire civilization.”

Suzi Gablik, *The Ecological Imperative*

Although geographically isolated and situated on the periphery of the Bay of Boka Kotorska, Luštica has never been on the periphery of historical events. On the contrary, the peninsula participated equally in the dynamic life of the Boka Kotorska region due to its powerful strategic location. As a result, a very rich inheritance has been left in the form of a built environment and a corresponding modified land and seascape. Aside from a few exceptions, changes to both environments to date have been slow and gradual. Maintaining an evolving balance between two symbiotic systems for centuries, the peninsula has been in an ecologically healthy and stable state, that is, in a dynamic environmental equilibrium. Despite the continual influence of culture, Luštica has sustained its predominantly intact natural heritage and character. Recent political and economical changes, however, have started to affect this well-balanced condition. The future development of the peninsula is being led towards a problematic uncertainty with a potential threat to both cultural and natural heritages.

In order to analyze, understand and consequently propose the initiatives for effective problem solving and subsequent management, the ecosystem approach has been offered as a relevant methodology. By its very nature, an ecosystem approach provides sophisticated perspectives on both natural and cultural environments, their individual complexities and their interdependent development. Such a systematically structured approach dissects the existing site conditions into essential components, and then reassembles them to reveal the hidden interrelationships between the processes, their functions, and their characteristic inclinations. This search and consequent unveiling of Luštica's sense of the place have inspired the proposal for a Heritage Park formation - a vision for future development, organization and operation of the peninsula. Essentially, the idea of a park provides a means to guarantee the preservation and enhancement of what has been named in this thesis work as *Spiritus Movens*, a fundamental conception for maintaining the overall identity, integrity, and sustainability of the peninsula's environments.

The notion for the Heritage Park formation has also offered the opportunity to mediate, reconcile and synergize currently opposing *cultural* and *natural demands*: profit-driven tourism, expanding urban development, and protection and conservation of ecologically important areas that are crucial for sustaining vitality, biodiversity and recurring cycles of natural environments. Ultimately, the park's hybrid nature and its multipurpose quality not only offer solutions for the present problems and the retrieval and enhancement of the dynamic culture-nature equilibrium, but they also substantially improve the resilience and adaptability of Luštica's systems to future changes, thereby ensuring their *healthy* evolution and management.

This vision of a vigorous and efficacious development is explicitly elaborated and embodied in the case study on the fortifications of Luštica. Found in an ambivalent state as *naturalized-cultural* objects, the fortifications represent the most potent and promising element within the Luštica Heritage Park, i.e. the most suitable for the culture-nature (*cultinature*) reconciliation and implementation of the non-dualistic ideology advocated throughout the thesis. Accordingly, these deserted military objects were thoroughly inspected and evaluated pertaining to their background, original design and experience in order to acquire the apriori understanding of their individual and collective *Spiritus Movens*. Following the fortification narratives, the attunement principles of an evolution in architectural approach emerged in the work. Rooted in the harmonization of a building and its site, context, and surroundings, and synchronized with its past identity, and present and future affinities, these new design principles have served as the foundation in creating planning and project guidelines for the forts' culturally meaningful and environmentally respectful re-development. The portrayed fortification scenarios should also be viewed as a paradigm for successful re-animation, revitalization and re-engagement of obsolete and neglected objects into the life of their surroundings. As such, they are true protagonists of the overall Luštica Heritage Park vision. With the forts' new proposed use, their potential for sustainability, clearly stated ecological, economic and cultural values, their re-discovered deeper meaning and intrinsic sacredness, their inspiring qualities, and finally, their synergistic (*cultinature*) tendencies, the process of their re-development symbolizes a step forward, or rather a journey in itself *towards a healthy architecture*.

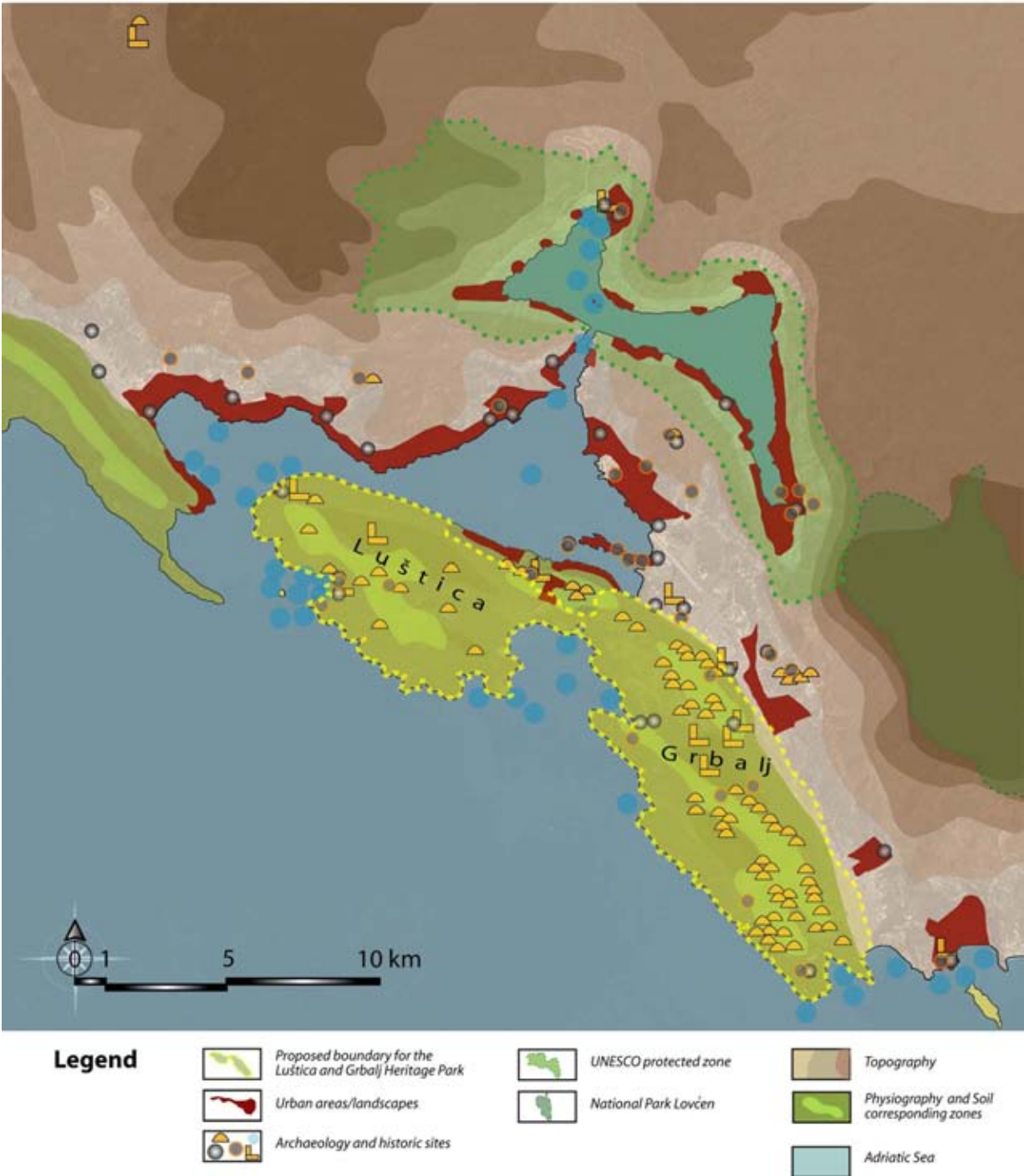


Towards a Healthy Architecture

Fig. c.1

The image captures the symbiosis, harmony and communion between culture and nature in the village Bijelila - a genuine taste of *cultinature* on Luštica

Park Boundary Context



Park Boundary Context Map
Fig. c.2

The map depicts the coastal area of Luštica and Grbalj, their similar cultural and natural predispositions and hence considers their integration into one larger area. Potentially in the future, the marked area could be one integrated heritage park.

This thesis firmly establishes the ecosystems approach as a necessary and powerful analytic tool in any design or planning process. It is also valuable as a research and development model for amelioration and improvement of our struggling global environments. The same method of gathering and processing of disperse and varied information exercised in both the Heritage Park proposal and in the fortification initiatives, could be applied to Luštica's neighbouring regions with similar predispositions and characteristics (**Fig. c.2**). Such a wide ranging methodology should not be limited to the Adriatic coast. Instead, it could be employed anywhere in the world where environmental crisis, threatened cultural and natural heritage sites and hyper-urbanization are rather a rule than exception. Essentially, the thesis philosophy and the overall ecology-centred attitude propose a new *healthy prototype* of how our environments should be perceived, investigated, designed, developed, and managed. In this sense, the thesis reads as an universal and very useful methodology rooted in the idea of a place's *genius loci* as well as being one integrative humanistic approach fusing scientific with poetic, philosophic with pragmatic, and factual with subjective. Consequently, the entire Luštica work could also be interpreted as a holistic, all-encompassing and cross-disciplinary approach towards design and development which has a potential to be utilized and implemented in various bordering fields of architecture, landscape architecture and planning.

Polemically, the most important aspect of the thesis should be sought in its relevance to the global environmental crisis penetrating both the physical and phenomenological realms of our global existence. It is imperative to see 'the big picture' of the thesis in light of an ecological revolution and awakening, and as an attempt to make a difference, to be the desired change we want so passionately to see in the world. Namely, the Heritage Park is proposed as a vision for a future *healthy* evolution of the Luštica peninsula facilitating the *healing* of its stressed environment and the regaining of a faith in Nature. Ideologically and practically, this means a return to long forgotten, yet innate, qualities of stewardship, deference, and genuine partnership with nature; a return to sensuality, spiritually, humility, environmentally friendly modes of production and work, to modesty and tradition which could equally be the return to our true selves and to Nature.*²⁶ Living lightly, utilizing old customs and traditional cultivation methods, as well as walking and experiencing the cultural and intact natural environments of the peninsula, are all prescribed activities for the multipurpose *Luštica Heritage Park*. They would inevitably lead the way to the healing of Luštica's communities and their environments with regained respect for Nature and her ways.

The Sun setting over Prevlaka

Fig. c.3

A visitor on Luštica could somehow feel utterly connected to nature herself, to its laws and principles, to the experience of just being alive and integrated with the surrounding at that specific time and at that particular place



The fortifications, along with other potent park elements, are envisioned and depicted as places where one is able to listen, understand and attune to the natural sources, to cosmic energies and their hovering spirits. They bring one closer to the desired harmony and communion with the world. Experiencing these places imbues one with genuine discovery of meaning and the higher truths of our terrestrial existence. Consequently, they bring back the vital sense of reverence necessary for the well-being of our surroundings and our own sustenance.^{*26} Walking the trails of the *Luštica Heritage Park*, climbing up the local hill, sitting on the Illyrian burial mound and looking out towards the horizon where the sky and the sea collide, one understands that the blue sphere some righteously call *Mother Earth* is our limit; it is our cradle and our grave. Making a way down to the coast and its pristine, rocky beach through a thick macquis forest, one avoids breaking a fragile spider web. One is careful, entering the waters, of rare sea urchins inundating such undisturbed sites. While listening to the continuous song of the wind and crickets, one realizes that this is not only our home and the home of our children, but equally the home of all other creatures and life forms that exist on this planet. Resting under an ancient olive tree, next to an emptied restaurant with the shadow of an Orthodox church belfry crouching towards his arms, one observes how the raging sea clashes the rocks in the distance. People rush to their departing boats which struggle with the high waves. Finally, one acknowledges that love and reverence for the earth shall no longer be seen as mere beautification and preservation of sceneries. Love and reverence are instead based on the awareness of our symbiotic and interdependent relationship with Nature;^{*26} for our survival is less likely to depend on our manipulative and controlling capacities over nature, but rather on our own ability to synchronize with it.

Once these individual mental images and principles become the collective actuality on the Luštica peninsula and in every segment of our global physical environments, the real world will then reveal itself and unfold before our revived senses. Only then we will be able to see, hear and feel the natural wonders for what they truly are, no longer obscured by our own subjective and limited anthropocentric tendencies. Only then we will realize that heaven is not only something we walk under but also something we walk onto; only then we will become the children of nature, the genuine children of the Earth.

^{*26} These narrative sections are a few extracts taken from the polemic narrative on the ecological crisis and the current condition of our global environments. Refer to *ECOphilosophy* found in the Appendix for the full version of the text.

A

Appendix additional material

The Luštica peninsula generally shares climatic characteristics with the surrounding areas of the Boka Kotorska Bay, especially those of neighbouring Herceg Novi, yet with some discrepancies. There is a reason to believe in the formation of a certain *microclimate* on Luštica due to its geographic isolation in relation to the other parts of the Boka Kotorska region. This version of sub-Mediterranean climate is characterized by warm sunny summers, mild rainy winters, very slight temperature oscillations, and different winds throughout the year.

- *Air temperature*

The lowest median monthly temperature is in January, **8.7°C**; and the highest is in July, **25.0°C**; these bring to **16.2°C** as an average annual temperature.

- *Relative humidity*

The humidity fluctuates throughout the year: spring - **69%**; summer - **63%**; fall - **71%**; winter - **68%**

- *Solar exposure*

Luštica is the sunniest place in the Boka Kotorska region with **2426 h/year** of sunshine or about **6.6h** per day

- *Precipitation*

The area receives around **1920mm/year** (**72.4%** during fall and winter, and **27.6%** during spring and summer months). It rarely, almost never snows.

- *Winds*

Characteristic are the cold and dry north wind *bura* and the humid and warm south wind *jugo* (mostly during cold seasons); the periodic summer wind *maestral* is sometimes replaced at the dusk by the small wind from the land- *burin*

Typology & Morphology

An Old Stone House in the village complex Mitrovići, Zabrdje

Fig. A.1

A typical two story stone house with the utility rooms at the lower and residential at the upper level



Before a detailed survey of old building traditions and practices on Luštica is provided, it is important to distinguish them from more recent, modern ones that started to occur in the last few decades along with the modernization, tourism and urban development of the entire region. As pointed out on many occasions throughout the thesis, the old building and living traditions were result of a symbiotic co-existence of man and nature practiced over the past centuries. These traditions were characterized by environmentally sound and friendly modes of land use and production, climatically responsive building practices and the overall sustainability of living. On the other hand, the new, modern lifestyle has brought a completely different scenario: profitability driven economy followed by environmentally threatening models of urban growth, hyper tourism development, neglect for land, natural resources and ecosystems, and climatically irresponsive and hence problematic building practices. Therefore, the focus of the following pages will be the former ones.

Illustrating these old sustainable practices will lead to re-evaluation and reconsideration of our present very critical condition. Re-integration and revival of the old practices will stress their importance and necessity for a healthy future development of the region. Finally, by encouraging and establishing them as foundations, there will be room for the innovation and incorporation of new technologies and practices which should still be in accord with the traditional notion of sustainability and the *Spiritus Movens* of developed areas.

The notion of sustainability in the building sense is closely related to practices involving stone as a building material, especially on Luštica. Stone is a very durable natural material with good thermal capacities. It is locally quarried on the peninsula since the terrain is entirely made of a rocky calcareous mass. Due to the abundance of stone on Luštica, its constant and extensive use is expected. Beside durability and practicality of this material, the last aspect of stone indirectly associated with the sustainability is its aesthetics. Most of the buildings on Luštica, such as old village houses, churches, fortifications, and even retaining walls are all made of stone. Surrounded by the natural often rocky landscapes, these stone artifacts appear to be harmonious with them and aesthetically pleasing. As such they could be considered sustainable.

A Stone House in Rose

Fig. A.2

The old house of *Raško* family is one of the best preserved historic houses in the coastal village of Rose. It is over 200 years old and is inhabited mostly during the summer months.



In the investigation of building responses to the characteristic sub-Mediterranean climate on Luštica, the following are considered:

- ▣ Retaining walls
- ▣ Exterior building walls
- ▣ Building openings
- ▣ Shading devices
- ▣ Roofs

retaining walls

Retaining walls or *mede* are the most common stone artifacts found throughout the Luštica. The entire inland terrain is interspersed with these piled-stone undulating structures which tend to follow the topography. They are most intensified in the areas around village complexes, roads, agricultural land and olive groves. Their age cannot be accurately identified since they have been forming continuously and parallel to human activity on the peninsula for more than a couple of millennia. The retaining walls are hence considered to be an integral part of the Luštica landscape, a natural rather than a human construct. They have three major functions:



Retaining Walls

Fig. A.3

This retaining wall is of more recent origin. It holds the earth in place on a very steep slope creating a set of terraces usually used for cultivation



Retaining Walls

Fig. A.4

A typical retaining wall along the major road serves both as a protective fence and a physical boundary for pasture control

- ▶ They detain erosion on the steep slopes forming terraced landscape (**Fig. A.3**) characteristic for this climate and the region
- ▶ They represent natural boundaries conveniently utilized for a pasture control (similar to English *ha-ha*).
- ▶ They are also used as the physical lines and boundaries between properties. Often they serve as a fence between the roads and the cultivated land (**Fig. A.4**).

exterior building walls

Exterior Building Walls

Fig. A.5

The exterior wall with a wooden window of the old house of *Raško* family in *Rose*.



Exterior Building Walls

Fig. A.6

The exterior wall of the old abandoned school in the village *Radovanići*, with the Orthodox church of *St. George* in the background



Exterior Building Walls

Fig. A.7

The exterior wall of the central courtyard in *Fort Arza*. These walls are extra thick (exceeding 1m) due to military needs for increased protection and durability



The exterior walls of most of the stone building on *Luštica* such as churches, village houses and fortifications, are very thick. They vary from 0.5m to 0.75m, while sometimes they exceed 1.0m, which is usually the case with the fortifications. The stone blocks comprising the exterior walls are sometimes built dry without a connecting substance like mortar. These represent one of the oldest artifacts found on the peninsula. Such are the Illyrian burial mounds, the oldest village houses and majority of the retaining walls [refer to the previous page in this chapter]. The exterior walls are thick and massive primarily because of the increased **durability**, **protection** and **thermal mass** (heat exchange between the exterior walls and the interior spaces).

Climbers are often installed or let to grow naturally (**Fig. A.2**). Aside from decorative purposes, their leafy coverage provides shading for the walls and consequently reduces their heating during summer months. Conversely, the climbing plants lose their leaves during winter and enable the walls to absorb the heat which is later, during colder nights, radiated back into the house.

building openings

This section will focus only on building openings found in residential old village houses because the churches and fortifications have specifically designed building opening to fit their characteristic purposes. The main features of the houses built in the sub-Mediterranean climate relate to the *number* and the *size* of their openings. There is usually a fewer number of smaller openings than found in the buildings of other climates. Mainly due to the sun exposure and generally warmer climate, these openings have to control heat gain in the summer, more than the heat loss in the winter. As a result, the *shutters* become a very important element in climatically responsive building design. They provide the shading, ventilation and additional wind protection at the same time.



Building Openings

Fig. A.8

The old stone house in Žanjice



Building Openings

Fig. A.9

A typical wooden window with wooden shutters of a house in Rose.



Building Openings

Fig. A.10

A new set of doors and shutters of a house in Rose. Solid wooden shutters are necessary for additional wind protection in the winter when the winds could be very strong, especially in the coastal areas, near the sea, such as the hamlet Rose.



An Old House in Mardari

Fig. A.11

Although neglected, this is a traditional stone building on Luštica with two floors, a front terrace and a water cistern and *guvno* at the back

shading devices

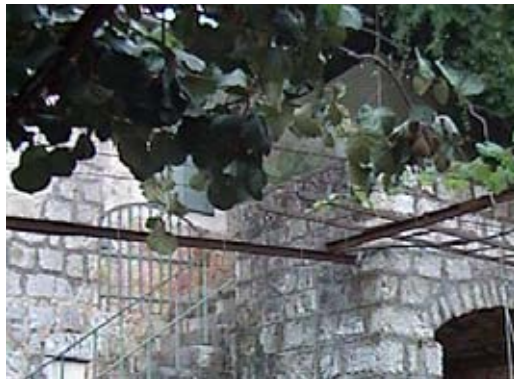
Beside the shutters described in the previous section, there are other ways of controlling the heat gain and hence have climatically responsive buildings. The most common way to provide desirable and often necessary shade during the summer months is to install a *trellis*. Usually a trellis consists of wooden or metal frame that represents the structural net upon which plants such as vine or kiwi could climb creating a thick foliage screen. There are also similar kinds of shading devices that utilize fabrics or other materials instead of plants. Such are cane or cloth trellises. Often they have to be dismantled during the winter months because of the strong winds and the desirable sun penetration (heat gain).



Shading Devices

Fig. A.12

A typical vine trellis shading the entire terrace of a building in the coastal village of Bijelila



Shading Devices

Fig. A.13

A kiwi trellis with a metal frame support in the courtyard of a stone house in Mrkovi.



Shading Devices

Fig. A.14

A temporary trellis made of cane in the courtyard of a building complex in Eraci.



Old House in Mardari

Fig. A.15

This is a typical homestead on Luštica with several houses on a few terraced levels and vine trellises as shading devices

Roofs are also an important building element to be considered as part of the climatic building responsiveness, especially on Luštica where there is a substantial lack of water sources. Aside from their central role of covering the building, they are widely used as the major rainwater collectors accompanied by a system of troughs which usually direct the water into the water cisterns or filtration chambers [refer to **Fig. A.19**, on the next page]. Typically, the roof on a traditional Luštica house is in the vernacular Mediterranean style which means they are commonly made of clay or stone shingles. With no snow loads, their slopes vary from moderate to flat. Overhangs are characteristic of more recent houses which are climatically responsive.



Roofs

Fig. A.16

A building complex of the village Klinci with typical vernacular roofs and an integrated rainwater collection system



Roofs

Fig. A.17

A stone house in Mrkovi with a flat roof, trough system and terraces

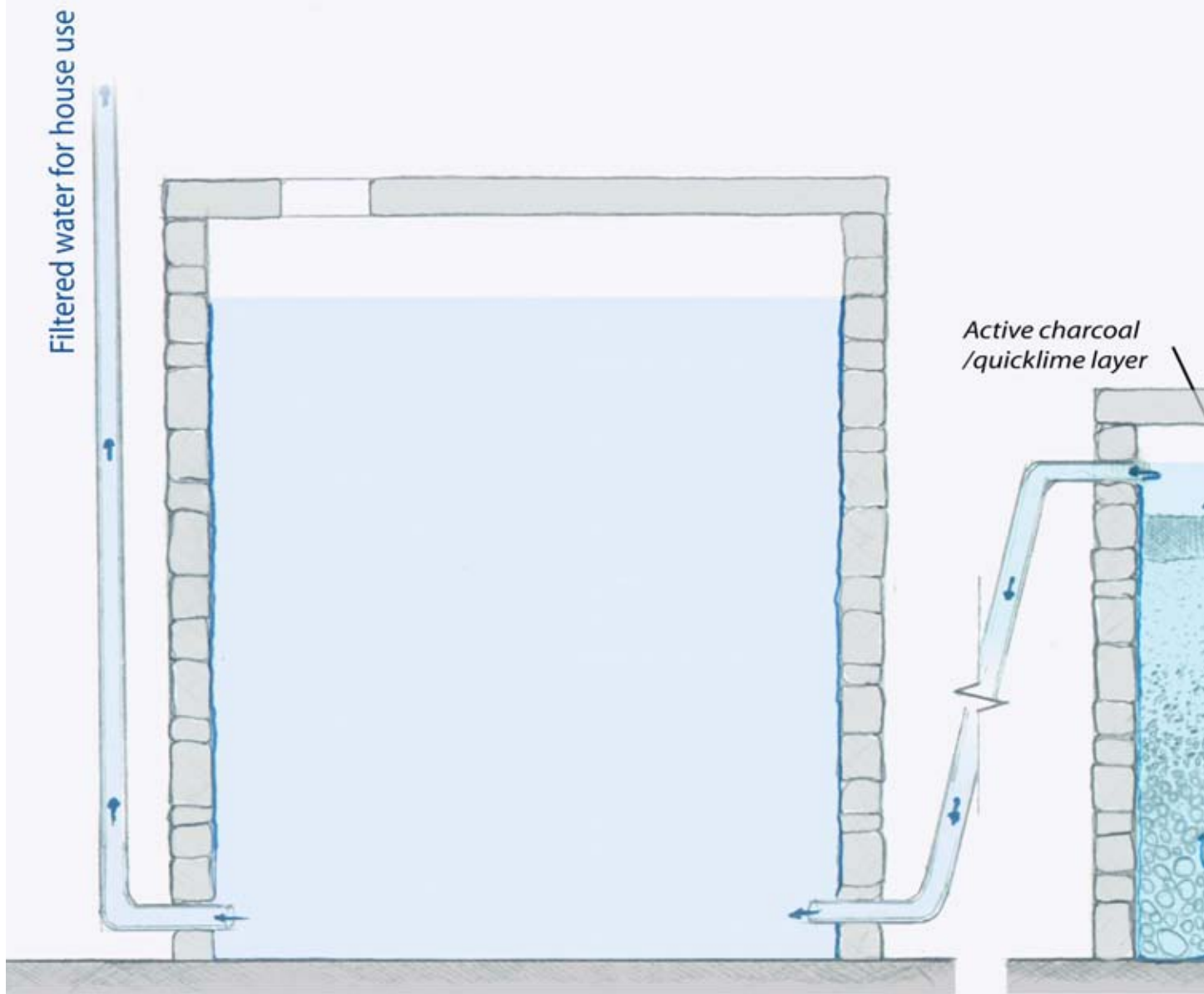


Roofs

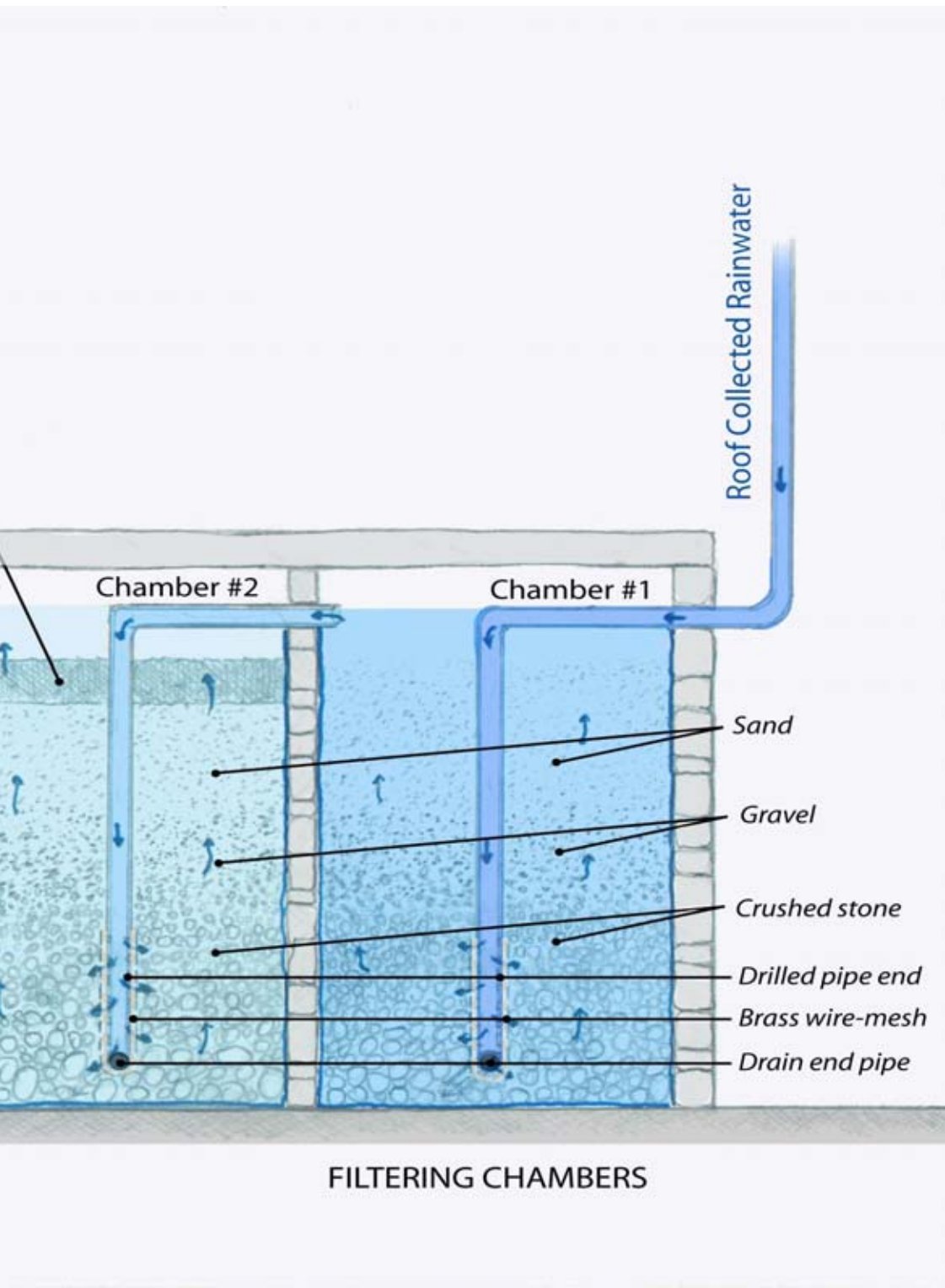
Fig. A.18

A newer house in Zambelići features a typical vernacular roof with the overhang and trough system.

TRADITIONAL WATER FILTERING PROCESS



WATER CISTERN - BISTJERNA



Water Filtration Process

Fig. A.19

The illustrated image shows a typical procedure in the water filtration process which does not necessarily have to take place in three separate chambers. Often there is a single chamber with different compartments within. However, the filtration process itself, different layers and their sequential layout as well as the movement of water are the same in most of the water cisterns found on Luštica.

Man in space is enabled to look upon the distant earth, a celestial orb, a revolving sphere. He sees it to be green, from the verdure on the land, algae greening the oceans, a green celestial fruit. Looking closely at the earth, he perceives blotches, black, brown, gray and from these extend dynamic tentacles upon the green epidermis. These blemishes he recognizes as the cities and works of man and asks, "Is man but a planetary disease?"

Loren Eiseley, *The House we Live In*, 1961

The Planet Earth

Fig. A.20

It appears to be a pearl in the infinitely large shell of the dark universe; the only creation that means life, that provides life and sustenance for all living organisms; the beginning and the end; our only limit and our only Home

"What did the astronauts say when they saw the Earth rise above the lunar horizon? That it was beautiful, and irreplaceable. A cliché? Not at all: aesthetic and moral meaning was taking root once more in physical reality, after four centuries of disenchantment, in which art, science, and morality had lost their connection with each other."

Augustine Berque,
Beyond the Modern Landscape



It is quite clear that currently we, inhabitants of the Earth, are experiencing an environmental crisis both on physical and phenomenological level. The depletion of the Ozone layer, acid rains, biodiversity diminution, and global warming are just a few manifestations of defacing alterations on the physical environment as a result of our irresponsible activities and general ignorance towards the well being of the planet. Simultaneously, this post-industrial age, technology-based society, fast pacing economy, profitability-oriented politics, and our overall consumption-driven culture are creating increasingly artificial simulacra of our environment. Originally part of the natural world, we humans are thus becoming more and more alienated and physically separated from the natural environment and eventually utterly devoid of the genuine meaning and purpose of our terrestrial existence.

The people of today, have lost the feeling of belonging to a place, to a time. We have lost the feeling for the sacredness of nature; the feeling of responsive kinship with the universe around us. Without these feelings we are no longer capable of perceiving the true world, the grand harmonies and the celestial energy which encompass us, and which we are all made, in fact, of which everything is made. As a result, cosmic meanings escape us increasingly, and we become entirely immersed in our own illusive 'world' created by us and only for us. In essence, we are helplessly stuck in this Cartesian grid-like space wherein mechanization, artificiality, and technocratic exploitation thrive; and all in the name of a so-called progress!

This nightmarish world disfigures the real one. The forests are seen as timber, the great planes and farm-fields as future suburban developments, the rivers as transportation arteries, the seas as waste depots, the oceans as fish and sea-food tanks, and the mountains as treasury mines. It seems very clear that we are blindfolded and are undeniably heading towards a destructive inevitability. Unlike the past civilizations that provided us with meaningful and numinous inheritances such as the *Stonehenge*, *Great Pyramids*, *Nasza land drawings*, *Moai monoliths*, instead, our contemporary world offers shopping malls, theme parks, nuclear reactors, mutilated or deforested landscapes, and an ever-expanding cyber space and video games; indeed, a virtual insanity wherein consumerism, devastation of natural resources and inescapable deterioration of our living environment fully prevail.

"Firstly, as representations, images reflect reality; second, they distort it; third, they mask its absence; finally, they bear no relation to it whatsoever: they are their own pure simulacra. [In our media-saturated information age] the danger is not simply that images distance us from material reality, but that simulations in fact substitute for it."

**Ellen Dunham-Jones,
Losing Ground**

Environment - the external conditions in which plants or animals live and which tend to influence their development and behavior.

Nature - the whole system of forces and events of all physical life that are not directly controlled by man.

**D.L. Jones
Architecture and the Environment**

Landscape denotes the external world mediated through subjective human experience in a way that neither region nor area immediately suggest. Landscape is not merely the world we see, it is a construction, a composition of that world. Landscape is a way of seeing the world."

Denis Cosgrove, 1984

Sustainability - meeting the needs of the present without compromising the ability of future generations to meet their own needs.

McDonough, 1992

Living today means living in the environmental crisis, which is omnipresent and globally conceived as the major threat to our civilization, especially in the years to come. It is thus apparent and quite easily ascertained that we live in a decisive time burdened by not only our own life expectancies but also by that of the generations to come. The way people of today live will determine how (and if) the people of tomorrow will live. Therefore, our actions, our attitudes, our *'everything'* now counts towards the future.

This dangerous condition, however, did not go unnoticed in the recent past. Fortunately there have been numerous ecological forerunners and true partisans who have been predictive and insightful enough to anticipate the forthcoming environmental concerns and hence have attempted to warn and address the world forcefully. Specifically, in the latter half of the 20th century, this no longer imminent, but rather a pervasive environmental crisis has growingly influenced the works of many different theoreticians and practitioners of architecture, urbanism and planning. With greater or lesser degree of ecological eagerness, other cultural spheres, too, have invariably tried to explain, rationalize and eventually propose solutions for the problematic condition of the environment. Books and articles have been written; buildings have been erected, art pieces have been made; parks and suburbs designed; conferences organized, visions outlined and proposed. This panoply of the created ecological animation represents the corporeal manifestation, the embodiment, of several very similar ideologies and philosophies which all have one crucial motive in common. Both the theory and the parallel practice reflect a profound and fundamental aspiration for the culture to come to terms with nature. It implies expressions of desire for healthier modes of living - less degradable and defaced environment, and generally more inspiring and uplifting cultural milieu. Accordingly, a specific related terminology was established alongside and within this extensive body of work. Terms such as *'green buildings'*, *'deep ecology'*, *'environmentalism'*, *'sustainability'*, *'bioclimatic design'*, *'bioregional thinking'* and other thematic variations have been coined one after another and some even simultaneously with each other, yet all of them portraying the same essential urge to act upon the very problematic situation our terrestrial environment currently encounters.

At the end, however, the extent of these helpful curing activities and their valuable outcomes are stunningly small, and in comparison to the actual need, they unfortunately fall short. The cry of the Earth is heard but not adequately nor sufficiently comforted yet.

With this in mind, everyone today has to realize that the aforementioned 'green' capacities, environmental movements and their respective initiatives, alone and without full economic, political and global cultural support, will not significantly change our current very alarming condition. Putting garbage into specified colour-coded bins, un-subscription to and rejection of junk newspapers and flyers, double sided copying, green roofing installations, integration of photovoltaic systems into buildings, car-pooling, and other similar environmentally healthy practices will not stop global warming. They will not reduce acid rains nor will they prevent the Ozone layer depletion; at least not substantially so, unless they are extensively and impeccably executed worldwide, and more importantly, unless these actions become our way of living, our second nature. What we have to change immediately is therefore, our global mentality, our collective consciousness. In essence, as a society of the 21st century, what we desperately need is a global and total ecological revolution at the educational, political, economical, spiritual, cultural and every other existential level. Until we breathe ecology and healthy thinking with every single pore on our bodies, there will be no rest, no comfort, and no affluent future guaranteed for our children.

We have to change our way of thinking and perceiving the world around us. Before we can heal the earth we have to heal ourselves, our own beliefs, our own life 'philosophies' and ideologies. We have to re-evaluate, re-assess, and re-consider our position in the world. We have to rid ourselves off all polluted and unhealthy aspects of our living, working and inhabiting this planet; all of them which have brought us to this point of crisis. Moreover, we have to relocate our 'cultural' coordinates in relation to 'natural', and understand the futility of their current oppositional condition. In deed, by acknowledging the fake origins of this dichotomy inherited from the industrial age and the advent of the machines in the first place, we will then be capable of finding ways to reconcile and reconnect the two sides, to make them one again.

"Green architecture or sustainable architecture are simply different terms for designing with nature and designing in an environmentally responsible way."

Ken Yeang
Designing with Nature

Bioclimatic Architecture - the description of a more building-specific term [that] means an approach to design which is inspired by nature and which applies a sustained logic to every aspect of the project, focused on optimizing and using the environment. The logic covers conditions of setting, economy, construction, building management and individual health and well-being, in addition to building physics.

D.L. Jones
Architecture and the Environment

Ecology-the study of the interactions of organisms, populations, and biological species (including humans) with their living and nonliving environment; **ecosystem** - the composition change and stability of geographically localized groups of species, and the flow energy and matter within such groups of species

Istock, 1973.

Deep ecology - a philosophy that calls for a profound shift in our attitudes and behavior based on voluntary simplicity; rejection of anthropocentric attitudes; intimate contact with nature; decentralization of power; support for cultural and biological diversity; a belief in the sacredness of nature; and direct personal action to protect nature, improve the environment, and bring about fundamental societal change.

http://highered.mcgraw-hill.com/sites/0070294267/student_view0/glossary_a-d.html

*Culturalization -
the Earth's Cancer?!?*

Fig. A.21

A collage of landscape
photographs portraying the
human condition and his
impact on the surrounding
environment

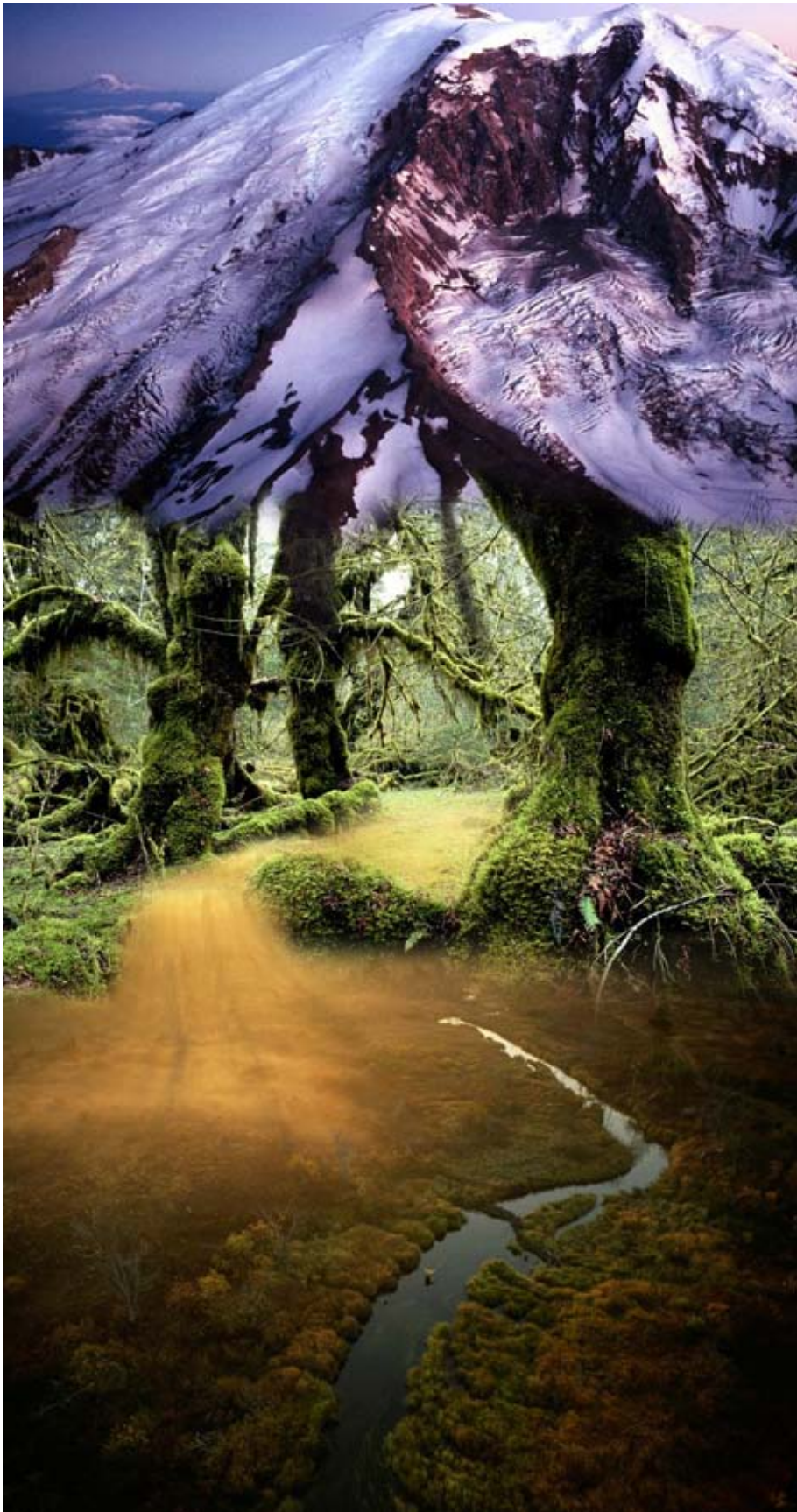
*"First we had nature. And then came
the Environment. Environment is the
smoke humanity has put on nature:
the people who used Latin had no
word for environment – they only knew
natura."*

Gustav Metzger

*"For we may see here a late
manifestation of the Cartesian split
between mind and matter, and the
consequent separation of man and
nature. The resulting loss of a holistic
consciousness has created a lack of
awareness of the interrelationships
between man and the world around
him. Thus we have a dialectical
view of man as separate from, even
opposed to, nature and the subsequent
exploiting and ravaging of nature....In
a certain sense what we have here is a
geography of the mental landscape of
our time."*

David Hanson





Nature - Sanctum, Meaning, Guide, Mother!!!

Fig. A.22

The Collage of the landscape photographs portraying the natural condition of beauty, mysticism, challenge, and harmony

"Clearly the problem of man and nature is not one of providing a decorative background for the human play, or even ameliorating the grim city: it is the necessity of sustaining nature as source of life, milieu, teacher, sanctum, challenge and, most of all, of rediscovering nature's corollary of the unknown in the self, the source of meaning."

Ian McHarg
Design with Nature

"God has lent us the earth for our life; it is a great entail. It belongs as much to those who are to come after us, and whose names are already written in the book of creation, as to us; and we have no right, by any thing that we do or neglect, to involve them in unnecessary penalties, or deprive them of benefits which it was in our power to bequeath."

John Ruskin
The Lamp of Memory

*Culturalization -
the Earth's Cancer?!?*

Fig. A.23

A collage of landscape
photographs portraying the
human condition and his
impact on the surrounding
environment

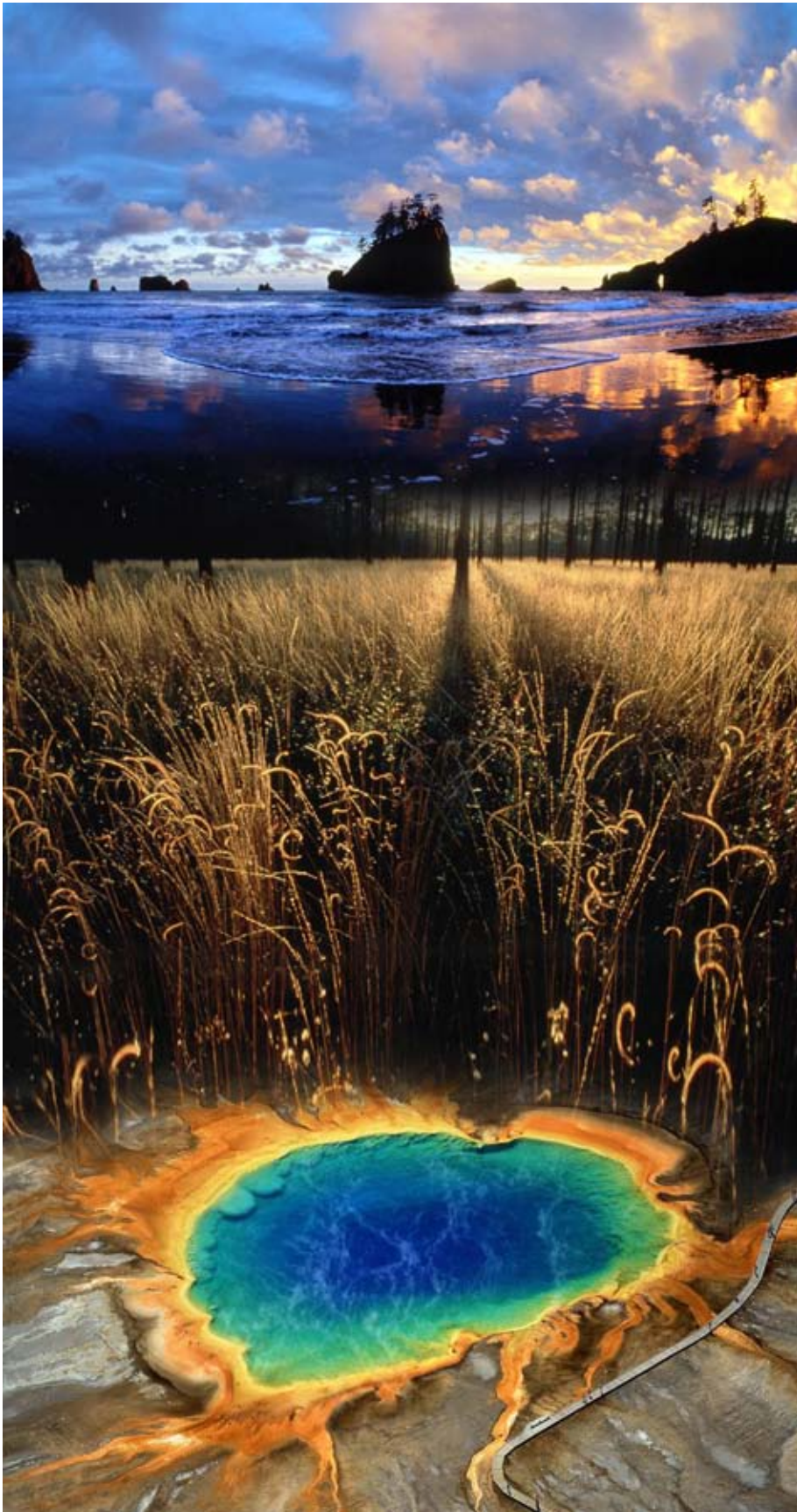
*"The global environment crisis is a
question of survival. Never before in
history have human beings had such an
impact on Earth. The resulting problems
are a product of the size and growth of
population, quantity of consumption,
and quality of technology."*

**Sophia and Stefan Behling,
Sol Power**

*"Big cities are condemned and
decaying...and badly oppressed men
live in them, knowing nothing of the
divine earth, which outside stands vigil
and breathes."*

Rainer Maria Rilke





*Nature - Sanctum, Meaning,
Guide, Mother!!!*

Fig. A.24

The Collage of the landscape photographs portraying the natural condition of awe, admiration, spirituality, and veneration

"Treat the Earth well. It was not given to you by your parents. It was loaned to you by your children."

Kenyan Proverb

*"Come forth into the light of things
Let Nature be your teacher."*

William Wordsworth

This global mentality shift - the ecological awakening of our ignorant collective consciousness - has to start with the image of our planet. The first step is realizing the fact that the Earth is our limit. The blue sphere that some rightly tend to call Mother Earth is our cradle and our grave. It is not only our home and the home of our children, but it is equally the home of every single life form that exists on it and every future one that is yet to come. Thus, we should behave and act accordingly. We shall acknowledge its natural forces and principles which govern it. Then we shall accept them, obey them and finally cherish them while taking part in their endless cycles. Love and reverence for the earth shall no longer be seen as 'beautification and preservation of the sceneries' but rather be based on the awareness of the symbiotic and interdependent relationship with the nature; for our survival on the earth is less likely to depend on our manipulative and controlling capacities over nature, but rather on our own ability to synchronize, to be one with it. This will come fully to fruition once we realize that *heaven* is not only something we walk under but also something we walk onto.

Ultimately, we shall regain the faith in Mother Nature herself by looking back to our origins - on conceptual, ideological and even mythological level - to find the profound moments of our past when human minds were not infected by obliterating and insatiable mental appetites, by an unbearable urge for rushed and inconsiderate progress, by greed for power, control and conquest. This return to our long forgotten, yet innate qualities of stewardship, deference, and genuine partnership with nature would be also the return to our true selves. Likewise, the return to sensuality, spirituality, humility, environmentally friendly modes of production, modesty and tradition would equally be the return to Mother Nature. This in turn, would restore our faith and lead the way to our healing, and inevitably to the healing of our environment. In addition, it would signalize the re-born sacredness and regained respect for nature whose previous absence in our lives happened to be one of the prime phenomenological causes for the disruption of the natural balance and subsequent failing environment.

In the same way, listening, understanding, and attuning to the natural forces, to the cosmic energies, and to the spirits of the idiosyncratic places we inhabit, would bring us to a desired harmony with them. It would reconnect us with the world around. It would imbue us with genuine meanings and higher truths of our terrestrial existence and consequently, bring back the vital sense of reverence so necessary for the well being of surroundings and our sustenance. This purification of our souls will finally reveal and unfold the real world before our revived senses. Only then will we be able to see, hear and feel again the natural wonders for what they truly are, independently and no longer obscured by our own subjective and limited anthropocentric affinities. Only then will we be the desired change we want so passionately to see in the world. Only then will we become the children of nature, the genuine children of the Earth.

List of Illustrations

All figures are the work of the author, whether they are photos, maps or tables unless otherwise noted as references in parentheses. For the detailed version of references, see the following Bibliography section.

- Fig. i.1** Thesis Incipient Stage. The River Case
- Fig. i.2** Thesis Incipient Stage. The Land Case
- Fig. i.3** Thesis Incipient Stage. The Consecrated Case
- Fig. i.4** Swimming pool, Leca de Palmeira, Portugal. [*Berrizbeitia & Pollak. InsideOutside*]
- Fig. i.5** Piazza Metallica, Dunsburg-Nord, Germany. [*Cerver, Asensio. The world of Landscape Architecture*]
- Fig. i.6** Camp Pendleton. California, US. Political and Landscape Map [<http://www.gsd.harvard.edu/studios/brc/brc.html>]
- Fig. i.7** Sea Ranch. California, US. Olhson Recreation Centre. [*Donlyn, Lyndon & Alinder, Jim. The Sea Ranch*]
- Fig. i.8** *Magia Blanca, La Paz Waterfall Garden, Costa Rica* [<http://www.wildnatureimages.com>]
- Fig. i.9** A trail, Hacienda Baru, Costa Rica. [*as above*]
- Fig. i.10** Toucan Flight, Hacienda Baru, Costa Rica. [*as above*]
- Fig. i.11** Downsvie Park. Perspective Rendering [http://www.pdp.ca/fileadmin/images/Tom_Sun.jpg]
- Fig. i.12** Downsvie Park. Proposed Site Plan [*as above*]
- Fig. i.13** Park Güell, Barcelona, Spain. [www.barcelona.com/barcelona_city_guide/gaudi/park_guell]
- Fig. i.14** Park Güell, Barcelona, Spain. Support Column and Railing Detail. [*as above*]
- Fig. i.15** Park Güell, Barcelona, Spain. The Entrance with the Main Staircase. [*as above*]
- Fig. i.16** Tá Cenc Heritage Park, Gozo, Malta. Aerial photograph [*Haldenby, Rick. Tá Cenc Heritage Park Management Plan*]
- Fig. i.17** Tá Cenc Heritage Park, Gozo, Malta. The Heritage Park Management Plan Map [*as above*]
- Fig. i.18** The Burning Man Festival, Nevada, US. [www.burningman.com]
- Fig. i.19** A Visual Taste of the Lustica Peninsula. [*Dragan Mirović, CEP photo database*]
- Fig. i.20** Old Stone House in Bijelila.
- Fig. i.21** Old Stone Guvno in Babunci.
- Fig. i.22** Composite Map of Luštica.
-
- Fig. 1.1** St. Nedelja Church in Zabrdje.
- Fig. 1.2** Luštica Peninsula. View of Boka's gateway.
- Fig. 1.3** Luštica's Coast. [*Dragan Mirović, CEP photo database*]
- Fig. 1.4** Twilight from Luštica.
- Fig. 1.5** An old house in Žanjice.
- Fig. 1.6** Genius Loci Image.

- Fig. 2.1** The Context of the Luštica Peninsula. The Satellite Image. [UMD Library, University of Waterloo]
- Fig. 2.2** The Ecosystem Hierarchy Diagram.
- Fig. 2.3** Adriatic Sea. Contextual Map. [http://encarta.msn.com/map_701509854/Adriatic_Sea.html]
- Fig. 2.4** Table #1. ABC Analysis of the Wider Environment / Adriatic Sea & Eastern Adriatic Coast.
- Fig. 2.5** Adriatic Sea. Bathymetric Base Chart. [UMD Library, University of Waterloo]
- Fig. 2.6** Eastern Adriatic Coast. Topographic Base Chart. [as above]
- Fig. 2.7** Montenegrin Littoral. Contextual Map. [http://encarta.msn.com/map_701509854/Adriatic_Sea.html]
- Fig. 2.8** Table #2. ABC Analysis of the Environment / Montenegrin Littoral.
- Fig. 2.9** Montenegrin Littoral. Photo from the Plane.
- Fig. 2.10** Montenegrin Littoral Geographic Map. [UMD Library, University of Waterloo]
- Fig. 2.11** Montenegrin Littoral Political-Infrastructural Map. [as above]
- Fig. 2.12** Boka Kotorska Bay. Contextual Map. [http://encarta.msn.com/map_701509854/Adriatic_Sea.html]
- Fig. 2.13** Table #3. ABC Analysis of the Wider System / Boka Kotorska Bioregion.
- Fig. 2.14** Relief Model of Boka Kotorska Bay.
- Fig. 2.15** Photograph of the Bay of Kotor. [Tourist Centre Herceg Novi, photo database]
- Fig. 2.16** Verige Straits in the Boka Kotorska Bay.
- Fig. 2.17** Riviera of Herceg Novi. The Town of Igalo.
- Fig. 2.18** Riviera of Herceg Novi. The Cape of St. Nedelja.
- Fig. 2.19** The Village Kamenari.
- Fig. 2.20** Herceg Novi in the Night. [Tourist Centre Herceg Novi, photo database]
- Fig. 2.21** Boka Kotorska. View to Northwest over the Town of Kotor. [as above]
- Fig. 2.22** Topography Map of Boka Kotorska. [Bozovic, Goran. PhD thesis. Pg. xx]
- Fig. 2.23** Physiographic Regions Map. [as above. Pg. xxx]
- Fig. 2.24** Soil Distribution Map. [as above. Pg. xxx]
- Fig. 2.25** Hydrography Map. [as above. Pg. xxx]
- Fig. 2.26** Vegetation Map. [as above. Pg. xxx]
- Fig. 2.27** The Waters of Boka Kotorska and the Ship. [Tourist Centre Herceg Novi, photo database]
- Fig. 2.28** Administration Map. [as above. Pg. xxx]
- Fig. 2.29** Extent of Technoecosystem Map. [as above. Pg. xxx]
- Fig. 2.30** Tourism Map. [MonteCEP. A Special Use Master Plan for Morsko Dobro of Montenegro. 1:100,000]
- Fig. 2.31** Infrastructure and Traffic Map. [as above]
- Fig. 2.32** Cultural Heritage Map. [as above]
- Fig. 2.33** Ecology - Problems and Potentials Map. [as above]
- Fig. 2.34** Zoning and Land Use Map. [as above]
- Fig. 2.35** Luštica Peninsula. Contextual Map. [http://encarta.msn.com/map_701509854/Adriatic_Sea.html]
- Fig. 2.36** Table #4. ABC Analysis of the System / Luštica Peninsula.

- Fig. 2.37** The Geographic Context of the Luštica Peninsula.
- Fig. 2.38** Luštica Peninsula. View of the Obosnik Hill and the Eastern Part of the Peninsula.
- Fig. 2.39** Luštica Peninsula. View of the Coastal Town Rose and the Western Part of the Peninsula.
- Fig. 2.40** Luštica Peninsula. A Natural Pebble Beach in the Inlet of Zlatna Luka.
- Fig. 2.41** Luštica Peninsula. A Typical South Coast.
- Fig. 2.42** Luštica Topography Map. [*Topographic Charts of Herceg Novi, Tivat and the Bay of Trašte. 1:25,000*]
- Fig. 2.43** Luštica Physiography. The Inland Plato.
- Fig. 2.44** Luštica Physiography. The Miriste Inlet.
- Fig. 2.45** Luštica Physiography Map. [*Topographic Charts of Herceg Novi, Tivat and the Bay of Trašte. 1:25,000*]
- Fig. 2.46** Cretaceous Limestone. [*Tourist Centre Herceg Novi, photo database*]
- Fig. 2.47** Cretaceous Limestone. [*as above*]
- Fig. 2.48** Cretaceous Limestone. [*as above*]
- Fig. 2.49** Cretaceous Limestone. [*as above*]
- Fig. 2.50** Luštica Geology Map. [*Basic Geology Chart, Municipality of Herceg Novi, Tivat and Kotor. 1:50,000*]
- Fig. 2.51** Red Brownized Soil - Terra Rossa.
- Fig. 2.52** Red Brownized Soil - Terra Rossa.
- Fig. 2.53** Red Brownized Soil - Terra Rossa.
- Fig. 2.54** Luštica Soil Distribution Map. [*Basic Pedologic Chart, Municipality of Herceg Novi, Tivat and Kotor. 1:50,000*]
- Fig. 2.55** Water Features. The Mouth of the Stream Rijeka in Bijelila. [*Dragan Mirović, CEP photo database*]
- Fig. 2.56** Water Features. The Well and the Water Cistern Near St. Nicholas Church in Radovanići. [*Kača Nikolić*]
- Fig. 2.57** Water Features. The Surface Water Accumulation adjacent to the Well and the Water Cistern
- Fig. 2.58** Luštica Hydrography Map. [*Topographic Charts of Herceg Novi, Tivat and the Bay of Trašte. 1:25,000*]
- Fig. 2.59** Luštica Vegetation. A thick macquis forest.
- Fig. 2.60** Luštica Vegetation. A thick macquis forest.
- Fig. 2.61** Luštica Vegetation. A thick macquis forest.
- Fig. 2.62** Luštica Vegetation Map. [*Božović, Goran. Tipovi Antropogenih promena predela u Boki Kotorskoj-PhD thesis*]
- Fig. 2.63** The Old Geographic Map of Boka Kotorska by Antonio Zambella. [*Nautical Museum of Kotor*]
- Fig. 2.64** Roman Floor Mosaic from Risan. [*JP Kulturni Centar Bar. Mozaik*]
- Fig. 2.65** Boka Kotorska Mapping History & Landscape. Preurban Period. [*Božović, Goran. PhD thesis*]
- Fig. 2.66** Boka Kotorska Mapping History & Landscape. Protourban Period. [*as above*]
- Fig. 2.67** Luštica Mapping History & Landscape. Protourban Period. [*as above*]
- Fig. 2.68** Boka Kotorska Mapping History & Landscape. Roman Period. [*as above*]
- Fig. 2.69** Luštica Mapping History & Landscape. Roman Period. [*as above*]
- Fig. 2.70** Boka Kotorska Mapping History & Landscape. Medieval Period. [*as above*]
- Fig. 2.71** Luštica Mapping History & Landscape. Medieval Period. [*as above*]
- Fig. 2.72** Boka Kotorska Mapping History & Landscape. Protoindustrial Period. [*as above*]

- Fig. 2.73** Luštica Mapping History & Landscape. Protoindustrial Period. *[Božović, Goran. PhD thesis]*
- Fig. 2.74** Cultural Traces. The Village Babunci.
- Fig. 2.75** Cultural Traces. 19th Century Austrian Fortification.
- Fig. 2.76** Luštica Administration Map. *[CAD drawing, Institute for Urbanism and Planning in Herceg Novi]*
- Fig. 2.77** Archaeology of Luštica. 2nd Century B.C. Amphora. *[Dragan Mirović, CEP photo database]*
- Fig. 2.78** Archaeology of Luštica. Remains of a Preromanic Church in Malo Rose. *[as above]*
- Fig. 2.79** Archaeology of Luštica. Artefacts from 6th Century in the Inlet of Mirište. *[as above]*
- Fig. 2.80** Archaeology of Luštica. A Marine Archaeological Site. *[as above]*
- Fig. 2.81** Luštica Archaeology Map. *[MonteCEP & Parović-Pešikan, Maja. Arheoloska istraživanja u Boki Kotorskoj]*
- Fig. 2.82** The Paths of Luštica. The Major Paved Road.
- Fig. 2.83** The Paths of Luštica. A Typical Unpaved Route.
- Fig. 2.84** The Paths of Luštica. A Typical Pedestrian Unpaved Route.
- Fig. 2.85** Luštica Infrastructure Map. *[Topographic Charts of Herceg Novi, Tivat and the Bay of Trašte. 1:25,000]*
- Fig. 2.86** Luštica's Built Environment. St. Sava Church in the Village Klinci.
- Fig. 2.87** Luštica's Built Environment. A Courtyard of the homestead in the Village Babunci.
- Fig. 2.88** Luštica Built Environment Map. *[Topographic Charts of Herceg Novi, Tivat and the Bay of Trašte. 1:25,000]*
- Fig. 2.89** Luštica's Land Use. Arable Land in the Central Inland Area.
- Fig. 2.90** Luštica's Land Use. Restricted Arable Land in Zabrdje.
- Fig. 2.91** Luštica Land Use Map. *[Božović Goran. PhD thesis]*
- Fig. 2.92** Luštica's Land Coverage. A Typical Inland Landscape.
- Fig. 2.93** Luštica's Land Coverage. The Quarry Zone in the Trašte Bay.
- Fig. 2.94** Luštica Land Coverage Map. *[Topographic Charts of Herceg Novi, Tivat and the Bay of Trašte. 1:25,000]*
- Fig. 2.95** Holy Tree. The Ancient Olive Tree nearby the Church of St. John, Žanjice.
- Fig. 2.96** St. Hariton Church in Gornji Klinci.
- Fig. 2.97** Luštica Ecology Map. *[MonteCEP. A Special Use Master Plan for Morsko Dobro of Montenegro. 1:100,000]*
- Fig. 2.98** A House in the Rock, Bijelila.
- Fig. 2.99** An Old Stone Olive Mill in the Basement of a House in Zabrdje.
- Fig. 2.100** Historical Conditions. The Back Stone Terrace with Wine Trellis, Zabrdje.
- Fig. 2.101** Historical Conditions. An Old Stone House on a Small Island, Bijelila.
- Fig. 2.102** Historical Conditions. St. John's Church in Žanjice and the Surrounding Context.
- Fig. 2.103** An Urban Locus. The Coastal Hamlet of Rose.
- Fig. 2.104** St. Nicholas Church in Radovanići.
- Fig. 2.105** A Rural Locus. The Village of Mardari.
- Fig. 2.106** Luštica Cultural Heritage Map. *[Topographic Charts of Herceg Novi, Tivat and the Bay of Trašte. 1:25,000]*
- Fig. 2.107** *A New House in Zambelići.*
- Fig. 2.108** *The Coastal Town of Krašići. [Dragan Mirović, CEP photo database]*

- Fig. 2.109** Problematic Urbanization. A Restaurant and an Olive Tree.
- Fig. 2.110** Problematic Urbanization. An Unfinished Brick House/Hotel
- Fig. 2.111** Problematic Urbanization. The Parking Terraces Under Construction.
- Fig. 2.112** Problematic Urbanization. Recent Developments in Žanjice.
- Fig. 2.113** Village Houses in Mrkovi.
- Fig. 2.114** St. Hariton Church in Gornji Klinci.
- Fig. 2.115** Fort Mamula and Mamula Island.
- Fig. 2.116** Pollution and Litter. The Sea Pollution.
- Fig. 2.117** Pollution and Litter. The Sea Pollution.
- Fig. 2.118** Pollution and Litter. Krečana converted into Garbage Depot.
- Fig. 2.119** Pollution and Litter. Krečana converted into Garbage Depot.
-
- Fig. 3.1** Genius Loci Diagram. An Intuitive Sketch of the Underlying Factors.
- Fig. 3.2** Heritage Park Luštica. Proposed Signage for Luštica Park.
- Fig. 3.3** Heritage Park Luštica. Stone Walls and Terraced Olive Groves.
- Fig. 3.4** Multipurpose Park Luštica. Žanjice Beach.
- Fig. 3.5** Symbiosis of Man and Nature. The Montenegrin Coastal Settlement. *[Dragan Mirović, CEP photo database]*
- Fig. 3.6** Symbiosis of Man and Nature. The Medieval Town of Ulcinj. *[as above]*
- Fig. 3.7** Conceptual Diagram for the Luštica Heritage Park Proposal. A sketch of the Primary Systems in Interaction.
- Fig. 3.8** Luštica Composite Map 1.
- Fig. 3.9** Luštica Composite Map 2.
- Fig. 3.10** Luštica Composite Map 3.
- Fig. 3.11** Luštica Composite Map 4.
- Fig. 3.12** Luštica Composite Map 5.
- Fig. 3.13** Luštica Composite Map 6.
- Fig. 3.14** Park Size Context Diagram.
- Fig. 3.15** Heritage Park Luštica, 1:30,000.
- Fig. 3.16** Table #5. Multipurpose Zones of Luštica.
- Fig. 3.17** Luštica Multipurpose Park Map, 1:30,000.
- Fig. 3.18** Birds Resting Grounds.
- Fig. 3.19** Grotto and Caves.
- Fig. 3.20** Grotto and Caves.
- Fig. 3.21** Ancient Olive Tree near the Village Begovići.
- Fig. 3.22** The Church and the Monastery of Virgin's Presentation. Žanjice.
- Fig. 3.23** Natural Redevelopment Areas. The Quarry Zone.
- Fig. 3.24** Natural Redevelopment Areas. The Coastal Hamlet of Rose and the Landscape Scar of the 2003 Fire.

- Fig. 3.25** A Housecourt in Babunci.
- Fig. 3.26** St. Hariton Church, Gornji Klinci.
- Fig. 3.27** Žanjice and Mirište Inlets. [*Kača Nikolić*]
- Fig. 3.28** *The Coastal Hamlet of Rose. [Tourist Centre Herceg Novi, photo database]*
- Fig. 3.29** Design Guidelines and Principles. An Example of a Successful Building Integration in Mirište.
- Fig. 3.30** Design Guidelines and Principles. An Example of a Successful Building Integration in Mirište, Closeup.
- Fig. 3.31** Design Guidelines and Principles. An Example of a Successful Building Integration with the Surrounding.
- Fig. 3.32** Zones of Cultivation. A Typical Inland Condition.
- Fig. 3.33** Zones of Cultivation. A Typical Village Complex.
- Fig. 3.34** An Old Olive Grove, Žanjice.
- Fig. 3.35** A Restaurant in Rose. [*Srećko Krasan*]
- Fig. 3.36** The Mirište Beach. [*Dragan Mirović, CEP photo database*]
- Fig. 3.37** A Sea Dock, Rose.
- Fig. 3.38** Aloa Vera Plant.
- Fig. 3.39** A Spider. [*Dorđe Tanacković*]
- Fig. 3.40** Luštica Administrative Management Units.
- Fig. 3.41** Luštica Landscape Management Units.
-
- Fig. 4.1** Boka Kotorska Entrance. Key Map.
- Fig. 4.2** Strategic Defence and Control System. [*Topographic Charts of Herceg Novi, Tivat and the Bay of Trašte. 1:25,000*]
- Fig. 4.3** The Gateway of Boka. The First Line of Defence. [*as above*]
- Fig. 4.4** Fort Oštra and Prevlaka Peninsula.
- Fig. 4.5** Fort Mamula and Mamula Island.
- Fig. 4.6** Fort Arza and Cape Mirište.
- Fig. 4.7** The Triad Markers.
- Fig. 4.8** Details of Gornja Arza Artillery Location. Remains of the cannon infrastructure.
- Fig. 4.9** Details of Gornja Arza Artillery Location. Remains of the cannon infrastructure.
- Fig. 4.10** Details of Gornja Arza Artillery Location. Stairs and the tunnel.
- Fig. 4.11** Details of Gornja Arza Artillery Location. Interior of the bunker.
- Fig. 4.12** Fort Mamula and Mamula Island. [*Tourist Centre Herceg Novi, photo database*]
- Fig. 4.13** Fort Arza from the Boat.
- Fig. 4.14** The Second Line of Defence. [*Topographic Charts of Herceg Novi, Tivat and the Bay of Trašte. 1:25,000*]
- Fig. 4.15** Panoramic View of Prevlaka Peninsula and the Entrance Bay.
- Fig. 4.16** View from Fort Oskoruša to Fort Tursko and Fort Kobilica.
- Fig. 4.17** View from Fort Oskoruša to Fort Luštica.
- Fig. 4.18** View of Fort Oskoruša.

- Fig. 4.19** Detail Views of Fort Oskoruša. Defence Trench, Building Corridor and the Roof Stone Wall Parapet.
- Fig. 4.20** Detail Views of Fort Oskoruša. The Entrance Buried into the Surrounding Terrain.
- Fig. 4.21** View of Fort Kabala. Surrounding Context.
- Fig. 4.22** View of Fort Kabala. Close Up.
- Fig. 4.23** Fort Kabala from the Path Downhill.
- Fig. 4.24** Kabala Artillery Position near Fort Kabala.
- Fig. 4.25** Stone Barrack near Fort Oskoruša.
- Fig. 4.26** Fort Klinci. The Access Road and the Surrounding Context.
- Fig. 4.27** Fort Klinci. The Entrance and the North Facade.
- Fig. 4.28** Fort Klinci. View of the South-Facing Hexagon Terrace
- Fig. 4.29** Luštica Heritage Park Map. Fortifications and the Heritage Park.
- Fig. 4.30** Fort Luštica. The Trench Wall Detail.
- Fig. 4.31** Fort Klinci.
- Fig. 4.32** Sketch Ground Plan of Fort Klinci.
- Fig. 4.33** Sketch Ground Plan of Fort Kabala.
- Fig. 4.34** Interior Views of the Forts. Spiral Stone Stairs at Fort Arza.
- Fig. 4.35** Interior Views of the Forts. Fort Kabala Typical Room Detail.
- Fig. 4.36** Interior Views of the Forts. Prussian Vault Detail.
- Fig. 4.37** Sketch Ground Plan of Semi-Buried Forts Oskoruša and Luštica.
- Fig. 4.38** The Roof of Fort Oskorusa. View Southeast.
- Fig. 4.39** The Roof of Fort Oskorusa. View Northwest.
- Fig. 4.40** The Water Elements. A pipe to subterranean water cistern in Fort Oskoruša.
- Fig. 4.41** The Water Elements. A well and subterranean water cistern in Fort Arza.
- Fig. 4.42** Ex-military Submarine Tunnel Ukop.
- Fig. 4.43** Entrance to Fort Oskoruša.
- Fig. 4.44** Fort Kabala North Wing.
- Fig. 4.45** Eyes of Fort Oskoruša.
- Fig. 4.46** Gate to the Main Complex of Fort Oskoruša.
- Fig. 4.47** The Front Entrance to Fort Kabala.
- Fig. 4.48** Harmonious Sun-ergizing. The Sun Set from Fort Arza *pict.1.*
- Fig. 4.49** Harmonious Sun-ergizing. The Sun Set from Fort Arza *pict.2.*
- Fig. 4.50** Harmonious Sun-ergizing. The Sun Set from Fort Arza *pict.3.*
- Fig. 4.51** Harmonious Sun-ergizing. The Sun Set from Fort Arza *pict.4.*
- Fig. 4.52** Harmonious Sun-ergizing. The Sun Set from Fort Arza *pict.5.*
- Fig. 4.53** Harmonious Sun-ergizing. The Sun Set from Fort Arza *pict.6.*
- Fig. 4.54** Piranesi's Etchings of Roman Ruins *pict.1.* [<http://www.artchive.com/artchive/P/piranesi.html>]

- Fig. 4.55** Piranesi's Etchings of Roman Ruins *pict.2.* [<http://www.artchive.com/artchive/P/piranesi.html>]
- Fig. 4.56** The Greenery - The Wilderness *pict.1.*
- Fig. 4.57** The Greenery - The Wilderness *pict.2.*
- Fig. 4.58** The Greenery - The Wilderness *pict.3.*
- Fig. 4.59** The Greenery - The Wilderness *pict.4.*
- Fig. 4.60** The Sky. [*Dorđe Tanacković*]
- Fig. 4.61** The Sanctuary. [*as above*]
- Fig. 4.62** The Sea.
- Fig. 4.63** Kabala Barrack. Within the Temple Beneath the Sky.
- Fig. 4.64** The Pilgrimage. Road to St. Pantelija Church.
- Fig. 4.65** The Pilgrimage. Road to Fort Arza.
- Fig. 4.66** The Gateway. St. Trifun Church.
- Fig. 4.67** The Gateway. Fort Luštica.
- Fig. 4.68** The Meaning. Cross in St. Sava Church.
- Fig. 4.69** The Meaning. Sunset over the Dip in the Landscape.
- Fig. 4.70** Oculus in the Centre of Fort Arza. [*Dorđe Tanacković*]
- Fig. 4.71** 1897 WACHHAUS CABALLA. Stone Tablet Inscription in Fort Kabala.
- Fig. 4.72** Piazza Navona, Rome, Italy. A Post Card.
- Fig. 4.73** Teatro Di Marcello. A Model *pict.1.* [http://www.romehotelnord.it/english/itineraries/roma_hotel_roma.html]
- Fig. 4.74** Teatro Di Marcello. A Model *pict.2.* [*as above*]
- Fig. 4.75** Teatro Di Marcello. Piranesi's Etching of the Theatre. [<http://www.mmdtkw.org/VTheatMarc.html>]
- Fig. 4.76** Teatro Di Marcello. Present Day Theatre in the Context of Surrounding Archaeological Site.
- Fig. 4.77** Boka Kotorska Map. Medieval Towns and their Fortifications.
- Fig. 4.78** Forte Mare in the Herceg Novi Context. [*Tourist Centre Herceg Novi, photo database*]
- Fig. 4.79** Kanli Fort in the Herceg Novi Context. [*as above*]
- Fig. 4.80** Traditional Folklore Performance. [*as above*]
- Fig. 4.81** Teatro Di Marcello. Original Roman Column within the Wall of a New 1950s Apartment Building.
- Fig. 4.82** Medieval Town of Herceg Novi. The Famous, Old Clock Tower. [*Tourist Centre Herceg Novi, photo database*]
- Fig. 4.83** Herceg Novi Close Up Context Map. Tourist Centre of Herceg Novi and Luštica's Fortifications.
- Fig. 4.84** Entrance Festival at Ukop. Photomontage.
- Fig. 4.85** Ukop Locus Context.
- Fig. 4.86** Ukop Landscape Context. Fragmented Panorama.
- Fig. 4.87** The Cut in the Landscape. The Submarine Tunnel with the Wood Platform.
- Fig. 4.88** Assimilation or Camouflage. Matching Colours of Concrete and the Surrounding Terrain.
- Fig. 4.89** Assimilation or Camouflage. Detail of Naturally Coloured Green Concrete.
- Fig. 4.90** Assimilation or Camouflage. The Entry to the Pedestrian Tunnel Carved out of Stone.

- Fig. 4.91** Ukop Close Up Landscape Context. Panoramic View.
- Fig. 4.92** Tunnel-Womb-Cave. The Interior of the Submarine Tunnel.
- Fig. 4.93** Tunnel-Womb-Cave. The Interior of Sybil's Cave, Cuma, Italy.
- Fig. 4.94** Entrance Main stage. Sea of Ravers.
- Fig. 4.95** Entrance Electronic Music Festival. Luštica, Rose and Ukop at Night.
- Fig. 4.96** Entrance Electronic Music Festival. Fusion Image *pict.1.*
- Fig. 4.97** Entrance Electronic Music Festival. Fusion Image *pict.2.*
- Fig. 4.98** Entrance Electronic Music Festival. Fusion Image *pict.3.*
- Fig. 4.99** Entrance Electronic Music Festival. Fusion Image *pict.4.*
- Fig. 4.100** Entrance Electronic Music Festival. Fusion Image *pict.5.*
- Fig. 4.101** Ukop Site. A Few Days after the Festival.
- Fig. 4.102** The Interior View with the Bridge.
- Fig. 4.103** The Interior View without the Bridge.
- Fig. 4.104** The Game of Shadows and Forms. View from the Tunnel Out.
- Fig. 4.105** The Game of Shadows and Forms. Bridged Entrance.
- Fig. 4.106** The Game of Shadows and Forms. Unbridged Entrance.
- Fig. 4.107** Submarine Tunnel and the Bridge. Photomontage.
- Fig. 4.108** Ukop's Podium. During the Festival.
- Fig. 4.109** Ukop's Podium. After the Festival.
- Fig. 4.110** The Entrance to the Submarine Tunnel. During the Festival.
- Fig. 4.111** The Entrance to the Submarine Tunnel. A Couple of Days Later.
- Fig. 4.112** The Submarine Tunnel. Colossal Scale and Semi-Naturalized Semi-Man-Made State *pict.1.*
- Fig. 4.113** The Submarine Tunnel. Colossal Scale and Semi-Naturalized Semi-Man-Made State *pict.2.*
- Fig. 4.114** The Submarine Tunnel. Colossal Scale and Semi-Naturalized Semi-Man-Made State *pict.3.*
- Fig. 4.115** The Submarine Tunnel. Colossal Scale and Semi-Naturalized Semi-Man-Made State *pict.4.*
- Fig. 4.116** The Burning Man Festival. Man-Made City/Camp. [www.burningman.com]
- Fig. 4.117** The Burning Man Festival. The Fire(works) of the Burning Man. [*as above*]
- Fig. 4.118** Voof Festival, Germany.
- Fig. 4.119** The Interior of the Submarine Tunnel. Kockice Tournament *pict.1.*
- Fig. 4.120** The Interior of the Submarine Tunnel. Kockice Tournament *pict.2.*
- Fig. 4.121** The Mouth of the Submarine Tunnel. A Diving Setting *pict.1.*
- Fig. 4.122** The Mouth of the Submarine Tunnel. A Diving Setting *pict.2.*
- Fig. 4.123** Fort Arza Context. Photomontage.
- Fig. 4.124** Fort Arza. The Path Leading from Mirište to Fort Arza. [*Đorđe Tanacković*]
- Fig. 4.125** Fort Arza Context. View Looking Southwest.
- Fig. 4.126** Fort Arza Context. View Looking North.

- Fig. 4.127** Fort Arza Context. Close Up.
- Fig. 4.128** Fort Arza Context. An Ancient Locality - Present Monumentality.
- Fig. 4.129** Fort Arza Context. The Greenery and the Path of Pilgrimage.
- Fig. 4.130** Fort Arza Context. View Looking Southeast.
- Fig. 4.131** Spontaneous Evolution of the Place. The Roof and the Terrace of Fort Arza.
- Fig. 4.132** The Panorama from Arza.
- Fig. 4.133** Meditation Spot.
- Fig. 4.134** Framing Windows.
- Fig. 4.135** The Living Room.
- Fig. 4.136** Shaded Playing Ground. [Đorđe Tanacković]
- Fig. 4.137** One with Nature. Fort Arza.
- Fig. 4.138** One with the Surrounding Landscape.
- Fig. 4.139** Finding a New Genuine Meaning. Natural Merging *pict.1.*
- Fig. 4.140** Finding a New Genuine Meaning. Natural Merging *pict.2.*
- Fig. 4.141** Finding a New Genuine Meaning. Natural Merging *pict.3.*
- Fig. 4.142** Game of Shadows. Simple Trellis Design.
- Fig. 4.143** Present Conditions on the Exterior. Exterior Terrace and a Ruinous Concrete Platform at Fort Klinci.
- Fig. 4.144** Present Conditions on the Exterior. Roof Top/Terrace at Fort Oskoruša.
- Fig. 4.145** Present Conditions on the Exterior. Garbage Depot at Gornja Arza.
- Fig. 4.146** Present Conditions on the Exterior. Overgrown Entrance to Fort Luštica.
- Fig. 4.147** Present Conditions on the Interior. Obstructed Stairway to the Fallen Roof of Fort Luštica.
- Fig. 4.148** Present Conditions on the Interior. Ruinous Spiral Stairs of Fort Arza
- Fig. 4.149** Present Conditions on the Interior. A hole in the Ruinous Floor at Fort Kabala.
- Fig. 4.150** Present Conditions on the Interior. Ruinous Prussian Ceiling at Fort Oskoruša.
- Fig. 4.151** Pristan Military Zone *pict.1.*
- Fig. 4.152** Pristan Military Zone *pict.2.*
- Fig. 4.153** Pristan Military Zone *pict.3.*
- Fig. 4.154** Looking Outward from Within. View from Fort Arza.
- Fig. 4.155** The Old Man and the Sea. The Setting of the Sun.
- Fig. 4.156** Boka Gateway in the Twilight. Photomontage.
-
- Fig. c.1** Towards a Healthy Architecture. [<http://www.montenegro.com/en/Lustica.html>]
- Fig. c.2** Park Boundary Context Map.
- Fig. c.3** The Sun Setting over Prevlaka.

- Fig. A.1** The Old Stone House in the Village Complex Mitrovići, Zabrdje.
- Fig. A.2** The Stone House of Raško Family in Rose.
- Fig. A.3** Retaining Walls. A Wall of More Recent Origin.
- Fig. A.4** Retaining Walls. A Typical Retaining Wall Along the Major Road.
- Fig. A.5** Exterior Building Walls. A Wall with a Wooden Window.
- Fig. A.6** Exterior Building Walls. A Wall of an Old School.
- Fig. A.7** Exterior Building Walls. A wall of the Central Courtyard in Fort Arza.
- Fig. A.8** Building Openings. The Old House in Žanjice.
- Fig. A.9** Building Openings. A Typical Wooden Window with Wooden Shutters.
- Fig. A.10** Building Openings. A New Set of Doors and Shutters of a House in Rose.
- Fig. A.11** An Old House in Mardari.
- Fig. A.12** Shading Devices. A Typical Vine Trellis.
- Fig. A.13** Shading Devices. A Kiwi Trellis with a Metal Frame Support.
- Fig. A.14** Shading Devices. A Temporary Trellis Made of Cane.
- Fig. A.15** An Old House in Mardari. A Typical Homestead on Luštica.
- Fig. A.16** Roofs. A Building Complex of the Village Klinci.
- Fig. A.17** Roofs. A Stone House in Mrkovi.
- Fig. A.18** Roofs. A Newer House in Zambelići.
- Fig. A.19** Water Filtration Process. An Illustration of a Typical Procedure.
- Fig. A.20** The Planet Earth. A Pearl in the Universe. [www.earth.google.com]
- Fig. A.21** Culturalization - the Earth's Cancer?! A Collage of Landscape Photographs. [*Phaidon. Magnum Landscape*]
- Fig. A.22** Nature - Sanctum, Meaning, Guide, Mother! A Collage of Landscape Photographs. [www.nationalgeographic.com]
- Fig. A.23** Culturalization - the Earth's Cancer?! A Collage of Landscape Photographs. [*Phaidon. Magnum Landscape*]
- Fig. A.24** Nature - Sanctum, Meaning, Guide, Mother! A Collage of Landscape Photographs. [www.nationalgeographic.com]

Ackerman, James S. *The Villa. Form and Ideology of Country House*. London: Thames and Hudson, 1990.

Aitchison, James. *Second Nature*. Aberdeen University Press, 1990.

Allen, Timothy F. H., and Thomas W. Hoekstra. *Toward a Unified Ecology*. New York: Columbia University Press, 1992.

Behling, Sophia and Stefan. *Sol Power: The Evolution of Solar Architecture*. Munich, GW: Prestel, 1996.

Berque, Augustine. *Beyond the Modern Landscape*. **AA Files 25**. pg.33-37.

Berrizbeitia, Anita, and Linda Pollak. *Inside/outside: Between Architecture and Landscape*. Gloucester, Mass. : Rockport, 1999.

Berry, Wendell. *Getting Along with Nature*. W. Berry Home Economics. San Francisco: North Point Press, 1987.

Betsky, Aaron. *Landscapers: Building with the Land*. New York, N. Y. : Thames & Hudson, 2002.

Bogosavljević, Momčilo. *Heliotermički Uslovi Boke Kotorske od Značaja za Turizam*. Boka Vol. 10/2. Herceg Novi: Samoupravna Interesna Zajednica Kulture i Nauke Herceg-Novi, 1979.

Bois, Yve-Alain. *A Picturesque Stroll Around Clara-Clara. October: The First Decade, 1976-1986*. Michelson, Annett, Rosalinda Krauss, Douglas Crimp, and Joan Copjec [eds]. pg. 342-372.

Božović, Goran. *Tipovi Antropogenih Promena Predela u Boki Kotorskoj*. [PhD Thesis]. Beograd: Univerzitet u Beogradu, Šumarski Fakultet, Odsek za Pejzažnu Arhitekturu, 1989.

Bye, A. E. *Abstracting the Landscape: The artistry of Landscape Architects*. University Park, Pa. : Pennsylvania State University, Dept. of Landscape Architecture, 1990.

Cerver, Asensio. *Elements of Landscape: World of Environmental Design*. Barcelona: [Arco Editorial Board], 1995.

Cognetti, Guisepppe [Council of Europe]. *Marine Reserves and Conservation of Mediterranean Coastal Habitats*. No. 50. Strasbourg, 1990.

Constantopoulos, Panos Dra. *Greece 20th century Architecture*. Munich ; New York: Prestel ; Athens: Hellenic Institute of Architecture ; Frankfurt am Main: Deutsches Architektur-Museum, 1999.

Corner, James [ed]. *Recovering Landscape: Essays in Contemporary Landscape Architecture*. New York: Princeton Architectural Press, 1999.

Crippa, Maria Antonietta, and Antoni Gaudi. *Living Gaudi: The Architect's Complete Vision*. New York, NY: Rizzoli, 2002.

Crosbie, Michael J. *Green Architecture: A Guide to Sustainable Design*. Washington, D.C. : American Institute of Architects Press, 1994.

Day, Christopher. *Places of the Soul. Architecture and Environmental Design as a Healing Art*. Wellingborough, Northamptonshire, England : Aquarian Press, 1993.

Dunham-Jones, Ellen. *Losing Ground: Post-industrial Identity in Architecture and Urbanism*. **Modulus 20**, 1991. pg. 88-107.

Eliade, Mircea. *The Sacred and the Profane: The Nature of Religion*. Harcourt, Brace and World, 1957.

Frankovich, Ana. *Trogir: Ecosystem Approach to an Urban Environment*. [Graduate Thesis]. Waterloo, ON: University of Waterloo, 2003.

Gablik, Suzi. *The Ecological Imperative*. **The Structurist 29-30**. pg. 10-15.

Gans, Deborah, and Zehra Kuz. *The Organic Approach to Architecture*. Chichester, West Sussex: Wiley-Academy, 2003.

Habraken, John N. *The Control of Complexity*. *Places: a quarterly journal of environmental design*, Vol.4. No.2. Cambridge: MIT Press, 1987.

- Haldenby, Rick. *Tá Cenc Heritage Park Management Plan*. Toronto, 1999.
- Halprin, Laurence. *The Sea Ranch: Diary of an idea*. Berkeley, Calif. : Spacemaker Press, 2002.
- Hemingway, Ernest. *Old Man and the Sea*. New York : Charles Scribner's Sons, 1952.
- Jackson, J.B. *Discovering the Vernacular Landscape*. Yale University Press, 1986.
- Janković, Rade. *Luštica – Turističko Naselje*. Herceg Novi, 2001.
- Jones, David Lloyd. *Architecture and the Environment. Bioclimatic Building Design*. London: Laurence King ; Woodstock, N.Y. : Overlook Press, 1998.
- Kay, James J. *The Ecosystem Approach Applied to Huron Natural Area*. University of Waterloo, 1994.
- Kay, James J., Henry A. Reiger, Michelle Boyle, and George Francis. *An Ecosystem Approach for Sustainability: Addressing the Challenge of Complexity*. Futures 31. Elsevier Science Ltd. 1999.
- Kay, J., and E. D. Schneider. *Embracing Complexity, The Challenge of the Ecosystem Approach*. Alternatives Vol. 20. No.3. 1994. pg.32-38
- Leatherbarrow, David. *Uncommon Ground: Architecture, Technology, and Topography*. Cambridge, Mass. ; London: MIT Press, 2000.
- Lyndon, Donlyn, and Jim Alinder. *The Sea Ranch*. New York: Princeton Architectural Press, 2004.
- Magnum Landscape*. Phaidon press limited. Paris, 1996.
- Dr. Marković, Čedomir, and Dr. Rajko Vujičić. *Spomenici Kulture Crne Gore*. Novi Sad: Presmedij; Cetinje: Republički zavod za zaštitu spomenika kulture, 1997.
- Martinović, Jovan. *Ilirski i Grčko-Rimski Tragovi*. Kotor: Monografija Kotor, 1979. pg.17-19.
- McHarg, Ian L. *Design with Nature*. New York; Toronto: J. Wiley, 1992.

Milošević, Miloš. *Istorijsko Tokovi na Području Zaliva*. Kotor: Monografija Kotor, 1979. pg.20-29.

Miralles, Enric. *Works and Projects, 1975-1995*. New York: Monacelli Press, 1996.

Miralles, Enric, and Carme Pinós. *Igualada Cementary*. London: Phaidon, 1996.

Moore, Charles W., William J. Mitchell, and William Turnbull Jr. *The Poetics of Gardens*. Cambridge, Massachusetts; London, England: The MIT Press, 1995.

Nakićenović, Sava. *Boka (Antropogeografska Studija)*. Beograd: Štamparija Kraljevine Srbije, 1913.

Nelson, J. G., and E. A. Alder. *Toward Greater Understanding and Use of The World Heritage Convention*. Waterloo: Heritage Resources Centre, University of Waterloo, 1993.

Norberg-Schulz, Christian. *Architecture: Meaning and Place: Selected Essays*. New York: Electra Rizzoli, 1988.

Norberg-Schulz, Christian. *Genius Loci: Towards a Phenomenology of Architecture*. London: Academy Editions, 1980.

Odalović, Gligo. *Mogućnosti za Razvoj Turizma na Poluostrvu Luštici u Boki Kotorskoj*. Boka Vol. 9. Herceg Novi: Samoupravna Interesna Zajednica Kulture i Nauke Herceg-Novi, 1978. pg.269-286.

Parović-Pešikan, Maja. *Arheoloska istrazivanja u Boki Kotorskoj*. Starinar Vol.28-29. Beograd, 1979.

Petrović, Anđa, and Aleksandar Janković. *Luštica Zelenooka*. Beograd: Publikum, 2004.

Popović, Dušan, and Ante Sterniša. *Flora i Vegetacija Hercegovskog Područja*. Herceg Novi: Skupština Opštine Herceg Novi; Turistički Savez Boke Kotorske, 1971.

Pollan, Michael. *Second Nature: A Gardener's Education*. New York: Dell Publishing, 1991.

Portoghesi, Paolo. *Nature and Architecture*. Milan: Skira Editore ; London: Thames & Hudson, 2000.

Rogers, Elizabeth Barlow. *Landscape Design: A Cultural and Architectural History*. New York: Harry N. Abrams, 2001.

Rogers, Richard. Gumuchdjian, Philip. *Cities for a Small Planet*. Boulder: Westview Press, 1998.

Rossi, Aldo. *The Architecture of the City*. Cambridge: The MIT Press, 1986.

Royal Commission on the Future of the Toronto Waterfront, Honourable David Crombie Commissioner. *Regeneration Toronto's Waterfront and the Sustainable City: Final Report*. Toronto, 1992.

Scully, Vincent. *The Earth, the Temple and the Gods: Greek Sacred Architecture*. New Haven: Yale University Press, 1963.

Scully, Vincent. *Architecture. The Natural and the Man Made*. New York: St. Martin's Press, 1991.

Shepherd, Peter. *Modern Gardens*. The Architecture Press, 1958.

Simonds, John Ormsbee. *Landscape Architecture: A Manual of Site Planning and Design*. New York; Toronto: McGraw-Hill, 1983.

Simonds, John Ormsbee. *Landscape Architecture. The Shaping of Man's Natural Environment*. New York: McGraw-Hill, 1961.

Siza, Alvaro. *Works & Projects, 1954-1992*. Barcelona: Editorial Gustavo Gili, 1994.

Siza, Alvaro. *Works and Projects: April 24 - July 2, 1995*. Galicia, Spain: Centro Galego de Arte Contemporanea, 1995.

Snyder, Gary. *The Practice of the Wild*. New York: North Point Press. Farrar, Straus and Giroux, 1997.

Stanković, M. Stevan. *Zaštićena Boka: Osnova Razvoja Turizma*. Boka Vol. 10/2. Herceg Novi: Samoupravna Interesna Zajednica Kulture i Nauke Herceg-Novi, 1979.

Steele, James. *Ecological Architecture: A Critical History*. Los Angeles; New York; London, UK: Thames & Hudson Ltd., 2005.

Studia Marina 7. Kotor: Station for Marine Biology and Oceanography, Kotor, 1974.

Susuhu, Shingu. *Dialogue with Nature*. Tokyo, Japan : Process Architecture, 1983.

Thayer, Robert JR. *Life Place: Bioregional Thought and Practice*. Berkeley: University of California Press, 2003.

Thoreau, Henry David. *Waldern and Civil Disobedience*. New York : Penguin Books, 1983.

Tuan, Yi-Fu. *Topophilia: A Study of Environmental Perceptions, Attitudes, and Values*. New York: Columbia University Press, 1974.

United Nations Environment Programme, Industry and Environment Programme Activity Centre. *Guidelines: development of national parks and protected areas for tourism*. Spain : World Tourism Organization ; France : United Nations Environment Programme, Terrestrial Ecosystems Branch, Industry and Environment Programme Activity Centre, 1992.

Van Schaik, Leon, Ken Yeang, and Razaleigh Tengku Hamzah. *Ecocells: Landscape and Masterplans*. Chichester : Wiley-Academy, 2003.

Yeang, Ken. *Designing with Nature. The Ecology Basis for Architectural Design*. New York: McGraw-Hill, 1995.

Weiss, Allen S. *Unnatural Horizons*. Princeton Architectural Press. 1998.

Willson, Alexander. *The Culture of Nature*. Toronto : Between the Lines Press. 1991.

Book Maps:

Parovic-Pesikan, Maja. *Karta Arheoloskih Lokaliteta na Području Južne Obale Boke Kotorske* [map]. [ca. 1:100,000]. Belgrade, Serbia and Montenegro : "Arheoloska Istrazivanja u Boki Kotorskoj." In: *Starinar* Vol.28-29. Beograd, 1979. pg.21-22.

CD-ROM Maps and Data:

AutoCAD osnove poluostrva Luštica [CD-ROM]. (2004). Herceg Novi, Serbia and Montenegro : Zavod za Projektovanje i Urbanizam Herceg-Novi. Available: Jovica Rašović. [September 2004].

Prostorni Plan posebne namjene za podrucje Morskog Dobra Crne Gore, 1:100,000 [CD-ROM]. (2000). Kotor-Beograd, Serbia and Montenegro : Republicki zavod za urbanizam i projektovanje, d.d. Podgorica ; MonteCEP, centar za planiranje urbanog razvoja, m.d.d. Kotor-Beograd. Available: Dragan Mirović, CEP Beograd. [August 2004].

Geografska Karta Crne Gore, 1:300,000 [CD-ROM]. (1974). Belgrade, Serbia and Montenegro : Vojnogeografski Institut Beograd. Available: Sanja Marković, Republicki zavod za zastitu prirode Podgorica. [August 2004].

Hidrogeološka Karta Crne Gore, 1:300,000 [CD-ROM]. (1974). Belgrade, Serbia and Montenegro : Vojnogeografski Institut Beograd. Available: Sanja Marković, Republicki zavod za zastitu prirode Podgorica. [August 2004].

Hidrografska Karta Crne Gore, 1:300,000 [CD-ROM]. (1974). Belgrade, Serbia and Montenegro : Vojnogeografski Institut Beograd. Available: Sanja Marković, Republicki zavod za zastitu prirode Podgorica. [August 2004].

Pedoloska Karta Boke Kotorske – Topografska Osnova , 1:50,000 [CD-ROM]. (1984). Belgrade, Serbia and Montenegro : VGI, Beograd. Available: Sanja Marković, Republicki zavod za zastitu prirode Podgorica. [August 2004].

Osnovna Geoloska Karta Boke Kotorske, 1:50,000 [CD-ROM]. (1969). Belgrade, Serbia and Montenegro : Strucno-tehnicka redakcija Seizmickog zavoda SRS Beograd. Available: Sanja Marković, Republicki zavod za zastitu prirode Podgorica. [August 2004].

Topografska Karta, Opstina Herceg-Novi, 1:25,000 [CD-ROM]. (1979). Belgrade, Serbia and Montenegro : Vojnogeografski Institut, Beograd. Available: Dragan Mirović, CEP Beograd. [August 2004].

Topografska Karta, Opstina Kotor, 1:25,000 [CD-ROM]. (1979). Belgrade, Serbia and Montenegro : Vojnogeografski Institut, Beograd. Available: Dragan Mirović, CEP Beograd. [August 2004].

Topografska Karta, OpstinaTivat, 1:25,000 [CD-ROM]. (1979). Belgrade, Serbia and Montenegro : Vojnogeografski Institut, Beograd. Available: Dragan Mirović, CEP Beograd. [August 2004].

Internet Maps (Interactive Reference or Thematic Map):

Adriatic Sea [map]. Scale undetermined; generated by Saša Cvetković; using “www. encarta.msn.com”.

<http://encarta.msn.com/encnet/features/mapcenter/map.aspx> (November 2004)

Montenegrin Littoral, Serbia and Montenegro [map]. Scale undetermined; generated by Saša Cvetković; using “www. encarta.msn.com”.

<http://encarta.msn.com/encnet/features/mapcenter/map.aspx> (November 2004)

Boka Kotorska, Serbia and Montenegro [map]. Scale undetermined; generated by Saša Cvetković; using “www. encarta.msn.com”.

<http://encarta.msn.com/encnet/features/mapcenter/map.aspx> (November 2004)

Luštica Peninsula, Serbia and Montenegro [map]. Scale undetermined; generated by Saša Cvetković; using “encarta.msn.com”.

<http://encarta.msn.com/encnet/features/mapcenter/map.aspx> (November 2004)

Boka Kotorska, Serbia and Montenegro [satellite image]. [ca. 1:200,000]. generated by Saša Cvetković; using "www. terraserver.com".
http://www.terraserver.com/imagery/image_gx.asp?cpx=18.60816248&cpy=42.39176379&res=60&provider_id=350&t=pan (Dec. 2004).

UMD Library Maps (University of Waterloo):

Intergovernmental Oceanographic Commission. *International bathymetric chart of the Mediterranean* [map]. 1:1,000,000. Leningrad, USSR : Head Dept. of Navigation and Oceanography, Ministry of Defence, 1981.

Kormoss, I.B.F. *The European Community, member states, regions, and administrative units* [map]. 1:3,000,000. Luxembourg : Office for Official Publications of the European Communities, 1980.

National Geographic Society (U.S.). Cartographic Division. *Europe* [map]. 1:8,400,000. Washington, D.C. : The Society, 1982.

National Geographic Society (U.S.). Cartographic Division. *The Mediterranean seafloor* [map]. 1:4,371,000. Washington, D.C. : The Society, 1982.

United States. Central Intelligence Agency. *The Mediterranean Basin* [map]. 1:6,500,000. Washington : Central Intelligence Agency, 1986.

<http://www.answers.com/topic/genius-loci>
<http://www.artchive.com/artchive/P/piranesi.html>
http://www.barcelona.com/barcelona_city_guide/gaudi/park_guell
<http://www.bergie.iki.fi/gallery/2005/trip-to-rome/rome-106.html>
<http://burningman.com/>
<http://www.elsevier.com/locate/futures>
<http://www.encarta.msn.com/encnet/features/mapcenter/map.aspx>
<http://www.entrancefest.com/>
http://en.wikipedia.org/wiki/Genius_loci
http://www.faoadriamed.org/html/events-news/geogr_subareas.html
<http://www.findaproproperty.com/area.aspx?areaid=4328&opt=agents>
http://highered.mcgraw-hill.com/sites/0070294267/student_view0/
<http://www.geocities.com/Yosemite/3712/parkiucn.html>
<http://www.gsd.harvard.edu/studios/brc/brc.html>
http://www.gzs-dd.si/kod&kam/kod&kam_en/atlas_Eadriatic_coast.html
http://www.idealspain.com/Pages/Places/Buildings/park_guell.asp
<http://www.montenegro.com/en/Lustica.html>
<http://www.mmdtkw.org/VTheatMarc.html>
<http://www.nationalgeographic.com>
http://www.nekretnine.org/business/croatian_adriatic1.html
<http://www.np-brijuni.hr/english/default.asp>
<http://www.np-mljet.hr/about%20national%20park.html>
<http://www.photo-montenegro.com>
http://www.poetry-online.org/wordsworth_tintern_abbey.htm
<http://www.pdp.ca/>
http://www.romehotelnord.it/english/itineraries/roma_hotel_roma.html
http://www.searchspaniel.com/index.php/Adriatic_Sea
<http://www.terraserver.com/>
<http://www.visit-montenegro.com/english/>
<http://www.vitruvio.ch/arc/roman/theatremarcellus.php>
<http://wildnatureimages.com>