

Interreg



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Italy – Croatia

 **CAMPUS**

D.1.1.2 UNESCO sites data analysis

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WP	1
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INDEX

Introduction to the project.....	4
Introduction to the deliverable.....	5
Ferrara, City of the Renaissance, and its Po Delta.....	6
Visual Worksheet: Ferrara.....	15
Po Delta Veneto Regional Park.....	16
Visual Worksheet: MAB Biosphere Reserve of the Po Delta.....	23
Santuario di San Michele Arcangelo.....	24
Visual Worksheet: Santuario di San Michele Arcangelo.....	32
Historic City of Trogir.....	33
Visual Worksheet: Historic City of Trogir.....	39
Stari Grad Plain.....	40
Visual Worksheet: Stari Grad Plain.....	46
Plitvice Lakes National Park.....	47
Visual Worksheet: Plitvice Lakes National Park.....	58



Introduction to the project

The CAMPUS project addresses the challenges posed by climate change to UNESCO sites, with a particular focus on natural and cultural heritage sites located in Italy and Croatia. Issues such as sea level rise, increasing temperatures, and extreme weather events threaten the conservation of universal heritage. The establishment of monitoring systems and site-specific adaptation plans has therefore become a critical priority.

The primary objective of this project is to develop a shared cross-border framework for monitoring systems, action plans, and climate adaptation measures, aiming to preserve the Outstanding Universal Values (OUV) of the involved UNESCO sites.

The project engages several public and private entities:

- Municipality of Ferrara (Lead Partner) – Italy
- IUAV University of Venice – Italy
- Municipality of Monte Sant'Angelo – Italy
- Veneto Regional Park Authority of the Po Delta – Italy
- Development Agency of Lika-Senj County (LIRA) – Croatia
- Regional Development Agency of Split-Dalmatia County (RERA) – Croatia

Additionally, the Plitvice Lakes National Park and the City of Trogir are involved as associated partners.

The project is composed by 3 Work Packages:

WP1: Climate change scenarios of the UNESCO sites and risk assessment

- A.1.1: Analysis of potential impact and data collection
- A.1.2: Vulnerability and risk analysis
- A.1.3: Climate change risk scenarios
- A.1.4: Creation of a cross-border Monitoring System Tool template
- A.1.5: UNESCO sites stakeholders and community perception

WP2: UNESCO Climate Change Adaptation Plans

- A.2.1: Activation of "Living Labs" to engage local communities in plan development
- A.2.2: Creation of a UNESCO sites Cross-Border Climate Change Adaptation Guidelines
- A.2.3: Design of UNESCO sites Climate Change Adaptation plans and measures
- A.2.4: Organisation of local integration workshops
- A.2.5: Organisation of Regional Conferences

WP3: UNESCO Climate Change Adaptation Countermeasures

- A.3.1: Implementation of NBS and natural restoration solutions
- A.3.2: Implementation of building restoration solutions
- A.3.3: Implementation of light infrastructure solutions
- A.3.4: Assessment of the adopted Climate Change countermeasures in UNESCO sites
- A.3.5: Awareness-raising activities in primary and secondary schools

CAMPUS project aims to provide practical solutions to address climate change in the involved UNESCO sites. One of the key outcomes will be the creation of a cross-border monitoring system to assess the vulnerability, sensitivity, and resilience of these sites using indicators aligned with UNESCO guidelines. Common guidelines will be developed to support local management plans, improving the response capacity of authorities.



Concrete measures will be implemented, including nature-based interventions such as habitat restoration and control of invasive species, restoration of historical buildings, and the construction of light infrastructure. The project will actively engage local communities through Living Labs, workshops, and conferences, and will promote climate risk awareness through campaigns targeting students. The collaboration between Italian and Croatian partners will ensure the sharing of methodologies and best practices, contributing to the preservation of the cultural and natural value of UNESCO sites and supporting their sustainable management.

Introduction to the deliverable

D.1.1.2 is organized to provide a detailed evaluation framework for each selected UNESCO site, following a standardized template designed to gather comprehensive information across multiple dimensions. Each site sheet is divided into thematic sections, starting with a general overview of the site and continuing with the following eight sections:

- Feature identification
- Attributes identification
- Data matrix
- Assessing integrity
- Stakeholder profiling
- Legal and policy framework
- Site design
- Assessing management

Each section addresses critical aspects such as local climate challenges, the specific characteristics of the site, and the strategies or policies already in place for its protection and management. The questions and data within the deliverable are directly linked to the site's Outstanding Universal Value (OUV), highlighting its unique features and attributes.

The matrixes for each UNESCO site taken into consideration are accompanied by a Visual Worksheet, summarising the finding and setting the framework for the future elaborations to be implemented within A1.2 and A1.3.

This structured approach ensures a thorough understanding of the site's significance and supports its sustainable preservation.



Ferrara, City of the Renaissance, and its Po Delta

Site areas general overview					
TYPE OF PROPERTY	IDENTIFICATION NUMBER	YEAR OF INSCRIPTION	CRITERIA	DESCRIPTION	FURTHER COMMENTS FROM PP
Cultural	733bis	1995	(ii)	Developments in town planning expressed in Renaissance Ferrara had a profound influence on town design practice and planned preservation throughout the succeeding centuries. The Ferrarese architectural school (Biagio Rosetti, Girolamo da Carpi, Giambattista Aleotti, etc.) exported urban design views and elements such as walls and fortresses into the planning of other Italian and European cities.	N/A
			(iv)	The historical town of Ferrara is an exceptional example of Renaissance period urban planning in which the layout and built forms from this period are still visible and where the urban fabric is virtually intact.	N/A
			(vi)	During the two seminal centuries of the Renaissance, the brilliant court of the Este family attracted leading artists, poets and philosophers and became a major center for the development and practical application of ‘new humanism’ in Italy.	N/A

1. Feature identification	
<p><i>OUV FEATURE (Physical, biological, geological components. An example: "communities of plants could be a feature of grassland")</i></p> <ul style="list-style-type: none"> • Historic center of Ferrara • Delizie system • Emilian stretch of the PO Delta • Architectural heritage <p>o FERRARA: Castello Estense, Palazzo Diamanti, Cattedrale, Palazzo Sacrati Prosperi, Chiesa San Francesco, Palazzo Costabili, Certosa, Chiesa San Benedetto, Casa dell'Ariosto, Monastero di Sant'Antonio in Polesine, Palazzina Marfisa, Palazzo Renata di Francia, Casa Romei,</p> <p>o Monastero del Corpus Domini, Palazzo Paradiso, Museo della Cattedrale, Palazzo Municipale, Delizia di Schifanoia, Palazzina detta dei "Bagni Ducali", Delizia di Belfiore,</p>	<p><i>Are there any feature that are missing? Please enter the feature that you think are important to consider for your site of interest and that are not present in the matrix</i></p> <p>Ferrara, City of the Renaissance, and its Po Delta, situated within the Emilia Romagna region of Italy, is a remarkable cultural landscape. The area comprises the urban center of Ferrara and adjoining agricultural lands within the ancient and vast Po River Delta.</p> <p>The inscribed property extends to the ring of defensive walls that first enclosed the historic urban center of Ferrara in the 12th century. Over time, the encircling walls of the medieval town were extended to accommodate urban growth, and today the walls encircle the medieval city, the Cathedral of San Giorgio and the Estense Castle. A series of urban planning schemes were implemented from the 14th to 16th centuries, which made Ferrara the first Renaissance city to be developed using a complex urban plan. In this plan, the network of streets and walls were closely linked with the palaces, churches and gardens as part of an overall scheme that gave precedence to the harmonious layout of urban perspectives, rather than accentuating the beauty of individual buildings.</p>



<p>Delizia di Belvedere, Delizia e giardini della Castellina</p> <ul style="list-style-type: none"> o COMACCHIO: Delizia “Le casette” o CONSANDOLO: Delizia di Consandolo o COPPARO: Delizia di Copparo o FOSSADALBERO: Delizia di Fossadalbero o FRANCOLINO: Delizia di Francolino o GAMBULAGA: Delizia del Verginese o GUALDO: Torre di Parisina o LIBOLLA DI OSTELLATO: Casa di caccia o MAROZZO: La Tagliata o MEDELANA: Delizia di Medelana o MESOLA: Castello di Mesola o MIGLIARO: Delizia di Migliaro o MONTESANTO: Delizia di Montesanto o OSTELLATO: Delizia di Ostellato o PONTELAGOSCURO: Confortino – Villa dell’Isola o PORTOMAGGIORE: Castello di Porto o QUARTESANA: Delizia di Quartesana o SABBIONCELLO SAN PIETRO: Delizia di Sabbioncello San Pietro o SABBIONCELLO SAN VITTORE: Villa della Mensa o SAN NICOLO’ DI ARGENTA: Delizia di Benvignante o SCORTICHINO: Delizia di Scortichino o TRESIGALLO: Palazzo Pio dei Savoia o VIGARANO MAINARDA - DIAMANTINA: Delizia di Diamantina o VOGHIERA: Delizia di Belriguardo o SANTA MARIA DI POMPOSA; SAN GIORGIO DI ARGENTA <ul style="list-style-type: none"> ● Cultural Landscape ● Historical-cultural itineraries ● Nature itineraries ● Landscape itineraries ● Spiritual itineraries 	<p>The best known of these schemes, the Addizione Erculea designed by Biagio Rossetti at the end of the 15th century, was one of the first urban plans based on the idea of perspective – that is, balancing humanist principles relating to form and volume in architecture with open space, the needs of the city, and local traditions.</p> <p>The Po Delta of the Po River valley has been settled for millennia. From the 14th to the 16th centuries, the ruling Este family carried out extensive land reclamation and building projects, which give this area a distinctive character link with Ferrara, seat of the Este family. Transformations made to the countryside surrounding Ferrara during the Renaissance included: drainage of huge swathes of swampland, establishment of castalderie (estates), creation of new waterways and streets as part of the overall urban development plan and construction of a network of noble residences known as the delizie estensi.</p> <p>This work led to a new fabric of agricultural production and the construction of Ducal residences as the political sign of magnificence. These were designed to mirror the image of the Court beyond the urban confines and again formed part of a process of integration and continuity between the city and the surrounding countryside. The original form of the Renaissance landscape of the Po River Delta is still recognizable in the region’s 21st-century layout.</p> <p>The history of the Renaissance city of Ferrara is closely bound to the Este family and their rule. The city had been an important medieval center, a free city with its own laws and even its own mint, but only under the Este’s was it to become an internationally known capital with great importance for the arts, economics, ideology and religion. The court flourished in splendor and for two centuries was on a par with cities such as Florence and Venice or with other great European courts in France or Spain. Artists such as Piero della Francesca, Mantegna and Michelangelo attended the Este Court and worked there. With great support from these artists, the Este family created the first example of a studiolo and their practice of art collection became a model for both the Medici family and the Pope.</p>
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2. Attribute identification



OUV FEATURES	ATTRIBUTES <i>(The characteristics of a feature that can be measured and monitored). For each feature indicate all attributes considered important)</i>
<ul style="list-style-type: none"> ● Historic center of Ferrara ● Delizie system ● Emilian stretch of the PO Delta ● Architectural heritage o FERRARA: Castello Estense, Palazzo Diamanti, Cattedrale, Palazzo Sacrati Prosperi, Chiesa San Francesco, Palazzo Costabili, Certosa, Chiesa San Benedetto, Casa dell'Ariosto, Monastero di Sant'Antonio in Polesine, Palazzina Marfisa, Palazzo Renata di Francia, Casa Romei, Monastero del Corpus Domini, Palazzo Paradiso, Museo della Cattedrale, Palazzo Municipale, Delizia di Schifanoia, Palazzina detta dei "Bagni Ducali", Delizia di Belfiore, Delizia di Belvedere, Delizia e giardini della Castellina o COMACCHIO: Delizia "Le casette" o CONSANDOLO: Delizia di Consandolo o COPPARO: Delizia di Copparo o FOSSADALBERO: Delizia di Fossadalbero o FRANCOLINO: Delizia di Francolino o GAMBULAGA: Delizia del Verginese o GUALDO: Torre di Parisina o LIBOLLA DI OSTELLATO: Casa di caccia o MAROZZO: La Tagliata o MEDELANA: Delizia di Medelana o MESOLA: Castello di Mesola o MIGLIARO: Delizia di Migliaro o MONTESANTO: Delizia di Montesanto o OSTELLATO: Delizia di Ostellato o PONTELAGOSCURO: Confortino – Villa dell'Isola o PORTOMAGGIORE: Castello di Porto o QUARTESANA: Delizia di Quartesana o SABBIONCELLO SAN PIETRO: Delizia di Sabbioncello San Pietro o SABBIONCELLO SAN VITTORE: Villa della Mensa o SAN NICOLO' DI ARGENTA: Delizia di Benvignante ● Cultural Landscape ● Historical-cultural itineraries ● Nature itineraries 	<p>Historic center of Ferrara</p> <ol style="list-style-type: none"> 1) Territorial extension 2) Population density 3) Land use distribution <p>1) Meteorological data - air temperature, precipitation, snow coverage</p> <ol style="list-style-type: none"> 4) Relative humidity 5) Surface temperature 6) Impermeability of the area <p>Delizie system</p> <ol style="list-style-type: none"> 1) Territorial extension 2) Surface temperature <p>Emilian stretch of the Po Delta</p> <ol style="list-style-type: none"> 2) Water quality - physicochemical and microbiological parameters, 3) Hydrological characteristics - water flow, water level 4) Meteorological data - air temperature, precipitation, snow coverage 5) Surface water pollution – concentration of pollutants 7) Presence and population levels of invasive species 8) Impact on local ecosystem 9) Flora and Fauna composition (species diversity. Health and distribution of key species) <p>Architectural heritage (including the structure of the city itself, the result of the urban planning schemes of the Renaissance period)</p>





<ul style="list-style-type: none"> • Landscape itineraries • Spiritual itineraries 	<p>1) Territorial extension 2) Thermal characteristics of historic buildings</p> <p>Cultural-historic itineraries 1) Territorial extension 2) Number of sites included in the itineraries</p> <p>Natural & Landscape itineraries 1) Territorial extension 2) Invasive/Alien freshwater species</p> <p>Spiritual itineraries 1) Territorial extension 2) Number of spiritual sites included 3) Preservation state of the spiritual sites</p> <p>City wall system 1) Length of the wall system 2) Area enclosed by the walls 3) Structural integrity and degradation rate</p> <p>Water Recovery system 1) Adequacy of water infrastructure 1) Surface water pollution</p>
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3. Matrix

ATTRIBUTES <i>(The characteristics of a feature that can be measured and monitored) (*copy paste the attribute identified in the worksheet n. 2)</i>	SPATIAL REPRESENTATION TYPE (vector, raster, matrix etc.)	SOURCE	COMMENTS
<p>Historic center of Ferrara</p> <ul style="list-style-type: none"> • Territorial extension • Population density • Land use distribution • Meteorological data - air temperature, precipitation, snow coverage • Relative humidity 	<p>Vector, raster and matrix</p>	<p>Geoportal of the PP</p>	



Italy – Croatia



<ul style="list-style-type: none"> • Surface temperature • Impermeability of the area <p>Delizie system</p> <ul style="list-style-type: none"> • Territorial extension • Surface temperature <p>Emilian stretch of the Po Delta</p> <ul style="list-style-type: none"> • Water quality -chemical and microbiological parameters, • Hydrological characteristics - water flow, water level • Meteorological data - air temperature, precipitation, snow coverage • Surface water pollution – concentration of pollutants • Presence and population levels of invasive species • Impact on local ecosystem • Flora and Fauna composition (species diversity. Health and distribution of key species) <p>Architectural heritage (including the structure of the city itself, result of the urban planning schemes of the Renaissance period)</p> <ul style="list-style-type: none"> • Territorial extension • Thermal characteristics of historic buildings <p>Cultural-historic itineraries</p> <ul style="list-style-type: none"> • Territorial extension • Number of sites included in the itineraries <p>Natural & Landscape itineraries</p> <ul style="list-style-type: none"> • Territorial extension • Invasive/Alien freshwater species <p>Spiritual itineraries</p> <ul style="list-style-type: none"> • Territorial extension • Number of spiritual sites included • Preservation state of the spiritual sites <p>City wall system</p> <ul style="list-style-type: none"> • Length of the wall system 			
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<ul style="list-style-type: none"> • Area enclosed by the walls • Structural integrity and degradation rate <p>Water Recovery system</p> <ul style="list-style-type: none"> • Adequacy of water infrastructure • Surface water pollution 			
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4. Assessing the integrity

<i>1- Are the site's key features and attributes related to the OUV whole and intact?</i>	<i>2 - What are the critical issues that climate impacts are causing at the site?</i>	<i>3 - Describe, if any, individual threats recognizable within the site that are not related to climate change</i>	<i>4 - Does the site include all the elements necessary to express its OUV?</i>
Yes	Flooding (due to heavy rainfall), hail damage, drought, temperature changes, rising sea levels and storm surges.	Large-scale photovoltaic systems, presence of industrial areas, repeaters for mobile telephone systems, conversion of agricultural land use, excessive extraction of water from aquifers, biomass power plants, impactful land and sea transport infrastructures, Seaside tourism on the coast of the Lidi di Ferrara	Yes

<i>5 - Is the site of adequate size to ensure complete representation of features/processes that convey its significance?</i>	<i>6 - Do you have control over the processes causing deterioration? Who does? Have adaptation strategies been identified and implemented?</i>	<i>7 - Describe, if present, recognizable macro-emergencies within the site</i>	<i>8 - Does the site have a buffer zone and, if so, is it under any threat?</i>
Yes	Measures such as planting trees, depaving etc contribute to mitigating the effects of heat islands and depaving (increasing soil permeability) helps us to combat flooding. No specific adaptation strategies have yet been implemented in relation to the heritage.	The rise in sea level, the rise of the salt wedge within the Po Delta area.	The site has a Buffer Zone that is subject to the same threats as the Property.

5. Profiling stakeholder

<i>Please list the stakeholders already actively operating in the territory</i>	<i>Please list the first 5 most important stakeholders that it is useful or necessary to involve</i>	<i>How the World Heritage site relates to them, and how they relate to the site?</i>	<i>For each stakeholder describe level and type of power (Political support, economic, social leadership/status, threat, education, knowledge, religion, etc. Where does power come from? How is</i>	<i>Describe the level of knowledge the identified stakeholders have about the site (Extensive, good, some knowledge, limited, none)</i>	<i>Describe particular areas of concern (if any) or opportunities for engagement (Lack of trust? Past problems? Open antagonism? Breakdown in</i>
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			<i>it used? How important to the site is the stakeholder?)</i>		<i>communication? Disagreements over rights?)</i>
	Emilia-Romagna Region	Institutional bodies responsible for managing the UNESCO site. They are all extremely relevant stakeholders for the site	Political, Economic	Some knowledge	Coordination between different entities is very difficult. Different priorities. They all have different competences that are, in some cases, difficult to harmonize.
	Province		Political, Economic	Some knowledge	
	Municipality of Ferrara		Political, Economic, Knowledge, Education, social leadership	Good	
	Consorzio di Bonifica		Economic, Threat, Education, Knowledge	Extensive	
	Soprintendenza		Political, Threat, Knowledge	Extensive	

6. Legal and policy framework

<i>1 - International legislation</i>	<i>2 - World heritage convention</i>	<i>3 - Convention on biological diversity</i>	<i>4 - National legislation</i>	<i>5 - Regional legislation</i>	<i>6 - Local legislation</i>	<i>7 - Policies</i>	<i>8 - Is the legal framework adequate for the management and protection of the site? In what way can the legal framework be enforced?</i>	<i>9 - In the Periodic Report of each site there's the rate about the cooperation / relationship with world Heritage property managers / coordinators / staff. Do you confirm this rates? In case of any difference please describe it in the next column</i>	<i>10 - Column for difference (Question n. 9)</i>
Hague Convention of 14/05/1954 - For the Protection of Cultural Property in the Event of Armed Conflict. >> Link	UNESCO Paris Convention - of 16/11/1972 - For the Protection of the World Cultural and Natural Heritage which requires the	Biodiversity and ecosystems The UNESCO Local and Indigenous Knowledge Systems (LINKS) programme	National laws about protection and safeguarding of UNESCO cultural heritage are contained in the database of	Regional Law no. 24 of 2017 "Regional regulations on the protection and use of the territory". Regional Law no.	No local legislation.	PTP (Territorial Parks Plan) has been replaced by the Station Plans. PTAV (Vast Area Territorial Plan) in the approval phase.	Yes	Local communities: Poor Local/municipal authorities: Poor Indigenous people: Poor Landowners: Poor	Local communities: Poor Local/Municipal authorities: Fair Indigenous people: Not applicable





	<p>cooperation of states in the conservation and protection of the most important assets of history, art and science as well as natural beauty. >> Link</p>	<p>promotes the recognition and use of Indigenous knowledge in biodiversity and ecosystem policy and assessment at the national, regional, and global levels. Advocacy and community-based research have helped to advance recognition of the importance of Indigenous knowledge in un instruments and mechanisms. >> Link</p>	<p>the attached website. >> Link</p>	<p>6 of 2005 “Regulations on the formation and management of the regional system of protected natural areas and Natura 2000 Network sites”.</p>		<p>PTCP (Provincial Coordination Territorial Plan) In force until the PTAV is approved. PUG (General Urban Planning Plan) in the approval phase. PSC (Municipal Structural Plan) in force until the PUG is approved. RUE (Urban Building Regulations).</p>		<p>Visitors: Fair Researchers: Fair Tourism industry: Fair</p>	<p>Landowners: Non-existent Local Visitors/Tourists: Poor Researchers: Poor Tourism Industry: Fair</p>
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7. Site design

<p>1 - Overall size (Is the site large enough to allow for viable core and meta populations, predator/ prey relationships, feeding/breeding sites, migrations, etc.? Is the site large enough to ensure optimal management of cultural and urban sites?)</p>	<p>2 - Proportion of major habitat size (To what extent does the amount of each habitat type influence the site’s integrity and its susceptibility to climate factors?)</p>	<p>3 - Shape and topography description (How might the site’s shape influence its integrity, management, migration patterns, vulnerability, etc.?)</p>	<p>4 - Boundaries (Is the site bounded by roads, railways, rivers, mountain tops, valleys, forest zones, etc.? How will these influence future management? Can the boundaries be improved?)</p>	<p>5 - Buffer zone (If a buffer zone is present, are the boundaries adequate? Can the buffer boundaries be improved? In what way?)</p>	<p>6 - Wider settings (Beyond the buffer zone, is the site set within a landscape that might allow for reshaping it if necessary? Does it offer the potential for establishing corridors?)</p>	<p>7 - Feedback related to boundaries and buffer zones and their functioning and effectiveness</p>	<p>8 - Monitoring (Is there a monitoring system for the site?)</p>
<p>Question not relevant to the site</p>	<p>N/A</p>	<p>N/A</p>	<p>N/A</p>	<p>They are adequate</p>	<p>N/A</p>	<p>N/A</p>	<p>N/A</p>



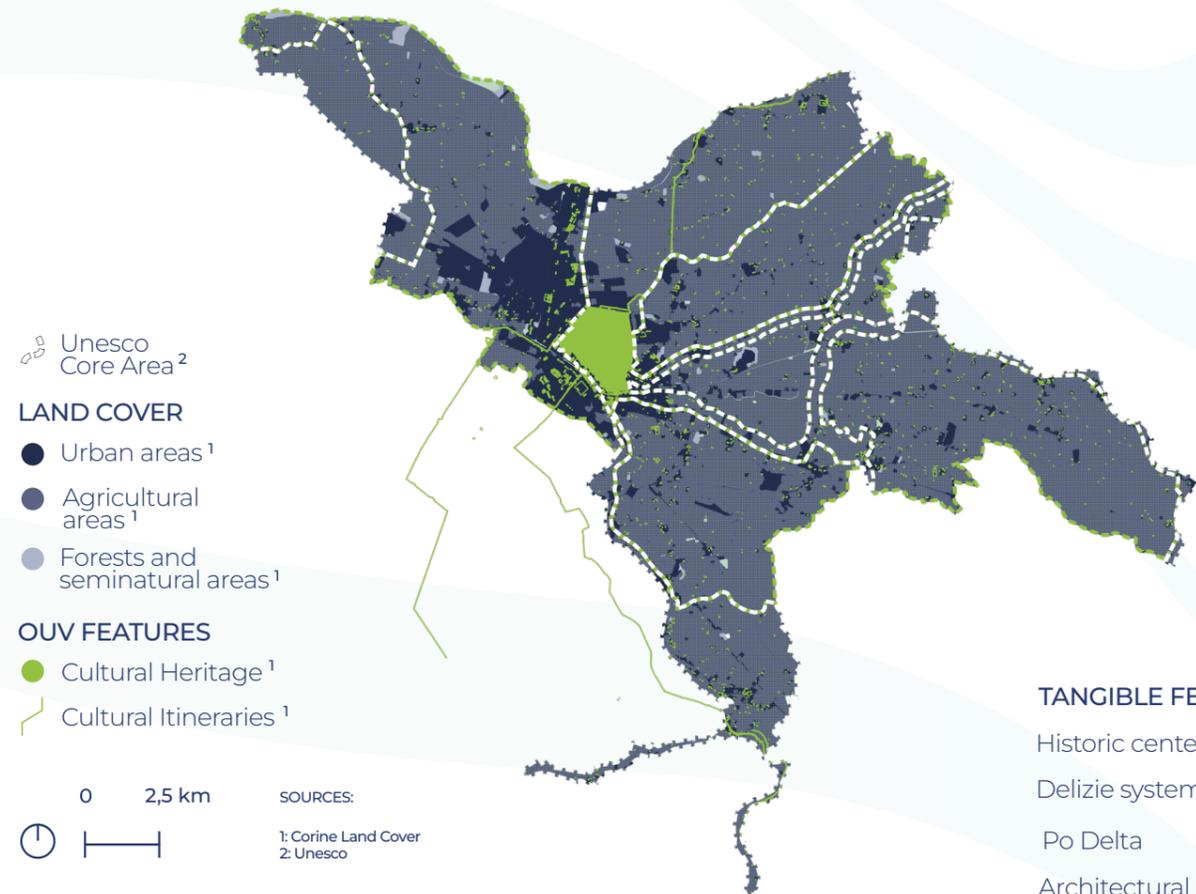
8. Assessing management				
1 - Management info Please describe who is the managing institution of the site (foundation, association, park, etc.).	2 - Is there a site management plan? PPs are asked to describe the functioning, if present.	3 - Indicate whether impact assessments have been carried out on specific projects in accordance with paragraph 172 of the Guidelines, whereby UNESCO invites States Parties to inform the Monitoring World Heritage	4 - Indicate whether a Heritage Impact Assessment (HIA) has been carried out or is in the process of being carried out	5 - Indicate whether annual or biennial reports on the conservation status of the Site have been regularly sent to WHC (if yes, please upload the latest one in the drive).
Due to the characteristics of the UNESCO Site of Ferrara recognized as a “Cultural Landscape”, there is not a single management body.	Due to the characteristics of the UNESCO Site of Ferrara recognized as a “Cultural Landscape”, there is not a single management body.	This office is not aware of the fact that impact assessments may have been carried out on specific projects. The projects that have been submitted by us since 2020, due to their typology, did not require this specific activity.	At the moment, no impact assessment has been carried out on the heritage of the UNESCO Site of Ferrara.	Reports on the state of conservation of the Site have been sent regularly to the WHC, the last one was sent in 2023.

*** The information provided in the analysis sheets concerns the entire UNESCO heritage of Ferrara and its Po Delta, as defined by the recognition granted in 1995. However, given the site's vastness and diversity, to facilitate the subsequent stages of analysis and identify concrete solutions, the following phases have focused on the features within the boundaries of the Municipality of Ferrara ***



FERRARA AND ITS PO DELTA

UNESCO SITE: GENERAL OVERVIEW



TANGIBLE FEATURES

- Historic center
- Delizie system
- Po Delta
- Architectural heritage
- City wall system
- Water Recovery system

INTANGIBLE FEATURES

- Landscape itineraries
- Spiritual itineraries
- Cultural-historic itineraries
- Natural itineraries

OUTSTANDING UNIVERSAL VALUES

SITE IDENTITY

- Urban
- Architectural
- Natural
- Agricultural

CRITERIA



MANAGEMENT AND GOVERNANCE FRAMEWORK

TYPE OF MANAGEMENT DOCUMENT

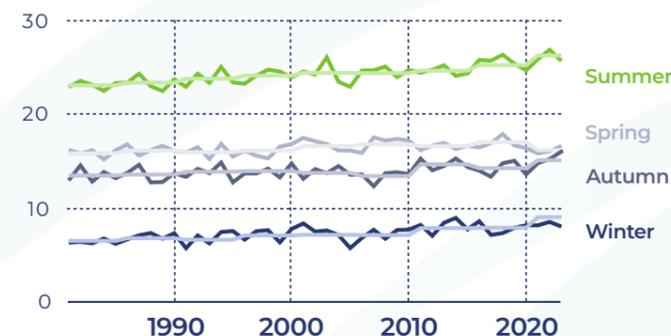
MANAGEMENT PLAN
Piano di gestione (2011-2012)

MANAGEMENT INSTITUTIONS

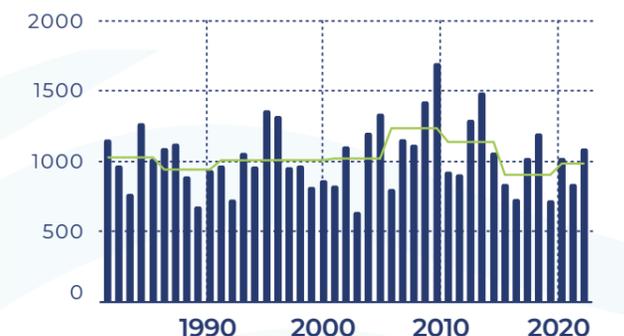
REGIONAL DIRECTORATE FOR HERITAGE
Segretariato Regionale UNESCO Emilia Romagna

CLIMATE TRENDS

AVERAGE SEASONAL TEMPERATURE, 1981-2023, (°C)



YEARLY PRECIPITATION AMOUNT, 1981-2023, (MM)



EFFECTS OF CLIMATIC AND ANTHROPOGENIC THREATS

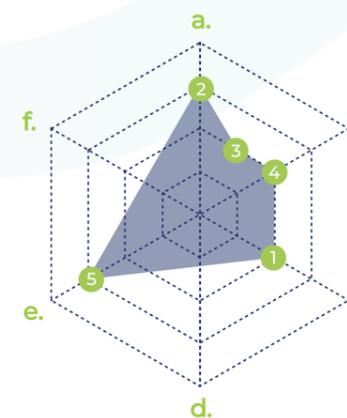
- SEA-LEVEL RISES** Saline wedge
- DESERTIFICATION** Drought Heat waves
- TEMPERATURE CHANGE** --- Heat waves --- Snow loading --- Changes in freeze thaw --- Increase in wet frost
- ATMOSPHERIC MOISTURE CHANGE** Intense rainfall Hail Storms Flooding
- CLIMATE AND POLLUTION** Acid rain Changes in deposition of pollutants
- ANTHROPOGENIC DYNAMICS** Impactful infrastructures Land use change
- CLIMATE AND BIOLOGICAL EFFECTS** Invasive species Changes to lichen colonies on buildings
- WIND** Stronger winds Intense storms

INVOLVED PARTIES

DIMENSIONS

- a. Social
- b. Cultural
- c. Leadership
- d. Economic
- e. Touristic
- f. Spiritual

DEGREE OF KNOWLEDGE



DEGREE OF POWER / INFLUENCE



STAKEHOLDERS

- 1 Municipal authorities
- 2 Inhabitants
- 3 Conservation Experts
- 4 Research Institutions
- 5 Tourism industry

Interreg



Co-funded by the European Union

Italy - Croatia

CAMPUS

Po Delta Veneto Regional Park

1. Feature identification

<p>OUV FEATURE (Physical, biological, geological components. An example: "communities of plants could be a feature of grassland")</p>	<p>Are there any feature that are missing? Please enter the feature that you think are important to consider for your site of interest and that are not present in the matrix</p>
<ul style="list-style-type: none"> ● Historic center of Ferrara ● Delizie system ● Emilian stretch of the PO Delta ● Architectural heritage ○ FERRARA: Castello Estense, Palazzo Diamanti, Cattedrale, Palazzo Sacrati Prosperi, Chiesa San Francesco, Palazzo Costabili, Certosa, Chiesa San Benedetto, Casa dell'Ariosto, Monastero di Sant'Antonio in Polesine, Palazzina Marfisa, Palazzo Renata di Francia, Casa Romei, Monastero del Corpus Domini, Palazzo Paradiso, Museo della Cattedrale, Palazzo Municipale, Delizia di Schifanoia, Palazzina detta dei "Bagni Ducali", Delizia di Belfiore, Delizia di Belvedere, Delizia e giardini della Castellina ○ COMACCHIO: Delizia "Le casette" ○ CONSANDOLO: Delizia di Consandolo ○ COPPARO: Delizia di Copparo ○ FOSSADALBERO: Delizia di Fossadalbero ○ FRANCOLINO: Delizia di Francolino ○ GAMBULAGA: Delizia del Verginese ○ GUALDO: Torre di Parisina ○ LIBOLLA DI OSTELLATO: Casa di caccia ○ MAROZZO: La Tagliata ○ MEDELANA: Delizia di Medelana ○ MESOLA: Castello di Mesola ○ MIGLIARO: Delizia di Migliaro ○ MONTESANTO: Delizia di Montesanto ○ OSTELLATO: Delizia di Ostellato ○ PONTELAGOSCURO: Confortino – Villa dell'Isola ○ PORTOMAGGIORE: Castello di Porto ○ QUARTESANA: Delizia di Quartesana ○ SABBIONCELLO SAN PIETRO: Delizia di Sabbioncello San Pietro ○ SABBIONCELLO SAN VITTORE: Villa della Mensa ○ SAN NICOLO' DI ARGENTA: Delizia di Benvignante 	<p>Via delle valli (natural and historical) Porto Caleri Botanical Garden (naturalistic) Fishing valleys</p>





<ul style="list-style-type: none"> ● Cultural Landscape ● Historical-cultural itineraries ● Nature itineraries ● Landscape itineraries ● Spiritual itineraries 	
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2. Attribute identification

OUV FEATURES	ATTRIBUTES <i>(The characteristics of a feature that can be measured and monitored). For each feature indicate all attributes considered important)</i>
<ul style="list-style-type: none"> ● Historic center of Ferrara ● Delizie system ● Emilian stretch of the PO Delta ● Architectural heritage o FERRARA: Castello Estense, Palazzo Diamanti, Cattedrale, Palazzo Sacrati Prosperi, Chiesa San Francesco, Palazzo Costabili, Certosa, Chiesa San Benedetto, Casa dell'Ariosto, Monastero di Sant'Antonio in Polesine, Palazzina Marfisa, Palazzo Renata di Francia, Casa Romei, Monastero del Corpus Domini, Palazzo Paradiso, Museo della Cattedrale, Palazzo Municipale, Delizia di Schifanoia, Palazzina detta dei "Bagni Ducali", Delizia di Belfiore, Delizia di Belvedere, Delizia e giardini della Castellina o COMACCHIO: Delizia "Le casette" o CONSANDOLO: Delizia di Consandolo o COPPARO: Delizia di Copparo o FOSSADALBERO: Delizia di Fossadalbero o FRANCOLINO: Delizia di Francolino o GAMBULAGA: Delizia del Verginese o GUALDO: Torre di Parisina o LIBOLLA DI OSTELLATO: Casa di caccia o MAROZZO: La Tagliata o MEDELANA: Delizia di Medelana o MESOLA: Castello di Mesola o MIGLIARO: Delizia di Migliaro o MONTESANTO: Delizia di Montesanto o OSTELLATO: Delizia di Ostellato o PONTELAGOSCURO: Confortino – Villa dell'Isola o PORTOMAGGIORE: Castello di Porto 	<p>All elements linked to the drainage consortium (water pumps, museums, casoni) and the natural and ecological component</p>





<ul style="list-style-type: none"> o QUARTESANA: Delizia di Quartesana o SABBIONCELLO SAN PIETRO: Delizia di Sabbioncello San Pietro o SABBIONCELLO SAN VITTORE: Villa della Mensa o SAN NICOLO' DI ARGENTA: Delizia di Benvignante • Cultural Landscape • Historical-cultural itineraries • Nature itineraries • Landscape itineraries • Spiritual itineraries 	
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3. Matrix		
ATTRIBUTES (<i>The characteristics of a feature that can be measured and monitored</i>) (*copy paste the attribute identified in the worksheet n. 2)	SPATIAL REPRESENTATION TYPE (vector, raster, matrix etc.)	SOURCE
All elements linked to the drainage consortium (water pumps, museums, casoni) and the natural and ecological component	Vector, raster and matrix	Geoportal of the PP

4. Assessing the integrity							
<i>1- Are the site's key features and attributes related to the OUV whole and intact?</i>	<i>2 - What are the critical issues that climate impacts are causing at the site?</i>	<i>3 - Describe, if any, individual threats recognizable within the site that are not related to climate change</i>	<i>4 - Does the site include all the elements necessary to express its OUV?</i>	<i>5 - Is the site of adequate size to ensure complete representation of features/processes that convey its significance?</i>	<i>6 - Do you have control over the processes causing deterioration? Who does? Have adaptation strategies been identified and implemented?</i>	<i>7 - Describe, if present, recognizable macro-emergencies within the site</i>	<i>8 - Does the site have a buffer zone and, if so, is it under any threat?</i>
No 1. fishing valleys have turned into hunting areas and typical management is being lost and habitats are less and less represented	Saline wedge and rising sea levels, rising temperatures and consequent increase in alien species. Prominent among them is the eel, an animal that is periodically reintroduced. The same goes for the sturgeon. The	Yes, anthropic actions, poaching of fish and land (ducks, hares, pheasants). Presence of infrastructures that do not respect the MAB area, e.g.: basification of the Adige River by the drainage consortium. This was	Yes	No, there are no preparco areas there are only maximum protection areas; the appropriate size would be 50,000 (more or less the same as the Emilian Park, which	There are proposals for retention basins to recover rainwater for reuse in agriculture. Use of herbicides. Impacts on fishing because the salinity of the lagoons depends	Agricultural activities and water use are important impacts. Eutrophication phenomena. Disappearance of limestone swamps and forests at risk with	The Po Delta Park has only maximum protection areas and no pre-park or buffer zones. In the mab area there is the core area (can only be used for study and excursions),





<p>2. loss of alders (91.0 under-represented), freshwater habitats and calcareous swamps (72.10), dunes of various types (12.10, 21.20) serve to protect what lies behind (grey dunes unique to conservation) 3. Junipers are not at risk but threaten to reduce other habitats in crisis (to be monitored)</p>	<p>main causes are rising temperatures combined with anthropic action, especially fishing. Fish species are under a lot of pressure; as far as plant species are concerned, these are also under pressure from alien species, such as the <i>Ailantus altissimo</i>.</p>	<p>created to obtain more water for the agricultural sector but at the same time acts as a barrier for fish species. Increasing photovoltaic plants.</p>		<p>has maximum protection area + preparco area).</p>	<p>on the drainage basin in the lagoons.</p>	<p>droughts and salt wedges (91.0 alder) and willow forests (white willow)</p>	<p>buffer area, transition area; this is the entire park territory + a larger part that goes beyond the park perimeter.</p>
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5. Profiling stakeholder

<i>Please list the stakeholders already actively operating in the territory</i>	<i>Please list the first 5 most important stakeholders that it is useful or necessary to involve</i>	<i>How the World Heritage site relates to them, and how they relate to the site?</i>	<i>For each stakeholder describe level and type of power (Political support, economic, social leadership/status, threat, education, knowledge, religion, etc. Where does power come from? How is it used? How important to the site is the stakeholder?)</i>	<i>Describe the level of knowledge the identified stakeholders have about the site (Extensive, good, some knowledge, limited, none)</i>	<i>Describe particular areas of concern (if any) or opportunities for engagement (Lack of trust? Past problems? Open antagonism? Breakdown in communication? Disagreements over rights?)</i>
1) Agricultural sector	1) Public administrators (mayors) could be more involved	Communication activities, awareness-raising (related to agriculture and fisheries) legal relations with public bodies (the most important being the region). Concerning tourism: the park is responsible for the tourist destination.	Economic/awareness-raising	Good	Difficulties can be related to funding; the academic world does not always exchange all the data. In the area of tourism, it is difficult to find a common goal, each municipality works for itself and not collectively, the same goes for fishermen and farmers even though they have made progress.
2) Fisheries sector	2) The province could be more involved	With Ferrara Park, collaboration should increase.	Economic/awareness-raising	Good	





	even if there is no longer the technical and political reference			
3) Handicraft sector	N/A		Economic/awareness-raising	Good
4) Tourism	N/A		Economic	Good
5) Academic scientific area	N/A		Education / Knowledge	Good

6. Legal and policy framework

1 - International legislation	2 - World heritage convention	3 - Convention on biological diversity	4 - National legislation	5 - Regional legislation
<p>The Po Delta was recognized as a Biosphere Reserve under the UNESCO MaB (Man and biosphere Programme) Programme in 2015. This recognition is associated, for the Ferrara area, with the designation of 'World Heritage Site' obtained by 'Ferrara, City of the Renaissance and its Delta'.</p> <p>>> Link</p>	<p>UNESCO World heritage convention signed in PARIS in 1972 aims at protecting and conserving the most valuable world cultural and natural heritage. The Delta Po was inserted in this list in 1995.</p> <p>>> Link</p>	<p>Signed by 150 government leaders at the 1992 Rio Earth Summit, the Convention on Biological Diversity is dedicated to promoting sustainable development. Conceived as a practical tool for translating the principles of Agenda 21 into reality, the Convention recognizes that biological diversity is about more than plants, animals and microorganisms and their ecosystems. The Po Delta, which disposes of abundant biodiversity, is a concrete example of the implementation of the convention.</p> <p>>> Link</p>	<p>The national Parliament has adopted law no. 394/1991 to create and protect national and regional parks (protected areas can be terrestrial, marine and fluvial zones).</p> <p>>> Link</p>	<p>The Emilia-Romagna Po Delta Regional Park was established in 1988 with a special Regional Law (L.R. 27/88) and is part of the Emilia-Romagna protected areas system.</p> <p>>> Link</p> <p>The Veneto Po Delta Regional Park was established on 8 September 1997 by Regional Law No. 36.</p> <p>>> Link</p>

6 - Local legislation	7 - Policies	8 - Is the legal framework adequate for the management and protection of the site? In what way can the legal framework be enforced?	9 - In the Periodic Report of each site there's the rate about the cooperation / relationship with world Heritage property managers / coordinators /	10 - Column for difference (Question n. 9)
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			<i>staff. Do you confirm this rates? In case of any difference please describe it in the next column</i>	
No local regulations expressly focused on Delta Po because local provisions are claimed just to adapt their regulation to the park ones.	<p>The "ente parco" is the public body that manages and protects the park. to do this, it has adopted statutes and regulations and a specific territorial plan. All the urban plans adopted by Municipalities must comply with the park plan prescriptions.</p> <p>Further information Website of Emilia-Romagna Park body >> Link Website of Veneto Park body >> Link</p>	N/A	Local communities: Poor Local/municipal authorities: Poor Indigenous people: Poor Landowners: Poor Visitors: Fair Researchers: Fair Tourism industry: Fair Industry: Not applicable	N/A

7. Site design			
<i>1 - Overall size (Is the site large enough to allow for viable core and meta populations, predator/ prey relationships, feeding/breeding sites, migrations, etc.? Is the site large enough to ensure optimal management of cultural and urban sites?)</i>	<i>2 - Proportion of major habitat size (To what extent does the amount of each habitat type influence the site's integrity and its susceptibility to climate factors?)</i>	<i>3 - Shape and topography description (How might the site's shape influence its integrity, management, migration patterns, vulnerability, etc.?)</i>	<i>4 - Boundaries (Is the site bounded by roads, railways, rivers, mountain tops, valleys, forest zones, etc.? How will these influence future management? Can the boundaries be improved?)</i>
Riverbanks, lagoons, fishing valleys, dune systems, cultivated and forest-covered reclaimed areas constitute a landscape capable of hosting core populations, metapopulations, complex trophic networks, feeding/reproduction sites and, above all, functional sites for bird migration.	The site's habitats are, in general, well represented and in dynamic relationships consistent with natural dynamics. An increase in temperatures and drying up could prove damaging especially for two Natura2000 priority habitats: 7210*: Calcareous marshes with <i>Cladium mariscus</i> and species of the <i>Caricion davalliana</i> (now almost disappeared) and, in part, for the habitat 91E0* Alluvial forests of <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> , which is small in size but still well represented and in any case linked to the Adige River aquifer.	The site is a typical river delta, but its shape and topography are also the result of human action: shape also linked to the deviations of riverbanks in historical times (the construction of the Po in Venice among them); topography also determined by riverbanks and embankments at sea, land reclamation and the action of water pumps, and the management of fishing valleys. Overall, it is a site where the balances, also in terms of shape and topography, are closely linked to human activities.	Last mapping is from 2017: the boundaries are on the physical parts (riverbank, dune system, etc.).





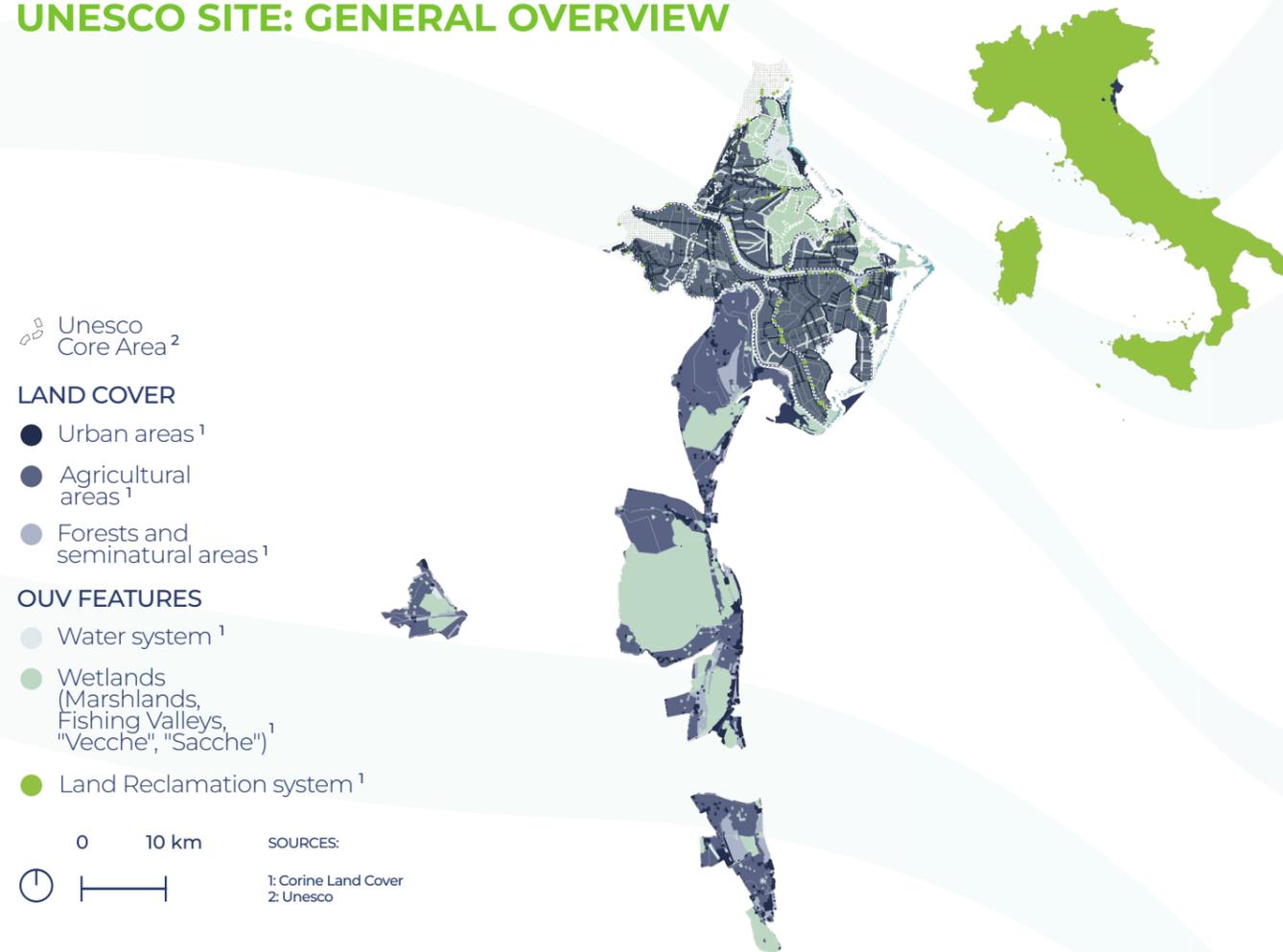
<p>5 - Buffer zone (If a buffer zone is present, are the boundaries adequate? Can the buffer boundaries be improved? In what way?)</p>	<p>6 - Wider settings (Beyond the buffer zone, is the site set within a landscape that might allow for reshaping it if necessary? Does it offer the potential for establishing corridors?)</p>	<p>7 - Feedback related to boundaries and buffer zones and their functioning and effectiveness</p>	<p>8 - Monitoring (Is there a monitoring system for the site?)</p>
<p>There is a buffer zone inherent to the MAB area that could be increased.</p>	<p>The site is naturally extended outwards: - Along the two main river courses of the Po and Adige (and along the Fissero-Tartaro-Canal Bianco) animal and plant species have moved from inland and mountainous areas to the dune system (e.g. Hippophae rhamnoides subsp. fluviatilis). Movements within the Temperate Climate Region. Better water quality and the possibility of overcoming the river embankments would enhance the ecological corridor function of rivers. - An ecological corridor develops along the system of recent, consolidated and fossil dunes, which over time and still today, for the the arrival of Mediterranean animal and plant species such as Phillyrea angustifolia, Fumana procumbens, Asparagus acutifolius (climate change permitting the area is still in the Temperate climate region). Acting on the quality of the recent and fossil dune system in the Delta area and beyond would be of extreme importance. - Lagoons and fishing valleys are important steppingstones for migrations transcontinental migrations of many bird species and even a butterfly (Vanessa cardui).</p>	<p>The perimeters may increase but everything works.</p>	<p>There are climate monitoring stations for air temperature and humidity, there is the lagoon monitoring system. There is a system for monitoring the salt wedge and for drinking water. For flora and fauna: the Leneto Region, the fauna directorate, publishes a report on wintering species and sends semi-annual reports to the park. Regarding alien species, there is no continuous monitoring but spot analyses.</p>

8. Assessing management				
1 - Management info Please describe who is the managing institution of the site (foundation, association, park, etc.).	2 - Is there a site management plan? PPs are asked to describe the functioning, if present.	3 - Indicate whether impact assessments have been carried out on specific projects in accordance with paragraph 172 of the Guidelines, whereby UNESCO invites States Parties to inform the Monitoring World Heritage	4 - Indicate whether a Heritage Impact Assessment (HIA) has been carried out or is in the process of being carried out	5 - Indicate whether annual or biennial reports on the conservation status of the Site have been regularly sent to WHC (if yes, please upload the latest one in the drive).
<p>Ente Parco Delta del Po. The park authority is also the manager of the Natura 2000 area.</p>	<p>The park has an action plan but no management plan.</p>	<p>No, they analyzed the impacts of the gas terminal and in general of impacts caused by third parties, the Adige issue (they made the observations) same for the coal conversion of the power station and for photovoltaics.</p>	<p>Yes</p>	<p>MAB: This is a self-assessment report to be sent to the ministry (2021), while as far as UNESCO is concerned, the report is sent to the environment ministry and is then assessed by UNESCO (they have no mandate because it is UNESCO heritage).</p>



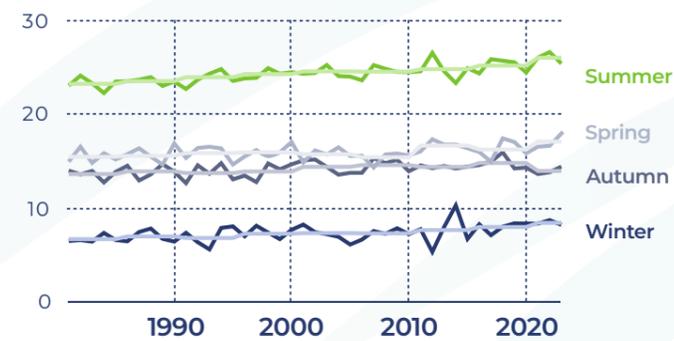
MAB BIOSPHERE RESERVE OF THE PO DELTA

UNESCO SITE: GENERAL OVERVIEW

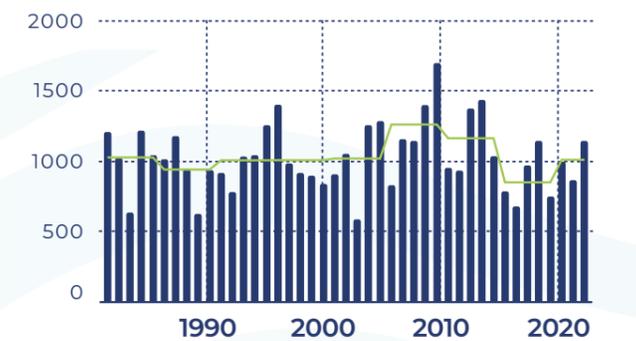


CLIMATE TRENDS

AVERAGE SEASONAL TEMPERATURE, 1981-2023, (°C)



YEARLY PRECIPITATION AMOUNT, 1981-2023, (MM)



EFFECTS OF CLIMATIC AND ANTHROPOGENIC THREATS

- SEA-LEVEL RISES** Coastal flooding Seawater incursion Saline wedge
- DESERTIFICATION** Drought Heat waves Fall in water table
- TEMPERATURE CHANGE** Heat waves Snow loading Changes in freeze thaw Increase in wet frost
- ATMOSPHERIC MOISTURE CHANGE** Change in soil chemistry Change in humidity cycles Seasalt Chlorides
- CLIMATE AND POLLUTION** Acid rain Changes in deposition of pollutants
- ANTHROPOGENIC DYNAMICS** Over-exploitation of agriculture Over-fishing
- CLIMATE AND BIOLOGICAL EFFECTS** Invasive species Spread of new species Mould growth
- WIND** Winddriven rain Windtransported salt Winddriven sand Gusts and changes in direction

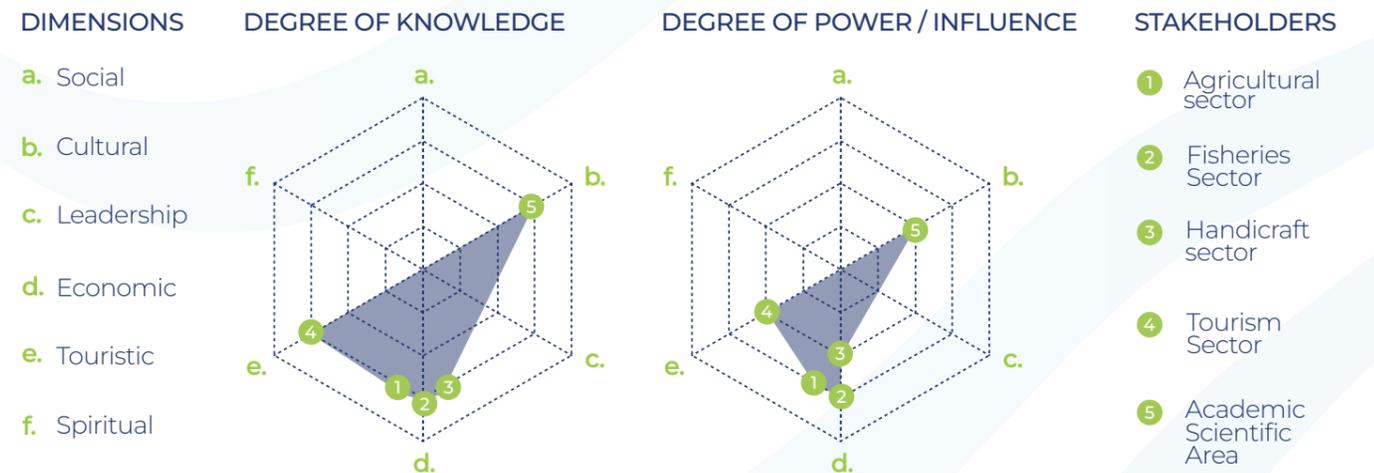
OUTSTANDING UNIVERSAL VALUES

SITE IDENTITY	CRITERIA	TANGIBLE FEATURES
Natural Agricultural	III. V.	Cultural artifacts Land reclamation system Fossil Dunes River Branches and Floodplains Sandbars Forests Lagoons Marshlands "Sacche" "Velme" Fishing Valleys

MANAGEMENT AND GOVERNANCE FRAMEWORK

TYPE OF MANAGEMENT DOCUMENT	MANAGEMENT INSTITUTIONS
ACTION PLANS Piano di azione (2022-2025)	MANAGEMENT AUTHORITY FOR PARKS AND BIODIVERSITY Ente di Gestione per i Parchi e la Biodiversità

INVOLVED PARTIES



DEGREE

low high

Interreg



Co-funded by the European Union

Italy - Croatia

CAMPUS

Santuario di San Michele Arcangelo

Site general overview				
TYPE OF PROPERTY	IDENTIFICATION NUMBER	YEAR OF INSCRIPTION	CRITERIA	DESCRIPTION
Cultural	1318	2011	(ii)	The Lombard monuments are an exemplary testimony to the cultural and artistic synthesis that occurred in Italy in the 6th to the 8th centuries, between the Roman heritage, Christian spirituality, Byzantine influence and the values derived from the Germanic world. They paved the way for and heralded the flowering of Carolingian culture and artistry.
			(iii)	The Lombard places of the power express remarkable new artistic and monumental forms, testifying to a Lombard culture characteristic of the European High Middle Ages. It takes the form of a clearly identifiable and unique cultural ensemble, the many languages and objectives of which express the power of the Lombard elite.
			(vi)	The place of the Lombards and their heritage in the spiritual and cultural structures of medieval European Christianity is very important. They considerably reinforced the monastic movement and contributed to the establishment of a forerunner venue for the great pilgrimages, in Monte Sant'Angelo, with the spread of the worship of St Michael. They also played an important role in the transmission of literary, technical, architectural, scientific, historical and legal works from Antiquity to the nascent European world.

1. Feature identification	
<p>OUV FEATURE (<i>Physical, biological, geological components. An example: "communities of plants could be a feature of grassland"</i>)</p>	<p><i>Are there any feature that are missing? Please enter the feature that you think are important to consider for your site of interest and that are not present in the matrix</i></p>
Historic center of the city	The historic center of Monte Sant'Angelo is recognized for its rich history and significant religious aspect, as well as for its mountains, forests, woods, sea, excellent gastronomy and cultural heritage. The surrounding Gargano National Park offers opportunities for hiking, nature walks and exploring the unique flora and fauna of the entire region.
The Sanctuary	The Sanctuary of San Michele Arcangelo is the main place for the veneration of San Michele Arcangelo with the organization of several religious festivals and rites, particularly on the holy day on 29th September. The Sanctuary is one of the oldest Christian sanctuaries in Western Europe and was built in the 5th century around a cave where Saint Michael the Archangel is believed to have appeared several times. The complex includes a Romanesque portal, an octagonal tower, and a series of chapels and crypts. The main feature is the cave itself, which serves as the sanctuary's heart and is adorned with religious artifacts and icons.
The monumental complexes of San Pietro	The monumental complexes of San Pietro are historically and architecturally significant sites reflecting the cultural heritage of the region. These complexes typically include the St. Peter's Church which represents Romanesque architectural elements, such as solid stone structures, round arches and detailed carvings. The site has been a center of religious activity since ancient times with various



	phases of construction and renovation adding layers of historical importance to the complex. The most notable features include well-preserved frescoes, ancient crypts, and intricately designed altars displaying art from different periods.
The Baptistery of San Giovanni in Tumba	The Baptistery of San Giovanni in Tumba, also known as the Tomb of Rotari (may refer to a local noble family or to the Lombard King Rothari), is a historical and architectural monument located in Monte Sant'Angelo which reflecting influences from medieval Italy. It is a part of the larger complex of the Sanctuary of Monte Sant'Angelo, and it contributes to the rich religious and cultural heritage of the area.
The Church of Santa Maria Maggiore	The Church of Santa Maria Maggiore was originally built in the 11th century and is an excellent example of Romanesque architecture. The interior walls and ceilings are adorned with beautiful frescoes and religious artwork, reflecting the artistic heritage of the period.

2. Attribute identification

OUV FEATURES	ATTRIBUTES <i>(The characteristics of a feature that can be measured and monitored). For each feature indicate all attributes considered important)</i>
Historic center of the city	For all features: <ul style="list-style-type: none"> ● Meteorological data ● Surface ● Air pollution ● Air quality
The Sanctuary	
The monumental complexes of San Pietro	
The Baptistery of San Giovanni in Tumba	
The Church of Santa Maria Maggiore	

3. Matrix

ATTRIBUTES <i>(The characteristics of a feature that can be measured and monitored) (*copy paste the attribute identified in the worksheet n. 2)</i>	SPATIAL REPRESENTATION TYPE <i>(vector, raster, matrix etc.)</i>	SOURCE
<ul style="list-style-type: none"> ● Meteorological data ● Surface ● Air pollution ● Air quality 	Vector, raster and matrix	Geoportal of the PP



4. Assessing the integrity			
1- Are the site's key features and attributes related to the OUV whole and intact?	2 - What are the critical issues that climate impacts are causing at the site?	3 - Describe, if any, individual threats recognizable within the site that are not related to climate change	4 - Does the site include all the elements necessary to express its OUV?
Yes	<p>The impacts of ongoing climate change could cause several critical issues at the Sanctuary of San Michele Arcangelo, threatening its structural integrity, historical value and overall preservation. Below some of these critical issues:</p> <p>a) Increased precipitation: - Water Infiltration: Heavy rainfall can lead to water infiltration, causing moisture and promoting the growth of mold, algae and lichens which can deteriorate the interior and exterior of historic structures. - Erosion: Persistent rain can erode building materials, soils and surrounding landscapes, leading to structural instability.</p> <p>b) Temperature fluctuations: - Thermal stress: Temperature variations and freeze-thaw cycles can cause expansion and contractions of materials, resulting in cracking, weakening and damage to the stonework. - Humidity: Higher humidity levels can foster the growth of mold which can damage frescoes, wooden structures and other organic materials.</p> <p>c) Decreased air quality and energy consumption: Air pollution: Higher temperatures can increase the concentration of pollutants in the air, as well as CO₂ emissions, leading to chemical reactions that can deteriorate the stone and metal components of the Sanctuary of San Michele Arcangelo. Furthermore, it is necessary to point out that the energy consumption for the lighting system of the Sanctuary and the surrounding area is not currently efficient, causing an increase in polluting emissions with related significant energy costs.</p> <p>d) Extreme natural disasters: - Storms, Floods and Wind: Storms, intense flooding and strong wind</p>	<p>Individual threats to the site not related to climate change include:</p> <p>a) Tourism pressure: - Huge crowd: High volume of visitors can cause physical wear on ancient structures and artworks. - Vandalism: Graffiti and other forms of vandalism represent a significant risk to the site's integrity.</p> <p>b) Pollution: Emissions from vehicles, noise and industrial activities can lead to the deterioration of stone surfaces and artworks through chemical reactions. Moreover, improper disposal of waste by visitors can ruin the aesthetic and environmental quality of the site.</p> <p>c) Structural deterioration: - Aging infrastructure: The natural aging process of the site's infrastructure can lead to structural weaknesses and the risk of collapse if not properly maintained. - Inadequate maintenance: Insufficient funds or expertise for proper conservation practices can accelerate deterioration. - Renovations that do not adhere to historical preservation standards can alter the original character and integrity of the site. The use of a modern materials and techniques incompatible with traditional ones can lead to further damage.</p> <p>d) Cultural and social changes: Change in the community dynamics and loss of traditional knowledge: Changes in the local community including depopulation, the diversity of social structures, the phenomenon of youth emigration in search of employment in more developed areas, can affect the care and</p>	Yes



	<p>gusts can cause immediate physical damage to structures, washing away protective coatings, roofs, walls and other exposed areas, leading to long-term deterioration.</p> <ul style="list-style-type: none"> - Earthquakes: Monte Sant'Angelo is in a region with significant seismic risk. Earthquakes can cause structural damage, especially to older buildings not designed to withstand such forces. - Landslides: The site's location on top of a hill makes it susceptible to landslides, which can cause serious damage to the entire surrounding area. <p>e) Biodiversity loss: Climate change may affect local ecosystem, leading to a loss of biodiversity of the natural beauty (landscapes, trees and other vegetation) of the area surrounding Monte Sant'Angelo.</p> <p>f) Cultural and social impacts: The local community, which plays a vital role in maintaining the cultural and religious importance of Monte Sant'Angelo, could be affected by climate change through impacts on agriculture, health and sustainable tourism. As a matter of fact, climate change can affect tourism patterns, e.g., with more visitors during colder periods and fewer during summer heatwaves.</p>	<p>preservation of the site, as well as any activity to enhance and promote its authenticity by future generations.</p> <p>e) Legal, administrative and economic issues: Inadequate legal frameworks, lack of enforcement of heritage protection laws, bureaucratic delays and inefficiencies can leave the site vulnerable to various threats, such as timely conservation actions.</p>	
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<p>5 - Is the site of adequate size to ensure complete representation of features/processes that convey its significance?</p>	<p>6 - Do you have control over the processes causing deterioration? Who does? Have adaptation strategies been identified and implemented?</p>	<p>7 - Describe, if present, recognizable macro-emergencies within the site</p>	<p>8 - Does the site have a buffer zone and, if so, is it under any threat?</p>
<p>Yes</p>	<p>The Sanctuary of San Michele Arcangelo provides for control and monitoring actions on the processes that cause degradation thanks to specific responsible bodies. As a matter of fact, since 1996 the Sanctuary has been managed by the Pastoral Congregation of San Michele Arcangelo. This organization oversees the preservation and maintenance of the site ensuring the control and mitigation of any risk</p>	<p>The macro-emergencies recognizable within the site include risks from natural and environmental factors.</p>	<p>The Sanctuary of San Michele Arcangelo has a buffer zone. The buffer zone around the site aims to protect the integrity and authenticity of the sanctuary, ensuring that the surrounding environment supports the preservation of its historical, cultural and religious value.</p>



	<p>of deterioration.</p> <p>Adaptation strategies to counteract deterioration have been identified and implemented. These strategies include regular maintenance and restoration projects aimed at preserving the structural and artistic integrity of the Sanctuary. Moreover, the site is part of the UNESCO World Heritage List which brings additional oversight and support for conservation efforts, ensuring that both the site and its surrounding area are protected and maintained in compliance with international standards.</p> <p>Furthermore, the project includes a specific pilot action for the energy efficiency of the site and its area. This is a redevelopment intervention (revamping) aimed at optimizing the energy emissions and consumption efficiency ratio.</p>		
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5. Profiling stakeholder

<i>Please list the stakeholders already actively operating in the territory</i>	<i>Please list the first 5 most important stakeholders that it is useful or necessary to involve</i>	<i>How the World Heritage site relates to them, and how they relate to the site?</i>	<i>For each stakeholder describe level and type of power (Political support, economic, social leadership/status, threat, education, knowledge, religion, etc. Where does power come from? How is it used? How important to the site is the stakeholder?)</i>	<i>Describe the level of knowledge the identified stakeholders have about the site (Extensive, good, some knowledge, limited, none)</i>	<i>Describe particular areas of concern (if any) or opportunities for engagement (Lack of trust? Past problems? Open antagonism? Breakdown in communication? Disagreements over rights?)</i>
1) Tourists and pilgrims	1) Tourists and pilgrims	1) Tourists and pilgrims visit the site for its historical, cultural and religious significance. UNESCO recognition can increase the site's visibility and attractiveness.	Social status / Religion	Good	N/A
2) Religious Institutions	2) Religious Institutions	2) Catholic Church and related religious associations have a central role in the maintenance and spiritual significance of the site.	Social leadership / Religion	Extensive	N/A



3) Cultural Heritage organizations	3) Cultural Heritage organizations	3) Organizations aimed at the preservation and promotion of the cultural heritage across the area.	Knowledge / Economic	Good	N/A
4) Educational Institutions	4) Educational Institutions	4) Schools and Universities may be engaged in educational programs and study visits related to the site's historical, cultural and religious aspects.	Education / Knowledge	Good	N/A
5) Conservation experts and professionals	5) Conservation experts and professionals	5) Professionals involved in the technical aspects in order to preserve the physical and artistic integrity of the site.	Knowledge / Economic	Extensive	N/A

6. Legal and policy framework

1 - International legislation	2 - World heritage convention	3 - Convention on biological diversity	4 - National legislation	5 - Regional legislation
	N/A	N/A	<p>a) The National legislation (Cultural Heritage and Landscape Law – Legislative Decree 22 January 2004, n° 42), specifies that alterations or modifications to the properties' characteristics are not permitted, and then all conservation, enhancement, improvement operations must be authorized by the competent offices of the MiC - Ministry of Culture (Superintendencies) or conducted directly by them.</p> <p>b) Law n° 77, 20 February 2006 "Special measures for the protection and use of Italian sites and elements of cultural, landscape and environmental importance included in the UNESCO 'World Heritage List'"</p>	N/A

6 - Local legislation	7 - Policies	8 - Is the legal framework adequate for the management and protection of the site? In what way can the legal framework be enforced?	9 - In the Periodic Report of each site there's the rate about the cooperation / relationship with world Heritage property managers / coordinators / staff. Do you confirm this rates? In case of any difference please describe it in the next column	10 - Column for difference (Question n. 9)
Piano Regolatore Generale Comunale (PRGC)	N/A	N/A	<p>Local communities: Good</p> <p>Local/municipal authorities: Good</p> <p>Indigenous people: Not applicable</p> <p>Landowners: Fair</p>	N/A



			Visitors: Good Researchers: Good Tourism industry: Good Industry: Fair	
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7. Site design

1 - Overall size (Is the site large enough to allow for viable core and meta populations, predator/ prey relationships, feeding/breeding sites, migrations, etc.? Is the site large enough to ensure optimal management of cultural and urban sites?)	2 - Proportion of major habitat size (To what extent does the amount of each habitat type influence the site's integrity and its susceptibility to climate factors?)	3 - Shape and topography description (How might the site's shape influence its integrity, management, migration patterns, vulnerability, etc.?)	4 - Boundaries (Is the site bounded by roads, railways, rivers, mountain tops, valleys, forest zones, etc.? How will these influence future management? Can the boundaries be improved?)
N/A	N/A	<p>The Sanctuary of San Michele Arcangelo is characterized by different architectural styles that represent its long history and the various cultural influences over the time.</p> <p>In general, the topography of the Gargano promontory is marked by karst formations with many caves and underground waterways.</p> <p>The Sanctuary of San Michele Arcangelo is located on Monte Sant'Angelo at approximately 843 meters above sea level and is built on a limestone cliff naturally excavated and further shaped by human intervention over the centuries.</p> <p>Therefore, the Sanctuary is situated on a plateau and offers breathtaking panoramic views of the surrounding landscape, including the Adriatic Sea.</p>	N/A

5 - Buffer zone (If a buffer zone is present, are the boundaries adequate? Can the buffer boundaries be improved? In what way?)	6 - Wider settings (Beyond the buffer zone, is the site set within a landscape that might allow for reshaping it if necessary? Does it offer the potential for establishing corridors?)	7 - Feedback related to boundaries and buffer zones and their functioning and effectiveness	8 - Monitoring (Is there a monitoring system for the site?)
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<p>The Buffer zone includes the town’s entire historic center, including all the citadel where the Sanctuary, monumental complexes of San Pietro, Baptistery of San Giovanni in Tumba and Church of Santa Maria Maggiore are located, as well as the area around the castle. Buffer zone can be improved through the lighting system to be implemented in the frame of the project.</p>	<p>N/A</p>	<p>N/A</p>	<p>N/A</p>
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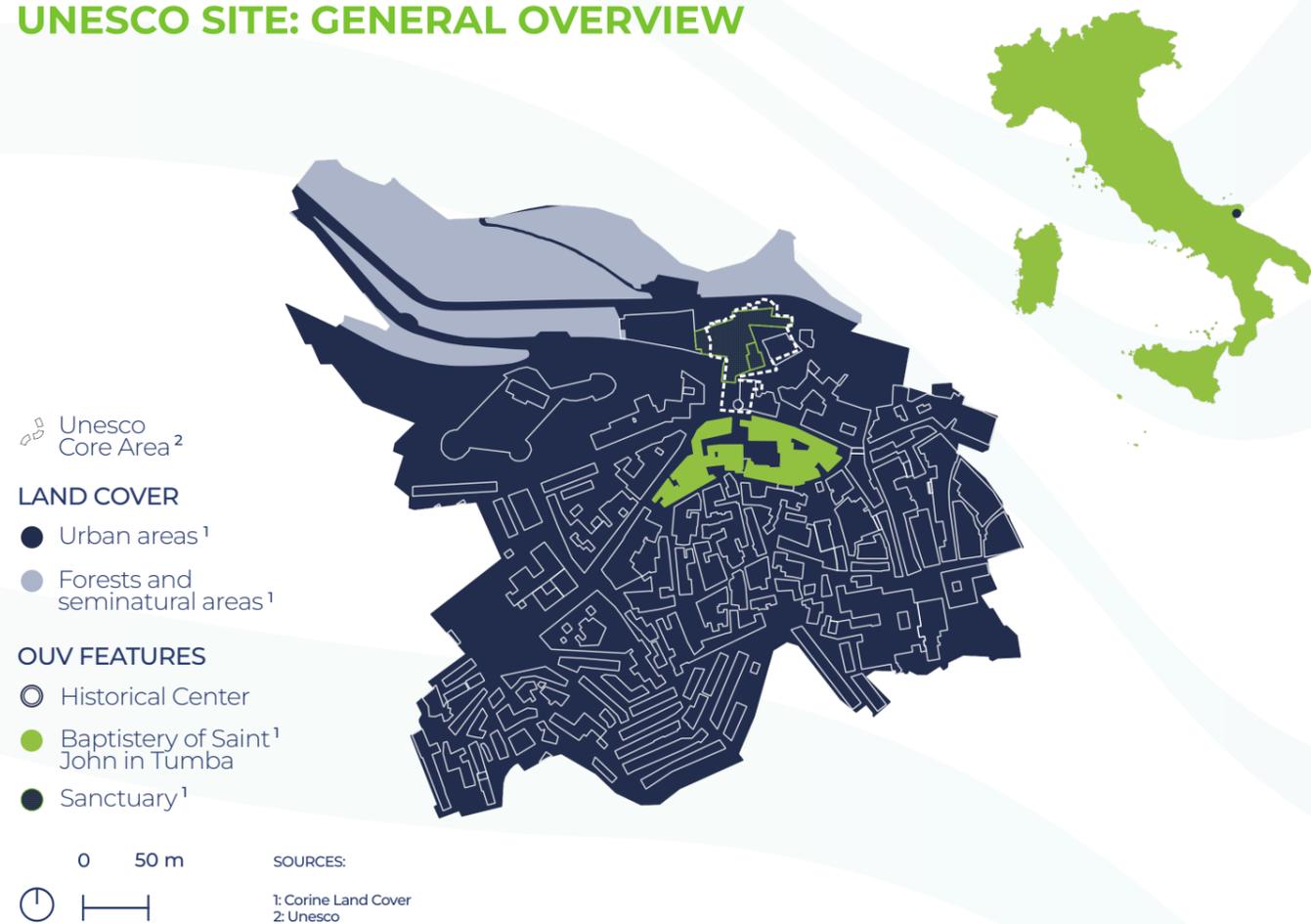
8. Assessing management

<p>1 - Management info Please describe who is the managing institution of the site (foundation, association, park, etc.).</p>	<p>2 - Is there a site management plan? PPs are asked to describe the functioning, if present.</p>	<p>3 - Indicate whether impact assessments have been carried out on specific projects in accordance with paragraph 172 of the Guidelines, whereby UNESCO invites States Parties to inform the Monitoring World Heritage</p>	<p>4 - Indicate whether a Heritage Impact Assessment (HIA) has been carried out or is in the process of being carried out</p>	<p>5 - Indicate whether annual or biennial reports on the conservation status of the Site have been regularly sent to WHC (if yes, please upload the latest one in the drive).</p>
<p>The Sanctuary of San Michele Arcangelo is managed by the Benedictine monks of the Montecassino Abbey. This historical site has been under the administration of the Benedictine Order for many centuries. The Benedictine monks oversee the religious activities, maintenance and preservation of the Sanctuary.</p>	<p>Yes (Management plan 2022-2027 uploaded to shared Google Drive)</p>	<p>Regarding the Sanctuary of San Michele Arcangelo, impact assessments have been conducted in line with UNESCO guidelines, particularly paragraph 172, which encourages States Parties to inform the World Heritage Committee about significant projects affecting World Heritage sites.</p> <p>The Sanctuary of San Michele Arcangelo has undergone various assessments to ensure the preservation of its cultural heritage. The Benedictine monks, who manage the site, have coordinated with relevant authorities to comply with UNESCO's requirements. This includes maintaining the integrity of the site's historical and architectural elements while accommodating the needs of pilgrims and tourists.</p> <p>These assessments are part of the continuous effort to preserve the sanctuary's historical, religious, and architectural significance, ensuring that any projects or interventions do not adversely impact its outstanding universal value.</p>	<p>N/A</p>	<p>N/A</p>



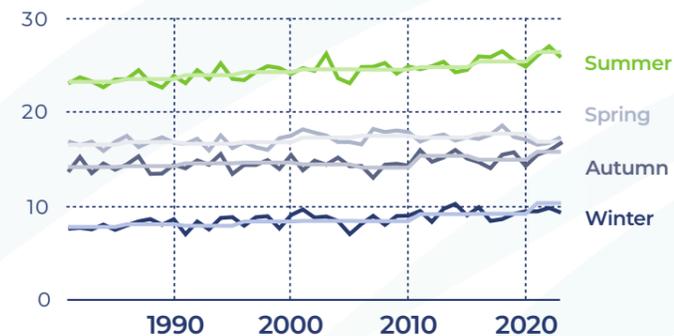
SANCTUARY OF SAINT MICHAEL THE ARCHANGEL

UNESCO SITE: GENERAL OVERVIEW

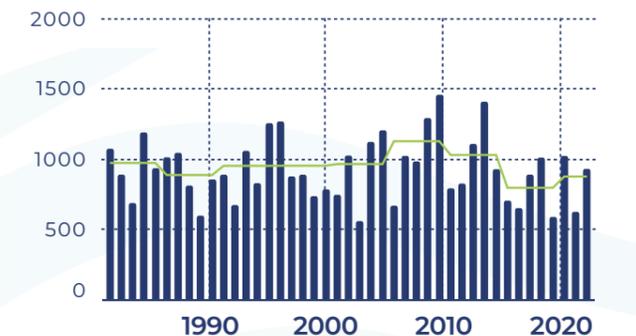


CLIMATE TRENDS

AVERAGE SEASONAL TEMPERATURE, 1981-2023, (°C)



YEARLY PRECIPITATION AMOUNT, 1981-2023, (MM)



EFFECTS OF CLIMATIC AND ANTHROPOGENIC THREATS

- SEA-LEVEL RISES
- DESERTIFICATION
- TEMPERATURE CHANGE Changes in freezethaw Snow Loading Heat Waves
- ATMOSPHERIC MOISTURE CHANGE Intense Rainfall River Flooding
- CLIMATE AND POLLUTION Change in deposition of pollutants Change in humidity cycles
- ANTHROPOGENIC DYNAMICS
- CLIMATE AND BIOLOGICAL EFFECTS
- WIND Winddriven rain Windtransported salt Winddriven sand Gusts and changes in direction

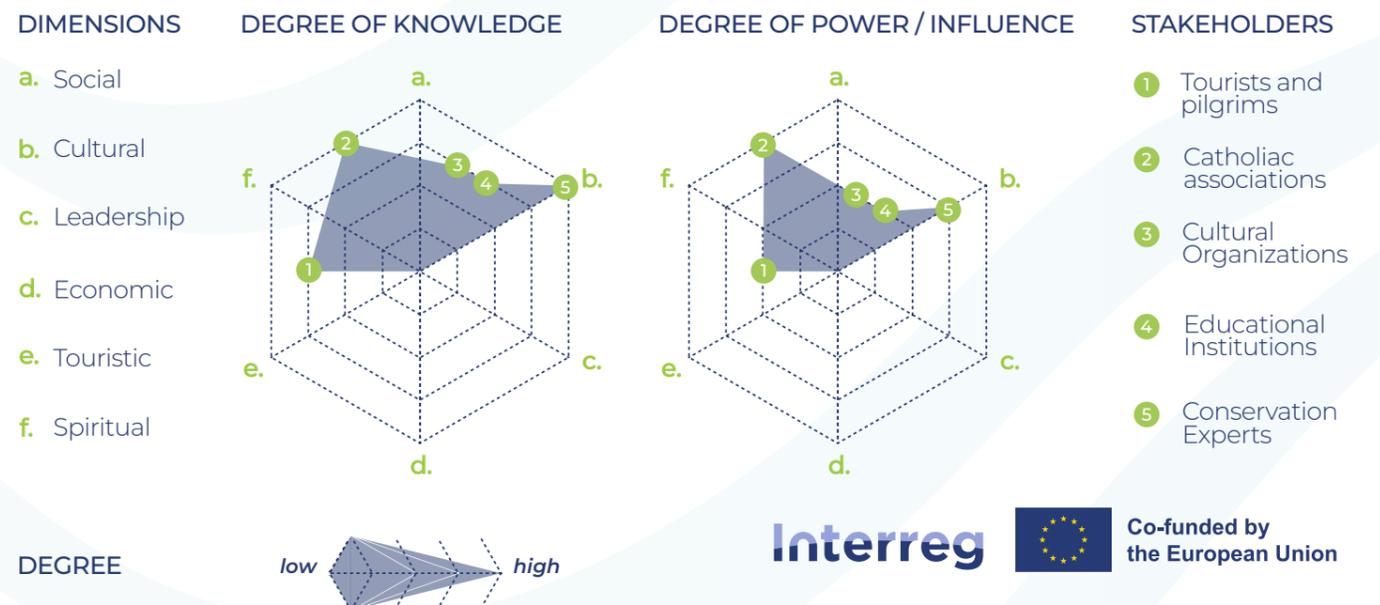
OUTSTANDING UNIVERSAL VALUES

SITE IDENTITY	CRITERIA	TANGIBLE FEATURES	TANGIBLE FEATURES
Architectural	II., III., VI.	Natural cave Staircase Presbytery Crypts	Bell tower Frescoes Graffiti Angevin Nave Pilgrimage practices

MANAGEMENT AND GOVERNANCE FRAMEWORK

TYPE OF MANAGEMENT DOCUMENT	MANAGEMENT INSTITUTIONS
MANAGEMENT PLAN Piano di Gestione (2022-2027)	ORDER OF THE FATHERS OF SAINT MICHAEL Ordine ecclesiastico dei Padri di San Michele

INVOLVED PARTIES



Interreg



Co-funded by the European Union

Italy - Croatia

CAMPUS

Historic City of Trogir

Site general overview				
TYPE OF PROPERTY	IDENTIFICATION NUMBER	YEAR OF INSCRIPTION	CRITERIA	DESCRIPTION
Cultural	810	1997	(ii)	Trogir demonstrates the influence of the various cultures in the Adriatic from its original settlement – Greek, Roman, Byzantine, Hungarian and Venetian, exemplified through its town planning from the Greek period onwards, and the architecture of its buildings, whether Romanesque, Gothic, Renaissance or Baroque. In terms of space and population Trogir is a miniature city, but its significance for the cultural and economic history of the Adriatic outweighs its restricted urban scale. Its institutions, its way of life, and its contribution to national and universal culture and science make it one of the most important Adriatic towns.
			(iv)	Trogir is an excellent example of a medieval town built on and conforming with the layout of a Hellenistic and Roman city that has conserved its urban fabric to an exceptional degree and with the minimum of modern interventions, in which the trajectory of social and cultural development is clearly visible in every aspect of the townscape.

1. Feature identification

OUV FEATURE (<i>Physical, biological, geological components. An example: "communities of plants could be a feature of grassland"</i>)	<i>Are there any feature that are missing? Please enter the feature that you think are important to consider for your site of interest and that are not present in the matrix</i>
Historic center of the city	Trogir is a remarkable example of urban continuity. The orthogonal street plan of this island settlement dates to the Hellenistic period, and it was embellished by successive rulers with many fine public and domestic buildings and fortifications. Its beautiful Romanesque churches are complemented by the outstanding Renaissance and Baroque buildings from the Venetian period.
Cipiko Palace	The Great Cipiko Palace, located in the historical center of Trogir, is a complex consisting of Romanesque buildings, most likely built around 1457. The palace was rebuilt several more times, and today it has the appearance of a two-story building with a high attic, built of properly hewn stone blocks decorated with stone plastic by excellent craftsmen.
Kamerlengo Castle	Nestled at the heart of Trogir Island lies the majestic Kamerlengo Castle, a testament to the rich history and architectural prowess of the Venetians. This fortress, with its thick battlements and towering presence, stands as a beacon of Trogir's past, offering visitors a glimpse into the city's storied history and its strategic importance in the Adriatic region. Kamerlengo Castle, also known as Kaštel Kamerlengo, was not just a mere structure built on a whim. Constructed in the mid-15th century by Marin Radoj, it was an expansion of the earlier Veriga Tower, which had been erected on the site in the late 14th century. The term "kamerlengo" has its roots in the Italian language, referring to a chamberlain, an administrative official responsible for managing finance. This castle was more than just a building; it was a symbol of Venetian administrative and military might in the region.



St. Mark Tower	The tower of St. Mark is in the north-west of Trogir and originally connected the northern and western sides of the city wall. The construction of the tower began as early as 1470 but was not completed until the end of the 15th century. The tower consists of two storeys, with a stone staircase leading to the second storey outside. Cannon openings on the sides of the tower ensured easy defense of the city.
Church and monastery of St. Dominic	The monastery was founded in 1265. The church itself was built from the 14th to the 17th century. Exceptional interior in which, in addition to the masterpieces of great sculptors, visitors can see many important old tombs, including those of great humanists from the 15th century Ivan and Simon Sobota, as well as many works of art by Blazh Jurjev Trogiranin, Nikola Firentinac, Jacop Palma Jr. and others.
Cathedral of St. Lawrence	The Cathedral of St. Lawrence is located on the main town square, and it stands out due to its height and construction style. It is assumed that it was built where an old Greek temple once stood. The Cathedral is also dedicated to St. John of Trogir, who is the patron saint of the city, and his tomb as well as the chapel is located inside the cathedral. Construction began around the year 1200 and ended at the beginning of the 17th century. Due to its long period of construction, we can see numerous styles and motifs that are shown on the bell tower. The Cathedral was mostly built in the Romanesque style until 1251, while the Gothic vault was built in the 15th century. The most famous part of the Cathedral is the entrance door itself, which is located on the western vestibule. It is Master Radovan's masterpiece through which we see many religious events. At the ends of the portal are Adam (on the right) and Eve (on the left) who are standing on lions, representing the first sin. Apostles and numerous saints are depicted on the outer doorposts, while mythical creatures and exotic animals are depicted on the sides. In the lunette above the door, we can see a depiction of Christ's birth. At the very top of the portal is Saint Lovre with symbolic grill. The portal itself was created individually and was later combined into a single entry. Chapel of St. John of Trogir is the most beautiful site inside the church. It was built in the 15th century according to the design of Nikola Florentinac, with contributions from Andrija Alešij and Ivan Duknović.

2. Attribute identification	
OUV FEATURES	ATTRIBUTES <i>(The characteristics of a feature that can be measured and monitored). For each feature indicate all attributes considered important)</i>
Historic center of the city	For all features:
Cipiko Palace	● Population density
Kamerlengo Castle	● Meteorological data (air temperature, precipitation, relative humidity, surface temperature)
St. Mark Tower	● Surface water pollution and concentration of pollutants
Church and monastery of St. Dominic	● Number of visitors –
Cathedral of St. Lawrence	● Air quality
	● Air pollution
	● CO2 percentage
	● Sea level



3. Matrix

ATTRIBUTES (<i>The characteristics of a feature that can be measured and monitored</i>) (*copy paste the attribute identified in the worksheet n. 2)	SPATIAL REPRESENTATION TYPE (<i>vector, raster, matrix etc.</i>)	SOURCE
For all features: <ul style="list-style-type: none"> • Population density • Meteorological data - air temperature, precipitation, relative humidity, surface temperature • Surface water pollution – concentration of pollutants • Number of visitors - air quality - air pollution, CO2 percentage • Sea level 	Vector, raster and matrix	Geoportal of the PP

4. Assessing the integrity

1- Are the site's key features and attributes related to the OUV whole and intact?	2 - What are the critical issues that climate impacts are causing at the site?	3 - Describe, if any, individual threats recognizable within the site that are not related to climate change	4 - Does the site include all the elements necessary to express its OUV?
Yes	Drought, temperature changes, sea level rise that causes the entire city center to burn. Decreased air quality and energy consumption: Air pollution: Higher temperatures can increase the concentration of pollutants in the air, as well as CO ₂ emissions, leading to chemical reactions that can deteriorate the stone and metal components of the Historic City of Trogir. Extreme natural disasters: - Storms, Floods and Wind: Storms, intense flooding and strong wind gusts can cause immediate physical damage to structures, washing away protective coatings, roofs, walls and other exposed areas, leading to long-term deterioration.	Tourism pressure: High volume of visitors can cause physical wear on ancient structures and artworks. Graffiti and other forms of vandalism represent a significant risk to the site's integrity. Pollution: Emissions from vehicles, noise and industrial activities can lead to the deterioration of stone surfaces and artworks through chemical reactions. Structural deterioration: - Aging infrastructure: The natural aging process of the site's infrastructure can lead to structural weaknesses and the risk of collapse if not properly maintained. - Inadequate maintenance: Insufficient funds or expertise for proper conservation practices can accelerate deterioration. - Renovations that do not adhere to historical preservation standards can alter the original character and integrity of the site. The use of a modern materials and techniques incompatible with traditional ones can lead to further damage. Cultural and social changes: Change in the community dynamics and loss of traditional knowledge.	Yes



5 - Is the site of adequate size to ensure complete representation of features/processes that convey its significance?	6 - Do you have control over the processes causing deterioration? Who does? Have adaptation strategies been identified and implemented?	7 - Describe, if present, recognizable macro-emergencies within the site	8 - Does the site have a buffer zone and, if so, is it under any threat?
Yes	We still have no control over the processes that cause decay. Adaptation strategies are partially identified, and regular maintenance projects are implemented in accordance with financial possibilities. Restoration and maintenance work on the cathedral and the buildings and urban structures are carried out in compliance with strict conservation standards and in accordance to regular funding provided by the state and local budget as well as the church and private owners.	Sea level rise caused by climate change is the main issue to address as well as depopulation issues.	

5. Profiling stakeholder

Please list the stakeholders already actively operating in the territory	Please list the first 5 most important stakeholders that it is useful or necessary to involve	How the World Heritage site relates to them, and how they relate to the site?	For each stakeholder describe level and type of power (Political support, economic, social leadership/status, threat, education, knowledge, religion, etc. Where does power come from? How is it used? How important to the site is the stakeholder?)	Describe the level of knowledge the identified stakeholders have about the site (Extensive, good, some knowledge, limited, none)	Describe particular areas of concern (if any) or opportunities for engagement (Lack of trust? Past problems? Open antagonism? Breakdown in communication? Disagreements over rights?)
1) Tourists	1) Tourists	Tourists visit sites for its historical and cultural significance.	Social status / Economic	Good	No concern
2) Local inhabitants	2) Local inhabitants	Local inhabitants live in historic centre of the city and make impact on its development through participatory budgeting program.	Social status	Good	Emigration of the local population from the city core.
3) Cultural Heritage organizations	3) Cultural Heritage organizations	Organizations aimed at the preservation and promotion of the cultural heritage across the area. Many cultural heritage associations have their programs based on sites or performing at the sites.	Knowledge / Economic	Good	No concern
4) Conservation experts	4) Conservation experts	Conservation experts have a legal jurisdiction on sites management.	Knowledge / Economic	Good	No concern



5) Educational institutions	5) Educational institutions	Schools and Universities may be engaged in educational programs and study visits related to the site's historical, cultural aspects.	Education / Knowledge	Good	No concern
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6. Legal and policy framework

1 - International legislation	2 - World heritage convention	3 - Convention on biological diversity	4 - National legislation	5 - Regional legislation
https://www.unesco.org/en/heritage-armed-conflicts/convention-and-protocols/1954-convention	https://www.unesco.it/it/iniziativa-dellunesco/patrimonio-mondiale/	N/A	The National legislation - Law on the Protection and Preservation of Cultural Property (Official Gazette 69/99, 151/03, 157/03, 100/04, 87/09, 88/10, 61/11, 25/12, 136/12, 157/13, 152/14 , 98/15, 44/17, 90/18, 32/20, 62/20, 117/21, 114/22)	No regional legislation.

6 - Local legislation	7 - Policies	8 - Is the legal framework adequate for the management and protection of the site? In what way can the legal framework be enforced?	9 - In the Periodic Report of each site there's the rate about the cooperation / relationship with world Heritage property managers / coordinators / staff. Do you confirm this rates? In case of any difference please describe it in the next column	10 - Column for difference (Question n. 9)
No local legislation	N/A	N/A	Local communities/residents: Fair Local/municipal authorities: Good Indigenous people: Not applicable Landowners: Not applicable Visitors: Fair Researchers: Good Tourism industry: Fair Industry: Not applicable	N/A

7. Site design

1 - Overall size (Is the site large enough to allow for viable core and meta populations, predator/ prey relationships, feeding/breeding sites, migrations, etc.? Is the site large enough to ensure optimal management of cultural and urban sites?)	2 - Proportion of major habitat size (To what extent does the amount of each habitat type influence the site's integrity and its susceptibility to climate factors?)	3 - Shape and topography description (How might the site's shape influence its integrity, management, migration patterns, vulnerability, etc.?)	4 - Boundaries (Is the site bounded by roads, railways, rivers, mountain tops, valleys, forest zones, etc.? How will these influence future management? Can the boundaries be improved?)
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The site is large enough to ensure optimal management of cultural and urban sites.	N/A	N/A	N/A
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<i>5 - Buffer zone (If a buffer zone is present, are the boundaries adequate? Can the buffer boundaries be improved? In what way?)</i>	<i>6 - Wider settings (Beyond the buffer zone, is the site set within a landscape that might allow for reshaping it if necessary? Does it offer the potential for establishing corridors?)</i>	<i>7 - Feedback related to boundaries and buffer zones and their functioning and effectiveness</i>	<i>8 - Monitoring (Is there a monitoring system for the site?)</i>
N/A	N/A	N/A - No	N/A

8. Assessing management

<i>1 - Management info Please describe who is the managing institution of the site (foundation, association, park, etc.).</i>	<i>2 - Is there a site management plan? PPs are asked to describe the functioning, if present.</i>	<i>3 - Indicate whether impact assessments have been carried out on specific projects in accordance with paragraph 172 of the Guidelines, whereby UNESCO invites States Parties to inform the Monitoring World Heritage</i>	<i>4 - Indicate whether a Heritage Impact Assessment (HIA) has been carried out or is in the process of being carried out</i>	<i>5 - Indicate whether annual or biennial reports on the conservation status of the Site have been regularly sent to WHC (if yes, please upload the latest one in the drive).</i>
The city of Trogir in cooperation with the Ministry of Culture.	A partial Management Plan has been drafted.		N/A	Yes



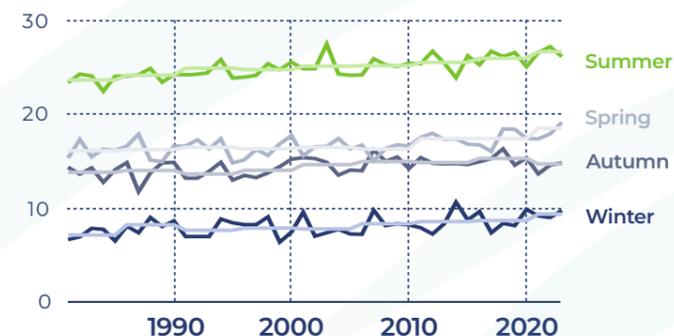
HISTORIC CITY OF TROGIR

UNESCO SITE: GENERAL OVERVIEW

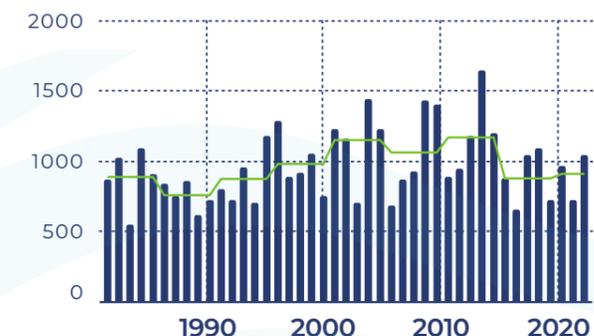


CLIMATE TRENDS

AVERAGE SEASONAL TEMPERATURE, 1981-2023, (°C)



YEARLY PRECIPITATION AMOUNT, 1981-2023, (MM)



EFFECTS OF CLIMATIC AND ANTHROPOGENIC THREATS

1. SEA-LEVEL RISES Coastal flooding
2. DESERTIFICATION Droughts Heat Waves
3. TEMPERATURE CHANGE Snow Loading Heat Waves
4. ATMOSPHERIC MOISTURE CHANGE Flooding Intense rainfall
5. CLIMATE AND POLLUTION Change in deposition of pollutants Acid Rain
6. ANTHROPOGENIC DYNAMICS -- Tourism pressure -- Inadequate maintenance -- Loss of traditional practices
7. CLIMATE AND BIOLOGICAL EFFECTS -- Decreased air quality -- Changes to lichen colonies on buildings
8. WIND Stronger winds Storms

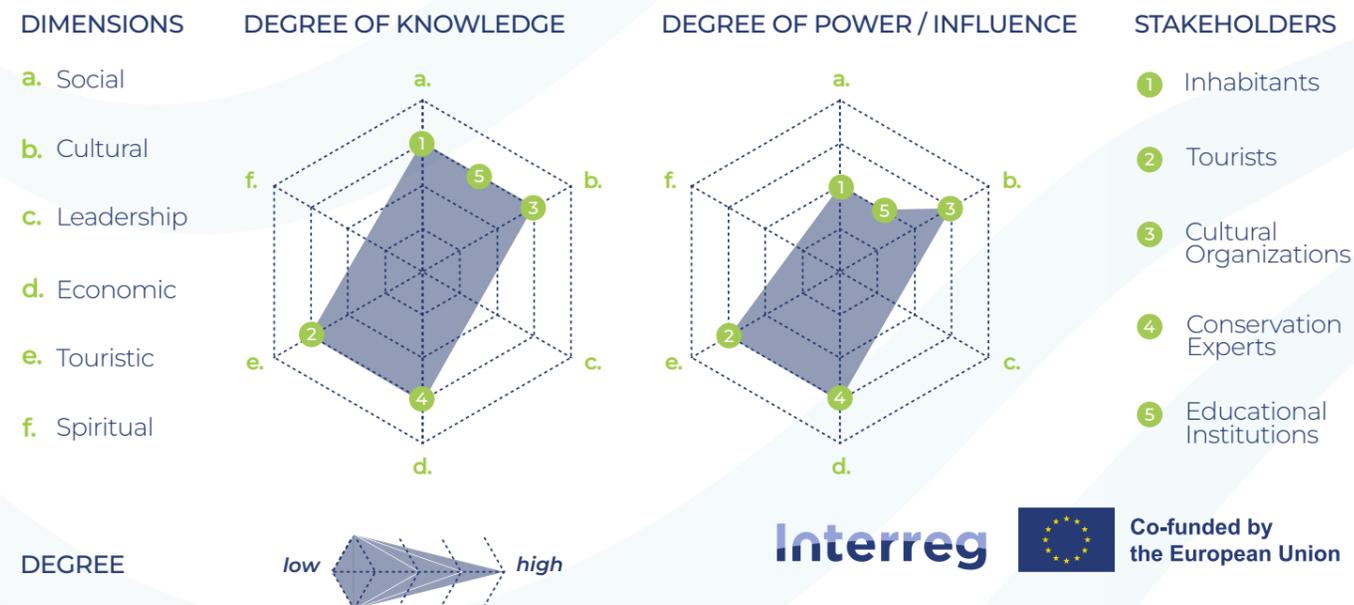
OUTSTANDING UNIVERSAL VALUES

SITE IDENTITY	CRITERIA	TANGIBLE FEATURES
Urban settlement Architectural heritage Historical identity	II. IV.	Cathedral of St. Lawrence Town Hall The Loggia Church of St. Sebastian Romanesque houses Great Cipiko Palace Kamerlengo Castle Tower of St. Mark

MANAGEMENT AND GOVERNANCE FRAMEWORK

TYPE OF MANAGEMENT DOCUMENT	MANAGEMENT INSTITUTIONS
NO MANAGEMENT PLAN Last conservation report: 2014	TROGIR CITY IN COOPERATION WITH THE MINISTRY Grad Trogir, Ministarstvo kulture i medija Republike Hrvatske

INVOLVED PARTIES



Interreg
Italy – Croatia

Co-funded by the European Union

Stari Grad Plain

Site general overview				
TYPE OF PROPERTY	IDENTIFICATION NUMBER	YEAR OF INSCRIPTION	CRITERIA	DESCRIPTION
Cultural	1240	2008	(ii)	The land parcel system, dating from the 4th century BC, of Stari Grad Plain bears witness to the dissemination of the Greek geometrical model for the dividing up of agricultural land in the Mediterranean world.
			(iii)	The agricultural plain of Stari Grad has remained in continuous use, with the same initial crops being produced, for 2400 years. This bears witness to its permanency and sustainability down the centuries.
			(v)	The agricultural plain of Stari Grad and its environment are an example of very ancient traditional human settlement, which is today under threat from modern economic development, particularly from rural depopulation and the abandonment of traditional farming practices. The Greek cadastral system has been fully respected during the continuous agricultural use of the plain, based on the same crops. This system is today perfectly identifiable and has changed very little. Stari Grad Plain forms an agricultural and land use ensemble of great integrity. The authenticity of the Greek land division system known as chora is clearly in evidence throughout the plain. The built structures of the stone walls are authentic, with the same basic dry stone wall materials being used and reused since the foundation by the Greeks. The setting up of the management plan and of the authority in charge of its application should enable the carrying out of a thorough programme of archaeological excavations, the fostering of sustainable agricultural development in the chora and the control of urban and tourism development in the vicinity of the property, with all due care being taken to ensure that its Outstanding Universal Value is respected.

1. Feature identification	
OUV FEATURE (<i>Physical, biological, geological components. An example: "communities of plants could be a feature of grassland"</i>)	<i>Are there any feature that are missing? Please enter the feature that you think are important to consider for your site of interest and that are not present in the matrix</i>
Stari Grad plain	Stari Grad Plain on the Adriatic Island of Hvar is a cultural landscape that has remained practically intact since it was first colonized by Ionian Greeks from Paros in the 4th century BC. The original agricultural activity of this fertile plain, mainly centering on grapes and olives, has been maintained since Greek times to the present. The site is also a natural reserve.
Suhozidi (drywall construction)	The landscape features ancient stone walls and trims, or small stone shelters, and bears testimony to the ancient geometrical system of land division used by the ancient Greeks, the chora which has remained virtually intact over 24 centuries.





Hvar lace	Nowadays, the Benedictine monastery is especially known to the world for its agave lace, which is nurtured and passed down from generation to generation in the monastery and is on the UNESCO list as a cultural intangible asset. Today, nuns also nurture Christian hospitality in the town of Hvar with their dedicated prayer and work
Klapa Singing	Klapa singing is always performed in a group of about 4 to 10 people, standing in a tight semicircle, with the leader taking the role of first tenor, followed by several tenori, baritoni and basi voices. The sounds blend to create a beautiful homophonic performance.
Mediterranean diet	Come in Spring and enjoy the delights of the wild asparagus season. Come in November, and the fruit of the abundant mandarin trees will find their way into your diet. And some of the finest olive oil in the world, world-class wines made from indigenous Hvar grape varieties, and a host of other fruits, vegetables and herbs throughout the year, and it is no wonder, perhaps, that Hvar's Mediterranean Diet was inscribed as intangible UNESCO heritage back in 2013
Cross Procession	The Procession Za Krizen is a tradition that has been going for more than 500 years. It translates as 'Following the Cross' and happens each year on the Thursday before Easter. It's become one of the most important annual cultural events on Hvar Island.

2. Attribute identification

OUV FEATURES	ATTRIBUTES (<i>The characteristics of a feature that can be measured and monitored</i>). For each feature indicate all attributes considered important
Stari Grad plain	Surface area, number of parcels
Suhozidi (drywall construction)	Surface area
Hvar lace	N/A (because it is an intangible good)
Klapa Singing	N/A (because it is an intangible good)
Mediterranean diet	N/A (because it is an intangible good)
Cross Procession	N/A (because it is an intangible good)

3. Matrix

ATTRIBUTES (The characteristics of a feature that can be measured and monitored) (*copy paste the attribute identified in the worksheet n. 2)	SPATIAL REPRESENTATION TYPE (<i>vector, raster, matrix etc.</i>)	SOURCE
<ul style="list-style-type: none"> • Surface area, • Number of parcels 	Vector, raster and matrix	Geoportal of the PP



4. Assessing the integrity			
1- Are the site's key features and attributes related to the OUV whole and intact?	2 - What are the critical issues that climate impacts are causing at the site?	3 - Describe, if any, individual threats recognizable within the site that are not related to climate change	4 - Does the site include all the elements necessary to express its OUV?
Yes	Droughts and high temperatures, brought by climate change, affect vegetation and agriculture in the Stari Grad Plain. The high temperatures increase the chance of fires. Also, due to the high temperatures, the vegetation periods of olives and grapevine. On the other hand, high precipitation in some periods of the year, causes parts of the site to flood. The urban center of Stari Grad is also at risk because of the rising sea levels. The effects of this can already be seen with common meteorological tsunamis which flood the city in instances of changing air pressure. Pollution in the air caused by greenhouse gases such as carbon dioxide reacts with rain to create acid rain which will further deteriorate the archaeological remains.	The main threat to the Stari Grad Plain is the change of social dynamics as new generations move away from agriculture, instead of preserving the traditional practices and knowledge. Many agricultural sites of the Stari Grad Plain are neglected, and wild vegetation is growing on them. There are also some illegal waste disposal sites and illegal dirt and sand excavations. Illegal construction and leaving the existing buildings destitute also lowers the integrity of the site.	Yes
5 - Is the site of adequate size to ensure complete representation of features/processes that convey its significance?	6 - Do you have control over the processes causing deterioration? Who does? Have adaptation strategies been identified and implemented?	7 - Describe, if present, recognizable macro-emergencies within the site	8 - Does the site have a buffer zone and, if so, is it under any threat?
Yes	Since deterioration is caused to some degree by climate factors, we can't influence them. However, we can control conservation programs and ensure the site is protected and preserved. Some cultural heritage sites are conserved and preserved regularly, and more programs are planned. Drywalls are also regularly repaired with the help of private owners. The Agency also strongly fights illegal construction within the site.	Depopulation, extremely high temperatures and the changing way of life, which excludes agriculture, greatly affect the Stari Grad Plain. The urban center of Stari Grad is also at risk because of the rising sea levels.	The site has a buffer zone within which the threats are extensive construction and the loss of traditional spatial organization. Depopulation, fires and the loss of agricultural character are also threats to the buffer zone.



5. Profiling stakeholder

<i>Please list the stakeholders already actively operating in the territory</i>	<i>Please list the first 5 most important stakeholders that it is useful or necessary to involve</i>	<i>How the World Heritage site relates to them, and how they relate to the site?</i>	<i>For each stakeholder describe level and type of power (Political support, economic, social leadership/status, threat, education, knowledge, religion, etc. Where does power come from? How is it used? How important to the site is the stakeholder?)</i>	<i>Describe the level of knowledge the identified stakeholders have about the site (Extensive, good, some knowledge, limited, none)</i>	<i>Describe particular areas of concern (if any) or opportunities for engagement (Lack of trust? Past problems? Open antagonism? Breakdown in communication? Disagreements over rights?)</i>
1) Local inhabitants	1) Local inhabitants	Local inhabitants live in the city of Stari Grad and use the Stari Grad Plain for agriculture, giving it a social and economic value. They cooperate with the city council of Stari Grad.	Social status	Good	No concern
2) Tourists	2) Tourists	Tourists visit the city and the site to observe its cultural and historical significance.	Social status / Economic	Good	No concern
3) Conservation experts	3) Conservation experts	Conservation experts engage in the projects created by the Agency for the Management of the Stari Grad Plain	Knowledge / Economic	Good	No concern
4) Local associations, winemakers and other registered agriculturists	4) Local associations, winemakers and other registered agriculturists	Local business of people who live in the city of Stari Grad and surrounding villages and use the Stari Grad Plain for agriculture, giving it a social and economic value. They cooperate with the city council of Stari Grad.	Knowledge / Economic	Extensive	No concern
5) Cultural institutions	5) Cultural institutions	Research and education about the site.	Knowledge	Extensive	No concern

6. Legal and policy framework

1 - International legislation	2 - World heritage convention	3 - Convention on biological diversity	4 - National legislation	5 - Regional legislation
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https://www.unesco.org/en/heritage-armed-conflicts/convention-and-protocols/1954-convention	https://www.unesco.it/it/iniziativa-dellunesco/patrimonio-mondiale/	N/A	The National legislation - Law on the Protection and Preservation of Cultural Property (Official Gazette 69/99, 151/03, 157/03, 100/04, 87/09, 88/10, 61/11, 25/12, 136/12, 157/13, 152/14 , 98/15, 44/17, 90/18, 32/20, 62/20, 117/21, 114/22)	No regional legislation.
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6 - Local legislation	7 - Policies	8 - Is the legal framework adequate for the management and protection of the site? In what way can the legal framework be enforced?	9 - In the Periodic Report of each site there's the rate about the cooperation / relationship with world Heritage property managers / coordinators / staff. Do you confirm this rates? In case of any difference please describe it in the next column	10 - Column for difference (Question n. 9)
Prostorni plan Grada Starog Grada	N/A	N/A	Local communities: Good Local/municipal authorities: Good Indigenous people: Not applicable Landowners: Good Visitors: Good Researchers: Good Tourism industry: Good Industry: Good	N/A

7. Site design

1 - Overall size (Is the site large enough to allow for viable core and meta populations, predator/ prey relationships, feeding/breeding sites, migrations, etc.? Is the site large enough to ensure optimal management of cultural and urban sites?)	2 - Proportion of major habitat size (To what extent does the amount of each habitat type influence the site's integrity and its susceptibility to climate factors?)	3 - Shape and topography description (How might the site's shape influence its integrity, management, migration patterns, vulnerability, etc.?)	4 - Boundaries (Is the site bounded by roads, railways, rivers, mountain tops, valleys, forest zones, etc.? How will these influence future management? Can the boundaries be improved?)
The site is large enough to ensure optimal management of cultural and urban sites. It also allows its natural inhabitants to have predator/prey relationships on a smaller scale.	The habitat type does not affect the site integrity. The site's inhabitants also are not significantly affected by climate change. The site is a part of the NATURA 2000 Directive for Birds.	The site has hills on its south and north sides, the hills are steep but do not influence its integrity. The focus point is the agricultural sites which are in the plain and are intact.	The site contains a gravel road and is bound on one side with the main island road (asphalt). These roads do not damage the integrity of the site.

5 - Buffer zone (If a buffer zone is present, are the boundaries adequate? Can the buffer boundaries be improved? In what way?)	6 - Wider settings (Beyond the buffer zone, is the site set within a landscape that might allow for reshaping it if necessary? Does it offer the potential for establishing corridors?)	7 - Feedback related to boundaries and buffer zones and their functioning and effectiveness	8 - Monitoring (Is there a monitoring system for the site?)
Buffer zone	N/A	N/A	N/A



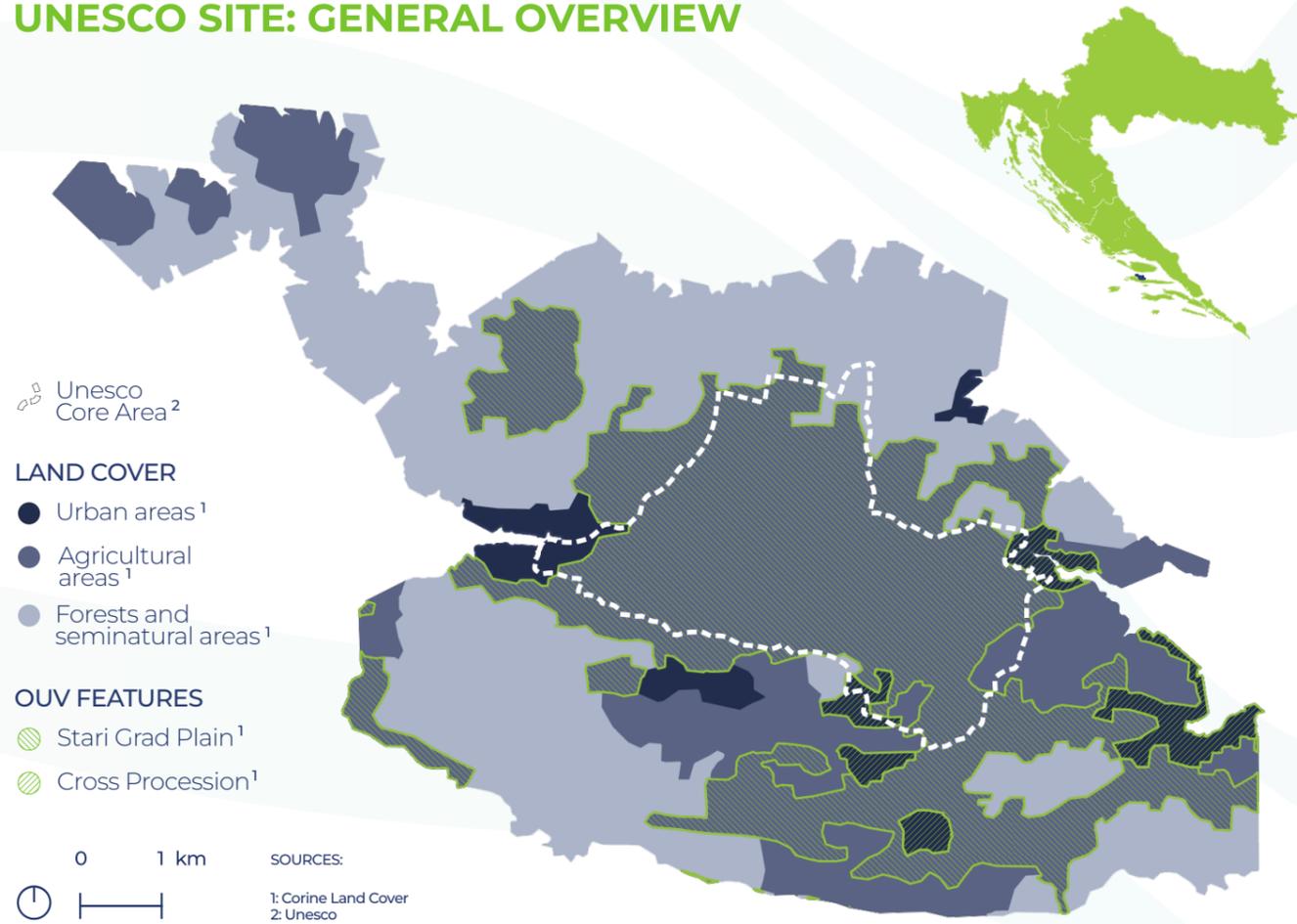
8. Assessing management

1 - Management info Please describe who is the managing institution of the site (foundation, association, park, etc.).	2 - Is there a site management plan? PPs are asked to describe the functioning, if present.	3 - Indicate whether impact assessments have been carried out on specific projects in accordance with paragraph 172 of the Guidelines, whereby UNESCO invites States Parties to inform the Monitoring World Heritage	4 - Indicate whether a Heritage Impact Assessment (HIA) has been carried out or is in the process of being carried out	5 - Indicate whether annual or biennial reports on the conservation status of the Site have been regularly sent to WHC (if yes, please upload the latest one in the drive).
The Stari Grad Plain is managed by the Public Institution - The Agency for the Management of the Stari Grad Plain.	The Agency creates its own Plan and Work Agenda.		N/A	Periodic reports every 6 years.



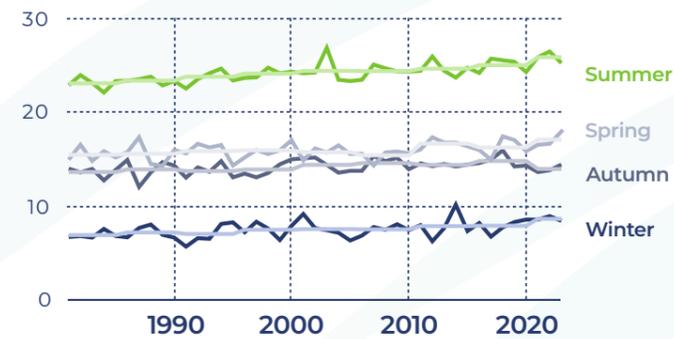
STARI GRAD PLAIN

UNESCO SITE: GENERAL OVERVIEW

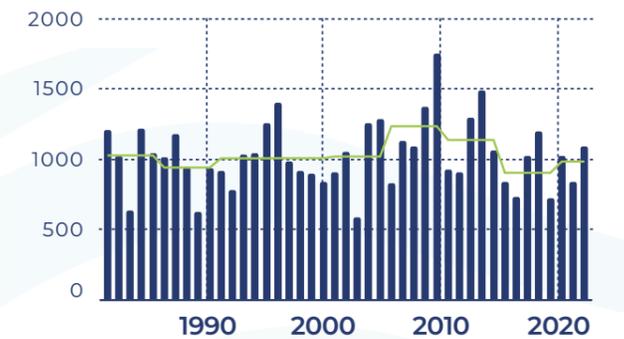


CLIMATE TRENDS

AVERAGE SEASONAL TEMPERATURE, 1981-2023, (°C)



YEARLY PRECIPITATION AMOUNT, 1981-2023, (MM)



EFFECTS OF CLIMATIC AND ANTHROPOGENIC THREATS

- SEA-LEVEL RISES Coastal flooding
- DESERTIFICATION Droughts Heat Waves Fires
- TEMPERATURE CHANGE Changes in harvest periods Snow Loading Heat Waves
- ATMOSPHERIC MOISTURE CHANGE Intense Rainfall River Flooding
- CLIMATE AND POLLUTION Change in deposition of pollutants Acid Rain
- ANTHROPOGENIC DYNAMICS Youth migration Extensive construction Loss of traditional practices
- CLIMATE AND BIOLOGICAL EFFECTS
- WIND

OUTSTANDING UNIVERSAL VALUES

SITE IDENTITY	CRITERIA	TANGIBLE FEATURES	INTANGIBLE FEATURES
Agricultural	II, III, V	Chora Grid Plain Suhozidi walls	The Cross Procession Klapa Singing Hvar Lace Mediterranean Diet

MANAGEMENT AND GOVERNANCE FRAMEWORK

TYPE OF MANAGEMENT DOCUMENT	MANAGEMENT INSTITUTIONS
WORKING PLAN Plan i program rada za 2024	AGENCY FOR THE MAANGEMENT OF STARI GRAD PLAIN Agencija za upravljanje Starogradskim poljem

INVOLVED PARTIES

DIMENSIONS	DEGREE OF KNOWLEDGE	DEGREE OF POWER / INFLUENCE	STAKEHOLDERS
a. Social	1	1	1 Inhabitants
b. Cultural	5	1	2 Tourists
c. Leadership	3	3	3 Conservation Experts
d. Economic	4	4	4 Local Traders
e. Touristic	2	2	5 Cultural Institutions
f. Spiritual	1	1	

DEGREE

low high

Interreg



Co-funded by the European Union

Italy - Croatia

CAMPUS

Plitvice Lakes National Park

Site general overview				
TYPE OF PROPERTY	IDENTIFICATION NUMBER	YEAR OF INSCRIPTION	CRITERIA	DESCRIPTION
Natural site	98bis	1979, 2000	(vii)	Embedded in a mosaic of forests and meadows in the lower elevations of the Dinarides, Plitvice Lakes National Park conserves a strikingly beautiful and intact series of lakes formed by natural tufa barriers. The tufa barriers are the result of longstanding and ongoing interaction between water, air, sediments (geological foundation) and organisms. The extension of the dynamic, constantly evolving lake system, the proportion of the tufa barriers, jointly with the numerous dynamic waterfalls and clear water courses and the expression of colors, make Plitvice Lakes National Park an aesthetically outstanding natural spectacle of global importance.
			(viii)	The key extraordinary process which has been shaping and continues to shape the Plitvice Lake system is the tufa creation which forms barriers across the watercourse. Due to the characteristics of karst base, the waters of Plitvice Lakes are naturally supersaturated with calcium carbonate. Under certain physicochemical and biological conditions, the dissolved calcium carbonate is deposited on the bottoms and margins of the lakes, as well as on obstacles in the water courses. Over time, this process leads to the formation of porous, simultaneously hard and fragile limestone barriers, which retain the water of creeks and rivers. The lake system is a subject to constant changes largely due to the dynamics of growth and erosion of tufa barriers. A closer look of the barriers reveals the ubiquitous remains of mosses and other terrestrial and aquatic organisms inhabiting the highly specialized habitat. The scale and intactness of the tufa formation phenomena at Plitvice Lakes amount to an outstanding example of a largely undisturbed on-going process. Extensive research on the formation, age and structure and ecological characteristics illustrates the major scientific importance of the property.
			(ix)	Overlapping with the above "geological criterion", Plitvice's famous process of the tufa creation is also the result of exceptional ecological processes. Living organisms play a decisive role in the sedimentation of calcium carbonate in Plitvice. More concretely, highly specialized mosses, algae and bacteria enable and enhance the sedimentation, thereby contributing to the creation of the natural barriers. This is why the presence of these easily overlooked organisms and micro-organisms is an integral and essential component of the ancient processes which gave rise to the outstanding lake system. It becomes clear that the process and system requires a water quality that permits the presence of the often-sensitive organisms. The extensive tufa formations of the Plitvice Lakes National Park are a testimony of an exceptional interplay between sediments (geological foundation), water, air and living organisms.

1. Feature identification

OUV FEATURE (Physical, biological, geological components. An example: "communities of plants could be a feature of grassland")	Are there any feature that are missing? Please enter the feature that you think are important to consider for your site of interest and that are not present in the matrix
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Plitvice lakes (Upper and Lower ones)	N/A
Watercourses	N/A
Tufa barriers	N/A
Karst forms	N/A
Freshwater algae	N/A
Flora (vascular plants, endemic species, orchids, diversity of moss species)	N/A
Forests (8 Natura 2000 habitat types)	Forests (Ilyrian beech forests (Natura 2000) and 7 other Natura 2000 forest habitat types)
Grassland (dry, wet and moderately wet, tall herb), fen and bog habitats and their vegetation	N/A
Fungi and lichens	N/A
Fauna	Fauna (large carnivores, butterflies, bats, insects, freshwater fauna, birds)
Caves	Caves and pits

2. Attribute identification	
OUV FEATURES	ATTRIBUTES <i>(The characteristics of a feature that can be measured and monitored). For each feature indicate all attributes considered important)</i>
Plitvice lakes (Upper and Lower ones)	<ol style="list-style-type: none"> 1) Water quality - physicochemical and microbiological parameters 2) Hydrological characteristics - water flow, water level 3) Meteorological data - air temperature, precipitation, snow coverage
Watercourses	<ol style="list-style-type: none"> 1) Water quality - physicochemical and microbiological parameters 2) Hydrological characteristics - water flow, water level 3) State of Natura 2000 habitat Ranunculion fluitantis and Callitriche-batrachion 4) Meteorological data - air temperature, precipitation, snow coverage
Tufa barriers	<ol style="list-style-type: none"> 1) Water quality - physicochemical and microbiological parameters 2) Hydrological characteristics - water flow, water level 3) State of Natura 2000 habitat Tufa cascades of the karstic rivers of the Dinaric Alps 4) Vascular plants and moss - abundance, composition 5) Benthic organisms 6) Extreme weather events 7) Meteorological data - air temperature, precipitation, snow coverage 8) Tufa age - isotopes



Karst forms	1) Sedimentology - sediment composition and type 2) Geological mapping
Freshwater algae	1) Composition of algae (diatoms, cyanobacteria etc.) 2) Coverage in lotic and lentic biotopes
Flora (vascular plants, endemic species, orchids, diversity of moss species)	1) Species composition and coverage 2) Invasive species - abundance, cover
Forests (8 Natura 2000 habitat types)	1) Climate change monitoring of biomass, CO2 percentage 2) Dead wood - abundance 3) Monitoring of bark beetle - passive pheromone traps, composition and number
Grassland (dry, wet and moderately wet, tall herb), fen and bog habitats and their vegetation	1) Species composition 2) Succession - percentage of surface covered with shrubs and trees 3) Underground water level - data collected with loggers 4) Meteorological data - air temperature, precipitation, snow coverage
Fungi and lichens	1) Number of species 2) Habitat description and preferences - humidity, dead wood, temperature
Fauna	1) Number of species 2) GPS collar monitoring of movement (large carnivores, otter, beaver) 3) Photo-traps - monitoring of activity, presence 4) Tracks - feces, footprints 5) Water quality - physicochemical and microbiological parameters - for freshwater fauna 6) Hydrological characteristics - water flow, water level - for freshwater fauna 7) Invasive species - monitoring of signal crayfish 8) Eradication of allochthonous fish species - fishing nets, mass of fish stock
Caves	1) Bio speleological data - number of species and diversity 2) Microclimate characteristics - air temperature, humidity 3) LiDAR observations - remote sensing

3. Matrix

ATTRIBUTES <i>(The characteristics of a feature that can be measured and monitored) (*copy paste the attribute identified in the worksheet n. 2)</i>	SPATIAL REPRESENTATION TYPE <i>(vector, raster, matrix etc.)</i>	SOURCE	COMMENTS
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<p>Plitvice lakes (Upper and Lower lakes)</p> <p>1) Water quality - physico-chemical and microbiological parameters,</p> <p>2) Hydrological characteristics - water flow, water level,</p> <p>3) Meteorological data - air temperature, precipitation, snow coverage</p>	Vector, raster and matrix	Geoportal of the PP	Data is available in Croatian (hydrological and meteorological), except the report for water quality monitoring for 2023 and articles on water quality (in English). Significant amount of hydrological and meteorological data was presented in the scientific report (in Croatian).
<p>Watercourses</p> <p>1) Water quality - physicochemical and microbiological parameters</p> <p>2) Hydrological characteristics - water flow, water level</p> <p>3) State of Natura 2000 habitat Ranunculion fluitantis and Callitricho-batrachion, Meteorological data - air temperature, precipitation, snow coverage</p>	Vector, raster and matrix	Geoportal of the PP	Data is available in Croatian (hydrological and meteorological), except the report for water quality monitoring for 2023 and articles (in English). Significant amount of hydrological and meteorological data was presented in the scientific report (in Croatian). Data for the State of Natura 2000 habitat Ranunculion fluitantis and Callitricho-batrachion available in scientific reports in Croatian.
<p>Tufa barriers</p> <p>1) Water quality - physicochemical and microbiological parameters</p> <p>2) Hydrological characteristics - water flow, water level</p> <p>3) State of Natura 2000 habitat Tufa cascades of the karstic rivers of the Dinaric Alps, Vascular plants and moss - abundance, composition</p> <p>4) Benthic organisms</p> <p>5) Extreme weather events</p> <p>6) Meteorological data</p> <p>7) Tufa age - isotopes</p>	Vector, raster and matrix	Geoportal of the PP	Data is available in Croatian (hydrological and meteorological), except for the report for water quality monitoring for 2023 and articles (in English). Significant amount of hydrological and meteorological data was presented in the scientific report (in Croatian). Data for the State of Natura 2000 habitat Tufa cascades of the karstic rivers of the Dinaric Alps is available in scientific reports in Croatian (includes vascular plants and moss and benthic organisms). Extreme weather events referred in abstract for Symposium - in Croatian. Tufa age report in Croatian and article in English.
<p>Karst forms</p> <p>1) Sedimentology - sediment composition and type</p> <p>2) Geological mapping</p>	Vector, raster and matrix	Geoportal of the PP	Final report on sedimentology and stratigraphy from 2020 (in Croatian). Geological mapping for the new geological map is still ongoing (expected report in 2026).
<p>Freshwater algae</p> <p>1) Composition of algae (diatoms, cyanobacteria etc.)</p> <p>2) Coverage in lotic and lentic biotopes</p>	Vector, raster and matrix	Geoportal of the PP	Final report is in Croatian.
<p>Flora (vascular plant, endemic species, orchids, diversity of moss species)</p> <p>1) Species composition and coverage</p> <p>2) Invasive species - abundance, cover</p>	Vector, raster and matrix	Geoportal of the PP	Report is in Croatian.



<p>Forests (Ilyrian beech forests (Natura 2000) and 7 other Natura 2000 forest habitat types)</p> <ol style="list-style-type: none"> 1) Climate change monitoring of biomass, CO2 percentage 2) Dead wood – abundance 3) Monitoring of bark beetle - passive feromone traps, composition and number 	<p>Vector, raster and matrix</p>	<p>Geoportal of the PP</p>	<p>Reports are in Croatian except for the UNESCO World Heritage forests.</p>
<p>Grassland (dry, wet and moderately wet, tall herb), fen and bog habitats and their vegetation)</p> <ol style="list-style-type: none"> 1) Species composition 2) Succession - percentage of surface covered with shrubs and trees 3) Underground water level - data collected with loggers 4) Meteorological data - air temperature, precipitation, snow coverage 	<p>Vector, raster and matrix</p>	<p>Geoportal of the PP</p>	<p>Meteorological data available from the automatic meteorological station (2016-2022) and from the Croatian Meteorological and Hydrological Service on demand for a longer period.</p>
<p>Fungi and lichens</p> <ol style="list-style-type: none"> 1) Number of species 2) Habitat description and preferences - humidity, dead wood, temperature 	<p>Vector, raster and matrix</p>	<p>Geoportal of the PP</p>	<p>Research of fungi in grasslands and bogs is still ongoing (only a report for one year is available, in Croatian). Study tour report on fungi for Europarc Alfred Toepfer scholarship available in English.</p>
<p>Fauna (large carnivores, butterflies, bats, insects, freshwater fauna, birds)</p> <ol style="list-style-type: none"> 1) Number of species 2) GPS collar monitoring of movement (large carnivores, otter, beaver) 3) Photo-traps - monitoring of activity, presence 4) Tracks - feces, footprints 5) Water quality - physicochemical and microbiological parameters - for freshwater fauna 6) Hydrological characteristics - water flow, water level - for freshwater fauna 7) Invasive species - monitoring of signal crayfish 8) Eradication of allochthonous fish species - fishing nets, mass of fish stock 	<p>Vector, raster and matrix</p>	<p>Geoportal of the PP</p>	<p>Reports in Croatian. Some data on the number of the species available in the Management plan.</p>



4. Assessing the integrity

1- Are the site's key features and attributes related to the OUV whole and intact?	2 - What are the critical issues that climate impacts are causing at the site?	3 - Describe, if any, individual threats recognizable within the site that are not related to climate change	4 - Does the site include all the elements necessary to express its OUV?	5 - Is the site of adequate size to ensure complete representation of features/processes that convey its significance?	6 - Do you have control over the processes causing deterioration? Who does? Have adaptation strategies been identified and implemented?	7 - Describe, if present, recognizable macro-emergencies within the site	8 - Does the site have a buffer zone and, if so, is it under any threat?
Yes	Extreme weather; hydrological changes - periods of low water level and discharge; change in the phenology of plant and animal species (especially freshwater insects and their life cycle); increased water discharge - causing tufa barriers erosion and braking	Succession of grasslands - due to demographic change and abandoning of agriculture; invasive species (especially plant species and a potential signal crayfish movement upstream with Korana River)	Yes	Yes	Yes, we have a control over the processes, and it is "in the hands" of National Park management and the Conservation Service along with the expert guidance from the Ministry and their departments. Ministry of environment protection and green transition is a national point for UNESCO natural heritage sites.	Tufa barrier erosion and breakage on two major localities in the Upper Lake system. We began the process with the elaborated report on how to approach the potential restoration (or denaturalization).	The site does not have a buffer zone, and there are no significant threats on the borders. Potential threat is illegal hunting, movement of the migrants, construction of new facilities for tourism.

5. Profiling stakeholder

Please list the stakeholders already actively operating in the territory	Please list the first 5 most important stakeholders that it is useful or necessary to involve	How the World Heritage site relates to them, and how they relate to the site?	For each stakeholder describe level and type of power (Political support, economic, social leadership/status, threat, education, knowledge, religion, etc. Where does power come from? How is it used? How important to the site is the stakeholder?)	Describe the level of knowledge the identified stakeholders have about the site (Extensive, good, some knowledge, limited, none)	Describe particular areas of concern (if any) or opportunities for engagement (Lack of trust? Past problems? Open antagonism? Breakdown in communication? Disagreements over rights?)
1) Ministry of environment protection and green transition	1) Ministry of environment protection and green transition	Legally in both ways	High power; political and legislative support. Power is used through legislation (issuance of permits) and as a national contact point toward WHC. Stakeholder is very important.	Extensive	No concern



2) Institute for Environment and Nature Protection	2) Institute for Environment and Nature Protection	Legally in both ways	High power; research and data collection support, and legislation. Expert body for nature conservation, education. Power comes from legislation. Very important stakeholder.	Extensive	No concern
3) Ministry of Physical Planning, Construction and State Affairs	3) Ministry of Physical Planning, Construction and State Affairs	Socially and economic need from the WH site. Culture connected with the local community and rights	Medium power; social leadership. Power is used through legislation, utilities. Very important stakeholder.	Good	Breakdown in communication; past problems
4) Local authority units (municipalities - Plitvička Jezera, Saborsko, Vrhovine, Rakovica)	4) Local authority units (municipalities - Plitvička Jezera, Saborsko, Vrhovine, Rakovica)	Economic need and benefit from the WH site for research and monitoring	Medium power; high knowledge, education. Power is used through scientific projects, research, monitoring. Important stakeholder.	Good	Breakdown in communication
5) Croatian waters	5) Croatian waters	Economic benefit from the WH site and presentation of the natural and cultural values which is a benefit to the WH site	Medium power; education and interpretation of WH site to visitors. Power comes from tourist guides as one of the representatives of the WH site. Important stakeholder.	Good	Past problems (compliance with the rules and regulations. Lack of trust
6) Croatian Electricity Company	N/A	Legally, economic need	Medium power; important for maintenance of electricity. Important stakeholder.	Some knowledge	No concern
7) Travel agencies	N/A	Economic benefit from the WH site and presentation of the natural and cultural values which is a benefit to the WH site	Medium power; education and interpretation of WH site to visitors. Power comes from tourist guides as one of the representatives of the WH site. Important stakeholder.	Good	Past problems (compliance with the rules and regulations. Lack of trust
8) Tourist guides	N/A	Economic benefit from the WH site and presentation of the natural and cultural values which is a benefit to the WH site	Medium power; education and interpretation of WH site to visitors. Power comes from tourist guides as one of the representatives of the WH site. Important stakeholder.	Good	Past problems (compliance with the rules and regulations. Lack of trust





9) Universities and Institutes - for research and monitoring activities	N/A	Economic need and benefit from the WH site for research and monitoring	Medium power; high knowledge, education. Power is used through scientific projects, research, monitoring. Important stakeholder.	Good	Breakdown in communication
10) NGOs - for research and monitoring activities, etc.	N/A	Economic need and benefit from the WH site for research and monitoring	Medium power; high knowledge, education. Power is used through scientific projects, research, monitoring as well as social activities (culture, sports, etc.) Important stakeholder.	Good	No concern

6. Legal and policy framework

1 - International legislation	2 - World heritage convention	3 - Convention on biological diversity	4 - National legislation	5 - Regional legislation
International legislation is implemented and transposed to national legislation (for example Bird Directive, Habitats Directive).	Succession of the Convention 6/7/1992	Active since 7/10/1996 for Republic of Croatia (Official gazette 6/96)	The Law on Nature Protection (Official Gazette 80/13, 15/18, 14/19, 127/19); Decree on the Ecological Network and the Competencies of Public Institutions for the Management of Areas of the Ecological Network (Official Gazette 80/2019) with Appendix III. Part 1; Law on Prevention and Management of the Introduction and Spread of Alien and Invasive Alien Species (Official Gazette 15/18, 14/19)	N/A

6 - Local legislation	7 - Policies	8 - Is the legal framework adequate for the management and protection of the site? In what way can the legal framework be enforced?	9 - In the Periodic Report of each site there's the rate about the cooperation / relationship with world Heritage property managers / coordinators / staff. Do you confirm this rates? In case of any difference please describe it in the next column	10 - Column for difference (Question n. 9)
The Ordinance on the Protection and Preservation of the National Park "Plitvička Jezera" (Official Gazette 80/2021); Physical Plan for the Area of Special Features of the Plitvice Lakes National Park adopted in 2014 (Official Gazette 49/14) and the Decision of the Government of the Republic of Croatia from 2018 for the Physical Plan (Official Gazette 32/18); Ordinance on concession approval in protected area (Official Gazette (9/21)	National Strategy and Action Plan for the protection of Biological and Landscape Diversity of the Republic of Croatia for the period 2017-2023 (Official Gazette 72/17); Forest Protection, Care and Restoration Program for Plitvice Lakes National Park	The legal framework is adequate. It is enforced through legislative of lower ordinance.	Local communities/residents: Fair Local/municipal authorities: Good Indigenous people: Not applicable Landowners: Not applicable Visitors: Fair Researchers: Good Tourism industry: Fair Industry: Not applicable	Landowners are represented in the WH site, and the rate of cooperation should be fair (not Not applicable).



7. Site design

1 - Overall size (Is the site large enough to allow for viable core and meta populations, predator/ prey relationships, feeding/breeding sites, migrations, etc.? Is the site large enough to ensure optimal management of cultural and urban sites?)	2 - Proportion of major habitat size (To what extent does the amount of each habitat type influence the site's integrity and its susceptibility to climate factors?)	3 - Shape and topography description (How might the site's shape influence its integrity, management, migration patterns, vulnerability, etc.?)	4 - Boundaries (Is the site bounded by roads, railways, rivers, mountain tops, valleys, forest zones, etc.? How will these influence future management? Can the boundaries be improved?)
<p>Beautiful karst landscape dominated by mixed forests and meadows with magnificent Plitvice Lake system where ongoing geological and biochemical processes created and still create natural dams - tufa barriers, constitute the striking landscape beauty with well-preserved biodiversity, while the area is a good habitat for different plant and animal species, as well as a feeding and reproduction site for large carnivores and other species.</p>	<p>The site's habitats, including 20 Natura 2000 habitat types, are well represented. Significant attention is given to the Natura 2000 habitat type Tufa cascades of the karstic rivers of the Dinaric Alps through monitoring and additional research of benthic organisms. The most represented habitat within the site are beech and fir forests which with other forest habitat types cover around 84% of the site's surface. Climate change impact was observed through increase of water temperature especially pronounced for lakes in last decade in comparison with data from 1980s, as well as through hydrological conditions such as water discharge. The impact of high-water discharge from snow melts or increased precipitation caused tufa breakage in Upper lakes system. Furthermore, it was observed that periods of low water level and discharge had impact on phenology of water entomofauna, especially in watercourse of Bijela rijeka River. According to models that tested the precipitation and air temperature for Plitvice lakes within the scenarios RCP4.5 and RCP8.5, it is expected an increase of annual precipitation of 8.7 mm/10 years and 9.3 mm/10 years respectively. The temperate change is significant, with the increase of 2.3°C (RCP4.5) and 4.0°C (RCP8.5). Scenarios for hydrological conditions were also performed and even though the changes in the perennial mean values of discharge are not expected, there is an expectation of more frequent appearances of extreme drought and high hydrological events.</p>	<p>Following an extension in 2000, Plitvice Lakes National Park covers the entire catchment area and most of the underground system of the lake system. The lakes, the fragile heart of the property, are surrounded by a belt of well-preserved forest, contributing to the maintenance of water supply and quality and thereby supporting the on-going and dynamic process of calcium carbonate deposition and tufa creation. The balance between shape and topography in karst landscape is completely of natural origin, altered only at the areas of settlements and some meadows.</p>	<p>Yes, the site is bounded in some parts with roads and a railway while other parts of the border go through depopulated and remote areas mainly in the forest zones and mountain tops. There is no need for the improvement of the boundaries.</p>





<p>5 - Buffer zone (If a buffer zone is present, are the boundaries adequate? Can the buffer boundaries be improved? In what way?)</p>	<p>6 - Wider settings (Beyond the buffer zone, is the site set within a landscape that might allow for reshaping it if necessary? Does it offer the potential for establishing corridors?)</p>	<p>7 - Feedback related to boundaries and buffer zones and their functioning and effectiveness</p>	<p>8 - Monitoring (Is there a monitoring system for the site?)</p>
<p>No, there is no buffer zone</p>	<p>The wider setting outside the boundaries of Plitvice Lakes National Park includes some uninhabited forest areas and settlements within municipalities. State and regional roads are represented and one of them is a main connection with the capital town Zagreb. There is no industry or significant human activity outside the borders, apart from the settlements with agriculture and tourism activity providing private accommodation for tourists. Hunting is allowed outside the borders of the WH site regulated by national legislation. It was confirmed through GPS monitoring of large carnivores that species use wider area outside the boundaries of the WH site which confirms potential for establishing ecological connectivity and corridors. Furthermore, there is an initiative for establishing Regional Park Lička Plješivica mountain and Una River (still under consideration by the Ministry), which will enable protected corridor for species, especially animal species.</p>	<p>https://np-plitvicka-jezera.hr/wp-content/uploads/2019/10/Plitvice-Lakes-NP-Management-Plan.pdf</p>	<p>There is a monitoring activity in a WH site, conducted in freshwater ecosystems, grasslands, peats and bogs and forest ecosystems. Monitoring for freshwater ecosystem annually reports about physicochemical and microbiological parameters, and the reports are available online. Other monitoring activates for example for some plant and animal species (otter, beaver, deer, large carnivores, birds) are either performed by observation with photo-traps or with the use of previously determined methodology by researchers. Some activities are performed by the employees of the Conservation service, while others are conducted by researchers and NGOs. The data is stored within different Departments of the Nature Conservation Service, rarely published online and mainly presented in research reports in Croatian. Links: https://np-plitvicka-jezera.hr/en/stories-from-the-park/ https://np-plitvicka-jezera.hr/en/scientific-research/monitoring/</p>

8. Assessing management

<p>1 - Management info Please describe who is the managing institution of the site (foundation, association, park, etc.).</p>	<p>2 - Is there a site management plan? PPs are asked to describe the functioning, if present.</p>	<p>3 - Indicate whether impact assessments have been carried out on specific projects in accordance with paragraph 172 of the Guidelines, whereby UNESCO invites States Parties to inform the Monitoring World Heritage</p>	<p>4 - Indicate whether a Heritage Impact Assessment (HIA) has been carried out or is in the process of being carried out</p>	<p>5 - Indicate whether annual or biennial reports on the conservation status of the Site have been regularly sent to WHC (if yes, please upload the latest one in the drive).</p>
<p>The managing institution of the WH site is Public Institution Plitvice Lakes National Park founded in 1949. The</p>	<p>The basic document is the Management Plan (acquired in 2019 and valid until 2028), which includes topics: preservation of natural values,</p>	<p>No</p>	<p>No</p>	<p>Last Status of Conservation Report by the State Party was submitted in 2019. Decisions</p>



Italy – Croatia

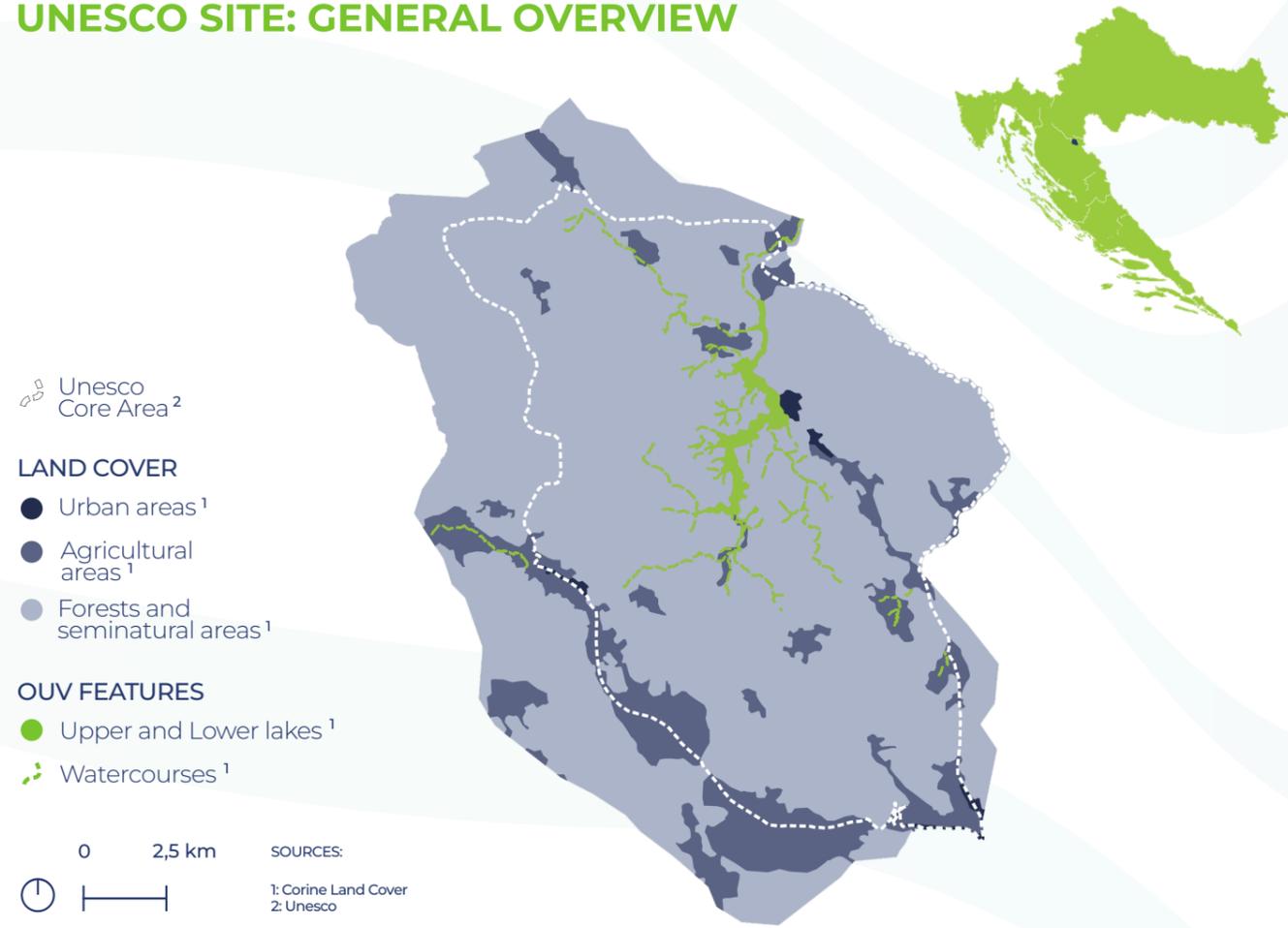


<p>managing institution is governed by the government (the Ministry of environment protection and green transition).</p>	<p>preservation of cultural heritage, visitation management, support for sustainable development of the local community and capacity development and management of the Public Institution. Important part of the MP is the zoning which includes strict conservation zone, active management zone and sustainable use zone. The public institution is obliged for each new calendar year to adopt the Annual Program for the protection, maintenance, preservation, promotion and use of the National Park, which includes planned activities according to the topics of the Management Plan. Furthermore, we are obliged to report annually on the realization of MP and Annual program to the Ministry.</p>			<p>adopted by the Committee in 2021 (44 COM 7B.103)</p>
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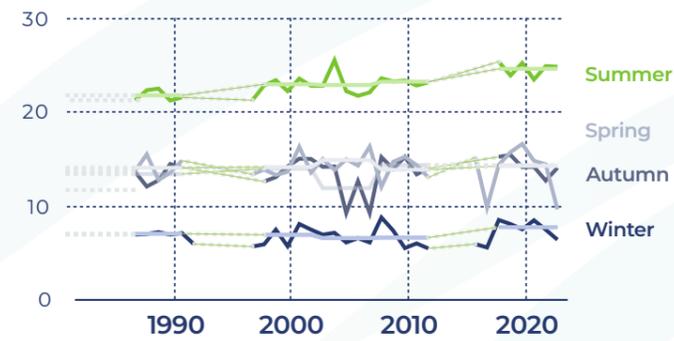
PLITVICE LAKES

UNESCO SITE: GENERAL OVERVIEW

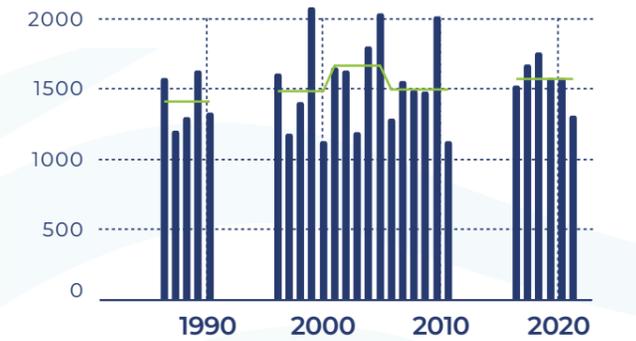


CLIMATE TRENDS

AVERAGE SEASONAL TEMPERATURE, 1981-2023, (°C)



YEARLY PRECIPITATION AMOUNT, 1981-2023, (MM)



EFFECTS OF CLIMATIC AND ANTHROPOGENIC THREATS

- SEA-LEVEL RISES Coastal flooding
- DESERTIFICATION Droughts Heat Waves Fires
- TEMPERATURE CHANGE Changes in harvest periods Snow Loading Heat Waves
- ATMOSPHERIC MOISTURE CHANGE Intense Rainfall River Flooding
- CLIMATE AND POLLUTION Change in deposition of pollutants Acid Rain
- ANTHROPOGENIC DYNAMICS Youth migration Extensive construction Loss of traditional practices
- CLIMATE AND BIOLOGICAL EFFECTS
- WIND

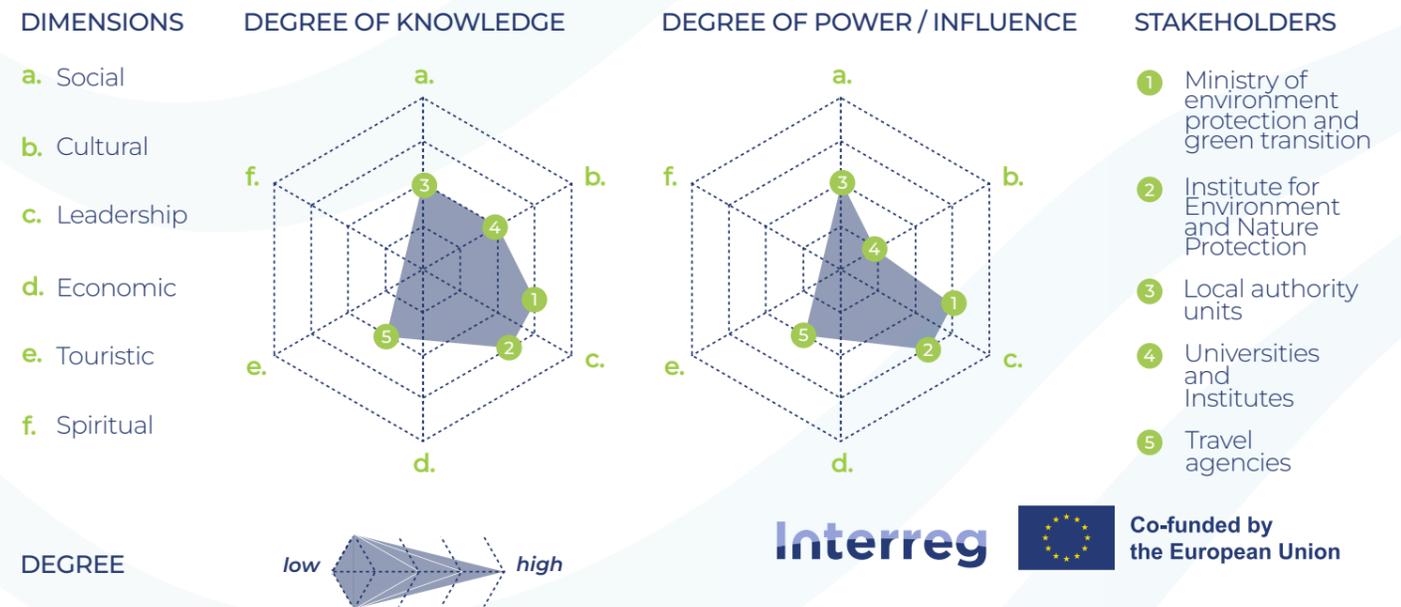
OUTSTANDING UNIVERSAL VALUES

SITE IDENTITY	CRITERIA	TANGIBLE FEATURES	Flora
Natural	VII. VIII. IX.	Upper and Lower Lakes Watercourses Tufa Barriers Karst Forms Freshwater Algae	Forests Grasslands Fungi and Lichens Fauna Caves and Pits

MANAGEMENT AND GOVERNANCE FRAMEWORK

TYPE OF MANAGEMENT DOCUMENT	MANAGEMENT INSTITUTIONS
MANAGEMENT PLAN Management Plan 2019 - 2028	PUBLIC INSTITUTION PLITVICE LAKES NATIONAL PARK Nacionalni park Plitvička jezera

INVOLVED PARTIES



Interreg Co-funded by the European Union
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