



# INTERPRETATION OF EUROPEAN NATURE HERITAGE IN TOURISM

Prague University of Economics and Business

Liběna Jarolímková and MIENAT project team



Co-funded by the  
Erasmus+ Programme  
of the European Union

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2023



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## **Annotation:**

The publication is the main output of the international project “Methodology of Interpretation of European Nature Heritage in Tourism” (MIENAT). The e-book contains a comprehensive overview of nature heritage interpretation – explaining the meaning, objectives and principles of interpretation and providing an overview and detailed description of the different forms of interpretation. It also includes a brief overview of European nature heritage, and a description of the main nature attractions (small protected areas, national parks and UNESCO nature monuments, geoparks, caves, cultural landscapes, zoological and botanical gardens, hydrological attractions, sky). For each area of nature heritage, specifics of interpretation are mentioned, examples of good practice and case studies are given. The text was created by an international group of experts (members of Erasmus+ MIENAT project partner teams from the Czech Republic, Ireland, Lithuania, Germany, Portugal, Austria, Romania, Spain). The publication is a non-profit output of the international MIENAT project supported by the Erasmus+ Programme of the European Union.

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## LIST OF ABBREVIATIONS

<b>AR</b>	Augmented reality
<b>BGCI</b>	Botanic Gardens Conservation International
<b>CSD</b>	Commission on Sustainable Development
<b>DATAR</b>	Digital Automated Tracking and Resolving
<b>DDBR</b>	Danube Delta Biosphere Reserve
<b>EDEN</b>	European Destinations of Excellence
<b>EEA</b>	European Environment Agency
<b>EIA</b>	Environmental Impact Assessment
<b>EU</b>	European Union
<b>EuroNatur</b>	European Nature Heritage Fund
<b>GDP</b>	Gross Domestic Product
<b>GGN</b>	Global Geoparks Network
<b>IAU</b>	International Astronomical Union
<b>ICOMOS</b>	International Council on Monuments and Sites
<b>IDA</b>	International Dark-Sky Association
<b>INTERREG</b>	EU interregional programmes
<b>IUCN</b>	International Union for Conservation of Nature and Natural Resources
<b>LSPA</b>	Large-scale protected area
<b>MAB</b>	Man and the Biosphere
<b>MR</b>	Mixed reality
<b>MODE</b>	Motivation and Opportunity as Determinants of Behavior
<b>NAI</b>	National Association for Interpretation
<b>NGO</b>	Non-governmental organization
<b>NRL Parks</b>	Nature Regional Landscape Parks
<b>OVGA</b>	Azores Volcanological and Geothermal Observatory
<b>PwDs</b>	Persons with disabilities
<b>SCP</b>	Sustainable consumption and production
<b>SDGs</b>	Sustainable Development Goals of the United Nations
<b>TACT</b>	Target, Action, Context, Time
<b>TCC</b>	Tourism Carrying Capacity
<b>TEV</b>	Total Economic Value
<b>UICN</b>	Union for Conservation of Nature and Natural Resources
<b>UN</b>	United Nations
<b>UNESCO</b>	United Nations Educational, Scientific and Cultural Organization
<b>UNWTO</b>	The World Tourism Organization
<b>VR</b>	Virtual reality
<b>WAW</b>	Wild Atlantic Way
<b>WSSD</b>	World Summit on Sustainable Development
<b>WTTC</b>	World Travel & Tourism Council
<b>WFTGA</b>	World Federation of Tourist Guide Associations

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## ABBREVIATIONS OF COUNTRIES USED IN THE E-BOOK

<b>A</b>	Austria
<b>B</b>	Belgium
<b>BG</b>	Bulgaria
<b>CH</b>	Switzerland
<b>CZ</b>	Czech Republic
<b>D</b>	Germany
<b>DK</b>	Denmark
<b>ES</b>	Spain
<b>F</b>	France
<b>GB</b>	Great Britain
<b>GR</b>	Greece
<b>H</b>	Hungary
<b>HR</b>	Croatia
<b>I</b>	Italy
<b>IR</b>	Ireland
<b>LT</b>	Lithuania
<b>NL</b>	Netherlands
<b>PL</b>	Poland
<b>PT</b>	Portugal
<b>RO</b>	Romania
<b>RU</b>	Russia
<b>S</b>	Sweden
<b>SK</b>	Slovak Republic
<b>SLO</b>	Slovenia

**For other country codes see:**

**[https://ec.europa.eu/eurostat/statistics-explained/index.php/Glossary:Country\\_codes](https://ec.europa.eu/eurostat/statistics-explained/index.php/Glossary:Country_codes)**

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# INTRODUCTION

Motto:

*“Look deep into nature and then you will understand everything better.”*

Albert Einstein

This monograph represents an output of an international project “Methodology of Interpretation of European Nature Heritage in Tourism” (MIENAT). The project creates an important platform for the development of strategic partnership among universities and a support for internationalism of the educational process. The goal of the project was to create didactical materials for courses on the interpretation of nature heritage in tourism and thus enhance training in this topic in relevant courses. The project outputs improve general awareness of a specific hot topic of nature heritage interpretation and so contribute to sustainable development of the society, particularly protection of nature threatened by the fast development of tourism.

The leading partner and coordinator of the project was the Tourism department of the Faculty of International Relations of the University of Economics and Business in Prague. Partner universities were Fachhochschule des Mittelstands, Germany; Munster Technological University, Bishopstown, Cork, Ireland; Universidad Europea de Madrid, Spain; Universidade do Porto, Portugal; University “Alexandru Ioan Cuza” in Iași, Romania; University of Applied Sciences Burgenland, Austria and Vitauto Didziojo Universitetas Vilnius, Lithuania. The project was implemented in 2020–2023 and it was funded by the EU Erasmus+ programme.

The didactical materials produced will help to raise awareness of the importance of quality interpretation of nature heritage in tourism and its vital role in the protection of nature values. The output of this international project represents a support to all who want to search for new and efficient methods of nature heritage interpretation. The monograph investigates current methods of nature heritage interpretation in tourism. It focuses both on living and no-living nature, tangible nature heritage and intangible nature heritage: fauna and flora, geological heritage, waters, and astronomic features. It studies interpretation of large-scale protected nature areas, cultural landscape, volcanic areas, caves, and coastal regions. This project opened the opportunity for experts from different European countries to share their professional skills and experience with different approaches to nature heritage interpretation in individual countries.

Nature has been under increasing pressure due to growing demand for natural resources resulting from the growing global population and economic growth. Tourism development also brings a threat for nature. Although a lot of programmes focused on nature protection have been implemented in Europe, interpretation of nature heritage

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is still an important and current topic. The development of nature-based tourism represents an increasing challenge for nature heritage interpretation. The process of searching for new ways that would attract adequate target segments of visitors is not always easy. However, a successful interpretation brings opportunities for awakening emotions, facilitating experience and creating a relationship between a nature heritage site, visited destination and visitor.

The monograph starts with a brief overview of nature heritage in Europe and its protection. Special attention is paid to programmes of sustainable development and the monitoring of changes in consumer behaviour from the view of sustainability. The potential of nature heritage and its exploitation in tourism is introduced in chapter two. Nature-based tourism has undergone tremendous growth recently and has developed into various forms. The development of nature-based tourism brings economic benefits on the one hand, on the other hand it is necessary to monitor its total impact on the location and to avoid overtourism. The third chapter is devoted to the importance of nature heritage interpretation and its planning and implementation. Networking, cooperation among institutions within a destination and destination/nature site brand management are important for the sustainable utilization of nature heritage and their interpretation in tourism. Individual methods of interpretation are briefly described. The most comprehensive part of the publication is chapter four which emphasizes the specifics of interpretation for diverse types of nature heritage. It is complemented with examples of good practice and case studies.

The publication is designed mainly for university students of tourism. It is a basic study material for university subjects focusing on nature heritage and its interpretation in tourism which will be taught at universities involved in the project. Other outputs of the project are follow-up materials to this e-book, such as podcasts and videos which provide additional examples of authentic interpretation in the field and comments of experts from the industry. Another output of the project is a shortened version of the e-book, *The Guidelines (Interpretation of European nature heritage in tourism – guidelines for professionals in the tourism industry)*. Examples of best practice representing inspirational solutions in a wide range of methods are concentrated in the Guidelines.

Authors

A hiker with a red backpack is seen from behind, standing on a dirt path and taking a photo of a massive, rugged mountain range. The mountain has steep, rocky slopes with patches of green grass and small trees. The sky is blue with large, white, fluffy clouds. The foreground is a lush green meadow with yellow wildflowers.

# NATURE HERITAGE OF EUROPE



## 1.1 Introduction

The identification and protection of nature heritage has come a long way. The Mongolian Bogd Khan Uul National Park was established as early as in 1783, so almost 150 years before Europe's oldest national park, Sarek National Park, was created in Sweden in 1909. In a dramatically changing world, with a growing demand for resources, the natural world has come under threat. After several attempts at local level, UNESCO's 1972 Convention for the Protection of the World Cultural and Nature Heritage for the very first time defined what was to be regarded as cultural and nature heritage (UNESCO, 1972). The Convention considers physical and biological natural features, geological formations and natural sites and areas that are of universal value from an aesthetic or scientific point of view as well as habitats of endangered plants or animals or sites with an outstanding value for science, conservation or natural beauty as nature heritage worth protecting (UNESCO, 1972, pp. 153–154).

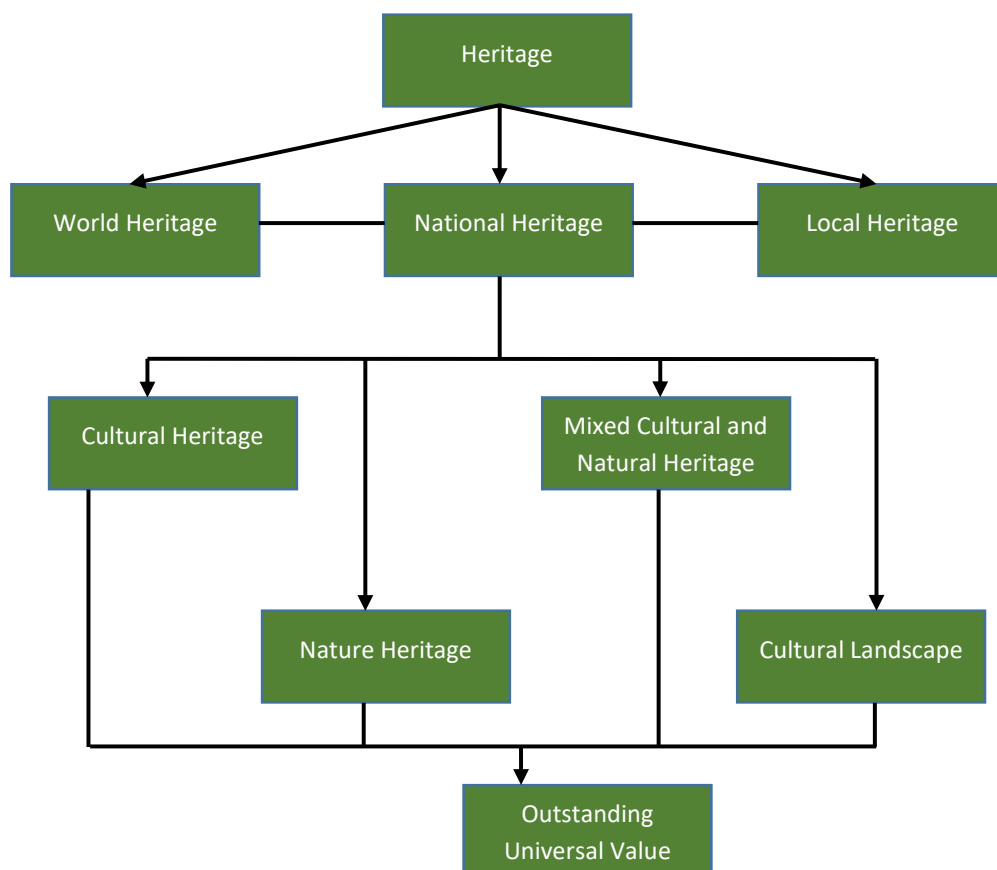
However, just as cultural heritage, nature heritage has increasingly come under pressure since the ratification of the 1972 Convention. While, throughout the centuries, cultural heritage has mainly been threatened by armed conflict, nature heritage has come under pressure by an increasing demand for resources needed by a growing world population. With a sharp rise in global population, this threat has increased tremendously. Another threat comes from the fact that economic growth has led to growing travel activities of the world population since the 1970s (Ghali, 1976). With the economic growth of recent decades especially in the Asia Pacific, nature heritage has come under stress even more.

Tourism has an enormous impact on economic growth, contributing considerably to the gross domestic product (GDP) of many economies (Ivanov & Webster, 2007). Within the tourism industry, cultural and natural sites are important tourism destinations attracting millions of visitors every year. The pull factors of nature heritage destinations are both a curse and blessing – a curse because overtourism, which occurs when there are too many visitors to a particular destination, can seriously endanger nature heritage. At the same time, popular nature heritage sites are a blessing because they can generate significant economic benefits. Preserving nature heritage and raising awareness of their fragility while at the same time promoting sustainable growth opportunities – this approach is at the core of numerous European initiatives.



The 1972 World Heritage Convention distinguishes between cultural and nature heritage. Later, additional categories were added to reflect the numerous interactions between the two categories (“mixed cultural and nature heritage” and “cultural landscapes”; see Figure 1.2a; UNESCO, 2015; Sun, 2010; Wallach, 2005).

**Figure 1.2a | Classification of Heritage from Operational Guidelines**



Source: UNESCO, 2015; Idris et al., 2016, p. 3; Available via license: CC BY-SA 4.0.

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UNESCO defines cultural landscapes as “cultural properties [which] represent the ‘combined works of nature and of man’ designated in Article 1 of the Convention. They are illustrative of the evolution of human society and settlement over time, under the influence of the physical constraints and/or opportunities presented by their natural environment and of successive social, economic and cultural forces, both external and internal” (2015, p. 11).

UNESCO defines sites as mixed cultural and nature heritage “if they satisfy a part or the whole of the definitions of both cultural and nature heritage laid out in Articles 1 and 2 of the Convention” (2015, p. 11).

### 1.2.1 Definition and Classification of Nature Heritage

Nature heritage is defined as follows:

“Nature heritage refers to natural features, geological and physiographical formations and delineated areas that constitute the habitat of threatened species of animals and plants and natural sites of value from the point of view of science, conservation or natural beauty. It includes private and publicly protected natural areas, zoos, aquaria and botanical gardens, natural habitat, marine ecosystems, sanctuaries, reservoirs etc.” (UNESCO Institute for Statistics, 2009)

Article 2 of the UNESCO 1972 World Heritage Convention divides nature heritage into three categories, which are not entirely free of some definitional ambiguities:

1. “[...] natural features consisting of physical and biological formations or groups of such formations, which are of outstanding universal value from the aesthetic or scientific point of view”,
2. “[...] geological and physiographical formations and precisely delineated areas which constitute the habitat of threatened species of animals and plants of outstanding universal value from the point of view of science or conservation”,
3. “[...] natural sites or precisely delineated natural areas of outstanding universal value from the point of view of science, conservation or natural beauty”.

Each of these three categories must be related to science. In addition, the first and third categories also have an aesthetic value (i.e. natural beauty), while the last two categories are also related to conservation, i.e. the protection of animals (Hua, 2010). With regard to the classification and description of different categories of nature heritage, however, this approach remains unclear. Hua (2010) identifies the following categories (but even in this classification system numerous redundancies arise):

1. Geological heritage (i.e., strata with ancient biological fossils).
2. Biological heritage (i.e., habitat of animals and plants; including geological and physiographic formations).
3. Topographical heritage (i.e., natural scenic spots).

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Based on the classification provided by UNESCO, this monograph distinguishes between the following categories of nature heritage:

1. Large-scale protected areas and national parks.
2. Hydrology and balneological resources.
3. Cultural landscape, palace garden, zoos and botanic gardens.
4. Geoparks, coastal landscape and inanimate nature.
5. Small-scale protected areas, regional parks and nature reserves.
6. Island landscape, agricultural landscapes and vineyards.
7. UNESCO sites.
8. Caves and extreme nature heritage.

A more detailed description of each category can be found in the respective chapters.

### 1.2.2 Challenges

In addition to the conceptual challenges, there are also ambiguities in relation to the conservation of nature heritage.

The Policy Learning Platform (Environment and Resource efficiency) of Interreg Europe (2016) pointed out the following challenges to biodiversity and nature heritage protection:

- Access to robust and reliable data: Protection of nature heritage and biodiversity requires reliable data, i.e. for the assessment of human impact.
- Management of Natura 2000 network (cf. 1.3.1): There is an evident need for investments, tools and innovative approaches.
- Assessment of ecosystem services: The assessment of ecosystem services and their values is recognised as a central precondition for strategic planning for biodiversity and nature heritage protection.
- Knowledge gap: Gaps in knowledge regarding ecosystems must be seen as a critical risk factor when it comes to the protection of biodiversity and nature heritage.
- Financing: The allocation of sufficient funds for nature conservation at regional level remains a challenge.

Some of these challenges are addressed in the EU initiatives and EU projects presented below.

## 1.3 SDGs and Protection of Nature Heritage in Europe

In 2015, the Member States of the United Nations adopted the 2030 Agenda for Sustainable Development (United Nations, 2021). Central to this agenda are the 17 Sustainable Development Goals (SDGs), which represent an urgent call for action by all countries (developed and developing) in a global partnership (cf. Figure 1.3a).





**Figure 1.3a | SDGs**



Source: United Nations, 2021.

Within the framework of these goals, the protection of nature (including nature heritage) is also addressed. These include the following (among others; cf. Table 1.3a):

**Table 1.3a | Intersections of SDGs with Nature Heritage Protection**

Target	Intersection with Nature Heritage Protection
 <p><b>11</b> SUSTAINABLE CITIES AND COMMUNITIES</p>	One of the goals is to intensify efforts to protect and preserve the world's cultural and nature heritage (Bundesvereinigung Nachhaltigkeit, 2021a).
 <p><b>12</b> RESPONSIBLE CONSUMPTION AND PRODUCTION</p>	One of the goals is to intensify efforts to protect and preserve the world's cultural and nature heritage (Bundesvereinigung Nachhaltigkeit, 2021a).
 <p><b>14</b> LIFE BELOW WATER</p>	By 2030, marine and coastal ecosystems must be managed and protected in a sustainable way in order to avoid significant adverse impacts (Bundesvereinigung Nachhaltigkeit, 2021c).
 <p><b>15</b> LIFE ON LAND</p>	<p>By 2020, ecosystem and biodiversity values are to be integrated into national and local planning, development processes, poverty reduction strategies and overall accounting systems, among other things (Bundesvereinigung Nachhaltigkeit, 2021d).</p> <p>In Germany, for example, the areas of the National Nature Heritage make a significant contribution to the conservation and development of biological diversity. More precisely, these are former federally owned areas that were exempted from privatisation and instead transferred free of charge to the states, nature conservation organisations or foundations for permanent nature conservation (Federal Ministry for the Environment, Nature Conservation and Nuclear Safety, 2021). On part of the nature heritage, the federal government itself takes over nature conservation tasks. Thus, since 2008, around 156,000 hectares have been secured as National Nature Heritage (Federal Ministry for the Environment, Nature Conservation and Nuclear Safety, 2021).</p>

Source: United Nations, 2021.

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Many of these targets are used at national level as a framework for the implementation of nature heritage conservation measures.

### 1.3.1 EU Initiatives

#### **EuroNatur Foundation**

EuroNatur (European Nature Heritage Foundation) was founded in Germany in 1987. The Foundation aims to promote the conservation of biodiversity in Europe and to protect endangered species and their habitats. Sustainable development (especially in the fields of agriculture and tourism) is to be supported. Further objectives include transboundary cooperation in ecological projects and environmental lobbying, as well as the promotion of ecological awareness (UIA, 2021). The foundation directly addresses SDGs 11, 12, 14 and 15.

#### **Natura 2000 network**

The Natura 2000 network covers about 27,000 sites and about one fifth of the EU's land area and a large part of its marine waters (European Commission, 2018). It allows EU countries to cooperate within a common legal framework to protect threatened species and valuable natural habitats. The network covers not only different ecosystems, but also cultural heritage sites. Natura 2000 offers many opportunities for tourism and recreation in a healthy environment and involving related cultures and lifestyles. Of the 365 World Heritage sites in the EU, almost 20% are located in or directly bordering a Natura 2000 site (European Commission, 2018). The network addresses SDGs 11, 12, 14 and 15.

### 1.3.2 EU Research and Development Projects

Sustainability and nature protection have been gaining more and more importance in recent years. In the most diverse areas of life, attempts are being made to take aspects of sustainability and nature into account. Among other things, nature conservation and nature heritage conservation play a prominent role.

A clear change in tourism has been noted since the global pandemic. While the desire to travel has not decreased, there has been a growing trend towards nature-based tourism. Now, tourism focuses on two aspects: on the one hand, tourists should be encouraged to travel for the direct experience of nature heritage in the long term; on the other hand, tourists should become aware of sustainability issues and the correct handling of nature heritage.

The following subchapter provides a tabular overview of existing research and development programmes at European level on the topic of nature heritage. Table 1.3.2a, pg. 19 provides information on the subject matter and Federation of the respective programmes.

**Table 1.3.2a | Examples of European Research and Development Programs on the Topic of Nature Heritage**

Topic	Federation	Aims	Page
WiNat-Project – Wilderness Nature Heritage (2011)	Federal Ministry of Education and Research (BMBF), Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU)	Implementation of the National Biodiversity Strategy (NBS) & Promotion of natural development of forests.	<a href="https://www.wildnis-naturerbe.de/2750.html">https://www.wildnis-naturerbe.de/2750.html</a>
National Nature Heritage (2005)	The German Federal Agency for Nature Conservation (BfN)	Do not privatise nature conservation areas and transfer them to states, nature conservation organisations or foundations for permanent conservation.	<a href="https://www.bfn.de/themen/nationales-naturerbe.html">https://www.bfn.de/themen/nationales-naturerbe.html</a>
Nature Heritage (2009)	DBU Nature Heritage GmbH	Domestic nature conservation & secure land areas for nature conservation in the long term.	<a href="https://www.dbu.de/naturerbe">https://www.dbu.de/naturerbe</a>
Rural development program (EPLR; 2014–2020)	European Agricultural Fund for Rural Development (ELER)	Promoting the competitiveness of agriculture and forestry;  Ensure sustainable management of natural resources and climate change mitigation measures;  Achieving balanced territorial development of rural economies and communities, including job creation and preservation.	<a href="https://www.smul.sachsen.de/foerderung/entwicklungsprogramm-fuer-den-laendlichen-raum-2014-2020-6277.html">https://www.smul.sachsen.de/foerderung/entwicklungsprogramm-fuer-den-laendlichen-raum-2014-2020-6277.html</a>
Strategies of nature conservation in the cultural landscape (2012)	The German Federal Agency for Nature Conservation (BfN)	Strategies of nature conservation.	<a href="https://www.bfn.de/en/topic/research-programme">https://www.bfn.de/en/topic/research-programme</a>
Research for sustainability – FONA Strategy (2021)	Federal Ministry of Education and Research (BMBF)	Achieving climate goals;  Explore, protect, use habitats and natural resources.	<a href="https://www.fona.de/en/about-fona/research-for-sustainable-development.php">https://www.fona.de/en/about-fona/research-for-sustainable-development.php</a>

Source: Author elaboration.

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### 1.3.3 Awareness-Raising Approaches for Sustainability and Nature Heritage

As the section above has made clear, projects and initiatives are irreplaceable components of nature heritage conservation. However, their impact will be limited unless they promote sustainable individual behaviour.

Interpretive methods related to nature heritage are one way of fostering sustainable behaviours. In this regard, approaches from psychology can be adapted effectively. While climate and environmental protection are frequently discussed (e.g. not only at the political level but also in the context of school education), there is often a gap between sustainability-related awareness and actual behaviour. Under what conditions does an environmentally friendly attitude also lead to environmentally conscious behaviour? With regard to the quality of the prediction (attitude → behaviour), the prognostic validity (or predictive validity) represents a central quality criterion. According to Dorsch (2021), this means that the result of a measurement (here: attitude) should be correlated with an external criterion or characteristics (in this case: behaviour) that lies in the future in accordance with expectations theory.

Some possible approaches from the field of psychology are outlined below (conditions for the likelihood of the transformation from an attitude to behaviour as well as approaches to promote sustainable behaviours).

#### **“TACT” principle (correspondence principle) according to Ajzen & Fishbein (1977):**

The TACT principle states that the more similar attitude and behaviour are in terms of the fit of the following items, the better a behaviour can be predicted from an existing attitude:

- *Target* = Target element: towards which object/goal is the behavior directed?
- *Action* = Action element: What behavior is being investigated?
- *Context* = Context element: In what context is the behavior performed?
- *Time* = Time element: At what point in time is the behavior to be performed?

In order to predict nature-friendly behaviours in a probability-based manner, such as whether public transport is used instead of renting a car during a tourist trip, it is better to ask to what extent public transport is generally seen as a way to protect the environment, how important this attitude is to the respective person and whether the person also plans to exhibit this behaviour during a trip – compared to asking about a generally environmentally-friendly attitude (e.g. “Is environmental protection important to you?”). This is how the prognostic validity can be increased.

If we want to measure the impact of an interpretation method on the promotion of sustainable behaviours, the TACT principle should be applied to be able to measure effectiveness as well.

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## Interindividual differences

People differ in the extent to which an attitude is directly translated into behaviour. In the area of self-monitoring, two stable tendencies are distinguished (Snyder, 1979):

- Low tendency towards self-monitoring: especially orientation of one's own behaviour within social situations towards one's own feelings, dispositions and attitudes.
- High tendency to self-monitoring: mainly demands of the situation and predicted reactions of corresponding interaction partners.

The transformation of environmentally friendly attitudes into environmentally friendly behaviour is more immediate for people with a low tendency towards self-monitoring. Individuals with a strong tendency to self-monitoring often base their behaviour in social situations on the behaviour of others. This means that if these individuals are surrounded by others who behave in an environmentally friendly way, the likelihood that they will do the same increases. However, if these individuals are surrounded by people who behave in an environmentally harmful way, the likelihood of exhibiting a similar behaviour also increases. Predictions based on pro-environmental attitudes are difficult in this case (low prognostic validity).

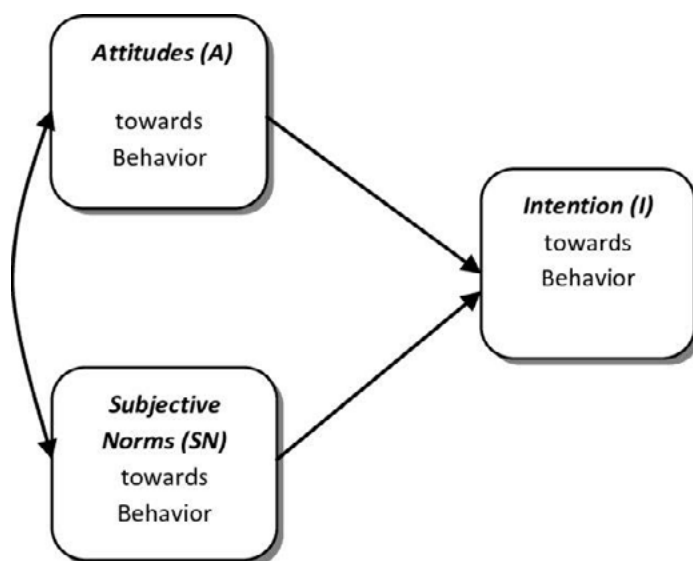
If we wish to measure the effectiveness of our interpretation methods on increasing sustainable behaviours, we have to consider inter-individual differences. For individuals with a low tendency towards self-monitoring, predictions are easier.

If attitudes towards a particular behaviour are an integral part of a person's self-schema, then attitudinally consistent behaviour is more likely to be exhibited (Sheeran & Orbell, 2000). If an environmentally friendly attitude is a central component of a person's identity or if a person even defines themselves in terms of a social identity, environmentally friendly attitudes can be internalised and become action-guiding as a central aspect of one's own identity – regardless of the reaction of the immediate environment or reinforcement processes. In these cases, the predictive validity is increased.

## Theory of Reasoned Action (Ajzen & Fishbein, 1980)

Human behaviour is not only influenced by person-specific attitudes but also by social factors (e.g. perceived expectations of significant others, norms).

**Figure 1.3.3a | Theory of Reasoned Action**



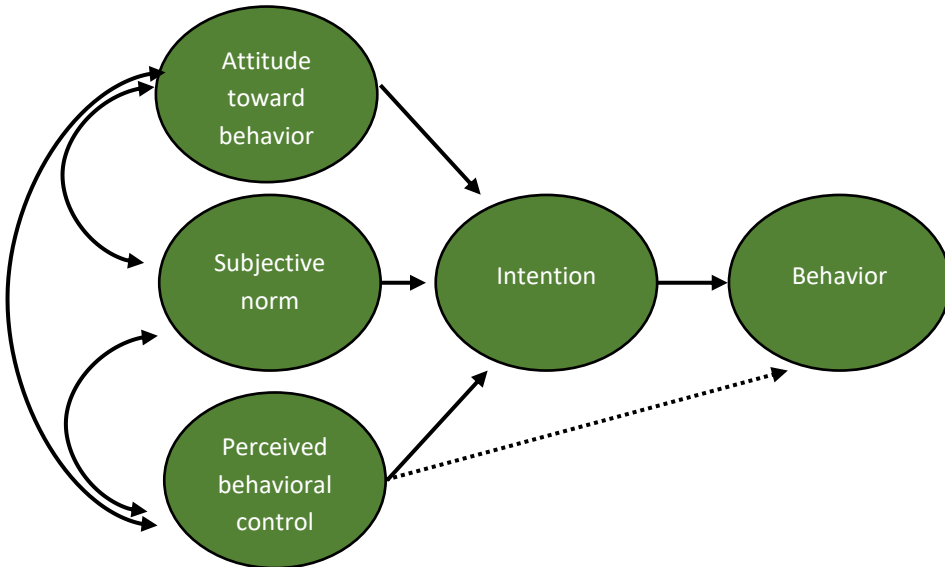
Source: Ajzen & Fishbein, 1980; quoted after Özer & Yilmaz, 2010, p. 52.

The attitude towards a certain behaviour consists of the individual assessment of the probability of expectation multiplied by the assessed value of the behavioural consequences ( $\sum (\text{expectation} \times \text{value})$ ). Subjective norm refers to the perceived subjective norms of significant others regarding behaviour and the person's motivation to comply with them (Ajzen & Fishbein, 1980). For example, not only does an environmentally friendly attitude favour environmentally friendly behaviours, but also the opinion of important others (e.g. role models, parents, friends) regarding these behaviours, whether they are actually shown.

Likewise, the perception and value of sustainable behaviour from the perspective of people important to us (parents, friends, partners, etc.) influences our own behaviour.

## Theory of Planned Behavior (Ajzen & Madden, 1986)

Figure 1.3.3b | Theory of Planned Behavior



Source: Ajzen & Madden, 1986; quoted after Helgeson, Dietz & Chabay, 2014, p. 12.

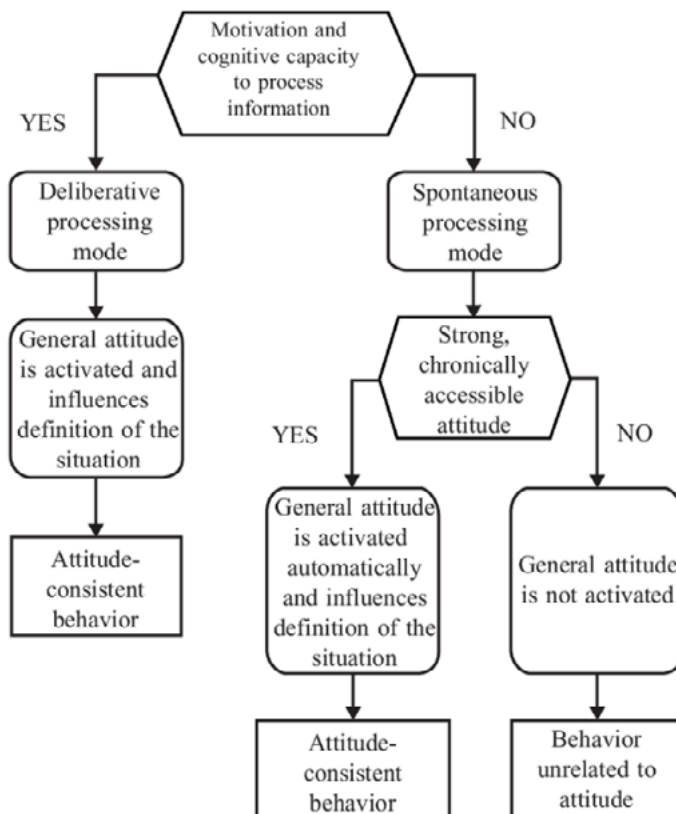
This model (Figure 1.3.3b) was developed from the earlier reasoned action model, extending it to include the component of perceived behavioural control. This is the perception that a person has the necessary skills and resources to perform a certain behaviour. Even if a person has a pro-environmental attitude and receives recognition from significant others, this person is only slightly likely to engage in pro-environmental behaviour if they feel that they lack the necessary skills or resources. For example, participation in a sustainability demonstration or congress may be unlikely simply because there is no babysitter available to look after one's children or a journey cannot be undertaken because of physical limitations. Similar examples can be found with regard to tourist trips.

Likewise, a person needs to be convinced that they are capable of implementing sustainable behaviours.

## Alternative models

- *Repetitive behaviour*: Routine behaviours through automated processes that are especially significant in predicting everyday routines (Quellette & Wood, 1997). Once a routine has been formed and automatised, e.g. acknowledgements from the person's social environment are no longer necessary. The person shows environmentally friendly behaviour below the level of awareness in an automated way, without having to be reinforced, for example.
- *MODE model* (Motivation and Opportunity as Determinants of Behavior; Fazio, 1990; cf. Figure 1.3.3c): If there is sufficient motivation and cognitive capacity to consciously weigh the alternatives in a decision-making situation, it is likely that an existing attitude will be used. If, on the other hand, the resources and motivation for further processing are low, automated processing will occur. In this example, an attitude only comes into play if it has sufficient availability. If there is a strong association between attitude and attitude object (i.e. one of the decision alternatives), then the corresponding evaluation is automatically activated by the appearance of the attitude object, and this activated attitude influences the perception, so that a corresponding behaviour will follow.

Figure 1.3.3c | MODE-Modell



Source: Motivation and Opportunity as Determinants of Behavior; Fazio, 1990.

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While the previous explanations identify recommendations for action that should be considered in the promotion of sustainable behavior and the evaluation of methods used, the following list presents important “set screws” for the promotion of sustainability that should be considered in interpretation methods. Concrete examples for the implementation of the aspects mentioned are provided in Chapter 4 (e.g. case study of zoological garden).

## **Social incentives**

People feel the need to compare and compete with others. We need to model the behaviour of others in order to develop a standard of comparison for our own behaviour. It is precisely in these situations that areas of the brain that are also linked to emotional centres become active and can thus also support behavioural changes (cf. Greve, 2018). The importance of social norms was highlighted in the “Towel study” (Goldstein, Cialdini & Griskevicius, 2008). In contrast to the appeals that are sometimes used to encourage guests to reuse their towels, Goldstein et al. (2008) found that the application of the reciprocity norm (cf. “WE’RE DOING OUR PART FOR THE ENVIRONMENT. CAN WE COUNT ON YOU?”, Goldstein, Griskevicius & Cialdini, 2007, p. 147) and the descriptive norm (cf. “JOIN YOUR FELLOW GUESTS IN HELPING TO SAVE THE ENVIRONMENT. Almost 75% of guests who are asked to participate in our new resource savings program do help by using their towels more than once. You can join your fellow guests in this program to help save the environment by reusing your towels during your stay”, Goldstein et al., 2007, p. 148) for “green” practices improved the participation of guests in a hotel’s towel reuse programme.

These results can also be transferred to other areas of tourism in order to foster sustainable behaviours. If certain behaviours are to be encouraged, it is important to model the behaviours of others.

## **Immediate rewards**

We value rewards that we receive immediately more highly than rewards that we might receive at some point in the future. So, what happens if we reward people now for actions that have a positive long-term impact on sustainability? Feedback on demonstrated behaviours is essential if we wish to register a rewarding effect of one’s own behaviour (Seel, 2012). Through the repetition of these contingency plans, this registration is no longer necessary after a certain point, as habits or routines have developed (Dorsch, 2021).

## **Process monitoring**

The brain processes positive information “more efficiently” than negative information (Bodenmüller, 2021). If we wish to change behaviours in a sustainable way, positive consequences should follow (cf. Japanese Cool Biz campaign, which emphasizes the benefits of casual work clothes and does not refer to the environmental impact of the use of air conditioning in the workplace; European Commission, 2014).

### 1.3.4 Further reading

<https://whc.unesco.org/en/natural-world-heritage/>  
[https://ec.europa.eu/environment/nature/natura2000/management/links\\_natural\\_cultural\\_heritage\\_en.htm](https://ec.europa.eu/environment/nature/natura2000/management/links_natural_cultural_heritage_en.htm)

### 1.3.5 Questions

1. How can nature heritage be classified?
2. To what extent do intersections exist between natural and cultural heritage?
3. How can sustainable behavior be promoted? Transfer the approaches mentioned to behavior in the context of tourism.

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An aerial photograph of a person walking along a sandy beach. The person is small in the frame, leaving a trail of footprints in the sand. The ocean waves are breaking against the shore, creating white foam. The sky is a warm, orange-brown color, suggesting a sunset or sunrise. The overall scene is serene and natural.

# NATURE HERITAGE IN TOURISM



## 2.1 Introduction

During recent decades, as a consequence of increasing interest by researchers and international institutions in the sustainable development of natural and cultural tourism resources, nature-based tourism has undergone tremendous growth. However, an important aspect which contributes to the vulnerability of this type of tourism is the difficulty or even the impossibility of maintaining natural resources in their optimum condition once they have been impacted upon by human intervention or exploited over a certain point. This demonstrates the need for a sustainable tourism development plan in natural areas. Cultural anthropogenic tourism resources, on the contrary, seems to be more flexible, and can be, theoretically, reinvigorated by specialists' intervention to either rebuild or prevent the decay of sites and specific objects, etc. affected by various tourism phenomena.

Natural resources, which can be capitalized on through tourism, are extremely valuable for numerous emerging markets, who may use them to successfully participate in the highly competitive international tourism market, where traditionally developed countries have been drawing most tourists and revenues due to more adequate infrastructure development, skilled labour forces, and the constant innovations they introduce and implement.

Nature-based tourism stimulates a particular type of action by people motivated by the wish to enjoy wildlife or remote natural areas or simply discover areas untouched by civilization (World Bank, 2017). In a study carried out in Spain, the authors (Carrascosa-López, Carvache-Franco, Mondéjar-Jiménez, 2021) show that the motivations of tourists travelling to natural parks were very much related to self-development, escape from routine, experience of nature, and general entertainment. The nature-based motivation is related to the need to appreciate nature, to get closer to it, to explore the unknown and to enjoy new experiences. The motivations of those who engage in such activity are influenced by a series of factors related to modern lifestyles, massive urbanization, overcrowding and sense of overload, and consequent limits on ability to contact with nature. 55% of the world population currently lives in urban areas and studies indicate that 68% will do so by 2050 (UN, 2018). Therefore, there is an increasing wish to escape the stress of daily urban life and to find a sense of peace and beauty in the unknown paths and scenery provided by nature, a privilege which is rather absent in urban areas. In remote natural areas, visitors can understand nature and its extraordinary millennial self-perpetuation mechanism, they can meditate on humanity's

role and purpose in the wider sense of the natural world. It is through nature that people can get a glimpse into wild animals' life, an experience which will make them feel respectful, and create a sense of togetherness and empathy towards animals' need to survive and thrive in their habitat.

The challenge for this type of tourism is related to tolerability thresholds, more commonly known as carrying capacity, which means the number of tourists who can visit a tourism area without affecting the natural environment. A high level of tourism frequency can cause the degradation of natural environment to irreversible levels, requiring the same type of management as that provided in museums and art galleries, where tourist flow is calibrated and controlled so that there are no disturbances of environmental conditions.



Tourism, which, in recent decades, has become the world's third largest export category (OMT, 2020), brings benefits to all stakeholders. It contributes to economic growth, which is reflected in the world, national, regional or local GDP, whereby tourism contributes to wealth creation and social development. Moreover, by contributing to the increase in general indicators measuring the level of wealth and development, tourism provides a way for countries to use their resources in new ways to improve people's wellbeing. Due to its significant contribution to countries balance of payments, tourism was first acknowledged as a factor which stimulates international trade, leads to infrastructure development and supports low-income economies (World Bank, 2017). Therefore, given the quality of the natural and anthropic resources of rural or remote areas, which can be at risk as a consequence of large-scale human intervention and where the development and operation of industries is either difficult or unwanted, the tourism industry can be a source of sustainable economic growth. Consequently, tourism-generated employment becomes essential for the local population wishing to work in the field or to perform, on their own, activities required by the tourists visiting the area. Indirectly, nature-based tourism is sometimes the only chance to improve infrastructure and standards of living, to repopulate otherwise depleted areas due to a lack of other economic prospects, as well as being a way to protect the natural environment and to help people become aware of the need to reduce the effects of their activities on their cultural and nature heritage, which are all significant sources of revenue for the whole community.



## 2.2 Nature-Based Tourism

Attracting a significant number of tourists worldwide, nature-based tourism is an inherent part of the tourism industry. Urban lifestyles, modern facilities and overall comfort levels provided by improved standards of living have a side effect of estranging many people from nature. Globalization and technology have led to a reduction in seasonality, where fruit and vegetable production and supply is no longer dependent on seasons. Under these circumstances, the return to nature may be regarded as a rebound to “a land of hope and simplicity” and a return to the arms of Mother Nature.

Specialists’ opinions are divided between defining nature-based tourism as a concept per se and there is widespread use of various complementary forms to describe it: eco-tourism, sustainable tourism, adventure tourism, alternative tourism, outdoor activities, eco-travelling, etc.

Starting from these premises, nature-based activities may be defined as “travelling to relatively undisturbed and uncontaminated areas with the specific aim to study, admire and enjoy the scenery, plants and wild animals as well as any cultural manifestation existing in those areas” (Luzar, 1995), or as “natural environment-based forms of leisure including numerous activities, from sitting under a tree to hiking in the wild” (Naidoo et al, 2011).

Nature tourism, also called nature-based tourism, can be explained as the pleasure of enjoying natural areas and observing nature (Lucas, 1984), or more elaborately as “tourism based on the natural attractions of an area (consisting) of responsible travel to experience natural areas and their landscape, flora and fauna, protecting the environment and improving the quality of life of locals” (CBI, 2020).

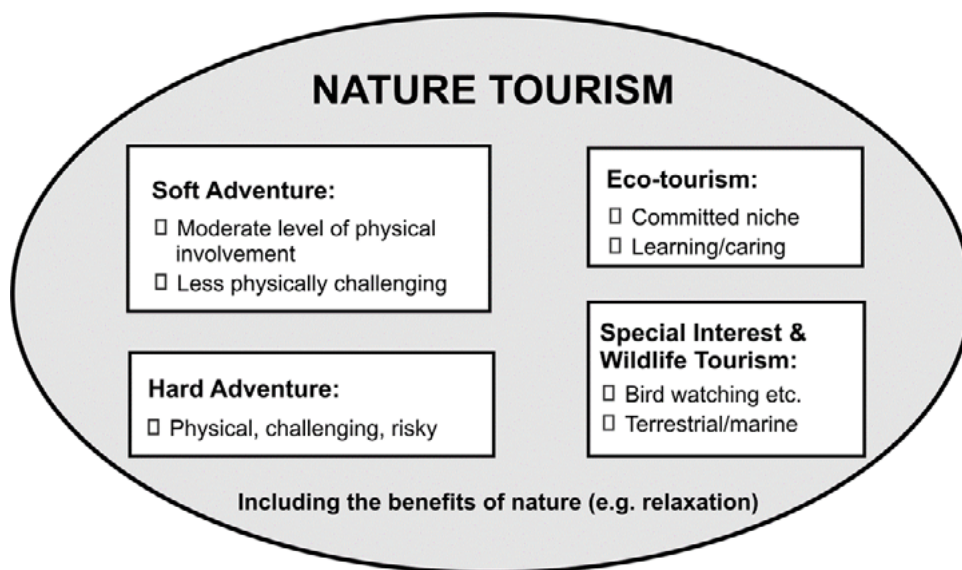
Another set of definitions focus on nature’s attractions, i.e. “tourist attractions which are the heart and soul of the industry; these are the motivations which make people undertake a journey in the first place” (Swarbrooke, 2000).

Laarman and Durst (1987) define natural-based tourism attractions (NBTA) as tourist activities combining three specific elements- education, leisure, and adventure. Valentine (1992) also includes the leisure component in his definition and states that NBTA is primarily concerned with the direct pleasure provided by a relatively undisturbed natural phenomenon. He suggests that there are three types of activities that should be included: nature-dependent activities, nature-improved activities and activities on which the impact of nature is only incidental. For example, bird watching is a nature-dependent

activity while forest camping is a nature-improved activity, whereas swimming and picnics are only incidentally nature-dependent activities.

Tourism New South Wales identifies four main categories in nature tourism, which are presented in Figure 2.2a.

**Figure 2.2a | Four Main Categories in Nature Tourism**



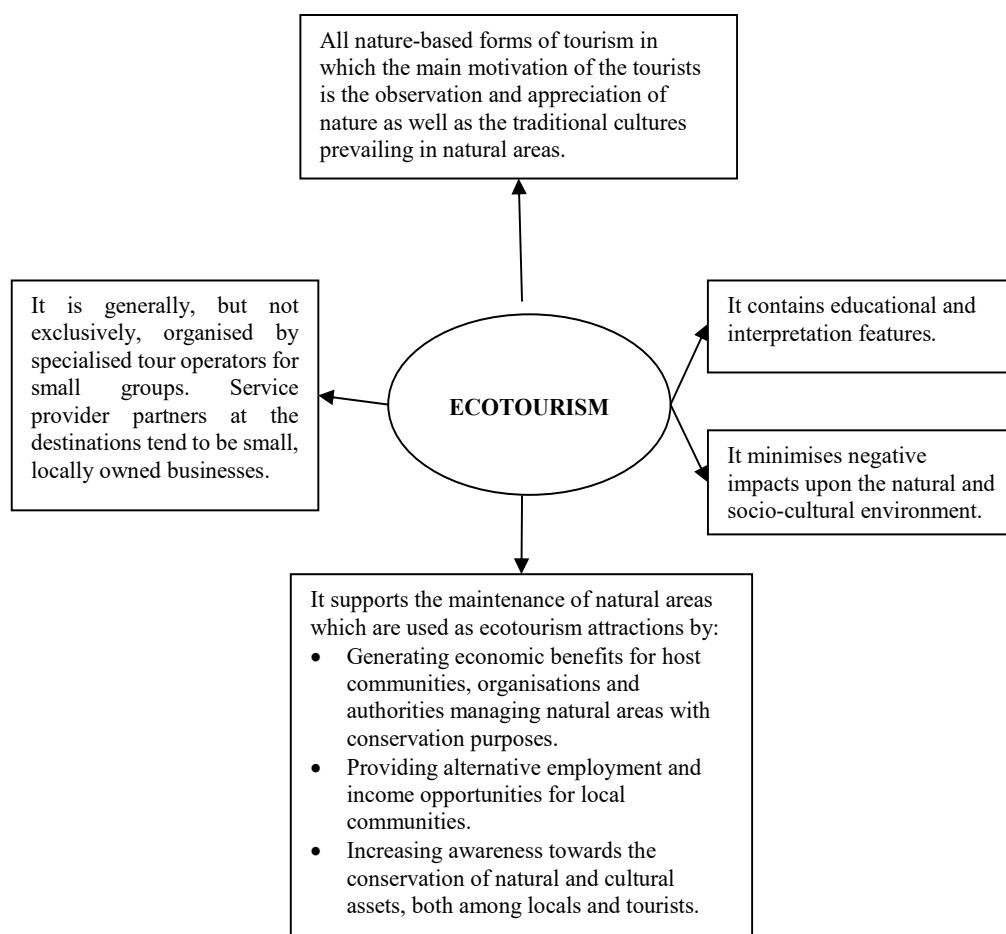
Source: Tourism New South Wales, as cited in CBI, 2020.

In many cases, nature-based tourism is understood as eco-tourism, and there are numerous definitions and explanations for what eco-tourism can actually mean (Yanju Luo, Jinyang & Deng, 2008). Irrespective of the way eco-tourism is conceptualized or perceived, there is currently common agreement on the fact that eco-tourism should be nature-based, that it should focus on learning and education and that it should be managed in a sustainable manner.

The Global Eco-tourism Network (2016) describes eco-tourism as "responsible travel" to natural areas that conserves the environment, sustains the well-being of the local people, and creates knowledge and understanding through interpretation and education of all involved: "visitors, staff and the visited" (<https://www.globalecotourismnetwork.org/definition-and-key-concepts/>).

UNWTO clarifies the eco-tourism concept by providing a definition including the impact it generates (see Figure 2.2b, pg. 34).

**Figure 2.2b | Eco-Tourism: Definition, Characteristics and Impact**



Source: UNWTO, 2002, as cited in UNWTO, 2022.

However, eco-tourism may also be regarded from a different perspective, as one of the main drivers of the increasing tourist demand for nature-based tourism. More precisely, we refer to what is commonly acknowledged as the "environmental movement" (Lee, 1997) or, in other words, "ecologism" (Fennell, 2003), i.e. increased awareness of environmental problems: global warming, ozone depletion, contamination with pesticides, overpopulation, deforestation of rainforests, etc. Additionally, more careful attention, supported by numerous studies and analysis reports, has been paid by the mass media to these issues. Some ecological disasters, either caused by human intervention or natural phenomena, have also drawn public attention to environmental problems. The bottom line is that all these factors have drawn public attention and have consequently pushed both governments and supra- governmental regional or international organizations to include the natural environment and nature-related issues on their agendas.



## 2.3 Nature Tourism Demand

Changing habits, a concern for climate impacts, a refocus on local cultural heritage has led to sustained growth in local tourism. Added to these factors was the COVID-19 pandemic, which created situations whereby people were obliged to spend their daily lives in their municipal territory under quarantine conditions. Images abounded of local parks and squares filled with people during sunny or warmer day, or when the land is covered with snow – families gather to ski down the nearest hills. By living in limited conditions, people have come to value every local corner of nature even more.

**The demand for nature and eco-tourism is high and will continue to grow –** According to CBI (2020), nature and eco-tourism are one of the main tourism segments, which also includes adventure tourism. The products and services in this segment come in many forms, including wilderness and dark sky tourism. Attracting tourists to remote areas may disrupt their remoteness but may also offer many opportunities if practices are adopted that care for and respect nature. For some years now tourists have become more aware of leaving a positive impact on the destinations that they visit. According to the UK's Travel Foundation, 75% of British travellers wanted a more responsible vacation in 2012. Forum for the Futures, also in 2012, estimated that 66% of travellers wanted an easier way to identify a green holiday. In a 2018 Booking.com survey, 87% of global travellers said they wanted to travel sustainably. Euronews even suggests that there is an ecotravel boom in Europe. At the country level, Germany, France, the Netherlands, Belgium, Poland and the Czech Republic have the highest share of outbound trips with nature as the primary motive (CBI, 2020). These six countries are considered the most relevant nature and eco-tourism markets in Europe, with Germany in particular standing out from the rest (see Table 2.3a, pg. 36).

**Table 2.3a | Top European Nature and Eco-tourism Markets**

	Outbound overnight trips 2018, in millions	Percentage of holidaymakers who see nature as a primary motive for choosing a holiday destination	Indication of number of outbound overnight trips with nature as a primary motive, in millions
Germany	109.0	15%	16.35
France	53.3	14%	7.46
Netherlands	20.8	25%	5.20
Belgium	13.1	19%	2.49
Poland	12.0	19%	2.28
Czech Republic	7.4	26%	1.92

Sources: Statista, Eurobarometer 432.

In the tourism business, as Stukalo et al. (2018) notice, natural resources are intensively used and consumed, and tourism directly influences the environment, the ecosystem, the economy, society and culture. According to Welling et al. (2020) potential shifts in tourism demand can be abated by the implementation of adaptation measures that are in line with visitor segments' behaviour. Therefore, for example, as Welling et al (2020) notice, to facilitate future glacier visitation, decision-makers and practitioners should continually consider sustainability, and thus incorporate visitor segment differences into their planning, education, communication efforts, and product development.

**Tourism needs Nature** – Spalding et al. (2021) notice that the importance of nature to the tourism industry is often under-estimated, due to an overly narrow view of its role in direct nature-based activities, whereas in reality, these are only a part of the value that nature provides. Many tourists are drawn by the presence or the benefits of nature, without choosing to specifically visit a developed nature resource such as a park or an animal reserve. They argue that tourism needs nature, and that it is critical to develop a holistic valuation of “nature-dependent tourism”, comprising all tourism that has some link to, and dependency on, nature and natural ecosystems.

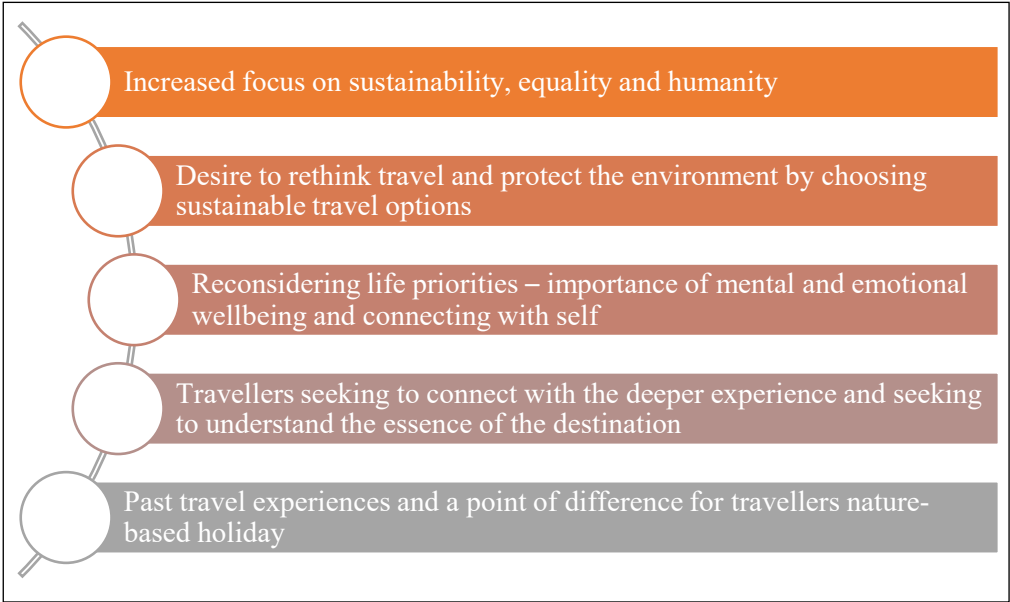
**Sensitivity and Nature tourism** – Woyo (2021) argues that tourism is a sensitive industry, especially prone to disasters and crises. Domestic tourism is perceived as recovering more quickly after social or economic crisis, compared to international travel. However, for this to happen, there is a need to increase accessibility to domestic attractions. Woyo (2021) notices that future studies must also review pre-COVID and post-COVID challenges in promoting domestic tourism as this will provide destinations with an analytical framework that could help develop sustainable recovery processes and resilience building strategies for the industry.

**Nature tourism in the post-COVID world** – In a post-COVID world, as Spalding et al. (2021) notice, changes to travel and tourism are inevitable and will likely be driven by a combination of consumer choice, destination availability and regulatory change. While traveller numbers are likely to be strongly affected initially, natural attraction are likely to exert a stronger pull than before, with travellers and tourists seeking to avoid crowds and polluted cities. Although tourism expansion and growth have inflicted considerable damage on many parts of the natural world, a growing understanding of the importance of nature to many aspects of tourism has begun to alter this narrative. Liisa Tyrväinen, research professor from the Natural Resources Institute Finland (2020) argues that the coronavirus pandemic has had a significant short-term impact on nature-based tourism. International demand dropped considerably, and the increase in domestic demand could not fully compensate for lost sales. The recovery has been affected by restrictions on mobility and travel, as well as health management, that are particularly reflected in the opportunities and willingness of international travellers to travel. Therefore, the development of new business models is the key. Focus should be placed on the utilization of domestic demand for nature-based tourism, exploiting the opportunities offered by virtual travel and other digital services, and the development of services customized for different target groups, such as remote working, social welfare programmes, and healthcare services.



**Truly holistic valuation of “nature-dependent tourism”** – According to Spalding et al. (2021), there is now an even greater need to develop a truly holistic valuation of “nature-dependent tourism”, comprising all tourism that has some link to, and dependency on, nature and natural ecosystems. As Sharma et al. (2021) point out, in the aftermath of COVID-19 the tourism industry is bound to be reorganized based on actual planning and not just ad-hoc incremental progress. The industry needs to be oriented toward education, environmental and social justice, and racial healing. The industry’s service providers need to be encouraged to push a new demand by changing their unsustainable product offers. Thus, the possible increase in nature tourism demand can be seen in the following ways (see Figure 2.3a).

**Figure 2.3a | Suggested Elements of Increased Demand on Nature Tourism**



Source: Adapted from World Travel and Tourism Council, 2019, p. 2.



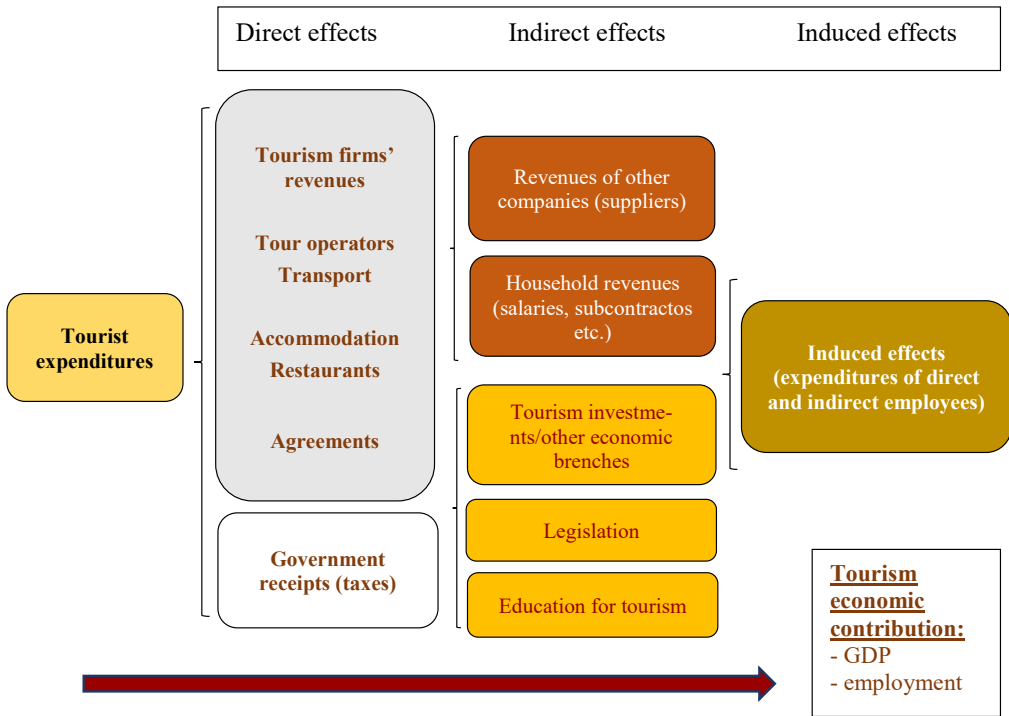
## 2.4 The Economic Benefits of Nature-Based Tourism

Achieving sustainability in tourism implies the development of some tourism forms able to contribute to the preservation of the natural environment and biodiversity as essential resources for present and future generations as well as for the fair distribution of tourism-sourced benefits (social aspect). Local communities in different areas are invited to participate in this common effort by establishing protected natural areas and by using tourism to capitalize on the beauty and uniqueness of nature particularly by attracting tourists. The benefits resulting from nature-based tourism can be of an economic, social, cultural, and natural nature. While social benefits are related to improving the standards of living by appropriately developing the area, by providing access to education, by repositioning the individual in relation to society as a whole, by reducing migration, etc., cultural benefits are related to adopting a modern lifestyle, to enjoying the feeling of belonging to a community, building a new entrepreneurial spirit, connecting with tourists from all over the world, and to cultural development in general. In addition, the environment will also benefit from a higher degree of awareness and involvement from decision makers, community, companies, and tourists who will all focus their efforts on ensuring the area's natural resources' continuity as well as a clean and attractive surrounding environment, offering access to beauty and wildlife. The economic benefits resulting from creating tourist products based on an area's natural resources may also be considerable, and of particular interest for governments, communities, and the business community.

This type of tourism became an almost unique chance for less-developed economies to develop their markets and to improve local communities' welfare, by using their wildlife and natural areas as tourism potential. The social responsibility of nature-based tourism can contribute to a sustainable tourism development and to the communities' overall wellbeing.

The main economic benefits resulting from tourism and nature-based tourism (see Figure 2.4a, pg. 40) are reflected in the GDP growth of the areas/ regions/ countries they are developed in and are reflected in the employment rate as a consequence of the revenues generated by tourists' consumption of products and services at the destination. This includes, but is not limited to, spending on goods and services on route to a destination, accommodation and meals, entertainment, insurance, medical services and facilities, which is all further reflected in supplier companies' revenues.

**Figure 2.4a | Economic Impact of Tourism**



Source: Adapted from World Travel and Tourism Council, 2019, p. 2.

Moreover, tourists' expenditures are reflected in the tax take and excise duties that local and national governmental authorities collect. In a multiplying effect, tourist companies' higher revenues trigger growing revenues in other tourism-related industries, such as equipment and raw materials suppliers of the companies in the field, sub-contractors and other related activities, such as education or tourism legislation, etc. The effects, both direct and indirect, determined by tourist expenditures are identified in the incomes of the people employed in tourism (e.g., the expenditures of some employees in institutions focused on training tourist guides or interpreters in the nature heritage field).

Another direct effect of tourism development in a certain area is job creation, particularly in the case of employees who deal directly with tourists (transportation, accommodation, meals, souvenirs, other products and services bought by tourists during their journey); among those that contribute indirectly to tourism support, i.e. other industries that provide tourists with products and services such as agriculture, forestry, equipment for the study of marine species at the destination, etc. In the specialized literature, other employment opportunities determined by tourism development are identified as induced, i.e. created as a result of the tourism employees' consumption.

## Methods of evaluation of nature-based tourism’s economic effects

There are significant difficulties in measuring the impact of tourism, in general, and of nature-based tourism in particular, given how disperse the impact may be in the latter. Therefore, how can the latter’s economic effects be appropriately evaluated, particularly if one considers the limitations which occur in assessing the value of the natural potential involved? There is a series of limitations determined by the lack of relevant data on the number of tourists visiting certain destinations and their expenditures, as well as on the revenues of both tourism companies and local community members in exchange for the services and facilities they provide. (For example, consider for example, calculating the impact of a new museum where one can measure the number of visitors, and assess to some degree of certainty the impact on local hotels and restaurants, with the impact of a new free and unsupervised walking trail in a remote area, which people might visit but not book a hotel nearby, or visit but eat far from the trail, all of which complicate assessment of its environment and economic impact). BIO Intelligence Service classifies these limitations as illustrated in the table below (Table 2.4a).

**Table 2.4a | The Main Methods of Tourism Economic Effects Evaluation**

Main types of methods	Description
<b>1. Tourism Satellite Account</b>  Oxford Methodology	Implemented by most countries.  Allows estimation of direct impact.  Direct and indirect impact of tourism at the regional and national level is calculated.
<b>2. Multiplier models</b>  2.1. Keynesian Models  2.2. Input-Output Models	Access to data which enables comparisons between various regions and countries.  Direct and indirect impact can be determined.  Data available at the European level.

Source: BIO Intelligence Service, 2010, p. 42.

The methodology developed through the Tourism Satellite Account may be a starting point for measuring its economic effects. According to this methodology, developed by UNESCO experts in cooperation with Eurostat and other international organizations, tourism demand is assimilated to tourist consumption, defined as total visitor expenditure (payment in kind or in cash) for and before the journey outside their ordinary environment with the purpose of buying goods or services for their own use or to be offered as a gift (UNWTO, 2008). This includes travel, transportation, accommodation, meals, entertainment, payments in kind and in cash, second residence, accommodation at relatives and friends, as well as subsidies offered to tourists for park entrance, for example, or other services, in accordance to clearly set rules. However,

government spending on infrastructure, education, legislation, etc. is not included and remains within governmental consumption.

The tourism offer is evaluated based on the volume of activities performed by the businesses providing tourism specific goods and services (designed exclusively for tourist consumption) and non-characteristic goods (such as newspapers, magazines, and daily consumer products if bought during the journey).



In line with the methodology developed through the Tourism Satellite Account, the tourism added to GDP is calculated by using aggregate data on the tourism demand and offer,

so as to express the superior economic results generated by the combination of all production factors (capital, labour, technology) on the difference between intermediary outputs and consumption.

Another indicator used to highlight the contribution of tourism to the economy is the one resulting from gross capital investments comprising capital goods purchased by the companies involved in providing any part of the tourism offer. Another calculated economic effect is tourism employment, an indicator illustrating employment in percentages, i.e. the total employment created by companies providing products and services to support the tourism activity.

With some additions, the World Travel and Tourism Council uses the same methodology to measure tourism's direct, indirect, and induced effects on the economy. National statistics, administrative organizations' databases (taxes, salaries, etc.), household data, studies on visitors, all constitute data sources.

Another methodology is the one known as *input-output*. To assess the economic benefits of tourism, the direct, indirect and induced effects that tourists' expenditure generate in every economic sector are evaluated. The above-mentioned methodology is focused on the visitors' expenditure on goods and services generating local level revenues (e.g., boat rental, accommodation, meals, other services) which, in turn, produce additional local level revenue which further contributes to job creation and other revenues at the local and even regional level. It is thus considered that the tourism and leisure industries produce market benefits in the economy. The evaluation of these benefits is most often carried out based on tourists' expenditure at local and regional level sites and on assessing their direct and indirect effects on the value chain in the economy. Also, visitors' recreational benefits, human perception and experiences (the pleasure of enjoying beautiful scenery, of relaxing outdoors, of finding inspiration in creative activities), which cannot be assessed based on the market price but rather as indirect benefits, i.e., by evaluating the amount a tourist would pay to visit the site, are also taken into account.

Such a methodology, used by the Nature Network Association 2000 – made up of approximately 26, 000 sites – was first implemented at the level of some sites within

the network and then, based on an *input-output* analysis, on a wider scale – at the EU level (BIO Intelligence Service, 2011). It was estimated that, in 2006, the total number of visitors to these sites was between 1.2 and 2.2 million, their expenditure between 50 and 90 million euros, generating an additional revenue of 50–85 million euro and 4.5–8 million equivalent full-time jobs in the region. Moreover, at the Natura 2000 sites, recreational benefits reach between 5 and 9 million euro if the visitors' willingness to pay approximately 4 euro/site visit is considered.

In the above-mentioned study, the total number of jobs created at the Natura 2000 sites in 2006–2008 was evaluated at 12 million full-time equivalent jobs annually, i.e. 6% in the total number of jobs at the EU level. The economic benefits per industry were identified as follows: 3.2 million euro in leisure (26% of total), 1.3 million in agriculture (11%), 200,000 in fishing (2%) and 70,000 in forestry (1%).

#### Figure 2.4b | Findings of the WTTC Wildlife Tourism Impact Report

By using the TSA methodology, WTTC elaborated a report entitled *Wildlife tourism impact* showing that:

- The direct economic contribution of wildlife tourism to world GDP in 2018 was **\$120.1 billion**, or five times the value of the illegal wildlife trade.
- The activities imply visiting and experiencing the natural habitat of various species, which accounts for **4.4% of all direct tourism GDP** in 2018 and directly provided **9.1 million jobs** worldwide.
- Over one-third of all direct tourism GDP across Africa in 2018 was attributed to wildlife (36.3%).
- North America is the third largest wildlife tourism economy after Asia-Pacific and Africa, directly contributing \$13.5 billion to GDP last year.

Source: WTTC Wildlife tourism impact report, 2018.



## 2.5 Nature-Based Tourism Segmentation

Although Nature-based Tourism has experienced an obvious boom in recent years, it is true that the appreciation of nature as an aesthetic and later tourist attraction is not new. In fact, with characteristics similar to those of today, it has its roots at least as far back as the Romantic movement.

Today, a social change is taking place in society's relationship with nature, which can be explained by the evolution of environmental attitudes, the increase in environmental education and the incorporation of environmental information into the mass media. What could be called a New Environmental Paradigm (NEP) (Albrecht et al., 1982) entails a new system of values and beliefs about nature, which includes enormously varied aspects ranging from the proposal of new growth models, the desire to protect ecosystems, some of them in their integrity, and, in general, the search for more harmonious relations between society and the environment.

As a result, new perceptions and demands on this natural space are produced, which, among other aspects, end up taking the form of new demands linked to tourism, recreation and education. This change in tourist demands on nature can be summarized into in four main motivations:

- the search for experiences in and through nature,
- rest and relaxation in natural settings that are considered pleasurable,
- the development of skills and abilities in nature,
- health and fitness.

As Rhodes (2017) mentions, in order to properly understand nature-based tourism it is necessary to consider three relationships that occur between the visitor and the place in which he or she engages in tourism activities. These are relationships IN nature, ON nature and BY nature. Therefore, any activity or form of tourism consumption, in order to be qualified as nature tourism, should be based on experiences IN nature, ON nature and BY nature.

In any case, it should be noted that to a large extent what is found is a gradient of motivations, which in each tourist or at each moment of tourist practice or consumption have different pre-eminence, so that the approach and research can be difficult in these aspects. In accordance with these approaches, the group of geographers coordinated by F. Vera (1997) differentiates the following groups according to their motivations and the relationship they establish with nature, based on various parameters:

- Naturalists and admirers of nature. They seek intimate contact with nature and tend to develop respectful behavior, and whether or not they are researchers and/or professionals, they are very interested in the educational-training aspect of the trip.
- Adventurous mountaineers, who are looking for a challenge and a challenge in nature, with spaces for exploration and intense physical activity, either because of the climatic or orographic difficulty, the scarcity or non-existence of services, etc.
- Informed nature tourists, who are interested in the knowledge of the relief, water, flora, fauna and landscape. They tend to be very well documented about the areas they visit and their trips take place specifically in protected areas in order to understand the history, nature and local culture. However, they are also very likely to travel under highly organized management systems and with a certain level of comfort.
- Campers, who group together a wide spectrum of behaviors, and who may seek in nature only a space and a pleasant setting for their stay and as a framework for their activities that are not directly related to the qualitative component of the environment in which they are located. They tend to demand a large number of comforts.
- Occasional nature tourists. People who participate in nature accidentally, as part of a wider trip, and who dedicate very little time to visiting the natural space. This is generally a group who are mainly looking for spectacular and well-known landscapes, almost what could be called naturalistic clichés, but only from an aesthetic point of view and largely as a form of personal self-recognition.



Evidently, this gradation of motivations IN, ON and BY nature is, unsurprisingly, embodied in an enormous variety of specific and concrete demands as to what one wishes to find in recreational practice, where one wishes to carry out the activities and how recreational tourism consumption is to be organized at the destination.

Generally speaking, the greater the degree of specialization of the tourist, whether it is due to sport-tourism motivations that oblige them to seek out certain elements such as topography or watercourses, or due to their knowledge of nature, they will demand more specialized natural areas from the point of view of resources and adaptation to their

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interests. On the other hand, the more occasional and less informed nature tourist will be guided by less generic criteria, such as spectacularity, social recognition, accessibility or the quality and price of tourist products.

As a result, only the most spectacular, well-known and easily and conveniently accessible resources will gain importance according to the motivations and demands of less specialized tourists; those that have become tourist landmarks and could almost be considered as nature tourism clichés. In turn, the presence of a high number of tourists would only progressively increase the social attraction of these areas, as aspects such as prestige and recognition or the quantity and quality of the services provided would be reinforced.

On the contrary, as interest in nature increases and deeper motivations linked to tourism BY nature are reinforced, actual or potential tourists will make less physical and economic effort to access the place they specifically want to visit and the tourist products they want to consume.

Starting from the definition of Nature Tourism to find clues about segmentation, if one considers the definition of the General Secretariat of Tourism of Spain (Blanco, 2006), it becomes possible to establish a first segmentation of nature tourism according to the main motivation of the tourists themselves.

“Nature-based tourism is a tourism typology whose main motivations are recreational and leisure activities, the interpretation and/or knowledge of nature, with varying degrees of depth and the practice of sporting activities of varying physical intensity and risk, which expressly use natural resources in a specific way, without degrading or exhausting them.”

This definition identifies the 3 main motivations that help to establish a general segmentation for this type of tourism.

### **Tourism in nature: Leisure tourism in nature**

The main group, which has been called tourism IN nature or leisure tourism in nature, and which would include the set of tourist activities that take place in nature, i.e. which use the natural space, but which do not have a specialized motivation (bathing, picnics, passive leisure, vehicle routes through the natural environment). It is, therefore, the largest and most generic group, characterized by motivations such as rest, relaxation, etc. Therefore, leisure tourism in nature is tourism whose main motivation is to carry out recreational and leisure activities in nature without degrading it. These activities are not specialized in knowledge or sporting activities that expressly use natural resources.

### **Nature tourism: Active sports tourism in nature**

The second large group is that which uses certain elements of nature for sporting activities or active tourism, such as mountaineering, climbing, canoeing, trekking and all other sporting and adventure activities. They do not require facilities or the transformation of natural resources; and nature itself, its state and characteristics play an important role as the contact and stay in the natural environment is an important element of the final satisfaction of the tourist. These are activities that can be considered specifically nature

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activities, since they are based on an appreciation of nature, but with an essentially recreational character in which the important thing is the activity itself. Active sports tourism in nature is that which has as its main motivation the carrying out of sports activities of different physical intensity and which expressly use natural resources without degrading them.

### **Nature tourism: Eco-tourism**

Finally, the third and last group to consolidate would be formed by the activities that are most closely related to the environment, given that their main motivation for visiting natural areas is expressly to appreciate and get to know nature and the landscape as a whole, or specific phenomena such as geological manifestations, some type of vegetation, fauna, etc. This is what has recently come to be known as eco-tourism. Eco-tourism is not only a search for more or less intact natural resources, but also involves a double perspective. On the one hand, it is the enjoyment, contemplation and knowledge of these resources that is the primary and main motivation of the tourist trip. However, it is not only that the use should be carried out in a controlled manner so as not to degrade the resources, but also that the tourist activity itself should become the guarantor of their maintenance over time, generating profits that can be partly reinvested in conservation and that allow the sustainability of the local societies that have traditionally been the managers of these areas.



Eco-tourism is that which has as its main motivation the contemplation, enjoyment and/or knowledge of the natural environment, with varying degrees of depth, for which low-intensity physical activities can be carried out without degrading natural resources.

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Other Nature-based tourism groups could be:

**Adventure Tourism:** This type of tourism revolves around the challenging element of nature. It has a close relation with the Adventurous mountaineers, trekking and climbers motivations typology and also includes those activities that implies physical effort but in this particular group it's not just about reaching a goal, score or competing but the overcoming of the experience of being IN nature. It can be extended to a larger and wider variety of activities that not necessarily constitutes any sport and/or game but any challenging situation to the tourist that's provided by nature itself. It also can be divided into: Soft Adventure, which include a moderate level of physical involvement, hence a minor level of challenge; and Hard Adventure which is more physical and riskier.



**Nature-based: Cultural & Rural Tourism:**

Another group of tourists are more interested in visiting historical places or landscapes that has some cultural relevance or meaning and a rich natural surround, just for the sake of the actual experience of being there. This type of tourism includes Rural Tourism which consists of visiting historical small and “Forgotten” towns that remain as traces of the past. This group of Nature-Based Tourism is aimed at a higher level of cultural demands and for tourists who are more interested in knowledge and information.



## 2.6 Overtourism in Natural Areas

Tourism is associated with the processes of globalization, experiencing an uncertain trajectory of growth, and generating and distributing its benefits and costs unevenly. This has to be emphasized, because tourism has for a long time been uncritically perceived as an alternative to heavy industries, as it was considered light, clean, low-impact, and non-consumptive. Solving or mitigating overtourism problems has become a growing concern for destinations, especially for those that need to protect invaluable cultural and natural resources. As Donaldson (2021) points out, overtourism is every traveller's problem, as we also threaten the natural order of ecosystems when we travel: even seemingly small acts, such as straying slightly from designated trails or taking our cars off-road, contribute to this problem. Within major ecosystems, even the smallest of organisms matter because their livelihood is crucial to biodiversity.

Overtourism is by far not a new problem. In 1980, Erschbamer et al. noted that the magazine GEO had raised a critical question: "How many tourists per hectare of beach?", and the concept of "carrying capacity" was discussed, which was subsequently also explored later by various tourism researchers, to shed light upon the maximum destination load. Overtourism describes the situation in which the impact of tourism, at certain times and in certain locations, exceeds physical, ecological, social, economic, psychological, and/or political capacity thresholds (Vagena, 2021). The Cambridge English Dictionary defines overtourism as the situation, when too many people visit a place on holiday, so that the place is spoiled and life is made difficult for the people who live there: Venice and Barcelona are both victims of overtourism, giant cruise ships are a contributing factor when it comes to overtourism. Various authors argue that overtourism is not the same as mass tourism; although the growing number of tourists is the cause of overtourism, some areas are able to cope with large tourist numbers. Overtourism phenomena is more related to perceptible tourism encounters, environmental changes, and violations of human life. In recent years, particularly in Europe, open and critical discussions have started about the desirability of further developing tourism growth perspectives.

### **Overtourism and sensitivity of nature areas**

It is clear that overtourism accelerates and intensifies the distorted link between tourists and nature. Mandić and Marković Vukadin (2021) notice that sustainability in the tourism context relates to planning to operate within carrying capacity (CC)

limits of the destination and its resilience capabilities to avoid a state of overtourism. Venice, Barcelona, Prague or Dubrovnik are usually described as typical destinations suffering from overtourism. However, overtourism with its adverse impacts can now be seen also in nature-based destinations. Tourists elect to visit exceptional places and, of course, protected natural areas are very attractive for them. According to Mandić and Marković Vukadin (2021), as a destination experiences higher intensity of tourism development, the inherent conflict between maintaining a healthy natural environment and economic development also increases. Mandić and Marković Vukadin (2021) notice that the high sensitivity on the underlying phenomenon underlines the necessity of overtourism management in protected natural areas to be a matter of great urgency. However, this should not be considered an easy job. Balancing visitation and conservation through proper planning is a complicated task for protected natural areas managers (Bushell & Bricker, 2017), considering they deal with different elements of integrated tourism products.

### **Overtourism in the context of smartness in nature areas**

It is important to note that smart technologies per se are not a panacea for overtourism problems. According to Gretzel (2021), connectivity is critical for smart technologies, as nature-based destinations typically do not have the necessary infrastructure. However, widespread connectivity might also interfere with nature due to the negative effects of electromagnetic frequencies or might take away from the experience tourists seek from such destinations.



Even when connectivity is possible, other environmental and sustainability issues such as energy consumption or e-waste need to be considered since sustainability concerns stand at the forefront in nature-based destinations. Many assumptions related to smart tourism infrastructure, digital business ecosystems, and tourist behaviour simply do not apply to nature-based destinations. In terms of smart technology implementation, issues range from lack of connectivity encouragement of risky behaviour as in the case of taking selfies with wildlife or at dangerous scenic viewpoints.

### **Overtourism and sustainable tourism contexts in nature areas**

Sustainable tourism is not a special form of tourism; rather, all types of tourism should become more sustainable which requires more controlling and managing the negative effects of the industry. Also, economic development and environmental protection should not be seen as opposing forces. A challenging issue here is eco-tourism, which refers to responsible travel to natural areas that preserve the environment. Eco-tourism yields economic benefits, nevertheless, it can also have unintended negative consequences

for the conservation of wildlife in protected areas, if it is not well managed. (Perkumiene et al., 2020, Pranskūnienė and Perkumienė, 2020). Failure in the management may result in conflicts between the right to travel and the right to reside, between community autonomy and personal freedom, or between regulation and enforcement of locals' rights and the protection of the public interest.

Overtourism is associated with the fact that the rights of travellers, who are tourists moving for entertainment and consumption purposes, are not equivalent to the residents' rights- residents and those people who have changed their place of residence. Thus, there is a need for balancing the right to travel and the residents' rights. Therefore, we should rethink our understanding of nature tourism using a distinctive approach to tourism development (Hall, 2010, Perkumiene and Pranskuniene, 2019) involving nature tourism development as well as community-based tourism, responsible tourism and slow tourism. As overtourism and sustainable tourism as important contexts influence the changing meaning of the right to travel and the right to live on the one hand, the overtourism context influences and make the voices of residents heard more, while on the other hand the sustainable tourism context influences the right to travel, asking tourist actors to become more responsible for the locality. Both of these rights pose a serious threat, not only to conflicts between the right to travel and the right to reside, or between community autonomy and personal freedom, but also to the regulation and enforcement of locals' rights and the protection of the public interest and environment as well. Thus, when discussing the overtourism in nature areas, the right to travel could be understood more broadly, trying to add to the notion of residents – humans and ecological ecosystems (Figure 2.6a).

**Figure 2.6a | Overtourism and Sustainable Tourism in Natural Areas**



Source: Author elaboration.

The ongoing debate on overtourism may result in higher demand for sustainable tourism, including nature and eco-tourism with low impact on destinations. The increased public awareness is also motivating the travel industry to pay more attention to human rights and working conditions (CBI, 2020).

Mitigation of overtourism in protected nature areas can be successful only if all stakeholders are actively involved in the process, understand, and are able to balance the needs of the ecosystems, residents, and visitors.



## 2.7 Sustainability, Economy

### **Limits of Acceptable Change in the Context of Nature Heritage in Tourism**

The importance of the tourism sector in the economy of many countries and its relevance in the global economy is evident. Tourism is one of the largest industries in multiple countries, creating a sustained source of revenue for a destination. However, the impact of this sector can be also negative, and this impact can be seen in the physical environment, and in cultural, social and demographic terms, bearing in mind that this impact logically varies according to the circumstances, number and type of visitors, as well as the characteristics of the place and ecosystem where these activities take place (Martínez Quintana, 2017). The impact on destinations varies depending on the number and nature of tourists and their activities, as well as the inherent characteristics where the tourism activities take place. In the post-COVID era, recovering the business volumes of previous years and planning for future growth are intrinsically related to quality and sustainability goals and creating guidelines, and this fact must be continually kept in mind.

Specifically, if one talks about the ever-growing nature tourism or eco-tourism, it is commonly associated with a type of green-motivated and responsible tourism, where people demand environments of high environmental quality with an offer of new experiences. There is a tendency to commit the error of stating that all eco-tourism and nature tourism activities are carried out according to sustainable tourism criteria, and that potential negative impacts and effects are not issues to be considered (Vera & Acosta, 2017). The management of the growing flows of visitors to these locations poses various problems and conflicts, in which the institutions, entities and companies involved, must become aware and committed, articulating the necessary regulatory and protection plans, without undermining the long-term competitiveness and productivity of the sector.

Focusing on the case of nature or nature heritage, this concept refers to flora, fauna and every aspect of a natural environment. For instance, the inorganic nature of rocks, geologic formations, rivers, lakes, mountains, as well as all the links between these elements that compose the ecosystem. Therefore, the key components could be set into vegetation and wildlife, geology, hydrology and natural phenomena, as well as including the evolution and changes in the ecosystems due to the passing of time and diverse circumstances that arise such as astrological, climate or volcanic events (UNESCO BRESCE, n.a.).

In order to prevent negative outcomes from the economic activity in tourism, and to ensure a sustainable development of the industry, the impacts must be properly identified, measured and evaluated, together with proper risk management, ownership and setting up contingency plans to respond to each of them. In the case of negative environmental impacts, the cause is linked to the activities of the entire industry, and therefore solutions must also be derived from the same parameters.

Several perspectives and tools can be implemented in order to properly analyse the context of sustainability in nature heritage in tourism. One of the approaches, **the resource-based theory**, evaluates the limits of the original conditions of the resources used in tourism. In doing so, it reinforces the relevance of protecting the natural and socio-cultural environment from changes caused by tourism activities.

Mainly focused on the resource-based theory, the limits of the growth and expansion of tourism related to sustainability needs to be considered. The approach, known as tourism carrying capacity (TCC) of destinations, is a very interesting tool to manage visitors

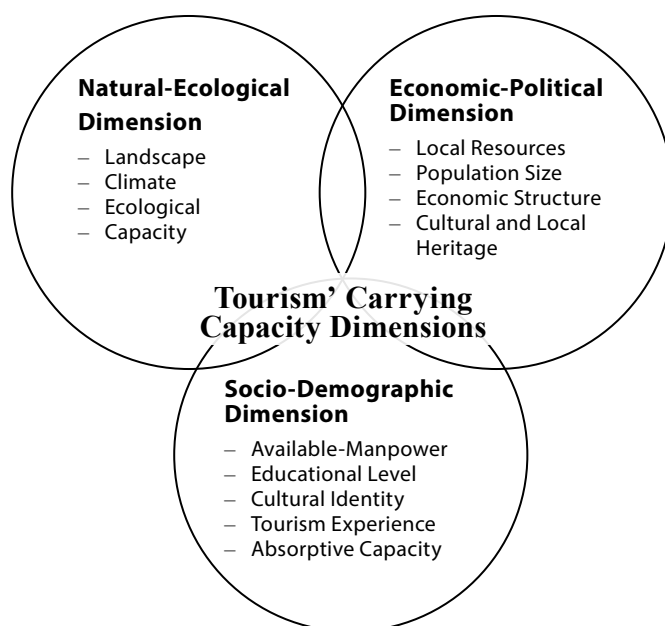
in protected areas and is defined by the United Nations World Tourism Organization UNWTO (1981). The given definition for the term is “*the maximum number of people that may visit a tourist destination at the same time, without causing destruction of the physical, economic, socio-cultural environment and an unacceptable decrease in the quality of visitors’ satisfaction*”. This concept was



originally developed in the fields of range and wildlife management, based on the idea that an organism can survive only within a limited range of physical conditions, this means that the availability of suitable conditions for living determines the organisms that may exist in an environment (Carey, 1993; McCool & Lime 2001).

TCC emerged as an important concept in the last decades of the twentieth century and it presents three main dimensions: physical-ecological, sociodemographic, and political-economic.

**Figure 2.7a | The Three Dimensions of TCC**



Source: Sati, 2018.

TCC defines the level of tolerance between tourist demands and the ecological, cultural, and economic support systems to meet these demands. The ecological dimension is focused on the compatibility among tourism activities and the maintenance and improvement of the ecological balance. The socio-demographic dimension is focused on the match among tourism demands and the culture and the values of the people and, finally, the economic and political terms means that tourism activities must enable a process of development (Sati, 2018).

When considering TCC, these three components acquire diverse weight or importance in different destinations. The differences arise from the characteristics of the place, which provide the basic structure for the development of tourism; the type of tourism, which determines the basic characteristics of tourist behavior; and the tourism/environment interface, which comprises the previous factors, mainly in the form and type of tourism development.

TCC is a multidimensional concept to be considered as a managerial perception in the context of a systemic approach to the given area. Indeed, to obtain a biosphere certification as a sustainable tourism destination, a diagnosis of carrying capacity should be developed. The definition, assessment and implementation of TCC must be considered as a process within a planning process for tourism development, providing both a general framework to guide decisions makers and planners. The framework contains principles, goals, objectives and policy measures regarding tourism development in an area, based on the distinctive characteristics respecting local capacities to sustain tourism (Coccossis et al., 2002).

Another approach focuses on finding a balance between diverse stakeholders, particularly the local communities, who live and thrive in their natural environment. This tradition, called community-based, emphasizes local involvement, control and empowerment in the tourism industry to ensure a sustainable development.

While all three approaches have advantages and disadvantages, they can be used in a complementary manner in order to create a holistic framework. However, there is one common limitation to all these traditions: they focus only on a local scale. This presents a view that does not evaluate the inexorable link between different natural regions and the implications at a global level and, under the evolution in time. Therefore, while a plurality



of approaches is required, there is a need to reframe tourism policy frameworks and rescale the applicability and evaluation of practices to represent sustainability in nature heritage at a realistic level (Saarinen, 2014).

### **The positive impact of tourism**

On the other hand, apart from the overexploitation of destinations, pollution and pressure on ecosystems and local communities, we also find positive tourist impacts on the environment. We could mention creating economic value and local development, generating income that can be reused for conservation objectives, and providing a means to demonstrate and communicate environmental appreciation and awareness to business agents, companies, residents and visitors (Sarraf, 2017).

### **Involvement of the Institutions**

Another positive effect on local areas is the higher involvement of institutions and administrations in the conservation and protection of the environment. We can include in this context, the positive impact generated by several releases: the UNESCO's BRESCE report on sustainable tourism development, and the report prepared in 2019 by the World Tourism Organization (UNWTO) in collaboration with the United Nations Environment Program (UN Environment). This is the first global assessment of sustainable consumption and production (SCP) factors within national tourism policies, with the participation of 101 UNWTO Member States.

All the tourism policies analyzed refer to sustainability as part of their objectives or approaches, and 55% address it as a crosscutting element. At the same time, 67% of the tourism policies refer to the efficient use of resources and 64% relate sustainability to the competitiveness of the sector. It is evident that tourism policymakers are aware of the importance of sustainable consumption and production, although there are few

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references, standards and measures implemented in this respect, and the most used data are those relating to the economic performance of the sector.

In the specific case of Spain, as a world leader in the sector, the government and administrations have formulated the 2030 sustainable tourism strategy, which proposes a socio-economic tourism growth model for the coming years, based on the necessary competitiveness and profitability of the sector, focusing on quality and accelerating the process of digital transformation. The main expected goals are preserving natural and cultural values, seeking social benefits through a solidarity-based distribution of the sector's profits, and combating the depopulation and unemployment in rural areas. In addition, it establishes a principle to drive challenge of permanent adaptation: it is not only a question of seeking quality and improvement, but also of enabling the sector to be able to respond to the new environment of constant change.

### **Sustainable management in tourism companies**

Another positive effect of sustainable tourism is the growing awareness and the number of companies and consumers committed to the environment, which represents a guarantee of stability for the future. In this respect, the prestigious Wall Street Journal published in 2020 the ranking of the World's most sustainably managed companies. Among the top 100 companies, there are two from the tourism sector: the Malaysian hotel group Genting Group (14th position), and the Spanish Meliá Group (7th place). The first, based on making the protection and preservation of the environment an integral part of its corporate policy and philosophy. In the case of Meliá (the most sustainably managed hotel company in the World according to this ranking), it is strongly influenced by its environmental programs and reporting, including aspects such as energy, water, and ecological management. The Meliá Company has invested more than 15 million dollars in environmental projects since 2016. The scores obtained refer to four dimensions: Environment, Innovation and Business Model, Human Capital, and Social Capital. The ranking, prepared by experts in the fields of Environment, Social and Corporate Governance (known as ESG subjects), is structured on the basis of the assessment of more than 5,500 listed companies based on a range of sustainability metrics and criteria.

### **Some milestones in tourism and sustainability**

There are many historical advances to mention about this particular, some of them are listed below: Principles, Declarations, Charters and Codes:

- Davos Declaration: Climate Change and Tourism – Responding to Global Challenges, 2007 (Second International Conference on Climate Change and Tourism).
- Oslo Statement on Eco-tourism, 2007 (Global Eco-tourism Conference, The International Eco-tourism Society).
- The Cape Town Declaration: Responsible Tourism in Destinations, 2002 (The Cape Town UNESCO Office in Venice UNESCO Regional Bureau for Science and Culture in Europe (BRESCE) 9 Conference on Responsible

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Tourism in Destinations, Side event preceding the World Summit on Sustainable Development in Johannesburg in 2002).

- Québec Declaration on Eco-tourism, May 2002 (The World Eco-tourism Summit).
- Commission on Sustainable Development (CSD), Seventh Session 1999: – The Global Importance of Tourism – Workers and Trade Unions in the Web of Tourism – Sustainable Tourism: A Local Authority Perspective – Sustainable Tourism: An NGO Perspective.
- Global Codes of Ethics for Tourism, 1999 (UNWTO).
- WSSD – Johannesburg Plan of Implementation: Sustainable Tourism, 1992 (World Summit on Sustainable Development, Rio de Janeiro).
- Berlin Declaration: Biological Diversity and Sustainable Tourism, 1997 (International Conference on Biodiversity and Tourism).
- Charter for Sustainable Tourism, 1995 (World Conference on Sustainable Tourism, Lanzarote).



## 2.8 Tourism in Protected Areas

IUCN defines a protected area as “a clearly defined geographical space, recognised, dedicated and managed, through legal or other effective means, to achieve the long-term conservation of nature with associated ecosystem services and cultural values” (Dudley, 2013:2). Even though national parks might be the most well-known category, there are five other categories of protected areas, according to their management objectives, and these include: Strict Nature Reserve, Wilderness Area, Natural Monument or Feature, Habitat/Species Management Area, Protected Landscape/Seascape, and Protected area with sustainable use of natural resources.

Protected natural areas have an important ecological and cultural value. Once wild and exotic areas, where explorers and the Romantic movement adventured in a search for beauty, emotions and freedom that “unspoilt” nature provided; these gradually evolved into leisure destinations (Holden, 2016). At the end of the 19th century, Yellowstone was declared a protected area in the United States, and since then, other areas have been incorporated in different countries. The number of protected natural areas in the world has been increasing, while the demand for leisure and tourism has also been evolving. There is currently a very important attraction for nature as a tourist resource, in which different outdoor activities are developed and rural areas and traditions are enjoyed.

Tourism in protected areas can contribute to the achievement of objectives of numerous international conventions and declarations, including the UN Sustainable Development Goals (SDGs) 14 Life Below Water and 15 Life on Land.

### **Benefits and impacts of tourism in protected areas**

The demand for nature-based tourism, including eco-tourism, has determined the management and use of this type of tourism resource. Any type of tourism activity creates impacts, both positive and negative. Activities in natural settings are prone to cause environmental impacts, such as threats to biodiversity, erosion in trails and paths, pollution or exploitation of natural resources, amongst others. Indeed, many countries have developed laws and conservation plans for these areas in order to minimize the negative impacts caused by tourism activities.

Positively, tourism can also provide numerous benefits to the protected areas. Economic benefits can either directly or indirectly support biodiversity conservation, as well as provide livelihoods for the local communities. Through entrance fees

and concessions, monitoring and conservation projects can be funded, and revenue raised can directly contribute to the management of protected areas, at the same time as creating employment opportunities for park rangers and other local staff.

Similarly, eco-tourism activities that include the local communities living in or nearby the natural areas have proved to generate economic opportunities for numerous villages and local residents (e.g. provision of accommodation services, food and beverage, handicrafts, tour guiding and other recreational activities, etc.). Moreover, nature heritage interpretation activities and environmental education on conservation issues can have a direct impact not just in a specific protected area, but elsewhere globally. But all this will only be possible if the intensity of tourists, the type of tourism and its management is appropriate for the protected natural area and landscape.



The European Union has important nature protection legislation that has its main reference point in the Natura 2000 Network. This network is made up of more than 27,000 protected areas, making it the largest organization of its kind in the world. In Spain alone, these areas occupy 27% of the country's territory. This network is committed to implementing conservation actions that combine the maintenance of rural livelihoods with the preservation of biodiversity.

In this sense, the European *Charter for Sustainable Tourism* is an initiative of the Europarc Federation with the objective of implementing sustainable tourism practices in protected natural areas. In this document, tourism entrepreneurs and European representatives of protected areas, when they adhere to this charter, commit themselves to implement local initiatives in favour of sustainable tourism. Some of the most important principles of this initiative focus on the collaboration of all public and private companies interested in the management of these areas, the creation of quality tourism experiences, and increasing the benefits of the local economy, among others.

Tourism initiatives should seek a balance between the creation of innovative products based on experiences, but, at the same time, these tourism products should be able to project and communicate the values and the need to preserve and maintain the resources of protected natural areas for the future.

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## COVID-19 impact in protected areas

The COVID-19 pandemic has caused a global crisis, not only in the health and economy, but also in conservation. Even though there was some recovery of ecosystems and wildlife in specific habitats due to the reduction of tourism imposed by travel restrictions, the outbreak of the pandemic has widely increased threats to natural ecosystems, including illegal wildlife trade and poaching activities, as well as a dramatic decline in jobs and income for the communities involved (Lehmann et al., 2021).

While many European or northern hemisphere countries have in general experienced an increased interest and visitation to their protected and natural areas, mainly by domestic visitors interested in open-air and nature-based tourism activities (UNWTO, 2021), the effects have not been the same everywhere. International destinations from the Global South, mostly in Africa, but also in Latin America, the Caribbean and South-East Asia, have suffered devastating impacts caused by “undertourism”, given their limited domestic markets.

Under this context, several strategies can be followed to address conservation challenges and to ensure more resilient and regenerative tourism. These include supporting the nature-based tourism industry to generate revenue for conservation, diversifying the local economy to safeguard local livelihoods, empowering local communities, and transitioning towards a less carbon-intensive sector (Lehmann et al., 2021).

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## 2.8.2 Questions

1. Why are nature and eco-tourism one of the main tourism segments?
2. Why does tourism need nature?
3. Is there the need for nature tourism industry's service providers to be encouraged to push a new demand by changing their unsustainable product offers?
4. Is overtourism the new phenomena? Why?
5. Why is it important to balance the right to travel and the right to live?
6. What are the challenges of smartness in the context of overtourism in natural areas?

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# INTERPRETING THE NATURE HERITAGE



## 3.1 Introduction

The interpretation methods of nature heritage tourism play a key role in determining the successful outcomes of the tourism experience of the tourist. However, in achieving this level of satisfaction a clear interpretation plan must be initiated by management of heritage destinations which reflects the motivation of the visitor (education, conservation, nostalgia, escapism etc.) and satisfies the objectives of all stakeholders (national/regional tourism organisations, local communities, government bodies, and environmental groups). Interpretation refers to the methods of communication used to educate, stimulate and connect with visitors and potential visitors to nature heritage sites. The planning for interpretation incorporates not only the message, story, knowledge or historical facts about a particular nature heritage site but also the method/medium used to deliver this message. In addition, planning must take into consideration factors such as costs, human resources, training, infrastructural requirements and the evaluation methods used to determine its effectiveness.

However, interpretation begins much sooner than when the visitor arrives at the heritage destination. Interpretation commences when the potential visitor is exposed to any communication that leads to the development of a perception of the destination prior to visiting. This is often in the form of destination branding. Branding is responsible for evoking an image of a heritage tourism site in the minds of the tourist and hence providing the motivation for that tourist to seek out further information about a particular site and the potential of said destination to be incorporated into their decision-making process. This indicates the significance of branding in the planning of nature heritage interpretation. In an increasingly competitive tourism environment, branding can also allow a particular attraction or destination to become distinctive and gain a competitive advantage. Nevertheless, the challenge for many nature heritage sites is the individual size and scale of each attraction. With this in mind, many tourism organisations within a destination or product category have identified the benefits of networking and collaboration particularly in the promoting and branding of a destination.

Whether planning interpretation for an individual site or for a collaboration of tourism organisations, a plethora of options are available from traditional tour guiding to the use of digital apps at the destination. The interpretation method chosen should reflect not only the heritage site but also the potential visitors need, wants and motivations.

This chapter seeks to address the key areas outlined above of the planning of nature heritage interpretation, branding and networking in nature heritage tourism and methods of interpretation in nature heritage.



## 3.2 Interpretation Methods for Nature Heritage

### 3.2.1 Specifics of Nature Attractions and Their Interpretation

Nature, in general, refers to the physical or material world and nature environments or wilderness usually refer to wild animals, rocks, forests, and all the components that have not been considerably transformed by human intervention or persist despite human intervention.

Nature attractions are geographical or biological landscapes and are unique as they have been shaped by the surrounding environment's exclusive nature forces (Martini et al., 2017). Nature attractions include deserts, polar regions, rainforests, alpine areas, woodlands, grasslands, mountains, beaches, swamps, caves, oceans, cliffs, lakes, rivers, and unique life forms which inhabit those environments like animals, birds, insects, and plants (Blicharska et al., 2016).

According to Juma et al. (2020; p. 7251),

*“Nature interpretation has been advocated as a soft and non-obtrusive on-site visitor management strategy to enhance visitor knowledge and understanding of the resource, mitigate visitor impacts, encourage the conservation and improvement of attraction areas, and assist visitors in enjoying their visit.”*

In other words, interpretation refers to how sites are presented to visitors. Interpretation can reflect how the site is used, seen, heard, touched, smelt, and perceived (Carr, 2004). It is a process of understanding and choosing the appropriate techniques for impacting evocative stories and meanings of the site. However, nature areas are usually confronted with many challenges, such as:

- Climate change: the actual changes in temperature, rainfall, and other weather variables can decrease the number of visitors (Markham et al., 2016) and interrupt the socio-economic activities at a cultural landscape area (Change, 2019). For example, climate change is projected to reduce the annual visit numbers of the Mesa Verde National Park in the USA, which attracts about 500,000 tourists yearly and contributes about US\$ 47 million to the local economy (Holtz et al., 2014).

- Impact on biodiversity: namely on the plants that live in seasonally changing environments and on the animals that migrate in a specific season of the year (Blackman, 2017). That is why timing is everything. Matching site visits with the best times of year for growth and reproduction are necessary to maintain a high and safe number of visitors to the nature attraction.



Jones (2003) defines cultural landscapes as the outcome of ‘the interactions between people and their nature environment over space and time.’ Therefore, interpretation is a communication process designed to reveal meanings and relationships of cultural and nature heritage to the public (Hvenegaard et al., 2009). The interpretation efficacy relies on a complete understanding of the site and choosing the appropriate techniques to enhance the visitors’ experience and the site’s uniqueness.

As previously showcased, nature heritage interpretation has always been considered an essential component of heritage conservation (Sites, 2008). Furthermore, it raises the awareness of environmental protection (Liu, 2020) and enhances visitors’ understanding of adopting positive attitudes towards nature sites (Stewart et al., 1998).

### 3.2.2 General Methods and Techniques of Nature Heritage Interpretation

Interpretation is considered a central visitor experience and the interpreter acts as the official host of the property. Hence the interpretation methods could be presented whether in person or through other media.

**Personal interpretation:** the interpreters have direct contact with visitors. The interpreters could exchange, interact, and respond directly to the visitors’ needs and requests. The personal interpretation could be presented in many forms such as talks, demonstrations, puppet shows, living history, storytelling, nature walks, tours, guided tours, and workshops.

The personal interpretation enables a live, momentaneous, authentic, and adaptative interpretation to the visitors. Another important benefit of personal interpretation is the direct contact between guide and visitors and the advantage of being able to answer questions immediately. At the same time, the real presence of the guide could avoid more intrusive actions. On the other hand, however, it occurs only at specific times; it respects a predetermined itinerary and time and is not easily changed. It also requires more human resources, incurring an extra cost.



**Non-personal interpretation** usually through multiple tools and media, e.g., brochures, interpretative boards, signs, videos, digital media supports as phone applications, virtual reality tours, self-guided trails, and exhibitions. The visitor can decide which tour to take and which kind of information to read and use.

The benefits of non-personal interpretation are its complete accessibility, which means that the interpretation is available anytime and anywhere, in various languages, and displayed on many supporting platforms. However, direct contact with the guide is not possible, meaning that some doubts could persist at the end of the visit.

The interpretation could be held inside the property or outside of it.

- **Interpretation inside the property or “in situ”**

This technique allows the visitors to discover the nature attraction via different forms of tours.

- **Interpretation beyond the property or “ex-situ”**

The interpretation is usually held outside the nature attraction, so the interpretation is sent through newsletters, television, radio, newspapers, blogs, social media, and websites.

### 3.2.3 Specific Methods and Techniques of Nature Heritage Interpretation

The visitors' key expectations while visiting and exploring a nature site can be knowledge gains, education, participation, entertainment, active involvement, engagement (Liu, 2020; Masberg & Silverman, 1996). Hence, various forms exist to present information in a nature heritage site.

**Tour guided visits:** guided tours are group travel experiences led by a guide following a specific itinerary around sites and landscapes of a city or a region (de Rojas & Camarero, 2008). The guide interprets the cultural and nature heritage and environment in a language of the visitors' choice (Chang, 2014). In short, guided group tours are convenient, include expert guides that provide exciting background information on every place the tourists visit (Crespi-Vallbona, 2021).

**Workshops:** they are usually a brief group discussion for a relatively small group of people that focuses mainly on techniques and skills regarding an excursion or an activity related to tourism (Dwyer et al., 2009).

**Tourist information centres:** a tourist information centre provides tourists with relevant information on the sites, such as accommodations, maps, circuits, and other pertinent details related to tourism activity (Crespi-Vallbona, 2021).

The interpretation and the information presentation can be displayed either by relying on traditional methods or digital techniques (Kempiak et al., 2017).



### 1) Traditional techniques:

The traditional interpretation depends on face-to-face interactions. It comprises guided tours, shows, and workshops with an instructor. Traditional interpretation allows the interpreter to respond immediately to the visitors' needs and interests in immediate situations. Traditional techniques are live, current, trustworthy, and persuasive. It aids in creating a positive first impression of the site (Songshan et al., 2009) and plays a crucial role in assuring a rich and satisfying experience (Huang et al., 2014). Face-to-face techniques create a suitable atmosphere to engage tourists and guarantee they are entertained and immersed in the site's history (Yamada, 2011). Traditional techniques and especially face-to-face interaction, generate the feeling of playfulness while visiting a site (Csikszentmihalyi & Hunter, 2014). In fact, playfulness is well-defined as feeling inspired, curious, immersed, and connected to the destination (Kuo et al., 2016). However, the traditional techniques are highly demanding regarding interpreters' qualifications and organization of the site, tours, equipment, and items related to the tourism activity (Crespi-Vallbona, 2021).

### 2) Digital technologies:

Digital technologies have been widely used in nature heritage interpretation (He et al., 2017) in methods using:

- **Virtual reality (VR):** computer modelling and simulation that enables a person to interact with an artificial three-dimensional (3D) visual or another sensory environment (Loureiro et al., 2020). A user wearing a helmet with a stereoscopic screen views animated images of a simulated environment in a typical VR format.
- **Augmented reality (AR):** is an interactive experience of a real-world environment where the objects in the real world are enhanced by computer-generated perceptual information, sometimes across multiple sensory modalities, including visual, auditory, haptic, somatosensory, and olfactory (Loureiro et al., 2020).

- **Mixed reality (MR):** merges the real and virtual world to produce new environments and visualizations, where physical and digital objects co-exist and interact in real-time (Speicher et al., 2019). Mixed reality does not exclusively occur in either the physical and virtual worlds but is a hybrid and virtual reality.

These digital techniques provide diversified content formats like video, 3D simulation, multimedia, and various interaction systems such as voice interaction, touch-screen interaction and gamified activities (Liu, 2020). In addition, these technologies have shifted the information display, no longer supported only through printed images, textual descriptions, or static tools (Liu, 2020).

Besides, digital techniques help enhance the visitors' experience and interaction with the nature site and on-site digital technologies are becoming an essential component of the heritage visitor experience (Othman et al., 2011).

Digital solutions turn out to be safer and reliable (Crespi-Vallbona, 2021; Liu, 2020), as was seen with the COVID-19 pandemic (Ren & Chen, 2020) and also new technologies may attract broader visitor segments, especially young visitors (Leask et al., 2013).

Digital approaches, including storytelling and gamification, can help visitors assimilate the information effortlessly (Liu, 2020). Hence, digital techniques can increase the visitors' interest in learning and deepen their knowledge regarding nature heritage, as it creates a more exciting learning process and enriching experience (Loureiro et al., 2020).

However, the excessive use of multimedia content may reduce the clarity of the nature heritage presentation. In fact, digital technologies should not just be considered as 'an information-display platform' (Wasserman, 2011; p. 18) or a substitute to traditional techniques. Instead, digital technologies should be regarded as 'further ways to connect and engage visitors with objects, collections, and exhibits' (Othman et al., 2011; p. 15).

Although digital technologies provide a new way of communicating the heritage, they may negatively impact the destination and affect the tourists' experience if they are not prudently applied and displayed. Therefore, a good balance between traditional and digital techniques should be considered while designing the interpretation of the nature site (Liu, 2020).

Table 3.2.3a provides a summary of the pros and cons identified for each method of interpretation which provides guidelines for the tourism industry in determining the most appropriate methods for each nature heritage site.

**Table 3.2.3a | Pros and Cons of Interpretation methods for nature heritage**

<b>Outdoor panels</b>	<b>Pros:</b> durable, long-lasting and low maintenance; they reach a large audience over time and are good for presenting concise text, photographs and other illustrations. They can also include interactive elements such as tactile plaques, audio, lift flaps and QR codes.	<b>Cons:</b> can be intrusive careful consideration needs to be given to where they are placed so as not to detract from the landscape, townscape, architecture or archaeology. Panels that are used everywhere so can give rise to 'not another panel' fatigue.
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*Continued on page 73*

<b>Indoor graphic panels and displays</b>	<b>Pros:</b> durable, long-lasting and low maintenance; they reach a large audience over time and are good for presenting concise text, photographs and other illustrations. They can cover large spaces relatively cheaply, be a good backdrop to other media and include interactive elements such as audio, video or computer interactives.	<b>Cons:</b> no real disadvantages, but should be used in conjunction with other methods.
<b>Live interpretation: guided walks, tours and demonstrations</b>	<b>Pros:</b> regarded as the most effective interpretive medium as an experienced interpreter can be responsive to their audience tailoring each presentation appropriately. It provides opportunities for staff and volunteers to have direct contact with visitors. Can incorporate sign language or hearing-loops for hearing impaired visitors.	<b>Cons:</b> usually only reaches a limited audience and is restricted to when the tour etc. can take place. Can be expensive in terms of administration, marketing and staff costs.
<b>Live interpretation: performances and theatrical events</b>	<b>Pros:</b> costumed characters can be powerful interpretive tools, creating a very evocative sense of place. Can create an entertaining spectacle that becomes part of an enjoyable experience.	<b>Cons:</b> usually only reaches a limited audience and is restricted to when the performance can take place. Requires a suitable performance space, good weather if outdoors and can be expensive in terms of administration, marketing and staff costs.
<b>Publications</b>	<b>Pros:</b> all can contain information in appropriate amounts to the target audience. Leaflets and booklets can be small enough to carry around a site, aid orientation and provide information at a relatively small cost. Guidebooks can contain more detailed information, are a take-home memento and can help market a site when shown to others. Can be revenue generating (especially guidebooks) and large-print options can be provided for visually impaired people.	<b>Cons:</b> need storage space and need up-dating as aspects of the site change. Can be off-putting when poorly designed.
<b>Low-tech interactive displays</b> Jigsaws, models, lift-flaps, revealer wheels etc.	<b>Pros:</b> can be very effective, relatively cheap and robust and generally they are tried-and-tested designs.	<b>Cons:</b> can be simplistic for adult audiences, they need daily checking to make sure everything works and there are no broken parts and they may need to be regularly re-set by staff (e.g. a jigsaw that has to be taken apart for the next child to use).
<b>High-tech interactive displays</b>	<b>Pros:</b> can be very effective, especially with digital natives.	<b>Cons:</b> usually complex and often expensive to produce and maintain, and can date out as technology moves on. Also, they need daily checking to make sure everything works.

<b>Audio media</b>	<b>Pros:</b> can be very evocative, especially if the presentation makes good use of sound effects and creative editing. It is a good medium for presenting dialogue, first-person narrative, bi- and multi-lingual content and for people with visual impairments. Encourages visitors to look and listen at the same time. Audio tours can make use of visitors' own equipment, such as smart-phones, are a good aid for orientation and can avoid the need for permanent installations in sensitive locations. Mobile phone audio tours can generate automatic evaluation feedback and potentially provide an income.	<b>Cons:</b> headphones can isolate visitors from one-another, Initial outlay for equipment can be expensive and equipment will need to be checked regularly and maintained.
<b>Tactile media</b>	<b>Pros:</b> excellent media for people with visual impairments and extends the sensory experience for sighted visitors. Can be used as part of a rubbing trail or activity pack for children.	<b>Cons:</b> not good for complex or colour images. Need to be designed of a suitable hard-wearing material for high levels of use.
<b>Labels and plaques</b>	<b>Pros:</b> a simple and usually very cheap way to identify something and communicate a few key facts or basic messages about it. Relatively easy to up-date or replace and is a recognised way to identify a building, its historic occupants etc.	<b>Cons:</b> can only contain a small amount of information.
<b>Audio-visual</b>	<b>Pros:</b> can be a very effective and immersive experience and a good way to introduce a site and a range of themes and messages in a single presentation. If combined with subtitles, BSL translation and audio-description they are excellent for people with sensory impairments. When produced digitally they can be used across a number of digital media. Can be projected onto blank walls or glass instead of screens, thus avoiding intrusion in an historic building.	<b>Cons:</b> expensive to produce, can be distracting, can date as technology moves on and can result in bottlenecks as visitors emerge from a presentation in a group.

Continued on page 75

<b>Multi-media</b>	<p><b>Pros:</b> computer-based games and interactives have a strong appeal to children and young people and allow the presentation of a large amount of material in a small physical space. Can provide a virtual tour of a site or building especially for people with mobility impairments. Digital presentations can potentially be transferred to other media such as a website. Provides opportunities for volunteers, especially young people, to help new users by showing them what to do.</p>	<p><b>Cons:</b> can exclude audiences who are not comfortable with technology, they are relatively expensive, usually only used by one or two people at a time and can date as technology moves on.</p>
<b>Websites and Apps</b>	<p><b>Pros:</b> a vital tool for marketing, pre- and post-visit information and activities which reaches a very large audience. Can be used for downloadable audio tours (podcasts) and site leaflets and can contain interactive games and activities. Can be used to provide up-to-date reports such as recent bird sightings or archaeological finds and can contain a special education area for teachers with curriculum related activities and learning exercises.</p>	<p><b>Cons:</b> can exclude visitors without access to the internet and needs regular up-dating and maintenance.</p>
<b>Arts Media</b>	<p><b>Pros:</b> the use of the visual arts and poetry have a strong creative appeal and are good ways of engaging audiences at an emotional level, enhancing the sense of place. Public art can be a pleasing feature for regular visitors each time they come and is a good way to involve local people and schools. Can be a good way to celebrate a site, event or collection.</p>	<p><b>Cons:</b> may not be effective at communicating specific messages and can be expensive.</p>

Source: Drifting Apart, 2018.

### 3.2.4 Summary

It is important to note that, nowadays, interpretation is based on several technologies and approaches. Still, they must be very well calibrated and integrated based on common ideas but complementary. This integration is not only a juxtaposition of diverse techniques and technologies; it must be a well-designed jigsaw. As Moscardo (1996) claims, successful interpretation is critical for effective management and sustainable tourism, connecting people more profoundly with the nature environment.



## 3.3 Planning of Interpretation

### 3.3.1 Introduction

Nature has been around since the beginning of the Earth. At the beginning, people lived in harmony with nature. However, during its industrial development, the links between nature and mankind have become looser and looser as people have been less and less dependent on nature. These days there is a growing number of people who tend to spend their leisure time in peaceful nature rather than overcrowded tourist destinations, no matter if it is a town or seaside resort. This trend gained importance especially during the COVID-19 pandemics, when most tourist facilities in traditional tourist destinations were closed.

This growing popularity of outdoor activities and in particular those undertaken by many visitors coming in small, unorganised groups represents a serious threat for nature. The most efficient way to guarantee the sustainable development of a destination is through appropriate destination management and planning. In contrast to cultural heritage, where it is much easier to manage the flow of tourists as most attractions have an appointed management, opening hours and rules for visitors, many nature heritage attractions are freely accessible to the public. Without building an adequate infrastructure and setting adequate rules for the behavior of visitors it is almost impossible to manage the current intensive flow of tourism and maintain it sustainably.

This requires a complete change in the approach to tourism in nature. As in the case of cultural tourism, it must be approached as a source of potential benefits for local communities, both from the perspective of the economy and local environment and life. If it is backed up with an appropriate infrastructure, nature tourism will also bring benefits in the form of generating new job opportunities, higher spending of visitors in the destination and as a consequence, a better quality of life for the locals.

However, current technological developments in different spheres of our lives give people the opportunity to reach places in nature which used to be inaccessible for the average tourist. Mass media, influencers, bloggers etc. can provide information about fascinating places and often encourage many people to access them. Unfortunately, it is also important to bear in mind that many people may often lack experience and proper knowledge of how to behave there without harming nature. This can be changed by adequate innovative interpretation of nature heritage.

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Thus, interpretation of nature heritage must be well prepared and assessed from the view of its efficiency. This starts immediately with identification of the attraction and below are some questions which need to be answered before it is decided to include the attraction among nature heritage and interpret it as such to the public.

- What value does the nature attraction have for nature as a whole?
- What symbolic value does it have for local communities?
- How remote is it from the nearest tourism infrastructure?
- How vulnerable is the attraction itself and its surroundings?
- How long is the season for visiting it? How physically and time demanding is it to access the attraction? What is the hold value of the attraction?
- What kind of infrastructure is currently available?
- What kinds of limited acceptable changes (or new kinds of infrastructure) would need to be made so that it was accessible for the public in a safe and sustainable way?
- How much would these changes cost? Regarding the above-mentioned indicators and specifics, how efficient would it be to build the necessary infrastructure?
- How costly would its ensuing maintenance be? Would that be efficient?
- What changes to nature will an increased number of visitors cause and how much will these changes be reversible and at what costs?
- How many human resources are available among local people to participate in the interpretation?
- How easily and efficiently can the number of visitors to the attraction be measured?
- How efficient would ex situ interpretation be and which forms should be chosen?

In order to answer the above questions, it is important for nature tourism destinations and attractions to have a sustainable, comprehensive interpretation plan that reflects the objectives of interpretation at each particular site.

### 3.3.2 Planning of Interpretation

*“A goal without a plan is just a dream.”*

Saint-Exupéry (2018)

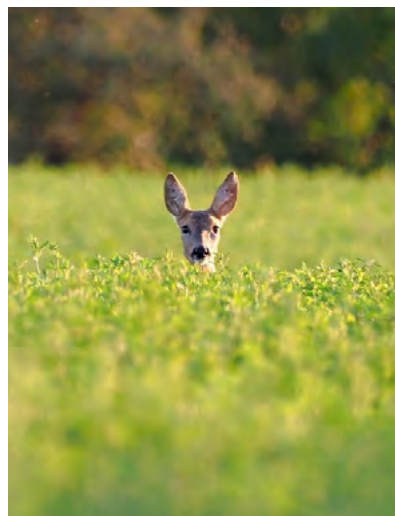
Quality interpretation follows rules, methods and tested procedures that require thorough planning and evaluation (Beck et Cable, 2011; Veverka, 2011; Brochu, 2014; Růžicka et al., 2011; Ptáček et al., 2012). A key part of planning is the efficient use of funds and human resources (Ptáček et al., 2012). However, the whole process does not end up with a plan and ensuing implementation. Ongoing evaluation is essential and variations on the goals or implementation will need to be reflected in the interpretation methods.

Planning of interpretation is a long-term process which requires cooperation of experts in various professions and sometimes also services from professional companies. (Ptáček et al., 2012). Carter (2001) recommends engaging local inhabitants and the public into the planning process.

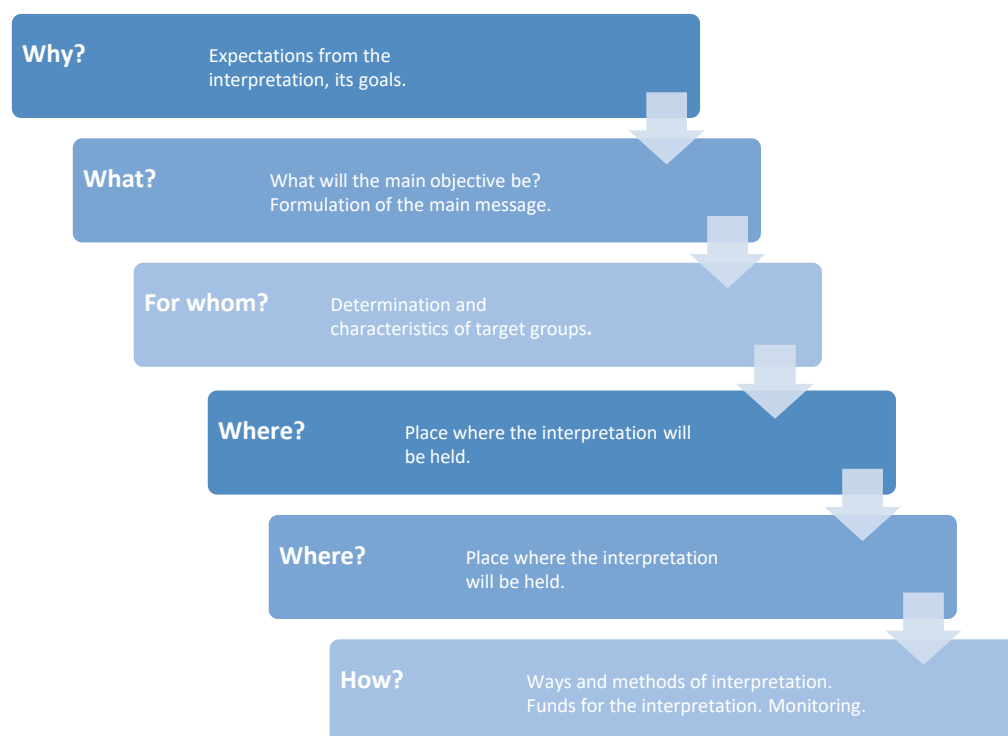
A plan sets long-term strategic goals of interpretation and its provision. Interpretation planning has several advantages. Not only does it make the whole interpretation more efficient thanks to clearly set goals and structure, but it also helps use the sources purposefully. Moreover, it may create space for coordination of activities with other stakeholders (Ptáček et al., 2012).

Two methods of planning can be used for interpretation, a process (step-by-step) method and a systematic method.

**The process method** is based on answering the following questions “Why? What? For Whom? Where? When? and How?” This helps those who are supposed to prepare a plan think carefully about their intention from different angles. This well-known action model was created by Carter (2001) and is used by many managers (Veverka, 2011). The process method is suitable for smaller, less demanding projects (e.g. local heritage trails).



**Figure 3.3.2a | Scheme of the Process (step-by-step) Method of Planning Interpretation**



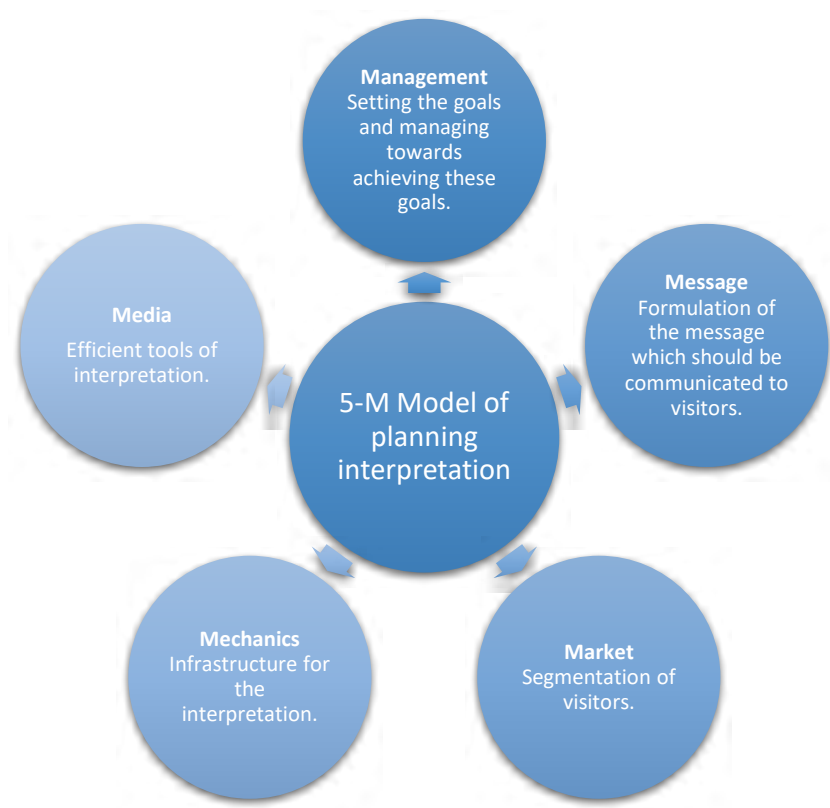
Source: Author elaboration (Jarolímková, 2023).

**The systematic method** is based on complex research at the beginning of the planning process (Brochu, 2014). The systematic model thoroughly investigates 5 basic fields:

- management (management, setting goals),
- message,
- market,
- mechanics (infrastructure available),
- media (tools of interpretation).

This method is time consuming and costly. It is therefore suitable for larger projects or revision of the already existing form of interpretation (e.g. “nature houses”, interpretation centres of national parks, houses of ecological education)

**Figure 3.3.2b | Scheme of the Systematic Method 5-M Model of Planning Interpretation**



Source: Author's own system according to Brochu, 2014.

### **Planning process**

The basis of the planning process is an **analysis of the initial situation and the needs**. It consists of the following parts:

- Analysis of the potential of the nature attraction and identification of its value.
- Analysis of visitor segments and identification of their needs and expectations and the ways of meeting them (analysis of consumer behaviour).
- Analysis of resources (human, financial).
- Analysis of the destination (accompanying tourism infrastructure, stakeholders) is appropriate to complete the information.

The output of the planning process is a **comprehensive interpretation plan** with a fixed structure:

In the development of the interpretation plan, the following key factors need to be addressed:

- 
1. Topic of interpretation
    - a. Specification of the value of a nature attraction.
    - b. Identification of the main mission and the main message of interpretation.
    - c. Key topics of interpretation.
  2. Selection of key segments of visitors (including PwDs) and characteristics of their specific needs and expectations related to the interpretation
  3. Clearly defined goals of interpretation
    - a. Cognitive goals
      - i. To understand the value of the place and evaluation of the value of nature heritage.
      - ii. To encourage visitors to think more, find out more about the attraction.
      - iii. To encourage visitors to come to their own conclusions.
    - b. Affective goals
      - i. To raise interest.
      - ii. To awaken appreciation of tourism destination/nature heritage.
      - iii. To prepare an experience, satisfaction.
      - iv. To increase positive personal relationship to the place visited.
    - c. Behaviour goals
      - i. Engagement of visitors.
      - ii. Change in tourists' behaviour (e.g. nature protection).
      - iii. To facilitate participation in the interpretation.
    - d. Goals in the field of sustainable development of the nature attraction and destination.
  4. Elaboration of key topics
    - a. In-depth insight into the content and design of interpretation (texts, images, graphics...).
  5. Setting of the Mix of interpretation methods/media
  6. Spatial layout of interpretation (e.g. layout of interpretation panels in the field)
  7. Accompanying infrastructure and services, accompanying information system, physical and information accessibility for PwDs
  8. Financial plan (costs, yields, funds)
  9. Tools for monitoring and evaluating the plan: interpretation efficiency.

In addition to the above, implementation of a plan of interpretation includes:

- Action plan/schedule.
- Defining the role and responsibilities of stakeholders.
- Personnel hiring.
- Material acquisition.
- Organization.
- Feedback – evaluation of interpretation.

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According to ICOMOS (2008) principles of an interpretation plan should aim at social, financial and environmental sustainability. Therefore, it is desirable to include a study of potential impacts of interpretation infrastructure on the destination/locality/environment.

### **Wording of the message**

Another essential aspect in interpretation relates to the wording of the main message to be delivered to visitors. It is based on the value, uniqueness and specifics of the nature attraction. During planning the interpretation, it is important to prepare the most relevant wording for the given attraction regarding three questions:

- What is the most important information about nature and cultural heritage?
- What are visitors most interested in?
- What does the management of the attraction want or need to communicate?

Communication of the message in a way that connects the visitors with the phenomena of the nature attraction should be the core of interpretation. Therefore, it is necessary to formulate the message clearly and structure it at 3 levels:

- Main message (1 fundamental idea, which the visitor will remember for a long time and will identify with – the basic value of the nature attraction is stressed).
- A more detailed message (elaboration of the main message into 3–5 more detailed ones – history/development of the attraction, characteristic features, importance/benefit for the local community).
- Detailed message (develops the main message further, supports its idea – e.g.: panels on the heritage trail).

### **Spatial arrangement of interpretation**

Finally, is the planning for the spatial arrangement of interpretation which can be linear (e.g. in the timeline) or spread (it does not matter on the ranking). Spatial capacity required by a particular interpretation method should be sufficient for the number of visitors even during the peak season. The arrangement and layout should respect the given space and its physical features. At the same time, it should be comfortable, accessible, and safe for visitors.

There should be accompanying infrastructure catering for other visitors' needs (information and navigation systems, parking, relax zones, toilets, refreshment facilities, gift shops...) and the aesthetics of the place (landscaping, setting of panels and buildings in the landscape).

### **3.3.3 Planning of Infrastructural Needs**

Infrastructure of interpretation includes specific mobile facilities used for the interpretation, such as:

## Specific infrastructure for interpretation

- Visitors' centres/ Interpretation centres.
- Houses of ecological education.
- Nature museums (nature exhibitions in local museums).
- Science centres.
- Paths, marked heritage trails infrastructure like boardwalks, viewing points, info boards with educational content.
- Interpretation panels.

Inventory can be stable (installed for ever) or transferrable (inventory, e.g., devices, audio guide). Specific interpretation infrastructure is complimented by:

## General infrastructure

- Accessibility to the site (transport infrastructure, environmentally-friendly transport, mountain infrastructure – vertical transport).
- Supportive facilities for visitors (car parks with their infrastructure including the method of fee collection, toilets, refreshments).
- Information systems (information, navigation, information/interpretation centres – permanent, temporary in the nature).

Infrastructure creates tangible conditions/environment for quality interpretation. Moreover, it supports the management of visitor flows.

### 3.3.4 Staff Management and Planning

A plan of personnel management concerns identification of the need and structure of professionals engaged with interpretation in relation to the particular site, goals and methods of interpretation. It is also necessary to set the requirements on the qualifications of workers and standards of their work. It is good to prepare a plan of selection, training, monitoring, evaluation and remuneration of workers.

The most common mediator of interpretation is a professional guide. “A guide is a person who guides visitors in the language of their choice and interprets the cultural and nature heritage of an area for which the person normally possesses an area-specific qualification usually issued and/or recognised by the appropriate authority” (WFTGA, 2017).

Other professions participating or otherwise involved in personal forms of interpretation are edutainers, lecturers and animators of interactive programmes of interpretation.

Basic requirements for the qualification of guides are as follows:

- expertise, knowledge of facts,
- knowledge of environment, orientation, and movement in the wilderness,
- communicational skills, rhetoric,
- cultivated appearance,
- organisational skills,
- didactical, animating skills,
- in the case of internationally important sites also required is a knowledge of foreign languages and intercultural specifics of visitors.

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One of the basic requirements should be that the guide comes from the local community and has a very strong and close personal relation to the site, excellent knowledge of the place and context of the wider environment. Adequate physical condition of the guide for work in nature may also be necessary.

The number of workers for interpretation depends on the estimated number of visitors and the capacity of interpretation programmes (number of people in the group, length of presentation). It is useful to plan the structure of guides according to expected segments of demand, so that basic language, nationality, or age groups are covered. As the demand is mostly unequal throughout the year, managers of many attractions or sites employ several guides on an all-year-round basis. In case of some special language requirements or in case of periods of increased demand they hire other guides from a wider database of cooperating guides.

When speaking about nature attractions, there are guides mostly trained for interpreting that particular site or attraction (caves, geoparks, zoos). Besides expert guides, there are also volunteers who participate in interpretation in some countries.

### 3.3.5 Certification of Guides

Qualified guides play a very important role in interpretation. A guide is a person usually specialized in the region where the service is offered and presents its cultural and nature heritage to the visitor (ČSN, 2004).

There is an EU standard CSN EN 15565 Tourism services – Requirements for the provision of professional tourist guide training and qualification programmes. This European standard specifies the minimum requirements for the provision of professional tourist guide training and qualification programmes.

Certification of guides verifies their qualification, competence for the job and adherence to the legal conditions of doing business in the given country. Certification brings a certain comparative advantage to the guide and is a guarantee of a well-qualified and professional guide service to a visitor. Certification is also a tool for the protection of the labour market of guides from unfair business. Certification systems are provided at national level (e.g., National Tour Guide – Qualified to Guide throughout Ireland), regional level or through national associations of guides. A very well elaborated system works in Great Britain.

### Example

The Institute of Tourist Guiding in Great Britain is responsible for administering schemes to attain a coveted Blue, Green or White Badge. They conduct examinations based on recognised standards and award badges to successful candidates.

The Institute certifies three levels of qualification.

White Badge: For those thinking of taking up paid or voluntary employment as guiding visitors around an attraction.

Green Badge: For those interested in working full or part-time guiding visitors at sites of interest and on walking tours in an area such as a town or city centre or specified countryside area.

Blue Badge: For those who would like full or part-time work guiding visitors around a region or metropolitan area on walking tours, at sites of interest.

Source: Institute of Tourist Guiding, 2020.

Completing specific educational/training programmes, guides can obtain further specialization, e.g., Certified T-Guides are qualified to work with visitors with learning difficulties (T-Guide, 2018, FEG, 2021).

The World Federation of Tourist Guide Associations (WFTGA) main purpose is to promote, market and ensure that tourist guides are recognised as the ambassadors of a region (UNWTO, 2021).

**Figure 3.3.5a | Logo WFTGA**



Source: Asociace průvodců České republiky, 2021.

European Federation of Tourist Guide Associations (FEG)

**Figure 3.3.5b | Logo FEG**



Source: Asociace průvodců České republiky, 2021.

The importance of guiding services was emphasized when the World Federation of Tourist Guides Associations (WTTGA) established an International Tourist Guide Day, which has been celebrated on 21st February every year since 1990. Its goal is to bring attention to the importance of guiding activity and to raise public awareness about the fact that tourist guides are ambassadors of the regions they represent. (Jarolímková, 2007)

**Figure 3.3.5c | Logo International Tourist Guide Day**



Source: GTP, 2019.

### 3.3.6 Financial Planning

#### Costs

A financial plan includes investment costs which are nonrecurring and high in most cases. They have to be covered in the phase of preparation of interpretation. These can be costs of basic tools for interpretation and their installation (interpretation panels, audio guides) and for creative design of interpretation content (content and design of interpretation). Operational costs are running costs for the implementation of interpretation during the year. They are stable (there is usually only a slight year-to-year increase reflecting the price level development of initial costs in the economy).

The costs can be monitored according to the type of nature heritage structure and include:

- Material costs.
- Labour costs.
- Other operational costs.

According to the relation to the production unit, the **costs are fixed** (they do not change with the performance volume) and **variable** (they change in relation to the performance volume). Variable costs can change proportionally (direct rate to the change in performance volume), or progressively (the costs grow faster than the performance volume), or degressively (the costs grow slower than performance volumes, the costs per performance unit decrease).

Besides **direct interpretation costs**, it is also necessary to take into account accompanying costs of monument management, nature protection, safety and security, infrastructure and its maintenance, sanitation...

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With the above costs in mind, it is necessary for many nature heritage attractions to identify potential **funding sources for the creation of interpretation including:**

- Yields from the activity itself (revenues from tickets, from sale of services, goods).
- Subsidies.
- Donations.

## **Yields**

Yields are means obtained from the activity of the business. Their main part is formed by revenues from the sales of interpretation programmes to visitors. Their amount depends on the price and volume of sold services.

However, interpretation is often offered free of charge within public services as these services are provided for the benefit of visitors (e.g. heritage trails, some visitor interpretation centres).

Thus, interpretation can be offered:

- Free of charge.
- For a contribution fee (contribution to cover the costs of interpretation or support of monument/attraction protection).
- At a commercial price.

In the case of commercial programmes, the price can be set according to the real costs, or the price can be set and used as a marketing tool, e.g. to regulate the flow of visitors. Marketing price policy includes also special offers with the aim of influencing the behaviour of visitors or make the programmes affordable for budget-aware visitors.

### **3.3.7 Evaluation of Interpretation and its Planning**

It is difficult to assess the value of a nature heritage attraction and the efficiency of its interpretation. The most obvious monitored indicator is the number of people addressed by interpretation. This is the simplest quantitative indicator. However, it is often impossible to find the exact number of visitors, since most nature attractions and some types of interpretation (e.g. heritage trails) are freely accessible. Apart from all traditional types of research methods, there are opportunities involving new technologies like built-in sensors under the surface of the access path, or data collected from mobile operators; both of which are quite expensive and hence not cost effective enough for most nature attractions.

However, according to ICOMOS (2008), it is not desirable to evaluate success of interpretation only through the number of visitors or sum of revenues, as there are other goals of interpretation in the field of nature protection, education, and culture.

Thus, objectives of the evaluation of interpretation should be primarily:

- Meeting interpretation goals.
- Engaging visitors' satisfaction.

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A part of the evaluation of interpretation is also its contribution to sustainable development: benefits for and impacts on

- The environment (contribution to the conservation and protection of the environment, savings on resources).
- Local community (contribution to the support of the pride of local inhabitants, their satisfaction and sense of belonging).
- Economy of the region (generation of jobs and business opportunities – use of local craftsmen and producers).

A wide scale of qualitative and quantitative research methods can be used to evaluate the success of interpretation. The choice is very individual. It depends on the required information and data, situation, circumstances, and financial and time possibilities. (Růžička et al., 2011).

Basic methods of evaluation are:

- Interviewing before and after the tour.
- Discussions with visitors.
- Direct monitoring of visitors' behaviour (their attention, response).
- Expert evaluation.

Interactive testing devices can also be used. Their goal is to make the visitors repeat the main ideas of interpretation and encourage the learning process through asking suitable questions.

Evaluation of economic efficiency can be used only with paid methods of interpretation based on commercially offered services. The input (costs/resources) – output (revenue/direct benefit) ratio is evaluated. It is necessary to keep in mind a high share of incalculable items of interpretation both on the side of inputs and outputs.

According to Ptáček et al. (2012), it is difficult to monitor a long-term effect of interpretation, that means a desired effect on the behaviour of visitors, change in the approach to certain topics, regions, history and acquired knowledge. Such research requires repeating the process in several months or years after the tour.


### 3.3.8 Summary

Planning is an essential tool in any methodology of interpretation of nature heritage or otherwise and this encompasses different facets studied in this section, such as the costs incurred and the yields received, analysis of interpretation goals and visitors' wants, infrastructural needs and physical spaces and staff management, including the key role of guides certification to maintain quality and standards.

However, interpretation planning must start earlier, as previously stated, when the tourism attraction or destination is evoking, through branding, a unique image in the tourist's mind that makes it stand out from others. Furthermore, interpretation planning and indeed branding should not exist in isolation from the network of stakeholders in which the nature heritage attraction is located, such as local and regional authorities,

complementary businesses and community associations amongst others. All of these three aspects (interpretation planning, branding and networking) should aim towards the same goal, albeit with varied offerings, the promotion of the destination as a unique nature heritage visit. It is to these concepts of destination networking and branding that the next sections turn.





## 3.4 Nature Heritage Destination

### Networking and Collaboration

#### 3.4.1 Introduction

Nature interpretation requires a clear communication approach so that the nature phenomena is better understood. This will lead to a better understanding and affinity to the places and, therefore, greater emphasis on protecting them. Although various communication strategies can be used, from storytelling to advanced technological innovations, it is clear that a coordinated approach, which has multiple touchpoints can significantly enhance its impact. As a result, the challenge for tourism marketers lies in creating a destination image and positioning strategy that will stand out in the deluge of promotional material. This has become increasingly difficult with the advent of the Internet and Web 2.0 (Pike, 2016). A key concept in overcoming this shortcoming and reaching the target market more efficiently resides in the development of a destination network/organisation and the branding of such destination. Therefore, promoting the destination first and then the business.

#### 3.4.2 Destination Network

Destinations are a diverse amalgamation of different variables in which some or all of the businesses involved appeal to the target market. Consequently, the success of a business within the destination depends on the success of the destination itself (Pike, 2004). Given the diversity and complexity of the tourism product and the diverse characteristics of the tourists, the benefits to the individual businesses of forming destination networks and brands seems evident.

##### **Communicating the message**

The management of the heritage interpretation experience is ultimately a multifaceted phenomenon. Here, stakeholders such as private enterprises, public agencies and community groups operate in a relatively autonomous way. Collaboration between this diverse group is essential, where common ground must be found in order to develop a “sense of place”, which is ultimately the *raison d’être* of interpretation.

The main aim is to help visitors respond to the beauty of the destination, the importance of its history, and its cultural significance. This can vary between people, as it is essentially the bond created between people and places. For example, this might evoke:

- Emotions (e.g. significance of its history).
- Imagination (e.g. what the place looked like in the past).
- Stories (e.g. tales and folklore).
- Personal experiences (e.g. sense of excitement or adventure).

The challenge therefore lies in developing a network of stakeholders to promote the local nature heritage resources through a range of marketing initiatives, communicating a singular message. Therefore, the success from a management perspective is dependent on the capability of the broader tourism network to enhance the interpretation of the nature resource. Central to this is the sustainability of local resources.

There is a growing share of the market that will not endure over-developed tourism destinations, as many strive for more environmentally conscious locations (Ruhanen, 2007). This requires multiple stakeholder groups working together to enhance the nature interpretation experience, whilst at the same time protecting it for future generations.

### **What is a tourism network and its role in heritage interpretation?**

A network can be defined as a group of interconnected businesses, providing access to resources such as knowledge, power, and capital (Elfring & Hulsink, 2003; Grandori & Soda, 1995). They are dynamic and constantly evolve to meet the needs and requirements of both individuals and organisations (Jack, 2010). Networks therefore provide firms with a medium for organising their business relationships to improve their competitive position (Jarillo, 1988). Firms coordinate their activities with each other in a number of business relationships, the more connected these relationships support co-operation the more firms are willing to invest in the relationship in order to enjoy mutual gain (Blankenburg Holm et al., 1996).

Numerous academic studies have used network theory to delineate destination development and management (Volgger & Pechlaner, 2014; Paget et al., 2010; Baggio et al., 2010; Dredge, 2006). The main benefit of a network structure is that learning and exchange allow for mutual benefits for network actors, which can ultimately leverage increased business activity, which has positive community outcomes (Lynch et al., 2000). From a nature interpretation perspective, the tourism network permits different stakeholders to work together to enhance the visitor experience as well as protect nature heritage. Coordination amongst this diverse group is essential for building a more compelling interpretative experience, necessary for attracting more visitors to the destination and informing them about the crucial role they play in nature preservation.



### 3.4.3 Benefits and Types of Networks

In the past, many destination offerings were managed and controlled by public agencies, and this has led to an outcry for a different governance approach, as the overall complexity of the destination was not being adequately addressed through this management approach (van der Zee & Vanneste, 2015). In order to manage the wide diversity of offerings, destinations must coordinate the activities of an extensive range of tourism stakeholders, which is made even more challenging as the tourism industry is comprised of both public and private stakeholders, as well as tourists and host populations. This has led to significant academic research and indeed industry recognition that a ‘network’ approach to governance offers a more attractive management lens and is ultimately a more compelling proposition. There are many benefits for tourism firms participating in collaborative networks (Morrison et al., 2004).

- These inter-firm relationships provide access to inter-organisational learning and knowledge sharing, so that social capital is acquired, and the competitive position of these firms is enhanced (van der Zee & Vanneste, 2015).
- The network approach also allows firms to be better equipped for market changes. For example, the impact of the COVID-19 pandemic is beyond the control of any tourism destination; however, a destination is better placed to respond to this type of market volatility when operating through a network approach, as they have far more flexibility than when operating as a single firm, and thus are far more resilient.
- There are also clear benefits from the branding of a destination/tourism product network as a singular message is communicated to potential visitors, thus forming an accurate perception of that destination.

The relationships between the different actors in networks are developed through the interaction of actors, resources and activities working together towards a common goal (Håkansson, 1982). They can be relatively simple and easy to define, or it can be extremely complex and almost impossible to delineate. For example:

- The United Nations World Tourism Organization (UNWTO) hosts a complex network of international actors, whose core mission is to promote responsible and globally accessible tourism development.
- At a national level, Fáilte Ireland (IR) is the tourism development agency who work with a myriad of actors to support and sustain the industry, so that the country offers a compelling and competitive tourism proposition.
- Sometimes networks are sector based where actors come together to promote a particular offering (e.g. walking trails, greenways or blue ways).
- Community networks allow stakeholders in local destinations to work together to create a destination offering that is much more attractive than what could be offered if these firms operated in isolation. For example, the Burren Eco Tourism & Geopark network in Ireland was set up to establish the local area as a premier internationally recognised, sustainable tourism region. This network has allowed these actors to have a formal mechanism for “acting as one”, with their quest to demonstrate eco-tourism best practice.

Networks can also be relatively simple where small numbers of individuals work together towards a common purpose. For example, volunteering networks can be quite common in tourism, as individuals collaborate to enhance their local area (e.g., Tidy Towns initiatives in Ireland). While volunteers may not be as visible, they can be as crucial to the development of sustainable tourism and rural development, and they can be encountered in most rural communities in one way or another. Other examples of networks are:

- The Volunteer Escapes project in Portugal is an example of the vital role of volunteers in tourism, rural development and nature preservation. It has expanded and now nine Portuguese organisations train 175 volunteers in different local communities to bolster the use of volunteers for nature conservation in tourism.
- The success of walking tourism in Sheep's Head Way, Co. Cork, Ireland is also linked to strong community links between farmers owning the walking trails, local businesses promoting the attraction beyond the trails and rural and tourism funding agencies collaborating to present innovative and sustainable uses of the landscape as a tourism resource (Dwyer, 2014).
- In Spain, the rural tourism business network in *El Valle del Jerte* (Extremadura, Spain) provides opportunities for enhancing competitiveness and innovation for rural and isolated communities in the face of global market challenges and mass tourism.
- In Romania, the region of Ciocănești, Suceava County started a tradition of painting the walls of one house with motifs of the kind that were found on the painted eggs, traditionally associated with Eastern European countries. This tradition was then replicated by the other households creating a spectacle of colours and forms that now local authorities coordinate and help finance.



### 3.4.4 Network Management and its Connectiveness to Branding

Tourism destinations have a long history of collaborating for the specific purpose of marketing the destination offering (Witt & Moutinho, 1989) which is a common practice in tourism destinations across the globe (Palmer, 1988). Minguzzi and Presenza (2004) highlight the importance of the Destination Management Organisation's role in enhancing the perceptions and images for the entire destination. Tourists conjure up pictures about a destination based on previous experiences, word of mouth or marketing, thereby forming a set of expectations before their visit (Bornhorst et al., 2010). Networking plays an important role in the interpretation of the nature heritage offering within the destination, as the tourism experience is enhanced through the collaborative efforts of multiple stakeholder groups. The communication of the benefits of a destination to the potential heritage tourist prior to the visit, is often achieved through the development of a destination brand.

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### 3.4.5 Branding – An Overview

According to Fournier (1998, p. 345) a brand “is simply a collection of perceptions held in the minds of the consumer”. Almost everything can be branded, and the relevance of a brand is associated with the perception held of that brand by the consumer. Brands have become an increasingly significant element of product/service development and innovation, leading many businesses and destinations to gain a competitive advantage through the success of their brand. Brands provide a level of familiarity amongst consumers and allows them to make informed decisions about their product/service choices, thereby reducing the risks associated with the purchase. This is particularly relevant when purchasing an intangible product such as heritage tourism. Heritage tourism focusses on the uniqueness of a destination and has become a strategic tool in the marketing of a destination by creating a competitive advantage (Vasavada and Kour, 2016) and adding value for the tourist, through the development of memorable tourism experiences.

#### Tourism Experience

The term *experience* can be understood in a number of different ways. As tourists become more sophisticated in their behaviour, they are seeking out attractions and destinations that go beyond the passive and allow them to engage in hands-on experiences. An experience can be defined as both

*“a noun and a verb and it is used variously to convey the process itself, participating in the activity, the affect or way in which an object, thought or emotion is felt through the senses or the mind, and even the outcome of an experience by way of a skill or learning...”*

Tynan & McKechnie, 2009, pp. 502–503

In addition to this, a crucial element of the experience is the fact that each one is unique (Coxon, 2015; Pine II & Gilmore, 1998). As Coxon explains, “even if two people share the same event in close proximity, each of those people will always experience the event to some degree uniquely” (2015, p. 17). Furthermore, the subjectivity of experiences implies it is the consumer that is the creator of the experience while the organisation provides the constructs around the delivery of that experience (Carù & Cova, 2012). Considering this diversity of experiences and in an increasingly competitive tourism environment, heritage sites need to differentiate and provide a clear image and identity in order to be recognised favourably by the target market. Branding can be the key to achieving this by allowing a destination to stand out from their rivals.

#### Branding

The American Marketing Association define a brand as:

*“... a customer experience represented by a collection of images and ideas; often it refers to a symbol such as a name, logo, slogan, and design scheme. Brand recognition and other reactions are created by the accumulation of experiences*

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*with the specific product or service, both directly relating to its use, and through the influence of advertising, design, and media commentary.”*

American Marketing Association, 2015, cited in Dall’Olmo Riley, 2016, p. 4

Branding comprises three key elements:

- Brand identity, which is the image desired by the organisation.
- Brand image, which is the actual image in the minds of the consumer.
- Brand positioning which refers to the strategy by organisations to reduce the gap between brand identity and brand image (Pike, 1996).

### 3.4.6 Destination Branding

Destination branding definition:

*“Destination branding is the set of marketing activities (1) that support the creation of a name, symbol, logo, word mark or other graphic that readily identifies and differentiates a destination; that (2) consistently convey the expectation of a memorable travel experience; that (3) serve to consolidate and reinforce the emotional connection between the visitor and the destination; and that (4) reduce consumer search costs and perceived risk. Collectively, these activities serve to create a destination image that positively influences consumer destination choice.”*

Blain et al., 2005: 337



A destination brand ultimately consists of the brand identity which is derived by the producer and the brand image which refers to the actual perception of the destination in the minds of the consumer (Aaker, 1996). This however is the ultimate challenge from the perspective of the heritage destination organisation as it seeks to ensure the intended image matches the actual image the consumer has of the destination. Increasingly,

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the brand identity will often be the first encounter a potential tourist has prior to choosing to visit a tourism heritage site. In tourism, for a destination to succeed it must offer a range of services or essentially a quality tourism experience and destination branding can guarantee that as well as play a role in the dissemination of the experience after the visit (Ritchie and Ritchie, 1998). Hence it is essential that a heritage tourism site/organisation devises an accurate marketing communications strategy that matches the authenticity of the site thus meeting the expectations of the heritage tourist (Vasavada and Kour, 2016) and enhancing the overall tourism experience.

The heritage tourism experience is enhanced when it is supported with authentic messaging and storytelling and the branding and marketing communications of a heritage site are often the first encounter a potential tourist will have with the destination story thus creating a perception of that destination in the tourists' minds and including it in their decision-making process. Thus, the brand image is derived.

### **Brand and Destination Image**

The image a consumer has of a destination influences their tourism decision-making process. Brand image is the "perceptions about a brand as reflected by the brand associations held in consumer memory" (Keller, 1993, p. 3). However, each individual is likely to interpret the brand in many different ways as brand image is subjective and based on the experiences of the individual. Therefore, the development of a brand identity constitutes the greatest challenge from a destination marketing perspective as the image of a heritage site may not resemble the image of that site in the minds of the consumer (Pike, 1996).

Echtner and Ritchie (1991) define destination image as the result between the perceptions of individual destination attributes and the holistic impression made by the destination. Zhang et al. (2014) noted that there is a strong correlation between destination image and destination loyalty, while Hunt (1975) argued that the image a potential tourist has of a destination can ultimately impact on the viability of that destination. As the heritage tourism product is essentially an intangible service, it can only compete through images and language. It is the interpretation of the marketing and promotional material that will ultimately create awareness of the heritage site in the minds of the consumer and influence their decision-making process.

### **3.4.7 Role of Branding in Heritage Interpretation**

Robertson (2015, pg. 290) noted that "heritage interpretation helps visitors make sense of, understand and emotionally attach themselves to the destinations they visit and the events they experience". Co-creation between the communicator and the tourist is a key element of interpretation as they strive to determine a unique image for the heritage site which ultimately can be marketed as a place brand. The development of a good interpretation plan can result in the positive perception of a particular site as a quality experience resulting in positive word of mouth and social media communications (Robertson, 2015). Furthermore, this can in turn lead to destination loyalty as the tourist forms an attachment with the destination. Essentially, heritage interpretation should be a crucial part of the marketing plan and not simply an afterthought.

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## **Branding Nature Heritage: the tourist and the different shades of green**

Today, tourists are more concerned with nature preservation and the environment. In 2015, employing 20,000 individual responses from the Flash Eurobarometer, Falk (2019, p. 1033) observed the characteristics of green tourists in Europe. The results showcase that one third of European citizens consider sustainable practices important for their holidays: ‘contemplating an environmentally-friendly destination depends significantly on a bundle of socio-demographic and contextual characteristics, where country of residence is the most important factor’. Further to this disparity of tourists based on their country of origin, many nature tourists present inconsistent behaviour in their nature visits and show, for example, pro-environmental attitudes in some instances but ignore a sustainability mindset in others (Kim & Weiler, 2013).

If brands aim to create a solid and consistent image of the nature place strengthening and reinforcing brand loyalty and affinity for the destination, how can brands cater for the different segments of tourists and the different shades of green they represent? It is here that interpretation has a crucial role to play. While sustainability and branding can offer a unified image of place, that of a sustainable brand, the interpretation plan can provide for the different voices of sustainability that tourists personify, not with the aim of unifying them but in an attempt to inform them so that tourists can develop empathy towards conservation and landscape.

### **A sustainable interpretation plan for a sustainable brand**

Starting at the level of the tourist, interpretation can be an important part of the visitor experience, contributing to making a visit meaningful and enjoyable (Orams, 1996; Moscardo, 2013). These positive or satisfying experiences are also supposed to encourage visitors, both tourists and local residents, to develop more supportive attitudes towards the care and conservation of the heritage being presented and to respond more positively to management guidelines (Association for Heritage Interpretation, 2020). These enhanced experiences are then said to attract more visitors, support longer stays, destination community, increased revenues, which in turn can contribute to brand loyalty.

Thus, brand affinity emerges from the tourist’s emotional attachments to the experience, and this is precisely what differentiates interpretation from environmental education. To achieve this, interpretation must incorporate differences into interpretative experiences, provide personal connections for visitors, encourage hands-on interactions, create clear content, and allow for different audiences (Moscardo, 1999). As Reisenger (2006, p. 486) claims, ‘providing variety in the interpretative experiences is a very important way to encourage mindfulness and to acknowledge the different shades of green visitors personify’.

Thus, while branding must agree on an all-encompassing image of sustainability in the destination, it is through innovative planning that various sustainable segments can be met and different experiences can be conceived to inform and educate the visitor, and possibly impact behaviour change towards the environment. However, it is also important to consider that this education and change may simply not occur or at least not to the degree that is expected, and it is here where measuring the effectiveness of interpretation is of utter importance to ensure that branding and interpretation are working towards the same objectives.

## The effectiveness of interpretation and its impact on branding

Interpretation can change tourists' behaviour through education but in which ways? which parts of the interpretation process have a bigger impact in their awareness and behaviour change? For instance, governments are investing in state-of-the-art visitor centres with high intensity levels of multimedia and gamification; however, in nature, where the tourist is generally more interested in authenticity and being at one with nature, technology may not always be the way to strengthening the brand destination, on the contrary it could tarnish it (Healy, Van Riper and Boyd, 2016). And yet with today's visitors being more e-savvy than ever before, it is unlikely that the interpretation pendulum will swing back to more basic and simple interpretation strategies. Therefore, understanding visitors' needs, expectations and interpretation preferences to keep them engaged as well as measuring the effectiveness of interpretation becomes intrinsically related to branding.

In a critical study on the effectiveness of interpretation, Moscardo (2014) maintains that the majority of interpretation studies have centred on changes in knowledge and attitudes but few on actual behaviour change. Another shortcoming is that most studies have taken place right after the interpretive experience, with very few studies looking beyond, for example, examining the tourists' attitudes and behaviours a month after the visit. Moscardo (2014, p. 471) suggests other angles to be included to ensure more effective and encompassing measurements of interpretation and a strengthened view of the destination brand. These should include:

- identifying and understanding the tourists who do not participate in interpretation,
- exploring how visitors create their own meanings of places and heritage over extended periods,
- analysing the cost-effectiveness of interpretation both in itself and in comparison to other possible strategies as an on-site visitor management tool.



## Examples of nature heritage brands

Brands, such as UNESCO, are universally recognized for their peacebuilding through international cooperation in Education, the Sciences and Culture and their contribution to the achievement of the Sustainable Development Goals. Other brands, like EDEN (European Destinations of Excellence) are linked to nature and cultural heritage within the European continent. Each country has their own nature heritage brands which often coincide with the destination name (see Table 3.4.7a, p. 99).

**Table 3.4.7a | Nature Heritage Brands**

European Countries	Examples of Nature Heritage Brands
Austria	Villach Alpine Road Schlegeis Alpenstraße Nockalstrasse
Czech Republic	Špindlerův Mlýn Bohemian Switzerland Liberec
France	The Alsace Wine Route Route Napoléon Routes des Cretes
Germany	Baden Wine Route German Alpine Road Bergstrasse Route
Ireland	Wild Atlantic Way Ireland's Ancient East Ireland's Hidden Heartlands
Italy	Camino di Santu Jacu, Sardinia Sentiero degli Dei (Paths of the Gods) Amalfi Coast
Lithuania	Romantic Panemunė Amber road at the Lithuanian Seaside The Baltic Way today
Portugal	Douro Valley Route Serra da Estrela Tras-os-Montes
Romania	The Carpathian Garden Route Transfagarasan Highway (the road to the clouds) Transylvanian
Spain	Green Spain El Camino de Santiago The Don Quixote Route

Source: Author elaboration.

### 3.4.8 Summary

This section has focused on the key elements of network formation in tourism and branding tourism destinations, with an emphasis on the key roles played by each in the interpretation of the heritage tourism products. There is a key correlation between the development of a tourism network and the branding of a destination. In many instances the purpose of developing a network collaboration between tourism stakeholders is in essence



to brand a destination as a single entity within the realm of nature heritage tourism. The destination brand can provide the potential visitor with a much more compelling reason to visit as it incorporates the national heritage of a destination rather than a single tourism entity. The brand image is often the first exposure a tourist has to a heritage tourism destination/product and thus can influence the perception of that destination. Therefore, branding as a form of tourism heritage interpretation is essential in the early stages of the tourist decision making process. Furthermore, as was noted from the above examples heritage brands are evident at an International, European, National and Regional basis and are formed based on the development of networks of key industry and community stakeholders as well as public and private organisations.

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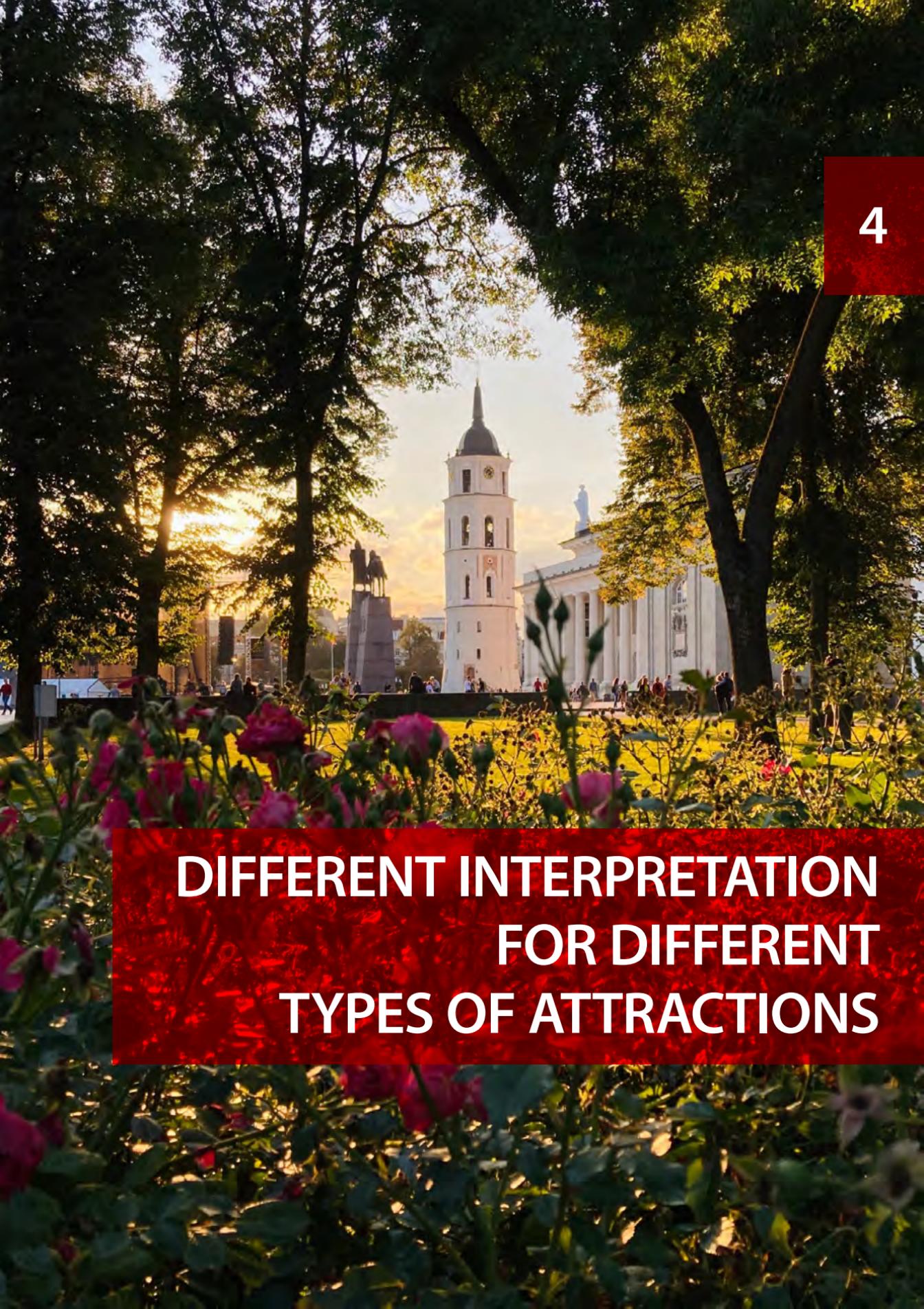
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**DIFFERENT INTERPRETATION  
FOR DIFFERENT  
TYPES OF ATTRACTIONS**

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# Introduction

Nature heritage of Europe is remarkably diverse and includes different types of natural attractions. Its type influences the possibilities of their interpretation to visitors both from the view of its content, forms and tools of interpretation.

This chapter briefly introduces those important types of natural phenomena of Europe which represent an important potential for tourism development and opportunities and specifics of their interpretation. The chapter covers the following types of attractions: large-scale protected areas, national parks, small-scale protected areas, regional parks, nature reserves, geoparks, coastal landscape, inanimate nature, caves, volcanic island landscape, cultural landscape, palace gardens, Zoos and botanic gardens, hydrologic attractions, or sky. These natural phenomena are divided into nine subchapters, each offering a brief review of the given type in Europe with examples of major tourist attractions. The goal of this chapter is to facilitate an idea about European nature heritage to students with different basic knowledge. With respect to the size and goals of this study material it is not possible to cover more detailed information about European nature heritage, but there is enough professional literature where more information can be found. Specifics of interpretation for individual natural attractions can be found in this chapter. Each subchapter ends with a case study showing a particular solution of interpretation of one natural attraction. Questions, tasks for solution, topics for discussion and further recommended literature should encourage student's analytic, critical, and constructive thinking about the approach to nature heritage interpretation. Each subchapter was written by authors from different European universities which resulted in their diverse content. The authors stressed approaches and aspects of interpretation current in their countries.



## 4.1 Large-Scale Protected Areas

This Chapter will give you an overview of European large-scale protected areas and national parks. It will also look into the specifics of heritage interpretation methods and provide examples of best practice.

### Protected areas

In accordance with the definition provided by the International Union for Conservation of Nature and Natural Resources (IUCN), a protected area is “[...] a clearly defined geographical space, recognised, dedicated and managed, through legal or other effective means, to achieve the long-term conservation of nature with associated ecosystem services and cultural values” (Dudley, 2008, p. 8). This definition has also been adopted by the European Environment Agency (EEA).

Applying to a wide spectrum of protected areas, the term “large-scale protected area” (LSPA) refers to national parks, UNESCO biosphere reserves, as well as nature and landscape parks, with the latter also including UNESCO World Heritage sites, depending on their size and objectives. An LSPA is a precisely defined geographical territory established for the long-term conservation of nature and managed for this objective by legal or other effective measures. Both the ecosystem and cultural values play a role.

Throughout history, different needs have created different types of protected areas. Early examples include agricultural landscapes, which traditionally contained protected areas, hunting grounds for the medieval nobility, and sacred sites of indigenous communities. What these early forms of protected zones have in common is that they were all protected by written or orally transmitted rules or taboos. This historical diversity explains the wide variety of protected areas existing today.

Even though the origin of institutionally protected areas in their present form dates back to the 19th century, it was not until after the end of the Second World War that nature was seen as worthy of protection. While in the 17th and 18th centuries efforts to protect areas were still driven by an interest to preserve natural resources, after the end of the Second World War, the focus shifted to the protection and preservation of biological diversity (Holdgate, 1999).

It was not until much later, in the 1970s, that the mixed model prevalent today emerged – a model which views protected areas as a critical component of a life support system, a storehouse of biodiversity, as well as a potential source of economic wealth. The latter, however, must be sustainably used.

## The IUCN protected area categories system

Society has recognised the social and economic added value of protected areas. This has primarily been made possible because people have realised that an ecosystem provides services beyond the preservation of ecological diversity, such as clean water, temperature regulation, food supply and aesthetic value.

The management of modern protected areas poses multiple challenges. While in some protected areas hunting or natural resource extraction is prohibited, in other protected areas human activities may even be necessary for habitat conservation and restoration. It is not uncommon for these activities to contribute to cultural identity, which makes the participation and involvement of people in the establishment and management of protected areas all the more important (EEA, 2012).

In order to meet the needs described above while, at the same time, ensuring the protection of the areas, the IUCN has identified seven different categories of protected areas (see Table 4.1a below). Nearly 78% of all protected areas in Europe represent terrestrial areas, which can be assigned to the following IUCN categories:

- 9% meet the criteria of IUCN Category I (Strict Nature Reserve or Wilderness Area),
- 14% of Category II (National Park),
- 0.7% of Category III (Natural Monument),
- 12% of Category IV (Habitat/Species Protection Area),
- 47% of Category V (Protected Landscape),
- 2.4% of Category VI (Protected Area with Sustainable Use of Natural Resources) (UNEP-WCMC, IUCN and NGS, 2018).

**Table 4.1a | The Seven Management Categories and Governance Types of Protected Area**

IUCN Category	Definition
(Ia) Strict nature reserve	"Category Ia are strictly protected areas set aside to protect biodiversity and also possibly geological/geomorphological features, where human visitation, use and impacts are strictly controlled and limited to ensure protection of the conservation values. Such protected areas can serve as indispensable reference areas for scientific research and monitoring." (Dudley, 2008, p. 13)
(Ib) Wilderness area	"Category Ib protected areas are usually large unmodified or slightly modified areas, retaining their natural character and influence without permanent or significant human habitation, which are protected and managed so as to preserve their natural condition." (Dudley, 2008, p. 14)
(II) National park	"Category II protected areas are large natural or near natural areas set aside to protect large-scale ecological processes, along with the complement of species and ecosystems characteristic of the area, which also provide a foundation for environmentally and culturally compatible, spiritual, scientific, educational, recreational and visitor opportunities." (Dudley, 2008, p. 16)
(III) Natural monument or feature	"Category III protected areas are set aside to protect a specific natural monument, which can be a landform, sea mount, submarine cavern, geological feature such as a cave or even a living feature such as an ancient grove. They are generally quite small protected areas and often have high visitor value." (Dudley, 2008, p. 17)

*Continued on page 112*

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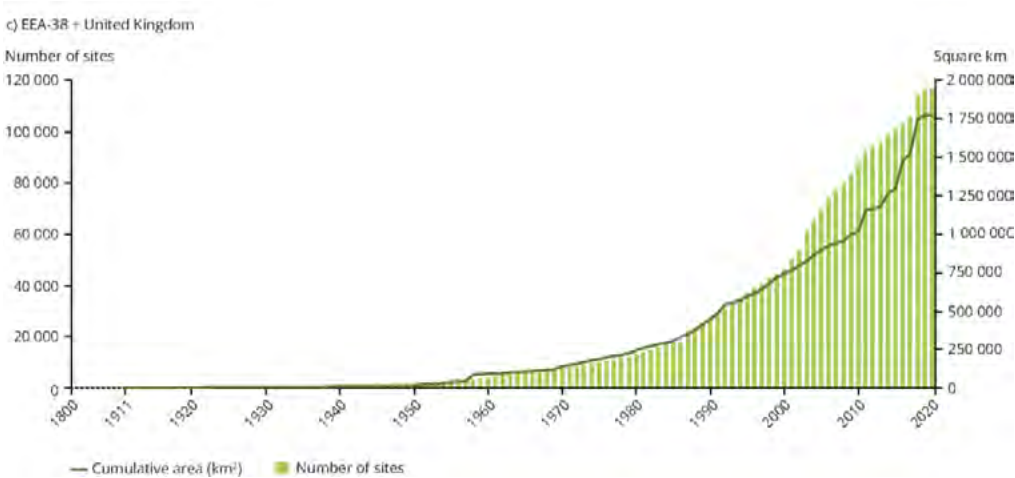
IUCN Category	Definition
(IV) Habitat/species management area	"Category IV protected areas aim to protect particular species or habitats and management reflects this priority. Many categories IV protected areas will need regular, active interventions to address the requirements of particular species or to maintain habitats, but this is not a requirement of the category." (Dudley, 2008, p. 19)
(V) Protected landscape/ seascape	"A protected area where the interaction of people and nature over time has produced an area of distinct character with significant, ecological, biological, cultural and scenic value: and where safeguarding the integrity of this interaction is vital to protecting and sustaining the area and its associated nature conservation and other." (Dudley, 2008, p. 20)
(VI) Protected Area with Sustainable Use of Natural Resources	"Category VI protected areas conserve ecosystems and habitats together with associated cultural values and traditional natural resource management systems. They are generally large, with most of the area in a natural condition, where a proportion is under sustainable natural resource management and where low-level non-industrial use of natural resources compatible with nature conservation is seen as one of the main aims of the area." (Dudley, 2008, p. 22)

Source: Dudley, 2008.

### Large-scale protected areas in Europe

Since the late 1980s, the designation of protected areas in Europe has experienced a real boom in terrestrial and marine protected areas (see Figure 4.1a, pg. 112). The figure below shows the increase in the number and cumulative area of terrestrial protected areas in European countries. The statistics derive from data provided by EEA countries.

**Figure 4.1a | Increase in the Number and Cumulative Area of Nationally Designated Terrestrial Protected Areas in Europe, 1800–2020**



Source: EEA, 2020.

## Natura 2000

Natura 2000 is a network of protected areas established by the European Union across all member states, with the aim of permanently securing Europe’s habitats. The legal basis for biotope and species protection within the EU is based on the Council Directive No 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora (European Council, 1992).

The Natura 2000 network consists of Special Areas of Conservation (SACs), Special Protection Areas (SPAs) and Sites of Community Importance (SCI), including protected areas in the categories of national park, nature reserve, landscape protection area and protected landscape part, as well as areas that do not yet have a protection category. In total, 787,767 km<sup>2</sup> are designated as terrestrial sites while 251,564 km<sup>2</sup> as marine sites. Overall, 18% of the EU’s land mass and more than 8% of its marine territory are designated as important breeding and resting places for rare and threatened species, and some are designated as rare natural habitat types. The aim of the network is to safeguard the lasting survival of most valuable and threatened species and habitats in Europe.

Natura 2000 is not a system of strict nature reserves where all human activity is excluded. It includes strictly protected nature reserves, but most of the land remains in private ownership. The approach to conservation and sustainable use of Natura 2000 sites is much broader and focuses largely on people working with nature rather than against it. However, Member States must ensure that sites are managed in an environmentally and economically sustainable way.

### 4.1.1 Overview of European Large-Scale Protected Areas and National Parks

A national park is an instrument used around the globe to permanently preserve unique landscapes and habitats for rare and endangered animal and plant species. The IUCN acts as the global organisation for all states and internationally active nature conservation organisations. According to IUCN, a national park is a protected area which is operated primarily for ecosystem protection and recreational purposes (IUCN, 2018).

The primary objectives of a national park include the following:

- Banning partial areas from any human use or exploitation activities.
- Undertaking active maintenance and conservation measures.
- Supporting scientific research.
- Providing visitors with authentic experiences.

**Table 4.1.1a | European Large-Scale Protected Areas and National Parks**

Country	Number of parks	Total area in ha
Albania	14	230,641
Austria	6	237,620
Belarus	4	395,475

*Continued on page 114*

Continued from page 111

Country	Number of parks	Total area in ha
Belgium	1	5,700
Bosnia and Herzegovina	4	61,610
Bulgaria	3	192,700
Croatia	8	107,917
Czech Republic	4	137,230
Denmark	5	232,250
Finland	41	2,785,550
France	7	406,700
Germany	16	738,940
Greece	12	148,700
Greenland	1	97,200,000
Hungary	10	97,678,830
Iceland	3	1,467,370
Ireland	6	65,350
Italy	25	1,641,135
Kosovo	2	116,312
Latvia	4	209,600
Lithuania	5	151,890
Malta	1	34
Moldova	1	33,800
Montenegro	5	98,530
Netherlands	21	142,920
North Macedonia	3	112,030
Norway	47	6,626,550
Poland	23	318,985
Portugal	1	70,290
Romania	14	472,918
Serbia	4	124,530
Slovakia	9	297,160
Slovenia	1	88,000
Spain	11	349,150
Sweden	30	735,142
Switzerland	1	17,030
Ukraine	49	9,159,256
United Kingdom	15	2,243,700
<b>Total</b>	<b>417</b>	<b>225,101,454</b>

Source: National Parks of Europe, 2022.

## 4.1.2 Specifics of Heritage Interpretation

Modern interpretation of nature heritage relies very much on principles adopted almost seventy years ago. Freeman Tilden (1883–1980), a newspaper columnist and author who used to work with the United States National Park Service, set down the principles and theories of heritage interpretation in his 1957 landmark book *Interpreting Our Heritage*. In this monograph, he defines heritage interpretation as an educational activity “which aims to reveal meanings and relationships through the use of original objects, by first-hand experience, and by illustrative media, rather than simply to communicate factual information” (1957, p. 8).

In other words, Tilden was convinced that the interpretation of nature heritage is more than simply making knowledge available. Rather, interpretation must involve, provoke and be oriented towards the respective target group. If interpretation fails to take these principles into account, visitors will be unable to reveal these meanings.

Tilden’s six principles still form the basis of modern heritage interpretation in a wide variety of contexts today (see Figure 4.1.2a below).

**Figure 4.1.2a | Tilden’s Six Principles**

Tilden’s six principles:

1. Any interpretation that does not somehow relate what is being displayed or described to something within the personality or experience of the visitor will be sterile.
2. Information, as such, is not interpretation. Interpretation is revelation based upon information. But they are entirely different things. However, all interpretation includes information.
3. Interpretation is an art, which combines many arts, whether the materials presented are scientific, historical or architectural. Any art is in some degree teachable.
4. The chief aim of Interpretation is not instruction, but provocation.
5. Interpretation should aim to present a whole rather than a part, and must address itself to the whole man rather than any phase.
6. Interpretation addressed to children [...] should not be a dilution of the presentation to adults, but should follow a fundamentally different approach. To be at its best it will require a separate program.

Source: Tilden, 1957.

### Applying Tilden’s principles to a modern context

One of the most vivid examples of how Tilden’s principles can be applied to a modern context is the Calanques National Park in France. In addition to the objective of protecting the park, its biosphere, flora and fauna, heritage interpretation occupies an equally important space. This is clearly illustrated in its mission statement (see Figure 4.1.2b, pg. 116):

**Figure 4.1.2b | Preserving, Welcoming and Communicating: the Mission Statement of the Calanques National Park**

**Preserve, welcome and communicate**

In collaboration with local stakeholders, the establishment leads and implements the National Park charter, a shared territorial project whose main objectives are to

- protect the natural, landscape and cultural heritage,
- to preserve the character of the area, particularly its tranquility, for the benefit of the fauna but also of the inhabitants, users and visitors,
- to contribute to knowledge, in order to respond to the major Mediterranean issues (terrestrial and marine in a peri-urban context),
- to welcome the public and pass on knowledge about the richness and fragility of the terrestrial and marine heritage,
- to control activities and ensure compliance with regulations,
- contribute to the sustainable development and influence of the area.

The achievement of these objectives is based above all on management measures, such as development, maintenance of the environment, special regulations governing use, and raising visitor awareness.

Source: Parc national des Calanques, 2022.

The Calanques National Park is an important tourist destination, which is reflected in the fact that the Park offers a wide range of activities suitable for various target groups. On the one hand, it attracts millions of tourists every year, both on land and at sea. On the other hand, it plays an important role in the curricula of various school types. Last, but not least, the Calanques National Park is a focal point for scientific research of international standing.

For the target group of tourists, a wide variety of offers is provided: walks and hikes, beaches and swimming, boat tours, cultural attractions, kayaking and paddleboard, climbing, diving, bikes and mountain bikes, boating or recreational fishing.

### 4.1.3 Examples of Good Practice

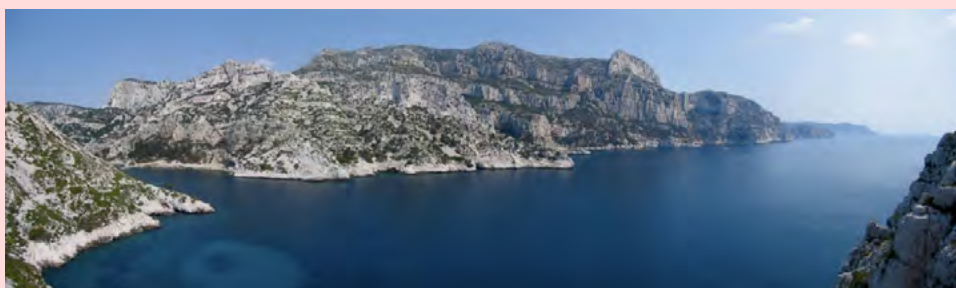
Based on the previous findings, the question remains how large-scale protected areas and national parks can be interpreted. For this purpose, a few examples of good practice will be presented below.

#### Calanques National Park, France

The Calanques are a series of rocky cliffs and bays that were designated as a national park (French: Parc national des Calanques) in 2012. The Park is one of eleven national parks in France. Just under a fifth of the area of the national park (88,000 ha) is made up of the Massif des Calanques stretching between Marseille and Cassis, which is about 20 km long, while the rest (140,000 ha) is spread over the Mediterranean Sea to the south.

In the area of the Massif de Marseilleveyre, the outskirts of Marseille and the protected area form a unique biosphere. The park is known for 210 endemic plant species, 140 protected terrestrial animal and plant species, 60 protected marine species and 48 protected plant species. Every year, it attracts up to 3 million visitors on land and at sea.

**Figure 4.1.3a | Calanque de Morgiou**



Source: Vincent, Public domain, via Wikimedia Commons, 2023.

Methods of interpretation:

- Field agents (e.g. coastal wardens, eco-wardens, regional forest wardens) are all trained not just to manage, preserve and monitor compliance with regulations, but also to interpret and inform.
- Wardens volunteer programme.
- Heritage interpretation scheme.
- Educational activities (e.g. “Plastic Pirates”, “The Éducalanques Education Network”).
- “Calanques Autumn Festival” as an off-season cultural activity.
- “Diving into the heart of the canyons” programme — a mix of physical exhibition and digital material available online.

More information:

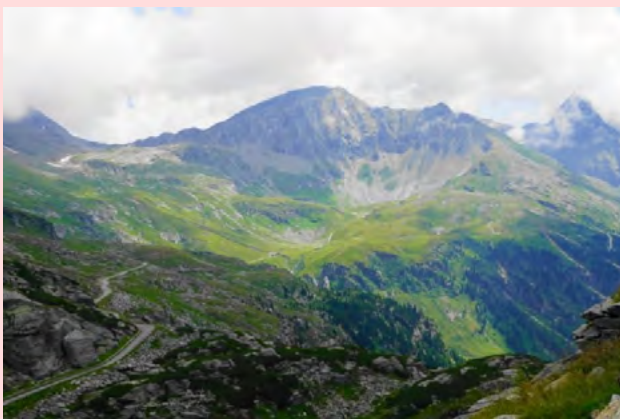
<http://www.calanques-parcnational.fr/>

### Hohe Tauern National Park, Austria

Hohe Tauern National Park was recognised by the IUCN in three different stages: Category II status was granted to parts of the park in 2001 and 2006, while Category Ib (which is the second highest IUCN Category) was not granted to the 6,728 ha wilderness area of Sulzbachtäler until 2019.

Hohe Tauern National Park is the largest national park in Austria and the seventh largest in Europe. More than a third of all plant species and half of all the mammals, birds, reptiles and amphibians recorded in Austria can be found in the National Park. It also offers a secure habitat to animals that were nearly extinct in almost all of Europe at the beginning of the 19th century. All significant alpine ecosystems are preserved across large areas and remain mostly undisturbed.

**Figure 4.1.3b | National Park Hohe Tauern**



Source: Naturpuur, CC BY 4.0 <<https://creativecommons.org/licenses/by/4.0/>>, via Wikimedia Commons, 2023.

Methods of interpretation:

- Three main visitor centres, among them the largest national park visitor centre in central Europe.
- Science centres with a focus on natural sciences.
- Themed guided tours: primeval forests, glaciers, mountain herbs, lakes, safaris, bird watching, geology.
- Educational programmes for schools (e.g. junior ranger programmes, summer camps, “Climate School”, “Water School”).
- Scientific programmes with a focus on park management, bio- and geodiversity, archaeology.
- “Rent a ranger” for groups and individual tours.

More information:

<https://hohetauern.at/>

### Vatnajökull National Park, Iceland

Vatnajökull National Park is a volcanic region in Iceland, covering an area of more than 140,000 ha, which is nearly 14% of Iceland's territory. The park was established in 2008 when the Icelandic government decided to merge Skaftafell park (est. in 1967) and Jökulsárgljúfur park (est. in 1973) to form a new park, Vatnajökull.

Vatnajökull National Park comprises ten main volcanoes, eight of which are situated under massive ice formations. Two of these volcanoes are among the most active in Europe. The interaction between the volcanoes and the Vatnajökull ice cap can lead to sudden floods, the “jökulhlaup”. This has led to the formation of unique plains, river systems and rapidly evolving canyons. Vatnajökull National Park is home to a unique groundwater fauna that can be traced back to the Ice Age.

In 2019, Vatnajökull National Park was added to the UNESCO World Heritage List.

**Figure 4.1.3c | Örafajökull and Jökulsárlón**



Source: Hansueli Krapf, CC BY-SA 3.0, via Wikimedia Commons, 2023.

Methods of interpretation:

- Five main visitor centres, each equipped with a souvenir shop offering a range of local craftsmanship and cultural heritage items.
- Each of the seven areas of the park offers guided tours of different lengths and on different topics.
- Extensive hiking trail net, including extensive map material both in print and digital versions.
- “Melting Glaciers” scientific project with a focus on glaciology encompassing both scientific research and popular science dissemination.

More information:

<https://www.vatnajokulsthjodgardur.is/en>

<https://www.vatnajokulsthjodgardur.is/en/areas/melting-glaciers>

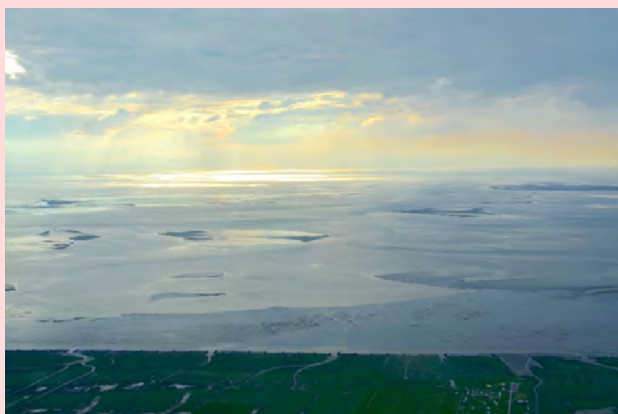
### Schleswig-Holstein Wadden Sea National Park, Germany

The Wadden Seas in Schleswig-Holstein in Lower Saxony are the two largest national parks in Germany. In the mid-1980s, within less than half a year, the two large-scale areas were designated as national parks. In 2011, the Hamburg Wadden Sea National Park was added to the Wadden sea.

The Schleswig-Holstein Wadden Sea National Park covers an area of 4,380 km<sup>2</sup> of wadden sea off the North Sea coast of between the mouth of the Elbe River in the south and the Danish border in the north. The landscape was formed after the most recent ice age 10,000 years ago. It is the most bird-rich area in Central Europe, a roosting ground for 10 to 12 million birds, with about 100,000 pairs breeding in the Park. Altogether 3,200 species have been identified, of which about 250 are found only in the salt marshes of the national park.

The Park is characterised by extensive human activities such as tourism, fishing, coastal protection, grazing, shipping and air traffic, military testing, oil exploration, and gravel and sand extraction.

**Figure 4.1.3d | Schleswig-Holstein Wadden Sea National Park**



Source: Hansueli Krapf, CC BY-SA 3.0, via Wikimedia Commons, 2023.

Methods of interpretation:

- 23 visitor centres and information points, some of them with a special focus such as a seal nursery, bird watching or archaeology.
- Special offers for groups, individuals, families and children such as a “Family Research Laboratory”, a nature film training camp and guided hiking or bicycle tours.
- The park administration provides a broad educational programme for all levels of education accompanied by an extensive catalogue of printed and digital material.
- Great emphasis is put on accessibility.

More information:

<https://www.nationalpark-wattenmeer.de/sh/>

### Plitvice Lakes National Park, Croatia

Plitvice Lakes National Park is located in central Croatia near the border of Bosnia and Herzegovina. It covers a total area of almost 30,000 ha. Sixteen different lakes, which are connected by a river system, waterfalls and cascading lakes, cover an area of 20,000 ha.

The Park has a unique climate and is rich in biodiversity: extensive woods of beech, spruce, and fir, Alpine and Mediterranean flora and fauna. 1,265 plant species, with 75 of them endemic, can be found in the National Park; it is also home to 55 species of orchids, 321 species of butterflies, brown bears, wolves, lynx, and the European wildcat.

Plitvice Lakes National Park is a major Croatian tourist destination, attracting over 1.4 million visitors every year.

**Figure 4.1.3e | Plitvice Lakes National Park**



Source: Zysko serhii, CC BY-SA 4.0, via Wikimedia Commons.

Methods of interpretation:

- Interpretation efforts focus mainly on activities in Croatian. Guides for visits or recreational activities can be booked in several languages.
- Recreational activities focus on experiencing a unique biosphere.
- Mobile exhibition, touring Croatia.
- Educational programmes and workshops for primary schools.

More information:

<https://np-plitvicka-jezera.hr/en/>



#### 4.1.4 Case Study: Lake Neusiedl

In the following, the theoretical concepts discussed earlier will be applied to a case study.

##### **Objective of the case study**

The aim of this case study is to apply the heritage interpretation methods discussed in chap. 4.1. to a concrete case in order to show how this particular nature heritage site can be made more attractive for a specified target group.

##### **Introduction**

Lake Neusiedl National Park was established in 1993. Covering a total size of 9,000 ha (4,500 ha of natural area), it is the second largest national park in Austria (after Hohe Tauern National Park). Lake Neusiedl (Hungarian: Lake Fertő) is one of the few steppe lakes in Europe and the largest lake in Central Europe without an outlet, as well as the largest lake in Austria. It is mostly on Austrian territory, with a much smaller part on Hungarian territory.

**Figure 4.1.4a | Lake Neusiedl**



Source: Author's archive (Wieschhoff, 2022).

The lake has a wide reed belt, shallow depth and mild climate with sometimes strong winds. Its unique fauna and flora are protected by the establishment of the two national parks, Lake Neusiedl-Seewinkel and Fertő-Hanság, and by the designation as a UNESCO World Heritage Site (designated cultural landscape Fertő/Lake Neusiedl). Lake Fertő is a nature reserve and bird sanctuary with a flight restriction. From October 1 to July 31, there is a general ban on flying from 0 (ground level) to 1,500 feet (about 457 m) above ground.

**Figure 4.1.4b | Information Centre**



Source: Author's archive (Wieschhoff, 2022).

## Interpretation methods

As explained above, successful environmental education is always geared towards the respective target group. In most national parks, education is defined through the tension between protection and use. On the one hand, the primary objective of national parks is to protect the biosphere or the habitat; on the other hand, visitors make a financial contribution, for example in the form of entrance fees, to their preservation and maintenance. In many cases, the extensive use of protected areas as a tourist destination has increased their acceptance by the local population. People living in national park municipalities benefit directly or indirectly through overnight stays, gastronomic offers, services, etc. This field of tension results in an expanded target group definition.

Lake Neusiedl National Park addresses the following target groups: 1) daily visitors to the parks and tourists in the region, 2) students of different school types from the region, 3) researchers and laypeople interested in science. This also shows in the various activities and programmes offered by the National Park, which basically fall into three categories: “Visit and Experience”, “Education”, “Nature and Research”. In the following, these categories will be examined in more detail.

### “Visit and Experience”

The activities listed in the “Visit and Experience” category are primarily aimed at people visiting the National Park and at tourists who are on holiday in the immediate vicinity of the National Park. The area around Lake Neusiedl is well known for its cycling tourism, offering an extensive network of cycle paths, as well as for their “Buschenschänke”, which are small, traditional catering establishments offering local specialities and wines from local production. In addition, Lake Neusiedl is an important water sports destination for sailing, canoeing, surfing, kite surfing, stand-up paddling, triathlon and many other sports. See Table 4.1.4a below for the various activities offered by the National Park.

**Table 4.1.4a | Interpretation Focal Points of the Lake Neusiedl National Park**

Activity	Method
Events and tours	<p>In 2022, visitors could choose from 64 separate events and tours to book:</p> <ul style="list-style-type: none"><li>• Canoe tour on Lake Neusiedl.</li><li>• Book your ranger! Individual tour.</li><li>• Pannonian bird experience.</li><li>• Colourful spring messengers.</li><li>• Austrian Bird Race.</li><li>• Wind, sun and salt</li><li>• ...and many more .</li></ul>
Favourite places	<p>Going to park rangers' six favourite places. The aim is to give visitors the feeling of moving off the beaten track.</p>
Routes	<p>Six large routes for self-exploration. The routes start at one of the national park information centres, and are laid out along thematic experiences.</p>
National Park Guide	<p>How do I get to the observation points? Where are the car parks? Which restaurants and resting places are available? Where can I rent bicycles? An interactive online map answers these and similar questions.</p>
Tourism and region	<p>The park offers extensive information about “What to do?!” besides activities in the park itself:</p> <ul style="list-style-type: none"><li>• Additional day trips.</li><li>• Visiting nearby villages and towns.</li><li>• Tourist offices.</li><li>• Culinary and wine tourism offers.</li></ul>

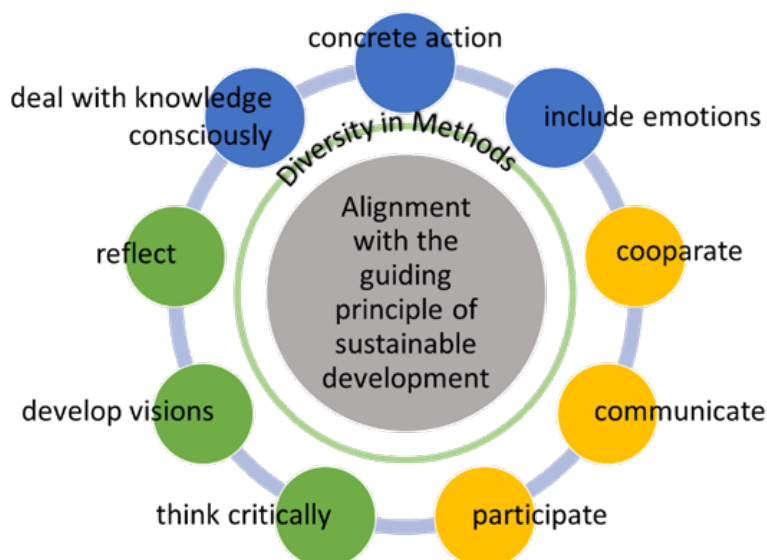
Source: National Park website, 2023.

## “Education”

The interpretation activities offered in the “Education” category are in compliance with the national heritage interpretation strategy for national parks developed by the Austrian Federal Ministry of Agriculture, Forestry, Regions and Water Management. Here, interpretation is primarily about shaping a future worth living for all since education plays a central role in realizing this visionary process (Nationalparks Austria, 2014).

According to the Ministry, a central aspect of these outreach activities is to enable children, young people and adults to impact their living environment and future in an active and responsible way. The following competences and skills are considered essential: concrete action, involvement of emotions, cooperation, communication, participation, critical thinking, development of visions, reflection, conscious handling of knowledge (see Figure 4.1.4c below).

**Figure 4.1.4c | Austrian Interpretation Strategy for National Parks in an Educational Context**



Source: Based on the graph in Nationalparks Austria, 2014, p. 7.

Teachers in German-speaking countries have a varied and versatile range of methods at their disposal, in which the most diverse facets of the protected areas can be taken up for teaching and brought closer to children and young people. A download area is available on the National Park website, offering a variety of didactic materials.

The catchment area of the National Parks extends over three federal provinces: Burgenland, Vienna and Lower Austria. Lake Neusiedl National Park is thus an ideal school trip destination as it does not take longer than an hour to reach it. Open-air classroom activities are aimed at this target group (see Table 4.1.4b, pg. 126).

**Table 4.1.4b | Educational Methods of and Tools for Interpretation**

Activity	Method
<b>Download Centre</b>	<ul style="list-style-type: none"><li>• 5 sing-along music videos (song texts are provided as separate download).</li><li>• 25 “Ranger Radio” podcasts.</li><li>• National Park Periodical.</li><li>• 7 flora and fauna fact sheets.</li><li>• 14 cultural landscape fact sheets.</li><li>• 30 short video documentaries, to be used in class.</li><li>• Map material.</li><li>• Didactic manual.</li></ul>
<b>Open-air classroom Programme</b>	<p>Full-day and multi-day programmes</p> <ul style="list-style-type: none"><li>• Thematically designed full-day and multi-day programmes: a carriage or boat ride or an evening module can be booked. Themes include salt marshes, water as a living matter, Pannonian steppe, bird diversity and “a sea of reeds”.</li><li>• Impulse field trips</li><li>• Three-hour tour for school classes: participants will get a first insight into the different habitats, learn about the tasks and the work of the park rangers and discuss the regional importance of the National Park. Groups are kept as small as possible, supervised by one ranger.</li><li>• Evening module</li><li>• Searching for bats by using “bat detectors”, catching nocturnal insects by using a light screen, participating in a puzzle rally at dusk, campfire barbecue.</li></ul>

Source: <https://www.nationalparkneusiedlersee.at>

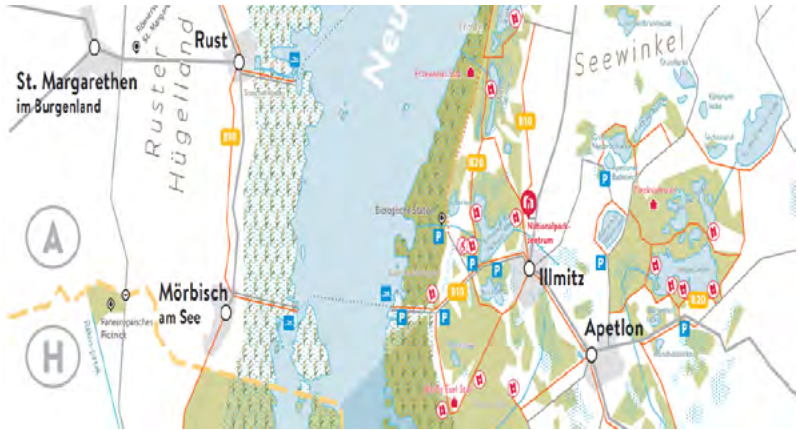
### “Nature and Research”

As one of the most important bird sanctuaries in central Europe, Lake Neusiedl National Park has always attracted scientists from renowned research institutions as well as interested laypeople, such as amateur ornithologists.

While the purely scientific activities focus mainly on conservation measures and changes in the biosphere, thousands of bird-interested visitors come to the lake at any time of the year to observe rare bird species, some of which are threatened with extinction.

For this group of visitors, a wealth of scientifically sound material is provided. Visitors can also download a map of the National Park that shows the best legally accessible observation points (Figure 4.1.4d, pg. 127).

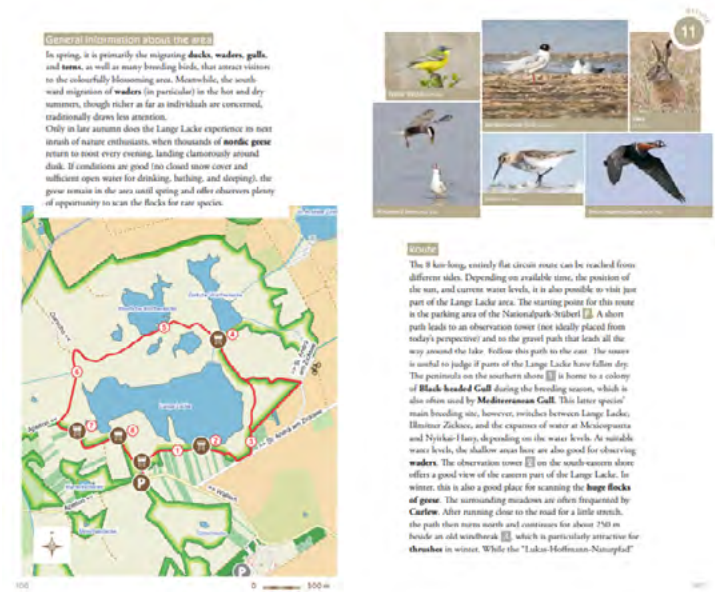
**Figure 4.1.4d | Official Map of the National Park Service (excerpt): the “bird spotting” observation points are marked by red binoculars**



Source: Nationalparkzentrum Illmitz, 2023.

A highlight of the activities and material available is the publication *Birding Hotspots, 43 Routes Around Lake Neusiedl*. On more than three hundred pages, 43 tours and several hundred observation points throughout the National Park are outlined. The guide is equipped with many illustrations and maps, offering details on each tour such as information on flora and fauna, the best observation periods, seasonal features, etc.

**Figure 4.1.4e | Excerpt from “Birding Hotspots, 43 Routes Around Lake Neusiedl”**



Source: Roland 2019, p. 101.

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## Conclusion

The case study of the Lake Neusiedl National Park has shown how important it is to tailor interpretation activities towards the individual target groups. Developing a sound interpretation strategy and ensuring interaction of all stakeholders guarantee sustainable use as a tourism destination while at the same time providing protection as the main task of large-scale protected areas. This case study has also illustrated the dilemma many LSPAs face (protection vs extensive use), which in turn ensures continued existence.

### 4.1.5 Further Reading

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### 4.1.6 Points for Discussion and Questions

1. Why is tourism both a curse and blessing for large-scale protected areas?
2. One of Tilden's principles is that "the chief aim of interpretation is not instruction, but provocation" (Tilden, 1957, p. 9). Discuss how interpretation efforts of Lake Neusiedl National Park could benefit from a more provocative approach.
3. How can the target group of laypeople interested in science contribute to the protection and dissemination efforts of national parks?
4. How can interpretation efforts help to preserve large scale protected areas?
5. What are the challenges that might arise from interpretation activities and extensive tourism in a protected area?
6. Take another look at the case of Lake Neusiedl National Park and apply Tilden's six principles (discussed in 4.1.4).

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## 4.2 Small-Scale Protected Areas

### Definitions

A protected (or conservation) area is a site which is under protection because of its natural, ecological and/or cultural value.

Multi-functional protected areas create ideal conditions for relaxation and recreation; help the public meet their demands for quality natural resources such as clean water, soil and air; provide natural resources for members of the local community; help to maintain a balanced climate (they are places where all life forms are given the chance to co-exist, and also a place for preserving information about all the structures of living and inanimate nature).

Regional parks are the protected areas established for the protection of the landscape and ecosystems of regional significance from the natural, cultural, and recreational point of view, and for regulation of their recreational and economic use. Historic regional parks are established for the preservation of the most valuable historical regional complexes and their natural environments (Baškytė R. et al., 2019, p. 22).

A Regional Park is a territory where the landscape and cultural values characteristic of that region are protected. Economic activities of people are limited here, and efforts are made to combine them with nature protection. In addition, the idea of regional parks can be understood as a concept and as regional development strategy.

Regional Nature Parks are government recognised or government-designated protected areas that have the objective of protecting nature and landscapes, especially those landscapes that are characterised by long-term human use (cultural landscapes), with their diverse species and habitats (Köster & Denking, 2017).

Reserves are the protected areas established for the preservation of the natural and/or cultural sites valuable from a scientific or cognitive point of view, the territorial complexes and objects/properties of natural and cultural heritage located therein, landscape and biological diversity as well as gene pool. Preservation of the properties located in these areas shall be ensured without terminating economic activities therein (Baškytė R. et al. 2019, p. 24).

## Regional parks today

Regional Nature Parks have the following basic areas of work and objectives (Europe's Nature Parks, Landscape Parks and Regional Parks):

1. Conservation, protection of biological diversity and preservation and further development of a landscape shaped by sustainable use.
2. Sustainable tourism and recreation.
3. Sustainable development of rural areas.
4. Environmental education and education for sustainable development.

There are currently around 900 Nature Regional Parks in 22 different European countries, and they share common principles in terms of purpose, mission, and governance, as well as promoting biodiversity protection and sustainable land use and local socio-economic development (Nature Regional Landscape Parks, 2020). As Nature Regional Landscape Parks, where landscape, culture and nature heritage are protected, promote a commitment to people and nature, use the collaborative approach, integrate sustainable development with nature and climate protection, while promoting social contribution at communal, regional and state levels, overseen by changeless, salaried staff, who form communication and improvement units devoted to the assigned zone (Nature Regional Landscape Parks, 2020). The special strengths of the Parks lie in their structures and functions, thus Figure 4.2a, shows facets, creating 'living landscapes' aiming to deliver sustainable regional development (Nature Regional Landscape Parks, 2020).

**Figure 4.2a | Services of European Nature Regional Landscape Parks**



Source: Nature Regional Landscape Parks, 2020.

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Nature Regional Landscape parks use a dynamic-innovation approach, called an ‘integration approach’, where the cooperation among various stakeholders is a key element and these parks imply a alter in recognition of what a secured range is, moving it from being seen as a disconnected space to it being a portion of a living socio-ecological landscape, focussing on the interests of both nature and humans (Nature Regional Landscape Parks, 2020). Thus, as integrative protected areas, Nature Regional Landscape Parks use the participatory governance models when seeking sustainable regional development goals in the economic, social and environmental sustainability dimensions.

British National Parks, French *Parcs Naturels Regionaux* and German Nature Parks serve a far wider set of social, economic and ecological purposes, as Janssen (2009, p. 45) points out, “including for instance addressing quality of life, climate change, conserving biodiversity and protecting cultural heritage: the apparently unbreakable relationship between landscape and visual matters, such as ‘scenery’ and ‘aesthetics’, is, therefore, forced open”. Thus, Janssen (2009, p. 45) notices, “landscape means more than just a scene appealing to the eyes: landscape can be used as a holistic concept around which a wide array of disciplines can coalesce to explore the integration of human-nature relationships”.

It is important to notice, that the diversity of socio-ecological territories in Europe, as Parra (2012) points out, has influenced the differentiation of nature protection institutions: from strict nature reserves to semi-protected zones designed to revitalise. Thus, Parra (2012) argues, that the differing qualities of biophysical regions on the European landmass has given rise to a dynamic separation of administration with regard to nature security, distinguishing between strict nature preservation a semi-protected status aimed at rejuvenating negatively affected provincial domains.

## **4.2.1 Overview of European Attractions in the Subtopics**

### **The European Regional Nature Parks Declaration**

The European Regional Nature Parks Declaration (2017, p. 2–3) points out that Europe needs Regional Nature Parks for the following reasons:

1. Strong and vibrant parks help to create strong and vibrant rural areas.
2. Regional Nature Parks are models for integrative nature conservation and sustainable agriculture.
3. Regional Nature Parks are a driving force behind regional development.
4. Regional Nature Parks support Education for Sustainable Development.
5. Regional Nature Parks connect the European Union to its citizens.
6. Regional Nature Parks support the goals and strategies of the European Union.
7. Regional Nature Parks call upon the European Union and its Member States to collaborative and coordinate objectives and activities.

## The origins and development of Regional Nature Parks

When discussing the origins of regional nature parks in Europe, it seems important to mention that regional nature parks in Europe do not have one common development strategy or one unified structure. Therefore, it is helpful, when discussing Europe's Nature, Regional, and Landscape Parks, to consider the development and role of Regional Nature Parks in different Member States of the European Union, as well as in Norway and Switzerland.

**Figure 4.2.1a | Europe's Nature, Regional, and Landscape Parks**



Source: Köster & Denking, 2017, p. 169–170.

### German Regional Parks

According to Janssen (2009), German Nature Parks were created in the late 1950s to provide the growing West German cities and their populations with opportunities for recreational and leisure activities (hiking, cycling, water sports, etc.) as well as general opportunities for the city dwellers to connect with nature. Nature Parks were established in 25 districts of Germany, seeking to protect the specific characteristic of the regional flora and fauna. This idea of creating regional parks, as Kühn and Gailing (2008) notice, was an innovation in the traditional German planning system, which until then could be characterized as being full of restrictions and formal planning requirements. It was accepted however, that regional parks should not be regarded as an administrative planning instrument, on the same level as extensive natural conservation areas established by law, for example, but as a proposal put forward by regional planners (Ermer et al. 1997). According to Kühn and Gailing (2008), the environmental protection of the open spaces

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within the territorial parks were intentionally implied to be in correlation with prospects for socio-economic advancement. Thus, the territorial parks in this sense are countryside and recreational spaces within the region of a town or city, and should be created into multifunctional social scene spaces, and such concepts should be implied in their design. Additionally, the landscape and the establishment of recreational activity zones should allow for the preservation and reorientation of landscape-specific land and forestry farms. In the parks, according to Janssen (2009), emphasis is being placed on promoting regional agricultural and forestry products and tourism services, and in this way empowering appropriate variants of land use, while also allowing German natural parks to play a critical role in preserving local traditions, traditional crafts, historical settlement patterns and regional architecture. Austria and Flanders have chosen similar ideas to the German parks for regional nature parks development, and in all cases, there is a strong focus on the important role played by local and regional governments.

### **French Regional Parks**

France has developed another model of regional parks, where local municipalities seek to work with state and local agencies, developing a charter of development goals for the park, a model which has proven to be very effective (Köster & Denking, 2017). According to Parra (2012, p. 562), “French Regional Parks are quite interesting institutions for enabling nature protection, as they were created in 1967 by the planning agency DATAR as enable institutions to protect inhabited territories hosting remarkable natural cultural heritage”. The French regional parks, initiated in 1967, “have a history of developing the countryside while at the same time protecting the environment” (Janssen, 2009, p. 39). Consequently, “a ‘bottom up’ rather than a ‘top down’ system has been developed that actively engages local park communities and organizations in a cooperative manner” (Janssen, 2009, p. 40). These parks, “are intended to embody a special identity, culture and history, and a rich nature heritage, in places whose fragile balance might threatened due to population decline and/or agricultural abandonment” (Parra, 2012, p. 562). Thus, French Regional parks subsequently have a twofold role which combines the improvement of local nature heritage as well as regional advancement; from the administrative viewpoint, these parks are a sort of extraordinary regulatory structure in France due to their pioneering sustainability and decentralized governance. There are currently 46 regional parks across France, defined as “an inhabited rural area that is nationally recognised not only for its valuable local heritage and landscape, but also for its character as a sensitive area, as these parks are underpinned by extensive sustainable development plans for the protection and promotion of their resources” (Köster & Denking, 2017, p. 90). Additionally, it is important to mention that other neighbouring countries such as Luxembourg, Belgium and Switzerland have developed their Regional Nature Parks based on this French model.

### **Italian Regional Parks**

In Italy an innovative approach was used for the establishment of Regional Parks the 1970s and 1980s. It is worth mentioning that the first formal protected area in Italy was probably Gran Paradiso National Park, established in 1922 (Tamburelli, 2007).

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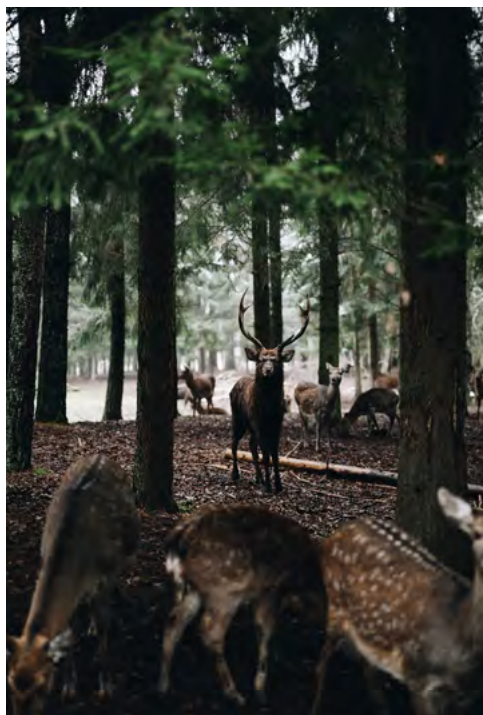
Parks in Italy are not focused on nature conservation at the state level as they were developed by local authorities. In the late 1990s, a National Parks Strategy was launched based on improved national legislation, and in the new century a better balance has been found between these two systems of national and regional parks and conservation, joint efforts have been made to protect and enhance Italy's Nature heritage (Köster & Denking, 2017). Thus, nowadays regional parks are an especially important feature for Italy, showcasing the country's geographical and biological diversity.

### **Spanish Regional Parks**

In the case of Spain, we should mention that over 40 different legal forms have been developed by local regional councils. Despite this bureaucratic confusion, it is important to mention that "Spain was among the first nations in the world to designate Nature Parks as such, creating a pioneering law on 'national parks' in 1916" (Rodríguez-Rodríguez, Martínez-Vega, 2018, p. 100). Nowadays in Spain, protected areas are divided into National Parks, Nature Parks, nature reserves, natural monuments, protected landscapes and protected marine areas, and, as well, there are Natura 2000 sites and some international areas, such as biosphere reserves, etc.

### **Regional Parks of Eastern Europe**

Eastern European countries share a historical past of being ruled by centralized communist systems. At the end of the 20th century, different forms of land ownership, political and economic systems were developing, important changes also took place in nature protection, resource use areas, the legal systems for environmental protection were changing and new protected areas were established in some territories (Joas et al., 2008, Juknevičiūtė, 2015). As Juknevičiūtė (2015) says, Eastern European countries have a dominant state management of protected areas, where decision-makers are national or federal ministries and state agencies. In most cases, the Ministry of the Environment or a specialized state agency is responsible. For example, Hungary is characterized by centralized governance, where all power belongs to a responsible central state institution which ensures the implementation of activities through institutions directly subordinate to it. In some cases, a national office may be established under the ministry to coordinate the administration of protected areas. This is the case in Lithuania, Slovakia, Estonia, the Czech Republic, and Georgia. In Lithuania, such a body is called



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the Protected Areas Service, while in Slovakia and the Czech Republic it is called the State Nature Protection Service. These institutions are dedicated to the management of protected areas and are directly under the control of the ministry (Stanciu & Ionita, 2014; Juknevičiūtė, 2015). In Bulgaria, Croatia, and Romania, the management and decision-making of protected areas is transferred to the territorial units of the responsible ministry. Examples of management decentralization are found in Finland and Latvia, while in Albania, Bulgaria, Slovakia and Slovenia, responsibilities for protected areas are delegated to other actors, both public and private. Additionally, in Romania, the Ministry of the Environment has signed contracts with the National Forestry Administration, various NGOs, universities, county councils and even individuals for the management of some protected areas. However, in most cases contracts do not provide resources, there is no proper coordination and supervision, and this method is considered less effective (Borrini et al., 2013; Juknevičiūtė, 2015). As a result, the structures of nature heritage in Eastern Europe are changing (slowly) and there is a gradual shift towards decentralization, promotion of stakeholder participation and cooperation, transfer of powers and responsibilities to non-governmental actors, who are gaining more and more influence in decision-making (Juknevičiūtė, 2015). At the same time, the public's understanding of nature conservation is growing, encouraging more active involvement in this area, and leading to greater demands for transparency and accountability to citizens by the different bodies managing the resources.

### **Nordic Regional Parks**

Swiss and Norwegian Regional Nature Parks in the last 10 years have started to focus on new methods of development. Although regional parks have existed in Europe since the postwar period, the concept is relatively new in the Nordic countries, as Blumenthal (2014) points out, stating that the first park was opened in Norway in 2007. Since then, the concept has spread rapidly in the Nordic countries, and regional parks are now under development in both Denmark and Iceland and a Nordic regional park-network is also currently under development. According to Blumenthal (2014), a clear division is revealed between the Danish regional parks on one side and the Icelandic and Norwegian parks on the other, and this division is consistent through park characteristics, goals and strategies, as well as in the national interpretation of the regional park concept and partially also in the motivation for establishing the parks. It is important to mention that the only commonality that may be followed over all countries is that there seems to be a correlation between structural administrative changes on a regional level, and the establishment of regional parks. As Regional parks represent different landscapes in Norway (High mountains, fjords, canals, dense forests, etc.), thus the mission of Norwegian Regional Parks is to strengthen cooperation in relation to caring for and further enhancing the natural and cultural values of the regions with their landscapes and identities. (Köster & Denking, 2017). According to Blumenthal (2014, p. 4), “while the Danish parks are almost a true copy of the German regional park model, the Norwegian and Icelandic parks are based on the French model”.

The specific names of the Regional Nature Parks names across Europe are identified and listed in the European Regional Nature Parks Declaration. They are as follows (Table 4.2.1a):

**Table 4.2.1a | The Specific Names of the Regional Nature Parks Names Across Europe**

Country	Name	Country	Name
<b>Austria</b>	Naturparke;	<b>Latvia</b>	Dabas parki and Aizsargējamo ainavu apvidi;
<b>Belgium</b>	Parcs naturels (Wallonia) and Regionale landschappen (Flanders);	<b>Lithuania</b>	Regioniniai parkai;
<b>Bulgaria</b>	Природен парк;	<b>Luxembourg</b>	Naturparke/ Parcs naturels;
<b>Croatia</b>	Parkovi prirode and Regionalni parkovi;	<b>Norway</b>	Regionale parker;
<b>Czech Republic</b>	Chráněné krajinné oblasti	<b>Poland</b>	Parki Krajobrazowe;
<b>Denmark</b>	Danske Naturparker;	<b>Slovakia</b>	Chranené krajinné oblasti;
<b>France</b>	Parcs naturels régionaux;	<b>Slovenia</b>	Krajinski parki and Regijski parki;
<b>Germany</b>	Naturparke;	<b>Spain</b>	Parques naturales, Parques regionales and Parques rurales;
<b>Hungary</b>	Natúrparkok;	<b>Switzerland</b>	Regionale Naturpärke/ Parcs naturels régionaux/ Parchi naturali regionali;
<b>Italy</b>	Parchi regionali;	<b>United Kingdom</b>	Areas of Outstanding Natural Beauty (England, Wales, Northern Ireland) and Regional Parks (Scotland).

Source: The European Regional Nature Parks Declaration.

## 4.2.2 Specifics of Heritage Interpretation

It is very important to mention, that “each Regional Park is adapted for public access and this includes the creation of visitor infrastructure, educational trails and routes, forest parks, and sightseeing spots to enable visitors to experience the outstanding value of the landscape: special attention should be devoted to presenting landscapes and objects in a suitable manner, visitor infrastructure (information panels, benches, bicycle tracks, etc.) and educational trails have been installed in all Regional Park” (Köster & Denking, 2017, p. 112). At the same time, however, the traditional methods presented and described in this e-book also remain valid. The factors that influence the interpretation of parks are the following:

1. The regional natural parks are managed by permanently employed staff, as they are centres of communication and development. Consequently, the presence of visitor centres is mandatory both for information and for the organization and control of visits.
2. Within the parks, regional products are promoted (food, clothing, souvenirs, etc.) intended to transmit a message of nature conservation and encourage a responsible attitude towards nature. Regional Nature Parks enhance the image and tourist development of a region.
3. Educating tourists is, most of the time, the best way to protect and conserve nature. Interpretive communication can contribute to visitor management by influencing where visitors go, informing visitors about appropriate behaviours, and stimulating visitor concern.
4. In many of them, local people and visitors can recover, explore nature, and enjoy sporting activities. For this, there is a specific infrastructure and for some of them (e.g., cycling) there are well-defined routes.
5. Many parks have developed educational activities, including through partnerships with schools, universities, and other potential users. In this case, appropriate and adapted interpretation services are offered.
6. Certain strictly protected areas are not accessible to visitors and there is a specific marking intended for this purpose.

### Protected areas in Lithuania

The area of natural landscapes accounts for around 15% of the total area of the country, and such landscapes are concentrated mainly in the eastern and south-eastern regions that are less suitable for agriculture, the hilly western parts of the country, and the ancient delta on the shoreline (Jukneliene, D., 2017).

The protected areas of Lithuania have been established through an “integrated pathway towards creating its protected areas, a process that is already five decades in the making and the system of protected areas incorporates the protection of both the living and inanimate elements, the typical and unique landscape complexes, from the natural to the urban features that make up our natural and cultural heritage” (Baškytė R. et al., 2019, p. 22). The system of protected areas of Lithuania consists of “a more complex approach, however, as it produces stronger effects and possibilities, involving cooperation between the specialists from various areas, and taking into account different needs and peculiarities” (Baškytė R. et al., 2019 p. 22).



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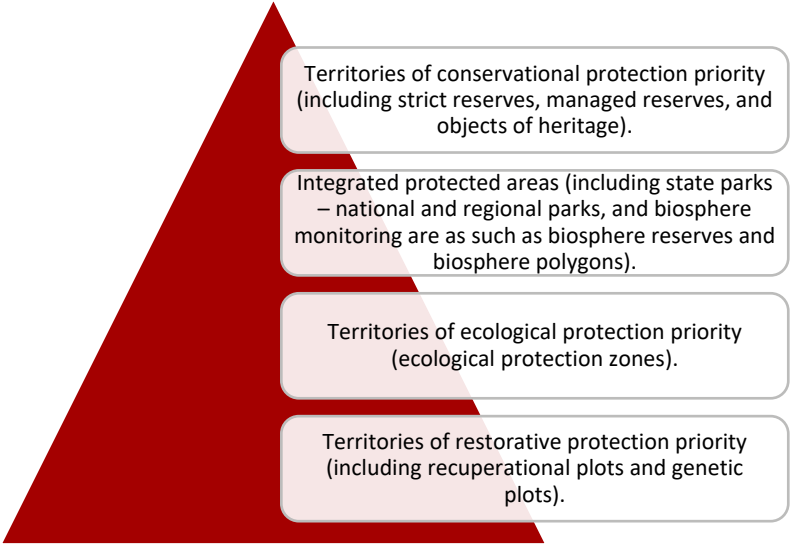
According to Protected areas of Lithuania (2019) the system of protected areas is divided into 4 groups of territories (Figure 4.2.2a).

Lithuania's protected areas are established to (Baškytė R. et al., 2019, p. 22):

- protect natural as well as cultural heritage complexes and objects, landscape, and biological diversity and the existing genetic background;
- ensure the ecological balance of the landscape, and the balanced use and regeneration of natural resources;
- facilitate informative and educational tourism, applied scientific research and environmental monitoring;
- promote natural and cultural heritage complexes and objects, traditional ways of life and ethnographical customs.

As “national parks, as the protected areas, are established for the protection and management of the natural and cultural landscape of national significance representing the natural and cultural singularities of the country's ethno-cultural regions, historic national parks are established for the preservation of cultural complexes of Lithuania's historical statehood centres and their natural environment, thus, regional parks are the protected areas established for the protection of the landscape and ecosystems of regional significance from the natural, cultural and recreational point of view, regulation of their recreational and economic use” (Baškytė R. et al., 2019, p. 24).

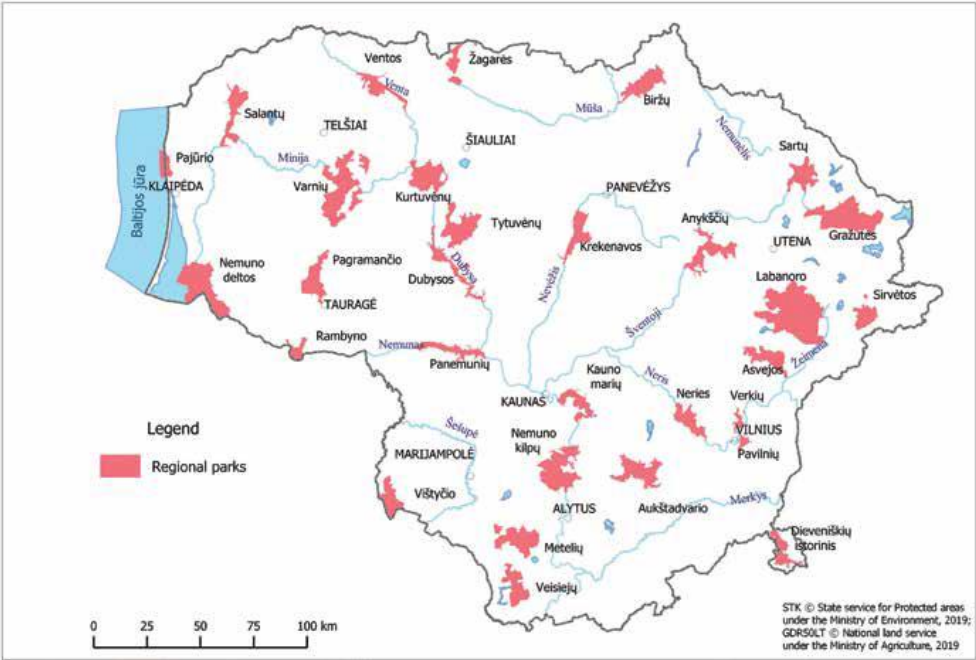
Figure 4.2.2a | Protected Areas of Lithuania 4 Groups of Territories



Source: Baškytė R. et al., 2019.

Regional parks of Lithuania

Figure 4.2.2b | Regional parks of Lithuania



Source: Baškytė R. et al., 2019, p. 146.

There are 30 regional parks in Lithuania, which can be grouped into the following categories according to their landscape type (Protected areas of Lithuania, 2019, p. 146):

- Coastal and lagoon regional parks: Pajūris, Nemunas Delta;
- River valley regional parks: Dubysa, Krekenava, Nemunas Loops, Neris, Pagramantis, Panemuniai, Salantai, Venta;
- Lake parks: Asveja, Meteliai, Sartai, Veisiejai;
- Valleys and lakes rich hilly areas: Aukštadvaris, Gražutė, Kurtuvėnai, Labanoras, Sirvėta, Varniai, Vištytis;
- Valley parks: Kaunas Lagoon, Pavilniai, and Rambynas;
- Plateau and plain regional parks: Tytuvėnai, Biržai, and Žagarė;
- Complex typologically diverse complexes: Anykščiai, Dieveniškės Historic Park, and Verkiai.

**Figure 4.2.2c | Regional Parks of Lithuania**



Source: State Service for Protected Areas under the Ministry of the Environment <https://vstt.lrv.lt/en/lithuanian-protected-areas/regional-parks>

Lithuania's protected area system consists of two types of regional parks. Traditional parks here have a strong conservation profile, and the second part of regional parks – historic parks seek to protect cultural heritage. Thus, “Regional Parks in Lithuania as integrated protected areas, comprising unique landscapes and ecosystems, natural and cultural treasures and regional recreational resources, as well as settlements and villages, seeking to protect natural and cultural heritage and to provide recreational opportunities, primarily for eco-tourism” (Köster & Denkinger, 2017, p. 110). As Regional Parks “occupy 39% of the protected areas of Lithuania, some parts of Regional Parks are important because they contain the most endangered habitats and species in Europe, and they are therefore included in the Natura 2000 network. Regional Parks allow users to revel in the spiritual treasures and the wisdom of humanity, they nurture positive feelings, virtues, and respect for our ancestors and our past, celebrate the culture of the nation and of the individual, and ensure the continuity of traditions” (Köster & Denkinger, 2017, p. 110).

### 4.2.3 Examples of Good Practise

#### Values received from Lithuanian Regional parks

For interpretation of possible values derived from national parks, Lithuanian Regional Park was selected as an example of good practice. The good practice is based on an interview with the expert Inga Banyte, who is the head of the Lithuanian National Park Visitor Centre. In her opinion, individuals in Lithuania receive a lot of added value from national parks, including both use and non-use values.

Speaking about direct use values derived from national parks, the expert highlighted the fact that people are mostly gaining non-consumptive use values such as recreation, enjoyment of nice views, and the pleasure of traversing perfectly made infrastructure in the national parks. Here the unique landscapes (for example Pajurio regional parks) were mentioned as giving people a great satisfaction from visible amenities. The expert also mentioned that the situation of COVID-19 had a huge influence on people's interest in visiting national/regional parks. During this period a lot of people discovered national/regional parks to be a great solution for spending their leisure time. This led to some problems of over tourism, especially in Nerijos regional park.



It is worth mentioning that a national park is an ecosystem, therefore they provide a lot of ecosystem services (which are indirect use values) to the whole society such as water, soil, pollination, biological control, water purification, waste assimilation, flood protection etc. Working staff of national parks are working hard with society, sharing information about option, bequest, and existence values of national parks. First, the information posters, tables and other signs are shown at the different objects of national/regional parks (as information about species, history, benefits received etc.). Second, they make different kinds of videos, spread the information among people about the importance of saving nature heritage. Third, they prepare different educational events focusing on different species, preserving, and saving them for future generation. The expert said that there is still a lack of understanding of these values by people.

In addition, the expert mentioned that there are different types of people coming to visit national parks. Mostly seen groups of visitors are: i) biologists and ecologists; ii)

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adults coming with children; iii) students. They come for different purposes: for getting knowledge, or for leisure time (camping, hiking, enjoying the natural environment).

In conclusion, the total economic value (TEV) of a nature (particular object of nature) consists of the values of the direct, indirect and option use, which together constitute the use value, and the bequest and existence values, which constitute the non-use value of nature heritage goods.



#### 4.2.4 Case study: Lithuanian Regional Parks

##### **Observation Towers as nature interpretation**

We should mention, that sometimes when dreaming, we would like to imagine how our nature areas or regional parks can be seen from above. Thus, nowadays, the visitors to Lithuanian Regional Parks have the possibility to find and experience more than 15 observation towers. Each of them is over 15 meters high, where the visitors can enjoy a different view and experience the different landscape.

**Figure 4.2.4a | The Treetop Walking Path in Anykščiai Regional Park**



Source: Photo from Anyksciai regional park.

##### **Anyksciai regional park**

Ecologically sympathetic / aware people, enthusiastic tourists and everybody concerned about nature, are invited to buy a voluntary donation ticket to support and maintain our Anykščiai Regional Park. On 15 May 2015, the Visitor's ticket was introduced in Lithuania's national and regional parks. The Treetop Walking Path, which is the only one of its kind in the Baltic States and even in Eastern Europe, was opened in 2015 in Anykščiai Regional Park, presenting a unique opportunity to develop eco-friendly

and sustainable tourism in Lithuania's protected areas and helping to reveal different colours, sounds, smells, and images of the peace of nature throughout the four seasons of the year. It essentially aims to remind the visitors of the meaning of the relationship between man and nature. The Treetop Walking Path was honoured with the highest prize in the UNWTO Awards for Innovation in Enterprises in 2016 (Köster & Denking, 2017, p. 112).

### **Birzai regional park**

It is a unique land in which the surface is actively forming, and consequently the landscape is continuously changing. When groundwater washes away gypsum layers that are deep underground, the land above falls in. Then the mysterious sink holes appear: ones that are dry (the famous Cows cave, in there it is possible to monitor the structure of the earth), others – that have become lakelets with sulphur bacteria that are visible to the naked eye (Kirkilai lakelets). If you decide to visit Biržai's pride and joy – the 30-metre Kirkilai Observation Tower – and climb up to the deck, you will be rewarded with impressive panoramic views of 30 water-filled sinkholes known as the Kirkilai Karst Lakes (<https://www.lithuania.travel/en/place/be-sure-to-watch-your-step-in-the-birzai-region>).

**Figure 4.2.4b | Kirkilai Observation Tower**



Source: Photo from Lithuania Travel.

### Krekenava regional park

This park was established in 1992 in order to preserve the landscape of the midway of Nevėžis River, its natural ecosystem and cultural heritage values, as well as manage and use them rationally. The Visitors' Centre of Krekenava Regional Park is established in Krekenava, 28 km from Kėdainiai, which has a playful exposition "Variety of old Nevėžis riverbeds" where the uniqueness of the regional park is revealed vividly and attractively. The 30m observation tower near the Visitors' Centre which reveals a wonderful view of Nevėžis Valley, old hoof-shaped riverbeds, lakelets, Krekenava town with small basilica towers, the Central Lithuania plains with fields, forests, and scattered homesteads (<https://www.kedainiutvic.lt/tourism/en/objects/krekenava-state-regional-park>).

**Figure 4.2.4c | Krekenava Regional Park**



Source: Photo from Krekenava regional park.

### Nemunas Loops regional park

Towering 51 metres into the sky above the Nemunas Loops Regional Park, this is the king of the country's observation towers. With its unique structure that evokes the tower of a defensive castle or a church belfry, and a platform which stands 45 metres above the town, this is a must visit attraction. All visitors need to do to enjoy this commanding view of the town is climb the tower's 300 steps (<https://www.lithuania.travel/en/place/birstonas-observation-tower>).

**Figure 4.2.4d | Birstonas Observation Tower**

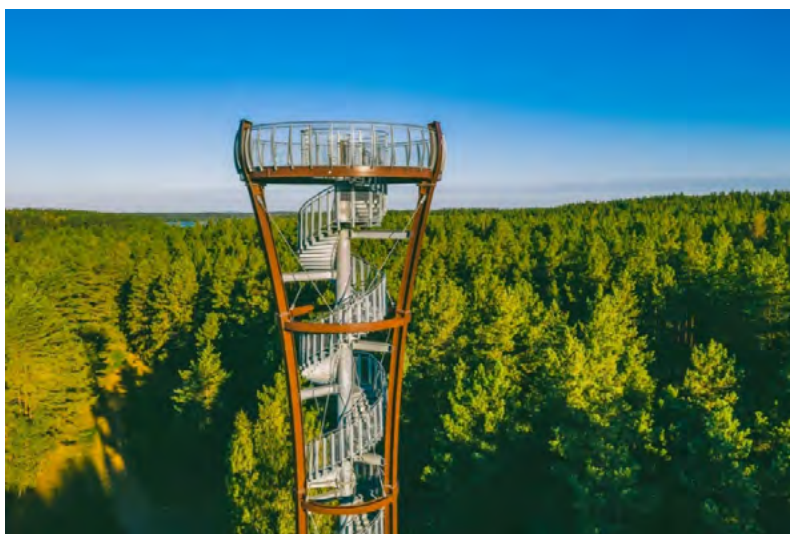


Source: Photo from Birstonas TIC centre.

### **Labanoras regional park**

At 36 meters high, the observation tower in Labanoras Regional Park is the second tallest in Lithuania. Once you climb up the spiral staircase, you will be astounded by the bird's eyes view of the forests and the Baltieji Lakajai and Juodieji Lakajai lakes, with their many islands and peninsulas (<https://www.lithuania.travel/en/place/labanoras-regional-park-observation-tower>).

**Figure 4.2.4e | Labanoras Regional Park Observation Tower**



Source: Photo from Lithuania Travel.

## Veisiejai regional park

Snaigynas is one of the lakes in the Veisiejai Regional Park in the southwest of Lithuania. Eye-catching views open out from the 15 meters high Veisiejai observation tower designed to look like a whirlpool: Lake Snaigynas, its wavy banks, islands, and the panorama of the town of Veisiejai. If you are fond of fishing, try your luck in Snaigynas – it is home to plenty of fish species! (<https://www.lithuania.travel/en/place/snaigynas-lake-and-veisiejai-observation-tower>).

**Figure 4.2.4f | Veisiejai Observation Tower**



Source: Photo from Veisiejai TIC.

### 4.2.5 Further Reading

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BRANDER et al., 2010. *The economics of valuing ecosystem services and biodiversity. The Economics of Ecosystems and Biodiversity: The Ecological and Economic Foundations.*

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## 4.2.6 Points for Discussion and Questions

1. When have Regional Nature Parks been created in many European countries?
2. What are the different models of Regional Nature Parks in Europe?
3. How do you think the use of observation towers contributes to making regional national parks as sustainable and ecological as possible. Please, try to find the elements of sustainability of the presented examples.
4. How do you think the other interpretation methods explained above contribute to making regional national parks as sustainable and ecological as possible.
5. Identify the key points for economic value creation through the development of regional national parks and explain how you think each point does so?

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### 4.3 Geoparks, Coastal Landscape, Inanimate Nature

Although there exists a conflict between the conservation and sustainable aspects of geoparks and coastal landscapes and the development of tourism attractions and facilities, a balancing act is required between the protection of the nature heritage in environmentally sensitive geoparks and coastal landscapes and the availability of a prosperous rural and local economy through tourism development. Appropriate methods of heritage interpretation, knowledge and education, could effectively transform the role of the tourist from observer to conservationist and serve as an ambassador for the environmental ethos of the destination.

Internationally, there is evidence of the importance of local community involvement in the development of conservation policy and activities that ensure the sustainable development of tourism activities in sensitive heritage destinations such as designated geoparks and coastal landscapes. This indicates the importance of engaging with local stakeholders such as tourism attractions, activities and businesses in ensuring the support of sustainable tourism and conservation management in eco sensitive regions.


In the challenging tourism environment as a result of the COVID-19-pandemic, an opportunity arises for rethinking the tourism demand model of increasing visitor numbers as the number one indicator of success. Instead, the industry should focus on methods of developing a more sustainable tourism approach, limiting numbers while maintaining revenues through the development of a quality sustainable tourism experience. This can be achieved through the adoption of appropriate interpretation methods that educate the tourist and allow them to act as conservationists through their actions at the destination. This is particularly the case for environmentally sensitive heritage regions such as geoparks and coastal landscapes. Geoparks by their nature are fundamentally geographical heritage while coastal landscapes throughout Europe and the world have attracted tourists in their droves as a place for rest, relaxation and escapism. As a result, many of these sites are adopting a responsible approach to tourism development to avoid issues of over tourism and environmental degradation. Both geoparks and coastal landscapes fall under the broader definition of geotourism.

**Geotourism defined: geological and landscape tourism**

In its simplest form, geotourism can be defined as “tourism based on geological features” (Dowling and Newsome, 2018; p. 1). However, this definition has been broadened to include, landscape tourism, “geology, tourism, geosites, visits and interpretation” (Dowling and Newsome, 2018; p. 1). Thus, geotourism can be referred to as the commodification of geological attributes of interest in a destination. The interpretation of geotourism determines how the unique features and aspects of the geological region are communicated to the tourist. The methods used to disseminate the “geo-knowledge” include pre-visit and on-site information such as websites, brochures, information panels, self-guided tours (books, mobile apps, QR codes), guided tours (caves, coastal trips, foraging) and interpretative centres. Therefore, a key aspect of the successful outcome of a geotourism experience relates to the knowledge gained about a particular site by the tourist. Tourists will invariably rate their experience higher if they have learned something about the inanimate nature and landscape of the site they are visiting. Thus, good interpretation methods at geosites are invaluable for the tourist experience.

Dowling and Newsome (2018) discuss the concept of a geotourism spectrum which regards geotourism as a type of tourism (geological tourism) on the one end of the spectrum and an approach to tourism on the other (geographic in nature). Table 4.3a illustrates this framework in more depth and highlights the complexity of the geotourism concept.

**Table 4.3a The Spectrum of Geotourism**

Environment	Abiotic	Biotic	Cultural
	Geology and landforms  Climate.	Animals (Fauna).  Plants (Flora).	People – past and present.
Tourism	Geological tourism.  Climate dependent tourism.  Summer Sun.  Winter Sports.	Nature based tourism.  Wildlife tourism.  Eco-tourism.  Wildflower tourism.	Cultural tourism.  Heritage tourism. Indigenous. Tourism.
Geotourism	A type of tourism:  Here geotourism is viewed as exclusively geological tourism.	An approach to tourism:  Here it is viewed more broadly through a geographical lens incorporating biotic and cultural elements.	
The Geotourism Spectrum	A type of tourism.		An approach to tourism.

Source: Own processing based on Dowling, R. (2018).

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As is evident from the table above, the concept of geotourism spans a range of geological/nature tourism experiences, with much of these dependent on the motivations, needs and characteristics of the tourist.

### **Characteristics of the geotourist in geoparks and coastal landscapes**

In the previous section the concept and definition of geotourism was determined. Defining the geotourist is more complex. Hose (1996) developed a broad-based typology of geotourists by focussing on two main types “dedicated users” such as students and specialists and “nondedicated users” who are likely to be casual observers. Hose (1996, 1998, 2000) expanded this distinction by referring to the two categories in terms of insects:

- Butterflies: general tourists, lacking knowledge in geosciences, use display panels and leaflets and appreciate mainly the aesthetic beauty of the site.
- Beetles: postgraduate and graduate students conducting fieldwork and using academic papers to guide their understanding of the site.

Grant (2010) developed a more complex typology of the geotourist spanning six categories ranging from interpretation as entertainment to interpretation as a complex understanding of the inanimate nature and geological features of the site. These include:

1. Unaware visitor: visits with no previous knowledge of the site and impressions are based predominately on the aesthetic appeal of the site.
2. Aware visitor: similar to the first group but has gained some knowledge of the site prior to the visit.
3. Interested visitor: shows interest in the educational aspect of the visit, but with no specific preference.

The other three categories are referred to as the real geo-tourists: visitors who deliberately go to geosites to expand their geoscientific knowledge. They are informed about the geological aspects of the site so the interpretation element must be detailed and of the highest quality. These types are based on the level of knowledge sought at the destination and include:

1. Geo-amateurs.
2. Geo-specialists.
3. Geo-experts.

Vasiljević et al. (2018) developed a five-factor typology of the geotourist based on their travel behaviour and attitudes towards nature (particularly the abiotic component). These five factors were the following:

1. Local community oriented – cares for the local community and their involvement in tourism development; interactions with and support of the local community through the purchasing of locally crafted souvenirs and products.
2. Environmentally aware – nature protection oriented and believes in the detrimental impact of people on nature; strongly believes individuals should have more respect for nature.
3. Nature-based traveller – high regard for nature, particularly wild nature; travelling to nature as a form of escapism.
4. Eco-responsible – environmentally oriented and believes in the sustainable use of resources; behaviour reflects these beliefs.
5. Plog psychocentric – focuses on more well-known and explored destinations; gaining knowledge from tour guides while travelling; interested in learning about the flora and fauna aspect of nature and less likely to engage in outdoor physical activities.

Interpretation is a key variable running through all the above typologies of geotourists to greater or lesser extents. For some, a glancing insight into the natural environment is sufficient while for others detailed educational opportunities are required. This indicates the importance of typologies for Destination Management Organisations (DMOs) in planning and creating interpretation methods for geoparks and coastal landscapes.

Geopark tourism development is quite challenging given the sensitive and vulnerable nature of the natural area including the native species, flora and fauna. Increasing the social and economic benefits for local communities could put additional pressure on environmentally sensitive sites and their biodiversity. Consequently, the sustainable development of geoparks must be a key requirement in geopark development. A key aspect of this will be in relation to the interpretation methods applied in the creation of the tourism experience at these sites.

Interpretation of nature heritage not only relates to the tourism experience itself, it also has an impact on the on-going communication of the nature heritage tourism destination through the adoption of social media by both the visitor and the destination. Tourists play a key role in information dissemination, education and knowledge transfer through the range of social media outlets. They can thus impact on the perception of that particular site and influence others in the tourism decision-making process. Therefore, in the development of an interpretation plan for geoparks and coastal landscape, tourism organisations and management must ensure a positive and satisfactory experience for all visitors. In addition, a range of social media platforms should be used, as well as bloggers, vloggers and influencers.

### **4.3.1 Specifics of Heritage Interpretation**

There exists a range of potential interpretation methods available to managers at nature heritage sites such as geoparks and coastal landscapes. This section will provide a brief overview of these methods. For more information on the pros and cons of each method of interpretation, see Chapter 3.

- **Outdoor interpretation panels.** The most common method of interpretation with regard to nature heritage. These panels take different forms (e.g. lectern panels, upright panels, way marker post panels). The most common form is landscape lecterns or upright panels displaying photos, maps and information or diagrams and illustrations about the area or site.
- **Indoor graphic panels and displays.** Types of indoor graphic panels and displays include the following: a visitor centre dedicated to interpreting the heritage of a particular area or site, an education classroom or centre, exhibition panels (within an existing building), models and displays of artefacts.
- **Live interpretation: guided walks, tours and demonstrations.** This type of interpretation can include many forms, such as formal lectures, informal talks, guided walks and hikes, demonstrations and workshops. These can be delivered by staff members, volunteers and ambassadors, external experts or partners.
- **Live interpretation: performances and theatrical events.** This can include a variety of experiences such as re-enactments of historical events, celebrations of important historical events and demonstrations of historical methods of work (e.g. farming).
- **Publications.** Publications can take many forms: a simple map of a site, visitor map of the geoparks area or trail including site information, information leaflets, an in-depth booklet or guidebook (e.g. geological information), education workbooks or posters.
- **Activity packs/areas.** This includes the development of self-led activity trails. These can be developed as an additional interpretative media and targeted to children/young people to enable them to fully explore and understand the uniqueness and importance of these sites.
- **Low-tech interactive displays.** Jigsaws, models, lift-flaps, reveller wheels etc.
- **High-tech interactive displays.** Virtual reality / augmented reality
- **Audio Media.** This includes the development of short audio media clips. Fixed on-site devices as well as mobile forms of communication such as on websites. This is an excellent medium for presenting dialogue in a range of languages and is also useful for individuals with visual impairments and mobility issues.



## Tactile media

- **Labels and plaques.** These methods are used to identify individual specimens (e.g. trees/shrubs, individual structures in tombs/buildings).
- **Audio Visual Media.** This refers to the use of projected presentations with sound that can be projected onto screens, walls or glass. This also includes holograms.
- **Multimedia.** This refers to the use of gaming, virtual reality and augmented reality.
- **Websites.** Now deemed a vital tool for marketing, pre- and post-visit information and activities which reach a very large audience. QR codes on physical displays can link users to further digital information in an efficient way.
- **Interactive App.** This is an up-to-date method of providing interpretation. Apps can be downloaded prior to visits and provide background information, maps, directions and visitor trails.
- **Arts Media.** This refers to visual arts, poetry, stories that can be experienced independently or through live performances and events.

Drifting Apart (2018)

As is evident from the analysis above, there exists a range of options for management in choosing the most appropriate interpretation method depending on the size and type of nature heritage attraction (geopark or coastal landscape) and the characteristics of the tourist seeking to visit this site. The following sections of this Chapter will address the key methods of interpretation of inanimate nature in geoparks and coastal landscapes, providing examples of best practice across Europe. In addition, a detailed case study of the Burren Eco-Tourism Network in Ireland will conclude this Chapter.



### 4.3.2 Overview of European Geoparks

According to Nikolova and Sinnyovsky,

[...] geoparks are territories with particular geological heritage and sustainable territorial development. They are areas of interest for scientific research and education but also aim to provide the necessary conditions for development of natural and cultural tourism (2019, p. 141).

While the European Union has prioritised the promotion of sustainable, responsible and high-quality tourism, there seems to be no agreed definition on how this is represented. The Operational Guidelines for UNESCO Global Geoparks (2015) are a key policy document as this document provides guidance as to how sustainable tourism activities are to be developed in environmentally sensitive destinations.

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The UNESCO geopark concept was developed in 2015 as a result of the requirement to protect ecologically sensitive and significant areas. These landscapes and geographical regions tell a history of the ecological development in the region, thus representing a key aspect of a destination's heritage.

The Operational Guidelines for UNESCO Global Geopark complement the strategic objectives, also known as the “Five Cs”, set out in the 1972 World Heritage Convention (Budapest 2002, 2007).

- Credibility – Strengthen the credibility of the world heritage list.
- Conservation – Ensure the effective conservation of world heritage properties.
- Capacity – Promote the development of capacity building measures.
- Communication – Increase public awareness, involvement and support for world heritage through communication, and
- Communities – Enhance the role of communities in the implementation of the world heritage convention.

The UNESCO Global Geoparks have an important task to accomplish in the achievement of a holistic interpretation of Earth heritage (Pásková et al., 2021). The designation of specific geographical regions as geoparks has in itself provided a strong platform for learning at multiple levels and has created a focus on the specific area of geotourism in these regions. It provides an opportunity for people to engage with these elements in an organised way to allow for interest and awareness to be piqued and understanding to be deepened throughout all of the typologies of geotourists. The active management of geoparks is very important from this perspective as it can provide not only an opportunity to preserve existing geological and natural history but also to conserve the environment for the future. It has the potential to enable visitors to become more environmentally aware and responsible. Geoparks are made up of ABC (Abiotic, Biotic and Cultural) components, as previously explained.

In association with UNESCO, the Global Geoparks Network (GGN) was founded in 2004 when 17 members of the European Geoparks network and eight Chinese Geoparks came together to form a global network. Currently, GGN has 169 members in 44 states throughout the world. It received legal status as a not-for-profit organisation in 2014.

In order to achieve membership of GGN, a geopark must first be designated under the umbrella of a UNESCO geopark and to attain this status the region must contain “[...] geology of international significance” (europeangeoparks.org, 2021). The following is a map indicating all the geoparks across Europe.

## **European geoparks**

In Europe, there are currently 81 geoparks across 26 countries. The European Geopark network seeks to develop sustainable geotourism on a European scale through the promotion of nature heritage in these regions (europeangeoparks.org, 2021).

In order to ensure sustainable tourism practices at these sites, it is vital to apply appropriate interpretation methods that inform and educate the visitor about the inanimate nature of the area. At the same time, it is important to conserve the ecosystem and biodiversity of the region.

**Figure 4.3.2a | Rock Sculpture of Decebalus, UNESCO Geopark, RO**



Source: pexels.com, 2020.

### **4.3.3 Examples of Good Practice**

This section seeks to explore a few examples of best practice of European Geoparks and the range of interpretation methods applied by geopark sites in educating and communicating with visitors and potential visitors through branding. Interpretation should focus not only on telling the visitor about the destination/attraction but educating them about their role in the conservation of these sites.

There are a number of interpretation methods that are common to a large number of geoparks. These include information boards, guided tours, self-guided trails, information centres and information points. Many of these provide opportunities for the lower-level groups of geotourist i.e. the unaware, aware and interested geotourist to access information. Below are some specific examples of various interpretation methods used in European Geoparks.

### **Bergstraße-Odenwald UNESCO Global Geopark, Germany**

Bergstraße-Odenwald UNESCO Global Geopark extends over 3,800 km<sup>2</sup> between the rivers Rhine, Main and Neckar. It is a spacious landscape with diverse and protected nature and geology. In total, there are 4 entrances, 12 information facilities, 6 geo-education centres, over 30 geopark trails which include information panels at “geopoints”, i.e., sites of important geological, natural or cultural features.

At Bergstraße-Odenwald Geopark there are 45 geoparks rangers who deliver geo-education and geo-adventure activities across the park. These include tours in the areas of; geology and geography, water, forest and nature experiences, as well as agriculture and history, all of which are targeted at children. Adults can participate in active hiking tours with food and beverage products from the region or in landscape tours which allow the participant to immerse themselves in the local geological history, nature and culture (Bergstraße-Odenwald, 2022).

### **Parco Delle Madonie, Sicily, Italy**

This geopark accounts for just 2% of the surface of Sicily, yet it represents almost all aspects of Sicilian geology. It has a very complex history that began over 220 million years ago and is mainly composed of dolomitic limestone with interesting karst morphologies, both on the surface and in the subsoil, developed 23.5 million years ago.

Visitors with reduced mobility can rent an off-road wheelchair (a Joelette) to explore the geopark. In the Madonie park, there is a slow-paced Madonie association which, in collaboration with Madonie Outdoor, organises excursions with the Joelette along the paths of the Madonie park. The philosophy of “Madonie at a slow pace” is that “nature belongs to everyone and we must give anyone the opportunity to enjoy it” (Parco Delle Madonie, 2019).

The Parco delle Madonie is the leader of the European project “VR @ Geopark”, where advanced computer technologies are used to promote geoparks around the world. This project is a partnership between institutions across six countries: Italy, Hungary, Poland, Croatia, Turkey, Portugal, including two from the worldwide network of UNESCO Geoparks. (Madonie and Holly Cross Geopark – Poland). The aim is to develop an application usable by smartphone and tablet devices called “VR @ Geoparks App”.

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### **De Hondsrug UNESCO Global Geopark, the Netherlands**

This geopark has a unique ice age landscape consisting of a series of parallel ridges separated by dry valleys. This highest point stands at 30m above sea level.

Given its relatively flat landscape it lends itself well to cycling tours for visitors of varying levels of ability. A number of cycling trails have been developed that can be experienced with or without a guide; the boulder trip, the ice age tour, the farmers trail and the Van Gogh cycling tour.

The area has been a significant source of inspiration for artists for the last 250 years. Seventeenth century wallpaper painters, such as, Egbert van Drielst, regularly used the local landscape as inspiration for their work. In the 19th century, artists such as Vincent Van Gogh saw the landscape as unspoilt and pure and many flocked to the region to capture this. After the sixties artists found new ways of creating works of art from natural materials. Robert Smithson created land art near Emmen. Many other artists followed his example and the Hondsrug theatre is the opportunity to discover modern land art forms such as “Gebroken Cirkel” near Yde which commemorates the discovery of the “Girl from Yde”, a bog internment.

De Hondsrug park have brought some of their trails to life by using both virtual and augmented reality. Examples are the Sabre-toothed tiger trail, created for children, and the Leewal time travel trail, created for adults.

The Sabre-toothed tiger trail is a playful interactive hike for children. The trail, which is about 2 km in length, winds through the forest and over ice-age hills. Visitors will do some climbing, swing on ropes, balance on rickety bridges and speed downhill on a cable runway. Along the way, games can be played using an app to test speed and skills against that of the Sabre-toothed tiger.

The Leewal time travel trail is 7.5 km in length, taking visitors through forests and over heaths and shifting sand dunes, along dolmens and fields. The trail allows visitors to travel through time spanning 470,000 years. Impressive remains of the ice ages and the enigmatic Leewal that meanders through the landscape can be observed. The app for this route includes 360-degree films, animations and assignments so that the history of the area can be experienced up close. There is a lot of information about the origin of the area, about dry valleys and about the woolly mammoth and sabre-toothed tiger that lived there (De Hondsrug, 2022).

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### **Marble Arch Caves UNESCO Global Geopark, Ireland and the UK**

The Marble Arch Caves Global Geopark includes a wide range of landscapes from rugged uplands, lakes and forests through to gently rolling drumlins. This Geopark represent a complex Earth history dating back as far as 650 million years ago. Evidence of mountain building and destruction; deserts and warm tropical oceans; and also of icy wastelands and water-worn caverns can be witnessed (Marbel Arch Caves, 2022a).

For the younger visitor there is a “Wildlife Detective Activity” which includes structured activities, such as a mini beast scavenger hunt and an animal seek and find tent (as shown below), alongside opportunities for exploration for children aged between 5 and 12 years of age (Marble Arch Caves, 2022b).

#### **Wildlife Detective Activity**

The caves can be explored by participating in a range of guided walking tours. These follow trails that were first explored in 1895. These tours allow visitors to have a multi-sensory experience of the sights, sounds and smells of a living cave. To support a deeper exploration of the caves and gain access to areas that are not possible to physically visit there is a virtual reality experience on offer (Marble Arch Caves, 2022c).

### **Geopark Ries, Germany**

The Geopark Ries represents a special geological feature, the impact of a meteorite (asteroid) about 14.5 million years ago. The impact crater Nördlinger Ries is the best preserved crater in Europe (Geopark Ries, 2022a).

A network of info-centres and info-points form the backbone of the geopark experience. There are staffed centres located in the towns of Nördlingen, Oettingen and Treuchtlingen and unstaffed info-points located in Nördlingen, Wemding, Monheim, Harburg and Deiningen which provide brief and succinct knowledge about the Geopark Ries with a local focus.

As part of the interpretation of the geoparks, an audio guide has been developed called “Lauschtour” (“Eavesdropping”). Visitors can design their own stroll through the Geopark Ries with an audio guide. The so-called “Eavesdropping” tours provide the audio commentary for self-guided excursions and walking tours. The audio guides can be downloaded via an app, or iPhones can be borrowed (with a rental fee). Along the route visitors scan a QR code on the information boards and the audio is delivered through their chosen device (Geopark Ries, 2022b).

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### 4.3.4 An Overview of Coastal Landscapes and Nature Heritage

Coastal landscapes are areas bridging the land and the sea with the key characteristic of being rich in biodiversity, inanimate nature and nature heritage (Lal Mukherjee, 2020). From a tourism perspective, coastal areas are deemed the most popular and highly visited locations throughout Europe and in many instances are the most important economic driver for local communities. From a nature heritage perspective, the main challenge in coastal regions across Europe relates not only to their diversity but to the diverging demand for coastal escapes from one region to the next. Consequently, in some regions the need for sustainable tourism practices is a necessity to protect and regenerate the region ecosystem already damaged as a result of overtourism and tourism development. In other regions the focus on sustainable growth and conservation of the landscape is done through education and appropriate interpretation methods.

There are many examples across Europe highlighting the way in which tourism has affected the coastal landscapes, with present day mass tourism threatening the nature heritage of many regions (Hein, 2020). The development of tourism infrastructure such as hotels, golf courses and airports can impact negatively the natural environment and heritage of the region. Tourism can also put pressure on already scarce resources such as land, water, food, energy as well as the nature heritage and biodiversity, particularly in the intense peak season (Lal Mukherjee, 2020). However, if coastal regions are developed in a sustainable manner it can provide many benefits for the region including local employment and economic development. Additionally sustainable tourism and preservation in coastal areas have several factors in common with both seeking “to maintain the integrity and authenticity of places for future generations, increase intercultural understanding and respect, involve stakeholders, protect the environment, and stimulate holistic management that keep the long term in consideration” (Brantom, 2015; 238).

The tourism industry in coastal regions across Europe is in a process of restructuring (Agarwal 2002) in line with the changing demand of tourists for authentic and unique heritage tourism experiences (Egberts and Bosma, 2014). However, the sustainability of small-scale tourism in the off-peak season may be challenging. It is, therefore, partially the responsibility of policy makers to ensure the sustainable development of heritage tourism in coastal landscapes. The transfer of knowledge between regions to determine best practice for sustainable tourism development with local community involvement is essential (Hein, 2020). This can be achieved through a targeted marketing approach (geotourist, heritage tourist, nature tourist, ecotourist) and the adaptation of a range of interpretation methods that meet the educational requirements of each cohort of geotourists.

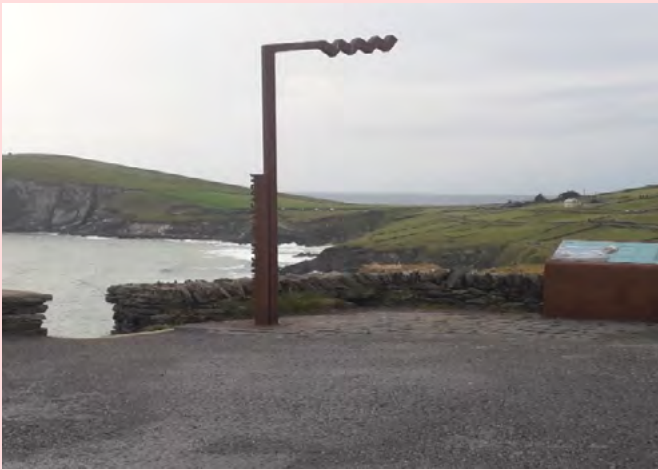
Furthermore, different forms of coastal tourism are emerging as they become areas of recreation for leisure, activity, heritage and education. Guided Kayak tours into caves, guided wild sea swimming activities, guided coastal boat trips and cliff hikes and walks are becoming popular interpretation methods, thereby not only focussing on the educational and conservational aspect of the coastal escape but also the adventure and activity element. The following section of this Chapter will provide an overview of the range of interpretation methods used in best practice examples of coastal landscapes throughout Europe.

### 4.3.5 Examples of Good Practice

#### The Wild Atlantic Way, Ireland

The Wild Atlantic Way (WAW) is a coastal touring route joining up large numbers of towns and villages, attractions and experiences along the west coast of Ireland. It begins on the Inishowen Peninsula in Co. Donegal and goes through the coastal counties of Leitrim, Sligo, Mayo, Galway, Clare, Limerick and Kerry, finishing in Kinsale, County Cork. The WAW is home to two of Ireland's UNESCO World Heritage Sites (1) The Skelligs (unique sandstone rocks rising majestically out of the Atlantic Ocean and (2) The Burren and Cliffs of Moher Global Geopark.

**Figure 4.3.5a | Interpretation at the “Signature Points” Along the Wild Atlantic Way**



Source: Author's archive (O'Donnell, 2022).

The route which is over 2,500 km long is the longest defined coastal touring route in the world. (Fáilte Ireland). The route is divided into 6 main regions and 14 stages. There are numerous discovery points along the way with fifteen of these discovery points being designated as “Signature Points”. These places are unique and showcase how the Atlantic Ocean has shaped and carved the dramatic and spectacular coastal landscape of the West of Ireland. Story Interpretation Panels are located at each of the 15 “signature points”. These panels offer the visitor bespoke interpretation of some of the history and heritage of the area. Each panel also includes historic or scenic images, as well as small motivational map and identifies some other local points of interest. Photo Points have been developed at each of the 188 Discovery Points along the WAW. These points were designed to encourage visitors to capture great photographs to remind visitors of their experience and to encourage them to return for another visit. Visitors are also encouraged to share these photos on both Facebook and Instagram. The Atlantic Way Explorer Mobile App is a free app designed to make it easy for visitors to locate places of interest along

the Atlantic Way route. The App is linked to google maps so visitors can see where they are. Visitors have the option of accessing different pages with detailed information relating to different interests they may have for instance categories such as watching wildlife, puffin breeding, sheer cliff faces, bays, castle forts and towers etc to name a few can be accessed through this app. It also offers visitors detailed information on the counties, routes and activities included in the WAW.

**Figure 4.3.5b | Directional Road Signs Along the Wild Atlantic Way**



Source: Author's archive (O'Donnell, 2022).

### **Lough Hyne, Co. Cork**

Lough Hyne is a semi-enclosed marine lake situated some 60 km from Cork City in Southwest Ireland. It measures just 0.8 km by 0.6 km and it is believed that the Lough was a freshwater lake up to 4,000 years ago, when a rise in sea levels joined it with the sea. It is now a highly sheltered, seawater lake connected to the North Atlantic Ocean via Barloge Creek (narrow inlet) by a narrow tidal channel known as The Rapids. The tide flows from the Atlantic Ocean which fills the lock with sea water twice a day. As the Atlantic Ocean is influenced by the warm current of the gulf stream, this creates a highly oxygenated yet unusually warm seawater that is home to many different marine habitats, it has a rich and varied range of unique plants (such as sponges and seaweed) and animals such as (starfish, wandering lobsters and different species of crab) Many coastal landforms are found here such as cliffs, caves, beaches, boulders and saltmarshes. In 1981, Lough Hyne was designated Europe's first statutory Marine Nature Reserve to protect the rich biodiversity.

## Guided Kayaking Tours

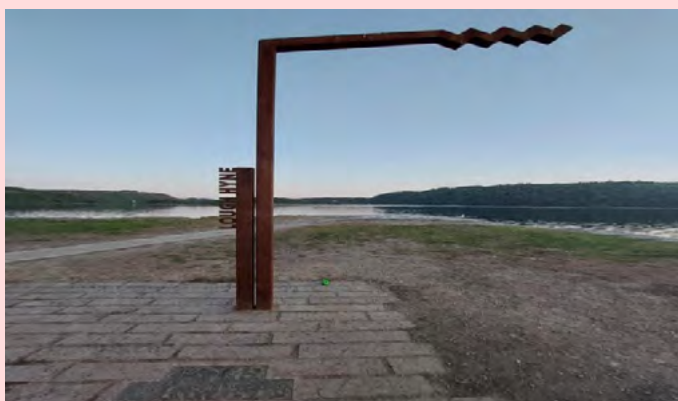
These tours are a popular form of interpretation at Lough Hyne. Experienced kayaking instructors indulge tourists in both day and night kayak tours of the Lough. Providing invaluable knowledge about the history, folklore and nature of the area. The Lough Hyne night tour provides a memorable experience of the sea birds coming home to roost, the sunset and rising moon, the starry night sky and the illumination of the seabed, where the water of Lough Hyne comes alive with bioluminescence (emission of light by fireflies and deep-sea fishes). (theirishroadtrip.com). In addition, both guided and self-guided walking tours are offered at Lough Hyne. The walk follows a trail through woodlands to the top of Knockomagh Hill where visitors can marvel at the splendid views while being educated on all aspects of the nature of the area.

**Figure 4.3.5c | Story Interpretation Panel Located at Lough Hyne**



Source: Author's archive (O'Donnell, 2022).

**Figure 4.3.5d | Signature Point at Lough Hyne**



Source: Author's archive (O'Donnell, 2022).

**Figure 4.3.5e | Lough Hyne**



Source: Author's archive (O'Donnell, 2022).

### **The Wadden Sea**

The Wadden Sea coastal area is a region along the European North Sea coast that spans the Netherlands, Germany and Denmark (see Figure 4.) This coastline has a total length of roughly 500 km and a total area of about 10,00 km<sup>2</sup> (Sijtsma et al., 2019). It is the largest tidal flat system in the world, where sea and wind have been shaping the coastline. Inanimate features include islands, tidal flats, salt marshes, wetlands and dunes.

The Wadden sea provides a habitat for many species, such as seals and many (protected species of birds during breeding, migration and winter seasons (Wolff, 2013, Sijtsma et al., 2019) as well as for many species of diverse plant and wildlife. In 2009 given its globally unique geological and ecological values, the Dutch and German parts of the Wadden Sea coastal area were designated as an UNESCO World Nature heritage Site. In 2014 the Danish area of the coast was added to the UNESCO list.

The Wadden Sea, World Heritage, is an organisation that represents the “Trilateral Wadden Sea Cooperation” of Denmark, Germany and The Netherlands. It was formed to protect and conserve the Wadden Sea. One of its main aims is to engage the public in the protection of the sea through awareness-raising activities and environmental education ([www.waddensea-worldheritage.org/trilateral-wadden-sea-cooperation](http://www.waddensea-worldheritage.org/trilateral-wadden-sea-cooperation)).

### **Interpretation used at the Wadden Sea**

The website [www.waddensea-worldheritage.org](http://www.waddensea-worldheritage.org) is the official website of the Wadden Sea World Heritage. This website provides the public with comprehensive information about the geological and ecological nature of the coastal areas of each of the different sub areas of the Wadden Sea. There are several educational programmes that are delivered by a number of schools in the different countries. A list of the numerous visitor centres located on the coast can be found at this site. Related links to these schools and centres can be accessed on this website together with links to order teaching materials and arrange

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class trips. There are numerous videos and media links available on this site offering a brief insight to the visitors of what they will experience during their visit to this coastal area. Information can also be obtained on this site with regards self-guided hiking routes where hikers can download a pdf map of the various recommended routes.

**Mobile App** – Wadden Sea Explorer offers a range of route suggestions on the mainland and islands. The tours will take the hiker along or near the coast and at numerous waypoints a lot of interesting facts about the nature and the culture of the regions are explained.

**Visitor Interpretative Centres** – there are numerous visitor centres dotted along the coast in the three different countries of the Wadden Sea. For the purpose of this case study the visitor centre “Vadehavscentret” (Wadden Sea Centre) in Denmark will be used as a best practice example. The various types of interpretation used at this centre are as follows:

**Tours** – A range of guided and interactive tours are on offer at the centre to cater for all types of groups for instance schools, associations, tourist, youth education and business groups. Outdoor interactive tours such as sea explorer tour where the expedition leader will bring the group to the mudflats and water of the sea to collect rare animals. They will then bring back their treasures to the centre to examine them up close in a stereoscope. The Wadden Sea Tour allows visitors to discover different kinds of fish and taste plants and hear stories about the life of the sea. The Seal Safari brings the visitor on a hike to the mudflats where they can observe through telescopes over 200 seals who have made the sandbank their home. Other tours include trawling tours, the Wadden Sea and bird tours.

**Exhibitions.** There are two exhibitions on display at the Wadden Sea Centre: 1) The Migratory Birds’ Wadden Sea and 2) Stories from the Wadden Sea. A range of different types of interpretation are used at these exhibitions such as audio guides informing visitors of the importance of the area in different languages, interpretative panels providing context of and insight into the nature of the area. Visitors can also look through imitation telescopes that contain photos of the unique wildlife, birdlife and landforms from the region. There are also audio visual and interactive touch screens. Displays of rare artefacts and objects together with wall and ceiling animations bring significant stories of the Wadden Sea to life. Aquarium displays show examples of the seabed and the animal life and visitors are even encouraged to look and hold some of the sea creatures.

**Teaching and education.** The Wadden Sea Centre offer both indoor (they have 3 indoor laboratories) and outdoor educational tours to different levels of student groups from kindergarten right up to university students. These tours are interactive and demonstrate to students the importance of the area. Teachers are encouraged to download over 200 tasks and student activities based on the curricula developed for use in kindergarten, schools and youth education institutions.

Education portal. The Wadden Sea National Park has an official educational portal (<https://nationalparkvadehavet.dk/>) providing activities and assignments about the nature and cultural of the area. The site can also be used to plan school tours and to get an overview of the area. Visitors can sign up for courses and obtain a wealth of material from their Knowledge Bank.

### Natural Park of Southwest Alentejo and Cape St. Vincent

The South West Alentejo and Vicentine Coast Natural Park covers over 100 kms along the western coast of Portugal. It is home to some extraordinarily diverse geological and biological nature heritage; The Park includes various unique species of animal and plant life with landscapes marked by steep cliffs together with a variety of beaches located between the cliffs and rocks. The cliffs are an important crossing point for migratory birds and a great nesting place for the many species of birds found in this area.

This area experiences a very unique climate in contrast to the rest of the Algarve region in southern Portugal. The area is strongly influenced by the Atlantic Ocean and makes it one of the windiest places in Portugal, there is very little rainfall and little difference between summer and winter temperatures. Due to these unique climatic conditions this area is home to unique flora and fauna and is part of the European Network of Biogenetic Reserve and the Natura 2000 Network.

Figure 4.3.5f | Francisco Santos



Source: Author's archive (O'Donnell, 2022).

The Cape of St Vincent is located near Sagres, Portugal and is the most southern western tip of Continental Europe. Due to its location, it is often referred to as “The End of the Earth”. The Cape is a combination of some magnificent natural features carved out by the Atlantic Ocean while also being a place of cultural importance due to the history surrounding ancient sea navigators. This area is also

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popular amongst tourists for its spectacular sunsets and green flashes – meteorological optical phenomena that sometimes occur briefly at the moment of sunset, this green ray usually last for one or two seconds.

### **Interpretation used at The Natural Park of Southwest Alentejo and Cape St. Vincent**

There are a range of guided and self-guided walking and biking tours along a network of fully marked walking, running and biking coastal trails. These trails are divided into three different types: The Fishermen's Trail, The Historical Way and the Circular Routes which are also split up into different difficulty levels, making it suitable for beginners through to even the most experienced hikers. There are interpretation panels placed along the coast depicting the many coastal trails and providing information of the many towns that are located along the routes. Also, hand-curated trail maps are available for tourists to purchase detailing the different trails along the coast.

There is a large amount of birdwatching viewing points located along the coast with outdoor panels giving information about the many species of birds found along this area.

Guided sunset boat tours offers the tourist an opportunity to sail around the coast and learn about the unique birdlife and coastal features, whilst also experiencing a magnificent sunset and the rare phenomena of the green rays.

### **The Giant's Causeway and its coast, Northern Ireland**

The Causeway Coast consists of a 193km rugged coastline running between Belfast City to Derry – Londonderry in Northern Ireland and offers a mix of spectacular landscapes such as beaches, clifftops, coves and ocean views of the North Atlantic Ocean. Due to the oxygen-rich coastal waters of The Causeway Coast, it is home to a diverse range of marine life such as otters, seals whales, dolphins, basking sharks and porpoises, along with a vast range of fish. Many seabirds nest on the rugged cliffs and offshore islands located along the coast whilst feeding in the rich waters of the Atlantic Ocean. This coastal route includes 3 areas of outstanding natural beauty which includes The Antrim Coast & Glens.

The World Heritage site of the Giant's Causeway is a spectacular area of geological importance located on the sea coast at the edge of the Antrim plateau in Northern Ireland. The most unique feature of the site is the remarkable natural sight of some 40,000 large, regularly shaped polygonal columns of basalt in perfect horizontal sections, that forms a pavement. This unique landscape came about as a result of volcanic activity some 50–60 million years ago. Although legend has it that the causeway was built by an Irish giant, so he could do battle with a Scottish giant.

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### **Interpretation on the Causeway Coastal Route**

The 193 km coastal route has a total of 9 scenic inland routes and 3 areas of outstanding natural beauty. A total of 115 individual outdoor panels are located at specific locations along the route. Each panel, uniform in design, provides primary content to the visitor highlighting site-specific information. The panel boards also contain maps and schematic journey line device, which highlight the broader context as well as the visitor's location. Finally, the panel boards contain 'did you know information' providing the visitor with interesting information that they can easily take away with them.

### **Interpretation Panel Boards used along the Causeway Coast**

The Causeway Coastal Route has designated brown and white way-markings to identify the driving route around the coast of Northern Ireland.

### **Visitor Information Centre**

The Giant's Causeway visitor information centre which was opened in July 2012. The centre receives nearly a million visitors per year from over 150 countries and has won awards for its design, architecture and sustainability. The visitor centres provide an interactive exhibition exploring the stories and the science behind the Giant's Causeway.

### **Multilingual Audio Guides**

Outdoor audio guides provide information in eleven different languages on the landscapes, birdlife, marine life, science and myths surrounding the Giant's Causeway. Audio guides for visually impaired visitors are also available.

### **Trails and Walks**

Four walking trails allow visitors the opportunity to explore the Giant's Causeway at their own pace. The trails are colour coded and are designed for all levels of fitness, incorporating the Giant's Causeway stones, stunning cliff-top vistas and spectacular seascapes.



### 4.3.6 Case Study: Burren Geopark

#### Goals of the case study

One of the main goals for all European Geoparks is to improve the recognition, protection and promotion of their geological features. A European Geopark also needs to have a direct impact on the region in which it is situated by influencing its people's living conditions and environment. The aim is to enable the local communities to re-appropriate the area's heritage values and to actively participate in the region's cultural and economic revitalization through the sustainable use of their geological heritage. The ultimate aim is that visitors will stay a bit longer in local accommodation, spend money in the activities offered while enjoying a genuine and sustainable encounter with the natural environment.

This linkage between geological knowledge, the development of local communities and tourists who ultimately come to learn about the geological heritage and support rural localities is of paramount importance. But how successful are geoparks at interpreting this geological knowledge to those with no formal scientific background to exert influence and have the desired effects in the geological site, the local communities and the tourists? Geological Survey of Ireland director Koen Verbrugge argues that, according to research, geoparks are bringing more economic benefit to regions than world heritage sites and he gives a specific example of how this is done in Ireland. "Ireland has a great diverse geology and the geoparks are a great opportunity to link local sustainable tourism to geology. Farming and regional foods are dictated by soil and therefore by geology. Geoparks celebrate all of this," (2017) he says. This quote succinctly captures the essence of the success of geoparks interpretation in Ireland. The linkage between the scientific geological knowledge, the local community and the tourist manifests in their ability to bring this esoteric knowledge down to the ground, to a level that is meaningful and relevant to all.

This section will examine how Irish geoparks succeed in bringing geological knowledge alive to the tourists and their local communities through their methods of interpretation. These are the Copper Coast in Co. Waterford, Marble Arch Caves in Co. Fermanagh and Co. Cavan (see Chapter 4.3.3) and the Burren and Cliffs of Moher geopark in Co. Clare.

The example of the Burren Geopark is further expanded in a case study so that students will become more familiar with the needs and possibilities of interpretation of nature heritage (scientific and non-scientific) in geoparks. The case study also aims at motivating students to better understand the values of the Earth's geological heritage and how it relates

to human existence. It also aims at making students think about the potential of different methods of interpretation to impact the cultural, economic and environmental development of tourism in nature heritage and rural communities.

## **Case study for the Burren and Cliffs of Moher Geopark**

### **Description of the Geopark**

In 2015, the Burren and Cliffs of Moher Geopark were designated as a UNESCO site. Despite its barren appearance, the Burren is a living, breathing place that has been shaped by geological forces for millions of years. Much of the landscapes of the Burren geopark can be linked to the Carboniferous period between 359 and 299 million years ago. There are two contrasting shades of rock that make up the Burren landscape the lighter Limestones and the darker siltstones and shales that make up the Cliffs of Moher (Burrengeopark.ie, 2021).

The folded rocks are a key feature of the Burren landscape and a result of a collision with the European continent many millions of years ago. This also contributed to the many slits that are evident in the limestone rock. Since then, the rain has been slowly dissolving the limestone over many millennia, increasing the size of the rock fissures. This is known in geological terms as a glaciokarst landscape and is one of the reasons behind the Burren's designation as a geopark (Burrengeopark.ie, 2021).

The key heritage features of the Burren and Cliffs of Moher Geopark can be divided into four categories namely, archaeology, historic structures, nature heritage and flora and fauna.

**Figure 4.3.6a | Cliffs of Moher, Burren Geopark, IR**



Source: pexels.com, 2019.

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## **Archaeology**

Archaeologists have unearthed evidence to indicate that humans were living in the Burren region around 12,500 years ago, this represents the earliest evidence of human activity in Ireland. However, it was not until the Neolithic period (4,000 to 2,500 BC) when humans started to make an impact on the landscape with the development of megalithic and Portal tombs.

## **Historic Structures**

The story of the Historic Burren and its structures is represented through the plethora of medieval castles, churches, ringforts and house dwellings scattered throughout the region and representing a historic journey of the development of the regions-built heritage.

## **Nature Heritage**

The natural and unique heritage of the Burren and Cliffs of Moher Geopark is in abundance throughout but in particular the Burren Geopark is home to the longest underground cave system in Ireland and the longest stalactite in Europe. In addition, the Cliffs of Moher are the highest cliffs in Ireland with endless views into the horizon.

## **Flora and Fauna**

Although the Burren is often viewed as an austere and barren location, it in fact has an abundance of flora and in particular rare species. Furthermore, given the high oceanic climate of the region, different species flower throughout the year, making it a haven for life. According to Keane (1980), the fauna includes feral goats, foxes and hares. Nevertheless 98 species of birds and 28 out the 30 types of butterflies in Ireland have been spotted in the Burren.

## **Interpretation at the Cliffs of Moher and Burren Geopark**

In terms of interpretation of the nature heritage in Ireland, there is a strong tradition of storytelling, history and culture in Ireland, which is a key aspect of interpretation at the Burren Geopark. A key commitment of the Burren geopark as a destination is to education and it seeks to support specialist learning through (Burrengeopark.ie):

- Creating a network of outdoor classrooms and programmes that promote engaged learning.
- Sharing geological knowledge in a compelling way – knowledge about the forces that shape our world, knowledge that increases our understanding of our landscape and culture and helps us to adapt better changes in our environment.
- Introducing new ideas and new thinking to help sustain and enrich the livelihoods of visitors and the community.

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The level and complexity of interpretation and knowledge available to the visitor is dependent on the motivations and characteristics of the geotourist as described in Chap. 4.2.1. of this chapter. Interpretation is provided by the geopark as well as the members and tourism providers of the Burren Eco-tourism Network (BEN). The geopark employs a geologist for the region whose role is to ensure an authentic and understandable interpretation of the region and its nature heritage.

Dr Eamonn Doyle, who is the geologist with the Geopark. Every year he gives these wonderful presentations about the Geopark to the members of the BEN, about how the Burren was formed and some of the key numbers that people need to think about when they're talking to guests. You know how long ago it was formed and various types of rocks and he would also take people through some of their nature heritage. It is wonderful to have that resource there and you know people love to listen to him and because he breaks it down into kind of manageable chunks for them, that they can use them to convey on to guests. (Interview with Jarlaith O' Dwyer, Chairperson of the Burren Eco-tourism Network, 2022)



Therefore, interpretation not only takes place on site but also through the plethora of accommodation, attraction, food and beverage and activity providers throughout the geopark region. The authenticity of the knowledge provided is ensured through this geopark training and is integrated into the tourism product offering without the need of the tourist to seek it out. Thus, nature heritage interpretation becomes an integral aspect of all visitor encounters.

Additionally, there is a range of supporting materials available to the visitor of the geopark to advance their knowledge of the nature heritage of the destination.

Yes, they [the Geologist of the Burren and Cliffs of Moher Geopark] have a publication as well called 'Stone Water and Ice' which basically breaks down how its [the Geopark] formed and that's widely available. (Interview with Jarlaith O' Dwyer, Chairperson of the Burren Eco-tourism Network, 2022)

The BEN work together with the Geopark to develop additional interpretation material such as "educational videos [...] that are professionally produced and branded [...] so all members can share them at one time" (Interview with Jarlaith O' Dwyer, Chairperson of the Burren Eco-tourism Network, 2022). Additionally, the "[...] geopark provide signage around the Geopark Region and the gateways to the Geopark itself".

As an additional form of interpretation, the Geopark developed "The Burren and Cliffs Of Moher Geopark Food Trail" and the "Slow Food Festival".

[...] so many of the tourism businesses around the Burren are involved in food between farming, foraging, distilling, brewing, fish smoking, you know, oyster

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farming our beef farming or and then obviously the chef and the end users like they're all part of the food trail. (Interview with Jarlaith O' Dwyer, Chairperson of the Burren Eco-tourism Network, 2022)

This further elevates the appeal of the destination from interpretation as passive to interpretation as experience and invites the guest to appreciate and indulge in the local produce, traditional recipes and bounty native to the region. The slow food concept offers the tourist the opportunity to stop and stay, thereby limiting their overall impact on the environment. A specially designated sign was created for those operating on the food trail.

To coincide with the food trail a cookery book called "The Burren Dinners" was developed in 2019 and combines recipes and stories from the region. Once again indicating how interpretation of the nature heritage can be presented in many different guises to appeal to a broad target market. The stories of the origins of the recipes help to educate the visitor on the authentic heritage of the region.

[...] It's [The Burren Dinners] a compilation of stories and recipes from the chefs and producers of the Burren as most will be local producers and local expertise and talent as well. (Interview with Jarlaith O' Dwyer, Chairperson of the Burren Eco-tourism Network, 2022)

The Burren and Cliffs of Moher Geopark have been fortunate in that it has attracted much media attention down through the years. In more recent times a documentary on the geology of the Burren was developed and has been shown on Irish television and is due for broadcast in the United States in the coming months. This is titled "The Burren Heart of Stone", "[...] basically about the ancient story of the Burren and how people came to Ireland first" (O' Dwyer Interview). This documentary has gained traction and is being shared on all social media platforms of the geopark and the BEN to enhance the awareness of the uniqueness and geology of the region.

Along with the above geopark specific innovative methods of interpretation, tourism providers in the region also provide unique and creative methods of interpretation for the visitor. The website recommends that "the Burren is best discovered in the company of a knowledgeable and professional guide" (Burrengeopark.ie). There are over 20 guides operating in the Burren and they will interpret the landscape in a way that suits the guest. The following examples indicate the diversity of interpretation in the Burren and Cliffs of Moher Geopark.

- Walks with Pius – Pius takes the visitor on a spiritual journey of the Burren.
- Cormac's Coast – Cormac's interpretation is very scientific in nature and takes the guest on a sea cruise under the vast cliffs of Moher.
- The Burren Nature Sanctuary – Devises an outdoor classroom scenario and educational strategy this is complemented with short, engaging and informative YouTube videos on the website.
- The Alliwee Caves – bring the guest on a guided underground tour of the cave trails detailing the history and geology of its formation as well as highlighting the largest stalactite in Europe.

- The Wild Kitchen – The host of this initiative brings the visitor on a foraging journey throughout the Burren and coastline and provides an additional experience of teaching the guest how to prepare the foraged food. Thus, the guest gets a real hands-on experience.
- The Cliffs of Moher – The Cliffs of Moher Visitor Centre features an interactive exhibition centre detailing the heritage of the site along with secure viewing platforms for visitors to ramble along and take in the expanse of the site.

The geopark website itself also provides an array of interpretive resources including the following:

**The Burren and Cliffs of Moher Geopark Map** is available at visitors centres and information points throughout the Geopark. The map highlights areas of interest including popular heritage sites, Geosites and visitors centres. It also features sustainable transport option available in the region including bike hire and repair locations.

**The Burren Explorer – A visitor guide to the Geopark.** This guide is packed full of useful visitor information about all aspects of the Burren, including Where to Stay, Where to Eat, Transport, What to Do and profiles each of the towns and villages in the region. It also has information and maps for walking and cycling routes and a large fold out map on the Burren

**The Burren, Naturally Yours – A free visitor magazine.** Available at visitors centres and information points throughout the Geopark. Featuring members of the Burren Eco-tourism Network, the visitor magazine provides a great insight into the businesses and the experiences they provide. With sections on accommodation, food and activity it is essential reading when planning your visit to the Geopark region. The magazine also includes a map.

**The Burren Outdoor Adventure and Activity Trail.** Available at visitors centres and information points throughout the Geopark.

## Conclusion

This chapter has offered some definitions of geotourism and the tourists involved in this type of industry that can help tourism providers with organising varied methods of interpretation for different tourists depending on their level of interest and knowledge of the geology of the area. European examples of Geoparks and coastal landscapes have then been included with best practices for interpretation that aim at informing and engaging but also including the physically impaired, uniting rural communities and experiencing biodiversity and geology to ascertain its relation to tourism and more generally to the human condition. With this in mind, students and readers are asked to reflect on the following.

Identify Geoparks and coastal landscapes in European countries and reflect on how:

- a. Innovative ways in which they interpret the geology of the area to nurture inclusion and how they may be country-specific or universal.
- b. Scientific knowledge is interpreted to simplify the messages and engage the tourists and the local community.

- c. The different methods of interpretation can promote environmentally good practices while at the same time economically sustain local communities.
- d. Different methods are the most effective for the objectives highlighted in c. for different types of tourists (children and young tourists, tourists with or without scientific knowledge...)

### 4.3.7 Further Reading

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HEIN, C., 2020. *Adaptive Strategies for Water Heritage, Past, Present and Future*. Springer, Nature; Switzerland.

### 4.3.8 Points for Discussion and Questions

1. Identify the different types of tourists that would be interested in visiting geoparks and coastal landscapes and discuss their possible interests in tourism and sustainability.
2. Discuss different types of coastal landscapes in your country or neighbouring countries and discuss the best methods of interpretation to each type to reduce environmental damage.
3. Of the different best practice examples of geoparks and coastal landscapes, discuss the ones that could be replicated in your country and which ones would be difficult to replicate and why.
4. Think of other examples of best practice of geoparks and coastal landscapes in your country and critically assess their methods of interpretation. If possible, discuss other methods of interpretation that would be incorporated to increase the tourist's awareness of sustainability and its relation to tourism.

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## 4.4 Caves, Extreme Nature Areas

Human fascination with caves is based principally on two factors. On the one hand, caves offer an insight into the mystery of the Earth's history since the formation process is related to the planet's evolution itself. On the other hand, caves used to serve as home and shelter for human communities during the Palaeolithic, Neolithic, Bronze and Iron Ages. Hence, they provide us with material remains of the first human groups that inhabited the Earth, which is crucial to understanding their economic, political, and social organisation, at a time when written testimony was still non-existent.

### 4.4.1 Overview of European Caves and Extreme Nature Areas

#### Types of caves and cave formation

Given the importance of such places and the interest they attract, it is necessary to start with a brief definition of the terms used. Lee et. al. define a cave as “a natural cavity in a rocky environment where at least some part of it is in total darkness” (2012, pp. 320–321). In order to be described as a cave, it should meet three criteria:

- It must be naturally formed;
- It must be large enough for a person to enter;
- At least part of the cave must be in total darkness, beyond natural sunlight.

As caves are the result of erosion on the landscape, they appear in rock formations susceptible to erosion from water, wind and other natural elements. This explains the fact that there do not seem to be many interconnected networks of caves (as might happen, say with a large mountain range), as their presence depends on the abundance of soluble rocks in the environment (Ford & Williams, 2007). The most common rocks in cave scenarios are karst and pseudo-karst; the former refers to carbonate stones, the latter to non-carbonate stones. Regardless of the presence of carbonate, both these types of rock (which represent 15%–20% of the Earth's ice-free surface) are likely to dissolve when faced with different corrosive agents (Lee et al., 2012).

The following lines provide a brief description of the main kinds of caves, and the specific formation process in each case. Such processes depend on the combination of three factors: the rock type, its geochemical composition, and different geophysical

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conditions such as the climate. According to these criteria, it is possible to identify six different types of caves:

- a) **Solution caves.** Water seeps through naturally occurring cracks in the rock and dissolves calcium carbonate in the bedrock. These fractures lead to the establishment of broad passageways that are further widened and connected to create extensive underground drainage systems. These drainage systems evolve over millions of years into what we now call solution caves. Among the most representative examples of this type of caves we can find Ludi Yan in China or the Cenote Aktun-Chen in Mexico.

Another way in which solution caves are produced is when the host rock dissolves because of the action of sulphuric acid, which erodes calcareous surfaces so powerfully that it usually generates large caves (Lee et al., 2012). Carlsbad Cave in New Mexico is a good example of this type.

- b) **Lava caves.** Volcanic eruptions generate lava flows, which under certain circumstances can be evacuated. Then they create a vacuum that shapes tube caves (Halliday, 2004). Right after the eruption the soil remains sterile and unfit for human habitat, but as time goes by the territory can be inhabited again, so these caves become home to new human communities (Lee et al., 2012). In the Spanish island of La Palma, in the Canary Islands archipelago, such formations are commonly known as “fire tubes”.
- c) **Sea caves.** One of the most common eroding elements is water, whose constant pounding on karst or pseudo-karst surfaces corrodes the rocks, designing curious and often spectacular caves and shapes by the coastline, especially in seashore cliffs (Bunnell, 2004). The Sunset Cliffs Cave in San Diego (USA) illustrates this process.
- d) **Ice caves.** Glacier landscapes are also well suited to cave development, due to the thawing and the appearance of water streams that occurs between the bedrock and the ice (Lee et al., 2012, p. 325). Again, the United States offer some good examples, among them the Paradise Ice Caves in Mount Rainier.
- e) **Aeolian or wind caves.** In desert areas, the permanent erosion of the wind carrying sand particles against the rocks can provoke the formation of “Aeolian caves”, like the ones frequently seen in the Arizona desert (Lee et al., 2012, p. 325).
- f) **Talus caves.** Rocks falling down because of different geologic and historical reasons can accidentally originate talus caves, which tend to be very unstable, though in some cases they can be visited and are easily accessible, like the ones in the Pinnacles National Park in California (World Atlas, 2017).

## Definitions

**Geo-tourism.** This is a type of natural area tourism focusing on geology and landscape. It promotes tourism to geosites, usually with a strong emphasis on the importance of respecting the natural environment, the conservation and protection of geodiversity and learning about earth sciences through appreciation and controlled interaction (Rachmawati et al., 2013).

**Geo-tourist.** These are tourists who undertake geo-tourism and choose to visit places because of their geological or geomorphological characteristics with the aim of learning about the site's features (Allan, 2012).

**Sustainable geo-tourism.** This involves an attempt to create sustainable tourism formats where the principal aim is to experience different natural geological features. It also incorporates protecting and promoting geo-heritage and building communities (Dowling, 2013).

**Speleology.** This is the scientific discipline concerned with all aspects of caves and cave systems. As well as focusing on exploring and describing caves and the many features different cave types contain, speleologists also analyse geological constructs such as the chemical composition of rocks, rates of formation of stalagmites and stalactites and the influence of groundwater and other hydrologic conditions.

**Speleo-tourism/cave tourism.** Activities covering a variety of cave tours, usually following predetermined routes and which may involve overcoming some natural obstacles for adventure, exploration and learning purposes.

**Geo-ethics.** A scientific focus on the interaction of human beings with the Earth's natural systems, as well as investigating the impacts of these interactions, while providing reflections on what is appropriate behaviour in such situations.

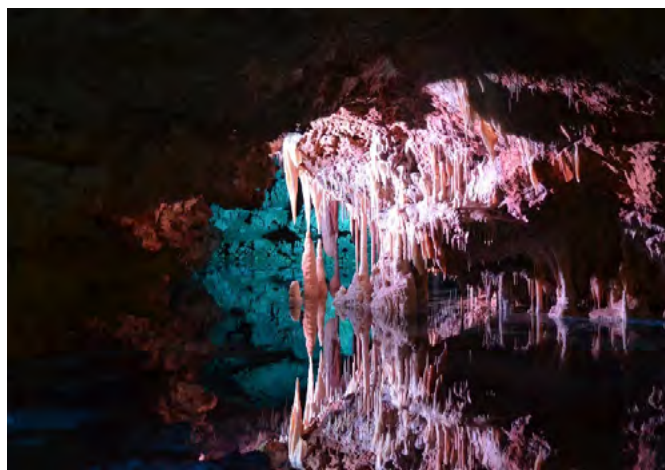


## Recreational use of caves

Cave tourism is a part of nature tourism, eco-tourism or geo-tourism that is increasingly attracting interest worldwide. Tourists are attracted to visiting valuable and fascinating caves for their natural beauty and learning potential. Tourists also visit the caves for educational purposes, for simple recreation or for adventure. It is an area of recent evolution among the possibilities of tourism in natural spaces and is increasingly important for regional development, as well as a help for governments to achieve environmental awareness, educational advancement and influence over environmental policy (Lobo and Moretti, 2009; Rindam, 2014; Okonkwo et al., 2017).

Caves have great value as a means of experiencing nature-based tourism with special interest for adventure tourists, as well as for those interested in archaeological information on habitation of past humans. Thus, if properly managed, caves are an important source for the tourism industry since they can bring economic, environmental and social benefits to the region where the cave is based. In this sense, Cigna and Burri (2000) show a complete analysis of this type of tourism by presenting the economic characteristics and issues related to the planning and management of caves. At the same time, there are strong concerns about recreational cave tourism, its impacts on the cave itself and the surrounding environment, and the need for a rigorous carrying capacity analysis and implementation (Doorne, 2000; Gillieson, 2011).

The different recreational and scientific uses of caves can vary from a few minutes entering darkness to detailed visits and well-organised tours resulting in advances in speleological knowledge and exploration. These types of activities are usually undertaken as a group activity with specific equipment that may create original and rewarding experiences (Wilson, 2019). In terms of sporting activities, caving, spelunking or potholing are the most common and well-known activities concerning the recreational use of exploring wild caves, while speleology is more related to the scientific study



of a cave and its environment. Cave diving is a different and more dangerous kind of underwater diving as it is done in water-filled caves and thus usually undertaken by technically expert cavers.

Show caves are visited by the general public, usually involving the payment of a fee. The development of a show cave requires the construction of stairs and trails and the installation of

lighting. Managers and guides must be trained to recognise their roles both as educators of the public as well as being responsible for the preservation of the cave (Cigna, 2019).

During the 17th century, natural caves started to be opened to tourism, and today most countries host at least one show cave. There exist approx. 500 show caves attracting over 50,000 visitors per year worldwide, with a total of 250 million visitors paying to visit them. Therefore, today, these caves are highly important geo-tourism targets representing a significant economic resource, especially for developing countries (Cigna, 2016). Caves also have an extraordinary scientific value for paleo-environmental and paleo-climatic reconstructions, which can also be important creators of social and economic value. However, they are also delicate environments, which may be destroyed when transformed into touristic sites (Cigna & Forti, 2013). For example, this shows in the fact that show caves are now also being used for many other activities such as corporate presentations, wedding celebrations, dining and concerts.

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## Tourism management in caves

Gurnee & Gurnee (1981) showed that there are four main factors that affect the successful development and operation of a tourist cave: 1) scientific investigation; 2) art; 3) technology and 4) management. Scientific study is essential in order to determine the hydrological and geological factors that may be affected by a certain number of people regularly traversing the cave as well as the impact of the infrastructure that will need to be put in place to ensure that visits can take place safely and in line with regulations. Art is necessary both to determine the best routes inside the cave, as well as the correct lighting, with the aim of generating maximum effect upon the visitor. Technology is used to control the natural forces within the cave, take measurements of air quality, as well as to design the best trails. Finally, management is essential to start the project of making the cave a tourist destination, as well as to develop and maintain it over time. Recent technological advances in communications and transportation, as well as in infrastructure and lighting, have allowed the development of many tourist caves around the world, which are becoming an increasingly popular tourist attraction (Rindam, 2014). It is therefore clear that for cave tourism to be effective, the opinions and expertise of a wide number of different agents need to be taken into account in the project development, including entrepreneurs and tourism officials, policy makers, artists, engineers, speleologists and conservationists.

Following the development model for show caves presented by Cigna & Burri (2000), there are some important elements to consider when developing and managing show caves. Firstly, there is a need of a **preliminary evaluation for the development the cave**, using procedures to quantify topographical, social and economic variables used to predict tourist flows. Secondly, there is a need to calculate **the visiting capacity of a tourist cave**. This is a very important and controversial issue addressed in literature as the “visitor carrying capacity” applied to caves (Lobo, 2015). There must be a commitment to the protection of the cave, not only in terms of maximum number of visitors allowed, but also as a problem that needs to be defined and solved for the concept to work (Van Cleave, 1976; Middaugh, 1977). As shown by Gillieson (2011), wild caves – those not modified for tourist development – are being degraded as a result of increased recreational use. In fact, some authors claim that the carrying capacity of a cave is effectively zero, since they are very sensitive and if it is damaged, it may take a very long time to recover and return to its original state. Therefore, it is important to try to quantify the real or potential impacts on wild caves before starting to use them for recreational purposes, as well as to determine the acceptable limits of environmental change. Thirdly, **the sources of disturbance to the cave environment** are those factors (consequences of lighting, stairways and measures against pollution effects) that may modify the natural equilibrium of the cave environment and that must be considered and their quantitative influence evaluated. And fourthly, **an environmental impact assessment (EIA)** for the cave should be carried out, due to the fact that the surface and underground are inexorably linked, and cave development must be planned with all in mind. In order to ensure the environmental control of the tourist exploitation of the cave, it is necessary to develop a clear and systematic process that allows the environmental impact of such recreational use to be clearly evaluated. When a wild cave is transformed into a show one, it is very important to follow strict rules and to consider

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all the aspects analysed during and after its tourist development in order to maintain the sustainability of the global ecosystem of the cave, its aesthetic and scientific values. Therefore, all the agents involved in this transformation must be informed and know the scope of their decisions.

### Scientific research importance

As mentioned in the introduction, one reason why caves capture our attention has to do with the fact that they offered shelter for human groups in the Palaeolithic and Neolithic Ages, as well as in the Age of Metals. Hence, the archaeological approach to caves offers us the chance to understand the environment in which the first human groups lived and grew up, as well as their social, economic and domestic structures, together with the first cultural manifestations they showed.

To begin with, rock shelters and caves offer valuable information about the weather conditions that different human species and communities faced. In fact, the appearance and generalisation of rock shelters as a place for human settlement during the Middle Palaeolithic (300,000 BP [before present] – 40,000 BP), as well as its consolidation during the Upper Palaeolithic (40,000 BP – 30,000 BP), has to do with the so-known Ice Age. The concept refers to the period of most extreme cold in human history, which corresponds to the Würm glaciation, and to two species: *Homo Sapiens Neanderthalensis*, and *Homo Sapiens Sapiens* (Furundarena & Jiménez, 1998). The first group lived between 230,000 and 40,000 BP and presents peculiar physical features. Indeed, the Neanderthal was rather small but robust, which has been explained by the need to preserve the body's heat and to accumulate energy while dealing with really low temperatures. The first Sapiens lived under similar conditions, at least at the beginning (in the Upper Palaeolithic period). Therefore, both species looked for a solution to the extreme weather and found it in caves where the whole group could stay, not only to protect themselves from the cold, but also to gather in groups



in order to keep the dwelling place's temperature as mild as possible. Such climatic conditions, together with the different tools and resources that humans used to fight them, can also be tested by studying the archaeological remains of domestic life: fire ashes and oxide, rudimentary coats made of animal skins, and the fact that people were often buried wearing the same coats and skins that they had lived in. All these practices underline the community's will to protect the human body from the extreme weather and to provide their death with the same protection they themselves enjoyed in life, just in case the afterlife, whatever it might be, offered similar characteristics to the environment they already knew (Finlayson, 2009).

Archaeological remains in caves also offer the possibility to study the social composition of the human groups who lived in them. Though caves were a common shelter for human communities during the Middle and Upper Palaeolithic, they continued to be used during the Neolithic period. In the Age of Metals, humans took a step further



and started to build their own caves for taking refuge against enemies or harsh weather and for other cultural and spiritual reasons, too. That is why caves can be seen as a time locker that, thanks to their usually being located out of the path of direct sunlight and offering humidity conditions suitable for

the preservation of organic and non-organic remains, tell us about relevant social and organisational aspects of human life. Neanderthals and first Sapiens may not have developed a complex socio-political organisation, since they were still mostly nomad hunters and gatherers who did not require a sophisticated social structure for the group to survive (Kottak, 2011). Nevertheless, they started to develop a spiritual feeling that was reflected in human burials, which took place in the same caves where the groups lived. By analysing the remains, it is possible to describe the basic features of their religious beliefs, which they were starting to develop, together with a slight social categorisation between the leader of the group and the rest of its members, who can be identified when analysing their funerary trousseau.

Social categories and social division of labour began during the Neolithic Revolution, between 10,000 and 3,000 BC (Childe, 1997). The phenomenon had to do with the adoption of a sedentary lifestyle by human communities after animal and plant domestication. Once groups settled down, they needed to guarantee their survival in harsh times (extreme weather, bad harvests, etc.). For this reason, it became important to maintain food surpluses, and the group required someone to handle and look over these essential supplies. At the same time, not everyone was required to work in the fields or raise cattle and people could devote themselves to other economic activities. As a result, diversification of work appeared, while at the same time the need for an administrator of food surpluses brought about the creation of different social categories: the governors and the governed (Noah Harari, 2011). The governors would become the privileged class, deserving of privileged treatment, both in life and the afterlife. Consequently, ritual burials became more common as humans progressed into the Neolithic Age and then into the Age of Metals, and these rituals allow researchers today to identify the leaders of the community through the study of the funerary trousseau. Such burials often happened in caves, both natural ones and those created by humans, which over time came to be considered as ritual spots where the memory of former governors and leaders

could be revered, and also as a sort of shrine where different ritual practices were carried out, as can be seen from numerous cave paintings (Curtis, 2006).

Apart from being a very useful aid for studying the past, caves tell us a lot about the present too. In fact, the evolution of caves helps to demonstrate the consequences of human activity on the environment, particularly in the case of mass tourism and overexploitation of such natural resources, which run the risk of being destroyed and disappearing. For instance, the Spanish “Playa de las Catedrales”, in the small village of Ribadeo, Galicia (North western Spain), famous for its cliffs and caves formed because of the sea erosion, has received so many tourists over the years that local authorities have had to control access to the site, and require potential visitors to make a reservation in advance.

In addition, caves are places where peculiar physical conditions favour the preservation of natural species. That makes it possible for scientists to analyse the circumstances that favour the survival of animals and plants, as well as analysing the quality of subterranean water. Conclusions from their studies are key to drawing an outline of the basic actions that we humans must take in order to stop degrading the environment (Cigna, 2016; Chami, 2018).



## Carrying capacity and key problems

Clearly, there are limits on how caves can be used in a tourist capacity, without risking the very existence of the site itself. Due to their specific characteristics, for caves to be used for touristic purposes in a manner that is sustainable and avoids depredating their natural and archaeological features requires very effective management systems, which must focus on maintaining the cultural, ecological and biodiversity level of the cave, and involve input from a range of stakeholders (Grilli et al., 2020). Creating sustainable strategies for speleotourism is a huge challenge due to the specific characteristics of caves and the overall fragility of their ecosystems (Antic et al., 2000).

One aspect of the management system that is increasingly important is that of carrying capacity. At its most basic level, carrying capacity may be described as a means to “decide visiting limits in a certain time period, based on the principle of not causing any irreversible change in the dynamics of the natural environment” (Lobos, 2015, p. 67).

To evaluate an effective carrying capacity for a cave is not an easy task, and in recent years, the application of carrying capacity analysis has evolved into a more dynamic technique and its use may vary significantly from place to place. Amongst the key considerations that need to be taken into account are the size of the cave, the different atmospheric characteristics of the cave and the fragility of different cave features, be they natural ones such as stalactites and stalagmites or human-generated ones such as cave art (Cheablam & Rattanarat, 2021). Other important factors include the type

of cave and its layout, the duration of visits and the routes followed, the period of the year or tourist season and the availability and size of waiting areas (Coccossis & Mexa, 2004; Šebela & Turk, 2014a). Finally, many caves have large structures such as metal walkways and stairways, fixed lightening and electrical cables, emergency exit doors or storage areas, all of which must be taken into account in any analysis.

Due to the particularities of caves, almost any human interaction with the site will create changes to existing atmospheric conditions. What cave carrying capacity analysis tries to assess is an appropriate level of visitors for the site, which allows the site to recover and return to its prior atmospheric state (perhaps due to pauses between tours, or



periods such as night-time when the site is closed) and therefore does not create any long-term damage. This is known as the total recovery time, and it is the time required for the atmospheric indicators such as air temperature, relative humidity, CO<sup>2</sup> and atmospheric pressure – all of which can change in response to the number of people in confined spaces – to return to normal levels after a visit or series of visits.

Finding this equilibrium point between acceptable level of visitors and time needed for the cave to recover also needs to be considered in the interpretation of the cave. In most instances, to effectively interpret a cave requires stops or pauses during the tour, to study or admire different geographical or archaeological features. This is when these atmospheric conditions may be most impacted and so the carrying capacity analysis should also assess the time limit and visitor capacity for each individual interpretation point along the route. Therefore, the objective of a carrying capacity analysis of a cave is not necessarily to further limit overall visiting numbers, but may involve increasing the time between visits, changing the routes to reduce the number or flow of visitors in any one moment stopping or passing through the interpretative stop points, or changing opening hours to allow longer recovery times.

### **Key stakeholders at European, national and local level**

Three different steps need to be taken in order to guarantee the protection of caves as elements of natural patrimony.

Firstly, given the importance of caves for the preservation of our social and archaeological past, as well as for the urgent need to respect the environment and stop

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the degradation of caves due to the impact of human activities, different initiatives have been created under the umbrella of the European Union and other pan-European bodies, with the aim of laying a common foundation for the protection of cultural and natural patrimony. To meet these requirements, the European Union has established a set of rules to regulate the protection of natural and cultural patrimony in all its member states, emphasising the initiatives that need to be carried out in case those items of patrimony, in this case caves, are threatened by any kind of catastrophe. The EU has therefore stipulated that all member states create a registry of their items of patrimony, study the situation of each one, and take appropriate action should they suffer severe damage or be at risk of this happening. If necessary, the EU counts on funds to promote the restoration of the sites under threat or which have already been destroyed (Ministerio de Cultura y Deporte, 2022).

Secondly, in order to link European-wide initiatives and standards to the peculiar circumstances of each country, national governments first need to comply with European legislation and also use it as a departing point to create their own legislation. Following the UNESCO mandate, governments need to assign their sites and items of patrimony to the following six categories: World Patrimony, Immaterial Patrimony, World's Memory, Biosphere Reserves, Creative Cities, and Geo Parks. Once such categories are created and the different places are identified, governments need to take objective actions to protect them. They must report to the European Union periodically to demonstrate that initiatives are being implemented to guarantee the preservation of those spots. By doing so, they earn the right to apply for European funds to help them preserve these sites. Failing to do so means losing funds and also the European distinction for each category, which means that the individual member state must assume full responsibility for each site's preservation in the future (Ministerio de Asuntos Exteriores, Unión Europea y Cooperación, 2022).

Finally, local authorities must comply with the requirements of national and European institutions. In this sense, one might think that they have no margin for action, but that is incorrect: not only are they the ones responsible for making locals and visitors respect the rules and contribute to the protection of these places, but they are also the ones who better know the reality of each site's use and the level of visitors. Therefore, their report to national and international institutions is essential for both early detection of risky situations and efforts to solve them as soon as possible before it is too late and overuse or neglect has led to the destruction of such an important part of our geologic and historical past.

### **Segmentation of tourist visitors and their needs**

While recent decades have seen strong growth in geo-tourism and its emergence as an important generator of economic benefits, there has been relatively little study of the reasons why people choose to visit geo-sites and what they expect to do/see/experience while they are there (Allan, 2011; Shavanddasht, 2013; Allan & Dowling, 2015).

Caves are the most known and most visited type of geo-tourism resource (Gray, 2004), with show caves (as distinct from wild caves, which do not contain manmade features that would enable a touristic visit) being the most important geologic tourist

attraction from an economic point of view. It is estimated that, directly and indirectly, these types of caves provide employment and economic opportunities for some 100 million people, many of them living in developing countries (Cigna & Forti, 2013). Firstly, there is the question of who visits caves? Burek and Prosser (2008) broadly divide geo-tourists into two groups. There are those who undertake a trip or activity for recreational reasons and those who do so for educational purposes. In a study of visitors to Hwansun Cave in Samchuk City, Korea, Kim et al. (2008) divided cave or karst tourists into four groups: 1) escape-seekers (those who want to get away from normal routines), 2) knowledge and novelty seekers (those who wish to learn something unusual), 3) novelty-seekers (those who simply want to experience something different and new), 4) socializers (those who primarily visit a cave as a social activity, as part of a group that is as important as the cave itself).

**Table 4.4.1a | Segmentation of Tourist Visitors to Caves**

Name of group	Who are looking for
Escape-seekers	To get away from their normal daily routines.
Knowledge and novelty	To learn something that they wouldn't usually have the opportunity to learn.
Novelty seekers	To experience something that they wouldn't usually have the opportunity to experience.
Socializers	To enjoy some time with friends, colleagues or family.

Source: Author compiled, based on Kim et al., 2008.

Secondly, there is the question of what motivates people to visit caves. This is one of the most significant, complicated and crucial questions in the whole field of tourism studies (Gnoth et al., 2000). Put simply, without tourist motivation there would be no tourism industry. In the case of caves, apart from the specific value they might offer as a tourist resource, they are important for humans because they give us a sense of our past, how the world we live in has evolved in geologic terms and how we have evolved as a society (Shavanddasht et al., 2017). Or to put it another way, caves interest us for scientific and cultural reasons, as well as for aesthetic and recreational reasons (Tongkul, 2005).

Two studies can help to show what it is that people enjoy about cave visits. Allan & Dowling (2015) carried out a study of tourists visiting Crystal Cave in Yanchep National Park in Australia, and Shavanddasht et al. (2017) carried out a study of visitors to Alisadr Cave in Iran. Both identified high levels of intrinsic motivations for visiting caves and low levels of extrinsic motivation (feeling obliged by others to visit or not knowing why they visited).

**Table 4.4.1b | Segmentation of Tourist Visitors to Caves**

Study	Allan & Dowling (2015)	Shavanddasht et al. (2017)
Location	Crystal Cave in Yanchep National Park, Australia	Alisadr Cave, Iran
Most important intrinsic motivational drivers from top down	<ul style="list-style-type: none"><li>• Relaxation</li><li>• Escape</li><li>• Sense of wonder</li><li>• Knowledge</li></ul>	<ul style="list-style-type: none"><li>• Enjoyment</li><li>• Relaxation</li><li>• Novelty seeking</li><li>• Escape</li><li>• Socialization</li><li>• Knowledge</li></ul>

Source: Author compiled, based on Allan & Dowling, 2015, and Shavanddasht et al., 2017.

Interestingly, both studies found strong links between the high level of intrinsic motivation and tourists' willingness to revisit the cave or "loyalty", but not necessarily pay more. And finally, the authors of the Alisadr Cave studies suggested that the reason why enhancing one's knowledge only appeared as the sixth most important factor may be due to the fact that this site does not feature an interpretation centre.

## 4.4.2 Specifics of Heritage Interpretation

As defined by the National Association for Interpretation (NAI, 2007), interpretation is "a mission-based communication process that forges emotional and intellectual connections between the interests of the audience and the meanings inherent in the resource". The core philosophy of interpretation is very well summarised in this quote from the US National Park Service administrative manual: "Through interpretation, understanding; through understanding, appreciation; and through appreciation, protection" (Knapp & Benton, 2004).

Modern roles of interpretation are vastly varied, and the principles guiding interpretive programming and messages have experienced an important evolution over the past years. According to Beck and Cable (2011), heritage interpretation can be personal or non-personal. In the former, the interpretation requires an interpreter to develop the activity interacting physically with the visitors, developing different types of activities such as tours, talks, demonstrations, storytelling, nature walks, etc. On the other hand, non-personal interpretation requires no interpreter as the visitor is self-guided by interacting autonomously with interpretive exhibits, printed materials and physical settings at the attractions, signs/plaques, brochures, or interactive audio/visual devices using today's new technologies (Padbury, 2014; Makopo et al., 2018).

### Personal interpretation: cave guided tours

As previously pointed out, cave tourism is a very important element of nature tourism in all parts of the world, especially those known as show caves. For this type of concept, guides play an important role in the visitor's experience since they are the main source of information and interpretation. The literature and professional practice regarding cultural heritage interpretation issues is extensive, but not so when it comes to subterranean landscapes. This section will present the main and most used guided

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interpretive methods and the experiences created to interpret tourist caves, as well as the identification of some key principles for a successful guided interpretation of caves (Davidson & Black, 2007; Rindam, 2014; Cigna, 2016; Okonkwo et al., 2017).

In general terms, interpretation should be a process of revelation or bringing things to life in the minds of the visitor following some basic principles such as being provocative and relevant (Tilden, 1977; Brochu & Merriman, 2002; Davidson & Black, 2007; Benton, 2009). Moreover, a tour guide is generally defined as a person who guides groups or individual visitors around a site, building or landscape, providing inspiring



and entertaining interpretation (European Federation of Tour Guides Associations, 2022). Guides are expected to develop a variety of roles in simplifying the tourist experience, which might include leader, information giver, navigator, health and safety officer, organiser and mediator (Black & Weiler, 2005; Davidson & Black, 2007).

Personal guided tours are the most extended interpretative technique in cave tourism because they are generally considered to provide a better and more complete experience than other non-personal interpretation methods (McArthur, 1998). Cave tour guides are necessary for the security of the visitors in showing the way, pointing out hazards such as overhanging rocks and wet surfaces as well as ensuring that people do not get lost during the visit. The guides also play an important role in group management, as due to the particular nature of cave visits and the many potential hazards, maintaining harmony and avoiding disagreement or argument amongst the visiting group is of greater importance than it may be in other tourism interpretative interactions.

The role of teacher and expert interpreting and educating visitors is a central element of the entire visit, providing all kinds of information and educational knowledge, which may cover a wide variety of different disciplines (e.g. anthropology, geology, sociology, archaeology, chemistry and physics).

Additionally, the interpretative guide is also the main guardian protecting the cave's environment. Thus, good relationship and congeniality between the visitors and the guides is a key variable so that the visit is satisfactory and the experience is complete. In short, the guides are more effective when presenting ideas and explaining complex concepts, as well as having the ability to adapt to a variety of different situations, to enable the visiting public to get the most out of the visit.

According to Davidson & Black (2007), there are nine key principles of successful guided cave interpretation from the point of view of cave guides:

**Table 4.4.2 | Main Principles for Successful Guided Cave Interpretation**

Principles	Description
Principle 1: visitor enjoyment	Interpretation activities should be designed for visitor enjoyment; sometimes called “entertainment”.
Principle 2: relevance to the audience and site	Interpretation needs to be both relevant to the audience and to the actual feature being interpreted.
Principle 3: organizing	Interpretation must be well-organized so visitors can easily follow what is being presented.
Principle 4: key theme	Interpretation should have a key theme/message that has the capacity to tie all the key pieces of information together.
Principle 5: group management	The guide strives to make each person feel recognized as an individual but also belonging to the group.
Principle 6: protection	The guide provides an experience in which participants feel safe but also one in which the environment itself is safe.
Principle 7: two-way communication	The interpretive exchange works best if two-way communication is used (i.e. the guide is an active listener, and the group participates in sending messages).
Principle 8: holistic approach	The guide provides an interpretation of the site that demonstrates the site’s relationship beyond the immediate area (this may be ecologically, socially, or other).
Principle 9: emotion	The guide facilitates an experience that has emotional dimensions to place and people.

Source: Author compiled from Davidson & Black, 2007.

The ninth and final principle mentioned in the table (emotion) is the most recent one and is currently conceived by many guides as a fundamental element of the interpretive experience (Brochu & Merriman, 2002). Indeed, the guides must be able to create sensations of adventure and mystery that enable the visitor to have a more emotional experience, complementing the learning when they visit the caves. This emotional experience can be generated in two different ways. On the one hand, the aesthetics of the cave itself provokes emotions, which can be enhanced by the guides through the stimulation of the senses: touch, hearing, smell, and finally sight (initially limited by the darkness of the cave itself, but which can be played upon by the use of artificial light). All this sensory interpretation can become an ally for the guide to promote very special moments during the visit. On the other hand, the emotions that are generated by belonging to a group and the relationship with the guide are also relevant, allowing the visitors to feel physically and emotionally safe. This is particularly important in a closed and dark cave environment which can be challenging for a visitor.

In short, the effective interpretation carried out by the guides in tourist caves must provide intellectual experiences, but also emotional ones, allowing the visitors to perceive the wonder, the inspiration, the mystery, the silence, the darkness and the sense of adventure. In sum, tourist guides’ interpretations usually make great contributions to positive visitor perceptions of their general experience (Walker & Moscardo, 2014).

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## Non-personal interpretation methods in caves

As mentioned above, impersonal interpretation methods are those where visitors interact with the concept autonomously without the need for the presence of an interpreter, so their visit is freer and more flexible. The most common of these are printed information sheets and brochures, physical settings at the cave such as signs/plaques and interactive audio/visual devices using today's new technologies that can be placed outside the cave to open the interpretation offer to the visitor. Wang et al. (2021), in a recent study about how interpretation types predict tourist satisfaction in special tourist areas, show that non-personal interpretation services are perceived by tourists as offering lower quality interpretation satisfaction and lower overall tourist satisfaction. Despite that, having such methods available in general is highly valued, for the way in which each visitor can adapt its use to their own needs.

As stated by Monforte (2009), heritage, and especially environmental heritage in caves, is very fragile and non-renewable. Its use must be conditioned by the criteria required for its conservation and based on sustainable development so that the present does not exhaust future use. This is the criterion adopted in the management of the Altamira Caves in Spain with the creation of "the replica or neocueva", which as an exact replica of the real cave, is a high-quality alternative to visiting the original, not only in terms of providing for better conservation, but also by offering superior opportunities for interpretation and learning. It has not been conceived as a substitute for the original, but as an additional instrument for learning about Altamira and to enable larger numbers of visitors to enjoy the site. It has been created as a permanent exhibition with a wide range of interpretation tools, including posters, brochures, maps, audio guides, display cases, and a range of audio-visual and interactive resources (including some specially prepared for children's use). Together, these resources recreate and explain the evolution of humanity through the prism of the cave's former inhabitants, as well as the main physical aspects of the cave, all without the need for a personal guide, and with the certainty of preserving the original heritage.

In short, these types of facilities built outside the caves, called interpretation centres, play a fundamental strategic role in achieving an environmental culture that respects and cares for the natural and cultural heritage, irrespective of the type of cave being visited. Public use is understood as the set of programmes, services and facilities, with the caves generally being publicly owned and privately managed, where the purpose is to put visitors in contact with the natural and cultural values of the site, in an orderly and safe manner, while at the same time guaranteeing the conservation, understanding and appreciation of such values through information, education and interpretation.

### 4.4.3 Examples of Good Practice

#### The Caves of Artà (Mallorca, Spain)

##### Location and surroundings

Although not as well-known as other caves in the Balearic Islands, the Caves of Artà are considered a real jewel of nature and are an outstanding example of good practice in terms of their management and tourist exploitation. The Caves of Artà are a geological formation of limestone origin, created over millions of years by seismic movements and erosion caused by underground water. Stalactites, stalagmites and columns full of sedimentary minerals have been created in their interior spaces over the centuries, forming a figurative ensemble that is a delight for the senses.

Located in Cap Vermell, in the municipality of Capdepera, the location and surroundings also make them a feast for the eyes. The entrance to the Caves of Artà faces the sea, on a cliff, almost 40 metres above sea level, and is surrounded by mountains. As for its tourist use, there is evidence that visits have been organised since around 1870. The main premise has been the preservation of the caves, which is why mass tourism is avoided,



with a limited number of entry tickets being made available each year, which has the added effect of adding a sense of privilege, exclusivity and privacy to each visit.

Another strength of these caves is the creative and accurate lighting that enhances the beauty of their geological formations and sculpted figures, which allows the imagination of those who contemplate them to be taken to the highest levels.

##### Main characteristics and services offered

The visit to the Caves of Artà can be made in groups of family and friends who would like to share this sensory experience. The tour is not limited to a specific timetable, which makes it possible to combine it with other activities and visits to nearby attractive places in the eastern part of Mallorca (beautiful beaches and coves, prehistoric villages, Capdepera Castle, etc.), making it a tourist enclave of undoubted interest.

The route through the caves is about 500 metres long and divided into several rooms of singular beauty. Each of the rooms or chambers has been given a specific name according to its appearance, which lends an air of mysticism and contributes to increasing the visitor's curiosity. The main rooms are the following:

- Hall of Columns (for its resemblance to Gothic constructions).
- Hell (for its grotesque shapes and infernal atmosphere).
- Hall of Bells (for the sound produced by the stalactites when the guide throws a stone against them).
- The Theatre (for its hanging stone curtains which resemble the curtains of a theatre).
- Hall of Flags (for the figure which resembles an unfurled flag).

Both in 2021 and 2022, the Caves of Artà were awarded the prestigious Travellers' Choice by TripAdvisor. Free car parking, a cafe bar, a souvenir shop and toilets are available. Like other famous caves on the islands that have been adapted for tourism (e.g. the Drach Caves), the Caves of Artà are privately owned and managed.

There is a multilingual guide service that explains the history of the Caves, which have had illustrious visitors such as Alejandro Dumas and Victor Hugo. There are blackened stones at the entrance belonging to fortifications, which date back to the 13th century, at the height of King James I's successful attempt to conquer the island.

Visiting hours are daily from 10:00 to 17:00. General admission is 15€ for adults, 7€ for children between the ages of 7 and 12, and free for children under 7 years old. There are special discounts for groups, schools and residents, and special visits by arrangement for people with reduced mobility.

Taking advantage of the beauty of the surroundings, the tourist offer includes the possibility of sea excursions with a visit to the cave, and land excursions from Font de sa Cala or Cala Ratjada. There is also the possibility of organising special events and conventions.

### **Pioneering lighting system**

To enhance the experience of visitors to this magical natural environment, while respecting it as much as possible, an innovative pioneering lighting project was implemented in the caves. The installation was carried out by the local specialist firm DeeJaysgroup, using professional systems from the PR Lighting brand, marketed in the Spanish market by Sound Light Spain (SLS).

In addition to respecting the environment, the main challenge was to obtain a harmonious and appropriate lighting environment for such large and non-uniform spaces, so the luminaires had to provide high power and coverage. To achieve this, PR lighting spotlights are used with high Zoom technology and 150V LEDs, with special protection for outdoor use, with which it is possible to generate all kinds of colours and shades, including white, with different temperatures. The combination of colours in the different spaces is stable and balanced, respecting the desired colour metrics at all times. Very large spaces are completely covered with relatively few dots, leading to spectacular results.

## La Cueva de Pozalagua (Bizkaia)

### Location and surroundings

The Pozalagua cave is located about 50 kilometres from the city of Bilbao, in the municipality of Carranza, which is part of the county of Encartaciones (Basque Country). This cave was discovered by sheer chance in 1957, so quite recently, after an explosion in a nearby quarry. The blasting opened a natural entrance to the mine. While the mining activity continued for several years, it finally stopped in 1976.



The area where the cave is located was designated as “Armañón Natural Park” by the Basque Government in 2006. It is close to the Balneario Casa Pallotti spa, which offers thermal waters to visitors. In the area where the mining activity gave rise to the discovery, a venue was set up to hold concerts in summer, with an amphitheatre within the mine adjunct to the cave entrance.

The fact that the cave has only been known for a relatively short time is one of the reasons why it is so well preserved in its original condition, especially the plethora of stalactites, stalagmites, and other geological treasures. This cave is mainly recognised for its spectacular concentric stalactites (it has the largest concentration of this type of stalactites in the world), which create impressive shapes and figures. Unlike the more common ones, these types of branch-shaped stalactites divert capriciously in all directions and intertwine with one another creating curious figures that are not necessarily vertical. According to the leading experts in this type of destination, only in some caves in Australia is something similar to be found. This is the main value that this site provides compared to other show caves.

### Characteristics and services offered

Visits to the caves can be made in groups of up to 80 people, and these visits were first offered in 1991. The route inside the cave is along a metal walkway with handrails on the sides. Outside, there is plenty of parking space (two big parking lots), a cafeteria and a souvenir shop. The last kilometre to the site runs along a picturesque winding road with a dramatic view of the mountainous landscape.

To make the most of their visit, visitors need to check the availability and time schedules prior to their visit. The website emphasises the importance of wearing appropriate clothing and footwear. The management of the cave has been subcontracted by the regional government to a private company specialising in managing tourist facilities as well as tourist information bureaux.

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The visits are always carried out with an expert guide who offers all necessary explanations to the visitors. The duration of the visit takes approx. 50 minutes, and during this time visitors have the possibility to appreciate a large room of approx. 125 meters x 70 meters, and with a maximum height of 17 meters. This main room, which is the most important attraction of the visit, is called the Versailles Room (like the French palace) due to the great visual treasures that it maintains inside.

The cave features a lake in its central part, which is usually almost dry in the main summer tourist season depending on the level of rainfall, and four twin chasms 40 meters deep. This concentration of technical characteristics is the reason why the Pozalagua cave is considered the second most important Spanish cave in geological terms.

As a result, the cave has been recognised as an important national tourist destination. In 2013, it received the Mejor Rincón award (“Best Secluded Place”) by the Repsol Guide, where 1,244 online users picked the cave as the best tourist destination.



#### 4.4.4 Case Study: 'Prehistoric Rock Art Trails'

The “Prehistoric Rock Art Trails” is a certified Cultural Route of the Council of Europe created in 2010. It comprises over 100 major rock art sites just in Spain, in addition to over one hundred other sites throughout Europe in countries such as Norway, Sweden, Italy, Portugal, Georgia, Azerbaijan and France.

Visited by over three million people every year, the rock art trails showcase the work of the first inhabitants of our species, “an art form full of symbolism on spiritual beliefs and countless references to nature, which shaped the first Cultural Landscapes of the Iberian Peninsula” (Rutas Culturales de España, n/d). This art form appeared in Europe about 42,000 years ago and developed throughout the Upper Paleolithic, Neolithic, Copper and Bronze Ages, and even the Iron Age in some regions.

These sites provide Europe’s cultural tourism offer with some of the continent’s most unique rock art destinations, including sites, museums, interpretation centres and archaeological / cultural parks. Many of these destinations are small sites (a cave, a shelter, an open-air rock, a small interpretation centre...), but there are places with important tourist infrastructures where it is possible to visit large archaeological sites with spectacular artistic expressions.

Eleven sites related to rock art in Europe are also inscribed in the UNESCO World Heritage List. These are:

- Prehistoric Sites and Decorated Caves of the Vézère Valley, France (1979) <https://whc.unesco.org/en/list/85>
- Rock Drawings in Valcamonica, Italy (1979) <https://whc.unesco.org/en/list/94>
- Rock Art of Alta, Norway (1985) <https://whc.unesco.org/en/list/352>
- Cave of Altamira and Paleolithic Cave Art of Northern Spain, Spain (1985) <https://whc.unesco.org/en/list/310>
- The Sassi and the Park of the Rupestrian Churches of Matera, Italy (1993) <https://whc.unesco.org/en/list/670>
- Rock Carvings in Tanum, Sweden (1994) <https://whc.unesco.org/en/list/557>
- Prehistoric Rock Art Sites in the Côa Valley and Siega Verde, Portugal and Spain (1998, 2010) <https://whc.unesco.org/en/list/866>
- Rock Art of the Mediterranean Basin on the Iberian Peninsula, Spain (1998) <https://whc.unesco.org/en/list/874>
- Gobustan Rock Art Cultural Landscape, Azerbaijan (2007) <https://whc.unesco.org/en/list/1076>

- Decorated Cave of Pont d'Arc, known as Grotte Chauvet-Pont d'Arc, Ardèche, France (2014) <https://whc.unesco.org/en/list/1426>
- Risco Caído and the Sacred Mountains of Gran Canaria Cultural Landscape, Spain (2019) <https://whc.unesco.org/en/list/1578>

## Importance of the sites

Rock art sites represent a significant cultural heritage resource for tourism in Europe, as they are considered a major socio-cultural and artistic expression of humankind. Apart from archaeological sites and caves, the trails also allow visitors to explore natural areas and parks, learn about their importance at museums and interpretation centres, while exploring lesser-known destinations. These sites are located in places where nature and culture combine to provide a comprehensive visitor experience, providing opportunities for sustainable development in rural areas and small villages.

## Management of the cultural route

The International Association Prehistoric Rock Art Trails – Chemins de l'Art Rupestre Préhistorique (PRAT-CARP) manages the Cultural Route of the Council of Europe Prehistoric Rock Art Trails. As the legal body overseeing this network, the Association is currently composed of 44 partners and 21 collaborator entities from 8 different countries: Spain, Portugal, France, Italy, Norway, Finland, Georgia and Azerbaijan. Members include national, regional or local culture administrations, universities, research units, networks for rural development or museums. The Association is composed by three management and executive bodies: a Governing Board, a General Assembly (the maximum body in the governance of the Cultural Route) and a technical working group (scientific committee).



The main objective of this association is to disseminate and promote Prehistoric Rock Art in Europe. This is done through several actions including:

- Facilitating dialogue and the exchange of good practices in the management and valorisation of Prehistoric Art.
- Analysing and promoting the social value of this type of art.
- Coordinating and collaborating with public and private entities for the development of projects.
- Designing educational materials.
- Promoting tourism activities for the enhancement of cultural heritage.

## Activities organised to enhance cultural tourism

The rock art cultural route is part of the Cultural Routes of Spain, which is a tourist brand endorsed by the Ministry for Tourism and Trade of the Spanish Government. It currently integrates five physical and thematic Spanish routes, one of them being the Prehistoric Rock Art Trails, constituting a representative and thematic sample of the territorial and cultural diversity of the country. These routes are managed by non-profit organisations made up of public and private bodies related to culture and tourism.

The International Association PRAT-CARP attends international tourism fairs such as the World Travel Market London, where it takes part with other Cultural Routes introducing its great network to the professional tourism community. It also attends scientific events to spread the work and discoveries related to cave use and rock art (Summer Seminars, 2017, 2021).



The hashtag **#rutasrupestresdeespaña** is an initiative which is included in the TURESPAÑA brand “Cultural Routes of Spain”.

## Opportunities and challenges in managing the cultural route

The PRAT-CARP association has worked hard to strengthen collaboration between its partners, as well as in building local capacity between its members and cultural heritage and tourism professionals. This has enhanced the importance of cultural heritage in Spain, ensuring the development of high-quality attractions and products, which are being gradually made more accessible and have gained international recognition. This is also important to capture an increasing number of tourists who are becoming more aware, sustainable and proactive-prosumers.

Given the geographical characteristics where rock art sites are found, there are opportunities for underdeveloped territories, especially in rural areas, to implement green, technological, sustainable and participatory activities, as well as to create policies relating to corporate social responsibility and cultural responsibility.

In particular, the cultural route highlighted several opportunities and challenges in relation to its management:

- To consolidate the partnership of the regions/countries furthest away from the South-west core of Europe: France (Dordogne), Spain and Portugal. This would generate more synergies and project opportunities.
- To succeed in developing a major EU funded project in the period 2021–2027, especially focused on the digitisation and production of new ways of presenting Prehistoric art to society, as well as on the training of professionals involved in cultural mediation and tourist uses in the cave destinations of the PRAT-CARP Cultural Itinerary.

- To promote the expert exchange of information between the partners and other agents, in relation to climate change and its impact on the conservation of cave paintings, both in caves and in the open air.
- To encourage the production of tourist experiences based on Prehistory and its impressive art, the first art of mankind.
- To strengthen cooperation with other cultural routes, both at European level (Cultural Routes of the Council of Europe) and at national level (Cultural Routes of Spain, French Federation of Cultural Routes, Italian Network of Cultural Routes...).

### Best practices learned throughout the last decade

Over the last ten years, the ‘Prehistoric Rock Art Trails’ Cultural Route has undertaken numerous activities. Below are five examples of good practice associated with this cultural route:

- European Rock Art Heritage Label. This initiative was awarded by the Council of Europe in 2019.
- European Rock Art Day, in the framework of the European Heritage Days, is celebrated since 2019.
- Training Seminars for public service staff at cave art sites. Every 2–3 years, the association brings together cultural and tourism management and interpretation professionals working in rock art destinations.
- Expert exchange of information. The Association organises, in collaboration with its partner, the Trigueros Town Council, an International Congress on Cave Art which, in 2022, reaches its sixth edition. It also regularly organises seminars and meetings with its partners in various countries (France, Italy, Spain, Georgia).
- The Association promotes networking so that partners can mutually benefit from each other and develop joint initiatives and projects (both nationally and transnationally), especially benefiting rural areas, where most of Europe’s rock art sites have been preserved, including the 150 destinations open to the public that are currently included in the European Cultural Route.

#### 4.4.5 Further Reading

SPANISH ROCK ART ROUTE BLOG: <https://spainrockartroutes.prehistour.eu/el-primer-arte-rupestre-de-la-humanidad-esta-abierto-al-conocimiento-de-la-sociedad/>

ROCK ART BLOG: <https://rockartblog.blogspot.com/>

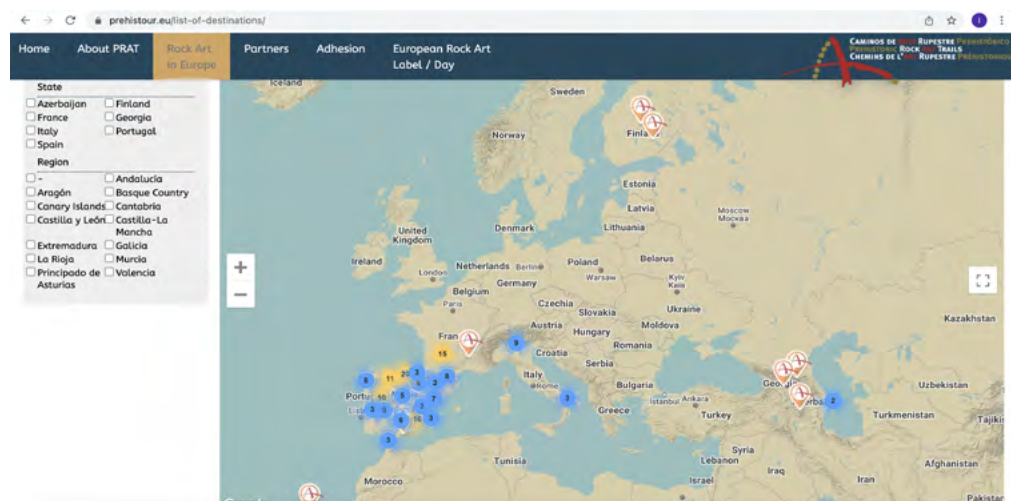
DAVID, B., 2017. *Cave Art* (World of Art). Thames & Hudson, UK.

LEWIS-WILLIAMS, D., 2002. *The Mind in the Cave: Consciousness and the Origins of Art*. Thames & Hudson, UK.

**Facebook:** EUROPEAN ROCK ART TRAILS <https://www.facebook.com/EuropeanRockArt/about/>

**Twitter:** EUROPEAN ROCK ART. <https://twitter.com/EuropeanRockArt>

**Figure 4.4.5a | List of Destinations “Prehistoric Rock Art Trails”**



Source: <https://www.prehistour.eu/list-of-destinations/>, 2023.

## 4.4.6 Points for Discussion and Questions

1. Why do you think such routes are so important for understanding how our ancestors lived and socialized?
2. What are the risks of promoting these sites without adequate controls, and what would you suggest these controls be?
3. In what ways can development of these routes be beneficial for local, rural communities?
4. Why do you think it's important to have a European network whereby such sites are connected and jointly promoted?
5. In section 3, it says that “tourists are attracted to visiting valuable and fascinating caves for their natural beauty and learning potential. Tourists also visit the caves for educational purposes, for simple recreation or for adventure”. Can you think of any activities that might combine all these interests in one. Describe these activities and how they would work in practice.
6. For the activities identified in question 1, which aspects of them could be likely to do damage to the cave or change its environment, and what measures could be taken to limit/eliminate these problems.
7. What initiatives could be taken at the European level that might both promote increased awareness of the importance of caves for educational and recreational use?
8. What initiatives could be taken at the European level that might both promote increased awareness of the importance of promoting sustainability in cave management and tourism?

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## 4.5 Volcanic Island Landscape

The Azores are an archipelago of nine islands in the North Atlantic Ocean spanning three tectonic plates: the Eurasian Plate, the African Plate and the North American Plate. This position gives it unique geological features. This archipelago has not yet been discovered by mass tourism, and its interpretation has been planned and developed with a concern not to invade nature. The archipelago is the only one in the world certified as a sustainable destination (EarthCheck). Interestingly, even the interpretative centres are environmentally integrated and in complete harmony with their surroundings. The tour guides are mostly locals who graduated from the University of the Azores and speak with extreme pride about their region. While they have a solid scientific background, they are also familiar with local anecdotes. That way, communication is not only based on facts but also on emotions. This is an illustrative case of good practice in the interpretation of geotourism, respecting the abiotic, biotic and cultural dimensions while corresponding with the goals of information, conservation and entertainment.

Before taking a closer look at the principles of heritage interpretation and applying these to the Azores, this Chapter will provide a few useful definitions.

### 4.5.1 Overview of Volcanic Island Landscape

#### **Geotourism and the ABC model**

Many important sites have been destroyed by human action due to a lack of knowledge about geodiversity and geology. Most problems result from a lack of connection between mankind and nature (Pásková et al., 2021); a call for greater connection can have equally devastating effects. Thus, this connection must occur in a non-invasive, respectful way.

Geotourism is a new approach to nature heritage based on geology, landscape, and the concept of ABC, which refers to interconnections between abiotic (climate and soil), biotic (animals and plants) and cultural (human) elements (Dowling, 2013). The combination of abiotic and biotic elements determines human life, which then also means that they determine the cultural element. Thus, as a way of interpretation, the ABC approach is a milestone for more sustainable tourism.

The new enthusiasm for geotourism has also been reflected in the building of geological facilities like geo-trails and view-points, guided tours, geo-activities and geosite interpretations centres. All these facilities serve the purpose of educating visitors and giving them a more sensitive experience, connecting them with the landscape.

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## Geotourists

“These geological tourists are often regarded as being ‘geo-experts’ or ‘geo-specialists’ and often comprise professional or amateur geologists who have a good understanding of geology and a strong desire to place it at the centre of their travels” (Dowling et al., 2021, p. 119). However, “a number of types of geotourists have been identified, including incidental, accidental, serendipitous, intentional and purposeful geotourists” (Dowling et al., 2021, p. 119), making the interpretation and all the didactic activities even more important. “Cultural intrusion, disruption, abuse, dislocation and corruption can occur through a lack of cultural appreciation and understanding on the part of tourists or their operators” (Newsome et al. 2005, p. 131).

Thus, by way of interpretation, the tourism experience should lead to a connection with nature based on the principles of respect, without causing any damage. Interpretation may help increase the satisfaction level and make the visit a richer and more enjoyable experience (Lück, 2008). However, it is important to keep in mind that the interpretation is expected to contribute to the stimulation of visitor intent, minimising impact and maximising support for the environment (Mayes, 2017).

### 4.5.2 Specifics of Heritage Interpretation

#### The objectives of heritage interpretation

Heritage interpretation is the communication process that links visitors with the abiotic, biotic and cultural environment; “it is more than education and includes education, recreation and conservation. It enhances knowledge, understanding and awareness” (Zeppel & Muloin, 2008, p. 24). So, to be effective, the process of interpretation must be enjoyable and recreational, but, at the same time, it must provoke reflection; it must “lead to thoughtfulness about care and of stewardship” (Borges de Lima, 2017, p. 127). While heritage interpretation includes the provision of information, it clearly goes beyond that. Its ultimate goal is to make a change, create awareness and contribute to more sustainable behaviour on the part of the visitors.

Interpretation thus is to build a bridge between education and leisure; it is entertainment that includes pedagogical and conservational components (Newsome et al., 2002).

Thus, distinct types of interpretation, based on different means and with greater or lesser insertion in the geosite, will have different impacts in educational terms, sustainable behaviour, and experiential terms.

McIntyre et al. (2014) note that tourists are usually interested in learning more about the places they are visiting while having fun at the same time. So, they suggest using a conversational tone, avoiding reading notes, and incorporating humour, music, sounds, two-way communication, objects, analogies, and metaphors (wildlife resources, habitats and ecosystems for visitors). The quality of interpretation is always a critical factor in the quality of experience and visitor satisfaction. Ultimately, interpretation must help explain the natural phenomena of a site, inform visitors of management issues, provide advice about natural hazards and safety precautions and educate visitors on minimal impact ethics (Parkin, 2006), based on accessible, user-friendly information.

Interpretation must have the capacity to connect visitors with the place (ABC), both mentally and emotionally (Ham & Weiler, 2002).

So, heritage interpretation serves a triple role:1) it is education since it provides fact-based information, 2) it contributes to conserving the site because it teaches adequate behaviour and recreation and 3) it is also a form of entertainment since tourists wish to be entertained. In the end, heritage interpretation should not only aim to influence visitors’ present behaviour but also change their values and attitudes (Figure 4.5.2a).

**Figure 4.5.2a | The Objectives of Heritage Interpretation**



Source: Author’s elaboration.

**The impact of heritage interpretation**

According to Newsome et al. (2005), linking geotourism interpretation with sustainability has many advantages as it can improve visitor management, local economic and environmental gains and fuller community involvement. However, there are also several pitfalls, which include “dangers of over-interpretation, intrusion, creating ‘quaint’ tourist landscapes, and [...] elitism” (Bramwell & Lane, 2005, p. 20).

Interpretation must enhance visitors’ knowledge and their understanding of the resource, mitigate visitor impacts, encourage the conservation and improvement of attraction areas and assist visitors in enjoying their visit.

**Table 4.5.2a | Interpretation advantages and pitfalls**

Advantages	Pitfalls
Visitor management.	Economic imperatives.
Local economic benefit.	Selection and simplification.
Local environment development.	Over-interpretation.
Community involvement.	Intrusion.
Values and attitudes.	Elitism.
	“Quaint” tourist landscape.
	Politics, beliefs and integrity.

Source: Based on Bramwell and Lane, 2005.

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So, heritage interpretation has been advocated as a soft and non-obtrusive in-situ or ex-situ visitor management strategy, and it can be personal or non-personal. Personal interpretation takes place with the help of an animator when an actor plays the character of a person from a historical period. Interpretation can also take place in the form of a demonstration when actors do not put themselves in a certain type of character, but talks about a historical period. Non-personal interpretation, on the other hand, is performed by an interpreter who is an expert in a particular subject, but does not dress specifically for the described period (Tătărușanu, 2021, pp. 168–169).

### **Visitor management**

Visitor management includes developing and implementing rules and regulations concerning visitor activity, which provides the guidelines for visitors.

This is an obvious benefit of interpretation, which will influence tourist behaviour across time and space. Oaten and Seager report the benefits of interpretation from a management perspective at Seal Bay (Kangaroo Island, Australia): supervision of visitor behaviour, information delivery on desired behaviour and time limits spent on the beach, and the opportunity to educate visitors about biodiversity and conservation (Newsome and Rodger, 2008). There are pre-defined routes marking how and where to walk, protecting more fragile areas and often directing visitors to less obvious, less known, but exciting spaces.

Thus, visitor management can increase the number of visitors in lesser-known regions and control “fashionable” areas, thereby maintaining the ABC balance.

### **Local economic benefits**

By attracting visitors to lesser-known regions, interpretation enhances the economic effect of these visits, whether by paying for visiting attractions, buying souvenirs or local consumption in restaurants and accommodation. All these activities are also direct and indirect job creators.

### **Local environment development**

Heritage interpretation can help visitors better understand the places, teaching them about the habitat and its species. This will lead to greater respect and less intrusive attitudes (Herbert, 1989), generally turning the visit into a more enjoyable experience.

This double connection (emotional and mental) has long-lasting effects. The presence of professional guides prevents inconsiderate behaviour, such as bothering animals, breaking branches and collecting artefacts. For example, “disturbance to birds is likely to be reduced in situations where guiding, interpretation and nature trails are in place” (Newsome, 2005, p. 185).

According to Kuo, inappropriate visitors’ behaviour happens because “they are not aware of, or they are not made aware of, the sensitivities and values of the site” (2002, p. 90). Thus, persuasive interpretive information can be seen as a soft management strategy, “able to educate visitors, both to enhance their knowledge about the site and how to carry out their activities in an effort to sustain the development of tourism”

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(Kuo, 2002, p. 92). An efficient and pleasant visit may enhance long-term awareness of the context and sustainable issues, thus promoting a responsible and caring attitude and behaviour towards the place/heritage (Newsome, 2005, p. 32). While increasing tourism in certain areas usually means more odds of damage and intrusive behaviour, tourists can become responsible and engaged in the conservation of that site when instructed by a professional guide.

### **Community involvement**

Interpretation will be more efficient the greater the involvement of the local community, helping to define what and how to interpret. The involvement of the local community brings a more genuine character to the interpretation, making it more efficient. On the other hand, it can raise the community's sense of place, help empower individuals and the wider community, and assist in forming stronger individual and group identities (Machin, 1989).

### **Values and attitudes**

An efficient interpretation leads to a harmonious relationship between the abiotic, biotic and cultural elements. An efficient relationship between visitor and the site can lead to an appreciation of the space and its culture visited by the visitor. This recognition of the value of a site and culture has a highly positive effect on the way locals see themselves and also on their relationship with their surroundings and culture, encouraging them to invest more in their protection and to commit more to their conservation (Bramwell & Lane, 2005).

However, it is necessary to keep in mind that, in many geotourism situations, conflicts can arise between tourist pressure and environmental protection (Kuo, 2002). There needs to be a balance between conservation vs. economic imperatives, simplification vs. overinterpretation, elitism vs. mass intrusion and factual presentation vs. “romantic” storytelling. At the same time, it is important to note that everything reflects political options that could impact beliefs and local integrity.

### **Economic imperatives**

A “commonly voiced concern about interpretation for visitors is that too often it is driven largely by economic objectives, particularly as a means for economic development, rather than by a concern for the broader well-being of the community and of the environment” (Bramwell & Lane, 2005, p. 23). The concern behind this idea is that there is an overestimation of what is economically viable, devaluing what is not, regardless of the effects on the environment they may have, leaving less appealing resources for tourism to be abandoned.

Bramwell and Lane (2005) also warn that a focus on certain aspects can lead to the loss of its original meaning, giving it new nuances that are transmitted to visitors.

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## **Selection and simplification**

Heritage interpretation has to consider not only the abiotic, biotic and cultural elements, but also the relationships and interrelationships between them, which is quite complex. Therefore, in any heritage interpretation strategy, there will always be a process of selection and simplification, which can sometimes result in distortions. This process of selection and simplification is closely linked to visitors' limited time, prior knowledge and the diversity of groups.

## **The danger of overinterpretation**

Sometimes, an excess of enthusiasm about places and phenomena leads to interpretation where it is not necessary, in an attempt to instil meanings and explanations, which can lead to excessive rationalisation, losing enthusiasm and the ability to enchant (Bramwell and Lane, 2005).

Highly theoretical and specialised discussions about a place can discourage and demotivate visitors, failing to connect them with the surrounding environment. "Best practice consists of involving the client in the interpretive process. [For example] by working with children a guide can more readily engage adults and involve them in the interpretive process at the same time" (Newsome, 2005, p. 206).

According to Moscardo et al. (2004), in order to be effective, heritage interpretation should be multisensorial, and the interpretative material should be easy to understand, creating personal connections.

## **Danger of elitism**

Often, the guides themselves oppose mass tourism, preferring to engage with genuine nature enthusiasts. However, it is important to note that the aim of heritage interpretation is not only to inform about certain phenomena but also to train people in terms of behaviour and attitudes towards sustainability. Addressing only those who have already adopted this attitude would mean to give up an essential part of the interpretation.

## **Danger of intrusion**

On the other hand, when talking about tourism massification, a discussion about intrusiveness seems unavoidable. Some researchers (cf., Gartner, 1996) argue that it is necessary to protect local inhabitants and local culture from visitors' behaviour; others assume that everything is constantly changing and adapting. "It must also be remembered that most local communities were changing long before tourism, and their cultures may well be able to adapt to such new influences as the staging of events and yet retain – and even reinforce – their vitality and coherence" (Bramwell and Lane, 2005, p. 24). Once again, interpretation plays a crucial role in protecting locals from damages and prejudice, adapting and absorbing the advantages of tourism while, at the same, protecting places from turning into thematic parks.

## **Danger of creating 'quaint' tourist landscapes**

Since the “unknown” is considered more probing and exotic, visitors tend to prefer what is different (Urry, 1990). So, there is the danger of exacerbating the aspects that are different, creating “quaint” tourist landscapes. “Fossilised relicts, sterilised neat reconstructions, and aesthetic pretensions may be created for the entertainment rather than the enlightenment of the visitor, and these are likely to discourage the expression of the local landscape of the time” (Bramwell & Lane, 2005, p. 25).

## **Politics, beliefs and integrity**

“History is, by default or design, a political issue. The same applies to our perceived sense of place” (Bramwell and Lane, 2005, p. 25). It is a tendency to minor and/or mask problems and boast the pros, creating unrealistic heritage interpretation resources. The resulting clichés can be hard to overcome (Bramwell and Lane, 2005).

## **Interpretation techniques**

Heritage interpretation is supported by various communication techniques such as signs and plates, audio-tours, video screening, digital tools and personal information provided by tour guides (Brilha, 2006; Lück, 2008).

The new generations were born in a digital world. For them, there are no borders between the physical world and the technological world, so the support of new technologies to connect to the physical world can be essential. On the other hand, technologies based on virtual reality and/or augmented reality, make tourists feel the place and the phenomena without having an abusive invasive action. The interpretation can be in situ (when it is presented in the physical space in which the phenomena occur) or ex situ (outside the physical space in which the phenomena occur). In situ allows a greater connection with nature, however, it also entails greater risks of inappropriate behaviour, even more so when it is not supported by tourist guides' personal techniques. In general terms, in-situ interpretation includes tours and trails accompanied by guides and the workshops developed at the geosites. Non-personal techniques are based, above all, on signage, allowing geotourists to visit and enjoy the space at their own pace, with the transmission of knowledge taking place mainly through posters. Audio-guides are also increasingly used, allowing tourists to hear an explanation of the phenomenon, its conceptualisation

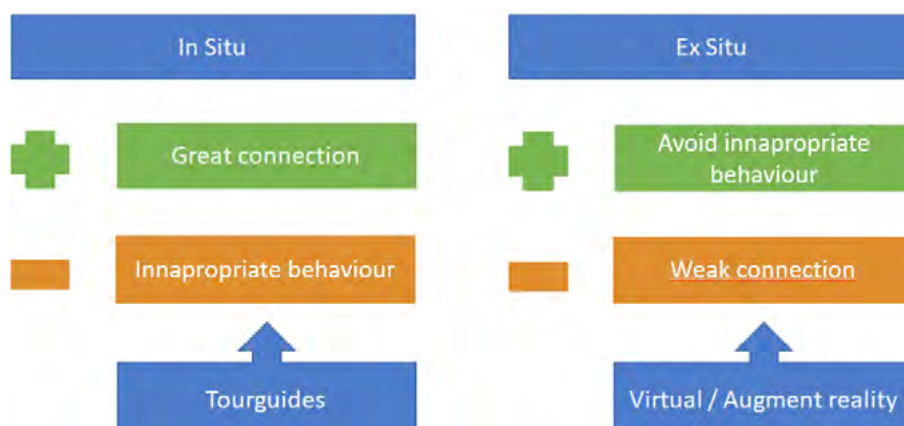


and related stories. Audio guides incorporate as many optional contents as the managers want allowing potential adaptations according to expertise level, content size and language of the visitors/users.

Ex-situ communication takes place outside of the geosites, though most of the time in their proximity. This communication form includes interpretive centres, flyers and websites. Interpretive centres (which can be for free, with audio guides or tour guides) usually combine different communication techniques in order to bring together, in a single space, fact-based information about the phenomenon and site, conservation and appropriate behaviour. This is done in a pleasant way so that the tourist (even the accidental one) has a memorable experience and leaves the space more knowledgeable.

In situ and ex situ are two basic approaches; the great advantage of one is the biggest disadvantage for the other. It is easier to connect the visitor with the phenomena in situ, but this approach could be much more intrusive. Ex-situ approaches are not intrusive, avoiding inappropriate behaviour in accordance with the ABC model; however, connecting the visitor to the phenomena is not easy. Nowadays, virtual and augmented reality put the visitor in situ, while being ex situ, making them feel the phenomena.

**Figure 4.5.2b | In Situ Versus Ex Situ**



Source: Authors elaboration.

“It is clear that the level of understanding available at a wildlife encounter can strongly influence the level of satisfaction of the observer” (Reynolds & Braithwaite, 2001, p. 37). According to Reynolds and Braithwaite (2001), the following relevant factors may impact the learning outcomes of a tour with a professional guide: visitors’ educational level; communication with previous visitors; visitors’ preparation on the topics; the guide’s competence; communication skills of the guide; personality of the guide; visitor interaction with the guide; motivation levels of guide and motivation of the visitor (e.g. could be affected by tiredness); on-site interpretation aids.

The chosen technique should take into consideration the target audience and, according to Gubbay (1989, p. 177), needs to use active involvement, show the relevance of the information, make the experience enjoyable, generate curiosity and interest and use personal contact.

According to the results of a whale watching study conducted by Forestell and Kaufman (1990), the most efficient form of interpretation is the direct guided experience; in other words, an in-situ experience guided by a professional. The study conducted by Forestell and Kaufman (1990) is based on three stages: creating a perceived need for information; providing



the required information in an informal and interesting manner; and participation in follow-up activities (Lück, 2008). In the first phase, tourists are excited about the future experience and thirsty for information about safety, the environment and the activities provided. The next phase is interaction, in which tourists have specific questions that can be answered in real time. Some questions arise only at that moment and would be left unanswered if there were no guide, or the tourists would draw their own conclusions that might not be the right ones. At this stage, due to the fact that they are integrated in the specific place, within such immersive experience, tourists may learn and feel (performing their five sensory organs) the real context. The guide's presence also mitigates inappropriate behaviour by providing some

good practice guidelines on how to enjoy and respect the place. In the last phase, tourists update and reframe their previous knowledge and during the visit they integrate new valuable inputs which may change their behaviour and attitudes in a more responsible way.

It is important to note that the guide should be an inspiring individual since they are responsible for translating “the technical language of nature and science or related fields into terms and ideas that people who aren’t scientists can readily understand. And it involves doing it in a way that’s entertaining and interesting to these people” (Ham, 1992 in Borges de Lima, 2017, p. 122). What is more, professional guides should have excellent leadership skills. They are both trustful experts providing information and entertainment prompting tourists to respect the culture and the local specificities. Table 4.5.2b presents the three key spheres of tour guiding according to Borges de Lima (2017).

**Table 4.5.2b | The Three Spheres of Tour Guiding**

<b>Sphere 1: Group management</b>	<b>Instrumental (leadership) roles</b> focussing on organising and managing the group.
<b>Sphere 2: Experience management</b>	<b>Mediatory roles</b> focussing on facilitating individual's engagement and learning.
<b>Sphere 3: Resource/site management</b>	<b>Interpretative and role-modelling roles</b> focussing on the sustainability of host environments, communities and destinations.

Source: Borges de Lima, 2017, p. 124.

According to Ham (2004), unforgettable experiences have three characteristics: intense engagement, loss of sense of time and self-transcendences. Thus, the tourist seems to move in time and space, directly experiencing the phenomenon, connecting

not only physically, but also emotionally with it. It is important to note that “sometimes, the visitors only wish to contemplate and observe nature” (Borges de Lima, 2017, p. 172).

## Conclusion

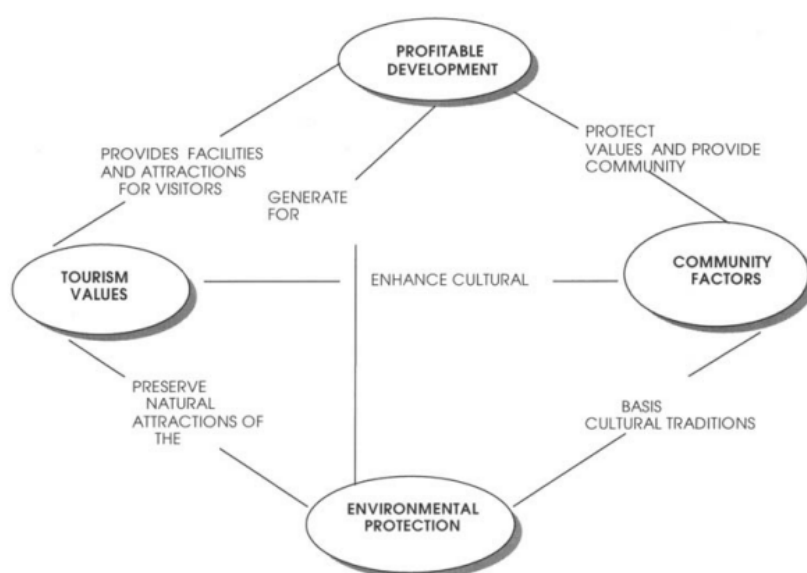
Geotourism only exists because these places are of interest to potential visitors, so making them more appealing is fundamental. However, this has to be done in a balanced way, i.e., taking into consideration the three ABC components (abiotic, biotic and cultural).

For this to be achieved, heritage interpretation must fulfil the following goals: “protecting fragile resources (by directing visitors to other areas); reducing intentional and unintentional vandalism; reducing accidents by explaining unusual dangers; increasing understanding of, and compliance with, management activities; increasing knowledge of land management objectives (reservation, conservation)” (Borges de Lima, 2017, p. 119).

Lück (2008) presents several papers discussing whether it is more important for tourists to be educated, to have access to the true meaning of places and phenomena, or whether they just want to be entertained. Thus, the four roles of interpretation can be described as promotion, visitor enjoyment, management, and education for conservation (Newsome et al., 2005, 119).

Heritage interpretation is an excellent method of transmitting values and highlighting the attraction, thereby attracting more people. By highlighting the significance of a site, a sense of place is reinforced in the community, making them more aware and concerned about cultural traditions and values. This renewed pride helps with environmental protection. At the same time, heritage interpretation strategies encourage tourists to preserve natural attractions and to refrain from inadequate behaviour. Last, but not least, interpretation helps develop communities and keeps the abiotic and biotic connected.

**Figure 4.5.2c | Impact of Interpretation**



Source: Newsome et al., 2005, 222, p. 33.

### 4.5.3 Examples of Good Practice

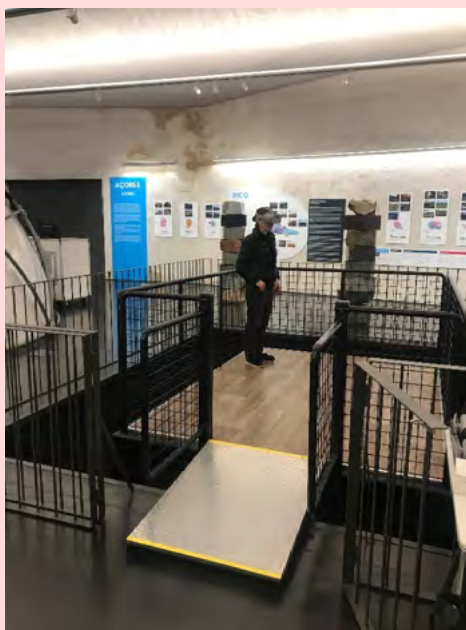
#### **Casa dos Vulcões (Volcanoes' House)**

The Volcanoes' House is an interpretive centre framed in the protected landscape of vine culture of Pico island, integrated in the Lajido of Santa Luzia.

The Volcanoes' House offers an authentic journey to the center of the Earth using an interactive dome, along with a very dynamic presentation and a variety of tools. A seismic simulator combined with virtual reality brings a different experience to the visitor, which could feel the sensation of an earthquake. The interpretative centre is completely integrated into the local landscape, respecting traditional architecture.

Interpretation methods: Permanent exhibition space consisting of videos, photos, and photograms with information in Portuguese and English. An interactive exhibition, including a Domo representing a visit to the Earth centre and a platform simulating an earthquake combined with images from 1980 seism.

**Figure 4.5.3a | Volcanoes' House: A Seismic Simulator**



Source: Author's archive (Brito, Meneses, 2022).

More information:

<https://edigma.com/en/volcanoes-house/>

### Gruta das Torres (Towers Cave)

Gruta das Torres (Towers Cave) is one of the largest volcanic tubes in the world, located in Pico Island (Azores), PT.

The tube is in a very natural stage, without lighting and very small human intervention. Visitors must turn on their lanterns and take special care where they place their feet after the handrail and corridor are present for the first few meters. The ground is simply the end result of lava, which can be either type “A” or type “Phoehoe”. The former has an uneven, fragmented surface that is challenging to walk on because it is the result of the rapid release of gases. Because of its appearance, the locals refer to it as “biscuits”. The texture of phoehoe lava is soft and smooth. Along the way, you can see banks, lava balls, striations, and tiny lava stalactites and stalagmites.

Interpretation methods: Only guided tours are allowed. The visit begins in a small interpretative centre, which is completely integrated into the local landscape, respecting traditional architecture. Visitors can watch an explanatory short film about volcanology. After that visitors are briefed about safety and safety material is distributed. Because human presence must not be intrusive, there is no artificial lighting inside the entire tube and only a small number of visitors are permitted. The entire explanation is very interactive and uses simple language to combine scientific understanding with local anecdotes.

**Figure 4.5.3b | Towers Cave**



Source: Author's archive (Brito, Meneses, 2022).

More information:

<http://omic.centrosciencia.azores.gov.pt/omic/omic#:~:text=O%20Observat%C3%B3rio%20Microbiano%20dos%20A%C3%A7ores%20%C3%A9%20uma%20entidade,nas%20nascentes%20termais%20e%20cavidades%20vulc%C3%A2nicas%20dos%20A%C3%A7ores>

### **Algar do Carvão**

This volcanic chimney is remarkable because, in contrast to other instances, it is not entirely blocked. It concludes 90 meters below the surface in a lagoon with clear water. There are only two visitable volcanic chimneys in the world, Algar do Carvão is one of them. Inside the cave, there are several staircases leading to various balconies, totaling 338 steps. Since the 1960s, it has been accessible to the public, being maintained by the Association “Os Montanheiros”.

The water dissolves and becomes enriched with silica and ferric minerals as it percolates through the rocks and slag. In the vaults, interior walls, and floors as it is released and precipitates into the lagoon, it leaves behind minerals in the form of milky white amorphous silica stalactites and stalagmites or reddish ferric veins, some of which produce limonite deposits through oxidation. Due to its excellent acoustics, it has hosted a variety of performances over the years, as well as religious and cultural events.

Interpretation methods: An interpretative centre provides information about the site, warn about inappropriate behaviour and the need to conserve the site and give indications to ensure safety. The interpretative centre is harmoniously integrated with the landscape. There are no official tour guided visits. Numerous guides are dispersed throughout the area, helping, responding to inquiries, and preventing risky or intrusive behavior. Visitors can explore the volcanic chimney at their own pace, taking as much or as little time as they like to observe and ascend the stairs.

### **Azores Volcanological and Geothermal Observatory - OVGA**

The Azores Volcanological and Geothermal Observatory (OVGA) is a Science Centre that develops applied research and scientific dissemination activity in the area of Volcanology, Seismology and Geothermal. It helps visitors understand how, over time, each island was created by the collision of fire (volcanoes) and sea (Atlantic Ocean). The OVGA has a didactic goal and provides in-depth explanations about the formation of the archipelago through geologically trained tour guides. It also organizes visits to schools. Visitors can browse a collection of rocks from various regions, with a focus on Macaronesia.

Interpretation methods: Permanent exhibition space consists of videos, photos, and photograms with information in Portuguese and English.

These explanations are provided clearly and simply so that the visitor can quickly comprehend and assimilate the information. Visitors are welcome to ask the tour guides if they have more in-depth knowledge. The pace of the guided tours is determined by the visitor's type and level of interest. Special considerations are given to children.

More information:

<https://www.visitazores.com/en/explore/volcanological-and-geothermal-observatory>

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### **Building and Survival Games – Minecraft Madeira**

Minecraft, released in 2011 by Mojang Studios (now owned by Microsoft), is a popular building and survival game. Not only is it an excellent form of entertainment, with millions of players around the world, but it can also be successfully employed as a pedagogical tool for all kinds of subjects, including nature tourism interpretation.

With its capability to create realistic virtual worlds, game developers and tourism professionals can recreate many different scenarios, like natural habitats and protected areas, monuments or even entire cities, allowing tourists to explore and learn about the cultures, biodiversity and ecosystems of these places in a fun and interactive way.

Aiming to apply this approach and explore the endless possibilities of Minecraft, in association with the regional Government of Madeira, Visionarium created the Minecraft world Festa da Flor da Madeira (“Madeira’s Flower’s Festival”). This is a Minecraft activity where players can visit an up to scale digital rendition of Funchal’s Town Square and experience some of the more common activities of the Island’s most iconic festivity.

Players are fully immersed into Madeira’s Festa da Flor and learn more about the local customs and traditions.

The game serves to pique the players’ curiosity about the Island’s culture and landmarks, and a recurring message of sustainability and respect for the environment can prepare them for sustainable tourism.

More information:

<https://education.minecraft.net/en-us/lessons/2403>



#### 4.5.4 Case Study: The Azores

The Azores – a lot of sea and little land. The geology has given it a variety of shapes, the climate gives it almost all its flowers, and the geography has allowed it an important place in the history of Portugal and the world.

[www.visitazores.com](http://www.visitazores.com)

This case study aims to explore the potentials of geotourism in the Azores. The Azores archipelago is a group of nine islands in the northeast Atlantic Ocean, lying between latitudes 36° and 43° N latitude and 25° and 31° W longitude. The nearest territories are the Iberian Peninsula, some 2,000 km to the east, Madeira 1,200 km to the south-east, Nova Scotia 2,300 km to the north-west and Bermuda 3,500 km to the south-west. It is part of the Macaronesian biogeographical region.

In fact, this archipelago lies precisely on the Mid-Atlantic Ridge, with two islands on the North American plate and the other seven on the Eurasian plate. This location makes the Azores an extraordinary case in geotechnical terms, having a constant seismic activity and volcanoes that form islands. All the islands are of volcanic origin, with the most evident volcanic activity on São Miguel Island, its most recent significant land activity on Capelinhos (Faial Island), and the highest point on Pico Island.

The Azores have a lot to offer. Of volcanic origin, each island has its own volcanic identity through the fossils, in Santa Maria, the lakes, in São Miguel, the caves, in Terceira, the cones, in Graciosa, the Fajãs, in São Jorge, Pico Mountain, in Pico, the Capelinhos volcano, in Faial, the waterfalls in Flores and Caldeirão, in Corvo.

(Direção Regional de Turismo dos Açores, authors' translation)

The Azores are enchanting because of the encounter between sea and fire. Tourists can visit the craters of extinct volcanoes, active fumaroles, interpretation centres and maritime banks with enormous respect for nature. A visit to the Azores involves the sea and the land, walking, reflecting and diving. The Azores are a great example of a perfect combination of soil, ocean and climate, fauna, flora, and human presence.

## São Miguel Island

São Miguel Island is the largest island of the Azores in terms of area and population. The island is rich in lakes formed in the calderas of ancient volcanoes and has a unique beauty. The most famous lake is Lagoa das Sete Cidades (see Figure 4.5.4a). With a perimeter of about 12 kilometres, it is the largest freshwater reservoir in the Azores. In fact, the Sete Cidades Lagoon results from the meeting of two lagoons, one with blue waters and the other with green waters. According to legend, the lakes result from tears wept by a green-eyed princess and a green-eyed shepherd because they were prevented from living their love. Along the paths, there are several belvederes where visitors can see the beauty of the two lagoons. The various belvederes, as a rule, take advantage of the natural indentations in the terrain and have explanatory plaques in Portuguese and English and a QR code that links to a site with more detailed information. There is no information in Braille language. Nowadays, cyclo-tourists accompanied by a cyclo-guide are a regular presence in tourism that respects nature and is a very little invasive. Visitors can go down to the small village of Sete Cidades and have a picnic on the banks of the lakes, or enjoy the two lakes separately and ride over the small bridge that separates them.

**Figure 4.5.4a | Lagoa das Sete Cidades; Ciclotourists; Informative Panel in Miradouro dos Arrifes**



Source: Author's archive (Brito, Meneses, 2022).

The volcanic presence on this island does not remain in the past. The Furnas Valley is surrounded by immense vegetation typical of Macaronesia, and in its margins; it is possible to find and observe several volcanic water boilers and fumaroles (Figure 4.5.4b). These waters reach such high temperatures that the inhabitants dig holes in the ground and cook the famous “Cozido das Furnas”.

The Microbial Observatory of the Azores (OMIC) is part of a network of science centres of the Azores. Given the unique and extreme conditions of some parts of the archipelago, there is a great diversity of microorganisms. The OMIC allows obtaining knowledge in a non-intrusive way. Here visitors can see films and exhibits along the walls; supported by highly specialised guides, it is possible to observe microorganisms native to the Azores under the microscope. There are explanations in Portuguese and English. It is interesting to note that it is possible to see what was explained during the tour in this Observatory, allowing the visitors to do this at their own pace.

**Figure 4.5.4b | Furnas Volcanic Springs and Waters**



Source: Author's archive (Brito, Meneses, 2022).

The Azores Volcanological and Geothermal Observatory (OVGA) also belongs to the network of science centres of the Azores. The OVGA has a didactic objective and offers detailed explanations through guides with geological training about the formation of the archipelago, understanding how, over time, each of the islands was formed by the encounter between fire (volcanoes) and sea (Atlantic Ocean). These explanations are given in a simple but straightforward manner so that the visitor can easily understand and absorb the information. If visitors have more profound knowledge, they are welcome to ask the tour guides. The level of interest and type of visitor determine the rhythm of the guided tours. The tours are interactive, based on interaction and dialogue. Special attention is given to children as there are activities aimed at this target groups, such as quizzes and demonstrations. In this centre, visitors will also find a collection of rocks from various locations, with a particular focus on Macaronesia.

## Faial Island

On 27 September 1957, the Capelinhos volcano began its activity, as a result of which the island grew by 2.4 km<sup>2</sup>. It started with a Surtseyan eruption (underwater), before moving into a second phase (subaerial eruption), alternating more explosive periods with the emission of volcanic bombs and more effusive periods (with lava flows). In this way, it began to form an autonomous island in front of the island of Faial. After thirteen months of activity of this volcano, this new island joined the existing one. It is interesting to notice that, due to the unconsolidated nature of this rock, erosion has meant that only 1/3 of this new territory now exists. The Capelinhos Lighthouse, which was in the sea before the eruption, is now on land and can be visited, giving an impressive aerial view of the surrounding area. Visiting this area is thus a highly impactful experience as it still is uncharted territory in geological terms (Figure 4.5.4c).

The area around the volcano is classified as a protected landscape of high geological and biological interest. It is part of the Natura 2000 network and a geosite of the Azores Geopark.

**Figure 4.5.4c | Current Landscape in the Area Surrounding the Capelinhos Volcano**



Source: Author's archive (Brito, Meneses, 2022).

Since this eruption occurred only quite recently in the second half of the 20th century, the whole process is very well documented and studied. The Capelinhos Volcano Interpretation Centre (Figure 4.5.4d, pg. 226) is integrated and in complete harmony with the landscape.

The Capelinhos Volcano Interpretation Centre (CIVC) takes us on an interpretative journey that allows us to understand the phenomenon in geological terms, to fit it into the geology of the planet and to “re-live” the last eight million years that led to the formation of these nine islands in the Atlantic.

**Figure 4.5.4d | Capelinhos Volcano Interpretation Centre**



Source: Author’s archive (Brito, Meneses, 2022).

**Figure 4.5.4e | Inside Capelinhos Volcano Interpretation Centre**



Source: Author’s archive (Brito, Meneses, 2022).

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This Centre is educational and informative, based on factual scientific knowledge. It is a spacious, modern building that uses new sound and image technologies to make heritage interpretation more accessible and efficient for all visitors (Figure 4.5.4e). Here, too, tour guides repeat and re-explain when necessary, answer questions and go into more detail. The tour guides are very well educated and are local. This is quite important because it gives the visit a more emotional touch, for example when talking about the social consequences of a volcanic eruption. This makes the interpretation quite tangible and concrete: it is about real people with real stories.

The eruption of this volcano has had a strong impact not only in geological terms but also in social terms. Several villages were destroyed, which led to flows of emigration from the Azores to the United States of America. In the 1960s, under the Azorean Refugee Act, almost half of the Faial population migrated to the US. Even today, there is a considerably large Azorean community in the US. Famous Azorean descendants include the writer Daniel Silva, the actor Tom Hanks, the medicine Nobel prize winner Craig Mello and the singer Katy Perry, to name but a few. The CIVC makes the interaction between the abiotic, biotic and cultural dimensions absolutely clear; visitors can see the flora blooming in a landscape wholly built by the volcano.

## **Pico Island**

Situated on the island of Pico, the enormous volcanic cone of Pico is the highest mountain in Portugal. The ascent to Pico is arduous and takes about three hours (and four to descend). All climbs are monitored by Casa da Montanha (Mountain House) to ensure tourists' safety and to manage the number of visitors. Stakes mark the trail, and when visitors arrive at the top, they can see fumaroles; the volcano is dormant but active.

On this island, the ground is well marked by the interaction of fire and sea, and the testimonies of the volcanic eruptions can be found on the slabs, with volcanic runoff in various shapes and forms. While the landscape is black and harsh, humans knew how to take advantage of these volcanic sediments. On this island, we can observe the Pico Island Culture Landscape (declared UNESCO World Heritage site in 2004). Pico wine is unique, and it grows in a completely original landscape (Figure 4.5.4f, pg. 228). The vines grow clinging to small basalt walls lined up in squares. When the first settlers arrived on the island, they had to bring land from Faial, as only about 5% of the soil was arable. They also had to remove the volcanic rocks and use them to build walls. The configuration is important because it protects the vines from the wind with salt coming from the ocean.

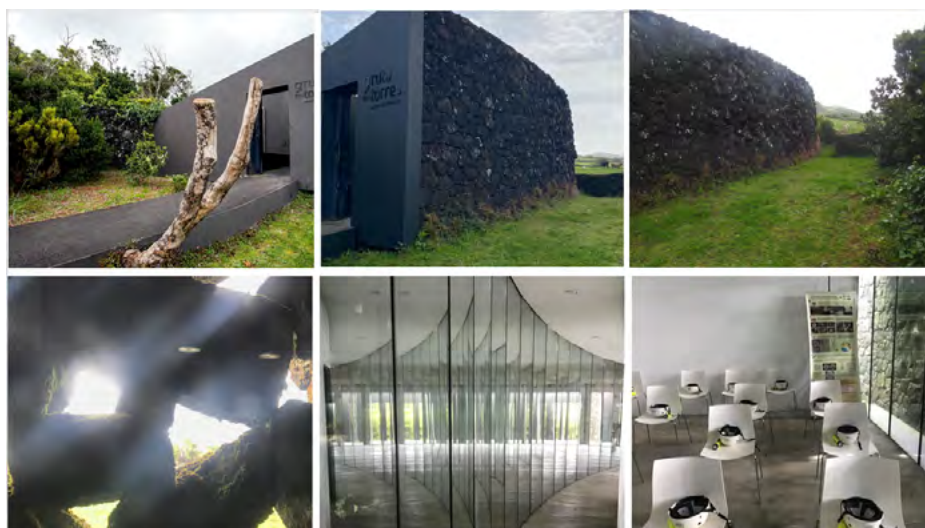
**Figure 4.5.4f | Pico Island Culture Landscape – Criação Velha**



Source: Author's archive (Brito, Meneses, 2022).

One of the largest volcanic tubes in the world that can be visited is also to be found on this island: the Gruta das Torres (Towers Cave). The visit begins in a small interpretative centre (Figure 4.5.4g), where visitors can watch an explanatory film about volcanology. It is not a long film with profound information; it is a soft introduction preparing visitors and creating expectations. Visitors are briefed about safety and safety material is distributed (Figure 4.5.4g), and only guided tours are allowed. The human presence must not be invasive, which is why only a limited number of visitors is allowed, and there is no artificial lighting in the entire tube (hence the safety briefing).

**Figure 4.5.4g | Interpretative Centre, Gruta da Torres**

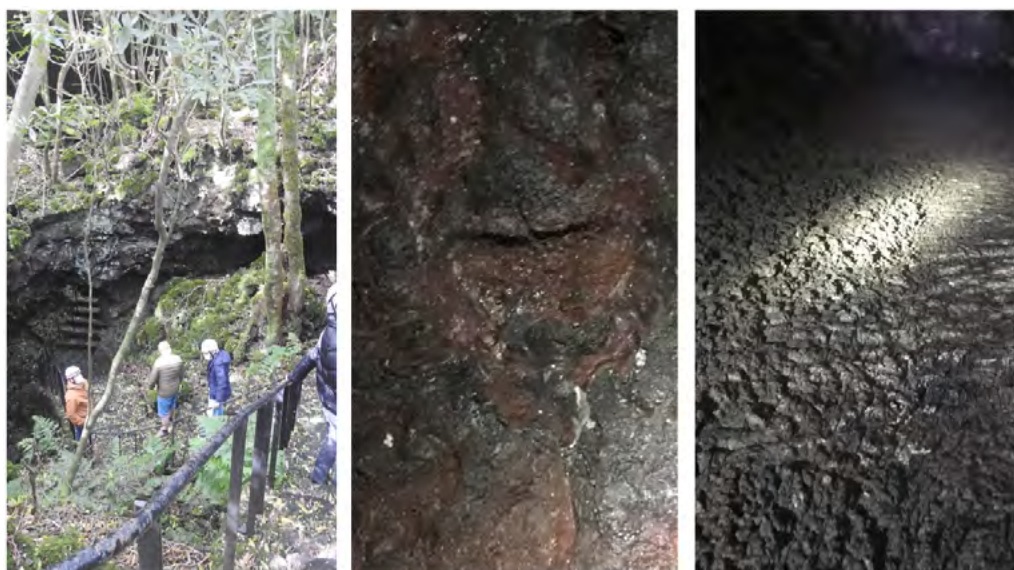


Source: Author's archive (Brito, Meneses, 2022).

The entrance to the tube brings a huge contrast between the lush green outside and the black inside. Outside, a regulus (the smallest bird in Europe) watches the visitors; inside, in the first phase, where there is still some sunlight, several colonies of fungi (microfilms) are visible, then only darkness and from time to time, a troglobite (Figure 4.5.4h).

The first few metres have a corridor and a handrail; then visitors need to switch on their lanterns and pay close attention to where they put their feet. The ground is just the result of the passage of lava, which can be of the ‘A’ã type or the Pāhoehoe type. The former results from the rapid release of gases and has an uneven, fragmented surface, making it difficult to walk on. Locals call it “biscuits” because of its appearance. Pāhoehoe lava has a smooth, soft texture. Small lava stalactites and stalagmites, banks, lava balls and striations can be seen along the way. Although the tube can only be visited accompanied by a guide, given the surroundings of the lava tube, some people prefer visiting it in complete silence, in a process of internal reflection. The Association “Os Montanheiros” (an Azorean NGO) is responsible for managing this geosite. So, the exploration and interpretation of this tube is very close to the local community; the visit is very well accompanied and explained. All the explanation is very interactive, combining scientific knowledge with local stories in an easily understandable language.

**Figure 4.5.4h | Entrance; Microfilm; Floor**



Source: Author’s archive (Brito, Meneses, 2022).

## Terceira Island

Terceira is the third largest island in the Azores and one of the main tourist attractions of the archipelago. Its capital, Angra do Heroísmo, is a UNESCO World Heritage site, and the island is famous for its volcanic landscape.

When you enter the visitors' centre at Algar do Carvão, nothing foreshadows the impact you are about to receive after walking down the stairs and through the access tunnel to the geological monument.

Pimentel (2022)

One of the attractions that make it so unique is Algar do Carvão. Algar do Carvão is a volcanic chimney (there are only two in the world), with a 100m drop, and inside the cave there are several staircases to different balconies (338 steps in total). It has been open to the public since the 1960s. The Association "Os Montanheiros" is responsible for this geosite, but no formal tour guides exist. Many guides are recruited on the spot, helping people, answering questions, and avoiding unsafe or invasive behaviour. So, visitors can visit the volcanic chimney at their own pace, taking more or less time observing and climbing the stairs, but they are not alone – guides are there to help and answer questions. The Algar has excellent acoustics, so listening to people singing songs is not unusual.

There is also an interpretative centre to provide information about the site, warn about inappropriate behaviour and the need to conserve the site and give indications to ensure safety. The interpretative centre is harmoniously integrated with the landscape.

**Figure 4.5.4i | Entrance on the Chimney of Algar do Carvão**



Source: Author's archive (Brito, Meneses, 2022).

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## The ocean

All the islands of Azores archipelago are of volcanic origin and have been formed over thousands of years through land and water volcanoes; the seabed bears witness to this evolution. The volcanic activity has left many marks on this sea, which forms a unique maritime landscape created by lava banks. Thus, the ocean is the absolute protagonist, and it offers great attractions. Here, various marine activities are possible: big game fishing, bodyboard, whale and dolphin watching, diving, shark diving, surfing, windsurfing, fishing tourism, sailing and bathing areas. Visitors can also go archaeological and geological diving in the Azores.

Whale and dolphin watching usually starts in March and ends in November; dolphins, whales, and sperm whales can be observed. Between March and May, there is a great bustle in the Azorean sea as this is the migration time for the blue whale, the common whale, the sardine whale and the humpback whale (very large whales). Summer is the time for observing sperm whales. Dolphins can be observed all year round as there are resident families.

A person on a permanent lookout warns where the cetaceans are, so that they can be spotted and the approach is safe and calm. On the various islands, several (private) companies offer this service. The protocol followed is always quite similar. There is an initial briefing, still on land or already at sea, while the boat approaches the place. Biologists usually give these explanations with experience, passion and training. Respect for the life cycle of the animals is an essential point, and visitors may get quite close, depending on the type of cetacean sighted or the type of group. Sperm whale mothers like to walk with their young babies, but distance must always be maintained so as not to unbalance this relationship.

Diving and snorkelling in a nice and secure place are possible, too. Before the dive, a short briefing is done to ensure that divers have the necessary equipment, clothing, and skills before they go down. The start of the dive is a kind of test to make sure everyone is fit. The dive is monitored to ensure that there is no inappropriate behaviour taking place such as touching anything (the bottom or corals, for example), providing that divers only see with their eyes and not touch with their hands. The dives take about 45 minutes, but the important thing is that the diving is done in a safe and relaxed way. The sea bottom of the Azores has much to offer, both geologically and in terms of fauna. Divers can see craters of volcanoes, underwater labyrinths (caves, tunnels, etc.), black coral, colourful fish, morays eels, hogfish, stingrays, parrotfish, serranoes, lichens, pelagic fish and even octopus and barracudas. It is very interesting that, just like the islands, much of the seabed is the result of volcanic activity and is therefore made of black basalt rock, presenting a unique aspect. A debriefing helps to interpret everything that divers have seen, contextualise that and understand their importance in the Azorean.

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## Conclusion

The case study of the Azores is a good example of effective heritage interpretation. Tourism is now developing with an approach respecting the ABC balance. Geotourism is particularly relevant because the Azores are a volcanic archipelago. With nine islands, the Azores have a lot of sea and not so much land. On land, visitors can climb Pico mountain, visit volcanic tubes and chimneys or observe fumaroles. The interpretative centres located on the islands are modern buildings that integrated well with the landscape. They are very well equipped and supported by technology, using gamification and 3D. The University of Azores awards degrees in Volcanology, Biology, Science of the Sea and Geology; the majority of the guides are former students of the local university. This is quite important as the tour guides have both an intellectual and an emotional connection with the geosites.

There are two networks of interpretation centres: “Os Montanheiros”, and Rede de Centros de Ciência (Network of Science Centres). Both are non-profit organisations seeking to inform the public about the sites and to teach about respectful behaviour while also raising awareness about environmental concerns and providing some entertainment.

### 4.5.5 Further Reading

VIZITAZORES (n.d.). Visit Azores. <https://www.visitazores.com/en>

### 4.5.6 Points for Discussion and Questions

1. According to the case study presented, what are the great advantages of heritage interpretation with regard to the Azores?
2. Usually, in the Azores, local people are hired to work as tour guides (Azorean guides). Do you think this is beneficial or could there also be some disadvantages?
3. Choose one example from the case study. Do you think it is a well-balanced example of heritage interpretation (information, recreation, and conservation)? If so, why? If not, why not?

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This Chapter will provide an overview of European cultural landscapes (4.6.1) before discussing the principles of heritage interpretation (4.6.2) and exploring examples of best practice (4.6.3). The introduction will provide definitions of cultural landscape, palace gardens, zoos and botanical gardens.

### **Cultural landscapes**

*“Cultural landscapes are at the interface between nature and culture, tangible and intangible heritage, biological and cultural diversity – they represent a closely woven net of relationships, the essence of culture and people’s identity. Cultural landscapes are a focus of protected areas in a larger ecosystem context, and they are a symbol of the growing recognition of the fundamental links between local communities and their heritage, humankind and its natural environment.”*

Rössler, 2006, p. 334

Taylor & Lennon (2011) also emphasise that cultural landscapes play a key role in heritage conservation as a link between natural and cultural heritage. The term “cultural landscape” derives from the German “Kulturlandschaft”.

In accordance with Article 1 of the 1972 UNESCO Convention concerning the Protection of the World Cultural and Nature Heritage, cultural heritage refers to monuments, groups of buildings and sites, with the latter including the “works of man or the combined works of nature and man” (UNESCO, 1972, p.2). These works are illustrative of the evolution of human society and settlement over time, under the influence of the physical constraints and/or opportunities presented by their natural environment and of successive social, economic and cultural forces, both external and internal.

The 1992 revision of the Operational Guidelines for the Implementation of the World Heritage Convention, which was based on recommendations prepared by an international group of experts (La Petite Pierre, France, 1992; Rössler, 2003), constituted a major milestone in the legal recognition of cultural landscapes. The need for recognition of associated values of landscapes for indigenous people and the requirement to protect

biological diversity through cultural diversity in the context of cultural landscapes was highlighted (Rössler, 2003).

Rössler (2003, p. 10) emphasises the following milestones through the revision of the Operational Guidelines:

- Recognition of the diversity of manifestations of the interaction between humankind and its natural environment.
- Introduction of the term “sustainability” into the Operational Guidelines via “specific techniques of sustainable land-use”.
- Acceptance of the living heritage of indigenous people.
- Introduction of traditional management mechanisms into the Operational Guidelines.
- Recognition of traditional forms of land-use.
- Maintenance of biological diversity through cultural diversity.
- Consideration of spiritual relationships to nature.
- Opening of the Convention to other regions and cultures of the world (Caribbean, Pacific, Africa).
- Paving the way for the Global Strategy for a Representative World Heritage List adopted in 1994.

In 1992, three categories of cultural landscapes were introduced in the same manner (Taylor & Lennon, 2011, p. 4f, see Tab. 4.6a).

**Table 4.6a | The three Categories of World Heritage Cultural Landscapes**

Cultural landscape category	Extract from paragraph 39 of the Operational Guidelines for the Implementation of the World Heritage Convention
(i)	The most easily identifiable is the <b>clearly defined landscape</b> designed and created intentionally by man. This embraces garden and parkland landscapes constructed for aesthetic reasons which are often (but not always) associated with religious or other monumental buildings and ensembles.
(ii)	<p>The second category is the <b>organically evolved landscape</b>. This results from an initial social, economic, administrative, and/or religious imperative and has developed its present form by association with and in response to its natural environment. Such landscapes reflect that process of evolution in their form and component features. They fall into two sub-categories:</p> <ul style="list-style-type: none"> <li>● a <b>relict (or fossil) landscape</b> is one in which an evolutionary process came to an end at some time in the past, either abruptly or over a period. Its significant distinguishing features are, however, still visible in material form.</li> <li>● a <b>continuing landscape</b> is one which retains an active social role in contemporary society closely associated with the traditional way of life, and in which the evolutionary process is still in progress. At the same time, it exhibits significant material evidence of its evolution over time.</li> </ul>
(iii)	The final category is the <b>associative cultural landscape</b> . The inclusion of such landscapes on the World Heritage List is justifiable by virtue of the powerful religious, artistic or cultural associations of the natural element rather than material cultural evidence, which may be insignificant or even absent.

Source: Rössler, 2003, p. 11.

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By way of illustration of cultural landscape category I, three examples (palace gardens, zoos and botanical gardens) are highlighted further on.

### **Palace gardens**

At European level, there is no universally valid definition of a palace garden. In the following, a castle garden is defined as a garden that belongs to a castle.

### **Zoos**

According to Article §42 of the German Federal Nature Conservation Act (Bundesnaturschutzgesetz, BNatSchG), zoos are “permanent facilities in which live animals of species that live in the wild are kept, for purposes of display, for a period of at least seven days of the year” (2009). This means that the defining feature of a zoo is the display of animals of wild species. The assessment of this feature is, however, often a case-by-case decision. What is more, this definition only includes facilities in which the display of animals to the public constitutes at least an essential secondary purpose. Zoos that have one or more rest days per week are also subject to this regulation (Ständiger Ausschuss Arten- und Biotopschutz, 2010).

There are two types of zoos: The first type exhibits animals for a fee, with the concept and orientation of the facilities being geared towards visitors. The second type exhibits animals free of charge, but attention is explicitly drawn to the animals on display, e.g. through marketing measures. This classification does not include facilities for which the exhibition is only a secondary purpose, for example aquariums in restaurants and medical practices (Ständiger Ausschuss Arten- und Biotopschutz, 2010).



### **Botanical gardens**

According to the Botanic Gardens Conservation International (BGCI), botanical gardens are “institutions holding documented collections of living plants for the purpose of scientific research, conservation, display and education” (2021).

In 2018, the BGCI revised this definition to focus on the conservation of rare and endangered plants, in compliance with international guidelines, sustainability and ethical initiatives (BGCI, 2021).

## 4.6.1 Overview of European Attractions Designated as Cultural Landscapes

According to the UNESCO World Heritage Centre (2003), the term “cultural landscape” refers to the interaction between humans and nature, manifesting in various forms. It often involves specific techniques of sustainable land use.

114 properties with 5 transboundary properties (1 property delisted) have been inscribed on the World Heritage List as cultural landscapes. A summary of these properties is visualised in Table 4.6.1a below (UNESCO, 2021).

**Table 4.6.1a | Overview of European cultural landscapes on World Heritage List**

Nation	Properties
Andorra	<ul style="list-style-type: none"> <li>• Madriu-Perafita-Claror Valley</li> </ul>
Austria	<ul style="list-style-type: none"> <li>• Hallstatt-Dachstein / Salzkammergut Cultural Landscape</li> <li>• Wachau Cultural Landscape</li> <li>• Fertő / Neusiedlersee Cultural Landscape*</li> </ul>
Czechia	<ul style="list-style-type: none"> <li>• Lednice-Valtice Cultural Landscape</li> <li>• Erzgebirge/Krušnohoří Mining Region</li> <li>• Landscape for Breeding and Training of Ceremonial Carriage Horses at Kladruhy nad Labem</li> </ul>
Denmark	<ul style="list-style-type: none"> <li>• The par force hunting landscape in North Zealand</li> <li>• Kujataa Greenland: Norse and Inuit Farming at the Edge of the Ice Cap</li> <li>• Aasivissuit – Nipisat. Inuit Hunting Ground between Ice and Sea</li> </ul>
France	<ul style="list-style-type: none"> <li>• Pyrénées - Mont Perdu</li> <li>• Jurisdiction of Saint-Emilion</li> <li>• The Loire Valley between Sully-sur-Loire and Chalonnes 2</li> <li>• The Causses and the Cévennes, Mediterranean agro-pastoral Cultural Landscape</li> <li>• Nord-Pas de Calais Mining Basin</li> <li>• Champagne Hillsides, Houses and Cellars</li> <li>• The Climats, terroirs of Burgundy</li> <li>• Taputapuātea</li> </ul>
Germany	<ul style="list-style-type: none"> <li>• Garden Kingdom of Dessau-Wörlitz</li> <li>• Upper Middle Rhine Valley</li> <li>• Muskauer Park / Park Mużakowski</li> <li>• Bergpark Wilhelmshöhe</li> <li>• Erzgebirge/Krušnohoří Mining Region</li> </ul>
Hungary	<ul style="list-style-type: none"> <li>• Hortobágy National Park - the Puszta</li> <li>• Fertő / Neusiedlersee Cultural Landscape *</li> <li>• Tokaj Wine Region Historic Cultural Landscape</li> </ul>
Iceland	<ul style="list-style-type: none"> <li>• Þingvellir National Park</li> </ul>
Italy	<ul style="list-style-type: none"> <li>• Costiera Amalfitana</li> <li>• Portovenere, Cinque Terre, and the Islands (Palmaria, Tino and Tinetto)</li> <li>• Cilento and Vallo di Diano National Park with the Archeological Sites of Paestum and Velia, and the Certosa di Padula</li> <li>• Sacri Monti of Piedmont and Lombardy</li> <li>• Val d'Orcia</li> <li>• Medici Villas and Gardens in Tuscany</li> <li>• Vineyard Landscape of Piedmont: Langhe-Roero and Monferrato</li> <li>• Le Colline del Prosecco di Conegliano e Valdobbiadene</li> </ul>

*Continued on page 239*

Continued from page 238

Nation	Properties
Lithuania	<ul style="list-style-type: none"> <li>• Curonian Spit *</li> <li>• Kernavė Archaeological Site (Cultural Reserve of Kernavė)</li> </ul>
Norway	<ul style="list-style-type: none"> <li>• Vegaøyan – The Vega Archipelago</li> </ul>
Poland	<ul style="list-style-type: none"> <li>• Kalwaria Zebrzydowska: the Mannerist Architectural and Park Landscape Complex and Pilgrimage Park</li> <li>• Muskauer Park / Park Mużakowski *</li> <li>• Krzemionki Prehistoric Striped Flint Mining Region</li> </ul>
Portugal	<ul style="list-style-type: none"> <li>• Cultural Landscape of Sintra</li> <li>• Alto Douro Wine Region</li> <li>• Landscape of the Pico Island Vineyard Culture</li> <li>• Sanctuary of Bom Jesus do Monte in Braga</li> </ul>
Russia	<ul style="list-style-type: none"> <li>• Curonian Spit</li> </ul>
Spain	<ul style="list-style-type: none"> <li>• Pyrénées – Mont Perdu *</li> <li>• Aranjuez Cultural Landscape</li> <li>• Cultural Landscape of the Serra de Tramuntana</li> <li>• Risco Caído and the Sacred Mountains of Gran Canaria Cultural Landscape</li> <li>• Paseo del Prado and Buen Retiro, a landscape of Arts and Sciences</li> </ul>
Sweden	<ul style="list-style-type: none"> <li>• Agricultural Landscape of Southern Öland</li> </ul>
Switzerland	<ul style="list-style-type: none"> <li>• Lavaux, Vineyard Terraces</li> </ul>
Ukraine	<ul style="list-style-type: none"> <li>• Ancient City of Tauric Chersonese and its Chora</li> </ul>
United Kingdom of Great Britain and Northern Ireland	<ul style="list-style-type: none"> <li>• St Kilda</li> <li>• Blaenavon Industrial Landscape</li> <li>• Royal Botanic Gardens, Kew</li> <li>• Cornwall and West Devon Mining Landscape</li> <li>• The English Lake District</li> </ul>

Source: UNESCO, 2021a.

## 4.6.2 Specifics of Heritage Interpretation

In 1990, the Nordic Council of Ministers highlighted two aspects regarding nature interpretation (quoted from the Swedish Centre for Nature Interpretation, SCNI, 2017):

- Knowledge transfer regarding nature and cultural landscapes.
- Evoking of emotions for nature and cultural landscapes.

Another essential factor is the development of a relationship with nature and cultural landscapes (SCNI, 2017). Therefore, the main aims of heritage interpretation in this context are the following:

- Learning experience.
- Positive emotional experience in nature.
- Stimulation of participants' own reflections i.e. regarding sustainability.
- Affecting of participants' attitudes and/or behaviour patterns.

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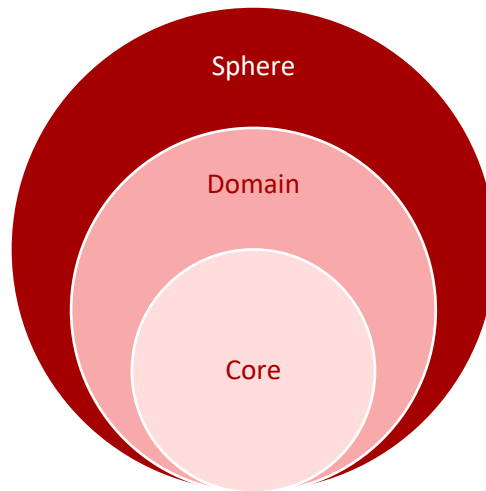
## Cultural landscapes

Rosenfeld and Burtch (2021) propose different approaches to the interpretation of cultural landscapes:

### a) Core-domain-sphere model by Donald Meinig (cf. Warf, 2006)

The main idea of the model is that cultural influences are strongest at the core of a region diminishing from there. A distinction is made between three areas: core, domain and sphere (see Fig. 4.6.2a).

**Figure 4.6.2a | Core-Domain-Sphere Model Proposed by Meinig**



Source: Rosenfeld & Burtch, 2021.

Taking the Mormon culture as a case in point, Meinig showed that the following aspects defining Mormon culture are much stronger at the core compared to the domain and sphere: church attendance, religious billboards, restrictions on serving alcohol in bars and restaurants. Consequently, certain aspects are absent in the core area compared to other regions (e.g. shops for tattoos and piercings) (Rosenfeld & Burtch, 2021).

Based on this model, Rosenfeld and Burtch argue that the following aspects need to be considered when interpreting cultural landscapes. These aspects should also consider the past, present and future of a site (2021):

- Infrastructure (layout, type/purpose, architecture).
- Names (of neighbourhoods, buildings, streets, sports teams).
- Natural features (presence, removal or placement of trees; water systems; role of natural elements in shaping the built environment; adaptation of human systems and infrastructure to the environment).
- Local customs.
- Other material and immaterial culture.

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## **b) Material vs. nonmaterial culture**

Material culture refers to the various material objects produced and used by a culture. Many of these material artefacts experience their significance and meaning by a culture and may even change over time (Rosenfeld & Burtch, 2021). By contrast, immaterial culture refers to intangible ideas of cultures that are not directly linked to material objects. These ideas are often linked to a place (Rosenfeld & Burtch, 2021).

Typical questions to be asked when interpreting a cultural landscape would thus include the following:

- How has history, time and scale affected this landscape?
- What do fences tell us about the culture?
- How is the local infrastructure adapted to agricultural practices? What do the language and naming practices in this landscape tell us about local history and tradition?
- What is the relationship between people and livestock and how is this reflected or revealed in the landscape?"

The next section will show how the concepts developed above can be applied to more specific examples by taking a closer look at palace gardens, zoos and botanical gardens.

### **Palace gardens**

Paiva, Sousa and Carcaud (2020) point out that visiting gardens is an important segment (niche) in the tourism industry and can be seen as a tourist attraction.

Tourist garden visits represent an activity that began to enjoy great popularity in the early 20th century. However, such activities were recorded as early as in the 16th century. Connel (2004) points out that, in Britain, garden visiting became popular before the early Victorian period (1830–1848) when people from upper classes began to visit country houses (Connell, 2004).

Motives for visiting gardens can be found in e.g. Connell (2004) and Kempiak, Hollywood, Bolan and McMahon-Beattie (2017, p. 380ff), as well as Paiva et al. (2010, p. 122f):

- Observing the aesthetics and features of rare ornamental plants.
- Interest in garden design.
- Strong interest in history and culture.
- Curiosity and education.
- Interest in learning techniques used in different eras.
- Enjoyment of viewing landscapes.
- Experiencing the surroundings and the garden atmosphere.
- Entertainment.
- Spiritual values.
- Seeking peace, tranquillity and freedom in the garden environment.
- Possibility of socialisation through meetings with family and friends
- etc.

In a questionnaire study conducted with 104 participants, Su & Wall (2014, p. 8) identified the following motives for visiting the Summer Palace Garden in Beijing (China):

- Royal garden view.
- Cultural atmosphere.
- World cultural heritage.
- Convenient access to various means of transport.
- Relief from daily life and work.
- Relaxation.
- Increase of knowledge and experience.
- Enjoying time with family and friends.
- International reputation of as a travel destination.



Gardens, in particular palace gardens, have outstanding natural, cultural and historical features with a unique history that has the potential to provide the visitor with an authentic experience.

Table 4.6.2a visualises some examples of well-known European palace gardens for further orientation:

**Table 4.6.2a | Examples of European palace gardens**

Name	Location
Chateau de Versailles	Versailles/France
Peterhof Palace	St. Petersburg/Russia
Alhambra Palace	Granada/Spain
Royal Botanic Gardens at Kew	Richmond/England
Palace and Gardens of Schönbrunn	Vienna/Austria
Schloss Mirabell and Mirabell Gardens	Salzburg/Austria

Source: Paiva, 2020, p. 124.

As there is a variety of interpretation methods (e.g. flower shows, garden festivals; cf. Paiva et al., 2010), some examples will be provided in Chapter 4.6.3.

### Zoos

The first zoological garden was founded by Sir Stamford Raffles in London in 1826 (Turley, 1999). The main aim of these early zoos was to conduct scientific research on exotic animals. To finance these early institutions, it quickly became necessary to charge admission fees and make these animals accessible to the general public (Ballantyne

et al., 2007). Over the course of time, zoos evolved into places of recreation and leisure. However, this perspective changed in the 1960s when the focus shifted to the conservation of endangered animals (Ballantyne et al., 2007).

While tourists used to be perceived as passive observers of places and things, this image has now changed. Now it is the active experience of a cultural and/or nature heritage that is in the fore (Frost, 2011). This is also reflected in the changing function of zoos. Nowadays, zoos fulfil a much more active role in wildlife conservation by focusing on providing learning experiences for tourists (Ballantyne, Packer, Hughes & Dierking, 2007).



In a four-year study conducted at Chester Zoo in the United Kingdom, Moss, Esson and Francis (2010) investigated the impact that moving from a second-generation to a third-generation zoo exhibit might have on visitor behaviour and exhibit use. New elements included, for example, methods to engage visitors more actively:

- “The Same Deep Down”: Interactive element that explores the similarities between humans and orangutans. A touchpad can be used to match similarities on pictures.
- “Growing Up Takes Longer”: Interactive element exploring the similarities of child-parent relationships between humans and orangutans (similar to the first one).

One of the results was that visitors spent more time with the new elements. Moreover, visitor time budgets suggest a high level of visitor interaction with the different exhibition elements.

A recent study from the UK conducted by Craig and Vick (2021) is based on these findings. The aim of their study was to develop and evaluate a method for effective conservation education in zoos. The key concern was the following research question: Does fostering an emotional connection between a visitor and a single chimpanzee (*Pan troglodytes*) more successfully improve attitudes than standard zoo interpretation? For this purpose, visitors’ attitudes were recorded after their visit by using a questionnaire exploring visitors’ attitudes towards nature, chimpanzees and conservation. Visitors to two chimpanzee exhibitions were assigned to one of two groups: the intervention group (emotional reinforcement; specific information about each animal is given during a guided tour, 227 participants) or the control group (203 participants). A principal component analysis of the collected questionnaires revealed two aspects: Naturalistic (i.e. interest and affection for wildlife and nature) and Humanistic (interest and affection for individual animals or species with anthropomorphic features). The results of the emotion reinforcement condition proved that both naturalistic and humanistic attitudes in the intervention group were more positive than in the control group. This means

that emotional reinforcement may promote positive attitudes towards conservation, but this also depends on contextual factors (e.g. design and interpretation of the exhibition) and visitor characteristics (e.g. pet ownership and zoo membership). Craig and Vick (2021) showed that the combination of visitor, animal characteristics and interpretation of the exhibit can shape visitors' experience.

Resulting from new demands on zoos and tourist experiences, the role of the zoo guide has also changed. Wijeratne, Van Dijk, Kirk-Brown and Frost (2014) point out that guides in zoos are expected to show appropriate emotional expression (emotional labour) in order to establish a connection between the object of interpretation, the conservation message and the visitor. For example, the authors investigated organisational expectations of emotional expression in achieving conservation-related visitor experiences.

The results of 21 semi-structured interviews with managers and guides at a zoo in Australia showed that the ruling types for visitor entertainment are communicated more clearly than those related to conservation.



## Botanical gardens

Brownlee, Hallo & Krohn (2013, p. 98f) understand botanical gardens as particularly relevant nature-based recreational contexts as they help investigate visitors' perceptions of changing local climates. As in the past, botanical gardens have often been studied in combination with the promotion of sustainable behaviour or climate change protection aspects.

Related to this, Ballantyne, Packer & Hughes (2008) distinguish among the following types of botanical garden visitors:

- a repeat visitor from the local community,
- someone who visits for general amusement
- or someone who wants to see site-specific resources (cf. Steinhauer, Brennan, McConnell, Reinhardt-Adams & Sandrock, 2007).

Following this classification, Brownlee et al. (2013) asked 306 visitors to the South Carolina Botanical Garden in 2008 to participate in a study analysing how changes in local climate conditions in a highly visited botanical garden are related to visitor awareness

and concern as well as possible behavioural responses. The majority of botanical garden visitors surveyed were aware of the impacts of climate change and expressed their concern. The level of awareness and reported concern were significantly positively related to the surveyed willingness to support measures to tackle climate change. By contrast, visitors' willingness to participate in civic engagement was relatively low (Brownlee et al., 2013). Brownlee et al. (2013) also showed that visitor awareness and concern about local climate impacts can influence recreation management in natural areas.

As shown so far, the impact of climate on recreational areas (such as botanical gardens) is becoming increasingly important. Recreational natural areas are currently offering a glimpse into a world where the impacts of a changing climate are becoming



more noticeable in more developed areas (Brownlee et al., 2013). Understanding how and when people perceive these impacts and how impacts can influence behaviour is crucial for protected area management as well as nature heritage interpretation approaches.

On the other hand, botanical gardens provide a framework for educational programmes to raise awareness for issues related to sustainability. One example of this is the Sustainable Communities Field School (Field School) project. It was designed as a guided tour aiming at volunteers who want to pass through the British Columbia Botanical Garden (Zelenika, Moreau, Lane & Zhao, 2018). During this tour, 196 participants received verbal and experiential education on a variety of topics (e.g. biodiversity conservation). The remaining 119 participants visited the botanical garden without any form of guided tour. The study demonstrated that the intervention group had significantly more knowledge about environmental issues at the end of the tour compared to the control group:

- They had more knowledge about environmental issues,
- felt more connected to nature and
- showed a greater willingness to participate in sustainability-related measures.

With this, Zelenika et al. (2018) were able to demonstrate that sustainability-related educational programmes in the setting of a botanical garden can increase the willingness to volunteer for sustainability-related issues.

Nyberg and Sanders (2014) also showed in four studies how, for example, drawing methods can promote the awareness of plants. The first study took place in a Swedish school, the others in botanical gardens in London, New York and Cape Town. The British study, in particular, was a case in point. It analysed the educational role of botanical gardens by examining the behaviour of 75 British primary school children. The core

teaching methods were “guided walks through the living collections, observational drawing and tactile interactions with plant-related artefacts” (2014, p. 148). The study showed that there are several ways in which affective experiences can enhance students’ attention to plants within botanical gardens (e.g. through observations and guided explorations).

Yang & Chen (2017) developed a discovery map as a free-choice learning process for visitors to the Xishuangbanna Tropical Botanical Garden in Yunnan (China). The impact of the map was investigated in a questionnaire study (969 participants) and a structured observational study (influence of map on time spent in the park). The map-users spent more time observing the plants and paid more attention to them compared to the control group (non-map-users). Yang & Chen showed that the use of a discovery map as self-guided educational material can enhance the educational value of a botanical garden and increase the involvement of the visitor.



In conclusion, all the studies discussed above express an increased interest in the interaction of visitors and their experiences within the context of botanical gardens. This also demonstrates the potential of such a cultural landscape category and the tremendous effects it can have on the education of tourists, visitors and local people.

### 4.6.3 Examples of Good Practice

#### Cultural Landscapes: Dessau-Wörlitz Garden Realm, Germany

The Dessau-Wörlitz Garden Realm (in German: Gartenreich Dessau-Wörlitz) was designated as a UNESCO World Heritage Site in 2000 (UNESCO, 2021b). Encompassing an area of approx.150 km<sup>2</sup>, the Dessau-Wörlitz Garden Realm is an exceptional example of landscape design dating back to the Age of Enlightenment in the 18th century. The parks and gardens were laid out in the English style popular at that time featuring subtly transformed agricultural areas as well as rivers and lakes lined with ancient-style temples (UNESCO, 2021b). Over time, the site has become a pilgrimage destination and a model for many other landscape gardens (Kultur Stiftung Dessau Wörlitz, 2021). A significant feature of the Dessau-Wörlitz Garden Realm is the cross-epochal interconnection of Wörlitz Park with older cultural landscape sites in Oranienbaum and Dessau-Mosigkau. Art, culture and nature are linked in a unique and harmonious way (Kultur Stiftung Dessau Wörlitz, 2021).

**Figure 4.6.3a | Gartenreich Dessau-Wörlitz**



Source: pixabay.com (2019).

Methods of interpretation:

- Guided Tours (e.g. costume tours).
- Gondola rides.
- Wörlitz lake concerts.
- Guided cycling tours.

More information:

<http://www.woerlitz-information.de/woerlitz-en/ho/index.php>

<https://www.gartenreich.de/en/>

### Cultural Landscapes: Muskau Park, Germany/Poland

In 2004, Muskau Park was listed as a joint Polish-German heritage site and added to the list of UNESCO World Heritage Sites (DUKO, 2021a). Muskau Park was laid out by Prince Hermann von Pückler-Muskau on his estate between 1815 and 1844. The construction of the park was continued by his scholar Eduard Petzold (DUKO, 2021a). The Park, which covers an area of approx. 700 ha, consists of the castle, bathing and mountain park on the German side, as well as the sub-park, the arboretum and the Braunsdorf fields on the Polish side (DUKO, 2021a). Various sustainability-related projects have been implemented in the Park (e.g. in relation to the integration of historical-cultural landscape features, protection, development and promotion of European cultural heritage; cf. “Fürst-Pückler-Park Bad Muskau” Foundation, 2021).

**Figure 4.6.3b | Muskau Park**



Source: pixabay.com (2016).

Methods of interpretation:

- Exhibitions.
- Visiting the castle nursery.
- Guided tours.
- Children's birthdays parties.
- Muskau forest railway, carriage rides, etc.

More information:

<https://www.muskauer-park.de/en/>

<https://www.muskauer-park.de/en/visit>

### Palace Gardens: Palace and gardens of Schönbrunn

The palace and gardens of Schönbrunn were listed as a UNESCO World Heritage Site in 1996 (UNESCO, 2021c). The palace used to serve as a residence of Habsburg emperors from the 18th century until 1918. Together with its gardens, where the world's first zoo was established in 1752, it is a remarkable Baroque ensemble and a perfect example of a synthesis of the arts (UNESCO, 2021c).

**Figure 4.6.3c | Palace and Gardens of Schönbrunn**



Source: pixabay.com (2016).

Methods of interpretation:

- Virtual tour of the park.
- Maze, labyrinth & Labyrinthikon (playground) for children.
- Guided tours,
- etc.

More information:

<https://www.schoenbrunn.at/en/about-schoenbrunn/schoenbrunn-digital>

<https://www.schoenbrunn.at/en/>

<https://www.kaiserkindergarten.at/international/>

### Palace Gardens: Schwerin Palace Garden

Originally laid out as a pleasure garden based on the French model, the Schwerin Palace Garden began to be transformed in 1748. Garden architect Jean Legeay chose the cross channel to be the centre of the garden, surrounding it with sculptures from the workshop of the Saxon court sculptor Balthasar Permoser (Landeshauptstadt Schwerin, 2021).

A further extension took place in the middle of the 19th century when the castle garden was redesigned by Peter Joseph Lenne. The basic baroque structure was preserved while the adjacent surroundings, the greenhouse garden, kitchen gardens and the riverbank zones were landscaped according to the English model. Today, the park covers an area of about 25 ha (Landeshauptstadt Schwerin, 2021). Since 2014, the Schwerin Residence Ensemble has been on Germany's list to apply for the title of UNESCO World Heritage Site (Welterbe Schwerin Förderverein, 2021).

**Figure 4.6.3d | Palace Garden Schwerin**



Source: Author's archive (Elss, 2022).

Methods of interpretation:

- Guided tours.
- Gourmet garden.
- etc.

More information:

<https://www.schwerin.de/en/visit-schwerin/attractions/parks-and-gardens/>

### **Zoos: Zoo academy Heidelberg**

“Zoo Academy” is the name of Heidelberg Zoo’s new education department. The institution was founded at the beginning of 2020 by the initiative Zooerlebnis e.V. (“Zooschule”) and the Explo Heidelberg (Zoo Heidelberg, 2021). Heidelberg Zoo’s educational mission for different age groups is essentially covered by this programme and its four categories: “Animals & Nature” (visits to the zoo animals with special observation offers), “Exhibition” (interactive hands-on stations, models and media), “Technology” (modern production techniques, programming, sustainable use of resources) and “Laboratory” (molecular biological investigations or environmental analyses under expert guidance; Heidelberg Zoo, 2021). The academy was awarded as a place of learning in the World Action Programme on Education for Sustainable Development by DUKO, among others (DUKO, 2021b).

Methods of interpretation:

- Workshops.
- Offers for school classes/kindergartens.
- Scientific experimentation in an authentic laboratory (genetic fingerprinting, DNA isolation, etc.).
- Modern technology (3D printing, etc.).
- Interactive exhibitions and hands-on stations (changing themes).
- Visiting zoo animals with special observation offers and illustrative materials (e.g. experience-based tour),
- etc.

More information:

<https://www.zoo-akademie.org/de>

[https://www.tourism-heidelberg.com/explore/attractions/heidelberg-zoo/index\\_eng.html](https://www.tourism-heidelberg.com/explore/attractions/heidelberg-zoo/index_eng.html)

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### Botanical Gardens: The botanical garden of Padua

The botanical garden of Padua (Italy) has been a UNESCO World Heritage Site since 1997 (UNESCO, 2021d). Created in 1545, it is the first botanical garden in the world and still preserves its characteristic circular layout, symbolising the world, surrounded by a ring of water (UNESCO, 2021d). Subsequently, other elements were added (pumping stations, ornamental walkways, etc.).

Today, the botanical garden enjoys an excellent reputation as a research centre (experiments, education, architecture, etc.). Its herbarium and library remain among the most important in the world (UNESCO, 2021d).

Methods of interpretation:

- **Educational workshops:** The workshops take an interactive playful-educational approach and are targeted at different age groups and school levels (University of Padova, 2021). The laboratory and educational activities include a variety of topics (botany, cultivation and different uses of plants, biodiversity, ecology and climate). Children should be able to recognize, use and represent plants (University of Padova, 2021a).
- **Guided tours:** There are several thematic itineraries available (“The Old Botanical Garden”: oldest species in the hortus simplicium; “The Biodiversity Garden”: 1,300 plant species; “Plants and Humankind”: plants in their daily relationship with humankind; “Plants and the Environment”: virtual journey from the Equator to the Poles to discover the ecosystems and associated plant species; University of Padova, 2021b).

More information:

<https://www.ortobotanicopd.it/en>



#### 4.6.4 Case Study: The Palaces and Parks of Potsdam and Berlin

In the following, the theoretical concepts will be applied to a case study.

##### Objective of the case study

The aim of this case study is to apply the heritage interpretation methods to a case study in order to show how a cultural landscape can be tailored to a specific target group, thereby promoting its attractiveness.

##### Introduction

The Palaces and Parks of Potsdam and Berlin (Germany) have been listed as UNESCO World Heritage Sites since 1990. The site fulfils the following UNESCO criteria:

- a) To represent a masterpiece of human creative genius.
- b) To exhibit an important interchange of human values, over a span of time or within a cultural area of the world, on developments in architecture or technology, monumental arts, town-planning or landscape design.
- c) To be an outstanding example of a type of building, architectural or technological ensemble or landscape which illustrates (a) significant stage(s) in human history (UNESCO, 2021).

In total, the park covers an area of approx. 500 ha featuring 150 buildings, which were built between 1730 and 1916 (UNESCO, 2021). These include more than 30 palaces and parks (Stiftung Preussische Schlösser und Gärten Berlin-Brandenburg, 2021). This ensemble of palaces and parks has its origins in the work of the most important architects and landscape gardeners of their time in northern Germany such as G. W. von Knobelsdorff (1699–1753), C. von Gontard (1731–1791), C. G. Langhans (1732–1808), K. F. Schinkel (1781–1841) and P. J. Lenné (1789–1866). The parks and buildings were laid out between 1730 and 1916.

*“In Potsdam, the World Heritage property includes Sanssouci Park, the Lindenallee Avenue west of the New Palace, the Former Gardener’s Training School, former Railway Station of the Emperor and its environs, Lindstedt Palace and its low-lying surroundings, the Seekoppel paddock, the Avenue to Sanssouci, the Voltaireweg Avenue as a connection between Sanssouci Park*

*and the New Garden, the New Garden, the so-called Mirbach Wäldchen Grove and the link between Pfingstberg Hill and the New Garden, the Villa Henkel with Garden, Pfingstberg Hill, the garden at the Villa Alexander, Babelsberg Park, the approaches to Babelsberg Park, the Babelsberg Observatory, Sacrow Park, the Royal Forest around the village of Sacrow, and the Russian colony Alexandrowka with the Kapellenberg, the artificial Italian village of Bornstedt and the artificial Swiss village in Klein-Glienicke. In Berlin, it includes Glienicke Park, Böttcherberg Hill with the Loggia Alexandra, the Glienicke Hunting Lodge, and the Peacock Island (including all buildings).”*

UNESCO, 2021

Figures 4.6.4a to 4.6.4j provide an overview of the gardens and palaces:

**Figure 4.6.4a | Map of Park Sanssouci**



Source: Author’s archive (Elss, 2021).

**Figure 4.6.4b | Palace Sanssouci**



Source: Author’s archive (Elss, 2021).

**Figure 4.6.4c | Palace Sanssouci**



Source: Author’s archive (Elss, 2021).

**Figure 4.6.4d | Garden of Sanssouci**



Source: Author’s archive (Elss, 2021).

**Figure 4.6.4e | Botanical Garden**



Source: Author's archive (Elss, 2021).

**Figure 4.6.4f | Garden of Sanssouci**



Source: Author's archive (Elss, 2021).

**Figure 4.6.4g | Historic Mill of Sanssouci**



Source: Author's archive (Elss, 2021).

**Figure 4.6.4h | Chinese house Sanssouci**



Source: Author's archive (Elss, 2021).

**Figure 4.6.4i | Garden of Sanssouci**



Source: Author's archive (Elss, 2021).

**Figure 4.6.4j | Castle of Charlottenhof**



Source: Author's archive (Elss, 2021).

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## Basic data

Since the Palace and Gardens in Potsdam were established a long time ago, there are several interpretation methods to unlock their potential. Some of these methods are described further on.

### Family & children

Families are one of the main target groups of the Palace Ensemble. Special events for this target group, particularly children, are held regularly. These include workshops and guided tours, as well as fairy tale festivals, rallies and Sunday fairy tales. Children's birthday parties with different themes (e.g. "Haunted Castle") can also be celebrated in Sanssouci Park. Guided tours for families can be booked. There is a number of free offers available for families: audio guides with palace stories for children, playful tours with puzzle questions (7–12 years) and digital park games via the free app "Actionbound" (for families with children aged 6+). The tours include interactive tasks, sporting challenges and tricky quiz questions. During the multimedia scavenger hunts, children and adults learn more about the stories of former residents of the palaces, garden artists and architects (Stiftung Preussische Schlösser und Gärten Berlin-Brandenburg, 2021).

### Preschool & school

School classes are another target group. The Prussian Palaces and Gardens Foundation Berlin-Brandenburg offers programmes on the cultural and art history of Prussia. Children and teenagers can immerse into royal everyday life, which is very well suited for all ages, from primary school children to high school graduates. Such out-of-school places of learning come alive through a playful approach and guarantee special experiences for attendees.

The programmes are based on the curricula of the individual grades in the federal states of Berlin and Brandenburg. Thus, they are an ideal supplement to school lessons (e.g. game-based tour to the special exhibition "Potsdam Conference 1945 – The New Order of The World"; Stiftung Preussische Schlösser und Gärten Berlin-Brandenburg, 2021).

### Visitors with special needs

Visitors with special needs are able to book a recommended route through Sanssouci Park. This route has been developed for mobility impaired and visually impaired visitors. Granting barrier-free access to historical architectural and garden monuments is one of the explicit goals of the Stiftung Preussische Schlösser und Gärten Berlin-Brandenburg (2021).

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## Digital offers

A virtual tour is available and digital exhibitions can be visited at Google Arts & Culture. Current special exhibitions are introduced in film clips. Various YouTube contributions offer exclusive glimpses behind the scenes (e.g. “Everyday Stories from the Palace Gardens”). Sanssouci Palace, the Picture Gallery and the New Chambers of Sanssouci can be explored online. Furthermore, explorations are enhanced through Google Street view or the “digital collection” (including Berlin clocks; Stiftung Preussische Schlösser und Gärten Berlin-Brandenburg, 2021).

## Conclusion

The case study has shown numerous approaches to increase the attractiveness of a cultural landscape for different target groups, outlining several ways of how cultural education can be promoted. Based on these first strategic approaches, further interpretation strategies can be developed.

### 4.6.5 Further Reading

The Operational Guidelines for the Implementation of the World Heritage Convention: <https://whc.unesco.org/en/guidelines/>  
<https://www.spsg.de/en/palaces-gardens/palaces-and-gardens-overview/>  
<https://www.schoenbrunn.at/en/about-schoenbrunn/schoenbrunn-digital>  
<https://www.schoenbrunn.at/en/>  
<https://www.kaiserkinder.at/international/>  
<https://www.schwerin.de/en/visit-schwerin/attractions/parks-and-gardens/>

### 4.6.6 Points for Discussion and Questions

1. Think of further opportunities to increase the attractiveness of the Palaces and Parks of Potsdam and Berlin. What do you consider suitable for children of different age groups (4–6 years, 7–11 years and 12+)?
2. When reflecting the approaches in the Palace and Gardens of Schönbrunn or the Schwerin Palace Garden, what lessons learned can be transferred to the present case? Which aspects are particularly significant and recommendable to reach higher attractiveness for the given case study?
3. In continuance of the target group “children”, how can sustainable behaviour be manifested? What possibilities could you think of to promote sustainable behaviour in children, using and enhancing interpretive methods in the present case?
4. Take another look at the Palace and Gardens of Schönbrunn or the Schwerin Palace Garden and repeat Section 4.6.2 (“Specifics of Heritage Interpretation”).
5. What role do interpretive approaches of palace gardens, botanical gardens and zoological gardens play in order to promote sustainable behaviour?
6. Which requirements for tourist guides can be reflected in this context?

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## 4.7 River Deltas

European countries benefit from an extremely diverse natural potential, which can be capitalised on by promoting tourism activities that preserve these resources in the long term in order to prevent their degradation and to ensure their sustainable development so that future generations will also be able to take advantage of nature's gifts.

The concern for environmental protection is not new; people have, at all times, been interested in maintaining a sustainable relationship with nature as a provider of resources to meet their needs. Thus, nature has always been seen as rich in significance for the communities living and developing there. Consequently, based on traditions, customs and religion, these communities identify and, at the same time, create bridges with these areas. Therefore, the need to maintain natural resources in the long term has been acknowledged and put into practice by implementing specific legislation. At the European level, the Environmental Impact Assessment (EIA) directive was introduced in 1985. In their turn, each member state had to implement country-specific laws aimed at maintaining nature heritage, to protect rare animal and bird species as well as highly symbolic landscapes by actions limiting the unsustainable use of natural resources.

### 4.7.1 Overview of European River Deltas

Human survival is inextricably linked with nature because this is the only way to live – in harmony with the natural environment; preserving nature is, therefore, priceless. It has now become clear, for both environmental specialists and economists, that nature's elements represent a valuable source for tourism and agriculture; consequently, they have been searching for possibilities to capitalize on such opportunities.

In this context, deltas represent an environment with a specific biodiversity deserving specific protection and development policies. Elliott (1986) defined deltas as small shore protuberances where rivers flow into oceans, seas, lakes, lagoons, which form sediments faster than if redistributed through basal processes. Walker (1995) emphasized the fact that, unlike estuaries (also formed at rivers' mouths), deltas are formed through shore expansion. Therefore, shore expansion is very important in differentiating between deltas and estuaries. Estuaries are formed at the mouths of rivers flooded by seas and, technically speaking, they have a 0.01 – 35% degree of saltiness (Dalrymple, R. W. et al., 1992).

In its basic meaning, “a delta is a low, flat, triangular piece of land, where a river is divided into multiple branches before flowing into the sea” (Collins, n.d.). In a similar approach, “the deltas are wet areas which are formed while rivers empty their waters and form sediments in an ocean, lake, or another river” (National Geographic, 2023). Put differently, a delta is a land form formed through alluvial deposits (mud, sand, or grit) and biological material (plants or trees) at the point where a river flows into a lake, sea or ocean.

A delta comprises two parts: underwater and subaerial (National Geographic, 2023). The underwater part of a delta is below the surface of the water. This is the part with the most abrupt slope of the delta and which contains the finest mud.

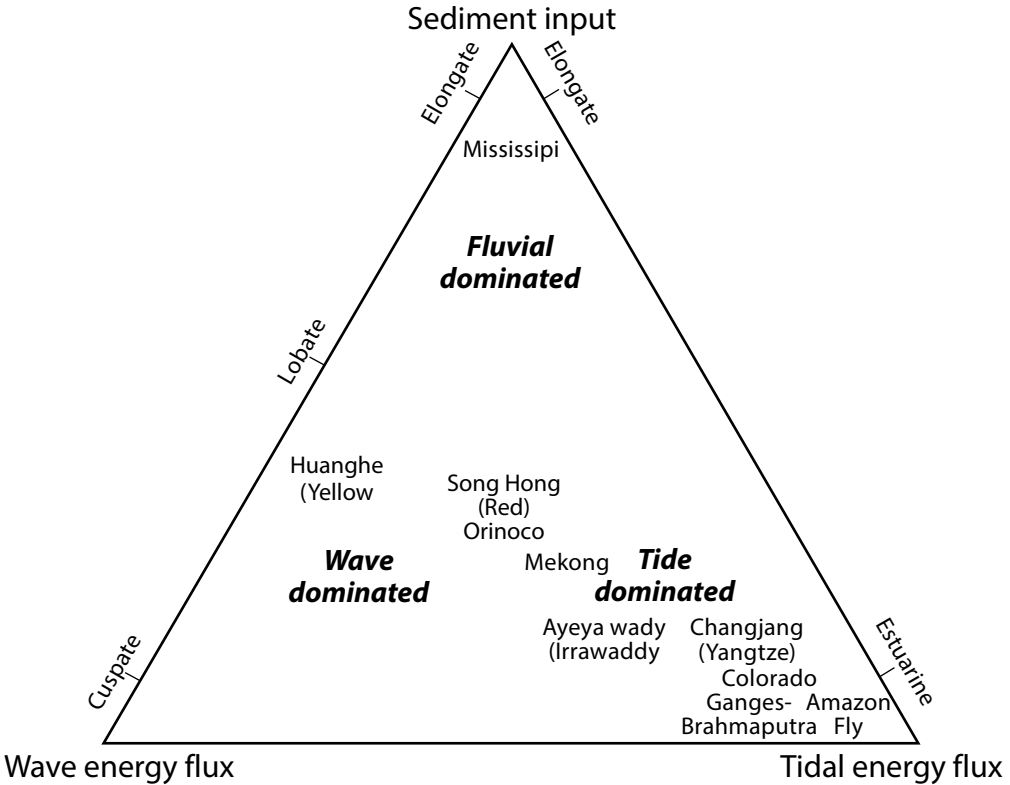


The “youngest” part of the underwater delta, which is the farthest from the river’s mouth, is referred to as the prodelta. The subaerial part of a delta is above the water. It is highly affected by waves and tides and is known as the inferior delta. The superior delta is the part that is most affected by the river flow.

The trinary diagram (Figure 4.7a, pg. 263) presented below, initially proposed by Galloway (1975), is the best-known delta classification system. It is based on one of Fisher’s concepts (1969), who categorised deltas into two major types: high construction deltas and highly destructive deltas.

Therefore, waves play an important part in the secular or millennial evolution of deltas. Anthony E. (2015) draws some conclusions regarding their constructive and destructive effects. Deltas are formed by river-brought sediment accumulation. Stronger or weaker sea waves have an impact on the forms of deltas and their evolution. The interaction between the wave intensity and river mouth flows, sometimes mediated by the sea level, is the main factor which can ensure the survival of the delta (constructive role) or, by contrast, its degradation (destructive role). Other researches (Day, J. et al., 2016; McManus, J., 2002) clearly point to the fact that human intervention by drainage and sanitation, agricultural and tourist operations, or territorial planning do not have a positive impact on deltas’ sustainability.

**Figure 4.7a | A Classification of Deltas in Terms of Relative Amounts of Fluvial, Wave and Tide Influence**



Source: Hori K. and Saito Y., 2007, p. 83.

There are two major types of deltas. The first type considers the influences that contribute to landform creation; the other type considers the landform itself. Table 4.7a illustrates the classification criteria, their types and description.

**Table 4.7a | Classification Criteria for Deltas**

Delta	Classification criteria	Types	Description
	The influences which create the landforms (processes which control mud accumulation)	Wave-dominated	Wave movement controls the delta form and dimension.
		Tide-dominated	It is generally formed in an area with a wide range of tides or in areas between high and low tides.
		Gilbert deltas	Formed while rivers accumulate big, rough sediments. Gilbert deltas are generally limited to rivers which flow into lakes. They are usually more abrupt than the flat planes of wave or tide-dominated deltas. This type was first identified by geologist Grove Karl Gilbert, who described mountain creeks.
		Estuary deltas	Formed from a river which does not flow directly into the ocean but which forms an estuary. An estuary is a partially closed wet area which has a brackish (partly fresh, partly salt water) habitat.
	Land form	Arch or fan-like deltas	The term “delta” derives from the Greek capital letter “Δ”, which has a triangular shape.
		Pointed (cusplate) deltas	more pointed compared to the arch delta and similar to a tooth in terms of shape.
		“Bird limb” deltas	Due to the fact that the distance between the branches is bigger, the shape is similar to a “bird limb”.
		Reversed delta	The distribution network of a reversed delta is interior and only one stream reaches the ocean or another water.

Source: Authors elaboration.

Deltas have been included among the most vulnerable coastal areas. Iñaki Arto et al. (2019) identified two main sources of vulnerability: on the one hand, there are climate factors such as storms, the rise in sea levels, slumps, rainfalls, temperature variations. On the other hand, socio-economic factors such as economic activities, lifestyles, urbanisation, land use and demographic evolutions also affect the sustainability of deltas.

Most often, deltas are protected natural areas that also include isolated areas inaccessible to visitors. These areas are primarily meant to preserve wildlife in its habitat.

Vörösmarty et al. establish a link between the sustainability of a delta and the factors that support it: “A delta is geomorphically sustainable if the net change in wetland surface elevation is equal to or exceeds relative sea-level rise and if the delta’s total area remains

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stable in the long-term. A delta is ecologically sustainable if plant productivity remains steady or increases during the course of decades” (2009, p. 38).

Beyond the particular geomorphological aspects, the delta is an ecosystem, that is “[...] a dynamic complex of plant, animal and micro-organism communities and their non-living environment interacting as a functional unit” (Article 2 of the Convention on Biological Diversity, 1992). Delta is a habitat (the place or type of site where an organism naturally occurs) for many species of birds and animals and in which they survive.

According to Usher, wildlife is “a collective noun relating to non-domesticated species of plants, animals or microbes” (1986, p. 4). While in some scientific writing wildlife tends to be restricted to animals, especially mammals and birds, Yarrow argues that “a definition of wildlife should include all living organisms out of the direct control of man, including undomesticated or cultivated plants and animals” (2009, p. 1).

While there are different preservation categories and levels, all protected areas are created “to promote the preservation of species, communities or ecosystems that would, otherwise, be dramatically affected or disappear into wilderness” (Lunney and colab., 1997, p. 138). Another purpose related to the creation of protected natural environments is the preservation of beautiful scenery, which can provide opportunities for leisure activities or scientific research (USNPS, 2005).

Leung et al defines a protected area as “a clearly defined geographical space, recognized, dedicated and managed, through legal or other effective means, to achieve the long-term conservation of nature with associated ecosystem services and cultural values” (2018, p. 3).

The International Union for Conservation of Nature (IUCN), created in 1948, is now a large and most diverse environmental network, with more than 1,400 government and NGO members and over 15,000 volunteer experts. IUCN’s work is supported by almost 1,000 staff in more than 50 offices and hundreds of partners in public, NGO and private sectors around the world.

IUCN has provided a well-established classification system of protected natural areas. It comprises seven categories, each with its own characteristics. The most important particularity is the fact that all seven categories can be found in the greatest deltas of the world, including in the Danube Delta.

The protection of natural areas may be ensured through “physical limitations such as barriers, paths and facility location so as to influence (and even control) visitors’ behaviour. Direct control takes the form of rules, regulations, permits and fees, often imposed to forbid or restrict human behaviour which could damage the environment. This includes bans on certain activities, speed limits, permits, closed areas, controls and fines, restricted areas, arrests and criminal procedures. Indirect mechanisms are imposed to reduce misconduct, i.e., by educational volunteering” (Orams, 1996, p. 83).

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## River Deltas in Europe

### Volga Delta, Russia

The Volga Delta is the greatest delta in Europe. The total surface of the reservoir is 67,917 ha. The buffer zone (the geographically delimited area adjacent to the main area (core delta) which protects water quality, wildlife habitats and the aesthetic diversity of nature) surface is 31,000 ha. The Volga Delta has a highly specific hydrologic regime, which is due to the interaction between the Volga river and a basin with no access to the Caspian Sea. The Delta reservoir is managed by the Astrakhansky Biosphere Reserve, which is located approx. 100 km away from Astrakhan, the biggest and closest city to the delta. Due to protected area management issues, eco-trails, i.e. longer or shorter guided tours by special ships, authorised for such services, are generally preferred in the delta. The entire tour is carried out aboard, with few, rather short stopovers. The tours include explanations about the biotopes encountered on the way (for example, visitors pass by four islands), as well as information about bird species, plants and insects inhabiting the delta region (Frame Management Plan for Astrakhansky State Biosphere Nature Reserve as World Heritage Site for inscription on the UNESCO World Cultural and Nature Heritage List, 2008).

### Nemunas Delta, Lithuania

The Nemunas Delta is located in Lithuania and is formed from the sand and mud brought by some rivers, the biggest of which are Nemunas and Minija. The Nemunas Delta Regional Park was established in 1992 with the aim of preserving the landscape, the ecosystems and the cultural heritage of the Nemunas Delta. There are more than 600 flower plant species in the park and 20 of these are listed in the Red Data Book (9% of the protected flower plants in Lithuania). 294 bird species have been identified in the park, which make up 90% of the ornithological species specific to the fauna in Lithuania (Sendzikaite J. (2013)).

### Llobregat Delta, Spain

The Llobregat Delta is located 15 km to the south-west of Barcelona (Spain). The Delta benefits from beaches, pine forests, coastal lagoons, agricultural lands, the Llobregat river and access to the Mediterranean Sea. 14 different ecosystems have been identified. This is one of the most important wet areas in terms of species and habitat diversity and it is well known for the 22 orchid species found on the wet meadows and in the pine forests. In 1999, the Delta was acknowledged as a Globally Important Bird Area (GIBA), and some of its small areas are reported as Natura 2000 areas. Its vicinity to Barcelona and relatively limited territory (98 km<sup>2</sup>) makes it a popular destination for short-term guided tours (1 to 3 days). Thus, there is a special “Marine sciences” tour that also features experimental workshops to explore the beach water’s characteristics and to discover and identify various groups of marine animals (shells, snail, shellfish, etc.). Another workshop is devoted to photography (“Delta Sunset”) where participants learn how to take photos of birds and animals from different perspectives at sunset. The Can Camis pine forest is special due to its variety of orchids and mushrooms as well

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as rare bird species. It is a highly fragile forest habitat and that is why the presence of a guide is compulsory. Another tour, whose main beneficiaries are children, and which is mainly aimed to fulfil a purely educational purpose, is focused on the natural beauty and characteristics of the Catalan beaches and dunes (Weis, A., n.d.).

### **Guadalquivir River Delta, Spain**

The Guadalquivir River Delta (Spain) benefits from a rare particularity: It has a single exit into the sea because all the other exits are blocked by a huge sand bank. Also, it is mainly known as a protected area: Parque Nacional de Doñana. This Park covers approximately 1,300 km<sup>2</sup> (543 km<sup>2</sup> cover the park itself while the rest serves as a buffer zone) and is regarded as one of the best centres for nature preservation. The Park is a swamp area, with shallow creeks and sand dunes. This unique mix of land and water has created a favourable environment for wildlife development and nature protection. Access to the Park is strictly controlled in order to encourage guided tours. Given the Park's wide territory, there are many thematic visitor centres in the Park. These centres offer visits by following the natural routes (covering the three types of ecosystems – dunes, thickets and swamps), often focussing on a particular theme (e.g. birdwatching) as well as exhibitions displaying the natural highlights of the park (Andalucia.com – n.d.).

### **Rhône River Delta, France**

The Rhône River Delta (France), also referred to as the Camargue, covers a surface of 936 km<sup>2</sup>. It is part of the Camargue National Park and became a protected area in 1970. The Park has a 50 km access to the sea and is well known for being home to the following three species: black bulls, wild white horses and Flamingo birds. The Park includes multiple routes that can be accessed by various means of transport, including on horseback. Moreover, safaris can be organised to explore sites, that would otherwise be difficult to access, and to view wild animals in their natural habitat. Since the Camargue is well-known as a migration area for numerous bird species, it is a strategic observation point for ornithologists. There is also a museum that introduces tourists to the Camargue flora and fauna (Camargue, France – n.d.: Girard-Gervois, 2023).

### **Delta de l'Ebre National Park, Spain**

In 1983, following a campaign launched by local citizens, the Catalan government established the Delta de l'Ebre National Park in an attempt to find balance between the natural value of the area and human activity. The Delta covers an area of 320 km<sup>2</sup> and includes a National Park of 7,736 ha. 800 different flora species have been identified here: reed, eucalyptus, river honeysuckle and rice, which all had to adapt to extreme conditions and to colonize dunes, salty lands or lagoon areas. The wild fauna of the Delta consists of 343 species, which account for 50,000 to 100,000 specimens. The eco-museum introduces visitors to this exciting universe and offers a special perspective on the way the natural and human aspects of its ecosystem coexist. The visit begins in the “Traditional House”, where an information centre and a projection centre are open to the public.

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It ends in the Park and Delta exhibition centre. Visitors are then able to explore various natural (river, lagoon, riverside forest and reed) and artificial environments (irrigation systems, garden and rice field), where they are trained on traditional human activities (e.g. traditional rice cultivation techniques, fishing techniques). The tour ends at a huge aquarium which shows the fish and amphibian species living in the Delta (Delta de l'Ebre Ecoturisme – n.d).

### 4.7.2 Specifics of Heritage Interpretation

Moscardo et al (2004) argue that there are three main aspects to be considered for tourism interpretation in wild areas: 1) the interpretation may be a way of managing the interaction between wild fauna and tourists; 2) the educational function of the interpretation may lead to greater awareness and increasing knowledge about the wild fauna; as a consequence, tourists may develop a for-preservation attitude; 3) the quality of interpretation contributes to tourists' satisfaction and could thus contribute to the commercial sustainability of tourist operations.

The specifics of heritage interpretation in the Delta result from the specific nature of these natural areas, which, in some cases, requires an effective application of the chosen interpretation methods. At the same time, however, the traditional methods presented and described in this e-book also remain valid. The factors that influence the interpretation of deltas are the following:

- The large surface of the specific geographical space that sometimes guides the planning of the interpretation towards certain methods such as thematic trails.
- Visitor centres are, in many cases, mandatory investments and have an important educational function.
- Wildlife/nature is unpredictable: the interpretation method should always allow for some flexibility to consider the season, the weather and the fact that wildlife may not appear “on demand or on command”. It is, therefore, not recommended to make unrealistic promises about the possibility to discover anything exciting and unusual. “Live the experience” could be the main theme of interpretation.
- Nature does not always take the form that promotional brochures or screens use to portray it. While an arts exhibition, for example, can certainly meet visitors' expectations, when it comes to displaying natural reality, visitors may end up disappointed. In order to turn the visit into a memorable experience, interpretation must take this fact into account and come as close as possible to reality.
- Visitors' ignorance and lack of experience, especially with regard to wildlife, is a challenge. Interpretation can help increase their awareness by providing information, answering questions, managing difficult situations, establishing a period of accommodation, etc.
- Security and safety issues. It is not only nature that needs to be protected, but also visitors. The information provided in different forms (verbal, written, through images) is, thus, also a safety measure, referring both to the protection of visitors and the protection of plants and animals. Sometimes, there are barriers, railings or directed paths that limit access. Visitors must comply with unpleasant instructions: “Stop, wait, look and listen.”

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Nature heritage interpretation is about telling people what is special about an area and encouraging them to behave in certain ways by providing them with certain information (EUROPARC Consulting GmbH., 2012, p. 24).

Given the territory and the diversity of nature and wild fauna, the main method of interpretation is either thematic or simply discovery trails. These include both personal and impersonal methods of interpretation. A nature trail “is a short, often loop-type trail (starting and finishing at the same point) which has been made specifically to interpret the nature of an area” (EUROPARC Consulting GmbH., 2012, p. 47). The design of the trails is influenced by:

- The respect for wildlife habitats and wildlife movements.
- Available budgets: length of trails and quality of materials used.
- In order to provide high-quality experiences to different types of visitors, it is advisable to create a network of trails with different lengths and degrees of difficulty.
- Trails can be developed according to specific interpretation themes; conservation of wildlife and plant life, human impact on nature, soil and geology, water and wetlands.
- It is important to incorporate key features of your area such as waterfalls, caves, specific tree species, (suspension) bridges, viewpoints, etc.
- Items to consider include shelters, benches, litter bins, signposts, steps, culverts, bridges, picnic sites, toilets, interpretive panels and safety barriers.

Even though large parts of the wilderness should remain undisturbed by tourist trails, trails should be labelled and clearly configured where use is frequent so as to avoid the development of informal trails (at the discretion of the visitor).

## UNESCO heritage

The United Nations Educational, Scientific and Cultural Organization (UNESCO) is one of the 16 specialised agencies of the United Nations (UN) system, established on 16 November 1945 by 20 states that drafted the Constitution of this body. Romania joined it on 27 July 1956. Currently, UNESCO includes 167 member states and 1,154 sites. Its headquarters are in Paris, France. The mission statement of UNESCO is “to contribute to the promotion of peace and security in the world through education, science and culture, with a view to strengthening international cooperation, respect for fundamental human rights, without restrictions of race, sex, language or religion” (UNESCO, n.d.).

In 1972, UNESCO adopted the Convention on the Protection of the World Cultural and Nature Heritage, which “seeks to encourage the identification, protection and preservation of cultural and nature

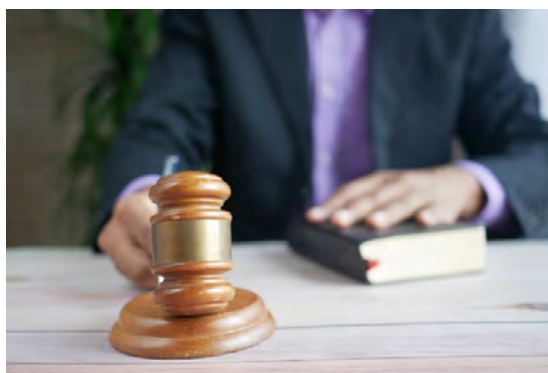


heritage around the world considered to be of outstanding value to humanity” (UNESCO World Heritage Centre – n.d.]. The Convention foresaw the creation of a World Heritage List that was to include natural and cultural heritage sites of universal value from around the world whose protection and safeguarding is guaranteed by the signatory states. Currently, the Organization defines its strategy and activities based on the 17 Sustainable Development Goals (SDGs) adopted by the United Nations General Assembly in 2015. The UNESCO’s World Heritage mission is “to encourage countries to sign the World Heritage Convention and to nominate sites within their national territory for inclusion on the World Heritage List” (UNESCO World Heritage Centre, n.d.-a).

### 4.7.3 Examples of Good Practice

#### Legislation

The protection of nature heritage begins with its legal protection. It is the duty of public authorities to protect areas with important natural potential. In such cases, authorities take on a two-fold responsibility: on the one hand, such sites are heritage, existing “inventories” that need to be managed while, on the other hand, the sustainability of resources needs to be ensured in order to preserve these sites for future generations.



Law 49/2011, validating the Emergency Ordinance of Government No. 57/2007 on the status of protected natural areas, conservation of natural habitats, wild flora and fauna defines the main concepts and establishes the rules to be respected in these areas. According to this law, a protected natural area is “[a] land and/or water area where there is wildlife (animals and plants) and bio-geographical, landscape, geological, paleontological, speleological or other types of culturally, scientifically, and ecologically-valuable elements, protected and preserved through special regulations and provisions”.

In accordance with Law 49/2011, protected natural areas are divided into the following categories:

- a) Protected natural areas of national interest: scientific reservation, national parks, natural monuments, natural reservations, natural parks;
- b) Protected natural areas of international interest: world heritage natural sites, geoparks, internationally acknowledged wetlands, biosphere reservations;
- c) Protected natural areas of community interest or Natura 2000 sites: community-relevant sites, special preservation areas, special avifauna protection areas;
- d) Protected natural areas of county or local interest: exclusively established on the public/private area of administrative-territorial units.

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In Romania, there are 30 major national interest natural protected areas: the Danube Delta Biosphere Reservation (576,421.1 ha), 13 national parks (total area: 317,419.2 ha) and 16 natural parks (total area: 770,026.5 ha). 916 scientific and natural monuments and reservations can be added to this list.

### **Involvement of public institutions and private organizations**

Seven governmental institutions are in charge of eco-tourism development: Ministry of Tourism, Ministry of the Environment, Ministry of Waters and Forests, Ministry of Agriculture and Rural Development, Ministry of Regional Development and Public Administration, Ministry of Culture and National Identity, Ministry of National Education. Essential stakeholders are governmental institutions, local public administrations, and protected areas administrations, members of the private tourism sector, non-governmental organisations, local communities, investors, academia and tourists.

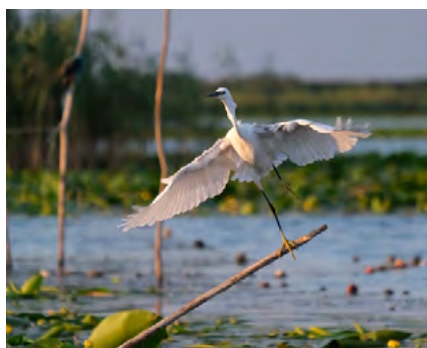
### **Management of protected natural areas**

The management plan of a protected area focuses on the internal planning of the protected area. For better planning and clear distribution of responsibilities, protected natural areas were divided as follows:

- Strict protection areas – within highly important protected natural areas which include wild areas with no or very limited anthropogenic interventions. Any human activity, except for research, education and eco-tourism activities, as designed in management plans, is strictly forbidden.
- Full protection areas: the most valuable nature heritage elements within protected natural areas. In these areas, eco-tourism activities which do not imply construction activities or investments are allowed;
- Buffer zones (known as sustainable preservation areas in national parks and as sustainable management areas in natural parks): between full protection and sustainable development areas. Eco-tourism activities which do not imply construction activities or investments are allowed;
- Sustainable development areas: investment/development, particularly tourist activities are allowed, provided that natural resources are used in a sustainable manner and significant negative effects on biodiversity are prevented.

### **Adapted and controlled offers**

The infrastructure of the site plays an important role in promoting the management objectives of protected natural areas and in raising public awareness of measures aimed at preserving natural species/habitats by sustainably managing natural resources. Visiting centres and information points are highly important in the national and natural parks' visiting infrastructure. A visiting centre generally includes exhibition areas, tourist information points, conference rooms, park administration offices and accommodation areas.

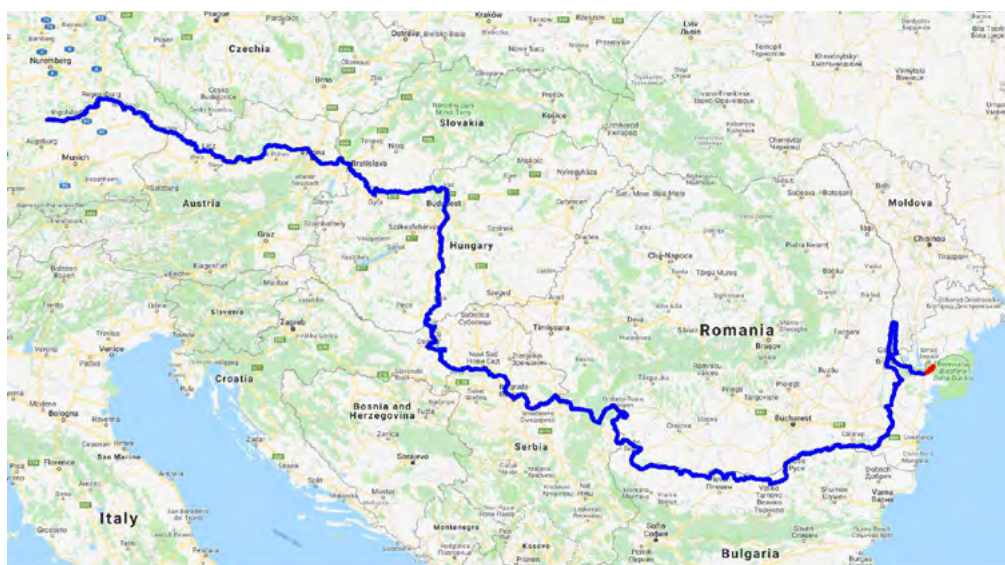


#### 4.7.4 Case Study: Danube Delta Biosphere Reserve in Romania

The aim of the case study is to evaluate the perspectives of applying different interpretation methods in the Danube Delta Biosphere Reserve in Romania.

“The Danube is the most international river on the planet as it flows through or forms a part of the borders of several countries: Germany, Austria, Slovakia, Hungary, Croatia, Serbia, Romania, Bulgaria, Ukraine and Moldova. It flows through four capital cities: Vienna, Bratislava, Budapest and Belgrade. The Danube Delta is formed around the three main branches of the Danube, which are named after their ports: Chilia (in the north), Sulina (in the middle) and Sfântu Gheorghe (in the south)” (Panacomp Wonderland Travel, 2022).

**Figure 4.7.4a | The Danube River**



Source: EU-INTERREG Programme, 2014.

A bird-watchers' paradise, the Danube Delta offers the opportunity to spot 331 species of migratory and resident birds, including eagles, egrets, vultures, geese, cranes, ibises, cormorants, swans and pelicans. Located on the 45th parallel, the Danube Delta makes for a perfect stopping-off point between the Equator and the North Pole

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for millions of migratory birds (Experience, W., n.d.). The fish fauna, which accounts for 135 species (over 60% of the fish species in Romania, both freshwater and saltwater or euryhaline that live in the sea but enter the Delta during the breeding season), has always represented the main economic resource and support for the life and activity of traditional communities (adapted after Experience, W. – n.d.).

The Delta has been classified into 12 habitat types as follows (World Heritage, n.d.):

- Lakes covered with flooded reed beds.
- Plaur (flooded islets).
- Flooded reeds and willows.
- Riverine forest of willows and poplars.
- Cane-fields.
- Sandy and muddy beaches.
- Wet meadows.
- Dry meadows (arid).
- Human settlements.
- Sandy and rocky areas.
- Steep banks.
- Forests on high ground.

Reeds are certainly the most familiar image of the Delta's vegetation. Reeds, sedges, mixed with dwarf willow and numerous other species occupy almost 80% of its surface. Plaur is an accumulation of roots, reed rhizomes and soil, detached from the bottom of lakes and transformed into floating islands that, pushed by the wind, move on the surface of the water. This layer, rich in nutrients, ensures the vigorous growth of the reeds, together with other characteristic species: sedge, mint, water fern, water hemlock, willow and climbing plants that provide shelter for nesting birds, as well as for numerous species of mammals: the wild boar, the fox, the eunuch dog, the otter, the mink. Reeds are also an important economic resource as they are it is used in constructions (roofs, fences, thermal insulating element in the composition of walls), they are an important raw material in the manufacture of pulp and paper, animal feed (especially in winter) and a raw material in the craft of braids.

## Management

In the Danube Delta Region, the following types of protected natural areas can be found, with different regimes of protection, conservation and use:

- a) Of international interest: The Danube Delta Biosphere Reserve (DDBR) – a site with universal nature heritage value (included on the World Cultural and Nature Heritage List), a wetland of international importance (RAMSAR site); The Administration of the Danube Delta Biosphere Reserve (DDBR) was established in 1990 as the administrative organisation responsible for the conservation and management of the biodiversity, ecosystems and natural resources in the Danube Delta. This role was legalized by the legislation

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that came into force in 1993 (Law No. 83/1993). The universal value of the DDBR, The Danube Delta Biosphere Reserve, was recognised by its inclusion in the international network of biosphere reserves in 1990, the “Man and the Biosphere” (MAB) programme launched by UNESCO. It was also included on the World Cultural and Nature Heritage List in December 1990. In 1991, the DDBR was recognized as a wetland area of international importance, especially as a waterfowl habitat – RAMSAR Convention on Wetlands. The Convention on Wetlands is an intergovernmental treaty that provides the framework for national action and international cooperation for the conservation and wise use of wetlands and their resources (RAMSAR, 2014). The value of the nature heritage and the efficiency of the ecological management plan applied to the DDBR territory were recognized by the awarding of the European Diploma for Protected Areas in 2000, renewed in 2005 and 2010. The European Diploma for Protected Areas is awarded by the Council of Europe to those regions that are of particular importance for the conservation of biological, geological and landscape diversity in Europe.

- b) Of national interest: the Danube Delta National Park and other natural reserves.
- c) Of community interest (Natura 2000 sites): The Natura 2000 network was established in 1992 and is the largest ecological network of protected natural areas in the world, including sites of community importance and sites of special avifaunistic protection. By creating the Natura 2000 network, a special protection regime was established for natural habitats and wild species of flora and fauna, as well as for wild bird species that exist on the territory of the European Union and are considered rare, have a restricted or highly fragmented area or are threatened by extinction, while protecting other species and natural habitats. The Natura 2000 ecological network was established not only to protect wild species of flora and fauna and natural habitats, but also to preserve them, to maintain the diversity of natural capital, to promote traditional activities and long-term sustainable development.
- d) The management of universal nature heritage sites is carried out in accordance with regulations and the country’s own protection and conservation plans, in compliance with the provisions of the Convention on the protection of the world cultural and nature heritage, under the auspices of UNESCO.

### **Association Crisan + Caraorman + Mila 23: “Eco-tourism for the future” project**

The aim of this project is the development of the eco-tourism destination by strengthening its own brand in the Danube Delta, by creating a common identity of the region comprising the geographical and cultural triangle of the three localities. The ideas promoted by the project, materialized in initiatives and pilot projects carried out in partnership with community members, can be assigned to various fields relevant for the entire Delta: educational, touristic, gastronomic, economic, and identity-related.

**Figure 4.7.4b | Map of the Danube Delta**



Source: Pensiunea Delta Miraj Sulina, 2021.

The “Ivan Patzaichin – Mila 23” Association (AIP) was founded by Ivan Patzaichin (†2021), a multiple gold medal winner at five consecutive Olympic Games, with the aim of promoting local development projects and ecological tourism.

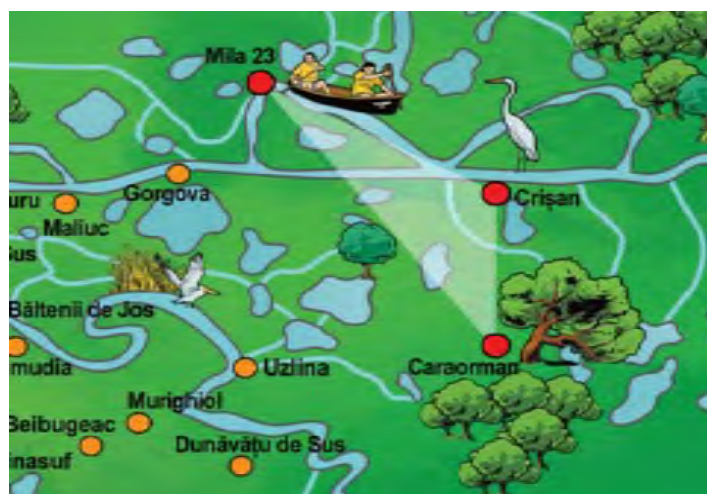
While the “Ivan Patzaichin – Mila 23” Association acts primarily in the underdeveloped areas of the Danube Delta, it is also active in other areas with high tourist potential and other natural parks in Romania. The projects initiated by the “Ivan Patzaichin – Mila 23” Association have a strong creative component, implementing solutions that ensure the sustainability of messages conveyed and that are carried out in national and international partnerships so as to maximize the positive effects of these projects. The idea behind the association is the vision that the Danube Delta should be a “Living Delta”, i.e., an area where people live and work in close harmony with the environment. The association promotes the idea of supporting a sustainable and growing local economy that includes all stakeholders in the planning process (local people, authorities, business environment).

## Danube Delta: interpretation methods and techniques

### The creation of the “Delta Vie – Living Delta” Brand

The “Living Delta” collective brand is held by the “Ivan Patzaichin – Mila 23” Association. The “Living Delta” brand is available to those willing to join the Eco-Danube Delta Management Association. The Eco-Danube Delta Management Association will cover the following areas: Crisan – Chilia Veche – Maliuc – C. A. Rosetti – Sfântu Gheorghe, an extended area that also covers the three localities in the Crisan + Caraorman + Mila 23 project: eco-tourism for future generations. The graphic designer Ruxandra Calaras’s logo, inspired by the local nature and patrimony and based on a marketing study and debates held within the “Ivan Patzaichin-Mila 23” Association, tries to display a unitary and coherent marketing image.

**Figure 4.7.4c | Triangle Caraorman – Crişan – Mila 23**



Source: Issuu, 2022.

For example, a restaurant that is located in the area mentioned above may display the Living Delta collective brand as a logo provided that its menu includes dishes using local resources. Local tourist-package organisers may also use the Living Delta collective brand if their offer is based on the interpretation of the Danube Delta nature. All these services will provide the destination with a new identity, thereby attracting tourists and convincing them to consume local resources, i.e., nature, gastronomy and culture.

**Delta  
vie**

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## **The “Living Delta” brand at the museum**

On 13 May 2016, the “Ivan Patzaichin – Mila 23” Association and its partners, the Romanian Ornithological Society and the “Dimitrie Gusti” National Village Museum, inaugurated the Centre for the Promotion and Education on the Delta Danube that is accommodated in the Bucharest Museum building. The educational, informative and leisure activities provided by the Centre will undoubtedly make it a gateway to the Delta Danube tourism. Museum visitors can learn about the Danube Delta nature and eco-tourism traditions by studying the five orientation and information billboards displayed on the premises.

## **International rowboat festival “Rowmania FEST”**

“Rowmania” is derived from the English expression “rowing mania”, which translates as a passion for rowing and which is also related to the name of the country (Romania).

“Rowmania” is part of a social entrepreneurship project that aims to promote ecological tourism and leisure activities such as rowing. The project targets water and outdoor activities lovers, adventure seekers and those who love and protect nature.

In order to bring people closer to nature and to help them understand and love the Danube Delta, the project essentially makes use of a tool – canotca which implies a key activity rowing.

The two paddles that form part of the two letters “W” and “A” in “Rowmania” represent what the project stands for: rowing and water. Water is the key element, the “fuel” which, together with the paddles, moves the canotca. It is the vital resource for all species, a gastronomy ingredient, as well as home to Danube’s mythical creatures.

Canotca is a combination of “lotca” (an old fishing boat) and a canoe (sports boat) and was created by Ivan Patzaichin and Paul Vasiliu, one of the last marangozi masters (old term of Turkish origin that refers to an old job: a carpenter specialized in processing the woodwork of ships or some boats) in Tulcea. Also known as the “water bicycle”, it symbolically reunites the identity of the place with that of the Olympic champion in a nature-symbol product – the tree, reinterpreted through culture – the craft. From this point of view, Rowmania may be regarded as an attempt to reintroduce man to nature in a safe and respectful manner.

The initiators of the Rowmania project convey messages that recommend moderation in the use of goods and services provided by ecosystems and encourage an attitude of respect and affection for nature. The English term “edutainment” may be used to summarise the festival’s concept: It is a combination of education and fun. The campaign appeals to people’s emotions by using representative images and simple language to describe nature and other elements in order to motivate people to adopt a positive attitude and to act as such. This type of language is generally used in the general communication within the company. For example, the canotca is described by Paul Vasiliu as “agile, light and ready to conquer hearts”.

**Figure 4.7.4d | Canotcas and Logo**



Source: Grigore, A., 2013.

The “Danube Connection: Story and Glory”, a transnational project developed under the patronage of the Ministry of Foreign and International Affairs Austria, Hungary, Slovakia and organised by the Romanian Cultural Institute in Vienna, Bratislava and Budapest, was one of the events that had a major impact at the European level. The project was extended to reach new target audiences by using canotca competitions and art as a new form of expression able to build bridges between the people living in the countries crossed by the Danube.

The artistic component had two sections. The first was the contemporary art installation “Plug to Nature” created by the artists Electric Brothers, Olah Gyarfas, Sorin Istudor, Kalliope Dimou and Nicu Ilfoveanu. The installation features a wooden structure made up of a sound corridor (inspired by the Sulina lighthouse, birds and traditional songs), a vegetation diorama reproducing the atmosphere of a delta scenery and an Ivan Patzaichin movie projection. The installation creates a mystical atmosphere which encourages visitors to enter into a dialogue with the Delta. This reconfirms, on the one hand, nature’s mission to generate a new type of human experience and, on the other hand, the urban area’s role to develop a new attitude towards nature. The second section, iMYTH, was created by the video artist Daniel Dorobanțu. His outdoor video installation is a visual and acoustic synthesis of the Danube countries’ mythology, starting with the Danube’s origins in the German legends and the bridges in the Hungarian and Slovak legends before moving on to the Romanian legend of the craftsman Manole. The installation aims to convey the idea of a common natural and cultural heritage. Nature, art and sports have united to change and improve the Danube Delta image, which although marvellous, used to be culturally, socially and economically underdeveloped.

### **The Rowmania Crisan Eco-tourism Centre (CER)**

The Rowmania Crisan Eco-tourism Centre (CER) initiative is a social entrepreneurship pilot project initiated by the “Ivan Patzaichin – Mila 23” Association and the Romanian Eco-tourism Association (AER). CER offers tourists the opportunity to explore slow tourism trails, providing guiding, interpretation and canotcas for canal tours.

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## Thematic trails

The first thematic trail featuring an audio guide was designed and developed by the Romanian Eco-tourism Association (AER) in cooperation with the “Ivan Patzaichin – Mila 23” association (AIP) and is located in the region of Crisan in the Danube Delta. The trail is a water trail starting at the Rowmania Centre and leading to the Crisan Canal via Capcicova Lake, Zapadna Lake and Iacob Lake. The trail can be navigated by canoe (canoes can be rented at the Rowmania Crisan Eco-tourism Centre). Visitors are provided with an audio guide that includes the sounds of the most common birds living in the delta and a brochure containing additional information about the local community and the birds of the Delta. The thematic route was developed within the project “Canoeing in the Delta: Innovative Methods of Interpreting Nature”, funded by the Foundation for Partnership and MOL Romania and implemented by the Romanian Eco-tourism Association in cooperation with the “Ivan Patzaichin – Mila 23” association between May and October 2012. Given the Delta tourism particularities, guided tours were kept.

There are some additional requirements that the Delta guides need to meet. Guides must be familiar with the natural environment and the visited sites (local culture, toponymy, landscape). Also, they must be able to mediate tourists’ interaction with the destination Interpretation techniques must be adapted to the tourists’ specific activities and interests. As far as plant and animal species are concerned, guides should know their scientific as well as popular names in the language in which the tours are provided.

The specific equipment depends on the species or habitats included in the programme; for birdwatching: optical devices to bring the image closer (binoculars, telescopes); for insect identification: entomological nets or other trapping systems; species determinators.

## The “People and Birds” guidebook

This guidebook was published within the project “In the Delta by the canotca: innovative methods of nature interpretation”, funded by the Foundation for Partnership and MOL Romania and implemented by the Romanian Eco-Tourism Association (AER) in cooperation with the “Ivan Patzaichin – Mila 23” Association (AIP).

The guidebook comprises two sections:

- The first section focusses on the local community, their ethno-genesis, occupations and multiculturality.
- The second section explores the various bird species in the Delta: image, description, behaviour (migratory or sedentary).

**Figure 4.7.4e | The Cover of the Guidebook “Man and birds”**



Source: Author's archive (Nita, 2023).

## The Caraorman Bird Sanctuary

In spring, when lakes and canals have high water levels and many areas are flooded, birds find shelter in the Caraorman fishery, attracted by low water levels, enough food and peace there. Nevertheless, due to its construction system, water levels also rise in the Caraorman fishery, though at a much slower pace; this means that, at the beginning of summer, when water levels normally start falling in the Danube Delta canals and in the nearby lakes, water levels are still quite high in the fishery, which explains why so many bird species are drawn to the site. It is only at the end of September that water levels in the bird sanctuary begin to fall.

In the pond, there are two nesting platforms which attract over 30 seagull pairs on a regular basis. They use the platforms to lay eggs. Two more platforms are to be installed, which will increase the number of breeding pairs. The area provides ideal conditions for over 50 species. More than 180 bird species can be found there in the nesting period, during migration and wintering. Among these, 55 are protected species. During winter, the area is sheltered from the cold and, consequently, the water in the fishery does not or rarely freezes. Hunting and fishing are forbidden in the fishery. Since 2010, the sanctuary has been under the Romanian Ornithological Society's observation.

Inside the Bird Sanctuary, an interpretation of the evolution of the Danube Delta management over the last 100 years will be organized. Two viewing hides will be designed to enable tourists and photographers to observe the Caraorman birds. They will enjoy the wonderful world of birds at a close distance without scaring them or disturbing their natural activities. Tourists will be able to camp close to the fishery. The Bird Sanctuary is located on one of the most important migration routes in the Danube Delta attracting species such as terns, divers, ducks and herons, which find good conditions for nesting there. Pelicans, ducks and geese use the area as a place for refuge, rest and feeding.

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## Conclusions

The energy and efforts invested by the Crisan + Caraorman + Mila 23 Association in numerous projects have significantly improved the Delta Danube's reputation; moreover, they have positively marked the eco-tourism development. A brief look at these projects leads us to an important conclusion, i.e. partnerships are key to success. The most representative partners in this particular case are the Sustainable Development Department of the Romanian Government, the Danube Delta Reservation Administration, the Romanian Waters Administration, the Romanian-American Foundation, the Management Association of the Danube Delta Tourist Destination.

Another important conclusion is that innovative approaches such as the creation of the Living Delta brand, the invention of the “canotca”, United Waters, the Rowmania festival, the Caraorman Bird Sanctuary, as well as youth involvement allow for interpretation methods to be applied in a unique, specific manner, at least in the Danube Delta's case.

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### 4.7.6 Points for Discussion and Questions

1. Do some research on the legislation in your country regarding the protection of nature and share your findings.
2. What is the educational component in the interpretation of nature in the Danube Delta from a tourism perspective?

### Tasks and activities

1. Try to identify examples of good practice from ecosystems of the same type that could be applied to the Danube Delta.
2. Establish the profile of a tourist guide for the Danube Delta. Describe the level of knowledge that such a guide should have.
3. Prepare a list with the necessary equipment for bird watching.

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## 4.8 Hydrology, Balneological Nature Resources

The part of the Earth's surface that is formed by water is called the hydrosphere. Water covers most of the surface of the Earth (74%), of which sea water accounts for 71% while fresh water accounts for only a very small part (3%). Water is crucial for the existence of life on our planet. It is a scarce, irreplaceable elementary material that has many meanings and uses for mankind (EVVO, 2011).

Life on the Earth was born from water and everything living on Earth needs water to survive. Water has many functions: it is crucial for life, home to many plants and animals, a local and global source, a transportation route, and a climate regulator (EEA, 2021). Water also plays a significant role in the appearance of landscapes and their changes.

It is also worthwhile to look at the semantics of water. It is a symbol of flow, liquidity, movement and change. Since ancient times, water has been worshipped as a symbol of life, both in pagan cults and the Christian tradition where it is connected with soul purgation, the washing down of sins and the concept of rebirth. Water helps people to recover thanks to its unique composition or the miraculous power people accredit to it (Karelová, 2016).

Water appears in various forms on the Earth: it is present in oceans, seas, rivers, lakes, waterfalls and rain. Water is in soil, plants and living organisms. It accounts for 45% to 65% of an adult's body weight.

One of the most pressing issues that we are facing today is extremely high water consumption, which has a negative impact on water circulation in nature. Irrational water consumption, excessive agricultural growth, and adverse climate changes will lead to a situation when water is a scarce resource. According to the World Health Organisation, about 8 million people in the world do not have access to clean drinking water (WHO, 2022).

Since 1993, World Water Day has been held on 22 March. The United Nations introduced



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this Day to remind people of the importance of water for our planet (WWD, 2022). Lack of quality water resources is one of the most important global issues. Over one billion people do not have access to safe drinking water. World Water Day focuses on the importance of water and the need to protect and conserve it. There is a specific theme every year (UN, 2022).

Water management is regulated by the legislation of individual countries. In 2000, the European Union approved the Water Framework Directive 2000/60/ES, which regulates the Union's water policy and protection of natural water.

**Water on the Earth:**

- Water covers 74% of the Earth's surface.
- 97.5% of all water on the Earth is seawater, which is unsuitable for human consumption.
- Of the remaining 2.5%, two thirds (1.6% in total) are frozen water.
- This means that less than 0.1% of all water on our planet is fresh, easily usable water
- 70% of usable water is used for the production of food.
- 10% is used in public infrastructure and households.
- The rest is used to produce electricity (waterpower stations and the cooling of thermal power stations), cruises and entertainment.

EVVO, 2011

The UNESCO Intergovernmental Hydrological Programme (IHP), launched in 1975, addresses the national, regional and global challenges for water resources management (UNESCO, 2021a). It focuses on the research and management of water resources, relevant educational activities and capacity development.

Water exists in three states. The most common one is the liquid state. In the solid state, it acquires the form of ice or snow, and in the gaseous state it appears in the form of water steam.

Water has been forming the Earth's landscapes for ages. Erosion has formed valleys along rivers, steep cliffs above sea canyons and caves hollowed out by water. Specific environments are formed by brackish water, which is a mixture of seawater and fresh water in estuaries.

The boundaries between water and land are not always fixed. There are often intertidal zones, where the water level changes with the tide during the tide every day of the year. This region is rich in wildlife, and it is often a stopover for migrating birds. Mud flats rich in sediments form a habitat for many species of plants. The Wadden Sea, which extends along the coasts of the Netherlands, Germany and Denmark, is a typical example of this phenomenon.

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## Types of bodies of water

The concept of a body of water refers to any body of water that is on the surface of the Earth, such as swamps, artificial ponds, lakes, dam lakes and other water reservoirs, seas, rivers and streams. Bodies of water also include the saltwater in oceans.

We distinguish between natural surface water that emerged as a result of the movement of tectonic plates, volcanic activities, the melting of glaciers, erosion, freezing of water in caves, the separation from the sea by sand dunes, wind activities, the fall of meteorites or the activities of animals. Artificial surface water bodies are created by human activities (ponds, water reservoirs, canals).

**A lake** is a body of water that is enclosed by land. It has different origins: tectonic sags, volcanic (in craters), karst (in karst cave systems) etc.

**A pond** is an artificially created water reservoir designated primarily to breed fish, water birds and to retain water in the environment. Ponds play an important role in leisure tourism focussing on water



sports or skating in winter. In some countries, pond reeds are harvested and used for the construction of thatched roofs while pond mud is used as a fertilizer.

**A dam reservoir** is used to retain water for water supply, to generate electricity, and to regulate water flows or as a protection against floods. It is also a recreation site for water sports and fishing.

The world ocean covers approx. 361 million km<sup>2</sup>, which means that it covers 71% of the Earth's surface and its volume is 1,370 million km<sup>3</sup> of water. This means that seawater accounts for 96.5 % of all water on the Earth. The world ocean is divided into five oceans: the Atlantic Ocean, the Pacific Ocean, the Indian Ocean, the Southern Antarctic Ocean, and the Arctic Ocean. Parts of these oceans are called seas.

**A river** is a large, natural stream of flowing water. Rivers have many natural functions. For example, river systems are part of the planet's circulatory system; they transport rainfalls to the sea; they form and influence the shape and appearance of landscapes. Rivers are an important ecosystem, as well as an important biotope and migration route for many plants and animals. They are an important source of food for people and can be used as transportation routes, as well as sources of power. Rivers often form boundaries between countries.

Water plays a key role for many aspects of life on the planet. Oceans and seas are important for the global climate. Oceans help warm and cool various regions making them suitable for living. Evaporated water from warm seas can fall onto the land all over the world in the form of rain or snow. Water is a habitat for many plants and animals. There are millions of species living in the water, from small micro-organisms that are only a few micrometres in size to gigantic blue whales that grow up to 30 metres

in length and weight almost 200 tons. New species are discovered in the oceans every year.

Water has always influenced human life. Changes in its volume and quality have a direct impact on the local environment and population. It is crucial for agriculture and industry. The first settlements emerged along rivers since rivers and coasts enabled the movement of people and the transportation of goods. Hand in hand with new settlements along rivers we can witness also a spread of culture. Water is also a very important source for tourism.

Water management regulates the supply of water for the industry, drinking water for households, and sewage. Monitoring of the environmental impact of agricultural and industrial production on the oceans focuses on the identification of the water footprint of a product (WFC, 2022). The product water footprint is based on the total volume of water that is needed to produce a product. The water footprint is regulated by ISO Standard 14046. The Global Footprint Network research organisation developed a more comprehensive methodology that also includes the environmental, economic, and social impact of water (WFN, 2022).

## 4.8.1 Overview of European Water Based Attractions

### Water as a tourist attraction

Tourism strongly depends on the hydrological conditions of a region. Many attractions and tourist destinations relate to water. It plays an important part in the tourism potential of a region. The level of its utilization by tourism depends on the temperature and purity of water, location, quality of the coast and prevailing infrastructure. A significant part of leisure tourism takes place at water sites. The concept of blue tourism is used for coastal and maritime tourism. Although the highest concentration of tourism is at sea beaches, inland water sites such as lakes, rivers, waterfalls, wetlands, spas with mineral and thermal springs, swimming pools, aquaparks, and other technical water sites like canals also have recreational potential. Water is important for sports tourism (e.g., diving, fishing, rafting on rivers). Water also creates a very pleasant background for other sports.

For example, riverbanks and sea coasts are often popular places for hiking and biking (e.g. the Elbe Bike Route in the Czech Republic and Germany, the Oder Bike Route in the Czech Republic, Germany and Poland, the Causeway Coast Way Walking Trail in Ireland and the Trial



along the Lužnice river in the Czech Republic, which received a Leading Quality Trails certification.

Other types of tourism that depend on water are spa tourism, thalassotherapy, and wellness tourism. These forms of tourism tap into the therapeutic potential of water. Water is used for various spa treatments. Mineral or thermal springs are considered nature heritage and their protection and utilisation are regulated by law.

**Figure 4.8.1a| Széchenyi Thermal Baths, Budapest, H**



Source: Author's archive (Jarolímková, V., 2022).

Today there is only little public awareness of the benefits of mineral water. In the past, these gifts of nature used to be highly valued. The exploration and tasting of mineral springs facilitate the contact between people and the internal energies of the Earth, allowing us to experience the real power of nature and its extreme variety – every spring has different qualities and tastes (Janoška, 2011).

As people highly valued mineral springs, they not only drank the water and used it as a treatment, but they also maintained the springs. There are many archaeological sites in the surroundings of these springs confirming that their origins date back far into history (Janoška, 2011). Mineral springs in spas are protected by minor aesthetic architecture such as colonnades, summerhouses and pavilions above the springs. Urban spa zones have slowly changed into a "therapeutic landscape", often including other water elements such as lakes, canals, trails along streams and rivers, heritage trails leading to other mineral springs.

Water elements are a primary attraction for tourists who like exploring nature. In particular, river springs, river confluences, river mouths, waterfalls, mountain lakes, marshes, geysers and points of watersheds enjoy great popularity among tourists.

An extraordinary phenomenon is bifurcation, i.e., the branching of one river into two riverbeds. One place where this phenomenon can be seen in the Czech Republic is the spring Jaščerka near the village of Hostašovice (CZ), on the route of the European watershed. After several meters the spring divides, with one branch running into the streams Bílý and Zrzávka and to the Baltic Sea and the second branch running into the streams Krhovský, Bečva and the Black Sea.

TIC, 2018

Water complements the landscape; it is often its dominant feature. In nature, water is a co-creator of a specific biotope, a vital habitat of interesting plants and animals. These biotopes are often marshes, alluvial plains along rivers, mangroves or floodplain forests. These interesting places are also popular destinations for all nature lovers and so there are many hiking trails with educational panels to increase visitors' awareness of the value of these territories.

**Figure 4.8.1b, c| Educational trail “Tři iseriny”, bog, Jizera Mountains, CZ**



Source: Author's archive (Míšková, 2022).

In the past, riverbeds and brook beds were great places to hunt for precious stones or gold. Since the 16th century, Safirový Brook, or Sapphire Brook (CZ, Figure 4.8.1c), has been a site well-known for precious stones. They were found in the sediment load. The best-known stones in the area are sapphires; it is even believed that the site was one of the most valuable places of this type in Europe. Even today, looking for precious stones in these streams is a popular among families with children. Information panels along these streams inform tourists about the history and help them build a relationship with nature.

Another example of a region rich in nature, in particular birds, is the Danube Delta Biosphere Reserve, a labyrinth of water and land divided between Romania and Ukraine.

Since the area is particularly well known for its abundance of birdlife with many important bird species that use the Delta as a stopover and breeding area, it has become a popular birdwatching destination.

Water also plays a role in cultural tourism. Human life has always been related to water. The first settlements were founded on seacoasts and riverbanks that provided sufficient food and power for mills, sawmills, ironworks, and glassworks, while also serving as transportation routes. Water also substantially influenced the appearance of many cities and towns (e.g., Venice in Italy, Saint Petersburg in Russia, Amsterdam in the Netherlands) or at least parts of cities and towns (e.g. the Speicherstadt in Hamburg, Germany, which is located in the port of Hamburg). Water is responsible for the appearance and shape of settlements in moorlands, such as the UNESCO Biosphere Reserve Spreewald in Germany, a system of winding channels and rivers, as well as Giethoorn village in the Netherlands. Other examples of cultural landscapes that have been shaped by water include the Loire River valley in France, the Wachau valley in Austria and the middle reach of the Rhine in Germany.

Water is also a common feature in urban spaces. There is often a pond in the main square of a town and well-maintained riverbanks can be popular relaxation areas. The defence system of many castles and towns used to be complemented with water moats, e.g., Strasbourg in France. Historical fountains are often must-see landmarks. Especially during the summer months, tourists gladly stop at drinking fountains and vaporizers, often designed in interesting shapes. Water elements can also be found in leisure resorts, at children's playgrounds and exhibition sites. They can play an important educational role when they are in the vicinity of a much-visited tourist attraction, such as the WaterWorlds adventure centre at the foot of the Krimml Waterfalls in Austria.

Bridges are interesting sights of transportation infrastructure. The Old Bridge over the Neretva River (Bosnia and Hercegovina) has witnessed diving since the 17th century. Since 1968, when an annual diving competition was launched, it has attracted millions of tourists.

Technical constructions of harbours, constructions for the navigability of rivers, locks, historical canals for floating wood, etc. are also very attractive tourist places. An example of such a modern construction is the Øresund Bridge connecting Denmark and Sweden across Øresund. It is a combined railway and motorway bridge



and the longest bridge in Europe with both railway and roadway combined in a single construction. Other technically interesting constructions often sought after by tourists relate to the supply of drinking water (e.g., aqueducts and waterworks, purification stations). Ancient water technical constructions called aqueducts used to bring water from the spring in the hilly regions to towns. Most of these monuments can be found on the territory of the ancient Roman empire. Pont du Gard (F), built in the 1st century B.C. brought water to Nimes (F) from the 50-km distant spring. The aqueduct in Segovia (SP) brought water from a 15-km distant river. Aqueduct Valente (TU) was a part of a 250-km long water-feeder to Konstantinopolis (now Istanbul, T). Sewers and sewage disposal plants also belong to city infrastructure.

Technical water monuments are, for example, the shipping canals with locks in Scotland (The Falkirk Wheel), France, the Netherlands, Germany and the Czech Republic (The Bařuv canal). Many of them are now used by tourists as popular cruising destinations.

A unique irrigation system can be found in Madeira (PT). With the total length of 2,150km of irrigation canals called levadas, of which 40km go through tunnels, it is the longest irrigation system in the world. (Hrkal, 2018). The system was built in the 15th century with the aim to bring water from the mountains to the lower regions to be used for irrigation of agricultural land.



Levadas are narrow, about 1m deep ditches. Their shape minimizes water losses caused by evaporation. Thanks to gravity and gentle slopes, the water flows slowly without a need of any technology. Along these levadas there are narrow paths originally used by maintenance workers. Nowadays they are popular tourist routes.

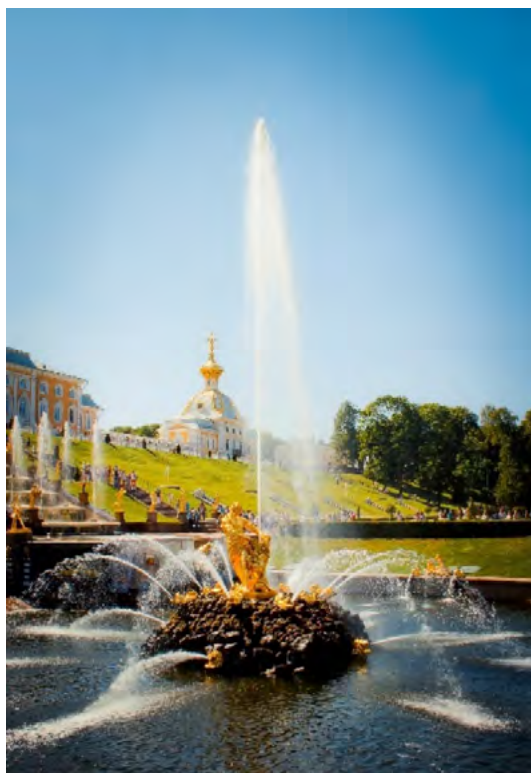
Water used to be an important resource for the development of industrial production and mining. In the past, rivers provided power for mills, sawmills and iron works and glassworks. Later, hydroelectric plants were built along rivers. All these achievements have become popular technical sights attracting many visitors. The regulation of navigable waters also initiated the construction of interesting shipping facilities. For example, shipping canals and locks, originally used for the transportation of wood and other goods, are now popular tourist destinations, especially for hikers, cyclists and water tourists. Ponds, originally created for the breeding of fish, have also shaped landscapes and are very important for tourism today. Today, water is an important element for the revitalisation of landscapes after the closing of surface mines. The creation of artificial lakes leads to the development of new tourist destinations (e.g., Lausitzer Seeland in Germany, lake Most in the Czech Republic).

Water has also become an important interior design feature. Apart from its decorative effect, it can also improve the microclimate in a room and has relaxing effects. Water

reservoirs, fountains and aquariums are attractive features of modern interior design. One of the largest water walls is at the airport Orly in France.

The element of water is often integrated into gardens and cultural landscape. In English gardens, water is an essential element adding a sense of romance, e.g., Průhonice park (CZ). People used to install fountains and sophisticated systems of water elements in baroque gardens, e.g., the gardens of Versailles (F), Kassel (G), Peterhof (RU) and spas (see below). Other examples of cultural landscape where water is an important feature is the central part of the river Rhein (G), Wachau valley (A) and the valley of the river Loire (F).

Water underlines a spectacular atmosphere of Mont-Saint-Michel Abbey (F), where slim gothic spires and massive ramparts dramatically rise from the sea or perch above glittering sands exposed by low tide. This place is famous for the biggest difference between the tide and ebb in Europe. With a speed of 10km/h the difference in the sea level can reach as high as 15metres in only 6 hours.



During the Renaissance era and the Baroque period, water complemented the architecture of castles since the reflection of the buildings in the water highlighted their beauty. Examples are the castles Červená Lhota (CZ), Moritzburg (G), Schwerin (G) and Egeskov (DK).

Water has always been an inspiration for various art forms: music, painting, fine art, literature, architecture and handcrafts. One of the best-known symphonies is “Vltava” by the Czech composer Bedřich Smetana. Chudenice pond (CZ) inspired the Czech poet Jaroslav Kvapil to write the libretto for the opera “Rusalka”. Water reflects blossoms in Claude Monet’s paintings and allegoric sculptures decorate many fountains. The Elbe philharmonie concert hall in Hamburg is an example of a modern architectural landmark inspired by water.

The fountain “Tribute to Water” (Pocta vodě) is situated in the Czech Republic in the upper part of Rakovec valley near Brno (CZ). The inscription “Water is most important” reminds of the importance of water for human life. Both the original and its Czech translation come from the victory odes of the Old Greek poet Pindaros.

Národní registr pramenů a studánek, 2008

### Importance of water as an integral part of intangible cultural heritage

Water is also an important element in rural tourism as it is often related to spiritual values, religion and miracles. There are many traditions related to water all over the world, proving the importance of water for people’s lives. The cleaning of wells in spring and the decorating of wells and fountains at Easter in Germany are just a few examples. These traditions also attract a lot of visitors and thus represent an important source of tourism.

Water is also an essential background element in theatre performances. For example, there are the floating stages on Lake Constance in Bregenz (A), the Minack Theatre on the cliffs in Cornwall (GB) and the Novalis celebration on the Vltava River in Prague (CZ). Other cultural events are, for example, the Ignis Brunensis festival of fireworks above the Brno dam (CZ) and Aquanario water shows held in many German towns.

An interesting attraction in rivers are “hunger stones”, which are hydrological landmarks common in Central Europe. Our ancestors used to mark the years with the minimum water level as evidence for future generations. Little water usually meant little harvest and thus poverty and famine. One of these stones is located in Děčín (CZ) dating back to 1616, thus being one of the oldest hydrological monuments in Europe. Others can be found in the Rhine, near the village of Rheindürkheim (G).



Many popular pilgrimage sites can be found at springs with healing effects. This is reflected in the names of these places (e.g., Holy Water, God’s Water, Good Water). Many springs are devoted to saints, mostly to the Virgin Mary. Most springs are sheltered with arbours and small chapels.

Water can also be an attractive transportation route used by destination visitors. The water transportation route itself can also be a tourist destination. Lake, river, sea and ocean cruises are extremely popular with tourists. Many tourist destinations would be inaccessible without ferries offering water crossing.

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## **Water as a scarce resource in tourism**

Tourism is a water demanding industry. Offering services to visitors has led to increased pressure on local and nature resources, including water. Tourism development has resulted in an increase in water consumption in the respective destination. Tourism also means an increased risk of water pollution. Visitors should always remember that their presence and careless water consumption could result in water issues for the local population.

Direct water consumption (for drinking, cooking, and washing) in developed countries is estimated to amount to approx. 100 litres per person per day. In developing countries, this is 10 times less. Tourist destinations especially in southern and developing countries face serious difficulties caused by tourists using too much water every day. One of the most water-intensive facilities and services in the tourism industry are hotel swimming pools and wellness facilities, spa services and golf resorts. A high direct consumption is generally connected with guests' hygiene needs, the daily maintenance and cleaning of facilities and the maintenance of parks and common greens. Water-smart living as a part of strategic smart solutions for sustainable development of our society should definitely be applied for optimization of water consumption in tourism services.

## **European attractions based on water**

Compared to other parts of the world, Europe has relatively rich resources of fresh water. However, these resources are not fairly spread across the continent. Approximately one third of European territory faces a lack of water, when the demand for water in certain seasons exceeds its available supply.

According to a long-term world balance, the supplies of water do not increase, or decrease. However, the growing population leads to increasing human interference with nature and water circulation. In the 20th century, the development of civilisation led to the destruction of more nature resources than in the whole history of mankind. It is estimated that climate change will impact the availability of water in Europe and will exert even more pressure on southern countries to deal with water scarcity.

Europe belongs to the sea drainage areas of two oceans: the Atlantic Ocean and the Arctic Ocean. Seas surrounding Europe are usually shallow. The coast is indented with numerous islands, peninsulas, and bays. The highest concentration of tourists can be found along the southern European coast (Spain, France, Italy, Greece, Bulgaria, and Turkey).

The river network of Europe is dense. The most important rivers include the Danube, Rhine, Rhone, Loire, Oder and Vistula, Tajo, Po and Tiber. From the view of tourism, the best-known tourist routes along rivers are the Castles on the Loire (F) and the route of Weserrenaissance along the Weser River in Germany (G) both examples representing a combination of nature and cultural attractions.

Waterfalls are a very popular natural attraction for visitors. The most attractive waterfalls in Europe are the waterfalls in Iceland (e.g., Gullfoss, Skogafoss, and Dettifoss). The waterfalls richest in water are the Rhine Falls (CH), situated 3 km from the town of Schaffhausen (CH). The Rhine with its 130m width behind Lake Constance gets narrower there and falls dramatically over several rocky steps 23 meters. The highest

waterfall in Europe is Vinnufossen (N), which is 860m high. Plitvice waterfalls in Croatia are also very impressive. They consist of 16 terrace lakes mutually connected with waterfalls, the highest of which falls from a height of 176m. The best-known waterfalls in Austria are the Krimml Waterfalls in Hohe Tauern national park, which are visited by 400,000 tourists every year. Pamukkale waterfalls in Turkey are also worth visiting. Waterfalls can also be artificially created. The highest one is the



Cascata delle Marmore waterfall (the Marmora Falls) on the River Velino (I). The waterfall was created by the Romans in 271 B.C. Its total height is 165 m. Its rocky walls are covered with white crystals of calcium carbonate, which gave it its name.

There are many lakes in Europe, but they are not spread evenly across the continent. The highest concentration of lakes is in northern Europe, e.g., in Finland (60,000 lakes), Pomoren lakes (G), Mazur (Pl) and the Belarusian Lake area. In southern Europe, Lake Balaton, Bodam, Lago Maggiore and Lake Geneva are all popular destinations for leisure and cultural tourism. Plitvica lakes in the karst region of Croatia are very specific and they are on the UNESCO World Heritage List. Other well-known lakes include Loch Ness (GB), Königssee (G) and Lake Hallstatt (A).

The territory surrounding the Czech spa town Třeboň (CZ) is well-known for its high concentration of ponds. These ponds were built already in the 14th century to develop fish farming there. Nowadays these ponds serve not only for fish farming, but they became an important landscaping element attracting lots of tourists every year and generating job opportunities along hiking and biking trails. It is estimated that there are more than 24,000 ponds in the Czech Republic.

Many tourists are attracted to the region of Spreewald (G). The landscape of Spreewald, where the branches of the river Spree created long channels suitable for raft cruises, features interesting settlements with interesting local cultural traditions and a very diversified natural wealth (Biosphärenreservat Spreewald, 2022). The whole region has been a UNESCO biosphere reserve since 1991. (UNESCO, 2021b.)

Glaciers are also natural attractions. The Great Aletsch Glacier (CH) is a UNESCO World Heritage Site. The continental glacier covers a part of Iceland, the Spickbergen, and New Country. Mountain glaciers are found in the Alps, the Scandinavian mountains and the Pyrenees. However, current global warming leads to melting of continental glaciers and tourist destinations may lose this “summer attraction”. Then they will have to adapt to this situation by offering some other “must see” highlights or activities not to lose visitors in summer.

Iceland has the largest number of geysers and thermal springs in Europe. All geysers and hot springs in the world are named after “Geysir”, one of the Icelandic geysers. The first

record about this geyser dates back to 1294. There is a very interesting cold water geyser in the village Herlany (SK). The eruption caused by carbon dioxide takes about 25 minutes. The water squirts up to 7–15 metres every 34–46 hours.

There are many natural mineral waters in Europe. Mineral water springs can be found at places that are fractured due to Tertiary tectonic deformations and relatively recent volcanic activity. Natural healing water has been used for modern balneological purposes since the 18th century. The most common balneological procedures include inhalation, drinking cures and baths. There is a high number of spa towns in Europe. 11 spas have been inscribed on the UNESCO List of World Heritage: Baden near Vienna(A), Spa (B), Františkovy Lázně, Karlovy Vary, Mariánské Lázně (all CZ), Vichy (F), Bad Ems, Baden-Baden, Bad Kissingen (G), Montecatini Terme



(IT) and Bath (GB). Jáchymov (CZ) was the first spa in the world to use radioactive water (since 1906). Thermal springs in the spa Saturnia in Italy, Tuscany, represent an admirable natural feature. The mineral spring was led over small stone dams creating a system of small swimming pools, which achieved a natural appearance over time. The water in this nice Cascade del Gorello has about 37°C.

In some German spas, graduation towers are operated for healing processes. These towers are large wooden constructions filled with sloe branches used as open-air inhalation facilities. The brine (mineral water with a high concentration of salt) is pushed upwards to the top levels of the construction, from which it flows downwards on large sites, evaporating and spreading into the air close to the construction, thus creating a healthy micro-climate similar to that at the Arctic Sea. Restored historical graduation towers date back to the 19th century and the beginning of the 20th century and can be found, for example, in the German spa towns Bad Reichenhall, Bad Salzflun and Bad Dürrenberg. The highest graduation tower can be visited in Bad Kreuznach. A modern version is the Sole Arena graduation tower in Bad Essen (G), established in 2010.

Sebastian Kneipp, a German priest and healer, and Vincenc Priessnitz, an Austrian farmer and healer, are regarded as the founders of modern hydrotherapy, a healing method based on the use of water to treat ailments.

There are two interesting phenomena created by mineral water in Zbrašov in Teplice nad Bečvou (CZ). The first one is the Hranická pit. It is the deepest flooded cave in the world; its bottom has not been reached yet. There is also the Hranické lake, which is believed to be bottomless. The latest confirmed depth is 404 meters. The second phenomenon are the Zbrašov Aragonite Caves. These are caves of hydro-thermal origin, which were created by both warm carbonic mineral water and surface water. This resulted

in a specific decoration, different microclimate and temperature. A specific feature is the geyser stalagmites, which were formed by the influence of mineral water. They consist of several layered formations with a small central canal in the middle.

There are about 7,000 large and thousands of smaller dam lakes (dam reservoirs) in Europe (EEA, 2018). Grande Dixence (CH)

and Kaprun High Mountain Reservoir at Mooserboden with two dams in Hohe Tauren (A) are among the most interesting water reservoirs in Europe, attracting nature lovers and trekking enthusiasts, as well as visitors interested in the technical side of these projects. The latter can visit the “Electricity Adventure World” exhibition at Kaprun dam to learn how water turbines generate electricity. The Dlouhé stráně Hydroelectric Power Station in the Czech Republic offers interesting tours. In 2005, it was listed as one of the seven major wonders in the Czech Republic. There is an impressive large water construction at the border between Slovakia and Hungary called the Gabčíkovo-Nagymaros waterworks. The dam plays a very important role in the stabilisation of the Danube riverbed, which is paramount for the protection of the inland Danube Delta and is used even for recreational purposes and tourism development of the whole surrounding territory.



Many tourists like modern fountains with cultural productions like Křižík's Singing Fountain in Prague (CZ) and the fountain in the spa town Mariánské lázně (CZ). A historical singing fountain is situated in Královská garden in Prague (CZ). Other famous fountains include Di Trevi in Rome (IT), the Lions Fountain in Alhambra (SP), the fountain shows and musical gardens at Versailles (F), the trick fountains at Hellbrunn Castle (A), the Hundred Fountains in the gardens of La Villa d'Este in Tivoli (IT) and the Magica Montjuic in Barcelona (SP).

Interesting independent tourist destinations are educational centres focusing on water, such as Hydropolis in Wroclaw (PL), WasserWelten Krimml (A) and the House of Water Hulice (CZ). Oceanariums and aquariums are another type of an independent tourist destination. Examples are the aquariums in Lisbon (Pt) and Hirtshals (DK).

A unique intangible attraction connected with water is a Water Tribunal of the plain of Valencia (SP). Every Thursday at midday a ceremonial meeting of the Water Tribunal, one of the oldest tribunals in the world is held in front of the cathedral at the Door

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of the Apostles. Its origin relates to the system of water irrigation canals built by the Romans and improved by the Arabs. In the 2nd half of the 10th century eight administrators of individual canals met for the first time to sentence those, who were accused of wasting water, damaging, or polluting the canals, or of some other breach of laws. There is no disclaimer against the verdict and the sentence must be executed immediately.

## 4.8.2 Specifics of Heritage Interpretation

Nature heritage interpretation is based on two aspects. The first one results from the feature of this nature phenomenon and nature sights themselves, when many features connected with water are invisible and transient. However, it is possible to use interactive methods for its interpretation so that people can learn about characteristic features of water through playing. The second characteristic results from the fact that, despite its scarcity, people tend to take water for granted. People often forget how scarce this resource is. Therefore, it is particularly important to emphasise the importance of water and the need to protect it and economize on it.

The main aim of water heritage interpretation is to help visitors understand the importance of the visited sights, emphasizing also the importance and value of water for our daily life.

Water interpretation can focus on different topics:

### a) Tourism attractions

- Importance and value of the attraction, importance of water for the preservation of the given attraction.
- Context and other connotations related to the local community and surrounding nature.
- Comprehensive approach – relationship between water and surrounding landscape, other nature elements (plants, animals) and cultural heritage (towns, technical monuments – dams, iron works, etc.).
- Important people connected with water (e.g. Kneipp, Priesnitz, sailors and voyagers).
- Important places as inspiration for works of art.

### b) The importance of water in nature (in general concept)

- Water and its value.
- Water circulation in nature.
- Water as part of landscape revitalisation.
- Impact of human interference on the water system.
- Economising on water.

### c) Water consumption in tourism

- Encouraging visitors to save water and economize on it with respect to the local conditions of a destination and its population.

Some topics are unique to water-related heritage interpretation. For example, cultural monuments often neglect the context of water as the interpretation focuses only on the cultural values of an attraction. Examples are the undervalued importance of water in towns and the insufficient interpretation of mineral springs in spas. Nature monuments also often fail to take the significance of water into account. Fascinating for visitors can be information how plants, animals and people economize on water, how they find water in nature and how water has influenced their development. (Hrkal, 2018).

There is a wide range of interpretation methods suitable for the interpretation of water-related heritage sites. At the sights, there are usually in situ interpretation panels and heritage trails. The same or similar information can be found on the websites or on mobile applications.

A guiding service is often offered at important nature sights. This service can be offered both on the land and on cruise-ships (e.g., guided cruise tour under the Rhine waterfalls).

Technical sights connected with water offer occasional events like open-house events. Under the leadership of professionals working



there, visitors can visit the “backstage” of the facility and get a better insight into the operation of such facilities as dams and water power plants, labs, purification stations, sewage plants etc. These visits help to increase visitor’s awareness of the importance and vulnerability of water and its ecosystems. As a result, it may lead to a more environmentally sensitive behaviour of tourists in nature.

There are also partial exhibitions on water in regional and local museums and houses of nature. Water is interpreted as an important feature by considering the specifics of the region. For example, there is an exhibition on ponds at the Museum of Agriculture in Prague (CZ). There are also a few independent museums devoted to the significance of water: the London Museum of Water and Steam (GB), the Museum of Water Engineering in Prague (CZ), the WasserSpiegel museum in Salzburg (A) and Museo del Agua de Lanjarón (SP). The Mattoni Museum in Kyselka (CZ) houses a unique exhibition devoted to the history of the mineral water brand Mattoni.

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### 4.8.3 Examples of Good Practice

#### Mineral water Mattoni

About 10 km from Karlovy Vary there is the small village Kyselka (CZ). In the park of the former spa Kyselka there is Otta's mineral spring, which has been the main source of the world-known mineral water from Karlovy Vary. There is also Mattoni's waterfall leading away the excess water from Otta's spring. It is an artificial cascade built by Jindrich Mattoni behind his villa at the beginning of the 19th century. Apart from Mattoni Museum, the interpretation of water is performed through the Mattoni trail. This heritage trail is 3.6 km long. It takes the visitor directly to Otta's spring, the spa colonnades, Mattoni's waterfall and Mattoni's villas, as well as to a bottling factory of another spring, Löschner's spring. There are information tables installed along the whole trail which inform the visitor about the particular sites. The information content is adjusted for children, presenting it in the form of comics.

The Global Network of Water Museums (UNESCO-IHP) is an independent non-profit organisation that specializes in water awareness education. It includes 50 water museums and institutional members in 28 different countries (with a potential audience of more than 12 million visitors every year) (WAMU-NET, 2022).

The most demanding, but highly effective interpretation method are visitor centres that focus on water interpretation. The House of Water in Hulice (CZ) and the Hydropolis in Wrocław (PL) are two good examples.

Printed materials are issued in the form of worksheets for children or as a guidebook to walks along spa springs.

Oceanariums, which are also called Sea Worlds, and aquariums are another type of attraction devoted to the interpretation of water environments. These are artificial tanks trying to simulate natural habitat for breeding sea plants and animals. They combine several types of interpretation; for example, expositions are complemented with information panels and there are guides available. Sometimes, other educational methods are applied as well, e.g., workshops or lectures presenting sea life to visitors.

#### 200 years of Sebastian Kneipp

Water is the elixir of life. In 2021, Germany celebrated the 200th birthday of Sebastian Kneipp (1821–1897), the forefather of naturopathy. The German priest and healer based his theory on the use of common water. In principle, the patient is treated with contrasting warm water of different degrees. This leads to a change of the body temperature, improvement of the blood circulation and metabolism, while strengthening the immune and nervous systems. "Kneipp's cure" acts preventatively and regeneratively on the body. It is inscribed in the UNESCO list as German cultural heritage. Kneipp cure harmonizes your body, soul and improves the natural defences of the body.

The positive effects of hydrotherapy have been known for many years. However, it was Sebastian Kneipp who became an advocate of its application. Hydrotherapy is based on the idea that sufficient blood circulation in the whole body is crucial for the correct functioning of an organism.

Face and leg affusions also act as an elixir of beauty since these treatments firm the skin and help achieve wellbeing and balance. His best-known cure treatments include walking in water and cold arm baths (Wurm-Fenkl, Fischer, 2011).

### Example of interpretation of mineral springs in spa Luhačovice (CZ)

There are 17 mineral springs used for balneological procedures in the spa Luhačovice (CZ). Most springs are open to the public. In the spa parks, the springs are covered with pavilions or colonnades. There are information panels at the springs with information about their chemical characteristics, its use from a medical point of view (drinking cure, inhalation, etc.) and information about the depth of the spring, its profuseness, date of discovery, etc. The aim of this form of interpretation is to emphasize the given nature richness and foster awareness of the value of this nature phenomenon. These mineral springs are one of the most efficient in Europe and therefore each panel lists the minerals in these springs.

Figure 4.8.3a | Spring Aloiska



Source: Autho's archive (Jarolímková, 2019).

### Spring Aloiska

This is a signed heritage trail called Cross trail. Visitors can also order a guided tour of the spa zone, or they can use an audio map of Luhačovice (CZ) for an individual tour.

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The audio map is an arts audio guide with 50 short stories revolving around interesting personalities and places around Luhačovice. The audio map is produced by well-known Czech actors. There are five routes, each of them has 10 stops. “Story of water” is the name of a spring tour.

The audio map can be downloaded free of charge at  
<https://www.zvukovamapaluhacovic.cz>.

Zvuková mapa Luhačovic, 2022

## **Expo 2020 – Czech pavilion and Czech Spring – Model technology S.A.W.E.R**

### **Example of interpretation**

The slogan “Connecting Minds, Creating the Future” linked exhibitions of countries that presented innovative sustainable solutions to global issues, incorporating technologies, sustainability and cultural heritage as inseparable parts of a comprehensive whole. Thousands of visitors could learn about the importance of water, thereby realizing that unless the consumption of water is reduced, there might not be enough water for all. Taking care of the future by emphasising the importance of water was demonstrated e.g. by a system of photovoltaic panels and mechanisms for ground water desalinization, powered by solar energy. Thanks to this system, a fabulous park arrangement without tapping into local water sources can be built in environments with a lack of water. There was zero net consumption of energy and water during the whole period of a six-month presentation.

How to generate water from air was presented in the Czech pavilion (“Czech Spring”). Czech state-of-the-art technology S.A.W.E.R. (Solar Air Water Earth Resources), powered by solar energy only, generates water from extremely dry dessert air. This technology was awarded the prize of best innovation at the World exhibition at the Expo 2020 (CZEXPO, 2022; Veselý, 2022).

### **Model of main European watersheds on the territory of the Czech Republic**

In the House of Water, visitors can find an interactive model of main European watersheds on the territory of the Czech Republic. This model is very demonstrative: if a visitor throws a ball into the model, they can easily find out to which sea the water from that place flows.

## The Region of Live Waters

It was a project developed by Plzeňský and Karlovarský regions (CZ). The aim of the project was to open the nature and cultural heritage of this region, which is famous for its large number of mineral springs, to the public. Spewing sites of unique mineral waters were restored, new summerhouses and access board walks were built and heritage sites were revitalized. 30 information panels describing places of interest were set up along the 50-km-long trails. 28 October is celebrated as Live Waters Day every year (MAS, 2019).

## Tours and educational programmes for schools at waterpower stations in the Czech Republic

Despite unfavourable nature conditions for large water plants, waterpower stations are a significant complementary source of energy in the Czech Republic. Most power stations are situated on the river Vltava creating a cascade system. The electricity provider ČEZ a. s. offers 1–2-hour-long guided tours to the water stations. These tours are very comprehensive. Visitors learn about the history and technical data of the power stations. The tours include educational films, models, interactive units and pictures.

A very attractive tourist destination is the waterpower station Dlouhé Stráně, which is situated in the popular tourist region of Moravia. A visit to the interpretation centre is also part of the guided tour of this unique underground power station. Here visitors can watch a film about this unique construction, see a cutaway model of the station and children can visit a learning activities corner where they can test the conduction of different materials, learn how a power station works or play with puzzles.

**Figure 4.8.3b | Myslivny Water Reservoir**



Source: Author's archive (Jarolímková, 2020).

This is an example of an in-situ interactive educational programme for schools. The content is adjusted to the age of children and students. Children are provided with worksheets that include tasks which they have to do during their visit to the place. Children can take the work sheets home and can work with it later back at school.

### **Elbe (Labe) spring**

The spring of the Elbe can be found at the top of the Krkonoše mountain ridge (1,387 m. n. m.) on Labská meadow (CZ). The length of the whole river running through the Czech Republic and Germany is 1,154 km. A symbolic installation of the spring is a popular all-the-year-round tourist destination, both for hikers in summer and cross-country skiers in winter. There is a stone wall with coats-of-arms of 28 major towns along the river from this spring to the North Sea and a wooden statue of a girl, the Allegory of Water. The statue was built as part of the Czech-German project “I praise you, Elbe”. The spring itself is about 150–300 m to the west of the statue. It is not accessible to the public because of nature protection.

**Figure 4.8.3c | Labe Spring**



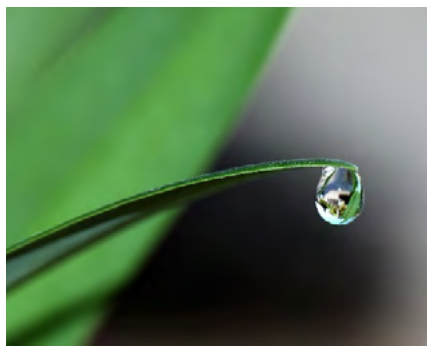
Source: Author's archive (Jarolímková, V., 2022).

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### **Tour of the underground hot spring Vřídlo in Karlovy Vary**

The hot spring Vřídlo is one of the major highlights in Karlovy Vary. With 73.4°C, it is the hottest spring not only in the spa Karlovy Vary, but in the whole Czech Republic. This spring releases approx. 2,000 litres of mineral water per second. Thanks to its high pressure, the geyser is 12 metres high. It is used for mineral baths. The water must be cooled down to 50°C–30°C for medical treatment. The mineral water of this spring is used not only for mineral baths in spa facilities, but also for drinking cures, in the production of Karlovy Vary spring salt and for making souvenirs.

Right under the hot spring colonnade, visitors can visit the underground springs. Here they can see the strength of these thermal mineral springs. They can see the process of production of traditional souvenirs from Karlovy Vary, the “stone roses”, a collection of calc-sinters and accreted aragonite, clogged-up pipes from the early 20th century. The tour ends at the place where the unused spring water flows into the river Teplá and so the visitors can witness the force of chemical reaction of minerals. The underground springs can only be visited with a guide.



#### 4.8.4 Case Study: House of Water in the Hulice Visitor Centre

This case study gives an example of a very well built interpretation of water phenomena including very innovative methods.

This case study will teach students how to plan and interpret a water-related heritage site and how to link the interpretation of a worldwide phenomenon with local nature and cultural heritage.

The House of Waters is a modern visitor centre offering entertainment and education for both children and adults. The exhibition explores the different faces of water, stressing the importance of water and important features of local nature. The aim of the heritage interpretation is to foster water awareness and the need to protect it. Thus, the House of Water links the interpretation of water with local nature, as well as with cultural and historical heritage.

The House of Water was built in the village of Hulice (CT), only several hundred meters away from the dam of the Svihov water reservoir. It is situated in the region of Želivka, which is an important region at a European level. It belongs to the system of protected areas by Natura 2000 (code CZ0214016). Protected animals living here are the black bat and the asp while a protected plant is *minuartia* (MŽP, 2021). Švihov reservoir is a reservoir of drinking water. After purification, the Želivka river supplies 1.3 million people in Prague and central Bohemia with drinking water.

The concept of the House of Water is very attractive. In the five years of its existence, this visitor centre has become one of the most visited tourist attractions in this area. 27,000 people visited the centre in 2019, attracting especially families with children (ČSOP, 2020).

The method of interpretation applied in the House of Water is attractive and imaginative with many interactive elements. The exposition is both outdoors and indoors.

Visitors enter the indoor exposition through a concrete tube that is 2.4 m in diameter. It is a model of a tunnel water feeder through which the drinking water flows from the Water Treatment Plant in Želivka to Prague through a 52 km long tunnel water feeder (PVK, 2021).

Water is introduced here as a vital condition for life, as an unreplaceable resource for people and a biotope for fauna and flora.

The exposition in the House of Water is divided into several parts, each of part emphasising one of the basic features of water.

“Water Microworld” shows water microorganisms, which cannot be seen with the naked eye. Visitors can see them through microscopes, on mega photos or as larger models.

**Figure 4.8.4a | Exposition Microworld**

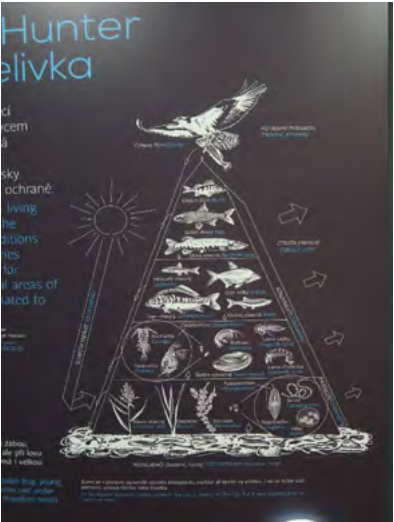


Source: Author’s archive (Jarolímková, 2021).

“Underwater macroworld” of water plants and animals (not only fish but also e.g., crayfish) can be watched in huge aquariums. In a dark room, visitors can relax in fat-boy beanbags, use headphones and listen to different sounds connected with water, to meditation music or classical music such as “Vltava” by Bedrich Smetana while watching a floodlit aquarium with swimming fish.

“Wetlands Life” shows the life of animals and plants on the banks of river Želivka. The exhibits are accompanied with sound recordings of birds and frogs.

**Figure 4.8.4b | Exposition Macroworld**



Source: Author’s archive (Jarolímková, 2021).

**Figure 4.8.4c | Exposition Wetlands**



Source: Author's archive (Jarolímková, 2021).

“Endless Journey of Water” explains the circulation of water in nature and the importance of water for humans. It warns about the increasing consumption of water and unbalanced approach to water in different parts of the world. There is an opportunity to taste water in a water bar that is located in this part of the exhibition. Visitors can taste 4 types of water – tap water, spring water, natural mineral water and sparkling water. To see another form of water, there is also a desk releasing a cloud of steam from its centre when a visitor presses the desk.

**Figure 4.8.4d, e | Exposition Wetlands and Steam Cloud**



Source: Author's archive (Jarolímková, 2021).

The last part of the exposition is devoted to the cultural heritage of the region. It shows the original wall paintings from the Church of St. John the Baptist in Dolní Kralovice, which had to be demolished when constructing the reservoir. The paintings could be preserved.

There are interactive elements offering the opportunity to play with water in the outdoor atrium of the House of Water. Visitors can see an artificial waterfall, a set of flumes, pumps, dams, water mills and other mechanical attractions (e.g., a water

wheel and an Archimedean screw). In a playful way, visitors can learn about waterpower and its use as propellant power and a source of energy.

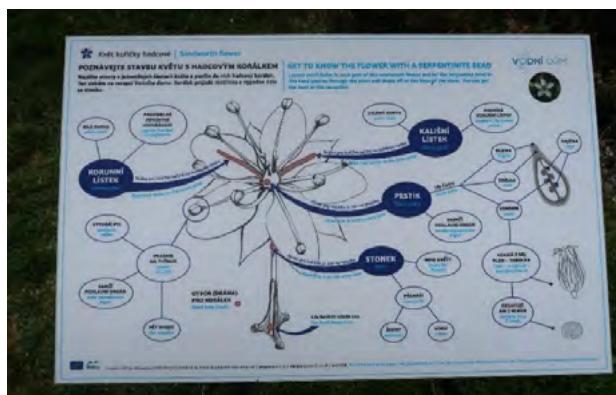
Another part of the exposition is situated on a one-hectare outdoor premises. It includes a water reservoir with fish and plants taken from the roof of the House of Water. This reservoir represents a water biotope and acquainting visitors with the importance and benefit of green roofs. Water flows then into an artificially created stream, dry polder, swamp and alpinum. The alpinum is a habitat of the plant *Minuartia* and a large metal model of its blossom stands next to it. A heritage trail with seven information panels about the role of water in nature takes visitors through the premises. The trail also shows how important it is to retain water in nature and to save rainwater.

**Figure 4.8.4f | Model of *Minuartia Smejkalii* Blossom**



Source: Author's archive (Jarolímková, 2021).

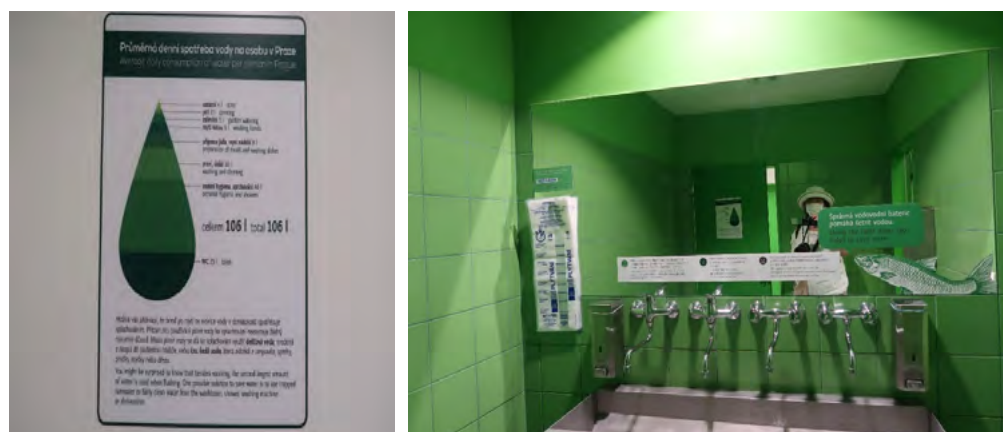
**Figure 4.8.4g | Information Panel at the Heritage Trail**



Source: Author's archive (Jarolímková, 2021).

The exposition is primarily designed for individual tours. The recommended time of the tour is 1.5 hours. The Svaz ochránců přírody Vlašim (Association of Friends of Nature in Vlašim) that operates the House of Water also offers guided tours, special programmes for schools and other edutainment events all year round.

**Figure 4.8.4h, i | Edutainment at Public Toilets**



Source: Author's archive (Jarolínková, 2021).

## Sustainability

The design of the visitor centre complies with the principles of sustainability and was awarded the Czech Energy and Ecological Project Award by the Czech Chamber of Chartered Engineers and Technicians (Water House, 2021). The building has a minimalist design, matches well with the natural environment and is naturally connected to the surrounding terrain. Local natural materials were used in the construction.

The building is a low energy one. Consistent education about water conservation opportunities continues at the toilets, where various types of water-saving faucets and flushers are installed. These gadgets are accompanied by explanations and quantification of water savings.

The construction and operation of the visitor centre is based on cooperation with many partners (e.g., Veolia ČR, Vltava River Basin). The visitor centre also cooperates with other operators of tourist destinations in the area. Both the outdoor area and the indoor exhibition of the Water House are barrier-free.

## Conclusion

The case study provides an example of a very well developed and comprehensively implemented interpretation of the phenomenon of water. It is the result of a professional interdisciplinary approach to heritage interpretation. The procedures and principles that have led to this result can be an inspiration for the interpretation of other nature attractions.

## 4.8.5 Further reading

The Wadden Sea: [www.nationalpark-wattenmeer.de/schuetzenweltnatur](http://www.nationalpark-wattenmeer.de/schuetzenweltnatur) (19.6.2022)  
for an educational video at YouTube Weltnaturerbe Wattenmeer – Ein einmaliges Erlebnis.

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## 4.8.6 Points for Discussion and Questions

1. Find out the theme of this year's World Water Day.
2. What activities are held on the occasion of this day in your region? Which methods are used for these activities?
3. Which important attractions connected with water can be found in your country or in the vicinity of your hometown?
4. Evaluate the methods of interpretation offered at these attractions.
5. Propose a suitable way of communication with visitors which would raise their awareness for water consumption during their stay in a destination.
6. Suggest the composition of a team of experts to prepare a nature heritage interpretation for a specific situation.
7. What will the role of the economist in this team be?
8. Give examples of a comprehensive approach to nature heritage interpretation in your country or in your region. What do these examples have in common?
9. How can the construction and operation of such a facility be financed?
10. Identify the key points of an interpretation of nature heritage.
11. Find the elements of sustainability of the presented project.
12. Suggest appropriate complementary methods of water interpretation for different visitor segments.

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## 4.9 Sky

“The life is given by strictly set cosmic schemes. Circulation of the Earth around the Sun creates a time scale of one year. Circulation of the Moon around the Earth corresponds with one month (27.3 days). Rotation of the Earth around its own axis is called a day which is divided into 24 hours. Astronomic laws create objective time units which essentially influence organic life by changing of light and darkness, warmth and coldness. Four seasons separate the solstices at the beginning of summer and winter and equinoxes opening spring and autumn“ (Studničková, 2018).

The universe is not as simple as a Sunday observer may think. Dramatic processes of changes are under way there all the time – birth, development, and death of stars, the substance appears in different forms.

The history of human culture is linked with an effort of people to learn about the universe, to understand its structure and find the laws of nature governing the processes in this huge mechanism. Findings about the universe have always belonged to the culture of every civilization. In ancient times, astronomy was a part of religion and mythology since calendars set the time suitable to God worship. Knowledge of astronomy was important for sailors, astrologists, prophets, priests, and philosophers. Agricultural produce was based on the knowledge of a calendar – when to sow, when rain can be expected, when to harvest before rains or first frosts (Jáchym, 2003).

### 4.9.1 Overview of European Astronomic Heritage

The sky forms an integral part of the environment in which the mankind lives. In the past, observation of space objects influenced the behaviour of people and their perception of the world, astronomic knowledge formed human culture in a certain sense. Therefore, we can perceive the sky as universal heritage.

Natural and cultural elements often overlap in astronomic heritage. Astronomic heritage includes social utilization of astronomy. It exists in the form of tangible attractions or sites somehow connected with the sky and its observation, physical objects (tools and archive documents), intangible knowledge and natural environment encouraging the interest of people in astronomy. Interpretation of the sky is crucial for identification of places connected with it, to appreciate their value and importance and protect them against outside negative influences and to conserve the environment for future generations. The table below identifies the categories of astronomic heritage.

**Table 4.9.1a | Categories of Astronomic Heritage and Their Examples**

	Tangible heritage immovable	Tangible heritage movable	Intangible heritage
Natural environment	Natural landscape		sky
Real estates, movable objects	Architecture, permanent constructions, and buildings.	Plans, movable artefacts, and tools.	Practical and technical knowledge, structural and architectonic history of the site/location.
Results of scientific activities	Wall paintings, stone carvings, symbolic drawings.	Recordings of observations, printed or digital data, maps of the sky, globes, and scientific publications.	Knowledge, understanding, calculations and theories.
Social and cultural application	Architecture connected with astronomy, regional planning and cultures created with the help of astronomy.	Archive documents, tools using astronomic features (e.g., sextants for sailor's purposes or movable sun clocks).	Calendars, ideology, forecasts of the future (both rational and irrational from modern perspectives).

Source: UNESCO, 2023.

Many international organizations initiating various activities are focused on the protection of astronomic heritage. The International Astronomical Union (IAU) in cooperation with the UNESCO declared the year 2009 an International Year of Astronomy. The aim was to remind people of the development of astronomy in the last 400 years (since Galileo Galilei used a telescope for the first time), to facilitate the importance and inventions of astronomy to the broadest segments of people and spread the awareness of the importance of astronomy for the mankind (IAU, 2010). ICOMOS published two thematic studies introducing Heritage Sites of Astronomy (Ruggles, 2010, 2017).

International Dark-Sky Association (IDA) comes with initiatives aimed at the protection of night environment and prevention of growing light pollution of the atmosphere. Protection of night sky and right to star shine has been discussed since the 1950s. The result of these discussions are regions of dark sky (Belušík, 2023).



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## Parks and dark sky reserves (Dark sky)

The UNESCO considers the night sky a part of world heritage, even though neither the natural sky as such, nor regions of dark sky can be inscribed on the List of world heritage (UNESCO, 2015).

Due to light pollution, it is more and more difficult to find places with suitable conditions for night sky watching. Under favourable conditions, people can see 3,000–5,000 stars in the dark sky, however, on most of the territory of the Czech Republic due to light haze people can watch only 1,000–1,500 stars out of towns and only several tens or hundreds of stars in big cities.

This is the reason why so-called national or international parks and reserves of dark sky are created under patronage of the International Dark-Sky Association. They are parts of other protected area, e.g., of national parks or protected landscape areas. Their aim is to promote and conserve a star sky. (SvetelneZnecisteni.cz, 2023). There are more than 200 certified places of dark sky (as of January 2023) – 115 parks, 38 villages, 20 reserves, 16 sanctuaries, 6 urban sites of the night sky and 6 excellent dark-sky-friendly constructions (IDA, 2023).

## Astronomic heritage as a tourism attraction

People are often excited about the night sky – a fascinating scenery of stars, planets, and sometimes meteorites raise admiration to something what symbolizes infinite space and eternity. The sky, astronomic features, attractions connected with astronomy are a part of potential for tourism development. Astronomic attractions and tourism activities connected with them are very diverse.

Examples of natural astronomic attractions are the sunset and sun rise, night sky full of stars facilitating watching of stars, star constellations and the Milky way.

**Milky way** a hazy band of light seen in the night sky formed from stars that cannot be individually distinguished by the naked eye. [https://en.wikipedia.org/wiki/Milky\\_Way](https://en.wikipedia.org/wiki/Milky_Way).

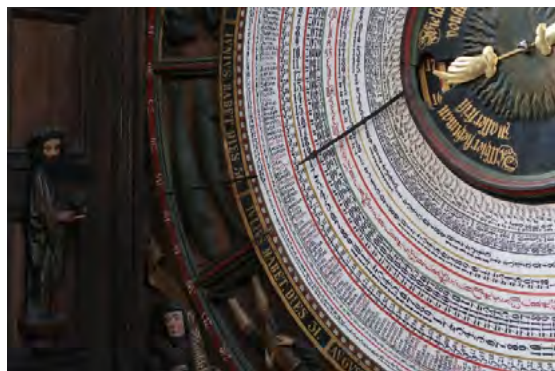
## Constellations

About 3,000 stars can be seen in the night sky. The sky map consists of so-called constellations – pictures created by lines connecting the clearest stars helping the observer to orient in the star sky. The significance of constellation was originally mainly mythological. The constellation represented a creature of Greek mythology, an animal or item getting permanent glory by being transferred into the heaven. The night sky is divided into 88 constellations (Štefánikova hvězdárna, 2023).

Some astronomic features are rare, but predictable (e.g., solar eclipse, moon eclipse, super full moon, flyby of comets). Especially attractive astronomic features are auroras visible behind the Polar Circle, or white nights (e.g., in Sankt Petersbourg) attracting many tourists every year.

Popular attractions based on astronomy are sun clocks, gnomes, astronomical clocks. Historical astronomical clocks, so-called mechanical clocks equipped with some other gadgets showing different astronomic data have been preserved in cathedrals in Lund (S), Strassbourg (F), or Rostock (GE). Astronomical clocks on the outside facades of historical buildings are e.g., on the Old Townhall in Prague (CZ), Clock Tower in Venice (I), on a historical palace in the street Rue Du Gros-Horloge in Rouen (F). An astronomical clock in a modern style was built in Brno (CZ) in 2010. This clock is attractive for collectors of curiosities. Every day at 11 a.m. after the carillon, one small ball falls into one of the holes, where a visitor can catch it and take it as a souvenir.

Other important tourist attractions based on astronomic features are places situated at meridians and parallels of latitude. The best known is the Prime Meridian in Greenwich (GB). This meridian with geographical length of  $0^\circ$  divides the Earth into West and East hemisphere and is an important indicator of geographical orientation and time measurement. The Prime Meridian runs through Royal Observatory in Greenwich (GB) and belongs to major tourist sites in London (GB) (Fig. 4.9.1a), as visitors standing on it are standing with each foot on a different hemisphere.



A separate category of technical attractions are constructions for watching the sky, such as astronomical and observation towers and observatories, often housing also movable items such as telescopes, sextants, sky globes showing constellations, etc. (Astronomical tower and halls of the University library in Clementinum in Prague (CZ).

**Figure 4.9.1a,b,c | Greenwich Observatory and Prime Meridian**



Source: Author's archive (Jarolímková, 2022).

Some professionals consider monumental constructions such as Stonehenge (GB) or Kounovské řady (Kounov rows) (CZ) to be astronomic calendars.

Astronomy influenced construction of many architectonical attractions, particularly their orientation towards the axis of the sunrise or sunset. Christian churches have the main altar always oriented towards the East. The entrance of the neolithic barrow construction of Newgrange (IR), which is most probably a religious construction, is oriented towards the point of the sunrise during the winter solstice. The sun beam lightens the inside of the barrow. Visitors must book their visit to this place several years in advance if they want to visit it at this occasion.

A specific attraction is the Foucault pendulum, which demonstrates the rotation of the Earth on its axis. The Foucault pendulum is installed in various sizes and versions in some historical buildings, e.g. in the Panthéon in Paris, in the Rotunda in the Garden of Flowers in Kroměříž. It is often installed in technical museums and lobbies of technical universities.

Another category of astronomic heritage includes places connected with a stay and activity of important astronomers such as Galileo Galilei, Johannes Kepler, Tycho de Brahe, Nicolaus Copernicus, William and John Herschel, Edwin Powell Hubble. (Jáchym, 2003) Memorials and museums of these personalities can be found in many cities.



Star heaven inspired many pieces of arts of different periods. Examples are The Starry Night by Vincent van Gogh, The Astronomer by Vermeer. Personification of Astronomy

can be found in the works by sculptor Karl August Heinrich von Kurtz in Stuttgart city park (GE). See also <https://www.arthistoryproject.com/subjects/astronomy/>.

Tourist space flights have become a topic of discussions about future development of tourism.

## 4.9.2 Specifics of Heritage Interpretation

Specifics of sky interpretation and interpretation of other astronomic phenomena result from the fact, that these features are mostly intangible, passing. The size of the universe and processes going on there are unimaginable for many visitors and so their interpretation needs to be adapted according to this situation.

The content of interpretation should focus not only on explanation of the importance and values of astronomic attractions, but also on current topics of protection of this part of the nature, it should e.g., stress the need to eliminate light pollution of the atmosphere and threats caused by climatic changes. Sky interpretation can be in situ and ex-situ.

A typical and specific facility specialized in comprehensive interpretation of the sky are astronomical observatories and planetariums. An **observatory** is a place from which processes in the space can be observed. They are equipped with devices (telescopes and sextants) for watching the sky. A **planetarium** is an educational (educative) facility with halls, where projectors simulate sky processes on the ceiling with artificially created sky with stars. Modern planetariums use 3D technology. Observatories and planetariums combine different methods of interpretation (models of solar systems, educative programmes, lectures, projections, educational films, multimedia programmes, workshops, games, exhibitions, printed materials, etc). They offer a wide range of topics in programmes prepared for different age groups of visitors.

Models sticking to a real size in a certain scale are often used to show the solar system. Fig. 4.9.2a demonstrates an example of such a model in a shopping centre AKROPOLIS in Siauliai (LT).



**Figure 4.9.2a | Model of the Solar System**



Source: Author's archive (Pranskūnienė, 2022).

Models of the solar system are interpreted also in a form of educational planetary trails. Models of the Sun and other planets are situated linearly in nature (the size and distance are in the scale showing the relations among individual bodies of the system). Interpretation panels are placed along the trail.

There are several mobile applications for star watching and their interpretation. They are visually attractive and user-friendly, (e.g., Star Walk, Sky Safari). The app. Sky Map, Sky Tracker show stars, constellations and planets situated in the direction, which a mobile phone points at. Other applications are Sky View, Star Chart, Night Sky Lite, etc.

Parks of dark sky have observation points recommended to visitors. They are equipped with interpretation panels. Many events are organized for visitors, such as commented sky watching and workshops making visitors familiar with objects and processes in the sky and with the protection of the night sky and night environment.

Museums devoted to important astronomers are e.g., Copernicus House in his native house in Toruń (PL), Kepler's museum in his native house in Weil der Stadt (GE), Herschel Museum of Astronomy in Bath (UK). Exhibitions about astronomy are usually parts of exhibits in large technical museums or museums of nature sciences. (e.g., National Technical Museum in Prague (CZ), Museum für Naturkunde in Berlin (GE)). Separate museums focused on astronomy and space are e.g., Museum of Science and the Cosmos in San Cristóbal de La Laguna on the island Tenerife (SP).

### 4.9.3 Examples of Good Practice

#### Sky Walk Dolní Morava

A path in the sky is an outlook construction of a unique shape made of wood and steel situated above the village Dolní Morava in the Czech Republic. This 55m high construction was built 1,116m above the sea level. It offers a unique view of Kralický Sněžník mountain ridge. One part of the path is a heritage trail focused on clouds, topography, and ecology, which means that whereas other similar outlook constructions are oriented at the interpretation of various tree levels, here visitors can watch cloud, fog, haze, and other meteorological features typical for local atmosphere and climate.

The path has interpretation panels with the information about the landscape, local nature, and the construction itself.

The path is barrier-free, accessible even for visitors with mobile difficulties.



Source: Mountain Resort Dolní Morava, 2023.  
<https://www.dolnimorava.cz/en/about-the-sky-walk>

#### Walks round astronomic Prague

Prague, one of the nicest cities in Europe, was a centre of education in several historical periods. Many famous scholars and artists created their life works in Prague, they experienced their ups and downs here and they participated in the formation of science and cultural environment of their times.

For example, Tycho Brahe, an astronomer at the court of Rudolf II worked in Prague. His assistant, Johannes Kepler formulated the laws on the movement of planets around the Sun in Prague. Albert Einstein lived more than one year in Prague and wrote 11 scientific papers here. Moreover, Prague is proud of a unique astrological clock dating back to the 15th century. The astrological tower in Clementinum in Prague which was used as an observatory already since the 18th century and was a predecessor of the current Astronomical Institute of the Czech Academy of Sciences. Two original astronomical instruments – mural quadrants are still to be seen in the Meridian Hall in the tower. The sun beam fell on a string stretched on the floor and their fusion determined the noon.

The Planetarium in Prague offers thematic tours with a certified guide to places connected with the life of personalities known from astronomy, physics, astrophysics, meteorology, geology, alchemy, and astrology.

**Figure 4.9.3a,b | Memorial to Johannes Kepler and Tycho de Brahe; The Route of the Astronomical Walk Through Prague**



Source: Author's archive (Jarolímková, 2023).

### Planet Trail

The Planet trail is a type of a heritage trail representing a model of our Solar system. The trails help people make an idea about the size of bodies and distances in the universe.

The most detailed model of the solar system in the Czech Republic can be found at the Planet trail



in the valley along the river Vltava in the Northern surroundings of Prague. The trail shows the model of the solar system at a scale of 1:1,000,000,000. It includes 34 cosmic bodies at 17 stops. Visitors will find here the Sun, planets, big moons, and dwarf planets. Each body is represented by a ball made of stainless steel (only the Sun is made of concrete) billion times smaller than the real cosmic body and even the distances between them are diminished in the correct ratio.

The trail is equipped with information panels with a brief description of each cosmic body.

**Figure 4.9.3c | Jupiter at the Planet Trail in the Valley Along the River Vltava in the Northern Surroundings of Prague**



Source: Author's archive (Jarolímková, 2023).

### Historic board game Pleasures of Astronomy



The game dating back to 1804 is an educative board game. Its goal is to strengthen the knowledge of astronomy in an entertaining way. The game is seriously made and has a lot of pictures. In the centre of the board is a picture of the observatory in Greenwich. In the corners are portraits of astronomers: Ptolemais, Tycho de Brahe, Mikolases Copernic and Isaac Newton. A player goes through 30 playing spaces and learns about astronomic phenomena such as movement of planets, phases of the moon, etc. (Seville, 2020).

The game can be seen in the Observatory Museum in Greenwich (GB).

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### **Copernicus House, Toruń (PL)**

Nicolaus Copernicus, one of the most important world astronomers was born in Torun in 1473. A museum showing his life and work is in his native house. He studied astronomy, mathematics, law and medicine. His best-known work is a heliocentric theory. In his paper *On the Revolutions of the Celestial Spheres* Copernicus refuted the geocentric concept of the solar system.

The museum exhibition is divided into three thematic parts: science ancient and current, everyday life of a bourgeois family in a late gothic Hansa house, and life and work of Nicolaus Copernicus.

Multimedia technologies are used in the museum, as well as visual projections, augmented reality 4D cinema with films about astronomy, universe history big scientific inventions or holograms. An audioguide and applications for smartphones are available.

Source: Muzeum Okręgowe w Toruniu, 2019.



#### 4.9.4 Case study: Cathedral of the Assumption of Our Lady in Sedlec

The cathedral of the Assumption of Our Lady in Sedlec (CZ) is the oldest cathedral in the Czech Republic. It is a unique monument inscribed on the List of UNESCO World Heritage since 1995.

The structure is oriented by its entrance to the West and by the main altar to the East. Its builders in the 13th century correctly determined the axis of the sunset to the ground plan of the cathedral and adjusted the layout of the church so that in the time of the vernal and autumnal equinox the sunbeam during the sunset falls through the biggest window in the Western front directly on the symbolic heart of a sacred building – the main altar. The current cathedral in which the game of lights penetrates with numerological and ground plan symbolism, was built by architect Jan Blažej Santini Aichl, master of baroque gothic.

#### Aim of the case study

This case study gives an example of a very creative interpretation of one of intangible astronomic features – equinox.

The case study will teach students how to interpret natural attractions which are short-term, passing and whose visibility depends on the weather at the moment of the visit.

#### Introduction and background information

Thanks to its sophisticated structure, the visitors to the cathedral can watch one exceptional astronomic feature – equinox. It is a moment when the Sun crosses the Earth's equator and so its beams fall on the Earth vertically to its axis. The day and night are equally long. The sun rises exactly in the East and sets exactly in the West (viewed on the horizon at 0m above the sea level). There are two equinoxes in a year.

Spring equinox is on March 20 and 21, on the Northern hemisphere represents the change from astronomic winter into spring. Autumn equinox is on September 22 and 23 when summer changes into autumn.

Equinox used to be an important date. Some cultures used to base their calendar on it and determined the beginning of the year. The transient date of Christian and Jewish Eastern still depends on it.

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## Interpretation of equinox

In the cathedral of the Assumption of Our Lady in Sedlec on the day of the equinox in March and September, the sunbeams enter the church nave through a 14m western window and slowly travel through the whole presbytery, and finally illuminate the main altar.

This interesting feature initiated the idea to open the cathedral to the public on the days of equinox and to give visitors the opportunity to watch the movement of the sun beam in person. This gave rise to the event called “Equinox in Sedlec cathedral” which has been organized here since 2011. As nobody can rely on the sunshine on the equinox day, the event is always connected with some musical or other cultural experience to give the visitors opportunity to enjoy the visit even in case the sun does not show them the imaginativeness and skill of the builders of Sedlec cathedral.

Each year the event has a different theme:

- 2011 – Visitors could watch the pilgrimage of the sun’s rays while listening to passages from the Holy Scriptures – the Bible.
- 2012 – Music and singing by Irena Budweiserová and Miroslav Linka.
- 2013 – Singing of Byzantine and Old Slavonic chants performed by the Byzantion ensemble.
- 2014 – Concert of the band Oboroh.
- 2015 – Concert of the group Paprsky.
- 2016 – Concert of Touch of Gospel ensemble.
- 2017 – Concert of the early music ensemble Cantica.
- 2018 – Concert of Prague Cello Quartet.
- 2019 – Musica Poetica concert.
- 2020 – Due to restrictions against the spread of COVID-19, the festival was not held.
- 2021 – Due to the epidemiological situation, the celebration was held in an online environment, during the transmission of the ray’s journey through the cathedral there was a group of recitations, organ music and singing.
- 2022 – Concert of the chamber choir Vox Nymburgensis, a temporary exhibition of abstract paintings by Veronika Mokrošová, with a symbolic name of the exhibition Equinox. (Sedlec římskokatolická farnost, 2023)

Since 2014 the Equinox celebration has become a part of solidarity projects with people who need help, and it is also a charity event. The money raised from the voluntary entrance fee is sent to organizations in social field in Kutná Hora region.

Visitors to the cathedral in Sedlec can witness the moment when after centuries the master architects have shaken hands with the universe, time, and light. The moment resembling a miracle comes twice a year, on the day of the vernal and autumnal equinox. The sunbeam flowing through the cathedral is accompanied by musical or other artistic production, e.g., live painting. The interpretation benefits from a strong emotional experience by linking an astronomical feature with a piece of art of the past and presence.

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## Conclusion

The case study provides an example of a very interesting and creative form of interpretation, which can also inspire managers of other types of monuments and attractions.

### 4.9.5 Further Reading

PORTAL TO THE HERITAGE OF ASTRONOMY, UNESCO: <https://www3.astronomicalheritage.net/>

### 4.9.6 Points for Discussion and Questions

1. Suggest a main theme and content of the accompanying programme for the future years.
2. Which particular attractions could use this interpretation concept?
3. What makes the interpretation style used in Sedlec cathedral exceptionally efficient?

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CONCLUSION

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Although it is the second smallest continent on the planet, Europe's nature heritage is very rich and diverse. Attractive natural sites, valuable natural landscape areas and cultural landscapes are important tourist destinations attracting millions of tourists every year. However, in a dramatically changing world with a growing demand for resources, nature is under threat in multiple ways. One of these ways is the development of tourism in general and nature-based tourism, both of which increase the risk of damage and destruction of important natural resources. On the one hand tourism provides benefits for economic growth and lives of local communities, but on the other hand overtourism, when there are too many visitors to a destination, can seriously damage our nature heritage. In addition, changes in the habits of travellers caused by the COVID-19 pandemic have driven up interest in visiting natural sites and as a result local tourism has substantially grown. This growth in visitor number and sometimes insensitive behaviour results in overtourism and generates an excessive burden for many nature destinations.

Preservation of nature heritage, an increase in the awareness of its values and vulnerability, plus support for opportunities for sustainable growth have become basic goals of many European initiatives. Interpretation of nature heritage in tourism is thus a very important topic.

Development of nature-based tourism, which is an important growing segment of European tourism, means a steadily growing challenge for nature tourism interpretation. The process of seeking effective methods of nature heritage interpretation which would appeal to different visitor segments, is not always easy. Successful interpretation generates in the visitor appreciation of values of nature heritage and interest in their protection. It facilitates experiences and creates a long-term relationship between nature heritage, the destination visited, its residents and a visitor.

A well-developed interpretation of nature heritage gives the visitors an opportunity to appreciate the natural values of the region visited and to understand these values in a broader context and in relation to the lives of local residents. Thanks to interpretation, visitors can develop their relationship to the destination itself, its people, and its cultural and nature heritages, which often overlap. Methods of nature heritage interpretation play a role in the creation of a visitor's experience. Therefore, adequate attention should be paid to interpretation development and its implementation.

This monograph examines the current methods of nature heritage interpretation in tourism and describes the specifics of nature heritage interpretation. It expounds upon the theory of nature heritage interpretation and provides many examples of good practice of interpretation at various types of nature heritage sites. The didactic material is based on case studies, with accompanying complementary questions for discussion and links to further reading. This basic text is complemented with podcasts and videos facilitating authentic examples of in-situ interpretation with experts from the industry.

We believe this book will help to build awareness of the importance of nature heritage interpretation in tourism and its important role in the protection of nature values.

This didactic material is designed particularly, but not only, for university students in programmes covering tourism. A brief overview of basic information on nature heritage interpretation in tourism can be found in the follow-up material called Guidelines (Interpretation of European nature heritage in tourism – Guidelines for professionals

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in tourism) whose target group are professionals working in the tourism industry and connected fields.

This book is the output of the international project “Methodology of Interpretation of European Nature Heritage in Tourism” (MIENAT) funded by the EU Erasmus+ programme.

More than 30 experts from 8 universities in different European countries participated in this project and prepared this monograph. Thanks to this, we have been able to investigate the topic of nature heritage interpretation thoroughly in an international context.

The authors of this book have been specialized in the topic of cultural and nature heritage for many years and are open to new ideas and cooperation in this field.

A full-page background image of a majestic mountain range. In the foreground, a small, white, two-story building with a red roof sits on a rocky, sparsely vegetated slope. Behind it, towering, jagged rock peaks rise steeply into a sky filled with soft, white clouds. The lighting suggests a bright day, with shadows highlighting the textures of the rock faces.

# GLOSSARY

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**ABC Model** – The ABC model is a framework used in environmental and ecological studies to categorize the components of an ecosystem into three main groups: abiotic, biotic, and cultural.

Abiotic components are the non-living physical and chemical factors of an ecosystem, such as water, air, temperature, light, and soil.

Biotic components are the living organisms within an ecosystem, such as plants, animals, and microorganisms.

Cultural components are the human-made factors that impact an ecosystem, such as land use, pollution, and resource management.

The ABC model is used to understand how these different components interact and affect each other within an ecosystem, and how human activities can impact the balance of an ecosystem.

**Actionbound** – Mobile adventures and interactive guides for smartphones and tablets: <https://en.actionbound.com/?setlang>.

**Affective goals of interpretation** – To raise interest of potential visitors, to increase positive relationship to the place visited, to increase satisfaction.

**Balneology** – Therapeutic use of baths.

**Balance of payments** – The total difference between money and payments flowing into a country and flowing out of the same country.

**Behaviour goals of interpretation** – Engagement of visitors, change in the behaviour of visitors to respect sustainable principles during their visit.

**Biological and cultural diversity** – They represent a closely woven net of relationships, the essence of culture and people's identity. "Cultural landscapes are a focus of protected areas in a larger ecosystem context, and they are a symbol of the growing recognition of the fundamental links between local communities and their heritage, humankind, and its natural environment" (Rössler, 2006, p. 334).

**Biosphere reserve** – Natural area created to protect diversity specific species and their natural habitat.

**Blue tourism** – Tourism and its activities connected with water.

**Blueway** – A network of water ways offering the infrastructure for recreational water activities.

**Brand** – "A collection of perceptions held in the minds of the consumer" (Fournier 1998, p. 345).

**Carrying capacity of a destination** – Ability of a destination to absorb a certain number of visitors without deteriorating its values and lives of local people.

**Caves** – Unique environments characterized by a lack of light, high humidity, and stable temperatures.

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**Coastal landscape** – Area bridging the land and the sea with the key characteristic of being rich in biodiversity, inanimate nature, and natural heritage (Lal Mukherjee, 2020).

**Co-creation interpretation** – In the context of tourism, co-creation is a collaborative initiative between companies and tourists enabling the joint creation of services and experiences; thus, appealing to the tourist's personal needs and widening the process via the inclusion of the client's personal and social capital.

**Cognitive goals of interpretation** – To understand the value of the site, to encourage visitors to learn more about the site.

**Cultural landscape** – Cultural landscapes are at the interface between nature and culture, tangible and intangible heritage.

**Cyclo-tourism** – Also known as bicycle tourism; a type of tourism that involves traveling by bicycle. This can include day trips, multi-day excursions, and longer, cross-country journeys. Cyclo-tourism is considered a sustainable form of tourism as it reduces the carbon footprint and has a low impact on the environment and local communities. Additionally, it provides an opportunity for the tourists to experience the local culture and interact with the local people in a more intimate way.

**Dark sky tourism** – A type of tourism that focuses on night-time activities, with a special emphasis on avoiding light contamination which is prevalent in many urban areas, and includes activities such as moon-bathing, nocturnal creature guided tours, star watching, meteorite tracking and artistic events.

**Delta** – Small shore protuberances where rivers flow into oceans, seas, lakes, lagoons, which form sediments faster than if redistributed through basal processes (Elliott, 1986). It is usually a low, flat, very wet triangular piece of land, where a river is divided in multiple branches before it reaches the sea.

**Destination management** – Helps to co-ordinate different stakeholders to achieve a well-managed, visitor destination, considering all the different social, economic, cultural and environmental risks and opportunities.

**Destination network** – Collaboration of tourism businesses within a region that coordinates the management and promotion of a destination to enhance the attractiveness of the region for visitors and ensure mutual benefits for all participants in the network.

**Eco-tourism** – “Responsible travel to natural areas that conserves the environment, sustains the well-being of the local people, and involves interpretation and education” (TIES, 2015). It aims at linking individuals, communities and the environment in areas such as sustainable travelling.

**Emerging Markets** – Countries that have some of the features of developed economies but lack some other features. This includes countries that are gradually/rapidly becoming more developed, with more diverse sectors of the economy, have widespread trade with other countries, use some advanced technologies, and participate in different international economic and financial bodies.

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**Ex-situ interpretation** – Interpretation held e.g., in interpretation centres but not at the attraction itself.

**Fumarole** – Hole or vent in the Earth's surface through which gases and steam escape from a volcano or a geothermal area.

**Geyser** – A hot spring exploding into a tall column of water with steam.

**Geopark** – “Territories with particular geological heritage and sustainable territorial development. They are areas of interest for scientific research and education but also aim to provide the necessary conditions for development of natural and cultural tourism“ (Nikolova and Sinnyovsky, 2019:141).

**Global Geoparks Network** – A network of geoparks operating in association with the United Nations Educational, Scientific and Cultural Organization (UNESCO). It currently consists of 169 members in over 44 states throughout the world.

**Geosite** – Location that has significant geological, geomorphological, or geo-heritage value. It can be a natural feature, such as a volcano, a rock formation, a cave, or a mineral deposit, or it can be a man-made feature, such as a mine, a quarry, or a historic geological site.

**Geotourism** – Sustainable tourism that focuses on the unique geological and earth science features of a destination. This can include natural features such as mountains, valleys, caves, hot springs, and volcanic landscapes, as well as man-made features such as mines, quarries, and historic geological sites.

**Geotourist** – Visitors to geotourism sites with varying degrees of interest.

**Greenway** – A path through rural landscape used for recreational purposes or environmental protection.

**Hard adventure** – Physically challenging and risky activity of a visitor.

**In-situ interpretation** – Interpretation is held on the site.

**Hydrology** – Science about the water of the Earth

**Interpretation** – Explaining the meaning of something.

**Limits of Acceptable Change** – Man-made changes in the nature, that are still considered reasonable in view of tourism development and nature protection.

**Marketing** – Business activity referring to activities a company carries out to promote the buying or selling of a product or service.

**National Park** – A national park is an instrument used globally to permanently preserve unique landscapes and habitats for rare and endangered animal and plant species.

**Nature-based tourism** – Visitors want to enjoy wildlife and remote natural areas.

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**Nature heritage/natural heritage** – Natural features and geological formations of a value that is worth maintaining, natural habitat for protected animals and plants.

**Nature trail** – A short, often loop-type trail (starting and finishing at the same point) which has been made specifically to interpret the nature of an area (A starter guide to developing sustainable tourism in protected areas, Latvia, 2012).

**Network** – A group of firms who have sets of interdependent relationships that bind them together, providing access to resources such as knowledge, power, and capital (Elfring & Hulsink, 2003; Grandori & Soda, 1995).

**Non-personal interpretation** – Interpretation delivered through various media – posters, leaflets, boards, audio-guides, VR, etc.

**Observation tower** – A structure commanding a wide view of its surroundings.

**Over-interpretation** – In tourism refers to the process of excessive or misleading interpretation of cultural, historical, or natural sites and attractions, which is often done for commercial purposes.

**Overtourism** – Where an area (often a city or a specific attraction) is visited by large numbers of tourists, and in ways that augment their impact, creating negative effects for the place and its inhabitants.

**Personal interpretation** – Interpretation delivered to visitors by a guide.

**Protected Area** – “A clearly defined geographical space, recognised, dedicated and managed, through legal or other effective means, to achieve the long-term conservation of nature with associated ecosystem services and cultural values” (IUCN, 2022).

**Tilden's Principles** – Freeman Tilden's theory of interpretation of cultural and natural heritage (first published in his 1957 book “Interpreting Our Heritage”). With his principle “Through interpretation, understanding; through understanding, appreciation; through appreciation, protection” (Tilden, 2009, p. 38). He is considered a pioneer of a comprehensive approach to interpretation.

**Protected area** – “A clearly defined geographical space, recognized, dedicated and managed, through legal or other effective means, to achieve the long-term conservation of nature with associated ecosystem services and cultural values” (International Union for Conservation of Nature).

**Protected natural area** – Land and/or water area with wildlife (animals and plants) and bio-geographical, landscape, geological, paleontological, speleological or other types of culturally, scientifically, and ecologically valuable elements, protected and preserved through special regulations and provisions (The law 49/2011 from Romania regarding the regime of natural protected areas, conservation of natural habitats, flora and fauna).

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**Public agency** – A state or any regional and local subdivision of any state or local department, agency, or board. In the context of tourism, it refers to all the national and local departments that manage the tourism industry in the sense of planning, advertising, funding and other activities, for example, the local authorities.

**Ramsar Convention** – Convention on wetlands.

**Regional Nature Park** – A government recognised or government-designated protected area that has the objective of protecting nature and landscapes, especially those landscapes that are characterised by long-term human use (cultural landscapes), with their diverse species and habitats (Living Landscapes, 2017, p. 8).

**Regional park** – A territory where the landscape and cultural values characteristic of that region are protected. Economic activities of people are limited here, and the efforts are made combining them with nature protection. As well, regional park can be understood as an idea and as regional development strategy.

**Segmentation** – Dividing of something into smaller and distinct parts.

**Stakeholder** – People and entities who are positively or negatively impacted by the activities, operations, and processes of an organisation. They are often categorized as internal (people within the organisation) and external (people outside the organisation). Refers not only to people but can also include the environment, governments or local authorities, future generations, and cultural identities.

**Soft adventure** – Light or moderate level of visitor's physical involvement.

**Therapeutic landscape** – Environment contributing to healing power of the space.

**The total economic value (TEV) of nature** (or a particular object of nature) – Consists of the values of the direct, indirect and option use, which together constitute the use value, and the bequest and existence values, which constitute the non-use value of nature heritage goods.

**Water footprint** – An indicator of water use.

**Wildlife** – Living things and especially mammals, birds, and fishes that are neither human nor domesticated (Webster Dictionary) – animals and plants that grow independently of people, usually in natural conditions. (Cambridge Dictionary).

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# PARTICIPATING UNIVERSITIES AND THEIR ACADEMIC TEAMS

The Prague University of Economics and Business (CZ) was the coordinator of the “Methodology of Interpretation of European Nature Heritage in Tourism” project nr. 2020-1-CZ01-KA203-078407 co-funded by Erasmus+ Programme of the European Union.

Other universities participating in the project were:

- D Fachhochschule des Mittelstands, Schwerin
- A University of Applied Sciences – Fachhochschule Burgenland, Eisenstadt
- LT Vytautas Magnus University, Kaunas
- IR Munster Technological University, Cork
- PT University of Porto
- RO University Alexandru Ioan Cuza of Iași
- SP Universidad Europea de Madrid

Prague University of Economics and Business (VŠE), founded in 1953, is a major public university of economics in the Czech Republic. It is divided into 6 faculties offering a wide range of bachelor, master, postgraduate and MBA study programmes. The form of the study is based on the European system of credit transfer and accumulation (ECTS). Currently, there are more than 13,000 students studying at the VŠE, about 600 qualified academics and many experts from the industry. The links between the university and industry are very close, many experts from the industry teach or give lectures or presentations at the university. VŠE alumni are very successful in the labour market and have important positions both in the public and private sectors.

The university has a high reputation in our country and abroad. In the Financial Times evaluation and Eduniversal Ranking project it is regularly ranked among the best “business schools” in Central and East Europe. The VŠE is successfully engaged in international cooperation. It cooperates with more than 250 partner universities on four continents. More than 1000 students are sent to study abroad every year and a similar number of exchange students come to our university. The VŠE is a member of many international organisations and the network of universities, e.g., the CEMS (Global Alliance in Management Education) and PIM (Partnership in International Management).



**Liběna Jarolímková, Ing., Ph.D.** was a coordinator of this MIENAT project. She is the deputy head of the Department of Tourism at the faculty of International Relations of the University of Economics in Prague. In her pedagogical and research activity she specializes in trends of world tourism and the position of the Czech Republic in the international tourism market, and in the methodology of professional education in the field of tourism. She gives lectures at international conferences in the Czech Republic and abroad. She has written several monographs, university textbooks and professional articles in the topic of tourism. She participates in international projects oriented at modernisation of professional education and training of experts in the tourism industry. She is a member of a prestigious international organisation of experts in tourism AIEST (International Association of Scientific Experts in Tourism).



**Zuzana Míšková, PhDr.** graduated from Charles University, Prague in 1984. She is a senior lecturer at the University of Economics and Business in Prague, where she works in English and Tourism departments. Her specialization is Business English, more specifically English for the tourism industry. Her main interest is methodology of teaching ESP with respect to intercultural differences in doing international business. She teaches in courses focused on the position of tourism of the Czech Republic in the international market and on sustainable tourism development mainly for exchange students. As a team member, she has been involved in several international Erasmus+ projects specialized in tourism. Zuzana Míšková is the author of the textbook English for the Tourism Industry and several articles in international journals.



Staatlich anerkannte, private  
**Fachhochschule des  
Mittelstands (FHM)**

# Fachhochschule des Mittelstands (FHM)

The Fachhochschule des Mittelstands (FHM) is a private and state-approved University of Applied Sciences. FHM was founded in 2000 by medium-sized enterprises and educational institutions. Since then, it has developed into one of the most successful private universities in Germany and established itself as a dependable partner of medium-sized enterprises. FHM's goal is to provide students with necessary theoretical and hands-on skills for their later business career. The FHM educates young, talented managerial candidates. The programmes on offer include internationally recognised Bachelor and Master programmes as well as Top-Up study programmes within the areas of Economics, Media, Communication, HR, Health, and Social Work. The concept of the FHM includes a large focus on practical, career orientation, individual tutoring, and small group sizes. Founding partners of FHM are organizations which on an international scale have been for many years successfully supporting and promoting small and medium-sized enterprises. The central campus of the Fachhochschule des Mittelstands (FHM) is located in the centre of Bielefeld. In addition to the central campus there are nine further locations in Bamberg, Berlin, Düren, Hannover, Frechen, Cologne, Rostock, Schwerin and Waldshut as well as an Online-University. The Fachhochschule des Mittelstands (FHM) focuses on applied research and practical economic research as a partner of the SMEs. Based on this general principle the FHM engages in scientific studies and research projects aimed at those fields which have a particular relevance for SMEs or are of particular, direct use for SMEs companies. As a result, a substantial proportion of FHM research projects are financed through third party investment and endowed professorships. The transfer of knowledge from the campus to industry is assured through publications from the FHM publishing house or external educational publishing houses, through open workshops, congresses, and further education seminars. The university's own institutes add to the large amount of significant, applied research produced by the Fachhochschule des Mittelstands (FHM) for industry. The Science Council of the Republic of Germany recognised the Fachhochschule des Mittelstands (FHM), as part of its assessment process for institutional accreditation in July 2007, for its impressive performance in the field of applied research.



**Valerie Isabel Elss M.Sc.** was a research assistant and project manager in various tourism-related and psychological projects at the Fachhochschule des Mittelstands (FHM). As a PhD student she is researching in the context of stereotypes and their effects on decision-making processes (e.g. in the context of family law psychological expert opinions). Currently, in addition to her side job at the FHM, she works as a day-care centre and school development planner for the state capital Schwerin (e.g. forecasts regarding new development areas, creation of spatial concepts).



**Prof. Dr. habil. Silke Pfeiffer** studied primary school education, German language and literature studies as well as philosophy. She earned her doctorate in the field of philosophy didactics at the University of Rostock and completed her habilitation on comparative educational science issues at the University of Oldenburg. She has taught for many years as a teacher in different types of schools and has been active in adult education at various colleges and universities for about 20 years. For 11 years she has been the scientific director of the Fachhochschule des Mittelstands (in Rostock). She has published numerous books and articles on pedagogical, philosophical and educational science topics.



**Emy Kurz B.Sc.** has been studying psychology at the Fachhochschule des Mittelstandes (FHM) Bielefeld since October 2019. She graduated with a Bachelor's degree in September 2022 and is now continuing her studies in the Master's programme. As part of her studies, she underwent a twelve-week internship with lecturer Valerie Elss M.Sc. in 2021. During the internship, Emy worked on the MIENAT project, among other things.

The University of Applied Sciences Burgenland has been offering degree programmes that combine theoretically guided research and practice-oriented teaching for 30 years. Founded in 1993, it is a highly reputable institution that prides itself in having an employment rate of 99% and more than 5,000 graduates in senior positions.

The University's R&D activities take place at its two campuses in Pinkafeld and Eisenstadt. At both sites research staff closely collaborate with Forschung Burgenland, a 100% research subsidiary of the University of Applied Sciences Burgenland. Currently, the University is involved in more than 100 research and consulting projects, generating an overall volume of 5 million euros. Research activities range from large international projects involving up to 100 partners to smaller, on-demand research projects.

In addition to its wide range of research projects, the University of Applied Sciences Burgenland also strives to increase public awareness for the outcomes of research, such as employment in the region, the economic impact of research and the increase of a region's value by interweaving research with higher education and the local economy in order to boost its innovation power.

Research in the Department of Business Studies falls into three main areas: (1) Central and Eastern European business relations, (2) user and consumer research (3) sustainability in business.



**Verena Liszt-Rohlf** is Senior Researcher in the Department of Business Studies at the University of Applied Sciences Burgenland, where she is mainly in charge of multi-channel biometric research, eye tracking and project work, both on a European and a national level. She started her academic career at the University of Graz (Karl-Franzens-Universität Graz), from which she received an MA in Business Administration and Business Education before completing a PhD in Business Education.

Verena gained first project experience at Graz, where she was involved in the organisation and hosting of a conference and in the publication of a monograph. In the following nine years, she held various research positions at universities in Germany, allowing her to gain experience in setting up new institutes and online teaching at the private and predominantly online teaching-based University of Applied Sciences in Lahr/Stuttgart. There she had already taken over and completed EU-funded projects. She led EU-funded follow-up projects with this consortium at the University of Paderborn. At the University of Kassel she worked on research and publication projects, supervised the publication of a journal and expanded her expertise in entrepreneurship education research in the context of mainly national projects.



**Marcus Wieschhoff** is Professor of Marketing in the Department of Business Studies at the University of Applied Sciences Burgenland. He is also Programme Director for the MA in International Wine Marketing. Marcus completed a degree in Political Science, English Literature and International Law at the University of Bonn, Germany, and the University of California, Berkeley before receiving an MA in Southeast Asian Studies from the University of Hull, UK. After a career as an international civil servant with the United Nations, he obtained a Bachelor's degree in International Wine Management from the University of Applied Sciences Burgenland. He started a career in consulting and retail before returning to academia as Programme Director.

His research interests include marketing, consumer behaviour, pricing strategies and management techniques. He was a visiting lecturer at the University of Natural Resources and Life Sciences, Vienna, and also taught at the University of Economics, Prague.



**Manuela Kovalev** is Professor of Intercultural Communication and Foreign Languages at the University of Applied Sciences Burgenland, conducting research and teaching a range of courses in the Department of Business Studies. Prior to joining the University of Applied Sciences Burgenland, she was a lecturer at the University of Graz (Slavonic Studies) and a teaching fellow at the Centre of Translation Studies in Vienna. She also held a lecturer position at the University of Manchester, UK, teaching a wide range of courses at the School of Arts, Languages and Cultures. Manuela has a PhD in Russian Studies from the University of Manchester and a Master's degree in Specialised Translation from the University of Surrey. She also completed a Master's degree in combined Russian Studies and English Literature at the University of Vienna. She has extensive experience as an editor and project manager and was a business journalist for the English-language newspaper The St. Petersburg Times (Russia) before starting her career in academia.

Her research interests include (linguistic) cultural diversity and inclusion, as well as international business communication. She has published a number of peer-reviewed journal articles and has presented at national and international conferences and workshops.



**Michael Gruber** works in the marketing department at the University of Applied Sciences Burgenland and is responsible for the technical implementation and design of video, image and sound material. After studying communication and history at the University of Vienna, he completed technical and creative training at the School of Audio Engineering in Vienna and began his career as an editor at Austrian television stations. His activities included the design of news reports and features, color grading of television productions as well as directing. Together with his colleague Alexander Schöller, he supervises the media centre at the University of Applied Sciences Burgenland and holds a course in media design.



VYTAUTAS  
MAGNUS  
UNIVERSITY  
M C M X I I

# Vytautas Magnus University (VMU)

What distinguishes Vytautas Magnus University (VMU) is our visionary approach towards organising studies, scientific research and academic community life. Scholars from Lithuania and abroad who participated in the reestablishment of VMU in 1989 have also defined our principles, which we have been following ever since: a commitment to foster a liberal and democratic learning environment, emphasising the importance of aesthetics, honesty, tolerance and independent thought. We promote these ideals while nurturing creativity, academic progress and cultural identity within our community. VMU is a comprehensive university devoted to excellence in teaching, learning, research, arts and innovation, and fostering critical thinking, imaginative response as well as the desire and capacity for lifelong learning of our students who will have an impact on the world, locally and globally.

VMU has a reputation as a university with a globally oriented, free-spirited, liberal mindset. The time spent at VMU is a formative step in the lives of our students, facilitating not only career opportunities but also personal growth, strength of character and a sense of self-fulfilment. Studying at VMU means obtaining an all-round education conveying core competencies and abilities such as a broader understanding of global issues and society, the capacity for problem analysis and critical thinking, a spirit of inquisitiveness enabling one to adapt to new knowledge and promoting an attitude of lifelong learning, all of which empower one to make informed judgements as an individual and act confidently as a leader.



**Rasa Pranskuniene** was a Lithuanian team leader for the MIENAT project. Assoc. prof. dr. at the Department of Business and Rural Development Management, Faculty of Bioeconomy Development, Vytautas Magnus University and the head of Vytautas Magnus University Agriculture Academy museum. Main research fields: Museum education, Smart tourism, Nature tourism, Sustainable tourism management, Cultural education and management, Heritage, Interactivity, Grounded theory, Qualitative research methods, Critical theory. Rasa is the member of international research associations: ICOM CECA Network of Researchers; Association of Critical Heritage Studies (ACHS); LERA, Lithuanian Educational Research Association, LERA is a member of the European Educational Research Association (EERA), the Global Sustainable Tourism Council (GSTC).



**Anastasija Novikova** Assoc. prof. dr. at the Department of Applied Economics, Finance and Accounting, Faculty of Bioeconomy Development, Vytautas Magnus University. Main research fields: Economic valuation of agroecosystem services, with the focus on assessment on non-market values. Completed the Post doc internship supported by 2014–2020 Operational Programme for the European Union Funds Investments in Lithuania: Promotion of Post-Doctoral Fellowships. The topic: Integrated evaluation of the impact of farming systems on agricultural outputs. Implementer of the COST action “Safety Culture and risk Management in Agriculture”, 2016–2021. At present, the implementer of Horizon Europe project Strengthening Farm Health and Safety Knowledge and Innovation Systems.

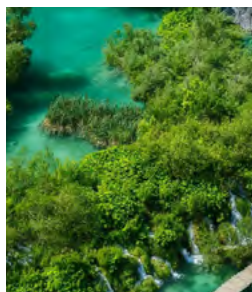


# Munster Technological University (MTU)

Munster Technological University is a multi-campus technological university, contributing to the region through the provision of academic programmes that support student development and opportunities, education and research. MTU has an extensive and impressive regional footprint with six campuses across the South-West region in Cork and Kerry, and a student body of 18,000.

The MTU strategy places a major emphasis on delivering outstanding learner education and experience to produce work-ready graduates; increasing investment in MTU's staff and the communities within which MTU is embedded; achieving significant growth and impact across MTU's research, innovation and entrepreneurship ecosystem; leading regional development; and adopting a global outlook across all of MTU's activities.

To achieve these strategic outcomes, MTU has identified key strategic enablers which will ensure the ongoing success of the University. These are the proactive pursuit of equality, diversity and inclusion principles across all of MTU's activities; continuous focus on sustainability and alignment with UN sustainable development goals; collective commitment to a multi-campus technological university; investment in enhanced digital infrastructure and capabilities; and development of state-of-the art physical infrastructure and capabilities across MTU's campuses.



**Dr. Ana Cruz García** – BA (University of Granada, Spain), BBus (MTU), MA (UCC), PhD. I completed a BA in Modern Languages (English, French and Italian) at the University of Granada, Spain in 1999. In 2001 I graduated from UCC with an MA and in 2007 with a PhD in the field of Gender Studies in Latin American literature. In UCC I was a member of the Dept. of Spanish, Portuguese and Latin American Studies until 2008 and I published on the topic of Women Writing (mainly my book that can be translated as (De)generating identities: The Figure of the Madwomen in Women Writing in Mexico). I have also published on the topics of Latin American cinema. Since 2007 I am a lecturer in Spanish language and cultures in Munster Technological University. Here I also undertook a degree in Business Studies and Management and since then I supervise in the MA in International Business. I'm also an active researcher for the Hincks Centre for Entrepreneurship Excellence with Erasmus+ project related to entrepreneurship and particularly women and migrant entrepreneurship. I have published in this area in peer-reviewed international journals. I am also involved in other Erasmus+ projects related to Tourism, Sustainability and Interpretation. My current research interests include language and cultures, gender studies, artistic visual representations (mainly cinema) and business (particularly entrepreneurship and tourism)



**Dr. Aisling Ward** – BBUS (University of Limerick, Ireland), MA in International Tourism (University of Limerick, Ireland), PhD (University of Limerick, Ireland). MTU Cork – Senior Lecturer in the department of tourism and hospitality. Expertise is in the area of the Consumer Behaviour and in particular within the field of tourism. Research interests are in the development of sustainable tourism experiences reflecting changing tourist behaviours, regenerative tourism in rural and coastal regions as well as tourism accessibility and inclusivity. Lead researcher on the SMP (COSME) funded project CE4RT (Circular Economy for Regenerative Tourism) in which MTU are the lead partner which focusses on providing direct support to rural tourism SMEs on the implementation of sustainable and regenerative tourism practices. Key role in research into the development, implementation and measurement of regenerative tourism governance, participating on international panels and workshops. Researcher on MTU team on Erasmus+ KA2 project titled Methodology of Interpretation of European Nature Heritage in Tourism (MIENAT). Key member of MTU Tourism Research unit in the development of funding proposals under Interreg NWE and AA. Track record includes a PhD (UL, 2006) on devising a segmentation model based on the tourist behaviour of the silver market with research published in international peer reviewed journal. Expertise in research supervising at Masters and PhD level.



**Shirley Millar** – BA (HONS), University of Gloucester, UK; MBUS (MTU) is a lecturer in the department of Tourism and Hospitality at Munster Technological University, Cork. Her subject areas include tourism and hospitality entrepreneurship, social entrepreneurship and practical hospitality skills. She is also currently supervising undergraduate dissertation students in tourism and hospitality with recent topics include the sharing economy, smart tourism and over tourism. Shirley holds an MBus by research on corporate social responsibility in Irish Hotels. Her current research areas of interest are social entrepreneurship, regenerative tourism and the circular economy and is part of the Circular Economy for Regenerative Tourism research team at MTU.



**Ursula O' Donnell** – MA in International Tourism (University of Limerick, Ireland) is a lecturer in the Department of Tourism and Hospitality, in Munster Technological University, Cork, Ireland. She lectures in the following areas: Economics, Tourism Geography, Marketing, Airline studies, Intercultural Tourism Studies, Visitor Attraction Management and Aviation Management. Her MA Thesis was based on “An economic evaluation of the cruise tourism industry to Ireland”. She is the Erasmus coordinator for the Tourism and Hospitality Department in MTU.



**Dr Noel Murray** is Head of Department of Tourism & Hospitality at Munster Technological University (MTU). He is the Irish representative on the European Association of Tourism & Hotel Schools (AEHT) and sits on the National Consortium Steering Group (CSG) for Culinary Apprenticeships at Higher Education in Ireland. He is Membership Officer of the Irish Academy of Management and co-leads a research team focusing on the Circular Economy for Regenerative Tourism at MTU. His research interests include entrepreneurship, marketing, and strategic management, and he has presented his research at over 15 conferences both nationally, and internationally. His research has been published in high impact journals including Tourism Management, the Journal of Marketing Management, and Industrial Marketing Management. He has supervised a research masters and a PhD to completion in the areas of family business professionalisation, and social media brand participation, and is currently co-supervising PhD studies in the areas of the impact of smart destination image on tourist motivation and satisfaction; factors that motivate tourists while in-destination, and industry 4.0 implementation management.

The University of Porto is a public higher education institution founded in 1911 located in Porto, Portugal. It offers undergraduate, graduate, and research programs in a wide range of fields, including sciences, engineering, medicine, arts, social sciences, and humanities. With over 36,000 students (18% international students) and 3,400 teaching staff and researchers, it is recognised nationally and internationally for its academic and scientific excellence. The University of Porto is one of the largest Science producers in Portugal, authoring 24% of the scientific citable articles published. Porto University has 14 faculties and a business school, as well as research centres and business incubators that support entrepreneurship and innovation. The University of Porto also has partnerships with various international institutions, providing opportunities for academic exchange and joint research projects.



**Pedro Manuel** is an associate Professor with habilitation at University of Porto, School of Economics. Ph.D. at UMIST, United Kingdom (2003); M.A., University of Porto. My research focus is on consumer psychology applied to tourism, retailing and digital. I am author, co-author and editor of several books and chapters as well as more than 70 articles published in journals and conferences devoted to marketing, consumer psychology, tourism and communication. I teach consumer psychology, marketing, sales management, tourism marketing – in undergraduate, post-graduate and Ph.D. programs. I created the Master of Sales Management at School of Economics and four Postgraduation programs in business management at Porto Business School. I am board member of Digital Media Ph.D. program co-managed with Texas-Austin University. Supervisions: Master thesis – 169 students completed; Ph.D. – 13 finalized + 7 in progress; PostDoc – 5 finalized + 1 in progress Senior researcher at LIAAD/INESC-Tec (data analysis and artificial intelligence Lab). I've been responsible for more than 60 market research projects (tourism/hospitality, healthcare, real estate, retailing, ecommerce/digital business) to several local and multinational companies and public institutions both in EU, Africa, Asia and Brazil. Among those projects, at least 21 dealt with measuring economic and management (performance, profitability...) metrics using Quantitative analysis (multivariate and econometric modeling).



**Raquel Meneses** holds a PhD in Business Sciences and a Master's degree in Economy from the University of Porto. She has several scientific articles and book chapters published on strategy, her area of expertise. She uses both qualitative and quantitative methodologies, and recently specializes in fsQCA. She is director of the Master in Marketing on School of Economics and Management of the University of Porto. She teaches Strategy and Marketing and is the author of several pedagogical material.



**Nisrine Cherkani** is a PhD student in digital media, specializing in the intersection of technology, tourism, and management. With a proven track record in teaching and training, Nisrine has worked with students through online, face-to-face, and hybrid methodologies, and has collaborated in the development of content for several online subjects, including marketing, tourism, and personal development.

In addition to her teaching work, Nisrine has established herself as a skilled recruiter, leveraging her knowledge and experience to identify and attract top talent for international IT sourcing companies. Her expertise in training and development has also made her a sought-after independent consultant, assisting individuals and organizations in developing the skills and knowledge they need to succeed.

Recently, Nisrine has launched a podcast called “Cheertalks,” which is focused on career development. Through this platform, Nisrine shares valuable insights and advice to help individuals overcome obstacles and achieve their goals. Her thoughtful discussions cover a wide range of topics, including job hunting, networking, and personal branding.

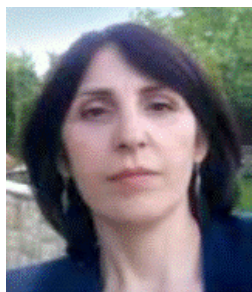


# University Alexandru Ioan Cuza of Iași (UAIC)

Alexandru Ioan Cuza University of Iasi (UAIC), the first modern university founded in Romania (in 1860), is constantly ranked 1–3 among Romanian universities in terms of research, education and institutional transparency. With over 24,000 students and 2,500 full-time staff in its 15 faculties (17,600 BA, 5,600 MA and 900 PhD students), our university's academic offer includes 80 degrees at bachelor level (11 in foreign languages), 120 master level programmes (21 in foreign languages) and 27 fields of study at the doctoral level (all offered in English as well).

Research at Alexandru Ioan Cuza University of Iasi is top level, with a large participation in national and international research projects FP7, Horizon2020, COST, biand multi-lateral joint research projects, etc.). Scientific research activities and projects are carried out both at by the Research Groups and Centres at Faculty or University level and by the Interdisciplinary Research Departments. Our teachers are involved in over 187 national and international research projects. Striving for excellence, the university takes unique initiatives to stimulate research quality, to encourage dynamic and creative education and to involve its best students in academic life.

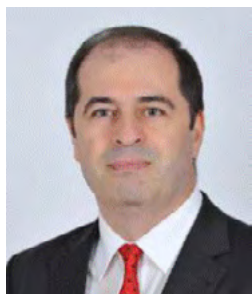
The current international cooperation of Alexandru Ioan Cuza University of Iasi includes over 652 partnerships with universities in 28 EU and 27 non-EU countries, affiliations to some of the most important university networks and associations (the Coimbra Group, the Utrecht Network, EUA, IAU and AUF) and cooperation within more than 100 inter-institutional agreements on all continents.



**Maria Tătarușanu, PhD.** († 2022) was an Associate Professor at the Faculty of Economics and Business Administration, “Alexandru Ioan Cuza” University of Iași, Romania. She taught subjects like International Tourism, Management, Interpretation of the European Cultural Heritage, Tourism and Travel Industry. Her research was focused on Tourism and Management.



**Valentin Niță, PhD.** is a Professor at the Faculty of Economics and Business Administration, “Alexandru Ioan Cuza” University of Iași, Romania. His field of expertise includes and is not limited to Tourism, Management of Tourism Events, Hotel Management and Commerce – Merchandising.



**Corneliu Iațu, PhD.** is a Professor at the Faculty of Geography and Geology, “Alexandru Ioan Cuza” University of Iași, Romania. His research and teaching experience cover areas such as: Geography and Management of Tourist Destinations, Territorial Planning and Organization, Territorial Planning, Romania’s Anthropogenic Tourism Potential.



**Elena Ciortescu, PhD.** is an Associate Professor at the Faculty of Economics and Business Administration, “Alexandru Ioan Cuza” University of Iași, Romania. She teaches Business and Legal English as well as Intercultural Communication at both Undergraduate and Master levels. As an active BESIG and IATEFL member, she is particularly interested in Business Communication, Business English Teaching, Intercultural Communication and other related fields.



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The Universidad Europea de Madrid (UEM) currently has over 14,000 students spread over its two campuses in Madrid, and offers a wide range of undergraduate, postgraduate, vocational and professional training. It has a strong international focus, with student mobility and exchanges between universities, and a campus with students from more than 80 countries. UEM has also received the European Seal of Excellence 500+ of the European Foundation for Quality Management (EFQM).

Academically it is structured into four faculties (Social Sciences and Communication; Biomedical and Health Sciences; Architecture, Engineering and Design; Physical Activity and Sports Sciences), and separate business schools. There is a specialized Vice-rector's office to deal with academic quality, coordinate research programs and oversee the different doctoral programs associated with each faculty. Excellence in research is part of UEM's commitment to society, focused on generating transferable knowledge and contributing to social progress.



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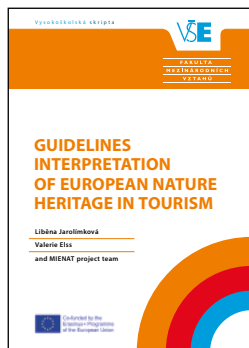
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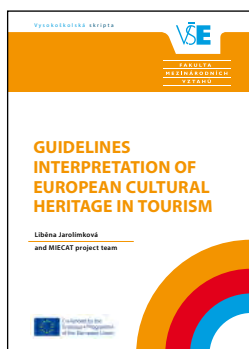
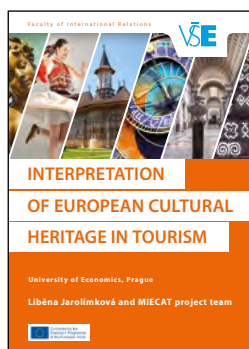
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