

## Danube GeoTour

Valorisation of Geo-Heritage for Sustainable and Innovative Tourism Development of Danube Geoparks

# STRATEGY ON MANAGEMENT TOURISM PRESSURES IN GEOPARKS

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ERDF PP9 University of Prešov  
ERDF PP10 Iron Mountains  
IPA PP1 Public Enterprise National Park Djerdap

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## List of Abbreviations

DTP	Danube Transnational Programme
LP	Lead Partner
PP	Project Partner
WP	Work Package
IRSNC	Institute of the Republic of Slovenia for Nature Conservation
GGN	Global Geoparks Network
PLA	Protected Landscape Area
ATV	All-Terrain Vehicle
SCOM	Steering Committee Meeting
CWD	Coarse Woody Debris
EGN	European Geoparks Network
SMEs	Small and Medium-Sized Enterprises
LNT	Leave No Trace



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## 1. Introduction

### 1.1 Background Information

Geoparks in Europe face a challenge: to cover management costs they have to increase the number of visitors and at the same time they have to preserve natural heritage. The trend of people recreating in the nature is increasing and that consequently increases the stress caused to the environment. The majority of visitors are not aware of the sensitivity of individual ecosystems and the stresses they cause them during their visit. Particularly problematic are visitors, who do not respect rules of behaviour. Consequently, natural parks and Geoparks have to introduce measures to limit their activities. At the same time, they have to take care to sustain high quality of visitor experience in the Geopark.

The main objective of all 8 participating Geoparks in the Danube Geo Tour Project is to improve their management capacities and strategies. Since all participating Geoparks are rather new and located in remote rural areas their need to promote themselves is expected. In the era, when visits to protected areas are on the rise, it is sensible to seize market trends for sustainable tourism development in 8 Geoparks in the Danube region. There are three basic principles that intertwine through the project: integrated territorial management, sustainable development and innovation & creativity. The Danube Geo Tour Project foresees 6 work packages (WP); representing six steps on the way to the sustainable use of rich geo-heritage and natural resources through sustainable tourism development that avoids negative environmental impacts.

An important task of the working package 3 (WP3) of the Danube Geo Tour Project was to overview recreation activities in project Geoparks (see Table 1), to determine environmental problems related to these recreation activities and to propose measures and strategies which will help participating Geoparks to avoid or at least to reduce tourism and recreation pressures. The findings of WP 3 are presented in this quality report.

Working package (WP) 3.1 was coordinated by Institute of the Republic of Slovenia for Nature Conservation (IRSNC; PP5). Collaborating project partners are all partners of Geoparks. These partners are listed in Table 1.

One of the most important criteria for Geoparks to be considered is listed in the UNESCO “Statutes of the international geoscience and Geoparks programme”:

(vii) A UNESCO Global Geopark must respect local and national laws relating to the protection of geological heritage. The defining geological heritage sites within a UNESCO Global Geopark must be legally protected in advance of any application. At the same time, a UNESCO Global Geopark should be used as leverage for promoting the protection of geological heritage locally and nationally. The management body must not participate directly in the sale of geological objects such as fossils, minerals, polished rocks and ornamental rocks of the type normally found in so-called “rock-shops” within the UNESCO Global Geopark (regardless of their origin) and should actively discourage unsustainable trade in geological materials as a whole. Where clearly justified as a responsible activity and as part of delivering the most effective and sustainable means of site management, it may permit sustainable collecting of geological materials for scientific and educational purposes from naturally renewable sites within the UNESCO Global Geopark. Trade of geological materials based on such a system may be tolerated in exceptional circumstances, provided it is clearly and publicly explained, justified and monitored as the best option for the Global Geopark in relation to local circumstances. Such circumstances will be subject to approval by the UNESCO Global Geoparks Council on a case by case basis.





Table 1 Project partners with Geoparks

Role	Text	Full Name	Acronym	Geopark	Country
LP	LP	Idrija Heritage Centre	IHC	Geopark Idrija	Slovenia
ERDF PP1	PP1	Balaton-felvidéki National Park Directorate	Balaton Geopark	Bakony-Balaton Geopark	Hungary
ERDF PP2	PP2	Styrian Eisenwurzen	Eisenwurzen Geopark	Eisenwurzen Geopark	Austria
ERDF PP3	PP3	Public Institution "Nature Park Papuk"	GeoPapuk	Geopark Papuk	Croatia
ERDF PP4	PP4	ARGE Geopark Karavanks	GeoKaravanks	Geopark Karavanks	Austria-Slovenia
ERDF PP7 <sup>1</sup>	PP7	Bohemian Paradise Geopark non-profit organization	Bohemian Geopark	Bohemian Paradise Geopark	Czech Republic
ERDF PP8	PP8	University of Bucharest	UNIB	Hateg Country Dinosaurs Geopark	Romania
ERDF PP9	PP9	University of Presov	UNIPO	Slovakian Geopark Novohrad	Slovakia
ERDF PP10	PP10	Vodni zdroje Chrodun	Iron Mountains	Železné hory Geopark	Czech Republic
IPA PP1	IPA	Public Enterprise National Park Djerdap	DNP	National Park Djerdap	Serbia

## 1.2 Methodology

The data on existing problems in the project Geoparks, that are related to recreation, were collected from project partners and literature in the first part of our study and during the brainstorming workshop that was organized as a part of the project activities (20<sup>th</sup> September 2017, Wildalpen, Austria). Discussions with the project Geopark managers revealed that at the moment recreation activities are not yet perceived as a source of severe damage caused to the Geoparks' heritage and environment. On one hand, Geoparks would like to have more visitors for the majority of recreation activities. On the other hand, the Geopark managers expect that in the following decades the majority of recreation activities in nature would become more popular and consequently at least some of them would need to be regulated to avoid environmental damage. For the Geoparks managers it will be very beneficial to have already prepared strategies at this point. Consequently, they will be able to prepare required measures in advance. Some measures (e.g. education of locals, visitors and investors) should start as soon as possible, because it takes some time to observe their effects.

During the creation of the Strategy for management of tourism pressures in Geoparks, the relationship between recreation activities and existing and potential future problems in the participating Geoparks was observed. An important part of the initial research was an overview and comparison of legislation related to recreation activities in the project Geoparks and in some cases also in nature in general. The overview had two major goals: to identify shortcomings of regulations in individual Geoparks and to get insight into the possible/required improvements of the current legislation.

The main focus was placed on the transnational comparison of the existing regulations of outdoor activities and assessment of potential future threats as well as the shortcomings of the existing legislation. This is very important as rules and guidelines in individual Geoparks must be based on the

<sup>1</sup> From 12th February 2018 there is new partner replacing Bohemian Paradise Geopark: PP 10; Iron Mountains from Czech Republic.



relevant national legislation. Without appropriate legislative foundation, Geoparks cannot establish visitor management systems, rules and limitations for visitors, as well as they cannot establish effective control mechanism and set fines.

Stages of work process in the preparation of the present Strategy contained desk research, interviews, and online surveys, benchmarking methods for conducting comparative analyses, assessments and elaborating of strategic papers and consisted of the following subsequent steps:

- Selection of relevant recreation activities in participating Geoparks and related pressures caused to natural heritage (Comparative Assessment of Tourism Pressures on Geo-Heritage of the Danube-Region Geoparks).
- Collection of data on legislation in individual participating Geoparks.
- Collection of data on shortcomings of regulations and other problems related to recreation in participating Geoparks.
- Brainstorming workshop (workshop took place during 2<sup>nd</sup> SCOM meeting of the project, 20<sup>th</sup> – 22<sup>nd</sup> September 2017, Wildalpen, Austria): discussion about existing and potential solutions required to decrease environmental pressures caused by recreation activities.
- Review of literature on management of recreation activities in sensitive areas and inclusion of relevant findings to the draft of the Strategy.
- The draft of the Strategy was discussed with experts in IRSNC and experts from Slovenian national/regional parks.
- The draft of the Strategy was sent to the project partners and to the associated partners for review and additional comments/improvements.
- The draft of the Strategy was discussed with PPs on the SCOM meeting in Romania in February 2018
- The new partner in project PP10 Iron Mountains replacing the PP7 has reviewed the draft version and has no comments on the content.
- Review of all comments and fine adjustment of the Strategy document.

During the preparation of this Strategy a huge number of data which originated from three types of sources was collected:

- The first source was an issue paper from the working package 3.1 of the Danube GeoTour Project. The paper collected data on legislation and shortcomings of recreation-related legislation in the individual project Geoparks as well as data on GGN and EGN strategies were presented. The result was an overview of legislation and its shortcomings, which enabled the authors to suggest the project Geoparks where further improvement of their legislation (and consequently management) is recommended.
- The second source was literature on management of natural parks. During the review of the literature on management of recreation in sensitive areas it turned out that there is a general lack of relevant literature in the field. There are many studies and articles dealing with impacts of individual recreation activities, approaches how to improve satisfaction of visitors and guidelines for general management of natural parks and other sensitive areas. But there is a lack of actual guidelines on how to decrease pressures caused by individual recreation activity. The most important sources were guidelines of **Leave No Trace booklets and in their program** (<https://lnt.org/>); Leave No Trace is an NGO operating in USA) and books, based on experience of national parks in USA (e.g. Managing Outdoor Recreation (Manning and Anderson 2012).
- The last sources were experiences of IRSNC on actual problems that are appearing in the environment due to individual recreation activities and some solutions that we use to limit impacts.



### 1.3 Summary

The goal of the Strategy on management of tourism pressures in Geoparks is to provide general guidelines on how to sustainably plan, manage and conduct various tourism and recreational activities and investments within Geoparks. The Strategy in its simple, short and transparent way enables the Geoparks managers to find basic answers on what to do when facing individual problem, related to recreational activities in nature. Moreover, the Strategy provides information on where to find more detailed data and explanations.

There is also a list of different national legislations regarding nature conservation which offers the possibility to find similar solution on regulation of different recreational activities in Geoparks.

An important part of the Strategy is dedicated to practical recommendations for three main target groups: residents, visitors and SMEs/investors. Recommendations are rather comprehensive so they can be localised and adapted to the concrete and specific situation of each participating Geopark. Practical recommendations are focused on preservation of geoheritage and other related natural heritage (wildlife, water bodies,..) while safety of visitors, their well-being and overall quality of their experience is not taken into account.

The document presents a reliable source of information for further management of Geoparks. Based on this Strategy and the recommendations, the Geopark managers as well as the managers of similar nature protected areas will also be able to create specific documents and instructions, that will provide detailed information for locals, visitors and investors on how properly behave when visiting (or investing in) the Geopark territory.

The document passed the independent external quality control.



## 2 Definition of Recreation Activities in Geoparks

The goal of Activity 3.1 within the working package 3 was to prepare a review of recreation activities in the project Geoparks, to evaluate their influence on geoheritage and to prepare a review of legislation on recreation activities in individual countries. Collected data would enable identification of national legislative shortcomings and suggest possible improvements of legislation in individual countries. The work was focused on tourism and recreational activities in Geoparks with a special emphasis on protected areas and Natura 2000 sites within Geoparks. Special attention was given on recreation activities that were found to be frequent or/and those with important impacts on geoheritage in at least some of the project Geoparks.

At the beginning of this activity, IRSNC prepared a list of potential recreation activities that are expected to take place in the project Geoparks. Based on this list a questionnaire for the project partners with Geoparks was prepared. The aim of the questionnaire was to gain information on the frequency of recreation activities and their impacts on geoheritage in each individual Geopark. After reviewing results IRSNC selected recreation activities that are the most significant for further consideration.

The following most significant recreation activities were induced in the research:

- a) Summer sports / tourism:
  - Visiting tourist caves
  - Visiting and exploration of non-tourist caves
  - Tourist mines
  - Collecting fossils and minerals
  - Trekking, hiking, mountaineering, running
  - Rock climbing
  - Other sport activities in nature (horse riding, paintball, orienteering, disc-golf, yoga, etc.)
  - Adrenaline parks, zip-lining
  - Exploring nature and natural environment (ornithology, photo-hunting, botanical and zoological parks, stars observation, etc.)
  - Pseudoscientific activities (radiesthesia, radionics, energetic trails, visiting energetic points in nature such as springs, megaliths, trees, caves, etc.)
  - Picnics, relaxation in natural environment
  - Picking of fruits (mushrooms, berries, chestnuts, etc.)
  - Hunting
- b) Research and education
  - Research /study – geology, palaeontology and hydrology
  - Research /study – biology, biodiversity and ecology
  - Research /study – history, culture, technology
  - Organized activities in nature (workshops, guided tours, celebrations and festivals, sport events, etc.)
- c) Water-related activities
  - Swimming in natural lakes or rivers
  - Swimming in shore swimming facilities
  - Diving in natural waters
  - Rafting, wood rafting
  - Boating, kayaking, wind-surfing (lakes, rivers, mines)
  - Driving motor-boats
  - Paddle boarding
  - Canyoning
  - Hydrospeeding



- Fishing
- d) Air-related activities
  - Paragliding
  - Hang gliding
- e) Vehicles
  - Mountain biking, downhill
  - Mountain scooter, “monster rollers”
  - Motorbikes – off-road
  - Bike and motorbike polygons
  - Mines cycling
- f) Winter activities
  - Ski resorts
  - Cross-country skiing
  - Tour skiing, free riding
  - Sledding
  - Snow shoeing
  - Snowmobile
  - Ice-skating in natural areas
  - Ice-climbing



### 3 Overview of Legislation in Individual Geoparks

The next step in the project activities was to review existing legislation, related to recreation and other tourism activities in nature that could affect geoheritage. IRSNC prepared a draft of questionnaire for review of the relevant European, national and local legislation. Due to diverse regulation structure the order and grouping of some of the recreation activities listed in previous chapter were readjusted. Therefore, some activities which are usually regulated separately are now combined and considered in common paragraph. After that the most important European and national regulations (listed in Appendix) were reviewed. According to the some additional knowledge acquired during this review some extra changes were made in the questionnaire. The final version of the questionnaire was sent to the project partners on 26<sup>th</sup> June 2017 and they were asked to fill in the data till 14<sup>th</sup> July 2017. In this part of the work, the project partners from the same state worked together, as they shared a major part of legislation.

In this Chapter you will be able to find general conclusions of the overview and comparison of legislation in the participating Geoparks as well as regulatory approach related to specific group of the recreation activities.

#### 3.1 General Observations

- a) Visitors and general public
  - Categorization of protected areas: All Geoparks have appropriate categorization of protected areas: zones/categories with different protection regimes specified.
  - Restrictions - activities in natural reserves/protected areas/broader protected areas: In all participating Geoparks there are defined zones where recreation activities are limited due to nature conservation.
  - Determination of status of individual natural heritage sites (local/state value): Despite the fact that regulations of some Geoparks don't include "Natural Heritage Sites", (e.g. Austria) they all have the possibility to protect specific sites that are very sensitive or valuable.
  - Free access: In the majority of the project Geoparks, free access can be limited in reserves and in other sensitive/valuable locations (hot spots). In Hateg Country Dinosaurs Geopark there is free access to all locations as there are no e.g. scientific reserves, where access is restricted.
  - Harvesting plants and hunting animals: In the majority of the project Geoparks, commercial harvest of plants/animals is not possible, whereas people are generally allowed to pick them for their own use (at least on public land). In Geopark Papuk relevant authority (in this case competent forestry) can allow commercial harvesting in selected areas. Some geoparks have no limitation on how much of berries or plants a person can pick up. On the other hand, people have different perceptions on what the term "for personal use" means and in such cases inspectors have difficulties to impose fines.
  - Pollution and noise: Reviewed regulations most often set limits for pollution and noise in Geoparks. People cannot leave waste in a Geoparks, cause damage and they should not disturb animals.
- b) Spatial planning
  - Restrictions - building of new infrastructure: In all Geoparks a special permission is required to build new or to improve existing infrastructure.
- c) Supervision, control
  - Existence of inspectors/wardens/rangers: The control on the use of landscape: in all Geoparks there are inspectors/wardens/rangers, who monitor visitors, control recreation activities and punish violation of rules. In some cases (e.g. Idrija) these inspectors are not



allowed to take action on private land. Some Geoparks noted that there are not enough inspectors/wardens/rangers.

- Existence of voluntary wardens: In the majority of Geoparks the legislation foresees also voluntary wardens. In some cases they act as a support to professional control (in Eisenwurzen, Austrian part of Karawanke, Balaton (in low number), Bohemian Geopark and Slovakian part of Novohrad). In Slovenia, such voluntary wardens are predicted by the law, but they were not implemented yet. In Croatia (Papuk), Romania (Hateg) and Serbia (Djerdap) this service is not established. And not stipulated by the law.

### 3.2 Caves, Mines, Fossils and Minerals

General finding:

- Ownership of caves: In all project Geoparks, the caves are owned by state and they cannot be a subject of commerce or trade.
- State determines the manager of caves: In all project Geoparks (except for Bohemian Geopark, where this issue is not relevant) managing bodies for tourist caves and for caves with natural or scientific importance are appointed. Managers are not required for other caves.
- Categorization of caves: In Slovenia, Austria and Slovakia (LP, PP2, PP4, PP9) there are three categories of caves: freely accessible, caves with controlled access and closed caves. Hateg Country Dinosaur Geopark reports that the Institute of Speleology of Romania can classify the caves (we have no data on possible categories and in criteria for categorization). In Serbia there is no categorization, but some caves are protected as natural monuments. The Serbian Institute for Nature Protection suggests to Ministry how to manage the natural monuments. Croatia, Czech Republic and Romania replied that this question is not relevant for their Geoparks as there are no tourist caves or caves that would require special protection.
- Free access to caves: Eight PPs with Geoparks responded that the access is limited in closed caves/strictly protected caves, caves with limited access and in tourist caves (tourists have to pay a fee and there are guided tours). Access is normally controlled by a manager. All other caves are open for visitors and freely accessible. In Idrija Geopark, all caves are protected while some of the non-tourist caves are freely accessible. In Serbia, unprotected caves are accessible. To enter protected caves you need a permission and a licensed guide. Hateg Country Dinosaurs Geopark answered that this question is not relevant for their Geopark as there are no caves that would be interesting for visitors.
- Limitations –behaviour in the cave: Eight PPs with Geoparks responded that behaviour in all caves (including freely accessible caves) is regulated: caves can be visited in a way that does not endanger the cave, cave inventory and living-beings in the cave. Czech Republic and Romania responded that this question is not relevant for their Geopark.
- Special qualifications are required to enter the cave: Seven PPs with Geoparks responded that a specific training/licence is necessary at least to explore caves for scientific purposes and to guide tourists. In the majority of Geoparks, there are no qualification requirements for visiting freely accessible caves. Usually, a training in speleological clubs is available, but not mandatory. An exception is Slovenia, where rules are stricter: cavers from Slovenia require qualifications for autonomous operation and exploration of all caves in which more than 10 m of rope (cave equipment) is needed to get in. Foreign cavers require a proof of membership in one of the Speleological Associations. Czech Republic and Romania responded that this question is not relevant for their Geopark.
- Limitations - infrastructure around the cave: Seven PPs with Geoparks responded that for caves within an area with nature protection status, permission is required for all



interventions around the cave entrance. Czech Republic and Romania responded that this question is not relevant for their Geopark.

- Limitations - infrastructure in the cave: Eight PPs with Geoparks responded that infrastructure can be built only in the tourist caves and that a special permission is required. Czech Republic responded that this question is not relevant for their Geopark.
- Limitations - damaging, removing or taking away cave formations: In all participating Geoparks it is not allowed to destroy, damage or remove cave formations (including cave sediment with archaeological and/or paleontological material).
- Limitations - selling cave formations: Seven PPs with Geoparks responded that selling the cave formations is not allowed, as it is demanded by GGN (Global Geoparks Network). In Hungary (PP1) adaptation of the GGN regulations to the Hungarian legislation is still under preparation. Permission of the nature conservation authority and the judgement of the geographically relevant national park authority are needed to sell cave formations, but such permission has not been issued for the last 14 years. Czech Republic (PP7) responded that this question is not relevant for their Geopark.
- Limitations - illumination and fire making: In Slovenia (LP), Austria (PP2, PP4), Romania (PP8), Slovakia (PP9) and Serbia illumination in caves should be limited to the minimum and it is not allowed to make open fire in the caves (except for the use of acetylene in other gas lamps). In Hungary (PP1), Croatia (PP3) and Czech Republic (PP7) this topic is not specially regulated, but it is not allowed to change environment in the cave in general. In Hungary (PP1) a permission of the nature conservation authority is needed to illuminate a cave.
- Limitations - cave pollution: In all project Geoparks it is forbidden to pollute caves (bring waste or otherwise change living conditions).
- Limitations - noise: Noise regulations significantly differs between Geoparks:
  - In Slovenia (LP), it is prohibited to make noise that exceeds 45 Leq (dBA) or to cause vibrations in caves.
  - In Austria (PP2, PP4), this is determined in the management plan of each tourist cave. It is forbidden to change anything in the cave and every ongoing activity in the non-tourist caves or around the caves has to be discussed with the Austrian Federal Monument Office.
  - In Croatia (PP3), this is not specially regulated. Croatia has a general regulation forbidding performing activities changing living conditions in the caves.
  - Hungary (PP1), has a general regulation forbidding disturbing protected animal species in caves.
  - Slovakia (PP9), has a general regulation: in protected areas noise cannot exceed 45 LAeq.
  - PPs from Czech Republic (PP7) and Romania (PP8) responded that this question is not relevant for their Geoparks.
  - In Serbia there is a rule that for any activity in the cave it is obligatory to ask Institute for Nature Protection to set conditions under which such activity can be realized.
- Limitations - vehicles or vessels: Regulations differ in PP Geoparks:
  - In Slovenian caves (LP) one can only use battery-powered underwater scooters (for the purpose of exploring siphons in the parts of caves that are under water) and balloons for the purpose of conducting different kind of research.
  - In Austria (PP2, PP4) this is determined in the management plan of each tourist cave. Any ongoing activity in non-tourist caves or around the caves has to be discussed with the Austrian federal monument office.
  - In Croatia (PP3) vehicles are forbidden in non-tourist caves.
  - In Hungary (PP1) permission from the nature conservation authority is required for the use of vehicles in natural protected areas outside dedicated roads.





- In Slovakia (PP9) there is a general regulation: in protected areas, noise cannot exceed 45 LAeq.
  - Czech Republic (PP7), Romania (PP8) and Slovakia (PP9) responded that this question is not relevant for their Geopark.
  - In Serbia it is obligatory to ask Institute for Nature Protection to set conditions under which an activity in the cave can be realized. Mostly, it is not allowed to use vehicles or vessels in caves.
  - Limitations - filming in the cave: In Slovenia (LP), Hungary (PP1), Croatia (PP3), Slovakia (PP9) and Serbia a special permission is required for filming in the cave. In Austria (PP2 and PP4) filming can be restricted for individual tourist caves. Czech Republic (PP7) and Romania (PP8) responded that this question is not relevant for their Geopark.
  - Cave animals: In Slovenia (LP), Austria (PP2 and PP4), Croatia (PP3), Slovakia (PP9) and Serbia (IPA) cave animals and their habitats are strictly protected (it is prohibited to disturb, hunt, kill, move or otherwise threaten animals, their habitat or their dwellings). In Hungary (PP1) it is not allowed to disturb animals in the caves. As our Hungarian partner reported, no problems with illegal traps were detected so far. Czech Republic (PP7) responded that this question is not relevant for their Geopark.
- a) Visiting tourist caves
- Entering without a guide: All PPs except Romania (PP8) responded that tourist caves can be entered only with a guide. Hateg Country Dinosaurs Geopark (PP8) responded that it depends on the limitations and rules set by the cave manager.
  - Limitations - number of visitors: All PP except Romania (PP8) responded that this is determined for each tourist cave individually. Romania (PP8) responded that this question is not relevant for their Geopark.
  - Limitations - period of visit: In Slovenia (LP), Hungary (PP1), Austria (PP2 and PP4), Romania (PP8), Slovakia (PP9) and Serbia the timetable is determined for each individual cave and the schedule can be adjusted to the species' life cycle e.g. protection of endangered species (bats). Croatia (PP3) and Czech Republic (PP7) responded that this question is not relevant for their Geopark.
  - Guides need to have a certificate on obtained speleological knowledge: In Slovenia (LP), Hungary (PP1) and Austria (PP2 and PP4) guides have to pass an exam to be allowed to guide in tourist caves. Croatia (PP3) and Slovakia (PP9) responded that this issue depends on the cave and their internal decisions. Czech Republic (PP7) and Romania (PP8) responded that this question is not relevant for their Geopark.
- b) Tourist mines/quarries (including cycling in mines)
- Tourist mines/quarries are present only in three participating Geoparks: Geopark Idrija (LP), Bakony-Balaton Geopark (PP1) and Geopark Karavanke (PP4). For all other PPs, these questions are not relevant.
- Mines with nature conservation status: in all 3 relevant Geoparks mines or quarries can be protected. For example: tourist mines in Slovenia have a nature conservation status (natural monument).
  - Limitations - access (free entry/guided tours only): in all cases there are only guided tours.
  - Limitations - to equipment used: Geopark Idrija (LP) and Geopark Karavanke (PP4) responded that protective clothing and helmets are required. In Hungary (PP1) there is a protected, disused quarry (Hegyestű), serving as a visitor centre, thus there is no need for protective equipment. In quarries that are officially still in use, the members of a guided geo-hike need to wear a helmet.
  - Limitations - time/duration of the visit: Geopark Idrija (LP) and Geopark Karavanke (PP4) responded that the time limitation is according to the length of the guided tour and differs for each target visitor's group. Bakony-Balaton Geopark (PP1) responded that this question is not relevant for their Geopark.



- Limitations - number of the visitors: Geopark Idrija (LP) and Geopark Karavanke (PP4) responded that the number of visitors is determined according to the local conditions in individual mine/quarry (limited size of groups). Bakony-Balaton Geopark (PP1) responded that there are no specific limitations.
  - Limitations - behaviour of visitors in the mine: Geopark Idrija (LP) and Geopark Karavanke (PP4) responded that smoking, fire and alcohol are not allowed in the mine. Bakony-Balaton Geopark (PP1) responded that behaviour is regulated only in the quarry that serves as a visitor centre.
  - Mines with biking: organised or individual biking: Geopark Karavanke (PP4) responded that there are only guided tours. Geopark Idrija (LP) and Bakony-Balaton Geopark (PP1) responded that this question is not relevant for their geopark.
  - Mines with biking: own or rented bikes: Geopark Karavanke (PP4) responded that for the time being visitors use their own bikes, however they intend to purchase own bikes as part of the Project. Geopark Idrija (LP) and Bakony-Balaton Geopark (PP1) responded that this question is not relevant for their Geopark.
  - Other limitations for visitors: Geopark Karavanke (PP4) responded that there is an age limitation for children. Bakony-Balaton Geopark (PP1) responded that climbing on the basalt walls and stone towers with the basalt debris of the disused quarry is not permitted due to safety reasons.
- c) Minerals and fossils
- Ownership of minerals and fossils: In the majority of Geoparks, the state is the owner of minerals and fossils in the nature. In Czech Republic (PP7) the owner of minerals is either state or owner of estate where the minerals and fossils were found (depends on the type of rock or mineral, there are two categories based on economic criteria). In the majority of Geoparks properly withdrawn (non-protected) minerals/fossils become the property of those who find or take them.
  - Removing rocks, minerals or fossils: In the majority of participating Geoparks it is allowed to take minerals and fossils that are located outside the protected areas – but only if they are accessible in a non-invasive way (without using tools). To take minerals/fossils using tools or to remove them from protected areas, one usually needs special permission. If you find an exceptional mineral/fossil, you have to report such finding to the state. It is not allowed to destroy minerals/fossils. In Czech Republic (PP7) only “particularly protected” minerals/fossils cannot be removed, but they still don’t have a list of the protected minerals/fossils (De jure in Nature Conservation Act, de facto still not exist (since 1992 (sic)). In Carinthia (PP4) and in Hateg Geopark, Romania (PP8) one needs a permit to pick up minerals/fossils. In Serbia a permit from Ministry is needed for any removing of rocks minerals or fossils.
  - Selling and exporting rocks, minerals or fossils: According to GGN rules the Geopark management body must not participate directly in the sale of geological objects such as fossils, minerals, polished rocks and ornamental rocks within the UNESCO Global Geopark (regardless of their origin) and should actively discourage unsustainable trade in geological materials as a whole. Export is possible only with a special permission. A concession from the state is required for commercial exploitation of mineral raw material. Hungary: Exporting protected minerals and fossils is possible only with a permission (no such permission has been given during the last 14 years and judgement of relevant national park authority (Geopark Manager) is needed for a permission). Balaton Geopark complies all regulations made compulsory by GGN, but adaptation of these rules to the Hungarian legislation is still being prepared.
  - Exceptional minerals/fossils are protected: In all participating geoparks it is not allowed to remove/destroy protected minerals and fossils. However, there are several differences in the management and this topic is also related to some specific problems observed by



Geoparks. Only Slovenia (LP) and Slovakia (PP9) have a list of protected minerals/fossils and all findings/damage to sites have to be reported. In Austria (PP2) and Croatia (PP3), the finder has to inform the state about all findings of minerals/fossils that are exceptional, rare and could be of a scientific value. In Romania (PP8), exceptional minerals and fossils are not protected by national regulations, but there is a relevant regulation for each protected area. In Hungary (PP1) and Czech Republic (PP7), it is forbidden to collect, damage or remove protected minerals/fossils, but the list of protected fossils is still being prepared in both countries. The Hungarian Geopark (PP1) reports that their Nature Conservation Authority hasn't given out any permission for selling rocks, minerals or fossils in the last 14 years. There is still no list of protected minerals in Czech Republic (PP7) as well. In Serbia, the finder of geological and paleontological objects, that may be protected, shall report it to the Ministry and take measures for protection from destruction, damage or theft.

- Inspectors to prevent illegal activities: In the majority of the participating Geoparks there are no special inspectors. There are police officers and/or nature protection wardens. In Hateg Geopark (PP8) they have a kind of agreement with local "gendarmerie". Some PPs reported problems, including: lacking people to ensure good control and e.g. police officers are not educated in geology, protected fossils, etc.

### 3.3 *Trekking, Hiking, Mountaineering, Climbing*

- Register of hiking trails: The majority of Geoparks reported that they have a register of hiking trails. The only exceptions is Balaton Geopark (PP1), where official regulations of a register of hiking trails are to be announced by ministerial decree (not known when it will be ready), and Bohemian Paradise (PP7), which hasn't got such a register, but they don't find the issue relevant for the Geoparks.
- Limitations – area: Geoparks report different regimes. In some Geoparks, there are protected areas, where it is not allowed to walk around freely nor to walk outside the trails (if they exist) (LP, PP1, and PP7). In Slovenia and Serbia, it is not allowed to visit natural reserves within Geoparks.  
In Austria (PP2, PP4): it is up to the landlord's discretion to enable free access to the forests but it is still restricted only to hike or walk through. Restrictions and closures of trails can be applied during log works and hunting. Full free access is allowed in the areas above the tree line. In Geopark Karawanke (PP4) hiking is allowed only on defined trails that are marked for hiking. In Slovakia (PP9), the partner reported that in the protected areas with level 3 or higher protection, tourists can only move along the marked trails. In areas with lower protection or no protection there are only limitations concerning the ownership of the land. Geopark Papuk, Croatia reported that hiking is allowed in the whole area of Papuk Nature Park. In Serbia there are protection regimes (zones) which determine what is allowed and what is not allowed.
- Limitations - new hiking trails: In some countries (e.g. Slovenia) it is generally prohibited to make new hiking trails (exceptions!). In other countries one:
  - Needs a permission from the owner and from the Nature Conservation Authority: Austria – (PP2 and PP4): trails are dense and new trails are usually not allowed; Croatia and Romania (PP3 and PP8): there are no limitations on making new hiking trails if making so does not threaten the natural environment and valuable natural features; Slovakia - PP9.
  - Needs permission from the Forestry Management Body if a trail is on land managed by that body (Hungary – PP1).
  - In Czech Republic (PP7) no new trails are allowed in the first zone in PLA: permission is required in the second zone and there are no limitations in the third zone. - In Serbia, it is possible to build new hiking trails in accordance with operational plan or management plan of the National Park (the case of Djerdap National Park).



- Limitations - number of visitors: Participating Geoparks do not have limitations on the number of visitors and most of them do not systematically and regularly monitor the number of visitors. An exception is Serbia, where Djerdap National park monitors the number of visitors.
- Limitations - periods for visiting: Regulations in Geoparks can be divided into the following categories:
  - Limitations due to nature conservation can be set for certain areas: Slovenia, Hungary and Czech Republic (LP, PP1, and PP7).
  - Limitations can be set only to ensure safety of visitors or due to weather, or there is a manager who determines the schedule: Austria, Slovenia and Slovakia (PP2, PP4, and PP9).
  - There are no limitations: Croatia and Romania (PP3, PP8).
  - In Serbia, the management body sets internal rules for this issue.
- Limitations - allowed accessories/ equipment: Participating Geoparks do not have special limitations on allowed equipment. Consequently this question can be considered irrelevant. Equipment required for ensuring personal safety is required in Slovenia in Croatia.
- Limitations - overnight stay: Geoparks have very diverse regulations concerning overnight stay outside the dedicated facilities. Overnight stay is:
  - not allowed on public locations or other accessible locations that are not specially dedicated for overnight stay: Slovenia and Croatia (LP, PP3);
  - allowed only above tree line; below tree line only in emergency cases: Eisenwurzen Geopark and Geopark Karavanke (PP2, PP4);
  - allowed in forest only with the permission of the Forestry Management Body: Hungary (PP1);
  - you can stay almost everywhere overnight - but without a tent. Outside of the PLAs there are no restrictions for overnight stay: Czech Republic (PP7);
  - it is not allowed in some specific areas within the Geopark (e.g. botanical reserves): Romania (PP8);
  - it is not allowed in protected areas with protection level 3 and higher; in areas with lower or no protection there are only limitations concerning the ownership of the land: Slovakia (PP9);
  - In Serbia, each management body sets internal rules for this issue.

a) Trekking, hiking, mountaineering, running

Participating Geoparks reported that they don't observe difficulties with hiking, trekking and similar activities. Djerdap National park mentioned occasional problems with the damage to the flora and formation of shortcuts in nature.

- Limitation – use: Visitors can use the area for recreation activities, but they shouldn't cause damage to natural heritage. In some Geoparks recreation activities are not allowed in strictly protected areas (e.g. Slovenia, Serbia) or permission is required for activities outside of marked trails (e.g. Hungary). Eisenwurzen Geopark (PP2): free access is above the tree line. Czech Republic (PP7): allowed are activities, which do not collide with nature conservation restrictions. Romania (PP8): it is allowed to hike or run only on the trails, without disturbing the fauna or flora.
- Responsibility: Generally users use trails on their own risk and the managing body (sometimes also the owner) is responsible for the maintenance of the trail. An exception is in Czech Republic - Bohemian Paradise Geopark, where the owner/manager is responsible for personal safety of people trekking.
- Separation of trails for hiking and running: In Geoparks separate trails for walking and for running have not been established yet. It is generally observed that such separation is not required.



#### b) Rock climbing

Rock climbing in nature can be seen in seven of participating Geoparks. It is not present in Romania, Slovakia (PP8, PP9) and in Djerdap National Park. Climbing is normally not allowed in the areas with protection regime for surface geomorphologic or zoological heritage (this does not apply for Eisenwurzen Geopark).

- Areas with limited access (timing, duration, etc.): Geoparks can be divided into the following groups:
  - access can be limited due to nature conservation: Slovenia, Hungary, Austria, (LP, PP1, PP2, and PP4);
  - access can be limited due to weather conditions and safety reasons: Czech Republic (PP7);
  - climbing in the Nature Park is carried out directly under the supervision: Croatia (PP3).
- Register of legal climbing routes: In Geoparks the state does usually not register climbing routes. Most often, the registers are maintained by climbing associations.
- New climbing routes: In protected areas of Geoparks permission from the nature-conservation authority (and from the owner) is required to make a new climbing route or to make changes on existing routes. In non-protected areas there is normally no such requirement.
- Daily limits on the number of visitors: Geoparks don't set such kind of limitations. The only exception is Hungary (PP1), where condition on the number of the visitors may be included in the permissions of the route.
- Special knowledge/ licence required to climb in the nature: In participating Geoparks (or their surroundings) courses for climbers and instructors are organized, but they are not obligatory (you can climb in the Geoparks also without them).

### 3.4 Relaxation, Picking Fruits, Amateur Naturalists

- Limitations - location for these activities: In general limitations for these activities are the same as for other visitors (e.g. one cannot cause damage to natural heritage, use vehicles off-road, make fire, etc.). Regulations in Geoparks can be divided into the following categories:
  - there is a pre-defined area where these kind of activities are allowed: Croatia (PP3);
  - these activities are not limited, if outside the protected area, if this is not a valuable natural feature and/or if the manager/owner did not limit the access: Slovenia, Austria, Czech Republic, Romania, Slovakia and Serbia (LP, PP2, PP4, PP7, PP8, PP9, IPA) (It is allowed zone II and III of protection);
  - no specific regulations were found, but there are general rules: disturbance of protected areas and protected species is not allowed: Hungary (PP1).
- Limitations - timing for these activities: The majority of Geoparks have neither special limitations nor regulations (Hungary (PP1)) – except when forestry body restricts visits due to hunting, forestry, high fire danger (Romania (PP8)). In some Geoparks these activities can be limited in protected areas, in areas with managers/concessionaires: Slovenia and Slovakia (LP, PP9) or it is prescribed by internal rule of the park management body (Serbia).
- Limitations - number of people: Same rules as above (See Limitations - timing for these activities).

#### a) Picnics, relaxation in natural environment

Some Geoparks face problems with picnics in natural areas (waste, damage to vegetation, etc.)

- Have a picnic outside of organized picnic areas: In all participating Geoparks it is not allowed to cause damage to natural environment and there are limitations on where/when you can set fire (no fires in forests, during dry periods, etc.). Specifically, the Geoparks can be divided in the following categories:
  - Picnics in nature are not allowed (only in dedicated area): Croatia and Romania (PP3 and



PP8).

- Outside the areas with nature protection statuses picnics are not regulated, but you should have a consent of the owner: Slovenia (picnics can be limited by Municipal decrees); Austria, Slovenia, Slovakia (PP2, PP4, PP9) (in the protected areas one can have a picnic only in the places designated for it).

- There are no limitations, but you cannot set fire and cause changes in natural environment: Czech Republic (PP7).

- There are no limitations, but you cannot cause disturbances in the protected area: Hungary (PP1).

- It is allowed in zone II and III of protection: Serbia (IPA).

- Is it allowed to make fireplaces in natural environment:

- Fire can be set only on designated locations (not in protected areas, outside forests, etc.), if obeying fire setting rules and restrictions in time (not in dry periods, etc.): all PPs except for Czech Republic and Slovakia.

- Fire-setting is limited in forests, in protected areas and by ownership: Slovakia (PP9).

- Fire-setting is limited only in forests and adjacent areas, as well as in protected areas: Czech Republic (PP7).

- Waste: in all Geoparks you shouldn't leave any waste in the environment and cause any damage to the natural environment.

b) Picking fruits (mushrooms, berries, chestnuts, etc.)

Generally Geoparks do not face specific problems with these activities.

- Possibility to pick up herbs, fruits, mushrooms: In general it is not possible to pick them in strictly protected areas/natural monuments, reserves, and where the owner limits access/grows them for own need. It is only allowed to pick them for personal (non-commercial) need.

- People can pick wild fruits (regardless the ownership), maximum amounts are not determined, protected species are determined: Czech Republic, Romania and Slovakia (PP7, PP8, and PP9).

- People can pick wild fruits (regardless the ownership – except if the owner prohibits entrance, marks the area as private), maximum amounts and protected species are determined: Slovenia, Hungary, Austria, Croatia (LP, PP1, PP2, PP3, and PP4).

- People can pick wild fruits in accordance with the management and operational plan; they have to get an agreement of the owner: Serbia

- Accessories for harvesting fruits and herbs: The issue seems not relevant for participated Geoparks.

- Picking fungi: In all Geoparks picking up fungi for personal use is allowed as long as you don't cause damage to the natural environment. In most cases, one needs permission from the relevant ministry/nature protection authority if you want to pick fungi for commercial use. Usually it is not allowed to pick fungi in strictly protected areas. Some PPs have problems with the lack of control (some people pick up greater amounts and illegally sell them). PPs have different protection regimes:

- maximum amounts and protected species are determined: Slovenia, Hungary, Austria, Croatia (LP, PP1, PP2, PP3 and PP4);

- determined are protected species, but not maximum amounts: Czech Republic, Romania, Slovakia (PP7, PP8, and PP9);

- any collection/picking on protected areas is subject to permission: Hungary (PP1);

- people can pick fungi in accordance with the management and operational plan, they have to get an agreement of the owner: Serbia.

c) Amateur naturalists

After the review of received answers it is obvious that amateur naturalists are treated equally as all other visitors and consequently the issue is not relevant.



### 3.5 Research and Education

After the review of received answers from Geoparks it seems that in all project Geoparks researchers and guided groups are treated equally as all other visitors and they require only special agreement for research in protected areas (as well as for interventions in non-protected areas). Consequently only organized activities/ events are relevant for transnational comparison.

- a) Organized activities in nature (workshops, guided tours, celebrations and festivals, sport events, etc.)

Regulations of Geoparks can be divided into the following groups:

- permissions are required for events that do not appear only on roads and/or for events on private area: Slovenia, Hungary, Austria, Croatia, Slovakia and Serbia (LP, PP1, PP2, PP3, PP4, PP9, and IPA);
- Authority's permission is needed for several activities and events in protected areas (e.g. Natura 2000): Slovenia and Hungary (LP, PP1);
- there are no special regulations: Czech Republic and Romania (PP7, PP8).

### 3.6 Water Activities

- Bathing permission: Bathing is generally allowed in Geoparks, except in strictly protected areas, in natural reserves, at natural heritage sites and where competent authority prohibits bathing due to nature conservation, water quality or safety.
- Limitations - access to waters: In general access to water for bathing can be divided into three categories:
  - the owner has to enable free access to water for general use (if they did not invest into infrastructure on site); visitors should not cause damage: Slovenia, Hungary, Croatia and Slovakia (LP, PP1, PP3, and PP9);
  - the owner can limit access to the water body (where the area is not public): Austria, Slovenia, Czech Republic and Romania (PP2, PP4, PP7, and PP8);
  - the local government determines locations for swimming and other recreation activities. Access to water for boats is usually limited to designated locations: Slovenia, Austria (LP, PP2, and PP4). Access to water can be limited due to nature conservation: Slovenia, Hungary, Czech Republic, Romania, Slovakia and Serbia (LP, PP1, PP7, PP8, PP9, and IPA).
- Limitations - use of motor vehicles on freshwater bodies: In the majority of project Geoparks motor vehicles are not allowed on freshwater bodies (LP, PP3, PP4, PP1, and PP7). In Austria (PP2, PP4) the regime depends on the lake. In Hungary (PP1) motorboats can appear on artificial water bodies. In Czech Republic (PP7), motorboats can appear on artificial water bodies and some bigger rivers. In Slovakia (PP9), motorboats are not allowed in protected areas and near dams. In Serbia (Djerdap National park), motorboats below 7.35 kW are allowed. This issue is not relevant for Hateg Geopark.
- Register of waters for recreation: In Austria (PP2) these locations are determined by local government. In Serbia the local self-government unit determines locations for recreation. In Croatia, there is a register of waters for different recreation activities. In other Geoparks there usually exists a register of waters for swimming (where the water is clean enough), but it usually doesn't register water bodies where swimming is allowed or where other recreation activities are possible.
- Register of waters for swimming: Such registers are established in Slovenia, Croatia, Austria, Czech Republic, Slovakia (LP, PP3, PP4, PP7, and PP9). In Hungary (PP1) and Romania (PP8)



- there are no registers, but in Hungary (PP1) they mark water bodies where swimming is not allowed. In Serbia the local self-government unit determines locations for swimming.
- Register of sensitive, protected waters: Locations which require special protection due to nature conservation are determined in Slovenia, Hungary, Czech Republic and Slovakia (LP, PP1, PP3, PP7, and PP9). They are determined also in Romania, but Hateg Geopark (PP8) does not have such waters. Similar situation is in Austria (PP2, PP4), where everybody has access to public areas along bigger rivers and lakes. Access/swimming can be limited in small lakes with high nature protection on public property. In Serbia there are no protected waters at the moment. However, such waters would be determined should the need arise.
  - Limitations - activities in individual water bodies: Recreation activities that are allowed in individual water bodies are determined in Czech Republic (PP7). In other Geoparks recreation activities are limited only in strictly protected areas, natural heritage values and areas where activities are limited for security reasons. In NP Djerdap, Serbia, there are only limitations on activities close to Danube hydropower plant Djerdap (security reasons). This question is not relevant for Slovakia (PP9).
  - Limitations - timing of water activities: In Slovenia (LP) the periods for implementing certain activity can be determined for individual water streams. In some other Geoparks the owner may set limits in certain periods or there are safety-related restrictions. In NP Djerdap there are only limitations on commercial fishing (it is not allowed during the night). This question is not relevant for Slovakia (PP9).
  - Limitations - number of people or boats: The participating Geoparks have only safety-related restrictions. There are no restrictions limiting the number of visitors.
  - Limitations - types of accessories: Project Geoparks have only safety-related restrictions. There are no restrictions related to nature conservation.
  - Pollution and changes in the water body: In all participating Geoparks visitors are not allowed to pollute waters, to leave waste in the environment and to make changes in the water body and its surrounding.
- a) Swimming in natural lakes or rivers, canyoning
- Areas for swimming: In all project Geoparks except for Romania (PP8) areas for swimming are determined and access to certain areas can be limited to protect natural heritage.
  - Swimming /walking/diving outside organized bathing areas: In the majority of project Geoparks swimming areas are determined where the quality of water is controlled and where access is regulated. Usually it is allowed (but sometimes not recommended) to swim also elsewhere (outside of areas with special protection regime). There are some exceptions: in Hungary (PP1) it is not allowed to swim outside swimming areas and in Serbia the local government determines areas, where swimming is allowed. Participating Geoparks do not have any special problems with swimming in natural lakes and there is no need for additional protection of water bodies.
  - Limitations - access to the shore/banks: The participating Geoparks can be divided into two groups:
    - Geoparks, in which access to water is free for visitors (except for areas with special protection regime and areas where owner has regulated access and infrastructure): Slovenia, Hungary, Romania, Slovakia and Serbia (LP, PP1, PP8, PP9, and IPA);
    - Geoparks, in which access to water may be limited by the owner: Austria, Czech Republic (PP2, PP4, PP7).
 In Croatia (PP3) the topic is not regulated.
- b) Boating, kayaking, wind-surfing, rafting (lakes, rivers, mines)
- Dedicated areas: Regulation of PPs can be divided into the following groups:
    - project Geoparks, in which areas for these activities are determined: Austria, Croatia and Hungary (PP2, PP3, and PP1);
    - project Geoparks without such regulation: Czech Republic and Serbia (PP7 and IPA);



- project Geoparks which do not have water bodies, appropriate for these activities: Slovenia, Romania and Slovakia (LP, PP4, PP8, and PP9).
- The leader of a raft requires special exam: In some project Geoparks the leader of a raft needs to pass an exam: Slovenia, Austria, Romania and Serbia (LP, PP2, PP4, PP8 and IPA). In other project Geoparks this is neither regulated nor relevant.
- Equipment of a raft: Some Geoparks have relevant legislation, which is based on safety regulations, e.g. Slovenia, Austria, Romania and Serbia (LP, PP2, PP4, PP8, and IPA).
- The boat has to have a certificate for navigation capability This is regulated in Slovenia, Austria, Hungary, Romania and Serbia LP, PP2, PP4, PP1, PP8 and IPA.

c) Motorboats

In LP, PP2, PP4, PP3, PP1, PP7 and PP9 Geoparks there is no water bodies where it would be possible to use motorboats or motorboats are not allowed in a whole Geopark. Consequently these questions are relevant only for Romania (PP8) and for NP Djerdap – Danube river:

- Aerial limitations on the use of motor boats: In Romania (PP8) motor boats are not allowed in protected areas or where the wildlife is disturbed. In NP Djerdap there are no limitations for smaller boats, but their speed is limited in certain areas (close to beaches, ports and marinas). For bigger boats, see “Limitations - use of motor vehicles on freshwater bodies”.
- Limitations - types of allowed motors: This is limited in Romania (PP8), whereas no limitations are set in NP Djerdap, Serbia.
- Official locations for mooring: They are determined on the Danube river within NP Djerdap (marinas). These locations are determined also in Hungary (PP1), where motor boats are not allowed. This is not relevant for Romania (PP8).
- Special training/exam/licence required: An exam for an operator/ skipper of a boat is required in Romania (PP8) and in Serbia (and also in Hungary (PP1), despite motorboats are not allowed).

d) Fishing (angling)

- Program/plan for fish management: In all participating Geoparks manager has to prepare a program on fish management. Nature conservation is included in the preparation of such plans (at least for protected natural area).
- Required knowledge/licence for fishing: In some project Geoparks an exam is required for professional fishermen, for managers and for inspectors: Hungary, Slovakia and Serbia (PP1, PP9, and IPA). In some project Geoparks an exam/licence is required also for anglers: Slovenia, Austria, Croatia and Czech Republic (LP, PP2, PP3, PP4, and PP7). In Romania (PP8) the exam is not required. In Slovenia you need to pass an exam in order to get an annual angling pass. One also needs to pay an annual membership fee in fishing association. In Austria every angler over age of 16 needs to pass an exam once in lifetime.
- Rivers/lakes are divided into sectors/categories: All PPs have regulations that divide rivers into sectors based on allowed angling activities and on fish management rules.
- Fishing permits required: In all PPs you have to buy fishing permit to be able to angle.
- Limited/prohibited catch on selected species: All participating Geoparks regulate which species cannot be caught and/or in which periods angling of certain species is not allowed.
- Limitations - amount of caught fish: In all participating Geoparks the maximum amount of fish that can be caught is defined in a fishing permit.
- Limitations - sizes of fish that can be caught: In participating Geoparks fish sizes are determined by a relevant local regulation and are usually listed in a fishing permit (for each species separately). The only exception is Romania (PP8), where this is not regulated.
- Limitations - periods for fishing: In the project Geoparks the fishing periods are listed in a fishing permit (for each species).
- Responsibility for appropriate fish management: In the participating Geoparks the relevant fishing-manager is responsible for appropriate management of fish stock. In the majority of



- countries the ministry, relevant institute or agency are involved in the preparation of fish management plans and in supervision.
- Non-native species: In all participating Geoparks it is illegal to introduce non-native species to water bodies or to transfer them between water bodies. Cultivation of non-native species is possible under condition, that they are not released to their natural environment.
  - Owner of the fish: Fish in natural water body is owned by a state. The fish that is caught in agreement with the rules is owned by the person who caught it.
  - Access to water bodies: The rules for anglers are the same as for other visitors: usually those who buy a fishing permit have free access to water. In some countries the owner can limit the access.
  - Illegal fishing methods: In all project Geoparks, illegal fishing methods are defined (use of explosives, poison, electro-fishing, under ice, etc. - fishing/angling methods that may damage fish population or its habitat are prohibited). In Slovenia and Romania (LP and PP8) details on allowed catching techniques and baits are determined for each individual (native) species. Limitations can differ forevery fishing district.
  - Angling competitions: In the majority of Geoparks, the event organizer has to obtain allowance and special conditions from Geopark or from other relevant authority. In Geopark Karavanke (PP4) angling competitions are not allowed. In Czech Republic (PP7) this issue is not regulated. In Romania, competitions are allowed only in certain areas – and there is no such area in Hateg geopark.
  - Control: in all PPs there is some kind of fishing wardens or inspectors.

### 3.7 Vehicles and Horses

- Limitations - driving/riding in natural area: In the majority of Geoparks, people are not allowed to drive any kind of motor vehicle off-road and on hiking trails (LP, PP2, PP4, PP1, PP7, and PP9). For some PPs this is valid only in protected areas: Croatia, Romania and Serbia (PP3, PP8, and IPA – first zone of protection). Driving/riding is not allowed in areas with special protection regime.  
In Austria (PP2, PP4) one can drive off-road with an agreement of the owner. In Hungary (PP1) biking and horse riding in the forest and horse riding on designated biking roads in the forest are possible if “common use” is indicated on the hiking or biking trail. In Czech Republic (PP7) you have to avoid activities in the nature which limit or restrict the rights of others (etc.), and the proprietary rights. In Serbia it is free, except in the zone I of protection, where you need a permit.
- Limitations - organization of public events: To organize public event in project Geoparks you mostly require prior agreement of the land owner/protected area manager: Austria, Romania (PP2, PP4, and PP8); and/or competent authority: Slovenia, Hungary and Croatia (LP, PP1, and PP3). In some countries this is valid only in protected areas of Slovakia and Serbia (PP9, IPA).  
In Czech Republic (PP7), there are no special limitations for these activities, only the general rules of PLA. In some Geoparks a consent of the owner is required in non-protected areas, whereas in protected areas both a consent from the competent Nature Protection Authority and from the owner are required.
- Limitations - organized activities in nature: The rules are the same as for organization of public events.
- Limitations - use of vehicles on the hiking trails: In the following Geoparks it is not allowed to use vehicles (including mountain bikes) on hiking trails: LP, PP2, PP3, PP4, PP1, PP7, PP8, PP9, and IPA) and in strictly protected areas.  
In Austria all trails above the tree line are only for hikers. In most other hiking trails, the owner decides to allow or not access for bikers/horse riders. Hungary (PP1): the use of bikes,



- motorbikes, ATVs is allowed only on designated roads (there are still no such roads in their Geopark).
- Seasonal limitations and limitation of driving in certain periods of the day: The only limitation that PPs noted is during the time of forestry management. In Hungary (PP1) specific limitations can be determined in the permission for the road.
  - Limitations - area: Besides the above-mentioned restrictions on off-road driving/riding, Geoparks in Slovenia can establish also limitations in reserves and sensitive areas (LP). In Czech Republic (PP7), the restrictions can be set if activities are in collision with PLA rules or Forest Act. In some Geoparks the owner can set own conditions: Austria (PP2, PP4). In the remaining Geoparks there are no additional restrictions (PP3, PP1, PP8, PP9, and IPA).
  - Limitations - parking: In the majority of the project Geoparks it is not allowed to leave a car outside the marked parking areas (it is prohibited to stop/park any kind of self-propelled vehicles in natural areas): Slovenia, Croatia, Czech Republic, Romania and Serbia (LP, PP3, PP7, PP8, and IPA). On the other side in some PPs areas, the parking of motor vehicles on the roadside is permitted with permission of the owner: Austria and Slovakia (PP2, PP4, and PP9). In Hungary (PP1) general rules of parking are given in the Highway Code. Every type of road has its labels with descriptions of special limitations: local/areal or seasonal/daily limitations (e.g. for hunting, forestry, nature conservation, etc.) are determined by Geopark Manager and marked on the spot.
- a) Mountain biking, downhill, riding
- Special roads/areas for biking/riding: Geoparks can be divided into the following categories:
    - bikers can use all roads and there is a register of trails, where mountain biking is allowed: Slovenia, Croatia and Hungary (LP, PP3, PP1) (despite many signs were removed or there is a need for their renewal), Czech Republic, Romania and Slovakia (PP7, PP8, and PP9);
    - there are marked biking paths where bikers are allowed to ride (owners decide where this is possible): Austria (PP2, PP4);
    - biking is regulated only in the first zone of protection: Serbia.

In Slovenia (LP) it is only allowed to use bikes on gravel roads, but not where it is forbidden by law regarding nature protection / forestry / hunting, in the mountains above the tree-line, in bogs and wetlands, on narrow paths, on heavily populated trails, etc.
  - Limitations - use of bikes in natural environment: In the majority of project Geoparks bikes can be used on designated roads, off-road cycling is not allowed (including water bodies): Slovenia, Hungary, Czech Republic and Romania (LP, PP1, PP7, and PP8). Access can be restricted in reserves, sensitive areas and valuable natural features: Slovenia (LP). In Austria (PP2, PP4) there are no quiet zones, where biking would be limited – such limitations mostly depend on the owner. In Croatia (PP3) it is recommended to use biking or marked trails, driving in natural area is not limited. In Czech Republic (PP7) bikers are limited to designated trails in protected areas. Outside protected areas, biking is only limited by the ownership. In Serbia it is allowed to use bikes in protected areas, but you need permission to cycle in zone I of protected area.
  - Limitations - organization of events in nature: Regulations are the same as for events in the nature for motorized vehicles.
- b) Motorbikes – off-road
- Limitations - use of bikes in natural environment: The most relevant regulations are already described in “Limitations - driving/riding in natural area”.

### 3.8 Winter Activities

There are no noteworthy winter activities in Hungary, Croatia and Romania (PP1, PP3 and PP8). In other participating Geoparks there are some minor skiing areas.



- Limitations - area: In Geoparks with winter activities, such areas are determined and prior consent (from relevant Nature Protection organization and/or owner) is required to establish new routes.  
Czech Republic (PP7): in PLA there is no road salting, no changes in the landscape.  
Slovakia (PP9): limitations depend on the level of protection.
  - Limitations - artificial snow:  
In Slovenia, the ski area manager needs to obtain a concession/water permit for the use of water for artificial snow making. In some cases (e.g. new water constructions for water storage) you also need a prior consent of the organisation responsible for nature conservation.  
Some cases (new water constructions for water storage) also require prior consent of the organisation responsible for nature conservation.  
There are no limitations on what substances are added to artificial snow.  
In Austria the production of artificial snow is regulated in the Water Act. It is not allowed to add any additional components into the water for producing artificial snow.  
In Slovakia (PP9) there are no limitations if not in collision with PLA rules.  
This question is not relevant for Slovakia and Serbia.
  - Limitations - use of chemicals: This is regulated only in Austrian Geoparks (it is not allowed to add any additional components into the water for producing artificial snow).
  - Parking: Regulations of parking in the winter are the same as it is valid for motor vehicles in general.
- a) Ski resorts:  
PPs do not find any additional relevant regulation that would be important for their Geopark.
- b) Cross-country skiing, tour skiing, free riding, sledding:  
These activities were found to be relevant only in three participating Geoparks: Austria and Slovakia (PP2, PP4 and PP9).  
In Austria, winter sports are generally prohibited on roads in the local area. The authorities may, by regulation, exclude particular roads from the prohibition of the exercise of winter sports and block them for the rest of the vehicle traffic.  
In Slovakia (PP9) these activities are allowed only on marked trails.
- c) Snow-mobile
- Limitations – location: In Slovenia and Serbia, the rules for snow-mobiles are the same as for all other vehicles. Austria: see previous paragraph. It is forbidden to drive motor vehicles in the nature. In Slovakia (PP9) these activities are allowed only on special trails marked for use of snow-mobiles. Within the protected areas it is forbidden to use snow mobile.



## 4 Common Strategy for Sustainable Management of Tourism Pressures in Geoparks

### 4.1 Introduction to Recreation Activities in Geoparks and Strategies for Their Sustainable Management

Our personal experiences in the nature are satisfying, but we are not always aware of the changes we make in the environment: we pollute water, disturb animals, trample and erode soils, widen trails, damage vegetation, etc. Recreational use is considered one of the major threats to the ecosystems of protected areas and it has become one of the main factors causing species endangerment (Siikamäki et al., 2010). There is a perverse general law that suggests that the more precious a place, and the scarcer the recreation opportunity, the greater the risk of pressure of popularity. We are in danger of loving our special places to death (Broadhurst, 2001).

This chapter brings presentation of general recommendations, which are relevant for all recreation activities and for all Geoparks. These measures can be related to management or to general problems (e.g. noise, waste, congestion). The following chapters present individual recreation activities, types of damage and stresses caused to the environment and some examples for management measures or regulations to avoid or reduce this damage. Following categorization of ROS (Recreation Opportunity Spectrum) (McCool Stephen F., Clark Roger N., and Stankey George H., 2007), problems are divided into three categories:

- Environmental (physical, biological and chemical change)
- Social
- Managerial.

According to Liddle (1997) recreational activity can affect wildlife in three main ways:

1. Stress/Disturbance: Wildlife becomes aware of human activity, and responds by becoming stressed, altering its behaviour, avoiding (fleeing) areas of activity, or confronting/attacking humans. Such responses may detrimentally affect the fitness of an individual or population. Displacement of animals by recreational disturbance may be short term (i.e., minutes or hours) or permanent.
2. Alteration of Habitat: The presence of human activity and/or infrastructure s removes or fragments habitat for wildlife, or can create artificial habitat which elicits change in population dynamics or encroachment of new species/populations.
3. Collision/Mortality: Wildlife is struck by humans or their vehicles, resulting in injury or death. Mountain bikers are at particular risk of this type of encounter because the potential speed and relative silence of a biker may facilitate closer proximity to bears before being detected (Chiu, Kriwoken, 2003).

The order and grouping of activities is mostly the same as it was in the previous chapter. We grouped together some recreation activities that are regulated by the same regulations and which have at the same time very similar impacts to the environment. Besides, “picnics and camping” are regarded as a separate category because of their important environmental effect and high potential to cause future threats to environment in the participating Geoparks.

In Geoparks, as well as in natural parks, there are many types of natural heritage that are worth protecting for future generations. Different types of minerals, fossils, stone formations and similar structures, cultural artefacts, paleontological sites, etc., are of primary importance in Geoparks. Recreational impact occurs when there is interaction between recreational users and environment that is vulnerable to disturbance. Therefore, the amount of impact is a function of both use and



environmental characteristics (Cole, 1993). Manning and Anderson (2012) distinguished among the following recreation-related impacts on ecological component of the environment:

- Soil: compaction, loss of organic litter, loss of mineral soil, reduced soil moisture, reduced soil pore space, accelerated erosion, altered microbial activity.
- Vegetation: reduced height and vigour, loss of ground vegetation cover, loss of fragile species, loss of trees and shrubs, tree trunk damage, introduction of non-native species, composition change, altered microclimate.
- Wildlife: habitat alteration, loss of habitat, introduction of non-native species, wildlife harassment, modification of behaviour, displacement from food, water and shelter, reduced health and fitness, reduced reproductive rates, increased mortality, composition change.
- Water: increased turbidity, increased nutrient inputs, increased levels of pathogenic bacteria, altered water quality, reduced health of aquatic ecosystems, composition change, excessive algal growth, etc.

Table 2 Common types of outdoor recreation-related impacts. (Leung and Marion, 2000; from Manning and Anderson, 2012)

	Ecological component			
	Soil	Vegetation	Wildlife	Water
Direct effects	Soil compaction	Reduced height and vigor	Habitat alteration	Introduction of exotic species
	Loss of organic litter	Loss of ground vegetation cover	Loss of habitats	Increased turbidity
	Loss of mineral soil	Loss of fragile species	Introduction of exotic species	Increased nutrient inputs
		Loss of trees and shrubs	Wildlife harassment	Increased levels of pathogenic bacteria
		Tree trunk damage	Modification of wildlife behavior	Altered water quality
Introduction of exotic species	Displacement from food, water, and shelter			
Indirect/derivative effects	Reduced soil moisture	Composition change	Reduced health and fitness	Reduced health of aquatic ecosystems
	Reduced soil pore space	Altered microclimate	Reduced reproduction rates	Composition change
	Accelerated soil erosion	Accelerated soil erosion	Increased mortality	Excessive algal growth
	Altered soil microbial activities		Composition change	

Furthermore, recreation affects some other resources that often remain forgotten in Geoparks, but they have a potential to attract and educate visitors of Geopark (Manning and Anderson, 2012):

- The natural quiet - the sounds of nature.
- The unpolluted night sky.

Differences in the amount of use influence the amount of impact most when levels of use are relatively low. Accordingly, the amount of impact increases rapidly with initial increases in the amount of use; at higher use levels, however, large increases in use may result in very small increases in impact. For example, once trampling exceeds relatively low threshold levels, vegetation loss and soil compaction are pronounced regardless of the amount of use (Cole, 1993).

Visitors affect also historical and cultural resources (Manning and Anderson, 2012). These damaging impacts can be result of accumulated wear and tear (visitors who are walking off designated trails and touching, climbing on, or leaning on historical or cultural items), damaged by oils from human skin or



by heat from campfires that are built too close to archaeological sites, damaged by people who intentionally behave in ways that damage historical/cultural sites (people take or damage items, make graffiti or carvings, etc.). Sometimes problems can appear also due to food remnants, which attract rodents.

There are at least six distinct factors of recreational disturbances that shape wildlife responses (Knight, Cole, 1995).

- Type of activity
- Recreationist's behaviour
- Predictability
- Frequency and magnitude
- Timing
- Location

It is expected that in the future the outdoor recreational activity will continue to increase, while the amount of wild land where wildlife may seek refuge from disturbance will decrease. This dilemma poses to natural resource managers difficult choices: to protect biological diversity by denying humans the opportunity to enjoy outdoor recreation, or to allow unrestricted use of wildlands and harm wildlife. The most realistic approach is the one that promotes the coexistence of wildlife and recreationists with these restrictions (Knight and Temple, 1995):

- Spatial (wildlife and recreationists are separated by buffer zones)
- Temporal (critical time periods for wildlife)
- Behavioural (reduction in recreationists noise and movement)
- Visual (e.g. screening vegetation)

Through the years natural parks have identified several strategies and tactics for managing recreation impacts on resources. Some of them are (Broadhurst, 2001; more data are available in Chapter 5):

- Reduce using of the entire area: limiting number of visitors, temporal or spatial zoning, redirecting visitors to other areas, etc.
- Reduce using of the problem area: educating visitors, disabling access, prohibiting visit of problem area, improving access to alternative areas, eliminating attractions (e.g. facilities) in problem area, charging different fees, etc.
- Modify the location of use within the problem area: discouraging or prohibiting camping or stock using on certain locations, concentrating use on durable sites, prohibiting off-road travel<sup>2</sup>, segregating different types of activities.
- Modify the timing of use: encouraging to use outside of peak use periods, charging fees or limit access during peak seasons or during sensitive periods.
- Modify type of use and visitor behaviour: prohibiting particularly damaging practices, encouraging/demanding certain behaviour or skills, prohibiting pets, prohibiting overnight use, etc.
- Modify visitor expectations: informing visitors about appropriate uses, about conditions they may encounter, etc.
- Increase the resistance of the resource: shielding the field from impact, strengthening the site, etc.
- Maintain or rehabilitate the resource: removing problems, maintaining or rehabilitating impacted locations.

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<sup>2</sup> Symbolic rope fencing along the margins was found to be substantially more effective than several information/education practices (Manning and Anderson, 2012).



#### 4.1.1 General Management Strategies

Geoparks in Danube region have generated sustained knowledge on geo- and bio-diversity of their territories. But they notice a big gap between this expressed natural value and its evaluation and comprehension by local populations, visitors and potential investors. So it is very important that they are aware of all potential risks individual activity can bring in specific environment of individual Geopark.

This chapter presents general management strategies and recommendations for more sustainable and planned management of recreational activities in Geoparks in order to reduce and avoid their future negative impacts. Some of these activities may not be problematic at the moment, but there is a very high probability that at least some of them will exceed limits of sustainability in the future or that some kind of regulation will be required.

The participant partners need to establish an appropriate balance between preservation and geotourism development in each Geopark. Based on natural features defining PPs Geoparks, managers should define opportunities and constraints of sustainable Geotourism development and at the same time provide measures for managing the increased pressures of invasive forms of recreational activities (e.g. adrenalin parks, organized motor vehicles competitions, organized bike competitions outside official roads, etc.).

Although there are exceptions, motorized uses will usually cause more impact than nonmotorized uses, horses will cause more impact than hikers, and overnight users will cause more impact than day users (Cole, 1993). According to Cole (1993). there are many characteristics of recreation that determine its impact on an environment. The most significant include:

- (1) the amount of use,
- (2) the type of recreational activity,
- (3) the behavior of recreationists,
- (4) the spatial distribution of use, and
- (5) the temporal distribution of use.

The relationship between the amount of use and the resulting amount of impact has been studied intensively. As mentioned in previous chapter, most studies report that this relationship is asymptotic; that is, differences in the amount of use influence the amount of impact most when levels of use are relatively low (Figure 1). Where use is widely dispersed, more of an area is disturbed. Unless use levels are quite low, dispersal may not dilute impacts; it may merely result in more widespread damage. Concentrating use may be particularly effective in greenways because they are often narrow. Only by concentrating use will it be possible to maintain other portions of the greenway in a near-natural condition (Cole, 1993).





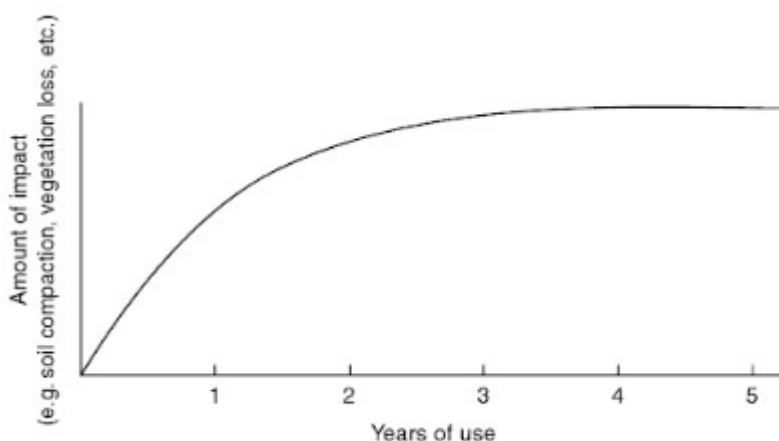


Figure 1 Most impact on recreation sites occurs within the first years after the site is opened (source: D. N. Cole; from Hammitt, Cole and Monz, 2015)

Participating Geoparks completed the questionnaire about activities going on in their Geopark. As can be seen from the chart (Figure 2) the most numerous are summer activities, those carried out in the warmer part of the year: e.g. trekking, mountaineering, rock climbing, exploring nature, picnics,... The total number of activities in each park varies between 32 in Hungary (PP1) and 12 in Serbia (IPA). Consequently, the management of the wide range of activities requires a special approach. Since the Hungarian Geopark has so many different activities going on in its territory, the management body has to be more careful in coordinating all these groups of visitors in search of different types of activities in the same, limited area of Geopark.

There is also a significant gap in the number of tourists per year visiting and taking part in offered activities in each participating Geopark, that varies from under 1000/year (organized activities in nature in Austria) to 160.000/year (tourist caves in Hungary).

### No. of activities present in Geopark

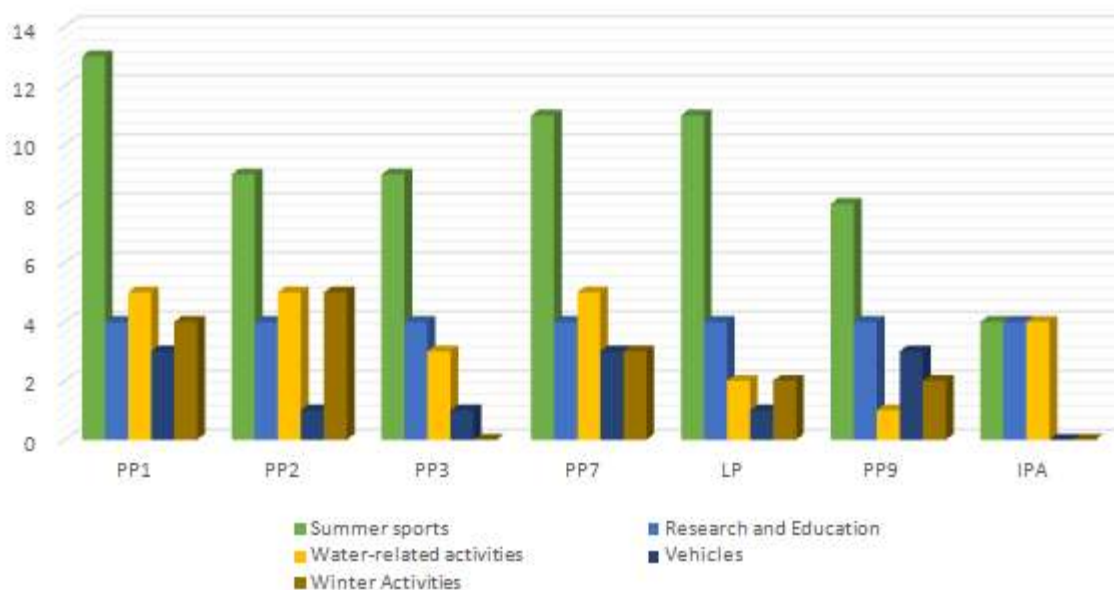


Figure 2 Chart showing number of activities in each of participating Geoparks



Managers of Geoparks have a challenging task to complete: they need more tourist visits but on the other hand these visits have to be carefully guided through the Geopark in order to cause as little impact as possible. In the following subchapters different approaches, strategies, recommendations and tips for most common recreation activities in the Danube Geoparks are listed. The number of asterisks and italics are applied to distinguish among guidelines that are:

- *already properly regulated in the participating Geoparks\**;
- *could be improved in at least some of the project Geoparks\*\**;
- *are not appropriately regulated in at least one project Geopark\*\*\**;
- suggested guidelines from the literature (The authors of this document did not check if these recommendations are established in the participating Geoparks as these are mostly suggestions for future regulations).

#### 4.1.1.1 Visitors and General Public

With increasing number of people visiting spatially diminishing, potentially degraded and modified natural areas, it is important they do not add to any problems or have recreation-specific negative impacts (Newsome, Moore, Dowling, 2013). So participating Geoparks have taken some precautions in to account to prevent these negative impacts:

- *Geoparks of the Danube GeoTour area have defined different types of protected areas within the territory of Geopark, having determined management systems and limitations for certain activities in each of them. Geoparks have a possibility to protect individual sensitive areas from the damage caused by visitors and they have a possibility to establish quiet zones or reserves (prevent access of visitors) where required. \**
- *Determined are types of natural heritage sites and their degree of protection. Individual natural heritage sites in the Geoparks are determined and described. There are possibilities to protect these sites from damage caused by visitors. \**
- *Prior consent from the relevant nature conservation authority is usually required for all organized events and organized activities in protected areas. \**
- *In general, people are free to enter and explore Geoparks, as long as they do not violate property rights. However, there are possibilities to restrict access to the most sensitive areas, where the presence of visitors could cause irreparable damage. \*\**
- *In valuable natural features, in other areas with the status of natural heritage/monuments and in areas with corresponding protection regime it is not allowed for visitors to move outside the designated trails/paths. \*\**
- *In Geoparks it is not allowed to hunt animals and trap animals of all kinds except for fishing and hunting as it is provided by official Hunting and Fishing Guideline.*
- *It is forbidden to pollute soils, water and air, to leave litter and other waste and to cause any permanent change in the environment. \**
- *It is not allowed to cause unnecessary noise. Limits on acceptable noise should be better determined. \*\**
- *Visitors should be well informed about rules on behaviour in the area of Geopark. They should be informed about negative impacts of their behaviour and activities to the living and non-living environment. \*\** Visitors should be informed of the reasons why applicable rules and regulations are necessary, of sanctions associated with failure to comply, and of activities and behaviours that can be substituted for those not allowed (Manning and Anderson, 2012). For example they cannot leave waste, cause damage to the environment, pollute soil and water, make noise, disturb animals, they should know where/when they cannot make fire, drive off-road, etc.. It is suggested to give short explanation (e.g. via expertise pictograms), long texts are not efficient.
- *When utilizing education and interpretation, managers should remember to (Cole, 1993):*



- make people aware of the link between inappropriate behaviour and specific ecological problems,
- clearly demonstrate appropriate ways for visitors to behave so that problems can be avoided,
- encourage a sense of commitment in people to do something about these problems.
- Geoparks should have possibilities to establish quiet zones, whenever and wherever needed.
- Bigger events should be carefully planned and prepared to reduce the effects on soil, fauna and vegetation (Pröbstl et al., 2010).
- In areas where there may be conflict between different user groups or where separating the groups could enhance the visitor experience, low-cost infrastructure development could encourage separation. For example, signs could direct campers away from areas used by day visitors (Pedersen, 2002)
- In order to prevent possible conflicts among different recreational types of visitors, dogs should be kept on leashes (Chiu and Kriwoken, 2003).

Areas, where individual activities are possible, should be determined in agreement with relevant interest groups (e.g. downhill bikers). All participants should be well informed about rules and limitations as well as about negative consequences of their activities in the environment and measures which can help to reduce these negative impacts. The organisers should inform also other members of their interest group. These interest groups should be involved also when problems are appearing due to these activities in the area of Geopark.

Many important instructions on appropriate behaviour of visitors and individual interest groups and consequences of our activities in the nature are noted in **Leave No Trace booklets and in their program**. Their principles are very well presented in different literature thus we decided to recommend all Geopark managers to get familiar with them and to introduce them in their management and education programs. Some of their most important recommendations are (adapted from Marion and Wimpey, 2007, Leave No Trace principles; Heinonen, 2016):

- people on/off trails (keep to footpaths and hiking trails - animals learn to expect people on trails, they are less disturbed by encounters with people on-trail than off);
- proper disposal of human waste and other waste;
- proper food storage and management with remnants (store food safely and leave no crumbs behind - fed animals too often become dead animals);
- dealing with wastewater;
- swimming in sensitive areas;
- leaving all items you find;
- measures to avoid spreading of non-native and invasive species (e.g. cleaning tires, shoes and boats, use of safe food for horses) (see also Turton, 2005);
- measures to avoid habituation and/or interference with wildlife (e.g. observe from distance, never feed animals and store food and trash securely, control your pet or leave it at home, remove pet faeces);
- measures to diminish damage to the environment;
- avoid sensitive times and habitats (animals are more susceptible to human impacts particularly during winter and spring, as well as during certain periods of life - during mating, nesting or raising young);
- be considerate of other visitors;
- keep voices low and avoid unnecessary lighting.



For more detailed information we advise Geopark managers to overview the literature published by “Leave No Trace” listed in Chapter 5. Available are also other brochures, books, posters, reference cards, etc. (<https://lnt.org/shop/educational-materials>)



Figure 3 An example of poster with Leave No Trace principles

Some suggestions for more effective education are (Manning, Anderson, 2012):

- Use multiple media to deliver messages instead of a single medium.
- Deliver messages repeatedly.
- Deliver messages as close as possible to the problematic location.
- Focus on less experienced and less knowledgeable visitors.
- Brochures, personal messages, and audio-visual programs may be more effective than signs.
- Personal contact and role modelling with visitors by rangers (and especially by volunteers) or can be effective in communicating information and education.
- Messages should be targeted at specific audiences.



#### 4.1.1.2 Spatial Planning, Constructions and Design of New Trails



Figure 4 Wooden path (photo: IRSNC)

When planning new tourist facilities (built accommodations, campgrounds and other facilities) it is recommended to minimize the area cleared for these constructions in order to keep unchanged the natural drainage patterns. (Newsome, Moore, Dowling, 2013). Another important impact on the wilderness areas is highlighted in this chapter: design of new trails. Paying special attention to the location of the trails may reduce costs with remedial measures that become necessary after damage occurs. Generally, the smaller the total area used or damaged the better. (Cole, 1993)

- *An agreement from relevant nature conservation authority is required for all measures in the protected areas (building/repairing infrastructure, different measures that could affect sensitive areas, species or habitats, etc.).\**
- *Extensive earthworks are not encouraged.\**
- *Changes in the geoheritage area can be done only with agreement of responsible institute for the nature conservation.\**
- In general, it is recommended not to allow further spread and widening of trails (especially informal) existing and widening of campsites (Forest Service, 2006). Once an informal trail has been identified, management has to decide whether to close and rehabilitate the trail, modify it to be sustainable or to maintain the trail as it has been developed (Davies and Newsome, 2009).
- Design of facilities in Geoparks should be kept as simple and as unobtrusive as possible (natural colours, materials, design, etc.) (Forest Service, 2006). New facilities should not be planned in areas with simultaneously high species richness and vulnerable habitats (or this heritage should be taken into account otherwise) (Siikamäki et al., 2010).
- New buildings and facilities should not be created as greenfield investments. Utilization of vacant/old buildings and sites should be fostered.
- In areas where vandalism may be an issue, consider indestructible options for seating, such as suitable rocks and boulders (Forest Service, 2006).

#### How to plan trails to reduce soil and vegetation impact

Several recommendations exist on how to plan trails to reduce soil and vegetation impacts. Some of the most important suggestions are as follows:(for more details see Forest service, 2006; Marion and

Wimpey, 2007, Marion and Leung, 2004; Davies and Newsome, 2009; Manning and Anderson, 2012; Newsome, Moore, Dowling, 2013; Park, Manning, Marion, Lawson, Jacobl, 2008):

- Locate trails away from sensitive or critical habitats of species (habitats of rare or sensitive species, riparian or wetland areas, etc.) and from archaeological sites, which are not designed for visiting. Consider discouraging or restricting access during sensitive times/seasons (e.g., mating or birthing seasons) to protect wildlife.
- Locate trails on side-hills where possible, because these trails do allow excessive future tread widening and off-tread trampling.
- Design trails with sustainable grades (keep trail grades below 12%) and avoid fall-line alignments.
- Preplanning/redesigning of the routes in a certain area is needed to avoid unnecessary damages of trail overuse (due to insufficient network) and extreme disturbance (due to dense trail network).
- When possible, build trails in dry, cohesive soils that easily compact and contain a larger percentage of coarse material or rocks. Where possible avoid soils high in silt and clay, which are muddy when wet and cracked and dusty when dry.
- Once a trail has been build and signed, proper maintenance is needed to avoid getting lost and causing further damage. There must be somebody responsible for the maintenance.
- Avoid using steps as far as possible, as they are expensive and can create a barrier for people with mobility difficulties. Alternative approach is to descend in a gentle zigzag fashion). Avoid having too many switchbacks, as impatient walkers may begin taking short cuts directly down the slope.
- When constructing trails, we recommend hand construction, which is least disruptive or mechanized construction with small equipment. Work should be done by skilled operators. Remove organic litter and soil during trail construction to avoid its muddiness.
- Minimize tread muddiness by avoiding flat terrain, wet soils, and drainage-bottom locations. Another engineering solution for muddiness is bridge construction. Techniques for wet soils and for tread hardening can be found in Marion and Leung (2004).
- In flatter areas, elevate and crown treads to prevent muddiness, or add a gravel/soil mixture in low spots. Board walks, slightly elevated across the landscape, are common in valley bottoms and in alpine areas subject to prolonged water logging. Raising the trail or road using earth and gravel is usually accompanied by some form of drainage (e.g. geosynthetics) to ensure the formed trail or road is not washed away.
- Use tread hardening and geosynthetic materials in areas where trails are susceptible to erosion and can't be re-routed.
- Trails should avoid close proximity to water resources.
- Special uses (e.g. motorized or horse traffic), require special design considerations – e.g. tread surfaces with crushed stone, wider trails, cleared trail corridors, a wider radius at turns, hitching posts, and staging areas for loading/unloading animals or equipment and parking trailers.
- Where intensive use is expected it is advisable to harden the trail (e.g. compacted crushed stone; see Forest service (2006) for details). The trail should be wide enough to enable people to walk at least two abreast.
- It is best to minimize the number of stream crossings. Where crossings are necessary, scout the stream carefully to select the most resistant location for the crossing. Design water crossings so the trail descends into and climbs out of the steam crossing, preventing stream water from flowing down the trail.
- Use grade reversals to remove water from trail treads or at least reshape the tread to re-establish an out sloped tread surface periodically, and install wheel-friendly drainage dips or other drainage structures. If it is not possible to install proper drainage on a trail, consider



rerouting problematic trail sections, or possibly hardening the tread. Armor trails at stream crossings with rock, geotextiles, or gravel to prevent erosion. On some heavily used trails, a bridge may be needed to provide a sustainable crossing.

- Avoid excessive opening of the overstory to avoid vegetation compositional change.
- Keep trails narrow to reduce the total area of disturbance and to slow trail users.
- Keep the trail maintained to avoid widening of the trail e.g. due to improve drainage, to close shortcuts, etc.
- Educate visitors about low impact practices (e.g. Leave No Trace Skills & Ethics) and prohibitions (e.g. off-trail travel).
- Discourage or prohibit the use of trails that are prone to muddiness during wet seasons.
- Plan infrastructure in a way that will encourage alternative means of travel in a Geopark (increase possibilities for different ways of travel, better accommodate motorized and non-motorized travel, reduce congestion in popular areas; improve the communication of transportation, etc.).
- Aim to create looped routes, figure-of-8 route or a network of routes, so that people can walk a circuit and not have to retrace their steps.
- Design trails that provide the experience that trail users seek to reduce off-trail venturing. Since many visitors who walk off-trail are not highly directed in this activity and are simply “exploring” and “looking for better views,” there should be provided more maintained trails, “photo points“, areas for informal exploration.
- Remote walking routes provided for hill-walkers can comprise a simple narrow footpath (the aim is to reinforce a sense of solitude, wilderness and exploration).
- Bark mulch and wood chips are generally not suitable for surfacing, as they become sodden and deteriorate very rapidly. However, both may be an option to demarcate temporary walking routes during particular events.
- Consider providing a short stretch of footpath or an open space specifically for dog owners to bring their dogs through as soon as they arrive at the forest. Dog owners should also be requested to remove dog foul.

#### 4.1.1.3 Supervision and Control Service

Supervision and service is part of a visitor management. The main duties of supervisors or rangers are the inspection and maintenance of protected areas, and the information of visitors through public information, education and law enforcement activities. They are also responsible for searching and rescue activities.

- In the study Manning (2003) showed that personal contact with the uniformed staff member (e.g. ranger, guides) had a positive effect on visitors’ behaviour – visitors kept to the appropriate behavior (e.g. they mostly stayed on the marked trails) (Graf, 2016). *A service for control is established in project Geoparks. There are expert wardens, rangers or inspectors. \* These people should be well educated about Geopark rules, about protected species and habitats as well as about appropriate procedures in cases of violations of Geopark rules. \*\**
- *It is advisable that Geoparks establish voluntary wardens. This would at least partially reduce the problem of lack of wardens, which is present in the majority of participating Geoparks. \*\**
- *The role of voluntary wardens is to observe, inform and educate visitors as well as warn them in the case of rule violations. They should inform official authorities in the case of observed irregularities or offences. \*\**

#### 4.1.1.4 Wildlife Species and Habitats



Figure 5 The European hare (*Lepus europaeus*) (photo: IRSNC)

To protect wildlife and to avoid conflicts the Geopark staff should educate visitors on appropriate behaviour. Some of the most important recommendations are already listed in chapter above (4.2.1.1.). Adapted from Marion and Wimpey, 2007, Leave No Trace principles; Heinonen, 2016 these are the key guidelines for observation and visitor behaviour in respect to wildlife species and habitats:

- It is OK for wildlife to notice you, but you are "too close" or "too loud" if an animal stops what it is doing and/or moves away from you. By pursuing or spooking animals, you are mimicking a predator's actions
- It is best to view wildlife through binoculars, spotting scopes, and telephoto lenses.
- All wildlife can be dangerous - be aware of the possible presence of animals and keep your distance to ensure your safety and theirs.
- Photography of birds' nests and photography of strict reserves is allowed only with a special permission! If camping is prohibited in the protected area, this also applies to a similar photography hide. Camera installation in the field always requires the permission of the landowner (Heinonen, 2016).
- Most large animals are active at dusk and dawn. Ride during daylight hours!
- Enforce guided hikes, it causes much less damage compared to the ones without a guide.

Periods, which are especially critical for the survival of endangered and protected species, depend on each individual species and they can vary among Geoparks. However, we can summarize the most general rules:

- **Big predators:**
  - Keep food and wastes safe, so that they cannot access them (safe containers, odour-safe containers, etc.)
  - Human activities should be performed only during the day.
  - Domestic animals should be inside during the night.
  - There should be at least 50 m between forest edge and houses/stables.
  - Avoid lighting during the night.
- a) **Bats:** different bat species have very different requirements. Some general guidelines are:
  - Keep the lighting low (e.g. turn the lights off when they are not needed, turn the light off during the second half of the night, etc.) and use lights that are focused downward (this is





- also recommended for some butterfly species).
- Use bulbs with low percentage of UV light.
  - Do not disturb bats during their reproductive, nursing and overwintering periods.
  - **Birds:**
    - Birds are especially vulnerable during their nesting periods (usually spring). This period begins with the selection of nesting sites and it ends with the time when young birds are able to fly.
    - Different bird species have different requirements: some require extensive pastures, the others forest edge, the third extensive natural forests, the fourth pebbles along the river, the fifth is very sensitive to the presence of people, etc. Presence of endangered species and their needs should be taken into account when planning new infrastructure (new trails, zones, etc.).
    - For some bird species (e.g. *Aquila chrysaetos*, *Bubo bubo*), unprotected electric wires can be especially dangerous. In the area of these bird species, power lines should be appropriately protected (e.g. Haas et al, 2003). Solutions like insulating tubes, caps or hoods, terminal poles, switch towers, etc are available.
    - Keep old trees with holes in their trunks. Maintain old-growth orchards (especially those with old, native sorts of trees).
  - b) **Reptiles:** to protect reptiles (different species of snakes, lizards, etc.) Geoparks should preserve existing walls, made of stones (without concrete or other binding materials) and other stone formations, which could be important as their living habitat.
  - c) To improve the habitat for **amphibians**, the following is recommended:
    - Retain/build new water bodies (with standing water) using natural materials, natural vegetation on slopes and without steep slopes.
    - If renovations or building of new infrastructure is required they should be performed during the time in which amphibians are not in relevant water bodies. This is usually between November and beginning of February.
    - Within areas where amphibians cross roads during their migration the manager should set protective railing and underpasses.
  - d) The most critical period for **fish** species is during their spawning. The period of their spawn differs among species, but in the majority of cases the most “safe” is the period between July and January.

If there are endangered fish species in the river, we should avoid all interventions and recreation activities should be carefully controlled.
  - e) The most critical period for **crustaceans** is during their reproduction, which usually happens in autumn (between September and December). In rivers with endangered crustacean species crustaceans should be relocated before bigger interventions. The most appropriate time for allocation is usually during summer (July, August), when crustaceans are the most active.

If there are endangered crustacean species in the river, we should avoid all interventions and recreation activities should be carefully controlled.
  - f) Within areas, where are known habitats of endangered **beetle** species, their reproduction periods could be checked when planning interventions in the forests. Different species of beetles reproduce in different time periods. A large part of endangered beetle species requires wood of fallen/dead trees. The time of the removal of this wood from forests should be harmonized with their life cycle: the wood shouldn't be removed during their reproduction period (this is usually between May and August) and the wood should be removed from the forest as soon as possible (before they lay eggs into this wood). The wood that was cut in autumn and winter should be removed from the forests before the next April/May.

- g) All species and habitat types: do not introduce non-native (especially invasive) species. We should aim at controlling/removing existing invasive species (if they are still present).

#### 4.1.1.5 Non-Native Species

Geoparks should regulate activities that are associated with intentional and accidental introductions and by promoting barriers to the spread of non-native species (IUCN, 1999):

- Introducing and stocking non-native fish populations should be prohibited.
- Release of ballast water should be controlled.
- Actions should also be taken to prevent the introduction of non-native species by sport-fishers and aquarium hobbyists: prohibitions on the use of live fish bait, education programs regarding the threat of releasing non-native organisms into open waters.

The study (Quinn, Chernoff, 2010) found that native plant cover decreased in areas more proximal to trails of all types, and generally that invasive species were more likely to be found immediately adjacent to trails of all types. Experimental treatment of simulated recreational use on sample plots indicated that some types of recreation favoured the spread of certain invasive species, while other types of activity created niches for different invasive species.

Where non-native species have already become established, eradication is preferable and more cost-effective than long-term control (IUCN 1999).

#### 4.1.2 Caves, Mines, Fossils and Minerals

Whenever planning activities in caves, you have to keep in mind that caves generally do not (easily) recover from human impact. Cave managers need to learn how to appropriately and carefully plan infrastructure. When visiting non-tourist caves, visitors shall move through caves with the smallest possible impacts. As caves are unique ecosystems, authors (Newsome, Moore, Dowling, 2013) recommend maintenance of caves as natural systems where the true nature of the cave (darkness, natural soundscape) can be appreciated under low light conditions.

##### 4.1.2.1 Visiting Caves

Based on the rules already applied by participating Geoparks and some specific guidelines for *cavers* (underlined) (complete list of behavioural rules for cavers available in LNT guidelines for cavers booklet) the following can be recommended:

- *All caves should be owned by a state, they should not be an object of commerce or trade. \**
- *For all tourist caves and for caves of natural or scientific importance a managing organisation should be appointed. \**
- *Categorization of caves should be established in all Geoparks with caves. Categorization should enable establishment of closed caves (caves which you can enter only with a special permission) and caves that can be visited under supervision of guides/experts. Every visit to these caves should be registered. \*\**
- *Special agreement from the competent nature conservation organization should be required to build or renovate infrastructure in and around the cave. \**
- *Cavers need to have qualification to be able to enter caves that are above certain length/depth or those for which you need some cave equipment. \**
- *Established should be control over visitors in the caves and their behaviour. \**
- *Prior agreement from relevant authority should be required to use engine-powered vehicles in the cave. \**



- *Prior agreement from relevant authority should be required for events in the caves (including filming, etc.). \**



*Figure 6 Caver exploring non-tourist cave (photo: P. Gedei)*

- *Caves or their parts, which are known as habitats for bats, should have determined periods in which they cannot be entered. All measures should be taken to avoid disturbance of bats (especially in sensitive periods). \*\**
- *Established should be courses for cavers, which should include detailed nature conservation topics. \**
- *Tourist caves can be entered only with a guide. \**
- *Upper limit on the number of visitors should be determined. This number should be based also on nature conservation principles. \* (The most appropriate size of a group is 4 to 6 people: less is problematic in a case of an accident; bigger groups can become difficult to manage).*
- *Guides should have certified knowledge on nature conservation rules in the cave as well as safety in the cave and rescue from the cave. \**
- *Visitors should be warned not to touch cave formation, because compounds on their hands affect the surface of these formations. \* (Wear gloves to keep oils from your off the cave walls. Hard-faced kneepads and elbow pads can leave plastic scrapings in the cave. Wear non-marking boots. In some parts it is necessary to change into a clean pair of shoes or aqua socks to prevent tracking muddy boot prints).*
- *Appropriate control should be established; wardens/inspectors should be educated (protected species of animals in caves, protected minerals and fossils, etc.). \*\**
- *It should be prohibited to take cave formations, animals, fossils, etc. from the cave.*
- *It should be prohibited to sell cave formations. \*\**
- *Caves can be visited only in a way that does not endanger the cave, cave inventory and living-beings in the cave:*
  - o *No damage to cave formations can be caused. \**
  - o *It should be forbidden to take anything from the cave (except items you bought in). \**
  - o *No open fire in the cave\*\* (except cave lamps).*
  - o *Limited volume of noise in the cave. \**
  - o *No pollution of the cave (waste, human waste, no smoking etc.). \**

- Catching and disturbing cave animals should be forbidden. \*\* (Do not disturb maternity roosts of bats and bats during hibernation (late fall to spring). Do not stay long in hibernation area, talk quietly and avoid shining and flashing lights directly on them when passing through.



Figure 7 Cavers preparing to enter the cave (photo: IRSNC)

- Do not mark the entrance!
- Minimize impact at and around the cave entrances! Concentrate your movement on durable surfaces, avoid trampling of plants. Urinate well away from the entrance. Walk at least 200 feet from entrance areas and water to defecate. Do not defecate directly uphill from cave entrances.
- Leave natural features undisturbed. Caves are protected by the law!
- Respect safety rules! Any cave rescue almost always damages the cave.
- Ask permission before entering a cave and obtain enough information about the cave (hazards, limitations, use of carbide, etc.).
- To prevent introduction of foreign material into the cave, wash your caving gear between trips and brush off your clothes before entering the cave. Use clothes that are in good condition (not to leave shreds of fabric behind). Synthetic fibres are preferred – they don't feed microorganisms, they do not shred so easily.
- Avoid camping underground (in some caves this is also illegal).
- If possible, use established trails to concentrate impact, travel single file and in the same footsteps.
- Minimize vertical caving impact: choose a rigging setup that will minimally impact the cave, use rope pads, avoid moves that would cause scratches on the wall, etc. (Stainless) bolts should be placed in agreement with the owner/manager.
- Take photos carefully and conservatively: stay and keep your devices on the trail or other durable surface. Minimize photography of bats and do not take photo of hibernating bats or maternity colonies.
- If you need flagging tape, reflective markers or rock cairns, remove them ALL as you exit the cave (also "biodegradable" items, which are toxic to cave organisms).

#### 4.1.2.2 Tourist Mines/Quarries (including cycling in mines)

*In tourist mines/quarries the visitors' safety is the most important therefore the key recommendations are:*

- *Visitors must wear (certified) protective clothing and helmets. \**
- *Visits are only with guides. \**
- *The concentration of O<sub>2</sub> and CO<sub>2</sub> in the cave shall be taken into account when determining the number of visitors. \**
- *No smoking, no tools with flame in the mine. \**
- *Prior the visit, visitors should be well informed about the path (its length, difficulty, number of stairs, etc.). \**

*Other rules are similar as for caves (visitors are not allowed to take our stones, etc.). \**

#### 4.1.2.3 Minerals and Fossils

*According to Global Geopark Network rules, it should be forbidden to sell and export any fossils, minerals and cave formations within Geoparks. \*\* Participating Danube Geoparks have to adjust their national legislation to these rules. As mentioned in the Introduction of this document, there are several rules for all UNESCO Global Geoparks to be respected:*

- *respect local and national laws relating to the protection of geological heritage*
- *defining geological heritage sites within a UNESCO Global Geopark must be legally protected prior to any application*
- *UNESCO Global Geopark should be used as leverage for promoting the protection of geological heritage locally and nationally*
- *the Management Body must not participate directly in the sale of geological objects (fossils, minerals, polished rocks and ornamental rocks) and should actively discourage unsustainable trade in geological materials as a whole*
- *where clearly justified as a responsible activity and as part of delivering the most effective and sustainable means of site management, it may permit sustainable collecting of geological materials for scientific and educational purposes from naturally renewable sites within the UNESCO Global Geopark*
- *trade of geological materials based on such a system may be tolerated in exceptional circumstances, provided it is clearly and publicly explained, justified and monitored as the best option for the Global Geopark in relation to local circumstances (such circumstances will be subject to approval by the UNESCO Global Geoparks Council on a case by case basis)*

*Other important guidelines in respect to minerals and fossils for Geoparks are:*

- *It shouldn't be allowed to commercially exploit minerals and fossils without special permission\**
- *A list of protected minerals and fossils should be established. \*\*\**
- *Minerals and fossils could be taken, if they are:*
  - o *not protected minerals/fossils; \*\**
  - o *are accessible without mechanical intervention (digging, drilling, etc.) and \*\**
  - o *if they are found outside of valuable natural features or other protected geosites. \*\**
- *Properly withdrawn non-protected minerals/fossils become the property of those who take them. The finder has to assure that they are properly stored. \*\**
- *The finder has to inform the state about the finding of any exceptional mineral/fossil. \*\**





Figure 8 Fossils: Foraminifera (photo: A. Ličen)

#### 4.1.3 Trekking, Hiking, Mountaineering, Climbing

- *New trails should be made only in agreement with relevant nature conservation authority. The number of new trails should be as low as possible and their route should be carefully designed to minimize environmental impact. \*\**
- *At least in the area of valuable natural features, in reserves and other relevant habitats it should be forbidden to walk, ride or drive off-road. \*\**
- *Geoparks should have a possibility to limit access to certain areas and/or in certain time periods. This could be done not only for visitors' safety but also to protect species and habitats (e.g. during nesting period of protected birds, during wet season on sensible soil, during low water levels to avoid damage to river bed, etc.) \*\*\**
- *Geoparks have different regulations on overnight stay. To avoid environmental damage, pollution, disturbance of animals and conflicts with the owners, it is recommended that Geoparks would not allow people to sleep or stay on public locations or other accessible locations that are not dedicated for these activities. Geoparks should establish camping areas, where people are allowed to camp. \*\**
- *There should be an official register of trails for hiking and for other activities (mountain biking, riding, use of motorized vehicles, snowmobiles, etc.). \*\**
- *Usually it is advisable not to set trails with multiple uses (for hikers, bikers, motor bikers, riders, etc.) as this could cause conflicts between user groups, it can result in injuries and it would lead to disproportionate widening and erodibility of the trail. \*\**
- *Enforcing guided hikes causes much less damage compared to the ones without a guide.*



Figure 9 Father and son mountaineering (photo: IRSNC)

#### 4.1.3.1 *Trekking, Walking, Mountaineering, Running*

Also people, who are walking, have to respect several rules (several of them are in detail described in Leave No Trace literature):

- *Users can use hiking trails for walking, running or climbing, but they must not cause damage to soil, flora, fauna and other users. \*\**
- *In the majority of Geoparks users use trails on their own risk. The park manager is responsible to maintain the trail and equipment. \**
- On trails walk single file in the centre of the tread – even where it is wet, muddy or rocky (Leave No Trace).
- Do not make shortcuts and keep out of areas where efforts to restore vegetation and soils are in progress (Leave No Trace).
- Dogs have to be on leash as they cause much more stress to wildlife.

Special category is orienteering and geo-caching. A necessary part of both activities is leaving footpaths and going straight through the forest. Consequently, they are more problematic and they require special attention and careful planning (not in wildlife refuges and insensitive habitats, not in sensitive periods, etc.).

#### 4.1.3.2 *Rock Climbing*

To appropriately manage rock climbing and to avoid impacts on geoheritage several climbing regulations have been proposed, including:

- *Geoparks should have official register of climbing routes. \*\**
- *Climbing should not be allowed in areas with protection regime for surface geomorphological or zoological heritage. \**
- *It should be possible to temporary or permanently close climbing routes that are found to endanger geological, zoological or botanical heritage. \* Similarly, it is advisable that*



*Geoparks would have possibilities to limit daily number of climbers in sensitive routes as well as in crowded routes. \*\*\**

- Bolting the existing and newly opened climbing routes should be a subject of regulations. *An official agreement from Geoparks and from relevant nature protection organization should be required to establish new climbing routes or to modify existing ones (especially in areas with nature protection statuses). \**
- *Courses for climbers and for instructors should be available; despite they are usually not obligatory. These courses should include topics on nature conservation (protection of geological heritage, protected fossils/minerals, ecology of relevant bird species, etc.). \*\**
- Climbing approaches like dry tooling should not be allowed, as they could damage geoheritage (limitations for specific types of climbing and use of climbing equipment).
- *Climbers should be well-informed about effects of their activity on the surrounding environment, which activities are (il)legal and that they are climbing on their own risk\*. They should be informed on how to behave to minimize damage to the environment (erosion, disturbing wildlife, pollution, noise, etc.). They shouldn't remove vegetation and leave waste. \**
- The anchors should not pose any risk of entangling animals.
- All activities should proceed in agreement with the owner and/or manager.

Regulations should be determined in co-operation between park managers and climbers' representatives.

#### 4.1.4 Picnics and Camping



*Figure 10 Campsite situated in pine forest (photo: A. Ličen)*

Making picnics and camping can be regarded as an individual activity or it can be a part of other activities (e.g. people who are hiking for multiple days). In both cases these activities can cause several conflicts with owners as well as among user groups (e.g. between people who are seeking for peaceful night and those who would like to celebrate). Environmental impacts of picnicking (daily use) is reviewed by Turton (2005).

In locations which are damaged due to numerous picnics and uncontrolled camping, it is advisable to prepare arranged picnic/camping areas and to establish strict rules (e.g. prohibition of camping outside dedicated areas, prohibition of noise, the need to register in advance, prohibition of alcohol, limitations on the size of groups, etc.).



Over time, campsites may proliferate, increasing in both number and size. Where fires are permitted, soils may be damaged by heat, wood depleted, and trees damaged. Wildlife may be attracted to food at campsites and become habituated to people. Alternatively, camper activity may cause wildlife to flee from important habitat (Manning and Anderson, 2012).

In the majority of project Geoparks picnics and camping are allowed:

- *Where the owner does not prohibit them. \**
- *They are not allowed in areas with in areas with nature protection statuses and in reserves. \**
- *They are not allowed in forests and in very dry periods, when there is a danger of fire. \* People also should not make fires in windy/rainy periods.*
- *Visitors should not cause damage to protected species or habitats. \*\**
- *Visitors should not cause damage to the environment and leave waste. \*\**
- *In some project Geoparks fire making is restricted by local (e.g. municipal) acts. \*\**

Other recommendations for regulations of picnics and camping are (adjusted from Manning and Anderson, 2012; Leave No Trace principles; Forest Service, 2006; Marion and Farrell, 2002; Turton, 2005):

Camping site and picnics:

- Design site camping policy - Implement a containment strategy to concentrate impact on a limited number of resistant sites.
- Encourage to reduce/level the number of picnic places in Geoparks and focus on maintenance of the existing ones.
- Limit on site numbers to achieve high site occupancy rates.
- Common use of "side-hill" campsites in sloping terrain.
- Construction of improved tenting sites (attracting visitors to the intended use areas).
- Facilities (e.g. shelters, picnic tables – to attract and concentrate use).
- Ongoing site maintenance to improve intended use areas and discourage site expansion.
- Publish educational messages that encourage use of core areas.
- Sites should be clustered in campgrounds to limit the wildlife habitat fragmentation.
- Concentrate use at a small number of hardened sites.
- Canopy cover should be maintained to reduce numerous adverse impacts (dispersal of weeds and feral animals, edge effects, soil erosion and nutrient loss, road kill and linear barrier effects on rare and threatened rainforest fauna).
- Wet season closure is recommended for particular camp areas.
- Minimal impact techniques should be used for isolated camp areas.
- Backcountry campers must use bear resistant food containers in most of the wilderness zones and store them at least 100 yards (90 m) from cooking areas and tent sites.
- Leave the area as natural as possible - minimize site alterations. Do not construct lean-to, tables, chairs or other rudimentary campsite improvements.
- Camp at least 200 feet (60 m) from lakes.
- Reduce impacts by locating tents directly on the flattened tent pads concentrating all the activities such as cooking and hanging drying lines within the designated site. When a campground has more parties than campsites, it is advisable to share a campsite with another party rather than setting up camp outside of designated tent pads.
- Trenching around tents is illegal: it greatly disturbs soil, damages roots, and looks unnatural.
- Never scrape away or clean sites of leaves and other organic litter, or harvest plants or moss to pad the ground. If rocks are moved to anchor tents, replace them when you leave.
- If visitors camp near an existing rock ring, they should use it instead of building a new one.
- Camping outside of dedicated areas should be possible only with permission from Geopark manager and responsible nature conservation authority.
- Invest in a good tent rather than trying to improvise shelters with materials from the woods.



- Use sleeping pads, collapsible camp chairs, and plastic ground-clothes rather than cutting boughs to prepare a bed. Do not hammer nails into trees, disfigure them with axes and saws, or leave wire or ropes tied around them.
- Clothes can be washed by a thorough rinsing with plain water. Wash garments away from water sources.
- In areas with big wildlife (e.g. bears, wolves), visitors should not leave food unattended to avoid conflicts with wildlife (animals that get habituated of visitors are a source of conflicts; besides human food is not healthy for them). In the central area of bears it is advisable to use bear-safe containers for food and waste.
- In central area of wildlife there should be limitations on noise and lightning during the night.

Fire setting: Setting fire is often related to picnics and it causes several problems:

- It would be recommended that visitors could only make fire within selected locations with designated campfire sites. This way the manager reduces conflicts with owners and other users, they reduce pollution of the environment and they reduce the risk of fire.
- Removal of wood from the forests changes fungal associations and consequently affects plants which grow in symbiosis with these fungi, heat from camp fires can sterilize the surrounding soils (Manning, Anderson, 2012) and remaining fire-rings have negative visual effects.
- Many authors (Newsome, Moore, Dowling, 2013) have reported that where campfires are allowed, there is a gradual depletion of coarse woody debris (CWD) in the surrounding area. Loss of CWD results in the loss of habitats (shelter and food), which in turn may lead to a reduction in local area biodiversity.
- During their search for firewood, visitors often cause damage to existing vegetation. To avoid these problems visitors should be asked to bring firewood or other burning materials (charcoal, etc.) with them. Visitors should not bring firewood into the park to avoid introduction of non-native species.
- Proper maintenance for fireplaces with heavy traffic is proposed, which in some cases may also mean making firewood available for picnickers on a weekly basis by transporting it next to the fireplace. At less visited places some pictograms may show the correct way of collecting firewood.
- They should not cause damage to vegetation (e.g., peeling off bark, snapping branches off of trees, using an axe or saw to collect wood). They should only be allowed to collect sticks from the ground that can be broken by hand, and only pick a few pieces at a time from a large area, to avoid depleting any one place in the forest or on the shore. Larger pieces of downed wood play an important and unique role in nutrition, water cycling, soil productivity and they can be important habitat for different organisms. Smaller firewood also burns completely to ash, making clean up easier.
- Visitors should be asked to only burn natural materials (do not burn waste).
- Making fire should be prohibited in sensitive areas, next to the rivers and on the shore of other water bodies. Remaining fire rings are annoying for other visitors as well as they can pollute water in the river.
- Keep the fire small and burn the wood completely to ash.
- Before leaving saturate the ash with water and scatter all the ashes widely with a small shovel or pot lid.
- Try alternatives to a fire (lightweight lanterns, candles, flashlights, cook stoves, etc.).

Waste and wastewater:

- Pack out your trash, do not burn it.



- Where outhouses are provided it is essential that visitors use them. Where outhouses are not provided, a cathole can be recommended as means of human waste disposal. (Catholes are mostly used in USA, in EU this practice has not been established yet).
- Properly dispose of wastewater. Remove all food bits from the water using a small strainer or piece of screen and pack these particles out with garbage and other trash. If there are no proper facilities available, visitors can follow these instructions: The grey-water can be scattered, or broadcast over a wide area, away from camps and water sources. It's important to allow all soap or wastewater, even that from biodegradable soaps, to filter through the soil, before reaching any body of water. Pour greywater on land at least 200 feet (60 m) from water sources.
- Hot water, a little elbow grease, and sand, snow or other natural scrubbers can tackle most backcountry cleaning chores. Soap is unnecessary; if you use it, it should be used sparingly, use biodegradable, environmentally friendly soaps.

#### 4.1.5 Relaxation, Picking Fruits, Amateur Naturalists

In the participating Geoparks, there are currently no special regulations for people who arrive to relax. They are treated in the same way as e.g. hikers.

People who practice outdoor recreation cause different effects of wildlife disturbance. One of the disturbing side effects is human caused noise which means a disturbance of habitat. Disturbance of wildlife reduces the chances of visitors seeing and hearing wildlife; it also diminishes the "peace and quiet" that many visitors seek in parks and related areas. Research has shown that visitors value the tranquility of parks, and that noise can annoy visitors, interrupt interpretive programs, and generally interfere with enjoyment, relaxation, and appreciation of parks (Manning and Anderson, 2012). Visitors should be well informed how their behaviour can negatively impact on the wildlife especially about those aspects of recreational activities that are not so obviously disturbing for an uneducated person.

In the majority of project Geoparks the following activities are allowed:

- *Where the owner does not prohibit them. \**
- *They are not allowed in areas with nature protection statuses and in reserves. \**
- *Visitors should not cause damage to protected species or habitats as well as to environment in general. \*\**
- Geoparks should have possibilities to establish quiet zones, whenever and wherever needed.
- Visitors should be well informed that they are not supposed to set fire, leave waste, cause damage to the environment, pollute soil and water, make noise, disturb animals, etc.

##### 4.1.5.1 Picking Fruits (Mushrooms, Berries, Chestnuts, etc.)

Conflicts can arise from pickers leaving footpaths to find berries, etc. as well as by over-exploitation of resources (Pröbstl et al., 2010).

- *There is an important difference in the project Geoparks: in some countries visitors are free to pick fruits (for their own need) wherever they want, as long as they do not enter areas with special protection status, as long as they do not pick up protected species or cause damage to them and as long as they do not enter areas for which the owner/manager restricted access. In other Geoparks visitors have to respect property rights and they can only pick up on public lands. \**
- In some countries picking is only allowed on certain days (e.g. during one day a week) or during a specified time period. There are also solutions like "mushrooms path" (you have to pay for the right to pick mushrooms during the season) (Pröbstl et al., 2010).



- *In Geoparks it is not allowed to commercially harvest plants or their parts and fungi or one needs a special permission for commercial picking. \**
- *On public surfaces and on surfaces where this is not prohibited by the owner, visitors are able to pick plants and their parts as well as fungi for their own need. Here Geopark managers should establish the following limitations:*
  - *It should be determined how much a person can pick up. \*\**
  - *Number of people picking up should be limited (per hectare, etc.) \*\**
  - *Species that are protected and are consequently not allowed to be picked should be determined. \*\**
  - *People should be well informed about these limitations. \*\**
  - *It should not be allowed to harvest in a way that would:*
    - *reduce tree crown form more than 30% (in comparison to natural, original conditions); \*\**
    - *leave less than 30% of living shoots on shrubs; \*\**
    - *remove more than 30% of herbs (30% of plants); \*\**
    - *remove mosses from more than 20% of the surface. \*\**

Some Geoparks expressed their concern because of increasing number of people picking plants and fungi as well as because of violations of rules (people pick too much). If this activity will become problematic it is suggested that Geoparks establishes some type of limitations. Some suggestions are listed in chapter 4.2.1.1. Some possibilities are temporary closure of roads, special permissions, permissions for local people, strengthening of property rights, determination of areas where picking is allowed, etc. In the case of larger problems there is also a possibility to prohibit picking in the Geopark area.

It may be acceptable to snack on safe edibles (e.g. berries), but do not deplete the supply. They are important food source to wildlife. Be sure to carry and consume your own calories! (Leave No Trace).

#### 4.1.6 Research and Education

Interpretation and education programmes can mitigate environmental and social impacts. Educational programmes instruct people on how best to behave at a site. Interpretation programmes inform and explain the site's resources and significance to the visitor (Pederson, 2002).

Information and education programs are designed to persuade visitors to adopt behaviors that are compatible with recreation management objectives, usually to reduce the ecological and experiential impacts of outdoor recreation (Manning and Anderson, 2012).

Many factors have been found to influence visitor behaviour, including the following:

Visitors want to know why they should do something. A simple statement that an area is a low-use area does not provide enough information.

In Geoparks permissions are required for research that requires any kind of intervention to the environment and those, which are related to protected species and habitats. Required are the same agreements as for other interventions (see chapters 2.1.1, 2.1.2).

Education is usually related to guided groups and visitors who are in touch with educative materials. In the regulations they are considered in the same way as any other group of visitors (e.g. hikers).





Figure 11 Researchers exploring rocks (photo: IRSNC)

#### 4.1.6.1 Organized Activities in Nature (Workshops, Guided Tours, Celebrations and Festivals, Sport Events, etc.)

Organized activities in nature offer an excellent occasion for well prepared guides or workshop managers who through interpretation educate visitors and consequently change their behaviour.

PP from Hungary made an interview among geotour-guides who agreed, that guided hikes cause much less damage compared to the ones without a guide. At the same time, the questionnaires showed that only 8-10% of the visitors go on hiking with a guide. Overwhelming majority of the visitors hike individually and with the family (81, 2%) or in a small group (32, 7%), without a guide.

Guided hikes are a great tool of proper distribution of visitors in space (sensitive areas) and time (sensitive periods). Moreover, guided hikes of poorly visited areas can be presented as an alternative of overvisited sites. Summarizing: fostering guided hikes is basically necessary in Geoparks.

*Approval from relevant authority should be required at least for events nature in area with special conservation status and in protected area (e.g. Natura 2000). The approval should include limitation on when, how and where the activities can take place and which measures should be taken to protect the environment (e.g. parking, locations where bigger groups will gather, etc.). The organizer of the event has to take care that there:*

- *will be no damage to the environment, to valuable natural heritage, etc. \*\**
- *proprietary rights will not be violated. \*\**

*Special care should be taken in the case of:*

- *events that are attended by high number of people; \*\**
- *events with vehicles, which could harm the environment; \*\**
- *events that occur on sensitive periods (e.g. nesting of birds, winter season, reproductive period, wet period, in which the soils are more vulnerable). \*\**

#### 4.1.7 Water Activities

There are different water activities taking place in the participating Geoparks. The most problematic water activities are motorized water sports (Pröbstl et al., 2010). These activities scare away waterfowl and disturb birds.



Figure 12 Canoeing on the lake (photo: IRSNC)

Many negative impacts of water activities could be avoided also through the following management measures (Broadhurst, 2001; Turton, 2005; Manning and Anderson, 2012; Newsome, Moore, Dowling, 2013):

- Provide adequate toilet facilities and signage to indicate the appropriate use of the rivers.
- Revegetation of river banks.
- Apply best practice to reduce spread of water borne pathogens.
- Dry season closure of some (parts of) water bodies for recreation activities.
- Prevent visiting and other kind of disturbance to fragile eco-communities.
- When you plan areas for individual activities, keep in mind common conflicts between user groups (e.g. groups holding different values, personal water craft and swimming, swimming and surfing, swimming and angling, surfing and sailing).
- Education of visitors about responsible behaviour.
- Measures to minimize the risk of introduction of invasive and/or pathogen species in protected water bodies: prohibit private watercrafts (including kayaks, canoes, tubes, and inflatable boats) and floating of planes; allow only use of artificial baits for fishing, etc. Recreational boating can also result in the spread of aquatic weed species as a result of propagule and fragments of vegetation being held on boat attachments such as propellers.

*In Geoparks people are mostly free to access water bodies and swim/relax near the water, as long as they do not cause damage to the environment (water bed, banks, water quality, disturbance of animals or damage to their environment, etc.). There are some exceptions, in which access to water and swimming is restricted:*

- *In valuable natural monuments and other strictly protected areas. \*\**
- *In some Geoparks the owner can limit the access. \*\**
- *In the areas where the owner has invested into infrastructure (e.g. people have to pay to enter swimming pools), in fishponds, water bodies in former quarries. \*\**

- Areas where access is restricted for safety reasons (e.g. dams, hydropower plants, during the night and during storms, etc.) \*\*
- On water bodies (e.g. Balaton) there may be zones dedicated for different activities (e.g. swimming, boating, angling, etc.). \*\*
- In areas that are close to sources of drinking water or are important for these waters.

The majority of project Geoparks have a register of waters for swimming. \*\* These regulations are mostly related to water quality. The project Geopark should prepare register on recreation activities that are allowed in individual water bodies (swimming, rafting, canyoning, boating, angling, etc.). Recreation in other areas should be subject to fine. These registers and regulations should take into account nature conservation (locations of valuable natural heritage, sensitive water bodies, habitats of protected species, protected areas, reserves, etc.) Determined should be also areas/timing where and when certain water activities are not allowed (quiet zones).

*In all Geoparks it is forbidden to cause any source of pollution in water bodies and to cause any changes or damage to water bodies. \**

In July and August water bodies are under the highest stress caused by recreationists and other visitors. Luckily, those are months in which the majority of water-bound protected species (birds, fish, amphibians, etc.) are not in their most sensitive periods (reproduction, young animals, winter stress, etc.). However, these months are usually characterized by low water levels, which could be related to other types of risks: damage to water bed, damage to young animals (fish, amphibian, birds, insect larvae, crustaceans, etc.) and animals that are living in remaining water and within the gravel.

During water activities people should (Leave No Trace, 2004; Turton, 2005):

- Keep in mind that the water you swim in may be someone's source for drinking.
- Avoid recreation activities where you may impact other visitors, disturb wildlife, or impact shorelines or streambeds.
- Recreational use of water bodies caused substantial increases in levels of suspended solids and nutrients, which had negative impacts on the river ecology and visitor satisfaction.

#### 4.1.7.1 *Swimming in Natural Lakes or Rivers, Canyoning*

At the moment, the majority of the project Geoparks do not have regulations, which would impose restrictions on bathing outside of organized bathing areas. Geoparks should give visitors clear information on areas, which are not suitable for swimming as well as locations in which swimming is not allowed due to nature conservation or other reasons. They should also provide information on periods and areas, which are in the so-called quiet zones, where recreation activities are not allowed.

*Swimming should not be allowed in sensitive water bodies (e.g. small alpine lakes) and in habitats of endangered animal and plant species. \*\** Small forest lakes usually have an important ecological function. Therefore, people swimming can cause some disturbance to these otherwise undisturbed lakes and previously untouched areas along the shore containing rare moor vegetation can get trampled (Pröbstl et al., 2010).

In the majority of project Geoparks, visitors are free to access the shore/banks of water bodies. In some Geoparks access can be limited by ownership. Usually access can be limited to valuable natural heritage, if their visit would cause damage to this heritage.





Figure 13 Swimming in natural lakes (photo: IRSNC)

#### 4.1.7.2 Boating, Kayaking, Wind-Surfing, Rafting (Lakes, Rivers, Mines)

At the moment, the project Geoparks do not have register water bodies where recreation activities are/are not allowed. Such registers should be established to avoid future problems. Areas where individual activities are not recommended as well as those in which these activities are not allowed should be determined. These prohibitions can be specified also only for certain periods in a year. Fines for those who violate these rules should be determined.

Water bodies with high loads of visitors should be zoned: zones for different activities should be determined to avoid conflicts and accidents. Entrance and exit points for rafts, boats and other vessels should be determined as well as maximum number of boats per day should be determined. Methods for these limitations are described in Chapter 5.

It is obligatory within most of Geoparks that the operators of the raft need to pass a special exam. This exam is mostly focused on safety of visitors and knowledge of rules. However, people leading other people should have also at least basic knowledge about nature protection rules and knowledge on different approaches which could decrease damage to water bodies and natural heritage (e.g. damage to water bed caused by paddles, walking and bottom of boats, disturbance to fish species, damage to fauna at the bottom of water bodies caused by canyoning).

The minimum equipment of boats as well as the certificate for navigation is required in the majority of the project Geoparks. The project Geoparks should make sure that boats are used only in areas, where they will not have negative impacts to endangered species (depends on the protected regimes, areas are defined in acts of protection or by the management plan).

When using boats of any kind, people should also respect the following rules to minimize their impact (Leave No Trace, 2004):

- Stay in your boat when taking a break from paddling, or land at a designated campsite, portage landing, beach, or rock outcrop.
- At camp, land and store your boat on durable areas. Be careful to avoid vegetation or fragile soils. Use care to avoid damage to trees and other vegetation along the trail.





- Regulations prohibit the discharge of any waste, including grey-water, into park waters.
- Take care not to transport non-native species on your equipment (via any type of water in boats and canoes, on boats, clothes or shoes, etc.). Some possibilities exist to ensure you will not transfer these species with your equipment to other water body:
  - o Use a separate set of gear for different water bodies.
  - o Keep the gear and other equipment thoroughly dry for 5 days or more and/or carefully rinse it.
  - o Wash gear with hot water for 1 minute or more, before you transport it.
  - o Remove any plant or animal material and mud from the equipment.

#### 4.1.7.3 Motorboats

Motorboats (except for electric motors with a battery) should not be allowed on smaller freshwater bodies (except in emergency cases). Some Geoparks have different rules for every lake (Austria), whereas in others motorboats are generally not allowed (Slovenia, Hungary, Croatia, Czech Republic and SlovakiaLP, PP1, PP3, PP7, PP9). Geoparks with larger water bodies should have limitations on which type of motorboats are allowed. Water scooters should be discouraged. Special regimes should be determined for areas with endangered species and habitats (which recreation activities are allowed, where and when).

- The use of motorboats should remain limited to larger water bodies and for emergency cases.
- It should be forbidden to navigate the boat in the dark and in conditions of poor daily visibility.
- On larger water bodies locations for mooring should be determined and fines for violations should be determined.
- As for water bodies outside the Geopark the same is valid in all Geoparks: people should pass an exam to be able to drive motorboat. The required knowledge varies among countries and it also depends on the type of the vessel and the power of the engine. These courses should include also topics on nature conservation on freshwater bodies: which activities should be avoided, which damage is caused, how the noise and distraction caused by motor vehicle affects individual (endangered) animals, etc.

#### 4.1.7.4 Fishing (Angling)

Commercial fishing should not be allowed in Geoparks whereas recreational angling might be performed. Anglers are present in all participating Geoparks and they shall respect basic rules of nature conservation. *Each river is usually divided into sectors according to the type of fish present and the importance of water for fish (e.g. waters with trout/carp/ grayling; breeding districts, reserves, fishing districts, districts without fishing management (only natural processes) and affected districts).* \*

Restocking should not to be used in pristine waters, unless the conservation of a specific fish or crayfish population requires it (Heinonen, 2016).

*Every Geopark should have its Fish Manager or authorised Fish Management Body who shall:*

- *Prepare plans for fish management (economical, ecological, etc.) in agreement with relevant ministry and nature conservation organization. \**
- *Register and sell fishing permits. \**
- *Control angling. \**
- *Grow and introduce of young fish, if required. \**
- *Perform monitoring (number and health status of individual species, etc.). \**
- *Conduct chemical monitoring of water bodies. \**



- *Perform a plan for management of individual fish species (including endangered and non-native species). \**
- *Repair damage, if (unknown) anglers cause it. \**
- *Determine fines for violations. \**

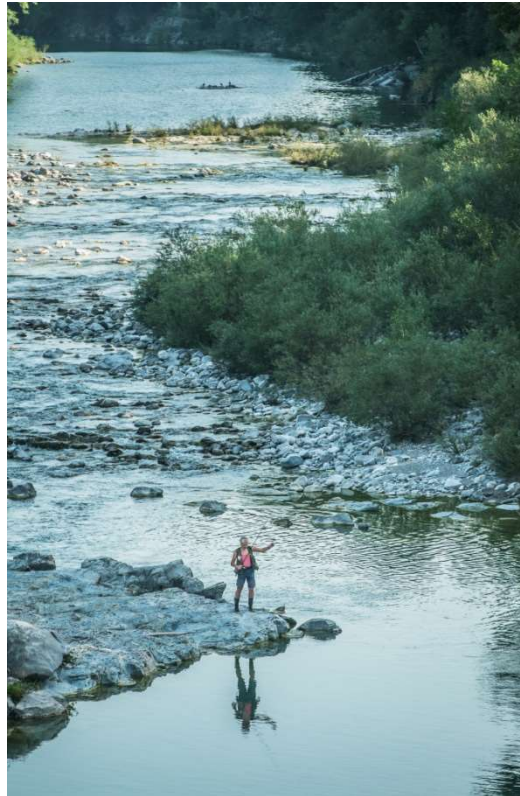


Figure 14 Fly fishing on the mountain river (photo: N. Močnik)

In all the participating Geoparks, anglers have to buy fishing permit. Fishing permit applies for certain area and certain period of time. Fishing permit sets allowed type of angling (catch-and-release, etc.), species and size of fish that can be caught, maximum annual / daily catch, time in a day and time in a day when angling is allowed (e.g. not during the night and during the spawn period), legal methods of angling. For non-native species maximum amounts are not determined.

*It is allowed to catch fish only using fishing rods – for the majority of species only one rod is allowed at the same time (except for carps). Details on allowed catching techniques and baits (and amount of food to attract fish) should be determined for each individual (native) species. Limitations can differ for individual fishing district. \**

*Anglers should have certain knowledge on nature protection and fish species allowed to be fished. \** There are many ways to ensure that anglers are educated. Anglers cannot buy a fishing permit without a valid license. Fishing permit for anglers, who are not members of any angling associations should be more expensive, etc.

*This knowledge includes:*

- *recognition of individual fish species, determination of size, knowledge of periods and areas in which they cannot be caught, knowledge of the minimum and maximum (allowed) size of each species, etc. \**
- *knowledge of legal and illegal fishing practices. \**
- *knowledge that it is not allowed introducing and spreading non-native species. \**

The fish that is caught in agreement with the rules is owned by the person who caught it (if a method catch-and-release is not determined for these areas).

Angling competitions should be allowed only with special permission from the Geopark or relevant authority. Usually they should be organized on dedicated areas.

In participating Geoparks there are wardens/rangers/inspectors that take care that anglers respect the rules.

Among common rules, set by angling organizations, anglers should also (Leave No Trace, 2004):

- Properly dispose of fish remains (pack the entrails out, or to take their catch home or to a fish cleaning station and clean it there). People should never clean fish on docks or picnic tables, throw remains in shallow water, near docks or campgrounds, or throw remains to gulls or foxes. Take care to leave the area (including all surfaces) clean.
- To help prevent the spread of aquatic, non-native organisms and wildlife diseases, never deposit fish or their remains in a lake or stream different from the one they were caught in. Do not transfer any live or dead aquatic material (plants, fish, and invertebrates) between inland lakes or streams.
- Check on current bait restrictions (only artificial lures are permitted for fishing in some parks and it is not allowed to collect bait in parks).

#### 4.1.8 Vehicles and Horses



Figure 15 Closed path (photo: IRSNC)

##### 4.1.8.1 Motor Vehicles

Motorized sport disturbs people, wildlife and nature with its noise, air pollution and erosion, causing it to be rated as the most highly conflicting activity (Pröbstl et al., 2010). The greatest negative impact for vegetation is caused by travelling on bare ground, especially over bogs and on wet or extremely dry ground. Good planning and well-prepared tracks are required to limit the damage (Turton, 2005; Pröbstl et al., 2010). An excellent resource for education of visitors using motorized vehicles is the



Tread Lightly™ program ([www.treadlightly.org](http://www.treadlightly.org)). The most important principles of this program are (US Department of Agriculture Forest Service and Bureau of Land Management (1990) :

- Travel Responsibly: e.g. stay on designated roads, trails and area, go over, not around, obstacles, cross streams only at designated fords, avoid wet, muddy trails.
- Respect the Rights of Others: owners, other users, leave gates as you found them, etc.
- Educate Yourself: review travel maps, regulations, plan for your trip, take skills classes, etc.
- Avoid Sensitive Areas: meadows, lake shores, wetlands, streams, wildlife and livestock, steep hillsides, historical, archaeological or paleontological sites, activities in shallow waters or near shorelines, etc.
- Do Your Part: by modelling appropriate behaviour, leaving the area better than you found it, repairing degraded areas, etc.



Figure 16 The Tread Lightly! Principles for responsible recreation

In Geoparks it should be:

- *Prohibited to drive/stop/park motor vehicles or other kind of self-propelled vehicles in natural areas. Off-road driving should not be allowed as well as driving on hiking, biking, riding and other paths that are not built and marked for motor vehicles. The use of motor vehicles on these roads would result in damage to these trails, conflicts between user groups and accidents. \*\**
- It is advisable to establish a permitting process instead of prohibiting with regard to paved roads. Paved roads subject to a permit must be closed with a barrier and keys should be given only for those, who hold the permit.
- *Parking should be allowed only on organized parking places. In some Geoparks they allow also parking next to the main roads and on other areas, if the owner/manager agrees. \*\**
- It is advisable that Geoparks would establish speed limits for local roads. On roads for motor vehicles drivers should follow signalization.



- *Forest service roads can be used also by other users (besides forest managers), but on their own responsibility. \*\**
- It is not allowed to use forest service roads for profitable activities other than forest management.
- *Trails above the tree line should be only for hikers. \*\**
- Wet areas and water bodies are especially sensitive for the damage caused by these vehicles. Consequently, they need special protection.
- *Geopark should have a possibility to establish quiet zones (disable access of all visitors) where and when it is required to achieve nature conservation goals (e.g. when and where endangered bird species are nesting, during the winter when bigger mammals are already under stress, during wet season to protect roads and trails, etc.). Nowadays some forest roads can mostly be closed only during forest managing measures. \*\*\**
- If there are problems with illegal use of motorized vehicles, the park manager should make some decisions to change existing practice: e.g. choose appropriate areas, train in less aggressive driving techniques and lay out trails that are less damaging.

There is a conventional tendency to manage the experiential dimension of parks based on measures of visitor satisfaction. As it was already mentioned, there are many types of recreational activities happening in Geoparks, but some kinds of them are not compatible with each other. For instance, there is a longstanding tendency for conflict between motorized and non-motorized recreation, including motor boaters and canoeists; snowmobilers and cross-country skiers; and automobile drivers and bikers. Moreover, these types of conflict are often asymmetric; that is, one group (the latter in the pairs above) objects to the presence of the other, but the reverse is not necessarily true. In these cases, without appropriate management, one group of visitors is likely to drive away the other (Manning and Anderson, 2012).

Activities involving motor vehicles have negative impacts on many fragile environments. Limiting or prohibiting particularly destructive types of use is an approach with considerable promise. This approach is most commonly used to manage motorized recreational activities, which are generally much more disruptive than non-motorized activities. Motorized use is often prohibited in an area of concern (a campground or a nesting area); or, it is restricted to particular trails or locations while non-motorized use is allowed anywhere. The strategy of zoning, where certain uses are allowed only in certain places, is a common way of avoiding extensive impact caused by particularly destructive pursuits. Other examples include creating nature preserves that allow non-consumptive uses while prohibiting consumptive activities (Newsome D., Moore S.A., Dowling R.K., 2013).

Organization of public events for motor vehicles should be subject to the following limitations:

- *It should be prohibited to organize driving with these vehicles in natural areas, especially in reserves, natural heritage sites, other protected areas and sites with endangered species and habitats. \*\**
- *For organized events the organizer should get permission from owner(s), Geopark Manager/Protected Area Manager and from relevant Nature Protection Authority. Permissions should be required also for parking places within these locations. \*\**
- Parking should be allowed only on organized parking places or on the roadside if the owner agrees.
- The number of such events per year should be limited (e.g. twice per year) and these events should be organized outside the sensitive periods and areas (e.g. on locations where endangered birds are nesting, during the winter, etc.). They cannot be organized in special protected areas and natural reserves.
- Traces for these events should follow only durable surfaces and they should not cross rivers and other water bodies to avoid damage caused to river fauna.



- *These events can be organized only in a way that will not leave any permanent changes in the environment. \*\**
- *Roads should be closed for other users during the event. \*\**

Several other recommendations exist, such as (adapted from Heinonen, 2016; Newsome, Moore, Dowling, 2013):

- In spring and early summer, when birds are breeding, events can cause greater harm than later in the summer or autumn.
- The most sensitive habitats within a protected area are marshes and rocky areas may be particularly sensitive.
- Off-road traffic always requires besides other permissions also the permission of the landowner and/or manager.
- The construction of new routes and changes of tracks to routes should be based on the site-specific management plans.
- In nature reserves, as a general rule, no licenses or permits are granted for off-road traffic beyond the routes and tracks, and this principle also applies to nature conservation programme sites. Permits for maintenance operations related to tourism business and professional nature photography may be granted discretionally.
- Providing crossings for wildlife, such as underpasses, protects them from vehicles as well as reducing accidents from drivers swerving to avoid them.

A good control over these activities is crucial. At the same time it is very problematic because these people and their vehicles are fast. Voluntary wardens could be very helpful here. Some project Geoparks successfully apply use of photo-traps to monitor vehicles; despite they still face some problems such as identification of drivers, quick response time to catch the drivers, etc.).

#### 4.1.8.2 Horse Riding

Horse riding is one of activities where relatively low level of inappropriate performance can cause significant impact – e.g. erosion, especially on pre-wetted and sensitive soils, which are much more susceptible to erosion (Marion and Wimpey, 2007). Many authors are in agreement that horse riding causes more damage to existing trails than the other uses do. This can be attributed to the large magnitude of stress imposed on the soil surface. A horse and rider may weigh up to 500 kg and the weight-bearing surface is concentrated on four steel horseshoes. The forces applied by horse hooves are much greater than those of hikers or tires and horse traffic readily penetrates and deepens tracks (Newsome, Moore, Dowling, 2013). Other environmental impacts of recreational horse riding are (Newsome et al., 2002):

- User conflicts.
- Loss of vegetation height and cover.
- Change in plant species composition due to grazing and trampling.
- Introduction of weeds (introduction of exotic species through faeces).
- Accidental transport of fungal pathogens
- Loss of vegetation and soil degradation as a result of tethering.

Riding horses is not a frequent activity in the project Geoparks (except for Bakony-Balaton Geopark). To avoid incidents, damage to the roads and conflicts between users, it should generally not be allowed to ride on hiking and biking trails. Riding should be allowed on:

- Public roads.
- Roads that are maintained and used for agricultural or forest services (gravel roads; there can be exceptions!).
- Roads dedicated for horse riders,



- On other roads with the permission of the owner/road manager, Geopark manager and/or relevant nature protection organization.

It is suggested to design well cross-checked, well-marked and well maintained network of horse riding routes in Geopark where horse-riding is an attractive outdoor activity.

One possibility for reducing the effect of horses is to prohibit open public access, but to authorize a commercial tour operator on a permit basis. The commercial operator should have control over the number of users and the aerial extent of use (Newsome et al., 2002). It is very important that the trails are hardened to control weed invasion and erosion and constructed so that adequate drainage is maintained (Newsome et al., 2002). Geopark managers have the possibility to discourage some of the activities in subtle way. For example, if horse-unloading ramps are not provided, some riders will decide not to use an area (Cole, 1993).

#### 4.1.8.3 Mountain Biking, Downhill

Mountain biking is very popular nowadays and we distinguish among several different mountain biking activities (see Burgin and Hardiman, 2009). The trend is positive and increase of mountain biking is expected also in the participating Geoparks in the upcoming years.

Problems related to mountain biking are mostly related to:

- structural damage to trails,
- disturbance of wildlife,
- conflicts with other users (e.g. the study of Davies and Newsome, 2009, identified mountain bikers and hikers as user groups who consistently experienced conflict – mostly due to inappropriate riding).

Impacts heavily depend on the type of soil, climate, slope, weather, type of use, sensitivity of wildlife, etc. For detailed description of related problems see Lathrop (2003), Burgin and Hardiman (2009), Pröbstl et al. (2010). Social conflicts are described in Davies and Newsome, 2009). More data on different types of mountain biking (cross country, touring, downhill, free and dirt jumping), their needs and environmental impacts can be found in Davies and Newsome (2009).

Bikers can travel much greater distances per day than hikers (they disturb more animals), they reach higher speed and they cause more damage to the trail when they drive aggressively – especially during fast breaking and skidding, but also on wet soils. This is becoming a serious problem because more physically challenging, extreme derivatives are growing in popularity (e.g. “downhill”, “free riding” and “trials”; Burgin and Hardiman, 2009; Davies and Newsome, 2009).

Participating Geoparks should pay special attention to the following topics:

- Geoparks should establish a register of trails for biking. These trails should be determined through spatial plans and they should have clear trail rules. Trails and rules should be determined in agreement with biking associations. Biking associations should be aware and should inform their members why it is not allowed in individual areas and which type of damage/disturbance they cause.
- All biking trails should be marked (difficulty level).
- It should only be allowed to use bikes on gravel roads.
- It should be allowed to use bikes on dirt roads and designated trails for hikers only under certain conditions (e.g. if the owner/the park manager or other guardians of trails for hikers agree with dual use – for both hikers and bikers or).
- Yield when you meet hikers and equestrians on roads with dual use: slow down, announce your presence, establish communication and pass safely. Be prepared to stop and dismount if needed.



- In areas with numerous mountain biking it is advisable to think about diverting 'expert' high-speed riders onto dedicated single use tracks if space allows. If not then temporal closures, such as bikers and hikers using the trail on alternate days, can reduce use and give hikers and mountain bikers some space and/or reduce conflicts among mountain bikers with different levels of expertise and expectations (Davies and Newsome, 2009).



Figure 17 Mountain biking (photo: F. Gerdl)

- Down hilling should be possible only in carefully designed courts, not free in the nature.
- Care should be taken to ensure that the curves are designed in such a way that they do not add to the erosion potential through increased skidding (Goeft and, Alder, 2001).
- Careful planning, maintenance (e.g., construction of water bars, berming or banking corners, ensuring proper drainage, avoiding steep slopes or loose erodible soils) and designation of trails to specific uses (and seasonal trail closures) may help mitigate against some of the more serious effects of mountain bike recreation to soils (Cole, 1993).
- It should be prohibited to cycle on hiking trails that are not on agricultural roads or forest service roads (gravel roads; exceptions!) and on gravel roads where it is determined so by laws regarding nature protection/forestry/hunting. This is already regulated in the majority of project Geoparks.
- It is advisable that mountain biking in sensitive areas is forbidden during the sensitive periods (e.g. during winter/nesting time, in the early morning or late evening, etc.).
- Organized events for bikers are considered in the same way as organized events for motor vehicles (see chapter 4.1.8.1 *Motor Vehicles*); for organization of such events you require prior consent of the organization responsible for nature protection, they should not cause any permanent damage to the environment, etc.)
- Quite often, bikers do not see the negative consequences of their behaviour as they lack legal and ecological knowledge (Kluge, 2010). Educational activities for mountain bikers should be established and promoted by Geoparks.



Bikers should be informed on appropriate behaviour, which reduces their impact on the environment (adapted from International Mountain Bicycling Association Rules, Leave No Trace, Pröbstl et al., 2010, Goeft and, Alder, 2001; Davies and Newsome, 2009; Manning and Anderson, 2012):

- They should not use bikes:
  - o off-road;
  - o in the mountains above the tree-line;
  - o in bogs and wetlands;
  - o on narrow and sensitive paths and trails;
  - o trails with heavy visitors impact;
  - o on forest roads that are not marked for bikers;
  - o in reserves, protected areas, habitats of endangered species and habitats, in established “quiet zones”.
- Ride on open trails only, respect rules where biking is not allowed. Do not cut switchback (shortcutting quickly results in erosion that destroys the turn and can eventually ruin the entire slope and trail.).
- Do not detour: If you approach something you cannot cross, stop, get off your bike and walk across (by going around you create unnecessary new paths). Do not create new trail markers, cairns, or other “signposts” and do not do unauthorized trail-work. Do not alter obstacles to make them easier to ride (e.g. rolling rocks out of the way). This ruins the fun for more experienced riders and disturbs the natural area.
- Avoid skidding: skidding creates ruts in the trail, increases the rate of erosion, mars slickrock and greatly decreases your control.
- To avoid dispersion of invasive species and to avoid pollution it is recommended that you do cross water bodies by bike! If there is no danger of invasive and pathogen species, then they can ride across water if the crossing is established on a bare rocky or sandy surface and the depth is no greater than your hubs or bottom brackets. If the water will reach your hubs or bottom bracket, your bike releases harmful lube and grease into the water. Stop, shoulder your bike, and walk across.
- If the water crossing begins or ends with mud, or goes across moss or any other material that tires will damage, stop and walk across.
- Plan ahead and be prepared: make sure that bikes are allowed on the trails, check for seasonal or area closures, etc.
- Do not park or drive on private lands, unless you have permission to do so.
- Respect Leave No Trace principles for good sanitation (human waste disposal, waste, wastewater, leave what you find, take care not to introduce and transport non-native (exotic) species, respect wildlife (see Chapter 4.1.1.4).
- Travel in small groups (up to five) – this way the cycling will be more peaceful and less dusty.

#### 4.1.9 Winter Activities

The project Geoparks do not have bigger skiing resorts, except for one Geopark (Bakony-Balaton Geopark), but even there they do not face major problems. Some participating Geoparks have smaller areas for skiing which do not cause significant threats.

- In future, locations of areas for winter activities should be determined through relevant Spatial Plans. For the establishment of new sites, the investor needs to acquire prior consent of the organization responsible for nature conservation.
- People can ski and cross-country ski in organized and designated areas. Skiing outside designated areas is on skiers own responsibility. Skiers should respect protection regimes in protected areas and avoid quiet zones.
- For the production of artificial snow, the manager of the ski resort should obtain permit for the use of water and in some cases also prior consent of the organization responsible for nature



conservation. *In order to protect groundwater and sensitive habitats it should not be allowed to add any additional elements into the water for producing artificial snow. \*\*\* Water for artificial snow should not be pumped from water bodies if the water level is below a certain, pre-determined level (further withdrawing of water could be damaging for the organisms in the water body).*

- *To park their vehicles, skiers have to follow the same rules as are valid for other motor vehicles.\*\**



*Figure 18 Winter activities (photo: Geopark Karavanke)*

At the moment there are still no problems observed with cross-country skiing, tour skiing, free riding, sledding and similar activities in nature, however increased trend in this kind of winter outdoor activities is noted, in particular in Austria, Slovenia and Check Republic. If these activities grow in popularity, Geoparks will have to determine areas and periods in which these activities will be allowed. When preparing the relevant spatial plans, management plans,... the following nature conservation principles will have to be taken into account:

- During the winter the animals are under stress and any additional disturbance (flights from visitors) could be critical for their survival. Consequently, in the winter larger part of the area should be regarded as quiet zone.
- When the snow does not protect the soils, the soils are very sensitive for the damage caused by friction and wear at the end of the winter.
- Do not combine activities that cause conflicts between user groups (e.g. walking and sledding, walking and cycling).

During winter recreation activities, people should respect general “Leave No Trace” principles as well as some other rules, which are specific for them:

- Visit the backcountry in small groups, but never alone.
- Repackage food into reusable containers.
- Use a map, compass or GPS to eliminate the need for tree markings, rock cairns or flagging.
- Stay on deep snow cover whenever possible; in muddy spring conditions, stay on snow or walk in the middle of the trail to avoid creating new trails and damaging trailside plants.
- Winter is particularly vulnerable time for animals. Observe wildlife from a distance.
- Separate ski and snowshoe tracks where possible. Avoid hiking on ski or snowshoe tracks.

- Sled dogs: learn and follow local regulations regarding pets. Control dogs. Pack out or bury all dog faeces.

For more information and explanation see <https://Int.org/teach/winter-recreation>)

Tour skiing outside the marked slopes often affects wildlife (disturbance) and forests (damages to trees) negatively.

The frequency of snowshoeing and tour skiing is rapidly increasing in the northern countries. It is anticipated that ecological conflicts will increase and that effective guidance tools will be necessary. Snowshoeing is often carried out in remote areas, where rare species live.

Comparing to other motor vehicles, snowmobiles have less effect on the ground, but there are some potential threats when the snow cover is thin. The effects on wildlife are far more complicated than they seem at first sight and it is difficult (and often wrong) to generalize impacts based on one species. The immediate interaction between vehicle and animal, which are usually studied, are much less important than the long term, cumulative effects (together with other kinds of disturbances) on population or ecosystem (Pröbstl et al., 2010).

- Snowmobiles should be regulated in the same way as other motor vehicles.
- In the case of higher interest, Geopark should think about establishing some official routes. Driving in the remaining area should be prohibited.
- Recreational snowmobiling should not be directed to nature reserves and nature conservation sites, nor should be snowmobile routes and tracks built within them (Heinonen, 2016).
- *Snowmobiles use can only be allowed on special for snow-mobile marked, trails. In the protected areas the use of snowmobile is forbidden.\*\**

To prevent or to reduce the impacts of motorized snowmobiles there are some further measures to be taken (Manning, Anderson, 2012):

- Requiring best available technology for snowmobiles (less polluting and quieter technology).
- Setting limits on the number of vehicles allowed to enter the park each day.
- All trips have to be guided and snow vehicles can enter the park only in single row.
- Establishing curfews (motorized snow vehicles are only allowed to operate between 7 a.m. and 9 p.m.; a rule that limits the duration of soundscape impacts).
- Setting speed limits.
- A hefty fine is assessed to visitors who travel off designated trails.

## 5 Recommendations for Visitor Management of the Protected Sites within Geoparks

According to Pedersen (2002) understanding the subject of carrying capacity is essential for planning and decision-making. But in course of the time, understanding of carrying capacity has evolved completely. During 1960s and 1970s the main focus was on developing a system for setting limits to the number of visitors to parks, monuments and protected areas as a means of safeguarding natural and cultural resources. The onset of environmental deterioration or adverse social impacts may come sooner or later depending on variations in visitor behaviour or the resistance and resilience of a given ecosystem. One destructive tourist can cause more damage than 50 conscientious visitors. Understanding the limitations of the concept of carrying capacity and knowledge of methodologies that have replaced it is essential not only for implementing practical management plans but also for evaluating suggested projects. These methodologies generate impact indicators and standards that are linked to site policy goals and management objectives. They are essential for determining when undesirable change is taking place at a site.

The new planning methodologies assume that all activities cause impacts and that desired conditions should serve as the baseline for planning. Managers need to know not only how many people are in an area, but also how these users are affecting the area's natural and cultural resources. The new models set limits to impacts rather than visitation. (Pedersen, 2002)

Limiting access to protected areas is one of the most controversial aspects of management, so other options should be considered first. Also, because the relationship between amount of use and impact is not linear, reducing use may not necessarily reduce impacts. In many situations, a little use causes considerable impact and further increases use levels have less and less additional effect on the natural environment. Use limits are actually subjective judgements made by managers and should be based on two factors: stakeholders' perceptions of impacts and scientists' understanding of the ecological impacts.

We can divide impacts of outdoor recreational use into three broad categories (Manning and Anderson, 2012):

- Park resources: soils, vegetation, water, wildlife, and air; soundscapes, night skies; historical and cultural resources;
- Quality of the visitor experience: crowding, conflict among visitors, depreciative behaviour, and the park resources impact;
- Park facilities/services: attraction sites, trails, campgrounds, roads and parking lots, interpretative facilities and programs.

Management practices can be divided in two groups (Manning and Anderson, 2012; Park, Manning, Marion, Lawson, Jacobl, 2008):

- indirect (Information/Education); influence the decision factors upon which visitors base their behaviour
- direct (Rationing/Allocation, Rules/Regulations, Law enforcement); act directly on visitor behaviour.



### 5.1.1 Approaches to Limit the Number of Visitors

(Adapted from Manning and Anderson, 2012)

**Strategy: Limit use** (Manning and Anderson, 2012)

#### Information/Education<sup>3</sup>

- a. Promote alternative sites<sup>4</sup> within the park or in other parks.
- b. Promote alternative times to use/visit sites<sup>4</sup> (e.g. hours, days, seasons; seasons when soil is not wet, etc.)
- c. Inform visitors of current impacts/conditions at site/park<sup>5</sup>.

#### Rationing/Allocation

When the number of visitors exceeds the carrying capacity of the area, quotas can be used to reduce visitor levels (Pedersen, 2002). While this system cannot be maintained over long term, the manager has to set capacities and allocate access to the area<sup>4</sup> with other possible solutions:

- a. reservation system (visitors have to reserve a space or permit in advance of their visit)
- b. queuing system (visitors have to wait in line (literally or figuratively) for available permits)
- c. fee system (visitors have to pay a fee for a permit)
- d. lottery system (permits are allocated on a random basis; possible are also weighted lotteries)
- e. merit system (visitors “earn” the right to a permit by virtue of demonstrated knowledge or skill)
- f. differential fee system (price depends on season, timing, area, etc.).

#### Rules/Regulations

- a. Set capacity of the area<sup>4</sup> and require a use permit/ticket (use one of above-mentioned systems for allocation).
- b. Institute a maximum length of stay or limit size of group(s).
- c. Prohibit (recreation) activities/uses with high impacts on wildlife (e.g. motorized uses), those with high resource and/or social impacts, etc.
- d. Temporarily, seasonally or permanently close sensitive/problematic area(s)<sup>4</sup>

If the manager/owner prohibits a certain activity in the area, there is high possibility that people will see this as unfair and they will not respect rules or they will only displace the activity to other places. Consequently, these changes require understanding of management, account for the regional context and collaboration with target groups (McCool, 2001).

#### Law enforcement

- a. Establish presence of a uniformed ranger
- b. Require visitors to show a use permit/ticket
- c. Sanction (e.g. warn, fine) visitors for unauthorized use

#### Zoning<sup>6</sup>

- a. Zone areas<sup>4</sup>/periods, etc. for lower use

<sup>3</sup> Information and education programs should be designed to reach visitors at each stage of moral development: e.g. to reach visitors at lower levels of moral development, managers might emphasize extrinsic rewards and punishments for selected types of behavior, while for visitors at higher levels of moral development it might be more effective to appeal to their sense of altruism, justice, and fairness. Generally, messages delivered by uniformed staff appeared to be less effective than those delivered by non-uniformed volunteers.

<sup>4</sup> trails, roads, parking areas, campgrounds, campsites, interpretive facilities, programs, attraction sites, etc.

<sup>5</sup> soil compaction, erosion, trampled vegetation, polluted water, threatened/endangered species, habituation, polluted air, prevalence of anthropogenic noise, light pollution/reduced visibility of stars, deterioration of historic buildings, loss of cultural artefacts, impacts to resources, resource degradation, crowding, conflict among uses/groups, litter, vandalism, traffic congestion, lack of parking, shortage of tickets, etc.

<sup>6</sup> Zoning is required to restrict selected recreation activities from environmentally sensitive areas, to separate conflicting recreation uses, and to separate recreation areas from competing and conflicting uses.



- b. Zone areas/periods, etc. for no use

### Facility development/Site design/Maintenance

- a. Set capacity for sites/programs and design visitor facilities (e.g. parking lots at trailheads) and services accordingly (generally, the number and scale of facilities, the width and arrangement of paths, density of way-markers, etc. should diminish with the distance from the point of entry; Forest Service, 2006).
- b. Make access to site(s)/programs more difficult (e.g. lower-standard roads, trails, transit).
- c. Improve access (e.g. higher-standard roads, trails, transit) to alternative sites/ /programs.
- d. Eliminate attractions/facilities/services in problem site(s).
- e. Provide attractions/facilities/services/trails/trail systems/roads/parking areas in alternative (attraction) sites (within park or in other parks).

Alternatively, there are also possibilities to increase costs of visit: visitors have to pay for parking place, to rent boats, for guides, entrances, licenses for navigation, etc.

### 5.1.2 Approaches to Reduce the Impact of Use and the Visitor Experience

(Adapted from Manning and Anderson, 2012)

#### Information/Education

To i) disperse use (within park or in other parks), ii) to concentrate use on selected resistant/hardened (attraction) sites, iii) to separate conflicting uses or iv) to avoid sensitive areas/periods (seasons when soils are wet, seasons when vegetation is fragile, when water levels are high, when atmospheric inversions are less likely, etc.) the manager can use the following approaches:

- a. Inform visitors of:
  - the range of recreation areas and opportunities available.
  - current impacts /conditions (i.e. soil compaction, erosion, trampled vegetation, water pollution, habituated, extirpated wildlife, air pollution, prevalence of human-caused noise, prevalence of light pollution, missing artefacts, crowding at attraction sites, conflict among recreation activities, presence of litter, resource degradation, crowding at attraction sites or on trails, congestion on roads and at parking lots, crowding at interpretive facilities/programs, resource impact, congestion, lack of available parking, conflicts).
- b. Promote:
  - use of low-use area
  - alternative sites/programs. It is preferable to concentrate use on resistant areas.
  - alternative times to use sites/programs (e.g. hours, days, seasons).
  - appropriate visitor behaviour<sup>7</sup>
  - Resistant/hardened sites to concentrate use (campsites, trails, etc.)
  - alternative transportation systems
- c. Inform visitors of acceptable and unacceptable:
  - (Recreation) activities<sup>8</sup>.
  - behaviour<sup>9</sup>.
- d. Educate visitors about:

<sup>7</sup> Promote visitor behavior that will increase wildlife, reduces human-caused noise, protect night sky viewing, reduces conflict

<sup>8</sup> Informing about (un)acceptable activities: pedestrian use only, no mountain biking, no recreational/ oversize vehicles, no motorized uses, no campfires, no motorized use requiring lights, do not take historical artefacts, no photography of sensitive art works, no stock use, no pets, no large groups, no climbing on attraction site features, no boisterous activity, etc.

<sup>9</sup> Informing about (un)acceptable behavior: Leave No Trace program, stay on designated trails, do not walk off-trail, no camping within 100 feet of lakes, minimize use of lights, no lights after 10:00 PM, do not disturb/remove cultural artefacts, no boisterous behaviour, dogs must be on leash, don't approach wildlife too closely, do not litter, stay on developed facilities, store food properly, no unattended food, respect quiet hours, no campfires, carry bear cannisters, respect speed limit, no unauthorized parking, no graffiti, no vandalizing of interpretive signs etc.



- why selected behaviours are unacceptable<sup>10</sup>.
  - importance of sensitive areas (low-use areas, etc.), natural quiet, night skies (no light pollution).
  - how to avoid conflict with other groups (e.g. no boisterous behaviour)
  - depreciative behaviour.
  - advantages of alternative transportation/public transit (e.g. less congestion, less environmental impact, more convenient).
- e. Encourage visitors to wear clothing and use equipment that blends with the environment.

**Rationing/Allocation** are usually not directly applicable in approaches to reduce impacts.

- a. Set limit on amount of use (to regulate problem of crowding)

### Rules/Regulations and law enforcement

- a. To increase supply the manager can extend time that area is open to visitor use (hour, days, seasons)
- b. Prohibit:
- high-impact uses<sup>11</sup> and limit group size.
  - high-impact behaviour<sup>12</sup> and depreciative acts (e.g. littering, graffiti).
  - recreation activities that tend to maximize crowding (e.g. commercial tours).
  - activities/behaviour that affect other visitors and/or causes conflict (e.g. boisterous behaviour, motorized uses, depreciative behaviour, etc.).
- c. Require visitors to avoid behaviours that could affect the environment or wildlife<sup>9</sup>.
- d. Limit group size
- e. Allow camping at designated campsites only.
- f. Institute a maximum length of stay (at viewing points, resting area, parking lots, etc.).
- g. Sanction (e.g. fine) visitors for violating rules.
- h. Regulate:
- use levels. (in presence of the crowding)
  - activities/behaviours that may lead to conflict (e.g. motorized uses).
  - depreciative behaviours (e.g. no littering, no removal of artefacts).

### Law enforcement

- a. Establish presence of a uniformed ranger (to enforce use limit and to reduce conflict among visitors in presence of this problems: crowding, conflict, depreciative behaviour)
- b. Sanction (e.g. warn, fine) visitors for inappropriate use/behaviour<sup>9,11</sup>.

### Zoning

- a. Zone areas for higher use and areas for low-impact uses only<sup>13</sup>.

<sup>10</sup> Education why selected behaviors are unacceptable: walking off-trail can compact fragile soil and trample fragile vegetation, camping close to lakes can cause siltation and eutrophication, campfires can cause air pollution, human caused noise can disturb wildlife and reduce the opportunity of visitors to hear the sounds of nature, some visitors enjoy looking at the night sky, cultural artefacts are important to archaeologists, visitors like to see cultural artefacts, some visitors are searching for solitude, large groups tend to increase perceived crowding, dogs can scare away wildlife, some visitors want to hear the sounds of nature, litter is unsightly and can harm wildlife, walking off developed facilities can damage fragile vegetation, walking off-trail can damage fragile vegetation, unattended food can attract animals, oversize vehicles cause excessive congestion, speeding endangers wildlife, unauthorized parking damages fragile soil and vegetation, boisterous behaviour can disturb other visitors, behaviours that can cause conflicts, feeding wildlife leads to habituation)etc.

<sup>11</sup> High-impact uses: motorized activities/oversize vehicles/private vehicles, motorized use requiring lights after dark, speeding, rubbings of pictographs, large groups, etc.

<sup>12</sup> High-impact behaviour: walking off-trail, washing too close to lakes, radios, cell phones, unnecessary use of lights, disturbance of cultural artefacts, walking off developed facilities, no campfires/collecting wood, no speeding, no unauthorized parking, no feeding wildlife, no walking through nesting areas, boisterous behaviour, etc.

<sup>13</sup> Low-impact uses: pedestrian use only, no campfires and no campfire interpretive programs, set maximum group size, no large groups, no school groups, walk-in campsites only, passenger cars only, public transit, no commercial groups, canoe/kayak landings, no electricity, showers, etc



- b. Zone “quiet areas” and those for night sky viewing
- c. Zone area for recreation activities that tend to minimize crowding and/or those, which tend not to cause conflict (e.g. pedestrian activities).
- d. Spatial zoning for areas to separate conflicting uses (e.g. one site for motorized activities and a different site for non-motorized activities; one campground for recreational vehicles and a different campground for tent camping, separate travel lane for bicycles).
- e. Separate conflicting activities by temporal zoning (hours, days, seasons) (e.g. a site is zoned for motorized activities during one season and non-motorized activities during another season; a campground/campsite is zoned for recreational vehicles during one season and tent camping during another season; road closed to private vehicles and open to biking during selected hours).

### Facility development/Site design/Maintenance (Management Practice for Increasing Supply and Reducing the Impact of Use)

- a. Provide trails/facilities/services only for:
  - a. low-impact uses<sup>13</sup> (e.g. public transit)
  - b. activities that tend to minimize crowding (e.g. pedestrian activities)
  - c. activities that tend not to cause conflict (e.g. pedestrian activities)
- b. Locate/concentrate trails, facilities and services:
  - a. on impact-resistant area<sup>4</sup>/soil/vegetation
  - b. away from sensitive areas (fragile bodies of water, away from sites susceptible to air pollution, old growth forests, popular/designated night sky viewing areas, archaeological sites, away from sensitive wildlife habitat)
  - c. away from areas designed to provide opportunities for solitude (e.g. wilderness areas).
  - d. separate recreation activities that tend to cause conflict (e.g. motorized activities) away from facilities and services for other recreation activities.
- c. Design trails, facilities and services:
  - a. to minimize impact<sup>14</sup> (e.g. install tent platforms, designate margins of campsites, provide bear boxes, fire grates, locate roads in non-sensitive resource areas)
  - b. to minimize conflicts (e.g. provide separate trails for hikers and bikers)
  - c. to minimize depreciative behaviours (e.g. provide for waste disposal, use construction materials that are unfavourable for graffiti)
  - a. to minimize crowding (e.g. provide adequate restrooms).
  - b. that are resistant to depreciative behaviour (e.g. use surfaces that are resistant to graffiti)
  - c. to encourage increased wildlife presence (e.g. wildlife viewing blinds)
  - d. to reduce visitor-caused noise (e.g. use vegetative screening)
  - e. to reduce light pollution (e.g. use lighting that minimizes glare)
- d. Maintain facilities:
  - a. to minimize impact (e.g. regularly clear water-bars, clear campground of down wood to discourage campfires, maintain downward orientation of park lighting, maintain the integrity of barriers to keep visitors away from sensitive resources, maintain the integrity of fencing at viewpoints and around campsites, maintain audio/visual equipment, maintain the integrity of fencing around parking areas)
  - b. to minimize crowding (e.g. remove litter regularly).
  - c. to minimize depreciative behaviour (e.g. remove litter, graffiti).
  - d. in good condition (e.g. remove graffiti)
- e. Improve attractions, facilities, services in alternative areas.
- f. Develop attractions, facilities, services in new areas.

<sup>14</sup> Designs to minimize impact: install water-bars along trail, use switchbacks on steep slopes, designate trail margins, install barriers along margins of trail, locate campsites at least 200 feet (60 m) from streams and lakes, no fire grates provided at campsites, use only quiet technology for park administration, use of low-glow lights, place cultural resources in protective cases, boardwalks over wet areas, set maximum group size, etc.





- g. Improve access to new/alternative areas (Signs can promote one site over another, while removing signs can discourage use (Pedersen, 2002).

### Facility development/Site design/Maintenance (Management practice for hardening resources and the visitor experience)

- a. Locate visitor attractions/facilities (e.g. trails, campsites, roads/parking lots, interpretive facilities/resources):
  - a. on durable soils (e.g. soils that are resistant to compaction and erosion) and on vegetation that is resistant to trampling,
  - b. away from water bodies,
  - c. away from sensitive wildlife habitat,
  - d. away from areas susceptible to air pollution,
  - e. away from sensitive soundscapes,
  - f. away from sensitive night sky areas,
  - g. away from sensitive historical/cultural resources.
- b. Develop facilities (e.g. rock steps, wooden boardwalks, viewing platforms, tent platforms):
  - a. to “shield” fragile soils and vegetation, fragile shorelines, etc.
  - b. to minimize disturbance of wildlife (e.g. wildlife blinds),
  - c. to discourage littering (e.g. trash cans)
  - d. to buffer human-caused sound (e.g. vegetative barriers),
  - e. to “shield” sensitive historical/cultural resources (e.g. viewing platforms, walkways)
  - f. to minimize light pollution (e.g. downward oriented lighting)
  - g. toilets to keep human waste away from water bodies
  - h. develop additional facilities/services (e.g. trails, attraction sites) to disperse use
- c. Maintain and/or rehabilitate:
  - a. impacted locations, trails, impacted campgrounds/campsites (e.g. add soil cement to composted areas, thin tree canopy to encourage regrowth of trampled understory, plant vegetation along shoreline to “buffer” storm-water runoff)
  - b. prime wildlife habitat, maintain high environmental quality
  - c. stabilize/reconstruct sensitive historical/ cultural resources
  - d. regularly maintain/clean the area, trails, campgrounds/campsites, roads/parking lots, interpretive facilities regularly (e.g. remove litter)
- d. Close and rehabilitate:
  - a. impacted area, trails, campgrounds/campsites, interpretive facilities, etc.
  - b. areas susceptible to air pollution
- e. Maintain/repair damage to:
  - a. compacted and eroded soils and to sensitive vegetation,
  - b. to sensitive historical/cultural resources,
  - c. to impacted trails, campgrounds/campsites, roads/parking lots, interpretive facilities, etc. revegetate area with trampling-resistant vegetation.
- f. Remove:
  - a. human waste that has been disposed of improperly
  - b. fire-grates from campsites and evidence of campfires
- g. Adopt quiet technology (e.g. electric trimmers) for maintenance

## 6 Recommendations for Residents, Visitors and Investors on Behaviour and Sustainable use of Geo-Diversity Localised and Introduced in all Participating Geoparks

This chapter includes listed detailed recommendations for three target groups: residents, visitors and SMEs/investors in Geoparks. The idea was to collect and register different recommendations for every



group of activities and each manager could then choose the most suitable ones for their Geopark needs.

This long list of recommendations was prepared by IRSNC and it will be adapted by project partners with Geoparks to meet their needs and characteristics. Project partners with Geoparks are also invited to insert their maps, data on their natural heritage sites, protected sites, etc. Localised recommendations should be translated to local language and promoted to all three target groups in all participating Geoparks.

In some cases, project partners with Geoparks may consider the current list too brief. In this case they can find more detailed explanation on individual recommendations in the strategy chapter. Project partners are also free to add additional recommendations, specific for their own Geopark or recommendations that they think is lacking in the current version of the long list. Eventual supplements will be shared with other project Geoparks, which can find them useful too.

## 6.1 Residents

### 6.1.1 General

- It is not allowed to move outside the trail/path (in valuable natural features, in other areas with the status of natural heritage/monuments and in areas with corresponding protection regime, PPs define).
- In Geoparks it is not allowed to hunt animals and pick animals of all kinds (except for fishing and hunting as it is provided by official hunting and fishing guideline; PPs provide).
- It is forbidden to pollute soils, water and air, to leave litter and other waste and to cause any permanent change in the environment.
- It is not allowed to cause unnecessary noise; respect the determined limits on acceptable noise.
- Keep your dog on the leash
- Enhance respect for local traditions, cultural values, and local environment.
- Be proud of your Geopark.
- An agreement from relevant Nature Conservation Authority is required for all measures in the protected areas (building/repairing infrastructure, different measures that could affect sensitive areas, species or habitats, etc.).
- Extensive earthworks are not allowed in Geoparks.
- Changes in the geoheritage can be done only with agreement of responsible authority. Respect all directions given by Geopark managers, protection wardens, rangers, etc.
- Consider to plan activities in periods which are not especially critical for the survival of endangered and protected species (PPs provide data/guidelines on relevant species).
- Do not allow visitors to go too close to the wildlife.
- Introduction of non-native plant or animal species is prohibited (introducing and stocking non-native fish populations, prohibitions on the use of live fish bait, control the release of ballast water).
- Try to control/remove existing invasive species (if they are already present).

### 6.1.2 Caves, Mines, Fossils and Minerals

#### 6.1.2.1 Caves and Tourist Mines:

- Caves are owned by a state, they are not an object of commerce or trade.
- Pollution of the cave and cave entrance (waste construction material, human waste,) is not allowed.
- Pollution of water that sinks in a cave is not allowed.



- It is prohibited to destroy and remove cave formations, animals, fossils, etc. from the cave.
- It is prohibited to sell cave inventory (cave formations, fossils, minerals and archaeological artefacts found in a cave).
- Catching, disturbing and selling cave animals is forbidden.

**The recommendations can be equally used for tourist mines (PPs with tourist mines prepare list of recommendations).**

#### 6.1.2.2 Minerals and Fossils (MF):



Figure 19 Wulfenit (photo: M. Jeršek)

- Contribute to preservation of local geosites and MF in Geopark.
- Do not destroy, collect and trade with MF. PPs Geoparks should define if national legislation allows withdrawal from the nature or trade (which MF and how they can be taken).
- Special care should be taken for protected MF (PPs should provide a list of protected MF or link to this document, if it exists).
- Digging, drilling and other mechanical interventions are prohibited in protected areas (s should define if national legislation allows these activities and where).
- Educate yourself how to minimize the impact on geosites (stay on the trail in order to preserve geosites, MF, do not touch geological heritage)
- Inform official authorities in the case of observed irregularities, offences or illegal activities in Geopark: collection and destruction of MF.
- Participate in protection of geoheritage as voluntary warden: inform and educate visitors about appropriate behaviour and warn them in the case of rule violations (collecting or destroying MF), (PPs add relevant guidelines).
- There is a special permission to be acquired to withdraw MF in protected areas (for research proposes) (PPs add relevant guidelines).
- Minerals/fossils could be taken if they are:
  - o not protected minerals/fossils and
  - o are accessible without any mechanical intervention (digging, drilling, etc.) and
  - o if they are found outside the valuable natural features or other protected geosites. (PPs add relevant guidelines )



- Properly withdrawn non-protected MF becomes the property of those who take them. The finder has to assure that they are properly stored (PPs define).
- The finder has to inform the authorities about the finding of any exceptional MF (PPs define the authority).
- Promote the conservation and appreciation of natural (and cultural) heritage.

### 6.1.3 Trekking, Mountaineering, Climbing

#### 6.1.3.1 *Trekking, Walking, Mountaineering, Running:*

- Use hiking trails for walking, running or climbing and to not cause damage to soil, flora, and fauna.
- Use of trails on own risk. (The manager is responsible to maintain the trail and infrastructure.)
- Guided tours are recommended (PPs provide information).
- On trails walk single file in the centre of the tread – even where it is wet, muddy or rocky (Leave No Trace).
- Do not make shortcuts and keep out of areas where restoration of vegetation and soils are in progress (Leave No Trace).
- Dogs have to be on leash as they cause stress to wildlife.
- Keep voices down and avoid necessary lighting.

#### 6.1.3.2 *Rock Climbing*

- Use only climbing routes that are officially registered (PPs provide maps).
- Climbing is not allowed in areas with special protection regime (PPs provide maps; geomorphological heritage. etc).
- Respect the limited access to certain time periods (daily, seasonal...) (PPs provide the information).
- Respect the limitations for specific type of climbing and use of climbing equipment (climbing approaches like dry tooling are not allowed, as they could damage geoheritage; PPs define).
- The anchors should not pose any risk of entangling animals.
- Respect the daily limits of climbers in sensitive and in crowded routes (PPs provide the information).
- Climbers climb on their own risk.

### 6.1.4 Picnics and Camping

- Do not set open fire out of designated campfire sites.
- Camping and picnics outside of dedicated areas is not encouraged.

### 6.1.5 Relaxation, Picking Fruits, Amateur Naturalists

- In Geoparks it is not allowed to commercially harvest plants or their parts and fungi or there is a special permission from the authority to be acquired (PPs define authority).
- It is allowed to pick fruits for your own need where the owner does not prohibit to do so (PPs define).
- Not allowed in areas with nature protection statuses and in reserves (PPs provide maps).
- Do not cause damage to protected species or habitats as well as to environment in general.



- It is not allowed to pick up protected species (PPs provide the list).
- Respect the allowed quantities of picked fruits (PPs provide).

### 6.1.6 Research and Education

Organized Activities in Nature (Workshops, Guided Tours, Celebrations and Festivals, Sport Events, etc.)

- Respect the rules and directions given by the organizer of the activity/event.

### 6.1.7 Water Activities



Figure 20 Diving forbidden (photo: IRSNC)

- Respect the restricted access to water and swimming (PPs define).
- It is forbidden to cause any source of pollution in water bodies and to cause any changes or damage to water bodies.
- Avoid recreation activities where you may disturb wildlife, impact shorelines or streambeds, or impact other visitors (PPs define activities).
- Respect the access/area/season limitations for the certain areas (PPs define and provide maps; ownership, valuable natural heritage,).
- Swimming is only allowed in registered waters (PPs provide the list and maps).
- Respect the area/timing limitation in protected areas (PPs define).
- Respect the determined entrance and exit points for rafts, boats and other vessels as well as maximum number of boats per day (PPs define).
- The raft operator needs to pass a special exam.
- The equipment of boats as well as the certificate for navigation are required.
- Boats can only be used in areas, where they do not cause negative impacts to endangered species (PPs define the areas).

#### 6.1.7.1 Motorboats

- Not allowed in smaller freshwater bodies (except ones with electric motors, PPs define).
- Respect the rules for individual water body (PPs define).
- For bigger water bodies, respect the limitations on type of motorboats allowed (PPs define).
- Do not navigate the boat in the dark and in conditions of poor daily visibility.
- Moor only within the determined locations (there are fines for violations) (PPs define).
- Have an exam to be able to drive motorboat.
- Water scooters are not allowed/encouraged (PPs determine).

#### 6.1.7.2 Fishing (Angling)

- Commercial fishing is not allowed in Geoparks.
- Recreational anglers have to obtain their fishing permit (for certain area and certain period of time, PPs define).
- Angling competitions are allowed only with special permission from Geopark and relevant Nature Conservation Authority (PPs define the authority).
- In the project Geoparks there are wardens/rangers/inspectors who ensure that anglers respect the rules.
- Respect the restrictions about the fishing baits (PPs determine).
- Never deposit fish or their remains in lake or stream different from the one they were caught in.
- Properly dispose of fish remains and take care to leave the area clean.
- It is allowed to catch fish only using fishing rods – for the majority of species only one rod is allowed at the same time (except for carps). Details on allowed catching techniques and baits (and amount of food to attract fish) should be determined for each individual (native) species (PPs define, provide the list of species).
- Respect the rules and limitations of each fishing district/sector (PPs provide).
- No restocking in pristine waters.

#### 6.1.8 Vehicles and Horses

##### 6.1.8.1 Vehicles and Horse Riding

- It is prohibited to drive/stop/park motor vehicles or other kind of self-propelled vehicles in natural areas (PPs define).
- Respect the speed limits for local roads.
- Forest service roads are used on your own responsibility and for non-commercial use
- Off-road driving is not allowed (the permission of the landowner and/or the manager is required) (PPs define).
- Stay on designated roads, trails and areas that are built and marked for motor vehicles.
- Respect rules of the organizer when participating any organized public event.
- It is not allowed to ride a horse on hiking and biking trails.
- Riding on public roads and paths (maintained by the municipality, country or federal government) is permitted as long as this does not prohibit any other law (e.g. the road traffic regulations)
- Biking and horseriding in the forest and horseriding on designated biking roads in the forest is possible if common use is indicated on the hiking trail or on the biking trail.
- No off-road riding is allowed in protected and non-protected areas
- In protected areas with level of protection 3 and higher, driving and riding is forbidden. In areas with lower or no protection there are only limitations concerning the ownership of the land.
- Residents are invited to participate in the control of motor vehicles as voluntary wardens.

##### 6.1.8.2 Mountain Biking, Downhill



- Do not race recreational trails!
- Ride on open trails only.
- In sensitive areas it is not allowed to bike during sensitive periods (PPs determine these periods).
- Plan ahead and be prepared: make sure that bikes are allowed on the trails, check for seasonal or area closures, etc.
- Respect the rules and recommendation of the organizer when participating any organized event for bikers.
- Do not use bike off-trails, above tree-line, in bogs and wetlands... (PPs determine).
- Do not alter obstacles and do not create new trail markers, do not detour.
- Avoid skidding.
- Drive carefully and slowly – especially downhill. Control your bicycle; adapt your braking power to varying terrain.
- Do not widen trails – ride the centre of even the narrowest single-track. If you encounter a water-bar, ride over, not around it. If you come across an isolated muddy patch, ride slowly through the middle of it. Do not ride to the side, which would widen mud holes, damage vegetation, and create more erosion.
- Do not cross water bodies by bike (to avoid dispersion of invasive species and to avoid pollution).
- If there is no danger of invasive and pathogen species, then you can ride across water if the crossing is established on a bare rocky or sandy surface, and the depth is no greater than your hubs or bottom brackets. If the water will reach your hubs or bottom bracket, your bike releases harmful lube and grease into the water. Stop, shoulder your bike, and walk across.
- Wash your bike, clothes and shoes between rides to minimize the chance of transporting exotic seeds and pathogens.
- If the water crossing begins or ends with mud, or goes across moss or any other material that tires could damage, stop and walk across.
- When you meet hikers and equestrians on roads with dual use: slow down, announce your presence, establish communication and pass safely. Be prepared to stop and dismount if needed.
- Never scare animals.
- Travel in small groups (up to five) – this way the cycling will be more peaceful and less dusty.
- Let nature's sound prevail.

### 6.1.9 Winter Activities

- Ski and cross-country ski only on organized areas (PPs define).
- Outside designated ski resorts skiing and other winter activities are done on the own responsibility of an individual.
- Do not enter quiet zones, protected areas, reserves, etc. (PPs determine the zones).
- To drive and park snow mobiles, visitors have to follow the same rules as are valid for other motor vehicles. (see chapter 5.1.8.1 *Vehicles and Horse Riding*)
- Visit the backcountry in small groups, never alone.
- Repackage food into reusable containers.
- Stay on deep snow cover whenever possible; in muddy spring conditions, stay on snow or walk in the middle of the trail to avoid creating new trails and damaging trailside plants.
- Use a map, GPS and compass to eliminate the need for tree markings, rock cairns or flagging.
- Sled dogs: learn and follow local regulations regarding pets. Control dogs. Pack out or bury all dog faeces.
- Drive only on established official routes. Driving in the remaining area is discouraged (PPs provide maps).
- When participating organized event or guided tour, follow your guide and enter the park only in single file.



- Respect established curfews (motorized snow vehicles are only allowed to operate between 7 a.m. and 9 p.m.; PPs define).
- Respect speed limits for snow mobiles (PPs define).
- A hefty fine is imposed to drivers on snow mobiles who travel off designated trails.

## 6.2 Visitors

### 6.2.1 General

- Leave rocks, plants and other natural objects as you find them.
- Visitors are free to enter and explore Geoparks, as long as they do not violate property rights (PPs provide maps of free accessible areas, if relevant).
- It is not allowed to move outside trails/paths (in valuable natural features, in other areas with the status of natural heritage/monuments and in areas with corresponding protection regime).
- In Geoparks it is not allowed to hunt animals and collect animals of all kinds (except for fishing and hunting as it is provided by official hunting and fishing guideline).
- Do not pollute soils, water and air, do not leave litter and other waste and cause any permanent change in the environment (“Leave No Trace”).
- It is not allowed to cause unnecessary noise.
- Keep your dog on the leash, control it or leave it at home (in order to prevent possible conflicts among different recreational types of visitors, not causing stress to wildlife, etc.). Pack out or bury all dog faeces.
- Buy local goods and services.
- Respect all directions given by Geopark managers, protection wardens, ranger, etc.
- Observe wildlife from a distance, feeding wild animals is not allowed.
- It is best to view wildlife through binoculars, spotting scopes, and telephoto lenses.
- Be aware of the possible presence of animals and keep your distance to ensure your safety and theirs.
- Most large animals are active at dusk and dawn. Plan your activities during daylight hours.
- Photography of birds’ nests and photography of strict reserves is allowed with a special permission (PPs provide data on relevant guidelines).
- Do not introduce non-native plant or animal species into Geopark (prohibitions on the use of live fish bait) (PPs provide relevant guidelines).
- Respect the list of the allowed activities in Geopark (there are fines for violations). PPs provide a list of fines, if adopted).

#### **GENERAL recommendation - Additional information for visitors can be find on Leave No Trace.**

- people on/off trails (keep to footpaths and hiking trails - animals learn to expect people on trails, they are less disturbed by encounters with people on-trail than off);
- proper disposal of human waste and other waste (PPs define);
- proper food storage and management with remnants (store food safely and leave no crumbs behind - fed animals often become dead animals);
- dealing with wastewater;
- swimming in sensitive areas;
- leaving all items you find;





- measures to avoid spreading of non-native and invasive species (e.g. cleaning tires, shoes and boats, use of safe food for horses)
- measures to avoid habituation and/or interference with wildlife (e.g. observe from distance, never feed animals and store food and trash securely, control your pet or leave it at home, remove pet faeces);
- measures to diminish damage to the environment;
- avoid sensitive times and habitats (animals are more susceptible to human impacts particularly during winter and spring, as well as during certain periods of life - during mating, nesting or raising young);
- be considerate of other visitors;
- keep voices low and avoid unnecessary lighting.

## 6.2.2 Caves, Mines, Fossils and Minerals

### 6.2.2.1 Visiting Caves

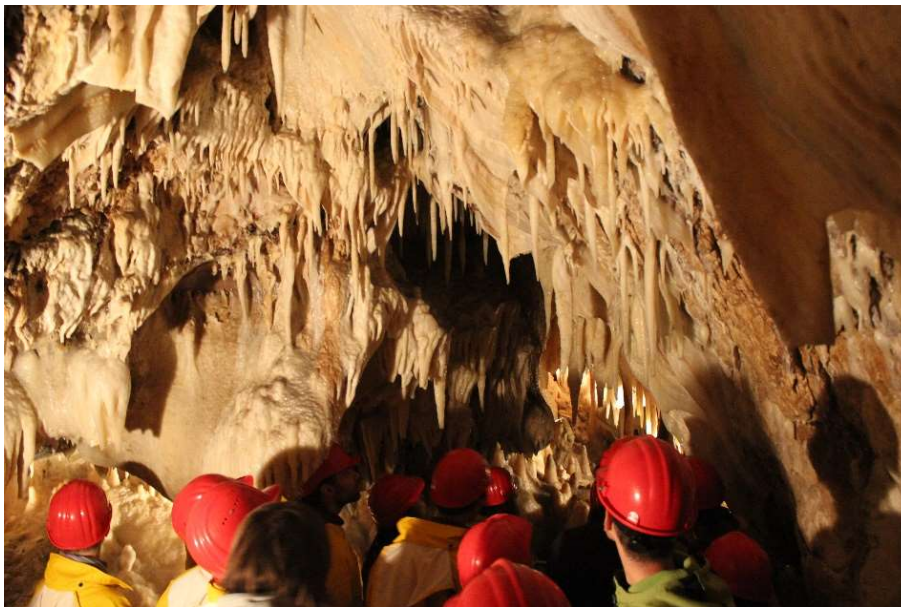


Figure 21 Visiting tourist cave (photo: IRSNC)

- Caves can be visited only in a way that does not endanger the cave, cave inventory and living-beings in the cave:
  - No damage to cave formations may be caused.
  - It is forbidden to take anything from the cave (except items you brought in).
  - No open fire in the cave (except cave lamps).
  - Limited volume of noise in the cave.
  - No pollution of the cave (waste, human waste, no smoking etc.).
  - Catching and disturbing cave animals is forbidden. (Do not disturb maternity roosts of bats and bats during hibernation (late fall to spring). Do not stay for long time in hibernation area, talk quietly and avoid shining and flashing lights directly on them when passing through).
- Appropriate equipment for visitors in the cave and tourist mines is required (PPs provide list of equipment; gloves, non-marking boots, helmet, lights...).
- Cavers need to have qualification to be able to enter caves that are above certain length or those for which you need cave equipment (PPs provide).
- Prior agreement is required to use engine-powered vehicles in the cave.



- Prior agreement is required for events in the caves (including filming, etc.).
- Respect determined periods in which caves cannot be entered.
- Tourist caves and tourist mines can be entered only with a guide.
- It is prohibited to touch cave formation, because compounds on the hands affect the surface of these formations. (Wear gloves to keep oils off the cave walls. Hard-faced kneepads and elbow pads can leave plastic scrapings in the cave).
- Respect all directions given by protection wardens, ranger, guides, etc.
- It is prohibited to take cave formations, animals, fossils, etc. from the cave.
- It is prohibited to sell cave formations.

#### **Additional recommendations for cavers;**

- Do not mark the entrance!
- Minimize impact at and around the cave entrances! Concentrate your movement on durable surfaces, avoid trampling of plants. Urinate well away from the entrance. Walk at least 200 feet from entrance areas and water to defecate. Do not defecate directly uphill from cave entrances.
- Leave natural features undisturbed. Caves are protected by a Law!
- Respect safety rules! Any cave rescue almost always damages the cave. (Use reliable and efficient lights, gear,...)
- Respect the upper limit on the number of visitors entering the cave. (The most appropriate size of a group is 4 to 6 people: less is problematic in a case of an accident; bigger groups can become difficult to manage).
- Ask permission before entering a cave and obtain enough information about the cave (hazards, limitations, use of carbide, etc.).
- Select a cave that is appropriate for your skills.
- To prevent introduction of foreign material into the cave, wash your caving gear between trips and brush off your clothes before entering the cave. Use clothes that are in good condition (to not leave shreds of fabric behind). Synthetic fibres are preferred – they do not feed microorganisms, they do not shred as easily.
- Avoid camping underground (in some caves this is also illegal).
- If possible, use established trails to concentrate impact, travel in single row and in the same footsteps.
- Minimize vertical caving impact: choose a rigging setup that will minimally impact the cave, use rope pads, avoid moves that would cause scratches on the wall, etc. (Stainless) bolts should be placed in agreement with the owner/manager.
- Photograph carefully and conservatively: stay and keep your devices on the trail or other durable surface. Minimize photography of bats and do not take photo of hibernating bats or maternity colonies.
- If you need flagging tape reflective markers or rock cairns, remove them ALL as you exit the cave (also “biodegradable” items, which are toxic to cave organisms).

**The recommendations can be equally used for tourist mines (PPs with tourist mines prepare list of recommendations).**

#### *6.2.2.2 Minerals and Fossils:*





Figure 22 Different types of fossils (photo: IRSNC)

- Properly withdrawn non-protected MF becomes the property of those who take them. The finder has to assure that they are properly stored (PP define).
- The finder has to inform the authorities/Geopark employees about the finding of any exceptional MF (PPs define the authority).
- Respect all directions and limitations in the area of Geopark given by protection wardens, ranger, guides, etc.
- Stay on the trail in order to preserve geosites, minerals and fossils (PPs provide map of trails and protected areas).
- Do not withdraw any MF from Geopark or protected areas.
- Do not buy protected MF.
- It is forbidden to damage MF.
- Minerals/fossils could be taken if they are:
  - o not protected minerals/fossils and
  - o are accessible without mechanical intervention (digging, drilling, etc.) and
  - o if they are found outside of valuable natural features or other protected geosites. (PPs add relevant guidelines)

### 6.2.3 Trekking, Mountaineering, Climbing

#### 6.2.3.1 Trekking, Walking, Mountaineering, Running

- Users can use hiking trails for walking, running or climbing, but they must not cause damage to soil, flora, and fauna.
- Users can use trails on their own risk. (The manager is responsible to maintain the trail and infrastructure.)
- Guided tours are recommended (PPs provide information).
- On trails walk single file in the centre of the tread – even where it is wet, muddy or rocky (Leave No Trace).
- Do not make shortcuts and keep out of areas where restoration of vegetation and soils are in progress (Leave No Trace).
- Dogs have to be on leash as they cause stress to wildlife.
- Keep voices down and avoid unnecessary lighting.

### 6.2.3.2 Rock Climbing

- Use only climbing routes that are officially registered (PPs provide maps).
- Climbing is not allowed in areas with special protection regime (PPs provide maps; geomorphological heritage, etc).
- Respect the limited access to certain time periods (daily, seasonal...) (PPs provide the information).
- Respect the limitations for specific type of climbing and use of climbing equipment (climbing approaches like dry tooling are not allowed, as they could damage geoheritage; PPs define).
- The anchors should not pose any risk of entangling animals.
- Respect the daily limits of climbers in sensitive and in crowded routes (PPs provide the information).
- Climbers climb on their own risk.

### 6.2.4 Picnics and Camping

#### 6.2.4.1 Picnics and Camping:

- Camping and having picnics outside of dedicated areas is not encouraged/or allowed (PPs provide a list of camping places).
- Camping in sensitive areas is not allowed (PPs provide maps).
- Do not cause damage to protected species or habitats (PPs provide the list).
- Respect the limitations on noise and lightning during the night (PPs define).
- Do not hammer nails into trees, disfigure them with axes and saws, or leave wire or ropes tied around them.
- In areas with big wildlife (e.g. bears, wolves) do not leave food unattended to avoid conflicts with wildlife. It is advisable to use bear-safe containers for food and waste.
- Do not cause damage to the environment nor leave any waste.
- Respect the local restrictions about fire setting (PPs provide).
- Do not set fires in windy periods.
- Trenching around tents is not allowed.
- Do not harvest plants or moss to pad the ground.
- If rocks are moved to anchor tents, relocate them when you leave.
- Invest in a good tent rather than trying to improvise with shelters using materials from the woods.
- Use sleeping pads, collapsible camp chairs, and plastic ground-clothes rather than cutting boughs for a bed.
- Clothes can be cleaned by thorough rinsing with plain water. Wash garments away from water sources.

#### 6.2.4.2 Fire Setting

- Do not bring firewood into the Geopark (to avoid introduction of non-native species).
- Do not cause damage to vegetation (e.g., peeling off bark, snapping branches off of trees, using an axe or saw to collect wood).
- It is allowed to collect sticks from the ground that can be broken by hand, and only pick a few pieces at a time from a large area, to avoid depleting any one place in the forest or on the shore.
- Burn only natural materials (do not burn waste).
- Setting fire is prohibited in sensitive areas (PPs define), next to the rivers and on the shore of other water bodies.



- Keep the fire small and burn the wood completely to ash (before you leave saturate the ash with water and scatter all the ashes widely with a small shovel or pot lid).
- Try alternatives to a fire (lightweight lanterns, candles, flashlights, cook stoves, etc.).

#### 6.2.4.3 Waste and Wastewater

- Pack out your trash, do not burn it.
- Use the outhouses where provided (PPs provide maps), where there are not provided a cathole is the most widely accepted means of human waste disposal.
- Properly dispose of wastewater: remove all the food bits from the water using a strainer and pack these particles out with garbage and other trash.
- The grey-water can be scattered, or broadcast over a wide area, away from camps and water sources (at least 60m from water source).

#### 6.2.5 Relaxation, Picking Fruits, Amateur Naturalists

##### Picking Fruits (Mushrooms, Berries, Chestnuts, etc.):

- In Geoparks it is not allowed to commercially harvest plants or their parts and fungi or there is a special permission from the authority to be acquired (PPs define the authority).
- Leave fruits (mushrooms, berries, chestnuts, etc) as you find them.
- On public surfaces and on surfaces where this is not prohibited by the owner, visitors can pick up plants and their parts as well as fungi for their own needs. There are some limitations to be considered:
  - o It is allowed to pick fruits for your own need where the owner does not prohibit to (PPs define).
  - o Not allowed in areas with nature protection statuses and in reserves (PPs provide maps).
  - o Do not cause damage to protected species or habitats as well as to the environment in general.
  - o It is not allowed to pick up protected species (PPs provide the list).
  - o Respect the allowed (determined) quantities of picked fruits,... (PPs provide the quantities, in the case the quantities are not determined, Geoparks can recommend /suggest to the visitors not to pick more than 2kg /person/day).

#### 6.2.6 Research and Education

##### Organized Activities in Nature (Workshops, Guided Tours, Celebrations and Festivals, Sport Events, etc.)

- Respect the rules and directions given by the organizer of the activity/event.

#### 6.2.7 Water Activities

- It is only allowed to swim in the registered swimming waters (PPs provide the list and maps).
- Swimming is not allowed in sensitive water bodies (e.g. small alpine lakes, small forest lakes) and in habitats of endangered animal and plant species (PPs provide maps).
- Respect the restricted access to water and swimming (PPs define).
- Keep in mind that the water you swim in may be someone's source for drinking.
- It is forbidden to cause any source of pollution in water bodies and to cause any changes or damage to water bodies.
- Avoid recreation activities where you may, as well as disturbing wildlife or impacting shorelines or streambeds or impact other visitors (PPs define activities).



- Respect the access limitation for the certain areas (PPs provide maps; ownership, valuable natural heritage,...)
- Respect the determined entrance and exit points for rafts, boats and other vessels as well as maximum number of boats per day (PPs define).
- Stay in your boat when taking a break from paddling, or land at a designated campsite, portage landing, beach, or rock outcrop.
- At camp, land and store your boat on durable areas. Be careful to avoid vegetation or fragile soils.
- It is prohibited to discharge of any waste, including grey-water, into park waters.
- Use a separate set of gear for different water bodies.
- Keep the gear and other equipment thoroughly dry for 5 days or more and/or carefully rinse it.
- Wash gear with hot water for 1 min or more before you transport it.
- Remove any plant or animal material and mud from the equipment.

#### 6.2.7.1 Motorboats

- Not allowed on smaller freshwater bodies (PPs define).
- Respect the rules for every water body (PPs define).
- Do not navigate the boat in the dark and in conditions of poor daily visibility.
- Moor only on the determined locations (there are fines for violations) (PPs define).
- People have to pass an exam to be able to drive a motorboat.
- Respect the limitations on bigger water bodies on which type of motorboats are allowed (PPs define).
- Water scooters are not allowed.

#### 6.2.7.2 Fishing (Angling)

- Commercial fishing is not allowed.
- Anglers have to buy their fishing permit (for certain area and certain period of time, PPs define).
- Respect all directions given by wardens/rangers/inspectors.
- Respect the restrictions about the fishing baits (PPs determine).
- Details on allowed catching techniques and baits (and amount of food to attract fish) are determined for each individual (native) species. Limitations can differ for individual fishing district (PPs define).
- Never deposit fish or their remains in a lake or stream different from the one they were caught in.
- Properly dispose of fish remains and take care to leave the area clean.
- It is allowed to catch fish only using fishing rods.

### 6.2.8 Vehicles and Horses

#### 6.2.8.1 Vehicles and Horse Riding

- It is prohibited to drive/stop/park motor vehicles or other kind of self-propelled vehicles in natural areas (PPs define).
- Respect the speed limits for local roads.
- Forest service roads can only used on your own responsibility and for non-commercial use.
- Off-road driving it is not allowed (the permission of the landowner and/or manager is required) (PPs define).
- Stay on designated roads, trails and area that are built and marked for motor vehicles.
- Respect rules of the organizer when participating any organized public event.
- It is not allowed to ride on hiking and biking trails.



- Riding on public roads and trails (maintained by the municipality, country or federal government) is permitted as long as not prohibited by any other law (e.g. the Road Traffic Regulations)
- Biking and horseriding in the forest and horseriding on designated biking roads in the forest is possible if common use is indicated on the hiking trail or on the biking trail.
- No off-road riding is allowed on protected and non-protected areas
- In protected areas with level of protection 3 and higher driving and riding is forbidden. In areas with lower or no protection there are only limitations concerning the ownership of the land.

#### 6.2.8.2 Mountain Biking, Downhill

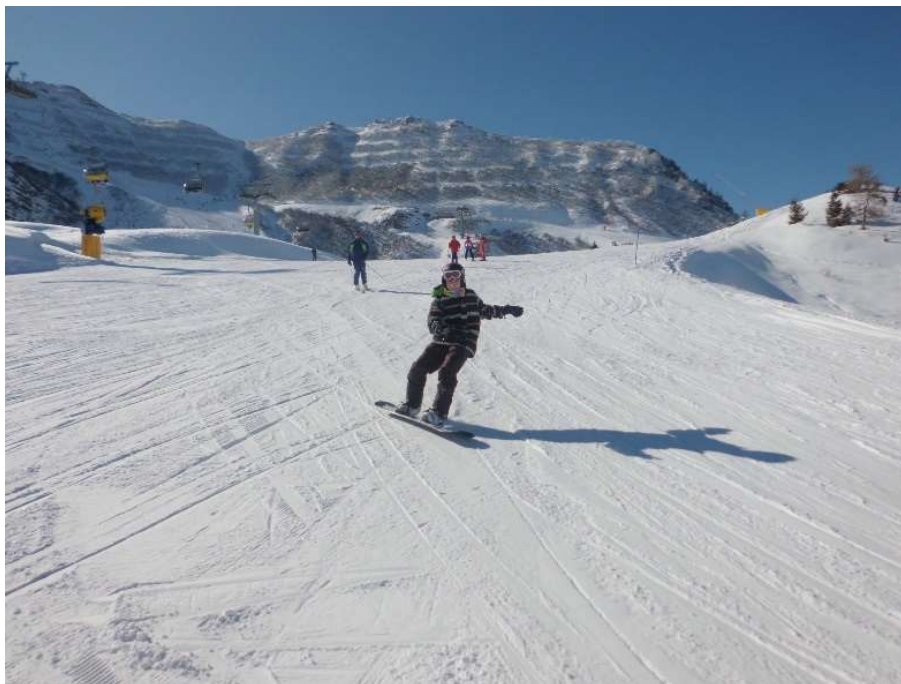


Figure 23 Mountain biking (photo: F. Gerdl)

- Do not race any recreational trails!
- Ride on open trails only.
- In sensitive areas it is not allowed to bike during sensitive periods (PPs determine these periods).
- Do not cross water bodies by bike (to avoid dispersion of invasive species and to avoid pollution).
- Plan ahead and be prepared: make sure that bikes are allowed on the trails, check for seasonal or area closures, etc.
- Respect the rules and recommendation of the organizer when participating in any organized event for bikers.
- Do not use bike off-trail, above tree-line, in bogs and wetlands,... (PPs determine).
- Do not alter obstacles and do not create new trail markers, do not detour.
- Avoid skidding.
- Control your bicycle; adapt your braking power to varying terrain.
- Do not widen trails – raid the centre of even the narrowest single-track. If you encounter a water-bar, ride over, not around it. If you come across an isolated muddy patch, ride slowly through the middle of it. Do not ride to the side, since it could widen the mud hole, damage vegetation and create more erosion.
- Drive carefully and slowly – especially downhill.
- If there is no danger of invasive and pathogen species, then you can ride across water if the crossing is established on a bare rocky or sandy surface and the depth is no greater than your hubs or bottom brackets. If the water will reach your hubs or bottom bracket, your bike releases harmful lube and grease into the water. Stop, shoulder your bike, and walk across.

- Wash your bike, clothes and shoes between rides to minimize the chance of transporting exotic seeds and pathogens.
- If the water crossing begins or ends with mud, or goes across moss or any other material that could be damaged by tires, stop and walk across.
- When you meet hikers and equestrians on roads with dual use: slow down, announce your presence, establish communication and pass safely. Be prepared to stop and dismount if needed.
- Never scare animals.
- Do not park or drive on private lands, unless you have permission.
- Respect Leave No Trace principles for good sanitation (human waste disposal, waste, wastewater, leave what you find, take care not to introduce and transport non-native (exotic) species, respect wildlife.
- Travel in small groups (up to five) – this way the cycling will be more peaceful and less dusty.
- Let nature's sound prevail.

### 6.2.9 Winter Activities



*Figure 24 Skier on organized skiing area (photo: IRSNC)*

- Ski and cross-country ski only on organized areas (PPs define areas and provide maps).
- Ski and cross-country ski activities in nature are on visitor's own risk.
- Do not enter quiet zones, protected areas, reserves, etc. (PPs determine and provide maps).
- To park their vehicles, visitors have to follow the same rules as are valid for other motor vehicles.
- Visit the backcountry in small groups, but never alone.
- Repackage food into reusable containers.
- Stay on deep snow cover whenever possible; in muddy spring conditions, stay on snow or walk in the middle of the trail to avoid creating new trails and damaging trailside plants.
- Use a map, compass or GPS to eliminate the need for tree markings, rock cairns or flagging.
- Learn and follow local regulations regarding pets. Control dogs. Pack out or bury all dog faeces.
- Drive only on established official routes. Driving in the remaining area is discouraged (PPs provide maps).
- When participating in any organized event or guided tour, follow your guide and enter the park only in single row.



- Respect established curfews (motorized snow vehicles are only allowed to operate between 7 a.m. and 9 p.m.; PPs define).
- Respect speed limits for snow mobiles (PPs determine).
- A hefty fine is imposed to visitors who drive snow mobiles off the designated trails (PPs define).

### 6.3 SMEs/Investors

The chapter includes a list of recommendations for broad group of stakeholders: direct investors who construct accommodation capacities and other associated infrastructure, tourist agencies providing guided activities, providers of camping facilities... For this reason the list of recommendations for SMEs/investors is quite extensive.

#### 6.3.1 General

- Respect protection regimes in Geoparks (PPs should define PR in each Geopark or name the act where the PR is defined).
- Respect the established quiet zones, protected areas, Nature 2000 sites or reserves in Geopark (PPs should provide maps).
- Respect the restrictions regarding the construction of buildings, new motorways or highways, settlements and navigation channels (PPs define).
- Respect restrictions regarding changes in current composition and areas of cultures (only according to management plan of PLA).
- Prior consent from the relevant nature conservation authority (PPs add information on relevant authority) is required for organized events and organized activities in protected areas. (Bigger events should be carefully planned and prepared to reduce the effects on soil, fauna and vegetation. Avoid protected and sensitive areas).
- In Geoparks it is not allowed to hunt animals and pick animals of all kind except for fishing and hunting as it is provided by official hunting and fishing guidelines (PPs provide data on relevant legislation/guidelines).
- It is not allowed to pollute soils, water and air, to leave litter and other waste and to cause any permanent change in the environment.
- Respect the determined limits on acceptable noise (PPs can add data on relevant legislation).
- Try to define areas for specific activity in nature, where conflicts among different user groups could arise (e.g. anglers and swimming areas, campers and day visitors, mountain bikers and hikers).
- An agreement from relevant nature conservation authority is required for interventions that could affect sensitive areas, species and habitats (building/repairing infrastructure) (PPs add contacts of relevant authorities).
- Design of facilities in Geoparks should be kept as simple and as unobtrusive as possible (natural colours, materials, design, etc. PPs define).
- New facilities should not be planned in areas with simultaneously high species richness and vulnerable habitats (PPs define).
- In areas where vandalism may be an issue, consider indestructible options for seating, such as suitable rocks and boulders.
- Respect all directions given by Geopark managers, protection wardens, rangers, etc.
- Consider to plan activities in periods which are not especially critical for the survival of endangered and protected species (PPs provide data/guidelines on relevant species).
- Do not allow visitors to go too close to the wildlife.
- Avoid lighting during the night.



- Introduction of non-native plant or animal species is prohibited (introducing and stocking non-native fish populations, prohibitions on the use of live fish bait, control the release of ballast water).
- Try to control/remove existing invasive species (if they are already present).

## 6.3.2 Caves, Mines, Fossils and Minerals

### 6.3.2.1 Caves and Tourist Mines



Figure 25 Tourist mine(photo: R. Zabukovec)

- Appropriately and carefully plan infrastructure in and around the cave to minimize any impact.
- An agreement from relevant nature conservation authority is required for measures that could affect the cave, cave species and habitats (building/repairing infrastructure) (PPs add contacts of relevant authorities).
- Caves can be visited only in a way that does not endanger the cave, cave inventory and living-beings in the cave.
- It is prohibited to destroy and take cave formations, animals, fossils, etc. from the cave.
- It is prohibited to sell cave inventory (cave formations, fossils, minerals and archaeological artefacts found in a cave).
- Catching, disturbing and selling cave animals is forbidden.
- Pollution of the cave (waste, human waste, open fire, smoking etc.) is not allowed.
- Caves are owned by a state, they are not an object of commerce or trade.
- There is a categorisation of the caves to be respected: closed caves (caves which you can enter only with a special permission) and caves that can be visited under supervision of guides/experts. Every visit to these caves should be registered. (PPs provide a list of caves)
- Cavers need to have qualification to be able to enter caves that are above certain length or those for which you need cave equipment (PPs provide a list of caves).
- Prior agreement is required to use engine-powered vehicles in caves. (PPs add contacts of the relevant authorities)
- Prior agreement is required for events in the caves (including filming, etc.). (PPs add contacts of the relevant authorities)
- Caves or their parts, which are known as habitats for bats, have determined periods in which they cannot be entered. (PPs provide relevant guidelines)

- Tourist caves and tourist mines can be visited only with a guide.
- Recommended size of a group of visitors who enter the tourist cave is... (PP defines the number/guide).
- Respect the upper limit on the number of visitors who enter the cave. (The most appropriate size of a group in any non tourist cave is 4 to 6 people).
- Guides should have certified knowledge on nature conservation rules in the cave as well as safety in the cave and rescue from the cave. (PP add relevant guidelines )
- Appropriate equipment for visitors in the cave and tourist mines is required. (PP provide the list of equipment; gloves, boots, helmet, lights...)
- Respect all directions given by protection wardens, ranger, etc.
- No smoking, no tools with flame in the cave.
- Visitors in tourist mines should be well informed about the path (its length, difficulty, number of stairs, etc.).

**The recommendations can be equally used for tourist mines (PPs with tourist mines prepare list of recommendations).**

### 6.3.2.2 Minerals and Fossils (MF)



Figure 26 Fossil ammonite (photo: IRSNC)

- Appropriately and carefully plan the infrastructure in and around the geosite to minimize the impact (PPs provide a list of geosites).
- Respect local and national laws relating to the protection of geological heritage (Geoparks provide relevant legislation).
- Respect protection regimes in Geoparks (PP should define PR in each Geopark or name the act where the PR is defined).
- Special attention on geological heritage is required (Geoparks add the list or map of geosites)
- In Geoparks, it is not allowed to destroy MF.
- In Geoparks, collecting and trading with geological objects is discouraged (fossils, minerals, polished rocks and ornamental rocks). PP Geoparks should define if national legislation allows withdrawal from the nature or trade (which MF and how they can be taken).

- Commercial exploitation of minerals (mineral resources in mines and quarries) is possible only with special permission (defined in national legislation).
- Any list of protected MF should be respected (if it exists; PPs should provide a list of protected MF or link to this document).
- Respect all directions given by Geopark managers, protection wardens, ranger, etc.
- Inform the authority about finding of exceptional, rare or of potentially scientifically wealthy MF (PPs should define the relevant authority).
- Cooperate with Geopark in all aspects (protection, interpretation of geosites, MF, education about the importance of geoheritage...).

### 6.3.3 Trekking, Mountaineering, Climbing



Figure 27 Father and son enjoying the nature (photo: A. Ličen)

- It should be forbidden to walk, ride or drive off-road, at least in the area of valuable natural features, in reserves and other relevant habitats (PPs define).
- New trails should be made only in agreement with relevant Nature Conservation Authority (PPs define the authority).
- Respect the limited access to certain areas and/or in certain time periods (PPs define)
- The number of new trails should be carefully designed to minimize environmental impact (keep the number as low as possible)
- Locate trails on side-hills where possible as these trails allow for excessive future tread widening and off-tread trampling.
- Design trails with sustainable grades (keep trail grades below 12%) and avoid fall-line alignments.
- When possible, build trails in dry, cohesive soils that easily compact and contain a larger percentage of coarse material or rocks. Where possible, avoid soils high in silt and clay, which are muddy when wet and cracked and dusty when dry.
- Avoid using steps as far as possible, as they are expensive and can create a barrier for people with mobility difficulties. Alternative approach is to descend in a gentle zigzag fashion.
- Avoid having too many switchbacks, as impatient walkers may begin taking short cuts directly down the slope.

- When constructing trails, hand construction is recommended.
- Ensure that the created trail or road is not washed away.
- Trails should avoid close proximity to water resources.
- Special uses (e.g. motorized or horse traffic) require special design considerations.
- Minimize the number of stream crossings; select the most resistant location for the crossing.
- Remove water from trail treads.
- Plan infrastructure in a way that will encourage alternative means of travel in a Geopark (increase possibilities for different ways of travel, better accommodate motorized and non-motorized travel, reduce congestion in popular areas; improve the communication of transportation, etc.).
- Aim to create looped routes, figure-of-8 (in the form of number eight) route or a network of routes, so that people can walk a circuit and not have to retrace their steps.
- Provide more maintained trails, “photo points”, areas for informal exploration.
- If necessary provide a short stretch of footpath or an open space specifically for dog owners to bring their dogs through as soon as they arrive at the forest. Dog owners should also be requested to remove dog foul.
- Extensive earthworks are not encouraged in Geoparks.
- Changes in the protected areas can be done only with agreement of responsible authority (Institute for the Nature Conservation,...). (PPs provide information on the relevant authority)
- In general, it is recommended not to allow further spread and widening of trails (especially informal) existing and widening of campsites.
- It is forbidden to walk, ride or drive off-road in the protected areas (valuable natural features, geosites,) in reserves and other relevant habitats.
- Respect the limited access to certain areas and/or in certain time periods (PPs define).
- Respect the regulations on overnight stay in the Geopark (PPs define)
- Camping areas, where people are allowed to camp should be considered (PPs provide the map with camping areas).
- Register of trails for hiking and for other activities should be considered (mountain biking, riding, use of motorized vehicles, snowmobiles, etc.; PPs provide the map with these trails).
- Pay special attention when using trails with multiple uses (for hikers, bikers, motor bikers, riders, etc.).
- Respect the daily limits of climbers in sensitive and in crowded routes (PPs define).
- An official agreement from Geoparks and from relevant nature protection organization is required to establish new climbing routes or to modify the existing ones (especially in areas with nature protection status), (PPs provide the guidelines).
- Guided hikes are encouraged in Geoparks.

#### 6.3.4 Picnics and Camping

- An agreement from relevant nature conservation authority is required for interventions that could affect sensitive areas, species and habitats (building/repairing infrastructure) (PPs provide contacts of relevant authorities).
- Minimal impact on nature should be respected (PPs provide list of recommendations).
- Extensive earthworks are not encouraged in Geoparks.
- Design of facilities should be kept as simple and as unobtrusive as possible (natural colours, materials, design, etc. PPs define).
- Leave the area as natural as possible - minimize any site alterations.
- Respect the wet season closure. (PPs provide the map and closure periods).
- Canopy cover should be maintained to reduce numerous adverse impacts (dispersal of weeds and feral animals, edge effects, soil erosion and nutrient loss, road kill and linear barrier effects on rare and threatened rainforest fauna).
- Camping outside of dedicated areas is not encouraged.



- Sites should be clustered in campgrounds to limit wildlife habitat fragmentation.
- It is recommended to locate the tents on the flattened tent pads and to concentrate all activities (such as cooking and hanging drying lines) within the designated site.
- It is recommended to plan a campsite at least 60m from the lake or river.
- Trenching around tents is not allowed.
- Common use of "side-hill" campsites in sloping terrain is recommended.
- It is recommended to build basic facilities (e.g. shelters, picnic tables, etc.) – to attract and concentrate use.
- Ongoing site maintenance to improve intended use of areas and discourage site expansion.

#### 6.3.4.1 Fire Setting

- Fire can only be set on selected locations with designated campfire sites (to reduce conflicts with owners and other users, pollution of the environment and the risk of fire), (PPs define and provide maps).
- Encourage to reduce/level the number of picnic places in Geoparks and focus on the maintenance of the existing ones.

#### 6.3.5 Relaxation, Picking Fruits, Amateur Naturalists Picking Fruits (Mushrooms, Berries, Chestnuts, etc.):

- In Geoparks it is not allowed to commercially harvest plants or their parts and fungi or there is a special permission from the authority to be acquired (PPs define the authority).
- Respect the established quiet zones, restricted areas and property rights (PPs provide maps).

#### 6.3.6 Research and Education

##### Organized Activities in Nature (Workshops, Guided Tours, Celebrations and Festivals, Sport Events, etc.)

- In project Geoparks permissions have to be acquired from the authorities for researches that are related to protected species and habitats, or those that requires any kind of intervention to the environment (PPs define the authorities/permissions).
- Respect the limitations given by the authorities about when, how and where the activities can take place.
- When organizing any event, take care that there will be no damage caused to the environment (to the natural heritage, etc.) and that no proprietary rights will be violated.





Figure 28 Pupils at the excursion (photo: IRSNC)

- Take special care in case of events that are attended by high number of visitors, occur in sensitive periods, and/or with vehicles.
- Do not organize activities / events in nature in night time.

### 6.3.7 Water Activities

- In Geoparks, people are mostly free to access water bodies and swim/relax near the water, as long as they do not cause damage to the environment (water bed, banks, water quality, disturbance of animals or damage to their environment, etc.).
- Respect the registers on recreation activities that are allowed in individual water bodies (for swimming, rafting, canyoning, boating, angling, etc., PPs define). Recreation in other areas can be subject to fine (PPs define the fine).
- Respect the determined zones for different activities in water bodies with high loads of visitors (PPs define and provide maps).
- Access to the water is restricted in some areas: where the owner has invested into infrastructure (e.g. people have to pay to enter swimming pools), in fishponds, water bodies in former quarries (PPs define and provide maps).
- When planning (constructing) areas for individual activities try to avoid common conflicts between user groups (e.g. groups holding different values, personal water craft and swimming, swimming and surfing, swimming and angling, surfing and sailing,...).
- Avoid recreation activities with any impact between different groups of visitors, on wildlife, or impact on shorelines or streambeds.
- Respect the measures to minimize the risk of introduction of non-native, invasive and/or pathogen species (no private watercrafts -including kayaks, canoes, tubes, and inflatable boats- and floating of planes, allow only use of artificial baits for fishing, etc.) (PPs define the measures).
- Respect the dry season closure of some (parts of) water bodies for recreation activities (PPs provide the map and closure periods).
- Respect the area/timing limitation in protected areas (PPs define).
- Respect access restrictions for safety reasons (e.g. dams, hydropower plants, during the night and during storms, etc., PPs provide the map).



- Prevent visiting and other kind of disturbance to fragile eco-communities (PPs provide the list/map).
- Provide adequate toilet facilities.
- Provide signage to indicate the appropriate use of the water bodies.
- Prevent development of social trails from accessing water holes.
- It is only allowed to swim in registered swimming waters (PPs provide the list/map).
- It is forbidden to cause any source of pollution in water bodies and to cause any changes or damage to water bodies (water bed, banks, water quality, disturbance of animals or damage to their environment, etc.).
- Respect the determined entrance and exit points for rafts, boats and other vessels as well as maximum number of boats per day (PPs define).
- Boats can only be used in areas, where they will not have negative impacts to endangered species (PPs define the areas).
- The leader of the raft needs to pass a special exam.
- The equipment of boats as well as the certificate for navigation is required.
- At camp, land and store your boat on durable areas. Be careful to avoid vegetation or fragile soils.
- It is prohibited to discharge of any waste, including grey-water, into waters.
- Use a separate set of gear for different water bodies.
- Keep the gear and other equipment thoroughly dry for 5 days or more and/or carefully rinse it.
- Wash gear with hot water for 1 min or more, before you transport it.
- Remove any plant or animal material and mud from the equipment.

#### 6.3.7.1 Motorboats

- Not allowed on smaller freshwater bodies (except ones with electric motors, PPs define).
- Respect the rules for every water body (PPs define).
- Respect the limitations on bigger water bodies on which type of motorboats are allowed (PPs define).
- Do not navigate the boat in the dark and in conditions of poor daily visibility.
- Moor only on the determined locations (there are fines for violations) (PPs define).
- Water scooters are not allowed/encouraged (PPs define)

#### 6.3.7.2 Fishing (Angling)

- Commercial fishing is not allowed in Geoparks.
- Anglers have to buy their fishing permit (for certain area and certain period of time, PPs define).
- Angling competitions are allowed only with special permission from Geopark and relevant Nature Conservation Authority (PPs define the authority).
- Respect all directions given by wardens/rangers/inspectors. Respect the restrictions about the fishing baits (PPs determine).
- Never deposit fish or their remains in a lake or stream different from the one they were caught in.
- Properly dispose of fish remains and take care to leave the area clean.
- It is allowed to catch fish only using fishing rods – for the majority of species only one rod is allowed at the same time (except for carps). Details on allowed catching techniques and baits (and amount of food to attract fish) are determined for each individual (native) species. (PPs define, provide the list of species).
- Respect the rules and limitations of each fishing district/sector (PPs provide).
- No restocking in pristine waters is allowed.





## 6.3.8 Vehicles and Horses

### 6.3.8.1 Vehicles



Figure 29 Off-road driving (photo: IRSNC)

- It is prohibited to drive/stop/park motor vehicles or other kind of self-propelled vehicles in natural areas (PPs define the areas, provide the map).
- Off-road driving it is not allowed or the permission of the landowner and/or manager is required) (PPs define the authority).
- Stay on designated roads, trails and area that are built and marked for motor vehicles.
- Respect the speed limits for local roads (PPs define).
- Forest service roads can only be used on your own responsibility and for non-commercial use
- Respect the limitation regarding the organisation of public events:
  - No driving with vehicles in natural areas and in sensitive period of the year (PPs define the periods).
  - Organiser has to obtain the permission for the event from the authority (PPs define the authority).
  - Respect the limited number of organised event per year (PPs define).
- It is not allowed to organize driving events with motorized vehicles in natural areas, reserves, natural heritage sites, other protected areas,... (PPs define and provide map).
- For organized events the organizer should get permission from owner(s), Geopark manager/protected area manager and from relevant Nature Protection Authority (PPs define the authorities). Permissions should be required also for parking places for these locations.
- These events can be organized only in a way that will not leave any permanent changes in the environment.
- Roads should be closed for other users during the event.
- The construction of new routes/parking space and changes of tracks to routes should be based on the site-specific management plans (PPs provide).
- Trails above tree line should only be used by hikers.
- Off-road traffic always requires the permission of the landowner and/or manager.
- When constructing new roads, provide crossings for wildlife, such as underpasses protecting them from vehicles as well as reducing accidents of drivers trying to avoid them.

- Parking is allowed only on organized parking places or within 5 m from the road if the owner agrees.
- Usage of road salting is not recommended.
- Respect the limitations when organizing motor vehicles competitions (PPs define).

#### 6.3.8.2 Horse Riding

- It is not allowed to ride on hiking and biking trails.
- The commercial operator should have control over the number of users and the aerial extent of use.
- It is suggested to design well cross-checked, well-marked and well maintained network of horse riding routes.

#### 6.3.8.3 Mountain Biking, Downhill

- Consider a register of trails for biking (PPs provide a map with marked trails and their different difficulties).
- It is allowed to use bikes on gravel roads (on dirt roads and trails only, if both the owner and the manager agree with dual use – for both hikers and bikers).
- In areas with numerous mountain biking it is advisable to think about diverting “expert” high-speed riders onto dedicated single use tracks if space allows so. If not, then temporal closures, such as bikers and hikers using the trail on alternate days, can reduce use frequency and provide hikers and mountain bikers with some space and/or reduce conflicts among mountain bikers with different levels of expertise and expectations.
- It is prohibited to cycle on hiking trails that are not on agricultural roads or forest service roads (gravel roads; exceptions!) and on gravel roads where it is determined so by laws regarding nature protection, forestry , hunting (PPs provide the local legislation).
- Mountain biking in sensitive areas is forbidden during the sensitive periods (PPs determine: e.g. during winter/nesting time, in the early morning or late evening, etc.).
- When organizing events for bikers/riders there are the same rules to be respected as for the organized events for motor vehicles (for organization of such events you require prior consent of the organization responsible for nature protection) (PPs define the authorities).
- Collaborate in education activities for mountain bikers.

#### 6.3.9 Winter Activities

- Respect relevant spatial plans for the location of areas for winter activities (PPs provide relevant spatial plans).
- Prior consent of the authority has to be acquired for the establishment of new sites (PPs determine the authorities).
- For the production of artificial snow, the manager of the site should require permit for the use of water and in some cases, also prior consent of the organization responsible for nature conservation is needed. Water for artificial snow should not be pumped from water bodies if the water level is below a certain, pre-determined level (further withdrawing of water could be damaging for the organisms in the water body).
- People can ski and cross-country ski on organized areas. The use other areas is on their own responsibility. They should not enter quiet zones, protected areas, reserves, etc. (PPs provide maps).
- To park their vehicles, visitors have to follow the same rules as are valid for other motor vehicles.



- Respect determined areas and periods in which winter activities (cross-country skiing, tour skiing, free riding, sledding) are allowed (PPs provide the map of areas and determine time periods).
- In the winter large part of the area should be regarded as quiet zone outside designated skiing areas (PPs provide the map of areas and determine time periods).
- Do not combine activities that cause conflicts between user groups (e.g. walking and sledging, walking and cycling).
- Separate ski and snowshoe tracks where possible. Avoid hiking on ski or snowshoe tracks.
- Respect the limitation about snowshoeing in the remote areas (PPs provide maps of these areas).
- Snowmobiles are regulated in the same way as other motor vehicles.
- Use only established official routes for snowmobiles (PPs provide maps with official routes). Driving in the remaining area is not allowed.
- Recreational snowmobiling it is not allowed in nature reserves and nature conservation sites (PPs provide maps).
- Respect set limits on the number of vehicles allowed to enter the park each day (PPs determine).
- All trips have to be guided and snow vehicles can enter the park only in single file.
- Respect speed limits (PPs determine).
- Respect established curfews (motorized snow vehicles are only allowed to operate between 7 a.m. and 9 p.m.; PPs define).
- A hefty fine is assessed to visitors who travel off designated trails (PPs determine fine).



## 7 Conclusions and Recommendations

### 7.1 Conclusions

Nowadays people tend to spend their free time in nature; whether practicing sport, camping by the mountain river or just hiking to the nearby hill and enjoying the view. Recreational activities turned to be very important for the promotion and the economy of Geoparks in the Danube region, since all participating Geoparks distance from the major tourist sites and they face lower visitor income, that they might have wished.

At the moment, most of recreation activities in Geoparks are not perceived as a source of severe damage caused to Geoparks' heritage and environment, but on the other hand, it is expected that in the following decades the recreation activities in nature will become more numerous. It is expected that at least some of the recreation activities will need to be regulated to avoid environmental damage and also to prevent the negative impact on geological heritage. The project Geoparks exposed to off-road vehicle activities, mountain biking, to have the highest negative impact on nature and also the lowest possibility for interpretation of geoheritage. Therefore the Geopark managers should avoid promoting this kind of activities in the future. There is recommended to develop other activities in nature, for example: organized activities (guided tours, workshops, sport events, etc.) where the impact on the nature and geoheritage can be regulated and controlled, as well as the interpretation of geoheritage and geoproducts can be developed on very high level. The most numerous are summer activities, those that are carried out in the warmer part of the year: e.g. trekking, mountaineering, rock climbing, exploring nature, picnics,... Consequently the management of the wide range of activities requires a special approach.

For Geopark managers it will be very beneficial to have prepared strategies for ongoing activities, so they will be able to prepare required measures in advance. All participant partners need to establish an appropriate balance between preservation and geotourism development in each Geopark. Based on natural features defining PPs Geoparks, managers should define opportunities and constraints of sustainable geotourism development and at the same time provide measures for managing the increased pressures of invasive forms of recreational activities (e.g. adrenalin parks, organized motor vehicles competitions, organized bike competitions outside official roads, etc.).

The data on existing problems in project Geoparks, that are related to recreation, was collected from project partners and literature. This document (Strategy) is based on previous researches and comparative assessment of tourism pressures on Geo-Heritage of the Danube-Region Geoparks. During drafting this document, an overview on which recreation activities are related to existing and potential future problems in project Geoparks was made.

Participating Geoparks spread across various areas and have different landscape and geodiversity as well as rich biological diversity. Consequently the occurrence of types of recreational activities as well as their frequency varies among participating Geoparks. Some of the activities are already well regulated (e.g. mountain biking) comparing with others (e.g. picking fruits) that are less frequent and are not problematic at the moment but they might exceed limits of sustainability in the near future. So it is very important that managers have an instrument which could help them to introduce needed rules to achieve the sustainable development of recreational tourism in their Geopark.

The insight into the problems with existing legislation as well as the shortcomings of existing legislation was also prepared. This is very important, because the rules and guidelines in Geoparks must be based



on legislation. Without appropriate legislative foundation, Geoparks cannot establish rules and limitations for visitors, as well as they cannot establish effective control and set fines.

The guidelines/recommendations suggested in this document are focused on preservation of the geoheritage and other related natural heritage. The safety of visitors, their wellbeing and overall quality of their experience was not taken into account.

Great contribution of each participating Geopark was to give a direct insight on their legislation regarding recreational impact issues that all partner Geoparks can find very useful in solving local problematics concerning negative impact of tourism. There was a possibility to compare eight different national legislations and see some good solution but also shortcomings in certain contents. This strategy will help Geopark managers and other stakeholders to wisely project the future of the geoheritage that will be proportionate with the existing carrying capacity of their environments and to achieve high standards on geoheritage protection.

This strategy will help strengthen the Danube GeoTour brand and will also act in the role of basis for the development of joint marketable innovative geoproducts. Geoparks must develop and promote the activities of their region in the field of natural and cultural heritage to implement heritage protection and sustainable development as a holistic approach.

## *7.2 Recommendations for the Use and Application of Strategy in Geoparks and Other Protected Sites and Territories*

In order to make this document more applicable in the management of Geopark there is a long list of recommendations made for three different groups of users: residents, visitors and SMEs/investors. Each group has its own specifics, but there are also some rules that are universal for all three target groups: e.g. it is forbidden to damage geoheritage, minerals and fossils; it is not allowed to cause unnecessary impact on nature; it is recommended to avoid conflicts on appropriate behaviour. Basic recommendations developed through this strategy can be also applied in other members of UNESCO Global Geoparks Network.

Each Geopark will make its own list of recommendations by carefully selecting the most appropriate and applicable ones among those present in the long list. The Geopark managers are also encouraged to add some locally important or specific recommendation for the individual Geopark for the topics they find important and to upgrade them with the defined different types of protected areas within the territory of Geopark, when management systems and limitations for certain activities in each of them are already determined. Geoparks have a possibility to protect individual sensitive areas from the damage caused by visitors and they have a possibility to establish quiet zones or reserves (prevent access of visitors), where required. There is also recommendation on effective communication, information and education with visitors, when the personal contact and role modelling by rangers (and especially by volunteers) is suggested.

Present strategy can be very useful for the Geopark managers when dealing with actual problems in different fields, when preparing the managing plan for their Geopark, when dealing with different stakeholders, etc.,... It will be a good support for the Geopark managers in many situations. To be more specific: when an investor, who would like to establish for example a campsite, appear, the Geopark manager will be able to present a list of activities which are allowed to be implemented and which practices are better to be avoided.



The results and outputs of the Danube Geo Tour Project are not planned to be applied only in project geoparks, but gained experiences can be shared with other Geoparks in other regions and with similar territories outside the Geopark area.

This Strategy might offer good starting point also for managers of new emerging Geoparks or natural areas with special protection status when dealing with all challenges that the establishment and management of such an area can bring.



## 8 Bibliography

Recommended literature for geopark management:

- Leave No Trace Principles (<https://lnt.org/learn/7-principles>)
- Leave No Trace Tech Tips (<https://lnt.org/learn/techtip>)
- North American Outdoor Skills & Ethics Booklet (<https://lnt.org/sites/default/files/NA.pdf>)
- Leave No Trace Principles Tri-fold Brochure ([https://lnt.org/sites/default/files/PrinciplesTrifold2015\\_0.pdf](https://lnt.org/sites/default/files/PrinciplesTrifold2015_0.pdf))
- Concepts and Plans for Teaching Leave No Trace Principles (<https://lnt.org/teach/concepts-and-plans-teaching-leave-no-trace>)
- Leave No Trace for the Appalachian Trail (<https://lnt.org/sites/default/files/LeaveNoTraceAppalachianTrail.pdf>)
- Leave No Trace for the Outdoor Workplace — Information for Land Managers (<https://lnt.org/teach/leave-no-trace-outdoor-workplace>)
- Leave No Trace Information for Winter Recreation (<https://lnt.org/teach/winter-recreation>)
- Leave No Trace Information for Llama Packing (<https://lnt.org/sites/default/files/LNTLlamas2004.PDF>)
- Leave No Trace Cell Phone Use Guidance (<https://lnt.org/teach/cell-phone-use-guidance>)
- Leave No Trace Group Use Brochure (<https://lnt.org/sites/default/files/GroupUseBrochure.pdf>)
- Leave No Trace principles ([https://lnt.org/sites/default/files/PrinciplesTrifold2015\\_0.pdf](https://lnt.org/sites/default/files/PrinciplesTrifold2015_0.pdf))

- Davies C., Newsome D., 2009. Mountain bike activity in natural areas: impacts, assessment and implications for management A case study from John Forrest National Park, Western Australia. CRC for Sustainable Tourism Pty Ltd., Australia.
- Effects. NABU – German Society for Nature Conservation, BirdLife in Germany, 33 pp. (accessed on 17<sup>th</sup> January 2018: <https://wcd.coe.int/com.instranet.InstraServlet?command=com.instranet.CmdBlobGet&InstranetImage=1300705&SecMode=1&DocId=1441752&Usage=2>)
- Forest Service, 2006. Forest Recreation in Ireland - A Guide for Forest Owners and Managers. Forest Service Department of Agriculture and Food Johnstown Castle Estate Co. Wexford Ireland. 48 pp.
- Haas D., Nipkow M., Fiedler G., Schneider R., Haas W., Schürenberg B., 2003. Protecting Birds from Powerlines : a practical guide on the risks to birds from electricity transmission facilities and how to minimise any such adverse
- Leave No Trace, 2004. Isle Royale National Park Skills & Ethics. Leave No Trace Center for Outdoor Ethics.
- Manning R.E., Anderson L.E., 2012. Managing Outdoor Recreation Case Studies in the National Parks. CABI, Oxfordshire and Cambridge, 243 pp.
- Pröbstl U., Wirth V., Elands B., Bell S., 2010. Management of Recreation and Nature Based Tourism in European Forests. Springer-Verlag Berlin Heidelberg, 336 p.
- Turton S.M., 2005. Managing Environmental Impacts of Recreation and Tourism in Rainforests of the Wet Tropics of Queensland World Heritage Area. Geographical Research, 43(2): 140–151.
- Pedersen A., 2002. Managing Tourism at World Heritage Sites. UNESCO World Heritage Centre, 96 p.
- Park L. O., Manning R.E., Marion J.L., Lawson S.R., Jacobl C., 2008. Managing Visitor Impact in Parks: A Multi Method Study of the Effectiveness of Alternative Management Practices. Journal of Park and Recreation Administration, Volume 26, Number 1, 97-121 pp.
- Cole D.N., 1993. Minimizing Conflict between Recreation and Nature Conservation. Ecology of Greenways: Design and Function of Linear Conservation Areas. University of Minnesota Press, Minneapolis, 105 – 122 pp.
- Marion J.L., Reld S.E., 2007. Minimising Visitor Impacts to Protected Areas: The Efficacy to Low Impact Education Programmes. Journal of Sustainable Tourism, Vol 15, No. 1, 5-23 pp.
- Chiu L., Kriwoken L., 2003. Managing Recreational Mountain Biking in Wllington Park, Tasmania, Australia. Annals of Leisure Research Vol.6, No. 4
- Quinn M., Chernoff G., 2010. Mountain Biking: A Review of the Ecological Effects, A Literature Review for Parks Canada – National Office (Visitor Experience Branch) Final Report. Faculty of Environmental Design – University of Calgary, 45 p.
- Pickering C.M., 2010. Ten Factors that Affect the Severity of Environmental Impacts of Visitors in Protected Areas. Royal Swedish Academy of Sciences, AMBIO (2010) 39:70-77 pp.
- Newsome D., Moore S.A., Dowling R.K., 2013. Natural Area Tourism; Ecology, Impacts and Management, 2<sup>nd</sup> edition. MPG Books Group, 481 p.



- Leung Y., Marion J.L., 2000. Recreation Impacts and Management in Wilderness: A State-of-Knowledge Review. USDA Forest Service Proceedings RMRS-P-15-VOL-5. 23 -48 pp.
- Farell T.A., Marion J.L., 2002. The Protected Area Visitor Impact Management (PAVIM) Framework: A Simplified Process for Making Management Decisions. *Journal of Sustainable Tourism*, Vol. 10, No. 1, 31 – 51 pp.
- Aukerman, Hass, and Associates, LLC, 2011. Water and Land Recreation Opportunity Spectrum (WALROS); Users' Handbook, Second Edition. U.S. Department of the Interior Bureau of Reclamation, 167 p.
- Rösner S., Mussard-Foster E., Lorenc T., Müller J., 2013. Recreation shapes a “landscape of fear” for threatened forest bird species in Central Europe. Springer Science+Business Media Dordrecht, 12p.
- Knight R.L., Gutzwiller K.J., 1995. Wildlife and Recreationists; Coexistence through management and research. Island Press, Washington, DC, 393 p.
- Knight R.L., Cole D.N., 1995. Factors That Influence Wildlife Responses to Recreationists. In: Wildlife and Recreationists; Coexistence through management and research. Island Press, Washington, DC, 393 p.
- Newsome D. et al., 2002. Effects of Horse Riding on National Parks and Other Natural Ecosystems in Australia: Implications for Management. *Journal of Ecotourism*, Vol. 1, No. 1, 52 – 74 pp.
- Marion J., Wimpey J., 2007. Environmental Impacts of Mountain Biking: Science Review and Best Practices. IMBA
- Marion J.L., Leung Y., 2004. Environmentally Sustainable Trail Management. CAB International. 229 – 243 pp.
- Burgin S., Hardiman N., 2009. Extreme sports in natural areas: looming disaster or a catalyst for a paradigm shift in land use planning? School of Natural Sciences, University of Western Sydney, Australia, 32 p.
- McCool S.F., 2001. Limiting Recreational Use in Wilderness: Research Issues and Management Challenges in Appraising Their Effectiveness. USDA Forest Service Proceedings RMRS-P-20. 49 – 55 pp.
- Pröbstl U., Wirth V., Elands B., Bell S., 2010. Management of Recreation and Nature Based Tourism in European Forests. Springer Heidelberg Dordrecht London New York, 336 p.
- Marion J.L., Farell T.A., 2002. Management practices that concentrate visitor activities: camping impact management at Isle Royale National Park, USA. *Journal of Environmental Management* (2002) 66, 201-212 pp.
- Broadhurst R., 2001. Managing Environments for Leisure and Recreation. Routledge, 259 p.
- Heinonen M., 2016. Principles of Protected Area Management in Finland. Edita Prima Oy, Helsinki, 143 p.
- Goeff U., Alder J., 2001. Sustainable Mountain Biking: A Case Study from the Southwest of Western Australia. *Journal of Sustainable Tourism*, Vol. 9, No. 3., 193 – 211 pp.
- Lathrop J., 2003. Ecological Impacts of Mountain Biking: A Critical Literature Review. Prepared for Wildlands CPR through the University of Montana's Environmental Studies, 11 pp.
- Siikamäki P., Kangas K., Cottrell S., Schroderus S., 2010. Spatial overlap of biodiversity and recreational use in protected areas. In: Recreation, tourism and nature in a changing world, Proceedings of The Fifth International Conference on Monitoring and Management of Visitor Flows in Recreational and Protected Areas Wageningen, The Netherlands, 30 May - 3 June 2010.
- Kluge T., 2010. Mountain Bikers' personal responsibility and knowledge versus the setting of close legal limits and standards in nature and landscape. In: Recreation, tourism and nature in a changing world, Proceedings of The Fifth International Conference on Monitoring and Management of Visitor Flows in Recreational and Protected Areas Wageningen, The Netherlands, 30 May - 3 June 2010.
- Knight R.L., Temple S.A., 1995. Wildlife and Recreationists: Coexistence through Management. Wildlife and Recreationists; Coexistence through management and research. Island Press, Washington, DC, 393 p.
- Statutes of the international geoscience and geoparks programme, 16 pp. (accessed on 7<sup>th</sup> February 2018: [http://www.globalgeopark.org/UploadFiles/2012\\_9\\_6/IGGP\\_EN\\_Statutes\\_and\\_Guidelines.pdf](http://www.globalgeopark.org/UploadFiles/2012_9_6/IGGP_EN_Statutes_and_Guidelines.pdf))
- McCool Stephen F., Clark Roger N., and Stankey George H., 2007. An Assessment of Frameworks Useful for Public Land Recreation Planning. Recreation & Tourism Initiative. General technical report PNW-GTR-705. U.S. Department of Agriculture, Portland, 125 p.
- Graf C., 2016. Ranger and visitor management systems in protected wetland areas in the Canton of Aargau. Master thesis in Environmental Sciences. Swiss Federal Institute of Technology, Zürich, Switzerland, 60 p.
- Hammit William E., Cole David N., Monz Christopher, 2015. Wildlife Recreation: Ecology and Management. Third edition. Published by John Wiley & Sons, Ltd, 336 p.





## 9 Annex

### 9.1 List of Relevant Regulation Reviewed in Participating Geopark countries

#### 9.1.1 Slovenia: data collected by PP5 for LP (Geopark Idrija) and Slovenian part of PP4 (Geopark Karavanks)

##### a) European /international conventions and directives

- Statutes of the IGGP = Statutes of the International Geoscience and Geoparks Programme ([http://www.globalgeopark.org/UploadFiles/2012\\_9\\_6/IGGP\\_EN\\_Statutes\\_and\\_Guidelines.pdf](http://www.globalgeopark.org/UploadFiles/2012_9_6/IGGP_EN_Statutes_and_Guidelines.pdf))
- 92/43/EEC = Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora
- 2000/60/EC = Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy
- 1143/2014 = Regulation (EU) No 1143/2014 of the European Parliament and of the Council of 22 October 2014 on the prevention and management of the introduction and spread of invasive alien species
- 79/409/EEC = Council Directive 79/409/EEC of 2 April 1979 on the conservation of wild birds
- Directive 2009/147/ec of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds

##### b) Slovenian legislation – general

- Nature Conservation Act = Zakon o ohranjanju narave (ZON) (Uradni list RS, št. 56/1999, 31/2000 - popr., 110/2002 - ZGO-1, 119/2002, 41/2004, 61/2006 - ZDru-1, 32/2008 - Odl. US, 8/2010 - ZSKZ-B, 46/2014)
- Decree on protected wild animal species = Uredba o zavarovanih prosto živečih živalskih vrstah (Uradni list RS, št. 46/2004, 109/2004, 84/2005, 115/2007, 32/2008 - Odl. US, 96/2008, 36/2009, 102/2011, 15/2014, 64/2016);
- Environmental Protection Act = Zakon o varstvu okolja (Uradni list RS, št. 39/06 – uradno prečiščeno besedilo, 49/06 – ZMetD, 66/06 – odl. US, 33/07 – ZPNačrt, 57/08 – ZFO-1A, 70/08, 108/09, 108/09 – ZPNačrt-A, 48/12, 57/12, 92/13, 56/15, 102/15 in 30/16)
- Forest Act = Zakon o gozdovih s spremembami in dopolnitvami (UL RS, št. 30/93, 67/02, 110/07, 106/10, 63/13, 101/13, 17/14, 24/15, 9/16, 77/16)
- Rules on forest protection = Pravilnik o varstvu gozdov (Uradni list RS, št. 114/09 in 31/16)
- Mountain Paths Act = Zakon o planinskih poteh (ZPlanP) (Uradni list RS, št. 61/07)
- Waters Act = Zakon o vodah (Uradni list SRS, št. 38/81, 29/86, 42/89, Uradni list RS, št. 15/91-I, 32/93 – ZGJS, 29/95 – ZPDF, 52/00 in 67/02 – ZV-1)
- Regulation laying down waters of particular interest and the way of fishery administration of those waters = Uredba o določitvi voda posebnega pomena ter načinu izvajanja ribiškega upravljanja v njih (Uradni list RS, št. 52/07)
- Rules on fishing regime = Pravilnik o ribolovnem režimu v ribolovnih vodah (Uradni list RS, št. 99/07 in 75/10)
- Rules on qualifications of cave guides for guiding in caves which are open to public and arranged for tourist visits = Pravilnik o usposobljenosti za jamske vodnike za vodenje po odprtih jamah, ki so urejene za turistični obisk (Uradni list RS, št. 77/08)
- Rules on qualifications for autonomously operating in caves = Pravilnik o usposobljenosti za samostojno jamarsko delovanje (Ur. l. RS 66/2007)
- Inland Waterways Navigation Act = Zakon o plovbi po celinskih vodah (Uradni list RS, št. 30/02)

##### c) Slovenian legislation related to protected species and habitats, natural values and Natura 2000

- Rules on the designation and protection of natural heritage = Pravilnik o določitvi in varstvu naravnih vrednot (Uradni list RS, št. 111/04, 70/06, 58/09, 93/10 in 23/15)
- Decree on special protection areas (Natura 2000 areas) = Uredba o posebnih varstvenih območjih (območjih Natura 2000) (Uradni list RS, št. 49/04, 110/04, 59/07, 43/08, 8/12, 33/13, 35/13 – popr., 39/13 – odl. US, 3/14 in 21/16)
- Rules on the designation and protection of natural values = Pravilnik o določitvi in varstvu naravnih vrednot (Uradni list RS, št. 111/04, 70/06, 58/09, 93/10 in 23/15)
- Natura 2000 Management Programme for the period 2015-2020 = Program upravljanja območij Natura 2000 za obdobje 2015-2020 ([http://www.natura2000.si/fileadmin/user\\_upload/C5\\_ProgrammeNatura2020.pdf](http://www.natura2000.si/fileadmin/user_upload/C5_ProgrammeNatura2020.pdf))
- Decree on protected wild animal species = Uredba o zavarovanih prosto živečih živalskih vrstah (Uradni list RS, št. 46/2004, 109/2004, 84/2005, 115/2007, 32/2008 - Odl. US, 96/2008, 36/2009, 102/2011, 15/2014, 64/2016)

##### d) Local legislation

- Decree on the Proclamation of Cultural and Historical Monuments and Natural Sites in the Area of the Municipality of Idrija = Odlok o razglasitvi kulturnih in zgodovinskih spomenikov ter naravnih znamenitosti na območju občine Idrija (Uradni list SRS, št.16/86, 17/88, 56/93, 45/97, 131/03, 45/07, 115/07)
- Decree on the proclamation of the Zgornja Idrijca Landscape Park (including Professional groundwork for the proclamation) = Odlok o razglasitvi krajinskega parka Zgornja Idrijca (Uradni list RS, št. 11/93, 37/95) (Odlok s pripadajočimi strokovnimi podlagami za razglasitev)
- The plan of fishery management in the Soča fishing area = Načrt ribiškega upravljanja v Soškem ribiškem območju za obdobje 2017-2020



## e) General recommendations on behaviour in natural environment

- Constitution of the Republic of Slovenia: Everyone is obliged, in accordance with the law, to protect natural sights and rarities and cultural monuments
- Rules on forest protection: It is not allowed to injure trees, damage anthills, deliberate destruction of nesting sites etc., disturb animals in defined sensitive periods
- Recommendations for mountain bikers in natural area: <https://ktk.pzs.si/vsebinska.php?pid=116>
- Protection regime for hydrological, surface geomorphological, underground geomorphological, botanical and zoological natural values: [http://www.upravneenote.gov.si/fileadmin/pageuploads/ue-smarje\\_pri\\_ielsah/Zivlj\\_dogodki\\_14/Varstveni\\_rezimi\\_za\\_NV-27.01.2003.pdf](http://www.upravneenote.gov.si/fileadmin/pageuploads/ue-smarje_pri_ielsah/Zivlj_dogodki_14/Varstveni_rezimi_za_NV-27.01.2003.pdf)
- Bonton - Visiting Nature (in Slovenian language): [http://www.zrsvn.si/dokumenti/63/2/2007/bonton1\\_916.pdf](http://www.zrsvn.si/dokumenti/63/2/2007/bonton1_916.pdf)
- Bonton - On the Visit to the Mountains - [http://www.zrsvn.si/dokumenti/63/2/2009/gore\\_bonton\\_ANG\\_screen\\_1626.pdf](http://www.zrsvn.si/dokumenti/63/2/2009/gore_bonton_ANG_screen_1626.pdf)
- Bonton - On a Visit Along Waters: [http://www.zrsvn.si/dokumenti/74/2/2010/Bonton\\_vode\\_angleska\\_S\\_2009.pdf](http://www.zrsvn.si/dokumenti/74/2/2010/Bonton_vode_angleska_S_2009.pdf)
- Bonton - On a Visit to Rocks: [http://www.zrsvn.si/dokumenti/74/2/2011/Bonton\\_geologija\\_ANG\\_2469.pdf](http://www.zrsvn.si/dokumenti/74/2/2011/Bonton_geologija_ANG_2469.pdf)
- Rules on appropriate behaviour in Geopark Idrija: [http://www.geopark-idrija.si/si/geopark/143/19-ucna-pot-kraski-gozd/#Gozdni\\_bonton](http://www.geopark-idrija.si/si/geopark/143/19-ucna-pot-kraski-gozd/#Gozdni_bonton)

## 9.1.2 PP1 (Hungary)

### b) National legislation

#### - Acts

- 1996. LIII. Act on Nature Conservation
- 2017. LVI. Act on Forest, Protection of Forest and Forestry
- 1993. XLII. Act related to the Ramsar Convention
- 2000. XLII Act on Water Traffic
- 1997. XLI. Act on Fishing and Angling
- 2013. CII. Act on Fish Management and protection and related Ministerial Decree
- 1997. CLIX. Act on Gunned security guards, nature conservation ranger service and field guard service
- 2017. LVI. Act on Forest, Protection of Forest and Forestry

#### - National decrees

- KTM Decree 13/1998. (V. 6.) on registry, visits, research and development of caves
- KöM Decree 13/2001. (V. 9.) on protected and strictly protected plant and animal species and strictly protected caves etc.
- Ministerial Decrees on the determination of medicinal caves
- KTM Decree 31/1997. (IX. 23.) on the establishment of Balaton-felvidéki National Park
- BM Decree 46/2001. (XII. 27.) on the basic rules of staying in open air water bodies
- NFM Decree 57/2011. (XI. 22.) NFM on the order of water traffic
- VM Decree on regulations about fish management and protection 133/2013. (XII. 29.)

#### - Ordinances

- Ministerial Order 85.350/1942. on the protection of the surface of the Tapolca Lake Cave
- KvVM ministry order 119/2007. (XII. 27.) on maintaining the Ministerial Order 85.350/1942., including the nature conservation management plan.
- NFM Order 43/2011. (VIII. 18.) on the Safety Regulations of a surface mining activities

#### - Rules

- Permission for utilization of a cave by the nature conservation authority.

#### Hungarian Standards:

- MSZ 20376-1:1999: Nature conservation. The siting of buildings and structures in the conservation areas
- MSZ 20376-3:1999: Nature conservation. The siting of buildings and structures in the nature conservation areas of Balaton Uplands and Bakony
- MSZ 20386:2003 Nature conservation. Requirements for operating caves for general tourism, ecotourism and adventure tourism purposes
- MSZ 20385-1:2003 Technical installations of caves. Part 1: Electrical installations
- MSZ 20385-2:2003 Technical installations of caves. Part 2: Construction of walkways, pavements and stairs
- MSZ 20385-3:2003 Technical installations of caves. Part 3: Steel structures in caves
- MSZ 20385-4:2003 Technical installations of caves. Part 4: Closure of caves

### c) Local legislation

- Regulations of fishing on Lake Balaton
- Orders of the National Park Directorate's Director about entrance fees and opening hours of visitor centres
- Orders of the National Park Directorate's Director about visiting certain caves.
- Order of the National Park Directorate's Director on the visiting rules of Tapolca Lake Cave Visitor Centre.
- Order of the director of the national park directorate on visiting rules of Hegyestű Visitor Site and the Várpalota Disused Sandpit
- Order of the director of the national park directorate on guided tours
- Local fishing rules
- Boating rules of the Tapolca Lake Cave Visitor Centre



#### d) Planning documents

- Nature Conservation Management Plans of Protected Natural Areas

#### e) General recommendations on behaviour in natural environment

- 1996. LIII. Act on Nature Conservation
- 2017. LVI. Act on Forest, Protection of Forest and Forestry

### 9.1.3 Austria: PP2 (Eisenwurzen Geopark) and Austrian part of PP4 (Geopark Karavanks)

#### b) National legislation

##### - Acts

##### 1) General

Austria:

<https://www.ris.bka.gv.at/GeltendeFassung.wxe?Abfrage=Bundesnormen&Gesetzesnummer=10010371>

[https://www.alpenverein.at/portal\\_wAssets/docs/natur-umwelt/aktuell/4\\_bergsport-umwelt/Wegefreiheit/Gesetzliche-Rahmenbedingungen-fuer-die-Wegefreiheit-in-Oesterreich.pdf](https://www.alpenverein.at/portal_wAssets/docs/natur-umwelt/aktuell/4_bergsport-umwelt/Wegefreiheit/Gesetzliche-Rahmenbedingungen-fuer-die-Wegefreiheit-in-Oesterreich.pdf)

EIA:

<https://www.ris.bka.gv.at/GeltendeFassung.wxe?Abfrage=Bundesnormen&Gesetzesnummer=10010767>

<https://www.bmlfuw.gv.at/english/environment/Environmental-protection-at-company-level/EIA.html>

[https://www.usp.gv.at/Portal.Node/usp/public/content/umwelt\\_und\\_verkehr/umweltvertraeglichkeitspruefung/Seite.520000.html](https://www.usp.gv.at/Portal.Node/usp/public/content/umwelt_und_verkehr/umweltvertraeglichkeitspruefung/Seite.520000.html)

Styria:

<https://www.ris.bka.gv.at/GeltendeFassung.wxe?Abfrage=LrStmk&Gesetzesnummer=20000835>

<https://www.ris.bka.gv.at/GeltendeFassung.wxe?Abfrage=LrStmk&Gesetzesnummer=20000129>

<https://www.ris.bka.gv.at/GeltendeFassung.wxe?Abfrage=LrStmk&Gesetzesnummer=20000128>

<https://www.ris.bka.gv.at/GeltendeFassung.wxe?Abfrage=LrStmk&Gesetzesnummer=20000921>

<https://www.ris.bka.gv.at/GeltendeFassung.wxe?Abfrage=LrStmk&Gesetzesnummer=20000965>

Carinthia:

<https://www.ris.bka.gv.at/GeltendeFassung.wxe?Abfrage=LrK&Gesetzesnummer=20000118>

<https://www.ris.bka.gv.at/GeltendeFassung.wxe?Abfrage=LrK&Gesetzesnummer=10000090>

<https://www.ris.bka.gv.at/GeltendeFassung.wxe?Abfrage=LrK&Gesetzesnummer=10000053&ShowPrintPreview=True>

##### 2) Caves, mines, fossils and Minerals

Austria:

<https://www.ris.bka.gv.at/GeltendeFassung.wxe?Abfrage=Bundesnormen&Gesetzesnummer=10008040&ShowPrintPreview=True>

<http://wko.at/up/enet/SchaubergwerkeVO.pdf>

[http://www.zobodat.at/pdf/CAR\\_179\\_99\\_0291-0293.pdf](http://www.zobodat.at/pdf/CAR_179_99_0291-0293.pdf)

Carinthia:

<https://www.ris.bka.gv.at/GeltendeFassung.wxe?Abfrage=LrK&Gesetzesnummer=20000118>

Styria:

<https://www.ris.bka.gv.at/GeltendeFassung.wxe?Abfrage=LrStmk&Gesetzesnummer=20000922>

##### 3) Trekking, mountaineering and Climbing

Austria:

<http://www.ratg.at/gesetze/gesetz/ABGB/1319a/10001622/NOR12019063/>

[https://www.alpenverein.at/portal\\_wAssets/docs/natur-umwelt/aktuell/4\\_bergsport-umwelt/Wegefreiheit/Gesetzliche-Rahmenbedingungen-fuer-die-Wegefreiheit-in-Oesterreich.pdf](https://www.alpenverein.at/portal_wAssets/docs/natur-umwelt/aktuell/4_bergsport-umwelt/Wegefreiheit/Gesetzliche-Rahmenbedingungen-fuer-die-Wegefreiheit-in-Oesterreich.pdf)

<https://www.ris.bka.gv.at/GeltendeFassung.wxe?Abfrage=Bundesnormen&Gesetzesnummer=10010371>

Styria:

<https://www.ris.bka.gv.at/GeltendeFassung.wxe?Abfrage=LrStmk&Gesetzesnummer=20000965>

### 9.1.4 PP3 (Croatia, Geopark Papuk)

#### b) Croatian legislation

##### - Acts

- The Nature Protection Act (OG 80/13)

[http://narodne-novine.nn.hr/clanci/sluzbeni/2013\\_06\\_80\\_1658.html](http://narodne-novine.nn.hr/clanci/sluzbeni/2013_06_80_1658.html)

- The Forest Act (OG 140/2005): [http://narodne-novine.nn.hr/clanci/sluzbeni/2005\\_11\\_140\\_2642.html](http://narodne-novine.nn.hr/clanci/sluzbeni/2005_11_140_2642.html)

- Water Act (OG 107/1995): [http://narodne-novine.nn.hr/clanci/sluzbeni/1995\\_12\\_107\\_1769.html](http://narodne-novine.nn.hr/clanci/sluzbeni/1995_12_107_1769.html)

- Freshwater fishing Act (OG 49/2005): [http://narodne-novine.nn.hr/clanci/sluzbeni/2005\\_04\\_49\\_949.html](http://narodne-novine.nn.hr/clanci/sluzbeni/2005_04_49_949.html)

##### - National decrees

- Decision on the Determination of Sensitive Areas (OG 81/10 and 141/15): [http://narodne-novine.nn.hr/clanci/sluzbeni/2010\\_06\\_81\\_2310.html](http://narodne-novine.nn.hr/clanci/sluzbeni/2010_06_81_2310.html); [http://narodne-novine.nn.hr/clanci/sluzbeni/2015\\_12\\_141\\_2636.html](http://narodne-novine.nn.hr/clanci/sluzbeni/2015_12_141_2636.html)



- The Regulation of quality of water for bathing (OG 51/2010): [http://narodne-novine.nn.hr/clanci/sluzbeni/2010\\_04\\_51\\_1220.html](http://narodne-novine.nn.hr/clanci/sluzbeni/2010_04_51_1220.html)

#### - Ordinance

- Ordinance on the collection of native wildlife species (OG 114/201) [narodne-novine.nn.hr/clanci/sluzbeni/2017\\_11\\_114\\_2663.html](http://narodne-novine.nn.hr/clanci/sluzbeni/2017_11_114_2663.html)
- Ordinance on the use of deadwood forest products:  
<http://portal.hrsume.hr/images/dok/proizvodi/Nedrvni%20proizvodi.pdf>
- Ordinance on Strictly Protected Species (OG144 / 2013, 73/2016):  
[http://narodne-novine.nn.hr/clanci/sluzbeni/2013\\_12\\_144\\_3086.html](http://narodne-novine.nn.hr/clanci/sluzbeni/2013_12_144_3086.html)
- Ordinance on Boats (OG72/2015): [http://narodne-novine.nn.hr/clanci/sluzbeni/2015\\_06\\_72\\_1387.html](http://narodne-novine.nn.hr/clanci/sluzbeni/2015_06_72_1387.html)
- Ordinance about the content, model and way of managing water documentation (OG 120/2010):  
<http://registri.nipp.hr/izvori/view.php?id=165>

#### - Rules

##### d) Local legislation

- Ordinance on the inner order of Papuk Nature Park (OG 98/2003)  
[http://narodne-novine.nn.hr/clanci/sluzbeni/2003\\_06\\_98\\_1263.html](http://narodne-novine.nn.hr/clanci/sluzbeni/2003_06_98_1263.html)

##### e) General recommendations on behaviour in natural environment

- The Park Rules: <http://pp-papuk.hr/en/pravila-parka/>

### 9.1.5 PP7 (Czech Republic, Bohemian Paradise Geopark)

- 1. Nature Conservation Act - Zákon o ochraně přírody a krajiny - 114/1992 Sb.
- 2. Forest Act - Lesní zákon - 289/1995 Sb.
- 3. Water Act - Vodní zákon - 254/2001 Sb.
- 4. Building Act - Stavební zákon - 183/2006 Sb.
- 5. Mining Act - Horní zákon - 44/1988 Sb. (89/2016 Sb.)
- 6. Civil Codex - Občanský zákoník - 89/2012 Sb.
- 7. Fishing Act - Zákon o rybářství - 99/2004 Sb.
- 8. Government decree - Declaration of Bohemian Paradise as PLA - Nařízení vlády, kterým se vyhláší CHKO Český ráj - 508/2002 Sb.

### 9.1.6 PP8 (Romania, Hatzeg Country Dinosaurus Geopark)

#### - Acts

- Law no. 134/2017 regarding silvic contraventions
- Law no. 104/2011 regarding the quality of air
- Law no. 351/2001 regarding the approval of the national territory planning
- Law no. 422/2001 regarding the protection of historical monuments
- Law of environment protection no. 137/1995
- Law of mines no. 85/2003
- Law of waters no. 107/1996

#### - National decrees

- Decision no. 321/2005 regarding the evaluation and management of environmental noise

#### - Ordinances

- Ordinance no. 57/2007 regarding the regime of the protected area, the conservation of the habitats, flora and fauna
- Ordinance no. 604 from 4 July 2005 regarding the approval of cave and cave sectors classifications
- Ordinance no. 236/2000, regarding the regime of the protected area, the conservation of the habitats, flora and fauna
- Ordinance no. 195 from 22 December 2005 regarding the environment protection
- Ordinance no. 369/2016 regarding the conditions of recreative and sportive fishing
- Ordinance no. 23/2008 regarding fishing and aquaculture

#### - Rules

##### e) General recommendations on behaviour in natural environment

- The procedure of authorisation of capture and commercialisation of fossils, rocks, plants and animals from 11.04.2008



## 9.1.7 PP9 (Slovakian part of Novohrad – Nógrád Geopark)

### National legislation

#### - Acts

- **Environmental Act:** Zákon č. 17/1992 Zb. o životnom prostredí v znení zákona NR SR č. 127/1994 Z. z., zákona NR SR č. 287/1994 Z.z., zákona č. 171/1998 Z.z., zákona č. 211/2000 Z.z. a zákona č. 332/2007 Z.z.
- **Nature and Landscape Protection Act:** Zákon č. 543/2002 Z. z. o ochrane prírody a krajiny v znení zákona č. 525/2003 Z. z., zákona č. 205/2004 Z. z., zákona č. 364/2004 Z. z., zákona č. 587/2004 Z. z., zákona č. 15/2005 Z. z., zákona č. 479/2005 Z. z., zákona č. 24/2006 Z. z., zákona č. 359/2007 Z. z., zákona č. 454/2007 Z. z., zákona č. 515/2008 Z. z., zákona č. 117/2010 Z. z., zákona č. 145/2010 Z. z., zákona č. 408/2011 Z. z., zákona č. 180/2013 Z. z., zákona č. 207/2013 Z. z., zákona č. 311/2013 Z. z., zákona č. 506/2013 Z. z., zákona č. 35/2014 Z. z., zákona č. 198/2014 Z. z., zákona č. 324/2014 Z. z., zákona č. 314/2014 Z. z., zákona č. 91/2016 Z. z. a zákona č. 125/2016 Z. z.
- **Forest Act:** Zákon 326/2005 Z.z. o lesoch
- **Hunting Act:** Zákon č. 274/2009 o poľovníctve a o zmene a doplnení niektorých zákonov
- **Species Protection Act:** Zákon č. 15/2005 Z. z. o ochrane druhov voľne žijúcich živočíchov a voľne rastúcich rastlín reguláciou obchodu s nimi a o zmene a doplnení niektorých zákonov v znení zákona č. 672/2006 Z. z., zákona č. 330/2007 Z. z., zákona č. 452/2007 Z. z., zákona č. 515/2008 Z. z., zákona č. 447/2012 Z. z., zákona č. 180/2013 Z. z., zákona č. 506/2013 Z. z. a zákona č. 91/2016 Z. z.
- **Environmental Information Act:** Zákon č. 205/2004 Z. z. o zhromažďovaní a šírení informácií o životnom prostredí a o zmene a doplnení niektorých zákonov v znení zákona č. 24/2006 Z.z., zákona č. 515/2008 Z.z., zákona č. 4/2010 Z.z. a zákona č. 39/2013 Z.z.;
- **Environmental Assessment Act:** Zákon č. 24/2006 Z. z. o posudzovaní vplyvov na životné prostredie a o zmene a doplnení niektorých zákonov v znení zákona č. 275/2007 Z.z., zákona č. 454/2007 Z.z., zákona č. 287/2008 Z.z., zákona č. 117/2010 Z.z., zákona č. 145/2010 Z.z., zákona č. 258/2011 Z. z., zákona č. 408/2011 Z.z., zákona č. 345/2012 Z.z., zákona č. 448/2012 Z.z., zákona č. 39/2013, zákona č. 180/2013 Z. z., zákona č. 314/2014 Z. z., zákona č. 128/2015 Z.z., zákona č. 125/2016 Z. z., zákona č. 312/2016 Z. z. a zákona č. 142/2017 Z. z.
- **Water Act:** Zákon č. 364/2004 Z.z. o vodách a o zmene a doplnení zákona Slovenskej národnej rady č. 372/1990 Zb. o priestupkoch v znení neskorších predpisov (vodný zákon) v znení zákona č. 587/2004 Z. z., zákona č. 230/2005 Z.z., zákona č. 479/2005 Z.z., zákona č. 532/2005 Z.z., zákona č. 359/2007 Z.z., zákona č. 514/2008 Z.z., zákona č. 515/2008 Z. z., zákona č. 384/2009 Z.z., zákona č. 134/2010 Z.z., zákona č. 556/2010 Z.z., zákona č. 258/2011 Z. z., zákona č. 408/2011 Z.z., zákona č. 306/2012 Z.z., zákona č. 180/2013 Z.z., zákona č. 35/2014 Z.z., zákona č. 409/2014 Z. z., zákona č. 262/2016 Z.z. a zákona č. 303/2016 Z.z.
- **Water Pipes and Sewage Act:** Zákon č. 442/2002 Z.z. o verejných vodovodoch a verejných kanalizáciách a o zmene a doplnení zákona č. 276/2001 Z.z. o regulácii v sieťových odvetviach v znení zákona č. 525/2003 Z. z., zákona č. 364/2004 Z.z., zákona č. 587/2004 Z. z., zákona č. 230/2005 Z. z., zákona č. 515/2008 Z. z., zákona č. 394/2009 Z. z., zákona č. 180/2013 Z.z., zákona č. 180/2013 Z.z. a zákona č. 91/2016 Z. z.
- **Fishing act:** Zákon č. 139/2002 Z.z. o rybárstve v znení zákona č. 246/2003 Z.z. v znení zákona č. 525/2003 Z. z., a zákona č. 587/2004 Z. z., zákona č. 515/2008 Z. z., zákona č. 180/2013 Z.z. a zákona č. 273/2015 Z. z.
- **Protection From Floods Act:** Zákon č. 7/2010 Z.z. o ochrane pred povodňami v znení zákona č. 180/2013 Z.z., zákona č. 71/2015 Z.z. a zákona č. 303/2016 Z. z.
- **Ozone Layer Protection Act:** Zákon č. 321/2012 Z.z. o ochrane ozónovej vrstvy Zeme a o doplnení niektorých zákonov v znení zákona č. 180/2013 Z.z.
- **Wastes Act:** Zákon č. 79/2015 Z. z. o odpadoch a o zmene a doplnení niektorých zákonov v znení zákona č. 91/2016 Z. z., zákona č. 313/2016 Z.z. a zákona č. 90/2017 Z. z.
- **Geology Act:** Zákon č. 569/2007 Z. z. o geologických prácach (geologický zákon) v znení zákona č. 515/2008 Z.z., zákona č. 384/2009 Z.z., zákona č. 110/2010 Z.z., zákona č. 136/2010 Z.z., zákona č. 145/2010 Z. z. a zákona č. 268/2010 Z.z., zákona č. 258/2011 Z. z., zákona č. 409/2011 Z.z., zákona č. 311/2013 Z.z., zákona č. 160/2014 Z. z., zákona č. 91/2016 Z. z., zákona č. 125/2016 Z. z., zákona č. 315/2016 a zákona č. 147/2017 Z. z.
- **Waste from Mining Act:** Zákon č. 514/2008 Z.z. o nakladaní s odpadom z ťažobného priemyslu a o zmene a doplnení niektorých zákonov v znení zákona č. 255/2011 Z. z. a zákona č. 180/2013 Z. z.
- **Mining activity Act:** Zákon č. 51/1988 Zb. Zákon Slovenskej národnej rady o banskej činnosti, výbušnínach a o štátnej banskej správe (v znení č. 499/1991 Zb., 154/1995 Z. z., 58/1998 Z. z., 533/2004 Z. z., 577/2007 Z. z., 292/2009 Z. z., 136/2010 Z. z., 145/2010 Z. z., 258/2011 Z. z., 350/2012 Z. z., 58/2014 Z. z., 314/2014 Z. z., 91/2016 Z. z., 315/2016 Z. z., 142/2017 Z. z.)
- **Building Act:** zákon o územnom plánovaní a stavebnom poriadku (stavebný zákon) č. 50/1976 Zb. o územnom plánovaní a stavebnom poriadku (stavebný zákon), ako vyplýva zo zmien a doplnení vykonaných zákonom z 18. apríla 1990 č. 103/1990 Zb., zákonom z 24. apríla 1992 č. 262/1992 Zb., zákonom Národnej rady Slovenskej republiky z 26. júna 1995 č. 136/1995 Z. z., zákonom Národnej rady Slovenskej republiky z 12. septembra 1995 č. 199/1995 Z. z., nálezom Ústavného súdu Slovenskej republiky z 12. septembra 1996 č. 286/1996 Z. z. a zákonom z 2. júla 1997 č. 229/1997 Z. z.
- **Tourism Act:** ZÁKON o podpore cestovného ruchu 91/2010 Z.z. a jeho zmeny 556/2010 Z.z., 386/2011 Z.z., 352/2013 Z.z., 415/2013 Z.z.



- **Public event organisation Act:** Zákon o organizovaní telovýchovných, športových a turistických podujatí 479/2008 Z. z.
- **Monuments and Historic Sites Protection Act:** Zákon č. 104/2014 Z. z. ktorým sa mení a dopĺňa zákon č. 49/2002 Z. z. o ochrane pamiatkového fondu v znení neskorších predpisov. English version: <http://www.culture.gov.sk/legdoc/44/>

#### - National decrees

- **National Decree on Implementation of the Nature and Landscape Protection Act:** Vyhláška Ministerstva životného prostredia SR č. 24/2003 Z. z., ktorou sa vykonáva zákon č. 543/2002 Z. z. o ochrane prírody a krajiny (redakčné oznámenie o oprave chyby uverejnené v čiastke 49/2003) v znení vyhlášky MŽP SR č. 492/2006 Z. z., vyhlášky MŽP SR č. 638/2007 Z. z., vyhlášky MŽP SR č. 579/2008 Z. z., vyhlášky MŽP SR č. 173/2011 Z. z. a vyhlášky MŽP SR č. 158/2014 Z. z.
- **National Decree on Protected Minerals and Fossils:** Vyhláška č. 213/2000 Z. z. Vyhláška Ministerstva životného prostredia Slovenskej republiky o chránených nerastoch a chránených skamenelinách a o ich spoločenskom ohodnocovaní
- **National Decree on State Protected Areas:** Vyhláška Ministerstva životného prostredia SR č. 293/1996 Z. z., ktorou sa uverejňuje zoznam chránených areálov a prírodných pamiatok a vyhlasujú sa národné prírodné pamiatky v Slovenskej republike
- **National Decree on State Nature Reserves:** Vyhláška Ministerstva životného prostredia SR č. 17/2003 Z. z., ktorou sa ustanovujú národné prírodné rezervácie a uverejňuje zoznam prírodných rezervácií v znení vyhlášky MŽP SR č. 420/2003 Z. z.
- **National Decree on Environmental Information.** Vyhláška Ministerstva životného prostredia SR č. 448/2010 Z. z., ktorou sa vykonáva zákon č. 205/2004 Z. z. o zhromažďovaní, uchovávaní šírení informácií o životnom prostredí a o zmene a doplnení niektorých zákonov v znení neskorších predpisov
- **National Decree on Environmental Impact Assessment.** Vyhláška Ministerstva životného prostredia SR č. 113/2006 Z. z., ktorou sa stanovujú podrobnosti na účely posudzovania vplyvov na životné prostredie
- **National Decree on Protection of forest grounds:** Vyhláška 12/2009 Z. z. o ochrane lesných pozemkov pri územnoplánovacej činnosti a pri ich vyňatí a obmedzení z plnenia funkcií lesov
- **National Decree on forest wardens:** Vyhláška 397/2006 Z. z. o lesnej strážii
- **National Decree on Forest Protection and Management:** Vyhláška 453/2006 Z. z. o hospodárskej úprave lesov a o ochrane lesa
- **National Decree on Implementation of Hunting Act:** Vyhláška 344/2009 ktorou sa vykonáva zákon o poľovníctve
- **National Decree on Implementation of Monuments and Historic Sites Protection Act:** Vyhláška Ministerstva kultúry SR č. 253/2010 Z. z. ktorou sa vykonáva zákon č. 49/2002 Z. z. o ochrane pamiatkového fondu v znení neskorších predpisov  
Implementing Decree of the Ministry of Culture of the Slovak Republic No. 253/2010 Z. z. implementing Act No. 49/2002 Z. z. on the protection of monuments and historic sites, as amended by implementing decree of the Ministry of Culture of the Slovak Republic No. 321/2014 Z. z.
- **Safety decree for caves:** Bezpečnostný predpis pre jaskyne (registrovaný v čiastke 33/1975 Zb.) v znení neskorších predpisov
- **National Decree on Implementation of Fishing Act:** Vyhláška č. 185/2006 Z. z. Vyhláška Ministerstva životného prostredia Slovenskej republiky, ktorou sa vykonáva zákon č. 139/2002 Z. z. o rybárstve v znení neskorších predpisov
- **National Decree on classification criteria for accommodation** Vyhláška, ktorou sa ustanovujú klasifikačné znaky na ubytovacie zariadenia 277/2008 Zb

#### - Ordinances

- Výnos Ministerstva životného prostredia SR č. 3/2004-5.1 zo 14. júla 2004, ktorým sa vydáva národný zoznam území európskeho významu (registrované v Zbierke zákonov pod číslom 450/2004 Z. z.)
- Vyhláška Ministerstva životného prostredia SR č. 110/2005 Z. z., ktorou sa vykonávajú niektoré ustanovenia zákona o ochrane druhov voľne žijúcich živočíchov a voľne rastúcich rastlín reguláciou obchodu s nimi a o zmene a doplnení niektorých zákonov v znení vyhlášky MŽP SR č. 449/2009 Z. z. a vyhlášky MŽP SR č. 47/2013 Z. z.
- Vyhláška Ministerstva životného prostredia Slovenskej republiky č. 185/2006 Z. z., ktorou sa vykonáva zákon č. 139/2002 Z. z. o rybárstve v znení neskorších predpisov
- Vyhláška Ministerstva životného prostredia Slovenskej republiky č. 204/2010 Z. z., ktorou sa ustanovujú podrobnosti o vykonávaní predpovednej povodňovej služby
- Vyhláška Ministerstva životného prostredia Slovenskej republiky č. 51/2008 Z. z. ktorou sa vykonáva geologický zákon v znení vyhlášky Ministerstva pôdohospodárstva, životného prostredia a regionálneho rozvoja Slovenskej republiky č. 340/2010 Z. z. a vyhlášky č. 22/2015 Z. z.
- Vyhláška Ministerstva životného prostredia Slovenskej republiky č. 255/2010 Z. z., ktorou sa vykonáva zákon o nakladaní s odpadom z ťažobného priemyslu a o zmene a doplnení niektorých zákonov
- Vyhláška Ministerstva životného prostredia Slovenskej republiky č. 337/2014 Z. z., ktorou sa ustanovujú podrobnosti o financovaní geologických prác



- Vyhláška Ministerstva životného prostredia Slovenskej republiky č. 33/2015 Z. z., ktorou sa vykonávajú niektoré ustanovenia zákona č. 44/1988 Zb. o ochrane a využití nerastného bohatstva (banský zákon) v znení neskorších predpisov
- Vyhláška o prípustných hodnotách hluku: VYHLÁŠKA Ministerstva zdravotníctva Slovenskej republiky č. 549/2007 Z.z., ktorou sa ustanovujú podrobnosti o prípustných hodnotách hluku, infrazvuku a vibrácií a o požiadavkách na objektivizáciu hluku, infrazvuku a vibrácií v životnom prostredí

#### - Rules

- Smernica Ministerstva životného prostredia Slovenskej republiky z 30. septembra 1999 č. 7/1999-4 na vykonávanie speleoterapeutických pobytov vo vyhradených priestoroch sprístupnených jaskýň
- Metodika MŽP SR č. 757/2000-4 zo dňa 15. novembra 2000 pre určovanie spoločenskej hodnoty aragonitovej a kalcitovej sintrovej výplne v jaskyniach a priepastiach
- Smernica Ministerstva životného prostredia Slovenskej republiky z 13. augusta 2004 č. 2536/760/04 – 5.1 o správe jaskýň ako vlastníctva Slovenskej republiky
- **Water Plan of Slovakia:** Implementácia smernice 2000/60/ES Európskeho parlamentu a Rady z 23. októbra 2000 Vodný Plán Slovenska

### c) Local / Regional legislation

- **Ordinance on Protected Landscape Area Cerová Vrchovina Upland:** Vyhláška Ministerstva životného prostredia SR č. 433/2001 Z. z. o Chránenej krajinskej oblasti Cerová vrchovina
- **Ordinance on Site of Community Importance Area Cerová Vrchovina Upland – Porimavie:** Vyhláška Ministerstva životného prostredia SR č. 30/2008 Z. z., ktorou sa vyhlasuje Chránené vtáčie územie Cerová vrchovina – Porimavie

### d) Planning documents

- Partial Analyses for the Novohrad-Nógrád Geopark – strategy of sustainable development, Proposal of spatial development of the Geopark, Slovak Environmental Agency, Banská Bystrica 2008
- Protected Landscape Area Karancs-Medves and Protected Landscape Area Cerová vrchovina Upland, Directorate of the National Park Bükk 2010
- **Program of Preserving the Novohrad-Nógrád geopark 2015 – 2022: Program starostlivosti o územie Novohrad – Nógrád geoparku pre obdobie 2015-2022**
- **Common Development Strategy of Sustainable Development of the Novohrad-Nógrád Geopark 2015 - 2022:** Spoločná rozvojová stratégia trvalo udržateľného rozvoja Geoparku Novohrad – Nógrád pre obdobie 2015-2022
- **Program of Preserving the Community Importance Area Cerová Vrchovina Upland – Porimavie 2016 – 2045:** Program starostlivosti o Chránené vtáčie územie Cerová vrchovina – Porimavie 2016 – 2045

## 9.1.8 IPA (Serbia, NP Djerdap)

The field of nature protection is regulated by the Law on Nature Conservation and other legal and sub-legal acts directly or indirectly related to nature and natural resources. Besides law implementation and the great importance of passing the Law on Nature Conservation ("Official Gazette of the Republic of Serbia" No. 36/09, 88/201091/10,14/16) which regulates the protection and conservation of nature, biological, geological and landscape diversity, the passing of numerous sub-legal acts was also of great importance for regulating this field. The harmonization of legal acts in the field of environmental and nature protection with the acts of the European Union, which is still in progress, enabled implementation of European and international standards in the field of environmental and nature protection. The implementation of rules and principles of the international conventions to which Serbia is a signatory contributed to the improvement and harmonization of environmental protection.

### a) European /international conventions and directives

- Uredba o ratifikaciji Konvencije o močvarama koje su od međunarodnog značaja, posebno kao prebivalište ptica močvarica („Službeni list SFRJ, Međunarodni ugovori“, br. 9/77); (Ramsarska konvencija) Decree on the Ratification of the Convention on Wetlands of International Importance, particularly as the habitat of wading birds, ("Official Gazette of SFRY, International Agreements", no. 9/77)
- Konvencija o saradnji za zaštitu i održivo korišćenje reke Dunav ("Službeni list SCG, Međunarodni ugovori", br. 4/2003); Convention on Cooperation for the Protection and Sustainable Use of the Danube River, ("Official Gazette of Serbia and Montenegro, International Agreements", no. 4/2003)
- Zakon o potvrđivanju Okvirne konvencije o zaštiti i održivom razvoju Karpat ( „Službeni glasnik RS, Međunarodni ugovori“, br. 102/2007); Law on the Ratification of the Framework Convention on the Protection and Sustainable Development of the Carpathians ("Official Gazette of RS, International Agreements", no. 102/2007)



- Zakon o potvrđivanju Konvencije o očuvanju migratornih vrsta divljih životinja („Službeni glasnik RS, Međunarodni ugovori“, br. 102/2007); (Bonska konvencija); Law on the Ratification of the Convention on the Conservation of Migratory Species of Wild Animals, ("Official Gazette of RS, International Agreements", no. 102/2007)
- Zakon o potvrđivanju Konvencije o očuvanju evropske divlje flore i faune i prirodnih staništa („Službeni glasnik RS, Međunarodni ugovori“, br. 102/2007); (Bernska konvencija); Law on Ratification of the Convention on the Conservation of European Wild Flora and Fauna and Natural Habitats ("Official Gazette of RS, International Agreements", no. 102/2007)
- Zakon o potvrđivanju Konvencije o biološkoj raznovrsnosti (KOnvencija o biodiverzitetu) („Službeni list SRJ, Međunarodni ugovori“, br. 11/2001); Law on the Ratification of the Convention on Biological Diversity ("Official Gazette of FRY, International Agreements" no. 11/2001)
- Zakon o potvrđivanju Konvencije o međunarodnom prometu ugroženih vrsta divlje faune i flore („Službeni list SRJ, Međunarodni ugovori“, br. 11/01); (CITES konvencija); Law on Ratification of the Convention on International Trade in Endangered Species of Wild Fauna and Flora, ("Official Gazette of FRY, International Agreements" no. 11/01)
- Zakon o potvrđivanju Okvirne konvencije Ujedinjenih nacija o promeni klime, sa aneksima ("Službeni list SRJ, Međunarodni ugovori", broj: 2/97); Law on Ratification of the United Nations Framework Convention on Climate Change, with Annexes ("Official Gazette of FRY, International Agreements", No. 2/ 97)
- Zakon o potvrđivanju Kjoto Protokola uz Okvirnu konvenciju Ujedinjenih nacija o promeni klime ("Službeni glasnik RS", br. 88/2007 i 38/2009); Law on the Ratification of the Kyoto Protocol to the United Nations Framework Convention on Climate Change, ("Official Gazette of RS", no. 88/2007 and 38 /2009)
- Zakon o potvrđivanju Konvencije o proceni uticaja na životnu sredinu u prekograničnom kontekstu („Službeni glasnik RS, Međunarodni ugovori“, br. 102/2007); Law on the Ratification of the Convention on Environmental Impact Assessment in a Transboundary Context, ("Official Gazette of RS, International Agreements", no. 102/2007)
- Zakon o ratifikaciji Protokola uz Konvenciju o prekograničnom zagađivanju vazduha na velike daljine, o dugoročnom finansiranju Programa saradnje za praćenje i procenu prekograničnog prenosa zagađujućih materija u vazduhu na velike daljine u Evropi (EMEP) („Službeni list SFRJ, Međunarodni ugovori“, br. 2/87); Law on the Ratification of the Protocol to the Convention on Long-Range Transboundary Air Pollution, Long-Term Financing of the Cooperational Programme for Monitoring and Assessment of Long-Range Transboundary Transport of Air Pollutants in Europe (EMEP) ("Official Gazette of SFRY, International Agreements", no. 2/87)
- Montrealski protokol o supstancijama koje oštećuju ozonski omotač („Službeni list SFRJ, Međunarodni ugovori“, br. 16/90 i „Službeni list Srbije i Crne Gore, Međunarodni ugovori“, br. 24/04); The Montreal Protocol on Substances that Deplete the Ozone Layer ("Official Gazette of SFRY, International Agreements", no. 16/90 and "Official Gazette of Serbia and Montenegro, International Agreements", no. 24/ 04)
- Zakon o ratifikaciji Bečke konvencija o zaštiti ozonskog omotača, sa priložima I i II („Službeni list SFRJ, Međunarodni ugovori“, br. 1/90); Law on the Ratification of the Vienna Convention for the Protection of the Ozone Layer, with Annexes I and II, ("Official Gazette of SFRY, International Agreements", no. 1/90)
- Zakon o ratifikaciji Konvencije o prekograničnom zagađivanju vazduha na velikim udaljenostima ("Službeni list SFRJ, Međunarodni ugovori“, br.11/86); Law on the Ratification of the Convention on Long-Range Transboundary Air Pollution ("Official Gazette of SFRY, International Agreements", no.11/86)
- Uredba o ratifikaciji Konvencije o zaštiti od opasnosti trovanja benzolom ("Službeni list SFRJ, Međunarodni ugovori“, br.16/76); Decree on the Ratification of the Convention on the Protection of Benzene Poisoning Danger ("Official Gazette of SFRY, International Agreements", no.16/76)
- Zakon o ratifikaciji Konvencije o sprečavanju i kontroli profesionalnih rizika prouzrokovanih kancerogenim supstancama i agensima ("Službeni list SFRJ, Međunarodni ugovori“, br. 3/77); Law on the Ratification of the Convention on the Prevention and Control of Occupational Hazards Caused by Cancerous Substances and Agents ("Official Gazette of SFRY, International Agreements", no. 3/77)
- Zakon o ratifikaciji Konvencije o zaštiti svetske kulturne i prirodne baštine („Službeni list SFRJ, Međunarodni ugovori“, br. 8/74); Law on the Ratification of the Convention on the Protection of the World Cultural and Natural Heritage ("Official Gazette of SFRY, International Agreements", no. 8/74)
- Zakon o potvrđivanju Evropske konvencije o predelu ("Službeni glasnik RS, Međunarodni ugovori", br. 4/2011 od 27.5.2011.); Law on the Ratification of the European Landscape Convention, ("Official Gazette of RS, International Agreements", no. 4/2011 from 27.5.2011)
- Zakon o potvrđivanju Konvencije o dostupnosti informacija, učešću javnosti u donošenju odluka i pravu na pravnu zaštitu u pitanjima životne sredine „Službeni glasnik RS, Međunarodni ugovori“, br. 38/09) – tzv. Arhuska konvencija. Law on the Ratification of the Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters ("Official Gazette of RS, International Agreements" no. 38/ 09) - the so-called Aarhus Convention

## b) National legislation

### Strategies:

- Nacionalna strategija održivog razvoja ("Službeni glasnik RS", br. 57/2008 od 3.6.2008. godine); National Strategy for Sustainable Development ("Official Gazette of RS", no. 57/2008 from 3.6.2008)





- Nacionalna strategija održivog korišćenja prirodnih resursa i dobara ("Službeni glasnik RS" br. 33/2012); National Strategy for Sustainable Use of Natural Goods and Resources, ("Official Gazette of RS" no. 33/2012)
- Strategija biološke raznovrsnosti Republike Srbije za period od 2011. do 2018. godine („Službeni glasnik RS“ br. 13/2011); Biodiversity Strategy of the Republic of Serbia for the period 2011- 2018, ("Official Gazette of RS" no. 13/2011)
- Nacionalna strategija za aproksimaciju u oblasti životne sredine za Republiku Srbiju (Službeni glasnik RS 80/2011); National Strategy for Approximation of Environment of the Republic of Serbia, ("Official Gazette of RS" 80 /2011)
- Nacionalni program zaštite životne sredine ("Službeni glasnik RS" br. 12/2010); National Program of Environmental Protection, ("Official Gazette of RS" no. 12/2010)
- Strategija upravljanja mineralnim resursima Republike Srbije do 2030. godine. Strategy of Mineral Resources Management in the Republic of Serbia till 2030

#### Laws

- Zakon o zaštiti prirode, („Službeni glasnik RS“, br. 36/2009 i 88/2010, 91/10,14/16); Law on Nature Protection, ("Official Gazette of RS", no. 36/2009 and 88/ 2010, 91/10,14/16)
- Zakon o nacionalnim parkovima ("Službeni glasnik RS", br. 84/2015); Law on National Parks, ("Official Gazette of RS", no. 84/2015)
- Zakon o zaštiti životne sredine („Službeni glasnik RS", br. 135/2004 i 36/2009, 72/2009, 43/2011, 14/2016); Law on Environmental Protection, ("Official Gazette of RS" no. 135/2004 and 36 /2009, 72/2009, 43/2011, 14/2016)
- Zakon o vodama ("Službeni glasnik RS", br. 30/2010 i 93/2012, 101/16); Law on Water, ("Official Gazette of RS", no. 30/2010 and 93 /2012, 101/16)
- Zakon o šumama ("Službeni glasnik RS", br. 30/2010 i 93/2012, 89/15); Law on Forests, ("Official Gazette of RS", no. 30/2010 and 93 /2012, 89/15)
- Zakon o divljači i lovstvu ("Službeni glasnik RS", br. 18/2010); Law on Game Animal and Hunting, ("Official Gazette of RS", no. 18/2010 from 26.3.2010)
- Zakon o nacionalnom parku "Đerdap" (Službeni glasnik RS", br. 31/74); Law on National Park "Djerdap" ("Official Gazette of RS", no. 31/74)
- Zakon o planiranju i izgradnji ("Službeni glasnik RS", br. 72/2009, 81/2009, 64/2010, 24/2011, 121/2012, 42/2013 i 50/2013); Law on Planning and Construction, ("Official Gazette of RS", no. 72/2009, 81/ 2009, 64 /2010 24/2011, 121/ 2012, 42/2013 and 50/ 2013)
- Zakon o turizmu („Službeni glasnik RS“, br. 36/2009, 88/2010 i 93/2012, 84/2015); Law on Tourism, ("Official Gazette of RS", no. 36/2009, 88/2010 and 93 /2012, 84/2015)
- Zakon o rudarstvu („Službeni glasnik RS“, br. 44/95, 34/2006 i 104/2009); Law on Mining, ("Official Gazette of RS", no. 44/95, 34/2006 and 104 /2009)
- Zakon o slobodnom pristupu informacijama od javnog značaja ("Službeni glasnik RS", br. 120/2004, 54/2007, 104/2009 i 36/2010); Law on Free Access to Information of Public Importance, ("Official Gazette of RS", no. 120/2004, 54/2007, 104/2009 and 36/ 2010)
- Zakon o zaštiti i održivom korišćenju ribljeg fonda (Sl. glasnik RS", br. 128/14); Law on protection and sustainable use of fish fond ("Official Gazette of RS" no. 128/14)

#### - Ordinances

- Uredba o ekološkoj mreži ("Službeni glasnik RS", br. 102/2010 od 30.12.2010.); Decree on Ecological Network, ("Official Gazette of RS", no. 102/2010 from 30.12.2010)
- Pravilnik o sadržaju i načinu vođenja registra zaštićenih prirodnih dobara ("Službeni glasnik RS", br. 81/2010.); Code on the content and manner of keeping the register of protected natural areas, ("Official Gazette of RS", no. 81/2010)
- Pravilnik o kategorizaciji zaštićenih prirodnih dobara ("Službeni glasnik RS", br. 30/92); Code on the categorization of protected natural areas, ("Official Gazette of RS", no. 30/92)
- Uredba o režimima zaštite („Službeni glasnik RS“, br. 31/2012); Decree on the protection regimes, ("Official Gazette of RS", no. 31/2012)
- Pravilnik o uslovima koje mora da ispunjava upravljač zaštićenog područja („Službeni glasnik RS“, br. 85/2009 od 19.10.2009.); Code on conditions to be met by the managing authority of protected area ("Official Gazette of RS", no. 85/2009 from 19.10.2009)
- Pravilnik o sadržini i načinu vođenja stručnog nadzora ("Službeni glasnik RS", br. 7/2010 od 19.2.2010.); Code on the conducting of professional supervision ("Official Gazette of RS", no. 7/2010 from 19.2.2010)
- Pravilnik o kompenzacijskim merama ("Službeni glasnik RS", br. 20/2010 od 31.3.2010.); Code on compensatory measures ("Official Gazette of RS", no. 20/2010 from 31.3.2010)
- Pravilnik o obrascu službene legitimacije čuvara zaštićenog područja ("Službeni glasnik RS", br. 84/2009 od 15.10.2009.); Code on the form of official identification document of protected area warden ("Official Gazette of RS", no. 84/2009 from 15.10.2009)
- Pravilnik o izgledu znaka zaštite prirode, postupku i uslovima za njegovo korišćenje ("Službeni glasnik RS", br. 84/2009 od 15.10.2009.); Code on the nature protection logo, procedure and conditions of its use ("Official Gazette of RS", no. 84/2009 from 15.10.2009)



- Pravilnik o visini troškova dodele prava na korišćenje ekološkog znaka ("Službeni glasnik RS", br. 81/2010 od 5.11.2010. godine); Code on the costs of allocation of rights to use the ecological logo ("Official Gazette of RS", no. 81/2010 from 5.11.2010)
- Uredba o rasporedu i korišćenju sredstava za subvencionisanje zaštićenih prirodnih dobara od nacionalnog interesa u 2013. godini („Službeni glasnik RS”, br. 25/2013); Decree on the allocation and use of funds to subsidize the protected natural areas of national interest in 2013 ("Official Gazette of RS", no. 25/2013)
- Pravilnik o proglašenju i zaštiti strogo zaštićenih i zaštićenih divljih vrsta biljaka, životinja i gljiva ("Službeni glasnik RS", br. 5/2010 od 5.2.2010.); Code on declaration and protection of strictly protected and protected wild species of plants, animals and fungi ("Official Gazette of RS", no. 5/2010 from 5.2.2010)
- Pravilnik o kriterijumima za izdvajanje tipova staništa, o tipovima staništa, osetljivim, ugroženim, retkim i za zaštitu prioritarnim tipovima staništa i o merama zaštite za njihovo očuvanje ("Službeni glasnik RS", br. 35/2010 od 26.5.2010.); Code on criteria for determining the habitat types, on habitat types, vulnerable, endangered, rare, and habitat types of priority for protection and safety measures for their conservation ("Official Gazette of RS", no. 35/2010 from 26.5.2010)
- Pravilnik o prekograničnom prometu i trgovini zaštićenim vrstama ("Službeni glasnik RS", br. 99/2009 od 1.12.2009.); Code on the transboundary movement and trade in protected species ("Official Gazette of RS", no. 99/2009 from 1.12.2009)
- Pravilnik o uslovima koje moraju ispunjavati prihvatilišta za zbrinjavanje zaštićenih divljih životinja ("Službeni glasnik RS", br. 15/2012); Code on conditions that must be met by the rescue sanctuaries for protected wild animals ("Official Gazette of RS", no. 15/2012)
- Pravilnik o uslovima koje treba da ispunjava zoološki vrt, odnosno mini zoološki vrt i elementima za određivanje mini zoološkog vrta ("Službeni glasnik RS", br. 75/2010); Code on conditions to be met by the zoo and a mini zoo and criteria for determining the mini zoo ("Official Gazette of RS", no. 75/10)
- Uredba o stavljanju pod kontrolu korišćenja i prometa divlje flore i faune („Službeni glasnik RS”, br. 31/2005, 45/2005, 22/2007, 38/2008, 9/2010 i 69/2011); Decree on control of the use and trade in wild flora and fauna ("Official Gazette of RS", no. 31/2005, 45/2005 22/2007 38/2008 9/2010 and 69/2011)
- Pravilnik o uslovima za osnivanje banke gena divljih biljaka, životinja i gljiva, načinu rada banke gena, načinu postupanja sa biološkim materijalom, sadržini zahteva i dokumentaciji koja se podnosi uz zahtev za izdavanje dozvole za osnivanje banke gena; » Code on conditions for establishing a gene bank of wild plants, animals and fungi, the work of gene bank, the handling of biological material, the content of the application form and documentation to be submitted with the application form for issuing a license for the establishment of gene bank
- Pravilnik o uslovima pod kojima se fosili, minerali i kristali mogu dati pravnom licu na zaštitu i čuvanje ("Službeni glasnik RS", br. 79/2010 od 29.10.2010.); Code on the conditions under which fossils, minerals and crystals can be kept and protected by legal entity
- Pravilnik o uslovima koje moraju da ispunjavaju odgajivačnice za životinje ("Službeni glasnik RS", br. 14/2012); Code on conditions that must be met by the animal breeding facilities ("Official Gazette of RS", no. 14/2012)
- Pravilnik o proglašenju lovostajem zaštićenih vrsta divljači ("Službeni glasnik RS", br. 9/2012); Code on declaring a closed season on protected game animal species ("Official Gazette of RS", no. 9/2012)
- Naredba o zabrani sakupljanja pojedinih zaštićenih vrsta divlje flore i faune u 2013. godini ("Službeni glasnik RS", br. 21/2013); Order on prohibiting the collection of certain protected species of wild flora and fauna in 2013
- Zakon o zaštiti i održivom korišćenju ribljeg fonda („Službeni glasnik RS”, br. 36/2009); Law on the protection and sustainable use of fish stocks, ("Official Gazette of RS", no. 36/2009)
- Pravilnik o načinu obeležavanja granica ribarskog područja („Službeni glasnik RS”, br. 36/2009); Code on borders of a fishing area ("Official Gazette of RS", no. 36/2009)
- Pravilnik o načinu određivanja i visini naknade štete nanete ribljem fondu ("Službeni glasnik RS", br. 84/2009 od 15.10.2009.); Code on the method of determination and penalty costs for damages to fish stocks ("Official Gazette of RS", no. 84/2009 from 15.10.2009)
- Pravilnik o načinu, alatima i sredstvima kojima se obavlja privredni ribolov, kao i o načinu, alatima, opremi i sredstvima kojima se obavlja rekreativni ribolov ("Službeni glasnik RS", br. 73/2010); Code on the method, tools and means used in commercial fishing, as well as on the method, tools, equipment and vehicles used in recreational fishing ("Official Gazette of RS", no. 73/2010)
- Pravilnik o načinu vođenja evidencije o ulovu ribe, kao i o izgledu i sadržini jedinstvenog obrasca evidencije ulova od strane rekreativnog ribolovca ("Službeni glasnik RS", br. 104/2009 od 16.12.2009.); Code on keeping the records of fish catches and the contents of unique form of catch records made by recreational fishermen ("Official Gazette of RS", no. 104/2009 from 16.12.2009)
- Pravilnik o načinu obeležavanja granica ribarskog područja ("Službeni glasnik RS", br. 79/2009 od 28.9.2009.); Code on borders of a fishing area ("Official Gazette of RS", no. 79/2009 from 28.9.2009)
- Pravilnik o uslovima i načinu organizovanja ribočuvarske službe, obrascu ribočuvarske legitimacije i izgledu ribočuvarske značke ("Službeni glasnik RS", br. 7/2010 od 19.2.2010.); Code on conditions and organization of Fish Warden Service, form of the fish warden identification document and the fish warden badge ("Official Gazette of RS", no. 7/2010 from 19.2.2010)
- Pravilnik o uslovima i postupku izdavanja i oduzimanja licence za ribočuvara i načinu vođenja registra izdatih licenci za ribočuvara ("Službeni glasnik RS", br. 7/2010 od 19.2.2010.); Code on the conditions and procedure for issuing and revoking the fish warden license and the keeping of records of issued fish warden licenses ("Official Gazette of RS", no. 7/2010 from 19.2.2010)



- Pravilnik o uslovima, programu i načinu polaganja stručnog ispita za ribočuvara i stručnog ispita za ribara ("Službeni glasnik RS", br. 7/2010 od 19.2.2010.); Code on conditions, program and professional exam for the fish warden and the professional exam for fishermen ("Official Gazette of RS", no. 7/2010 from 19.2.2010)
- Pravilnik o kategorizaciji ribolovnih voda ("Službeni glasnik RS", br. 10/2012); Code on the categorization of fishing waters ("Official Gazette of RS", no. 10/2012)
- Pravilnik o programu monitoringa radi praćenja stanja ribljeg fonda u ribolovnim vodama ("Službeni glasnik RS", br. 71/2010 od 4.10.2010.); Code on the monitoring program of the state of fish stocks in the fishingwaters ("Official Gazette of RS", no. 71/2010 from 4.10.2010)
- Uredba o utvrđivanju Liste projekata za koje je obavezna procena uticaja i Liste projekata za koje se može zahtevati procena uticaja na životnu sredinu ("Službeni glasnik RS", br. 114/2008 od 16.12.2008.); Decree on the determination of the List of projects for which impact assessment is mandatory, and the List of projects for which the environmental impact assessment may be required ("Official Gazette of RS", no. 114/2008 from 16.12.2008)
- Pravilnik o sadržini studije o proceni uticaja na životnu sredinu ("Službeni glasnik RS", br. 69/2005 od 9.8.2005.); Code on the contents of the study on environmental impact assessment ("Official Gazette of RS", no. 69/2005 from 9.8.2005)
- Pravilnik o postupku javnog uvida, prezentaciji i javnoj raspravi o studiji o proceni uticaja na životnu sredinu ("Službeni glasnik RS", br. 69/2005 od 9.8.2005.); Code on the public display, presentation and public discussion on the study on environmental impact assessment ("Official Gazette of RS", no. 69/2005 from 9.8.2005)
- Pravilnik o sadržini zahteva o potrebi procene uticaja i sadržini zahteva za određivanje obima i sadržaja studije o proceni uticaja na životnu sredinu ("Službeni glasnik RS", br. 69/2005 od 9.8.2005); » Code on the contents of request for environmental impact assessment and the contents of the request to determine the scope and contents of the study on environmental impact assessment ("Official Gazette of RS", no. 69/2005 from 9.8.2005)
- Pravilnik o uslovima i kriterijumima za izradu analize uticaja objekata i radova na životnu sredinu („Službeni glasnik RS”, br. 49/01); Code on conditions and criteria for drafting the analysis of the environmental impact of buildings and construction works ("Official Gazette of RS", no. 49/01)
- Pravilnik o uslovima, načinu i postupku za sticanje prava svojine na zemljištu i objektima na koje se primenjuje Zakon o posebnim uslovima za upis prava svojine na objektima izgrađenim bez građevinske dozvole ("Službeni glasnik RS", br.31 od 5.04.2013.); Code on conditions, manner and procedure for acquiring ownership and property rights to the land and buildings to which applies the Law on Special Conditions for Registration of Ownership of the Facilities Built without a Building Permit ("Official Gazette of RS", no. 31 from 5.04.2013)

#### e) Planning documents

- Plan upravljanja NP "Đerdap" 2017-2026; Management plan on NP "Djerdap"2017-2026
- Odluka o naknadama za korišćenje zaštićenog područja NP "Djerdap" ("Službeni glasnik RS" br. 4/11, 4/12); Decision on fees for the use of the protected area National Park Djerdap ("Official Gazette of RS", No. 4/11 and 4/12)
- Godišnji program upravljanja ribarskim područjem "Đerdap"; Annual program for fisheries management "Djerdap"
- Program upravljanja šumama JP "Nacionalni park Đerdap"; Green forest management plan JP "National Park Djerdap"
- Prostorni plan područja posebne namene Nacionalnog parka Đerdap („Sl. glasnik RS“, br. 43/13); Spatial plan of the special purpose area of the National Park Djerdap ("Official Gazette of RS", No. 43/13)
- Zakon o Prostornom planu Republike Srbije od 2010. do 2020. godine ("Službeni glasnik RS", br. 88/2010); Law on Spatial Plan of the Republic of Serbia for the period 2010 - 2020, ("Official Gazette of RS", no. 88/2010)

