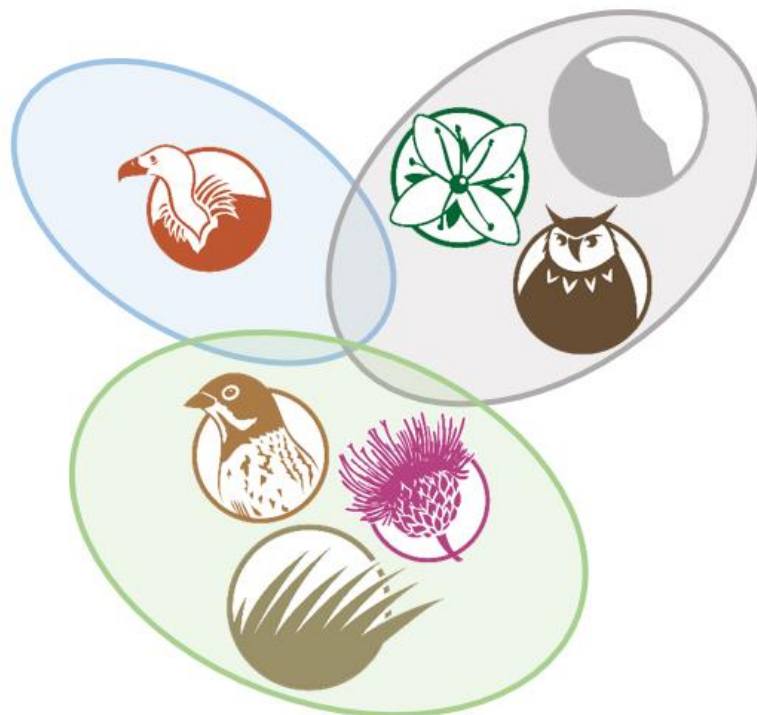


# LIKE

Living  
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Edge



## Educational program

# NATURE 2000

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The team of authors and experts are exclusively responsible for its contents which, therefore, may not be deemed as official attitude of the European Union.

Ana Barešić, PhD

# Ecological Network Natura 2000 of the Republic of Croatia and the Republic of Slovenia

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## 1. Introduction

Nature or environmental protection has changed its forms and definitions throughout the course of history depending on the way in which man depended on nature. Nature protection presents a human activity directed at preventing, reducing or removing damages incurred against the environment in which man dwells, from which he exploits resources or which he impacts with his activity. In addition, it presents human activity for maintaining undisturbed development and natural circulation of nature by primarily using biological solutions without a direct interference of man's interests or needs (Tišma et al., 2009; Grgić and Varga, 2013).

A protected area (PA) is: “A clearly defined geographical space which is recognized with a purpose and which is managed with the aim to permanently conserve the entire nature, ecosystem services it ensures, and corresponding cultural values, in a legal or any other efficient manner” (International Union for Conservation of Nature, [IUCN](#)). C. 15% of Earth's surface is covered with areas of various protection categories. Protected areas are significant due to natural, economic and social factors. E.g., protected areas hold 15% of the world's carbon supplies, 10% of potable water, and they support the existence of over 2 billion people in a direct interaction (Pešić et al., 2017).

Table 1. Categories of protected areas in the Republic of Croatia (CAEN, CAEN protected areas, 2019)

Protection category	Purpose	Management level	Promulgated by
Strict reserve	conserving original nature, monitoring nature condition and education	state and county	The Government of the Republic of Croatia
National park	conserving original natural values, scientific, cultural, educational and recreational	state	Croatian Parliament
Special reserve	conservation due to its uniqueness, rarity or representativeness, and of particular scientific importance	state, county, municipal, city	The Government of the Republic of Croatia
Nature park	protection of biological and landscape diversity, educational, cultural and historic, tourist and recreational purpose	state	Croatian Parliament
Regional park	protection of landscape diversity, sustainable development and tourism	county	representative body of the competent regional self-governing unit
Natural monument	ecological, scientific, aesthetic or educational	county and municipal	representative body of the competent regional self-governing unit
Significant landscape	protection of landscape value and biological diversity or cultural and historic value or landscape of conserved unique features, rest and recreation	county and municipal	representative body of the competent regional self-governing unit

Forest park	conserving a natural or planted forest of a higher landscaping value, rest and recreation	county, municipal and city	representative body of the competent regional self-governing unit
Park architecture monument	conserving artificially formed area i.e. a tree trunk of aesthetic, stylistic, artistic, cultural and historic, ecological or scientific value	county	representative body of the competent regional self-governing unit

All countries in the world have a defined system of protected areas. In the Republic of Croatia there are nine categories of protected areas, and they are: strict reserve, national park, nature park, special reserve, regional park, natural monument, significant landscape, forest park and park architecture monument. Further information on each category is given in Table 1. Protected areas of state importance are: strict reserve, special reserve and nature park. A strict reserve is “an area of the mainland and/or the sea with unaltered or insignificantly altered overall nature (...)”, whereas a national park is “a spacious, predominantly unaltered area of the mainland and/or the sea of extraordinary and multiple natural values (...)” (OG 80/13, 15/18). The first proclaimed national park in the world was Yellowstone in 1872, and Engadin in 1902 in Europe.

The Republic of Croatia has adopted a series of legal regulations and complied with environmental protection standards. These regulations refer to air and water contamination, chemicals, waste management, biotechnology, protection from radiation and conservation of natural sources (Vlašić and Vlašić Feketija, 2006), and they were adopted with the aim to ensure ecologically sustainable development of the country. The umbrella law is *The Environmental Protection Act* (OG 80/13, 153/13, 78/15, 12/18, 118/18).

According to the *Register of Protected Areas* (CAEN, Register of Protected Areas, 2019), under the competence of the Directorate for Nature Protection of the Ministry of Environment and Energy (MEE), there are 450 protected areas in total in the Republic of Croatia, out of which there are: 2 strict reserves, 8 national parks, 83 special reserves, 11 nature parks, 2 regional parks, 116 natural monuments, 79 significant landscapes, 36 forest parks and 122 park architecture monuments. National parks and nature parks comprise almost 6% of the Croatian land area. Among the protected areas, the following stand out: strict reserves ([Hajdučki and Rožanski kukovi](#) and the [white and Samaritan rocks](#)) and national parks ([Brijuni](#), [Kornati](#), [Krka](#), [Mljet](#), [Paklenica](#), [Plitvice lakes](#), [Risnjak](#) and the [Northern Velebit](#)).

Many systems of spatial data related to nature and environmental protection have been created in the Republic of Croatia thus far, e.g. [Bioportal](#) – web portal of the Information system for nature protection or the [interactive map](#) of geological and biological tourist sites in Croatia. The interactive map of all PAs may be found on (Bioportal, 2019), and a detailed list per category in Table 2.

The Republic of Slovenia has one national park ([Triglav](#)), two regional parks ([Kozjanske jame](#) and [Škocjanske jame](#)) and one nature park ([Sečoveljske solane](#)). The interactive map of PAs may be found on the following [link](#).

Table 2. Protected areas in the Republic of Croatia. Data source: Register of Protected Natural Values, on 23<sup>rd</sup> June 2008, PA – protected areas, AUPP – areas under preventive protection, TPA – total protected areas (OG 143/2008, 2019)

Category	Number			Land (km <sup>2</sup> )	Sea (km <sup>2</sup> )	Total (km <sup>2</sup> )
	PA	AUPP	TPA			
Strict reserve	2	0	2	24	0	24
National park	8	0	8	743	219	96135
Special reserve	79	4	83	324	530	853
Nature park	11	0	11	4063	179	4242
Regional park	0	2	2	1478	121	1600
Natural monument	116	0	116	3	0	3
Significant landscape	78	1	79	881	0	881
Forest park	35	1	36	89	0	89
Park architecture monument	121	1	122	10	0	10

TOTAL	450	9	459	7613	1049	8663
Parts under protected areas				1205		1205
TOTAL				6408	1049	7457
Percentage of protected areas in the Republic of Croatia				11	3	9

## 2. Natura 2000

With the aim to organize long-term environmental protection as an issue that should be addressed at the global level even though it is based on local issues (Vlašić and Vlašić Feketija, 2006), the EU member states initiated the creation of the ecological network Natura 2000. Natura 2000 does not depend on national, political and administrative borders, and its fundamental task is to respond to the requirements of conserving biodiversity in Europe which has been undermined over the past few decades (Grgić and Varga, 2013).

The Natura 2000 comprises two types of areas (European Economic Community, 1992, [link](#), [OG 124/13](#), [105/15](#), [80/19](#)):

- areas significant for conserving and achieving a favourable state of wild bird species which are of the EU interest, as well as their habitats, and areas significant for conserving migratory bird species (bird conservation areas - BCA),
- areas significant for conserving and achieving a favourable state of other wild species and their habitats (species and habitat types conservation areas - SHCA).

BCA areas are also called Special Protection Areas – SPA in literature, whereas SHCA areas are known as Special Areas of Conservation – SAC, SCI.

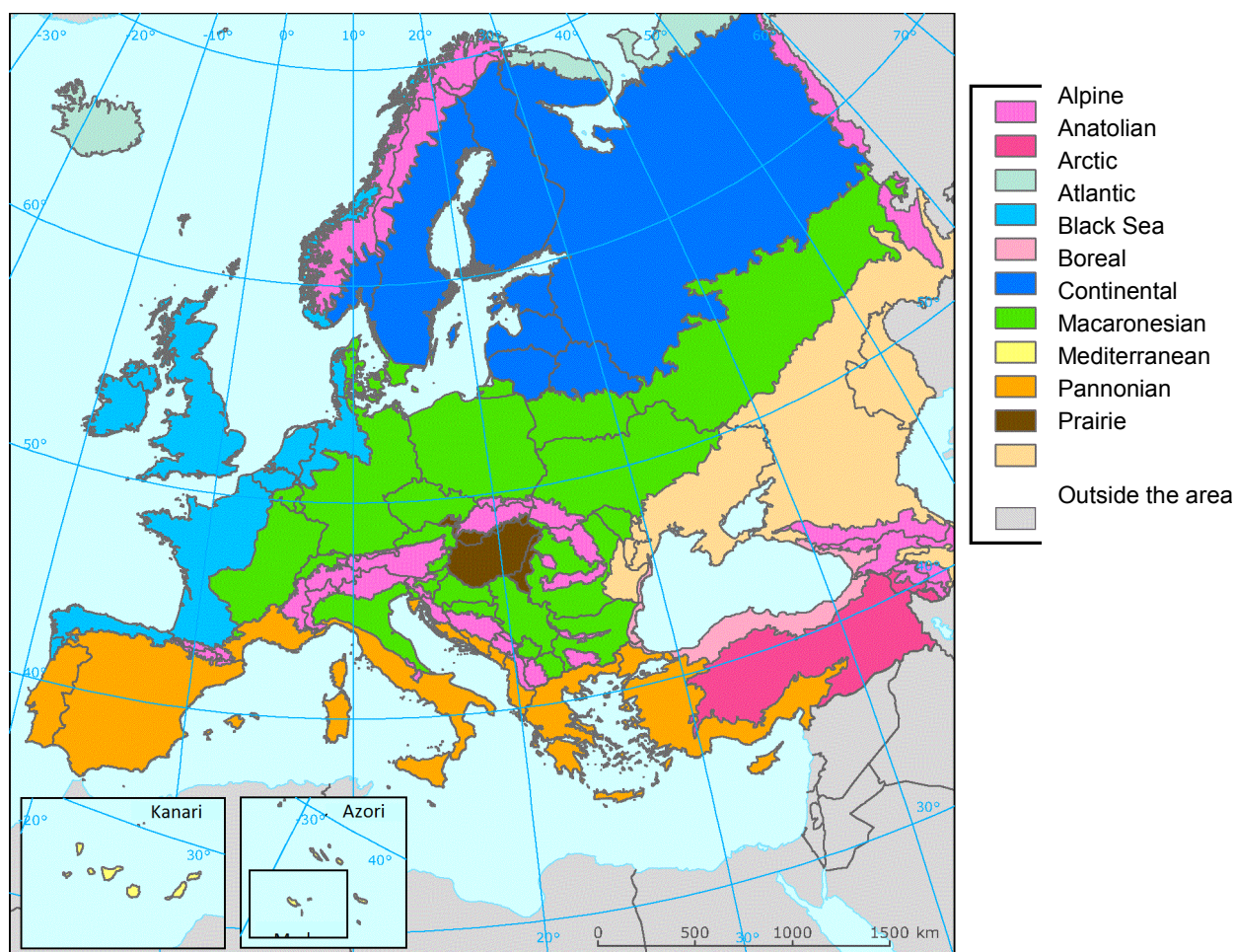


Figure 1. Natura 2000 areas (downloaded from the [link](#), 27<sup>th</sup> November 2019)

The legislature grounds for creating the Natura 2000 network consist of two directives: *The Birds Directive* (European Parliament, 2009) and *The Directive on the Conservation of Natural Habitats and of Wild Flora and Fauna* (European Economic Community, 1992). *The Birds Directive* of the European Community Council was adopted in 1979 in order to prevent a rapid drop in migratory birds' diversity. The EU member states independently define special protection areas. The European Union adopted *The Directive on the Conservation of Natural Habitats and of Wild Flora and Fauna* in 1992 with the aim to expand the scope of protecting wildlife with regard to the species protected by *The Birds Directive*. It comprises over 2000 animal species and over 230 habitat types which are included in the special areas of conservation (SAC). Both directives regulate the activities which may be implemented regarding the plant and animal life in the Natura 2000 areas. For instance, the stated directives clearly restrict hunting and trading with the species under the areas of special importance (Duplić et al., 2012; Grgić and Varga, 2013).

The European Union is divided into nine biogeographic land regions. Each region is characteristic for its vegetation, climate, topography and geology, and they are: Alpine, continental, Mediterranean, Pannonian, prairie, Boreal, Atlantic, Black Sea and Macaronesian (Figure 1), out of which three span Croatia entirely or partially: Alpine, continental and Mediterranean (see [link](#)). Each EU member state is obliged to include in the Natura 2000 network the most important areas for each individual species and habitat type listed in the corresponding appendices to the directives. With the expansion of the European Union and the discovery of new endangered species and habitats in the European territory, the ecological network Natura 2000 continuously expands as well. For each protected plant or animal species and the habitat listed in the Directive appendices, each member state proposed areas which should be included under the special areas of conservation of the ecological network Natura 2000 in the form of pSCI areas (Proposed Sites of Community Importance) (ibid.).

There is a difference among the protected areas of a certain country and Natura 2000 areas. Natural reserves, national parks and other areas protected at a national or regional level are established and regulated by a national regulation, which differs from one country to another. Such areas may, but they do not have to constitute a part of Natura 2000 areas. On the other hand, areas for the Natura 2000 network are chosen based on scientific parameters and are implemented in accordance with the selection criteria prescribed in the two stated directives. This way Natura 2000 areas shall only be the most eligible areas to ensure long-term conservation of each species and each habitat listed, across their natural range within the EU (ibid.).

The Natura 2000 network comprises over 27 000 areas which cover the total area of c. 1,150,000 km<sup>2</sup> of land and maritime areas of all EU member states. This makes it the largest network of conserved areas in the world. The total area covered by the Natura 2000 network is c. 18% of the total EU land area. National coverage by the Natura 2000 network areas ranges from 9% to nearly 38% depending on the state.

Table 3. The list of NATURA2000 areas in the Republic of Croatia, the Republic of Slovenia and the European Union (downloaded from the [link](#), 24<sup>th</sup> November 2019)

Country	Area code	No. of areas	Country surface (%)
CRO	SHCA	741	28.3
	BCA	38	30.1
	SHCA + BCA	779	36.6
SLO	SHCA	324	32.7
	BCA	31	25.0
	SHCA + BCA	355	37.8
EU	SHCA	24194	13.8
	BCA	5646	12.5
	SHCA + BCA	27863	18.0

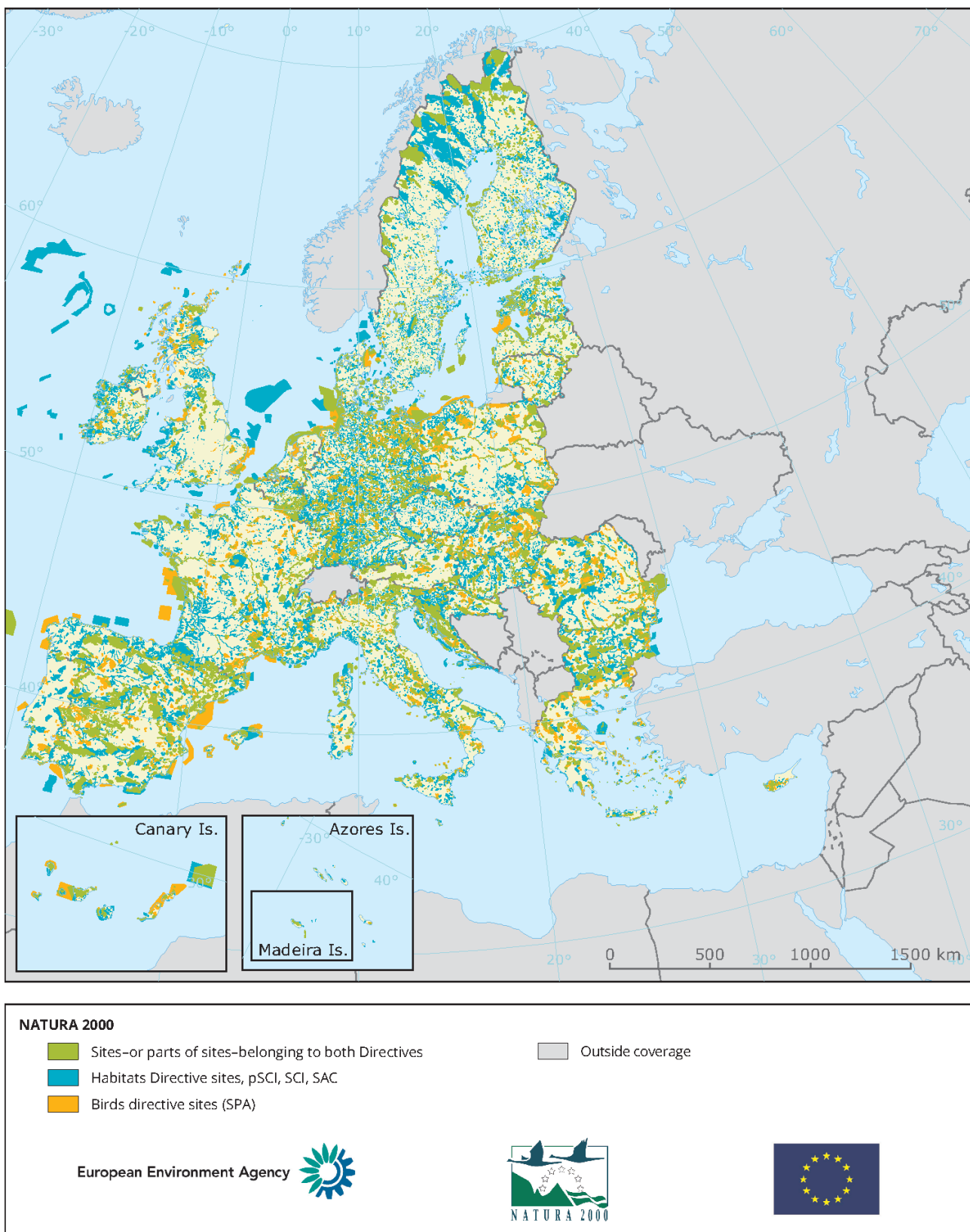


Figure 2. The map of Natura2000 areas in Europe (downloaded from the [link](#), 24<sup>th</sup> November 2019)

The Natura 2000 network is reflected through a solidarity principle among the member states, and it requires financial investments to be fully operational ([link](#)). Thus, the requirements for managing the Natura 2000 network are integrated into various sources of EU funding, such as structural and social funds and regional development funds ([ESF and ERDF](#)), the Fund for Rural Development ([EAFRD](#)), the European Maritime and Fisheries Fund ([EFF](#)), [program LIFE](#), etc.



## Natura 2000 in Croatia and Slovenia

The procedure for proposing special conservation areas (pSCI) includes complex procedures of evaluating a certain geographical area based on biological values, the level of conservation and spatial characteristics in accordance with *The Habitats Directive* guidelines (Grgić and Varga, 2013).

In the Republic of Croatia, the initial selection of SPA areas was made by the Institute for Ornithology of the Croatian Academy of Sciences and Arts in cooperation with the State Institute for Nature Protection (SINP) while preparing the Ecological Network of the Republic of Croatia which was adopted by the Government of the Republic of Croatia in 2007. The proposal for SPA network areas was amended with species of national importance for which there were distribution data on in the form of distribution maps required for making Red Books. The IUCN (International Union for Conservation of Nature) endangerment categories CR (critically endangered species), EN (endangered species) and VU (vulnerable species) were taken into consideration, as well the data from several Red Books by Croatian authors (Duplić et al., 2012; Grgić and Varga, 2013).

The proposals for special conservation areas and special protection areas were consolidated into a group of spatial data for the ecological network Natura 2000 proposal. The SINP was responsible for its creation as an institution dealing with professional activities for nature and environmental protection according to the *Nature Protection Act*. The making of proposal started in 2001 through the *Emerald Network* project of the *European Environment Agency - EEA* which laid the foundation for establishing spatial database of protected areas. Plant and animal species of interest and their distribution were defined within this project, so the distribution maps for selected species and habitat types were made. Carrying out of the *Emerald Network* project established *Areas of Special Conservation Interest - ASCI* which became potential areas of the Natura 2000 ecological network (Duplić et al., 2012; Grgić and Varga, 2013).

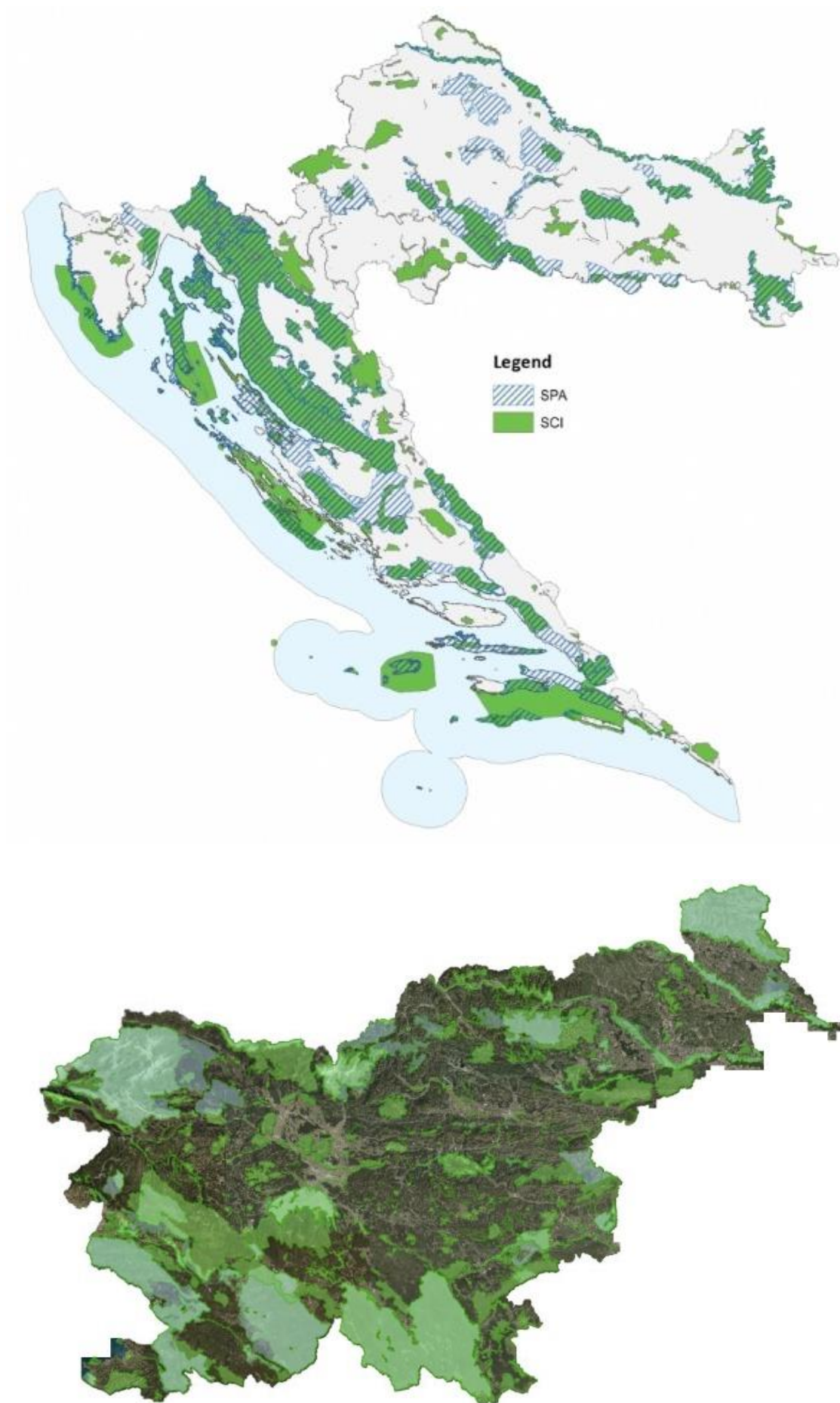


Figure 2. Natura 2000 areas in the Republic of Croatia (above, downloaded from the [link](#), 24<sup>th</sup> November 2019) and the Republic of Slovenia (below, downloaded from the [link](#), 25<sup>th</sup> November 2019)

From 2002 to 2006 spatial and other data obtained through the *Emerald Network* project were amended and updated during the projects for establishing the national ecological network LIFE III and establishing the ecological network Natura 2000. Thus, the base of spatial data and the corresponding metadata was created, which was eventually integrated into the proposal for protected areas of the ecological network Natura 2000 in the territory of the Republic of Croatia. In order to complete the spatial data of the proposal for the ecological network Natura 2000, and due to insufficient data on maritime areas which were supposed to be included into the ecological network because of their biodiversity, the SINP implemented the project *IPA 2007 – Identification and setting-up of the marine part of Natura 2000 network in Croatia – Marine Natura 2000*. Even though significant funds were invested in mapping of the areas of interest within the project, a part of the sea, especially outside the territorial sea boundaries, was left unexplored, and it will have to be mapped in the future once the funds and technical conditions have been ensured. The final proposal of the Natura 2000 network was obtained within the framework of the *PHARE* project and with the funding through the state budget, in which the agreements on the boundaries of the ecological network areas were made through on-site inspections and coordination at local levels. In its procedure of the EU accession, the Republic of Croatia asked for the amendment to *The Directive on the Conservation of Natural Habitats and of Wild Flora and Fauna* with 13 species of plant and animal life (Balkan snow vole, Mosor rock lizard, meadow viper, Dalmatian barbelgudgeon, soft-muzzled trout, common nase, minnow-nase, Neretva dwarf goby, Adriatic dace, Makal dace, Dalmatian ringlet, *Degenia velebitica*, and sharp-snouted rock lizard) and two habitat types characteristic for the territory of the Republic of Croatia (travertine barriers of karst rivers and sub-Mediterranean grasslands of *Molinio-Hordeion secalini*) (Duplić et al., 2012; Grgić and Varga, 2013).



Figure 3. Endangered and protected animal species: grey wolf (*Canis Lupus*), Euroasian lynx (*Lynx lynx*), brown bear (*Ursus Actos*) (all images were downloaded from the [link](#), 27<sup>th</sup> November 2019)



Figure 4. Protected natural species: *Degenia velebitica* (*Degenia Velebitica*), edelweiss (*Leontopodium alpinum*), bearberry (*Arctostaphylos uva-ursi*) (all images downloaded from the [link](#), 25<sup>th</sup> November 2019)

The Natura 2000 areas in the Republic of Croatia were officially promulgated on the 26<sup>th</sup> September 2013, when the Government of the Republic of Croatia issued *The Regulation on the Ecological Network* (OG [124/13](#)). The areas comprise c. 37% of the Croatian land area and 15% of the Adriatic Sea. There are 38 bird conservation areas (BCA), and 743 species and other habitat types conservation areas (SHCA). The GIS viewer of all areas can be found [here](#).

The share of surface area covered by the Natura 2000 network with respect to the country surface is in accordance with the average of the EU member states for the continental part of Croatia. Karst area, known for its biodiversity, stands out from the European average with the surface share of the proposed network in the total surface, so the Republic of Croatia has a larger share of proposed areas for conserving nature and environment with respect to the EU average (Grgić and Varga, 2013).

### *The Natura 2000 network in the Republic of Slovenia*

In the Republic of Slovenia there are 355 Natura 2000 areas, out of which 31 are BCA and 324 SHCA confirmed on 3<sup>rd</sup> December 2014. The total surface area comprises 7681 km<sup>2</sup> (which accounts for c. 38% of the total surface), out of which there are 7675 km<sup>2</sup> of land and 6 km<sup>2</sup> of sea.

The Republic of Slovenia and the Republic of Croatia border with 24 NATURA 2000 areas - 3 BCA areas and 21 SHCA areas, and these are: Učka and Čićarija, Gorski Kotar and Northern Lika, Drava accumulations, Argile, meadows along the Malinska creek, Pregon, Žbevnica, Gomance, the Gerovčica creek, NP Risnjak, the Kupa river, Velika Belica, the Mala Belica creek, the surrounding area of the Kupa river, Kupa kod Severina, the Vrlovka cave, Žumberak, Samobor Hills, the Bregana creek, the Sutla river, the Sutla kod Razvora valley, Drava accumulations and the Mura river (Miholić, 2014).

## 3. Managing protected areas

Protected areas are managed in accordance with legal regulations of each country in a way that the country grants a concession for each individual activity. In some countries, managing concessions in protected areas is a comprehensive operation which employs a large number of people and ensures substantial funds for protected areas (e.g. the USA or Australia). The concession may refer to a lease, licence or easement for an activity, and it may be issued for various periods of time (Pešić et al., 2017). The concession in the Republic of Croatia is granted based on a public tender in accordance with *The Concessions Act* (OG [69/17](#)). The decision to grant a concession is issued by the Ministry of Environment and Energy (MEE) for national parks and special reserves and nature parks, whereas the areas of various categories of protected nature are regulated by *The Nature Protection Act* (OG [80/13](#), [15/18](#), [14/19](#)), and the concessions are granted by local and regional self-governing units. The notifications and calls for the intent to grant a concession, apart from the data prescribed by *The Concessions Act*, must also contain the nature protection requirements which they determine. A concession may be granted in a national park, special reserve and speleological object. In a nature park, regional park, forest park, significant landscape and park architecture monument, a concession may be granted in accordance with a special regulation with the MEE's opinion. Nature protection requirements are a constituent part of the decision to grant a concession and the concession agreement (Pešić et al., 2017).

All activities, which a concession enables in protected areas, impact the area, and all potential impact must be analysed in order to avoid negative consequences. Environmental impact assessments (EIA) have become a legal obligation in the world for planning projects in protected areas. The environmental impact assessment procedure is a constituent part of the process for granting concessions in protected areas, their audits and possible extensions (Pešić et al., 2017).

With regard to the average increase in the number of visitors in protected areas, legislators improve management plans in order to avoid potential permanent environmental devastations and ensure resource sustainability. One of the indicators in making plans for managing protected areas is the so-called *Tourism Carrying Capacity* (TCC), i.e. the maximum number of people that may visit a tourist destination at the same time, without causing destruction of the physical, economic, socio-cultural environment and an unacceptable decrease in the quality of visitors' satisfaction (Thompson et al., 2014; Pešić et al., 2017). The three TCC levels are (ibid.):

- Physical carrying capacity - the limit above which activity increase leads to unacceptable degradation of natural and cultural resources of the destination.
- Economic carrying capacity - the limit above which the growth becomes economically unacceptable because it has a negative impact on the local economy.
- Social carrying capacity - the limit above which there is a rapid decrease in satisfaction and/or unacceptable harmful impact of the visitors on the local community.

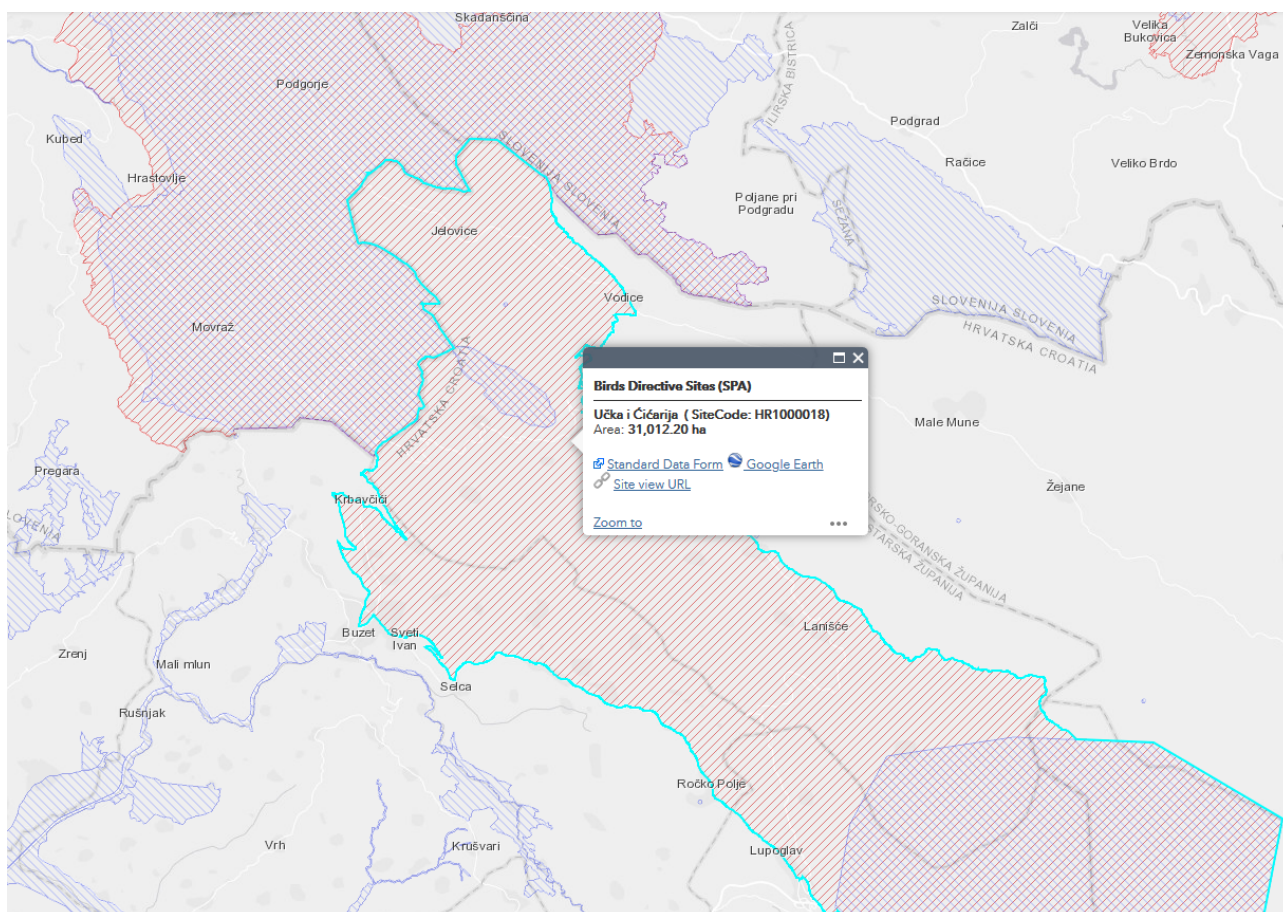


Figure 5. The map of the Natura2000 areas of Učka and Čičarija (downloaded from the [link](#), 24<sup>th</sup> November 2019)

#### 4. Mechanisms for protecting natural values

The principles of sustainable use of natural resources are applied through procedures for prescribing nature protection requirements prescribed in the appropriate assessment of planning documents (strategy, plans and programs), as a part of strategic environmental impact assessment or through separate procedures, and they refer to the values of protected areas, strictly protected species, and endangered and rare habitat types. Specific requirements for nature protection are prescribed by the MEE as proposed by the Croatian Agency for Environment and Nature or a competent administrative body of a regional self-governing unit ([link](#)). For planned individual interventions, nature protection requirements are prescribed with the following procedures ([link](#)):

- obtaining building acts – a part of the appropriate assessment of the intervention,
- obtaining acts for building in a protected area,
- obtaining licenses for interventions in a protected area and for research in a protected area,
- obtaining a decision to grant a concession.

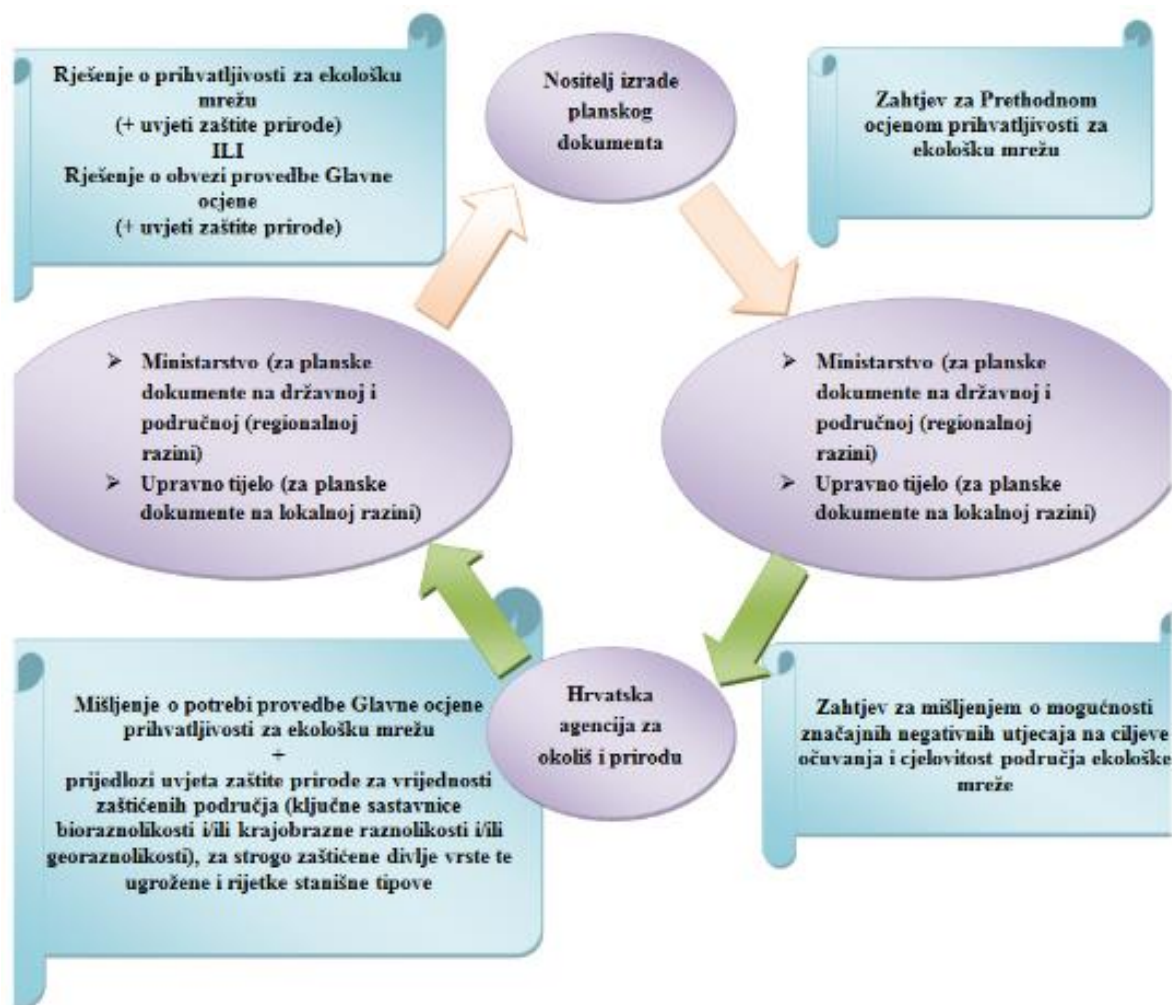


Figure 6. Sustainable use of natural resources through nature protection requirements in the appropriate assessment of planning documents (downloaded from the [link](#), 26<sup>th</sup> November 2019)

## 5. Human activity at the Karst edge area

Although many protected areas have been established with the aim to protect the landscape value, wildlife and biodiversity, human activity is, of course, expected there as well, e.g. soil fertilization or crop plantation. The fact that man is a constituent part of nature is taken into account in protected areas, which includes the fact that the prescribed economic, tourist, educational or recreational activity is allowed under conditions determined by the legislator and/or the concession holder. This includes activities such as: hiking and climbing tours, swimming, cycling, kayak, rafting, hunting and fishing. In addition, ski resorts, adrenaline sports, accommodation capacities and economic activities such as beekeeping or mining are generally allowed in protected areas. However, it is crucial that human activities are used reasonably in order to ensure that the habitats of plant and animal species are not destroyed ([link](#)).

In numerous areas, the survival of the present animal species and habitats may entirely depend on the continuation of economic activities. For instance, for a survival of a certain species it is sometimes necessary to increase the number of haying or grazing activities. In certain cases of the Natura 2000 areas, it will be necessary to make adjustments in order to protect the species and habitats for which the area was determined even though in a large number of cases the existing activities are carried out in the same manner as they had been before a certain area was proclaimed the Natura 2000 area ([link](#)).

Human activities which are allowed and prohibited in protected areas are listed in continuation (all according to the [link](#)).

### *Walking and staying in parks*

- it is prohibited to:
  - enter without an entrance ticket
  - drive or park outside the areas intended for that purpose
  - climb on cliffs
  - camp (except in areas foreseen for that purpose)
  - keep pets out of control

### *Starting a fire, littering, noise, carrying weapons, park equipment*

- it is prohibited to:
  - start a fire (except in areas foreseen for that purpose)
  - litter and throw cigarette butts
  - create excessive noise
  - bring fire and other weapons
  - damage park equipment

### *Local inhabitants, park staff and park activities*

- it is prohibited to:
  - take videos or photographs for commercial purposes without an approval
  - carry out a tourist, hospitality or commercial activity without a concession approval
- it is necessary to announce and obtain an approval if the visitors would like to carry out specific recreational activities (e.g. paragliding, hang gliding, climbing)

### *Plants, animals, mushrooms, environment, minerals, fossils, caves*

- it is prohibited to:
  - pick, collect, damage or destroy plants and mushrooms
  - feed, chase off, pursue, scare, disturb, hunt, collect or injure animals
  - damage animals' nests and holes
  - collect snails and mushrooms
  - pick herbs
  - contaminate watercourses, water sources and tanks
  - contaminate air, soil and water
  - destroy protected minerals and fossils
  - contaminate, destroy and remove speleothems, living world of speleological objects, fossil, archaeological and other findings
  - dispose of waste and discharge waste material
  - contaminate, destroy, carry out and misappropriate anthropological findings and material remains of various cultures, archaeological and fossil findings, cultural and historical buildings and cultural monuments.

### *Fishing*

- in some areas permitted, in some allowed
- spearfishing is prohibited
- it is prohibited to collect and extract shellfish and other maritime organisms

### *Swimming and diving, sailing, vessel anchoring and mooring*

- swimming is permitted in some areas
- SCUBA diving is permitted with a park approval
- when swimming and diving, it is necessary to pay attention in order to avoid damages and disturbances to sea organisms
- vessel movements should be adjusted to park restrictions
- vessel anchoring and mooring are permitted only in the foreseen and marked places.

### Mountain climbing and rock climbing

- climbing is exclusively on one's own responsibility
- climbing is permitted only in climbing areas
- it is mandatory to use full climbing equipment
- free climbing is prohibited
- it is prohibited to set up new and change the existing directions without the park's approval

### Caving

- it is prohibited to:
  - damage, destroy and remove speleothems, living world of speleological objects, fossil, archaeological and other findings, dispose of waste or discharge waste material in speleological objects
  - destroy and collect fossil and fossil remains and ornaments in caves and other speleological objects
  - contaminate, destroy, carry out and misappropriate anthropological findings and material remains of various cultures found in caves and other speleological objects
  - capture, touch and disturb bats.

## 6. Nature protection measures

The Nature Protection Strategy and Action Plan of the Republic of Croatia (OG [72/2017](#)) for the period from 2017 to 2025 is the fundamental document for nature protection which determines long-term goals and guidelines for conserving biological and landscape diversity and protected natural values, as well as the forms of its implementation, in accordance with overall economic, social and cultural development of the Republic of Croatia ([link](#)).

*„Rich and diverse nature is one of the most valuable resources available to the Republic of Croatia. Conserved nature contributes to ensuring all functionalities necessary for livelihoods and economic development.“*

The following bodies are competent for performing administrative task for nature protection in the Republic of Croatia and implementing the Nature Protection Act (Pešić et al., 2017):

1. Ministry of Environment and Energy ([MEE](#)),
2. Croatian Agency for Environment and Nature ([CAEN](#)),
3. administrative bodies of regional self-governing units,
4. public institutions for managing national parks and parks.

In protected areas, economic activities, such as forest harvesting or hunting, may be carried out providing there are no negative impacts on plant and animal species for which the area was determined and that they meet conservation objectives. Thereby, it is necessary to observe each area separately. If there is a negative impact, testing will contribute to determine its scope and find solutions how to decrease it. For instance, hunting is permitted, but under supervision, in order to ensure long-term conservation of healthy and sustainable population of species, especially the endangered ones (European Commission 2018; [link](#)).

With conservation objectives, the desired state or the conservation level of each protected area is determined for all habitat types and species present in the area, with the help of exact values, e.g. maintaining the population of a certain species at the level of a minimum number of specimens for a period of 5 years. A series of objectives is determined in practice for each area or species which are classified based on priorities, from the most endangered and urgent ones to those which have a lower priority. (ibid.). Competent bodies of each member state are responsible for determining conservation objectives, and they also decide on measures, forms and methods for the implementation of the provisions of these directives. Apart from ensuring that conservation objectives are based on facts, all stakeholders must be actively involved in the procedure to



define conservation objectives. For instance, non-governmental non-profit civil organizations may operate in protected areas, such as Croatian Ranger, which has c. 90 members and promotes professional development and improvement of supervisors and keepers and their role in conserving protected natural values in Croatia (European Commission 2018; [link](#)). Such and similar keeper services carry out immediate protection and are authorised to penalize situations in which rules have been broken.



**International  
Ranger  
Federation**

Slika 7. Hrvatski rendžeri (lijevo: [Marko Mrkonjić PIXSELL](#), desno: [International Ranger Federation](#), 26.11.2019.)

According to *The Habitats Directive*, measures for nature conservation include all practical actions which aim at conservation in a certain area, and they must comply with ecological requirements of habitat types and species present in the area. Economic, social and cultural context, as well as regional and local characteristics are taken into consideration for defining conservation measures. Required conservation measures are only possible if there are data on all types of conditions in a certain area, conservation and species and habitat types' needs, while taking into account social and economic situation.

[https://ec.europa.eu/environment/nature/natura2000/faq\\_hr.htm](https://ec.europa.eu/environment/nature/natura2000/faq_hr.htm) In Natura 2000 network areas, various measures may be necessary, including renewal of activities which require performing works at a specific time, such as works for restoring wetland hydrology, replanting of certain species, reintroduction or reinforcement of populations, setting up required infrastructure, haying, clearing maquis, managing hydrological regimes (European Commission 2018; [link](#)).

## Useful web pages

- [Natura 2000 network viewer](#) with exact locations of each Natura 2000 area in the EU network
- [NATURA 2000 Barometer](#): data on the number of areas and surface coverage in each member state and at the EU level
- [Natura 2000 network viewer](#) all Natura 2000 network areas
- [Croatian Agency for Environment and Nature](#) which runs the information system of nature protection in the Republic of Croatia
- [Nature Protection Strategy and Action Plan of the Republic of Croatia](#)
- [Environmental Protection Act](#)

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## Link list (used chronologically in the paper)

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