



Summary of national assessments of the state of nature conservation systems in South-Eastern Europe

Maja Vasiljević, Sanja Pokrajac, Boris Erg



INTERNATIONAL UNION FOR CONSERVATION OF NATURE

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IUCN, International Union for Conservation of Nature

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MAVA was established in 1994 and is a family-led, Swiss-based philanthropic foundation whose mission is to engage in strong partnerships to conserve biodiversity for future generations. Under the leadership of its President, André Hoffmann, the foundation strives to help protect and rebuild the earth's natural wealth, ensure sustainable use of natural resources and build strong conservation communities. MAVA has four different programmes. Three are region-based: the Alpine Arc and Switzerland, the Mediterranean Basin and Coastal West Africa. In each place MAVA has helped build extensive conservation capacity, to create and support conservation institutions and influence policy. The fourth programme, the Sustainable Economy, provides opportunities to affect global trends and have an impact that goes beyond MAVA priority regions. The programme explores how to ensure economic prosperity, within the resources of one planet, addressing the issue of overconsumption of natural resources beyond their capacity to regenerate. MAVA also funds other work that reaches beyond the four programmes through their global portfolio of projects.

www.mava-foundation.org

ALBANIA



Ministry of Tourism and Environment

The Ministry of Tourism and Environment has the mission to develop and propose policies, strategies and action plans for the protection of environment, forests, waters and fisheries in order to achieve sustainable development, improve the quality of life and enable the country to join the European Union. The Ministry implements relevant national policies, defines priority environmental investments, develops national research programmes in the field of environmental protection and coordinates environment protection-related activities.

www.turizmi.gov.al

BOSNIA AND HERZEGOVINA

Federal Ministry of Environment and Tourism

The Federal Ministry of Environment and Tourism performs administrative, professional and other tasks falling under competence of the Federation of Bosnia and Herzegovina related to the development of environmental strategies and policies, protection, development of quality standards and monitoring of air, water and soil, ecological monitoring, drafting of tourism strategies and policies, visitor monitoring, and other tasks as specified by law.

www.fmoit.gov.ba



Ministry of Spatial Planning, Civil Engineering and Ecology

The Ministry of Spatial Planning, Civil Engineering and Ecology performs public administrative activities falling under competence of the Republic of Srpska related to spatial planning, construction and the environment. The Ministry develops and proposes laws and other regulations under its authority, provides opinions on the law proposals and carries out other activities in accordance with the Constitution and the law.

www.vladars.net/eng/vlada/ministries/MSPCEE/Pages/default.aspx



Републички завод за заштиту
културно - историјског и
природног наслеђа

Republic Institute for the Protection of Cultural, Historical and Natural Heritage

The Republic Institute forms part of the Ministry of Education and Culture of the Republic of Srpska. The Institute carries out administrative and other professional tasks related to identifying, recording, researching, and valuating sites for protection, identifying properties of cultural, historical and natural heritage, keeping the registry of protected properties, approving expert studies for restoration, reconstruction and preservation of cultural, historical and natural heritage, professional supervision of organizations for protection, and other duties stipulated by the applicable regulations.

<http://nasljedje.org>

CROATIA



REPUBLIKA HRVATSKA

MINISTARSTVO ZAŠTITE
OKOLIŠA I ENERGETIKE

Ministry of Environment and Energy

The Ministry of Environment and Energy performs tasks related to the protection and conservation of the environment and nature in line with the sustainable development policy of the Republic of Croatia, as well as tasks related to water management, and administrative and other tasks in the field of energy. The main goal of the Ministry is to create conditions for achieving sustainable development goals by utilizing the natural and cultural wealth, and the human resources of the Republic of Croatia within the framework of a modern European society.

www.mzoip.hr

Croatian Agency for the Environment and Nature

Croatian Agency for the Environment and Nature (CAEN) is the central national level government agency responsible for data collection and technical expertise in the field of environment and nature conservation. It collects data on environment and nature, analyses it and reports on state of environment and nature. Agency also participates in development and implementation of relevant sectorial strategies and policies.

www.haop.hr

MACEDONIA



Република Македонија
Министерство за животна средина
и просторно планирање

Ministry of Environment and Physical Planning

The Ministry of Environment and Physical Planning is a governmental executive authority entrusted with the protection of the environment through drafting and enforcing regulations based on laws passed by the Macedonian Parliament. The Ministry is the main state institution responsible for the nature conservation sector, with a mandate to develop and implement relevant policies, conserve and manage biological and landscape diversity and natural heritage, and control and supervise the enforcement of the provisions of the Nature Protection Act. The mission of the Ministry is based on care for nature, environmental sustainability, and spatial planning through the fulfilment of European Union standards using the best practices and experiences, and in cooperation with citizens and other national and international institutions.

www.moepp.gov.mk

MONTENEGRO



MONTENEGRO

MINISTRY OF SUSTAINABLE DEVELOPMENT
AND TOURISM

Ministry of Sustainable Development and Tourism

The Ministry of Sustainable Development and Tourism is the main governmental authority responsible for policymaking on the environment and sustainable development. The portfolio of the Ministry includes the environment, nature protection, spatial planning, construction, tourism, housing, and coordination of international cooperation and management of the European Union funds in relevant areas.

www.mrt.gov.me



Environmental and Nature Protection Agency

The Environmental and Nature Protection Agency is the key institution for the implementation of nature protection regulations aligned with the European Union Directives. The Agency is responsible for issues concerning the monitoring of natural habitats and species, development of nature protection studies in the process of establishing protected areas, preparation and implementation of monitoring, preparation and maintenance of an environmental database (including biodiversity data) and issuance of all types of permits relating to nature protection. The Agency also collects data and prepares documents for the establishment of an ecological network.

www.epa.org.me

SERBIA



РЕПУБЛИКА СРБИЈА
Министарство заштите животне средине
REPUBLIC OF SERBIA
Ministry of Environmental Protection

Ministry of Environmental Protection

The Ministry of Environmental Protection is the government authority responsible for the protection of environment and nature, field inspections of environmental protection, implementation of the Aarhus Convention, climate change-related issues, transboundary air and water pollution, water pollution prevention, identification of environmental requirements in spatial planning and construction, protection against major chemical accidents, and participation in the response in the event of chemical accidents.

www.ekologija.gov.rs



INSTITUTE FOR NATURE
CONSERVATION OF SERBIA

Institute for Nature Conservation of Serbia

The Institute for Nature Conservation of Serbia is a professional institution that carries out activities in the field of protection and improvement of the natural heritage of the Republic of Serbia. During several decades of the Institute's work, special attention has been given to developing cooperation with international organizations, scientific and professional institutions, protected area managers in other countries, and secretariats of the relevant international conventions, with the aim of exchanging experience and knowledge in the field of nature conservation and applying contemporary international principles and standards in nature conservation.

www.zzps.rs



INSTITUTE FOR NATURE CONSERVATION
OF VOJVODINA PROVINCE

Institute for Nature Conservation of Vojvodina Province

The Institute for Nature Conservation of Vojvodina Province is a specialized institution responsible for the protection of nature and natural resources in the Autonomous Province of Vojvodina. It functions within the Institute for Nature Conservation of Serbia, with the main activities of monitoring and evaluating the state of nature, drafting studies for the valuation of proposed protected areas, drafting documents related to nature protection, supervision in protected areas, and other tasks defined by the Nature Protection Act.

www.pzzp.rs



INSTITUTE OF THE REPUBLIC OF SLOVENIA
FOR NATURE CONSERVATION

Institute of the Republic of Slovenia for Nature Conservation

The Institute is the main, national, professional organization in the field of nature conservation. Seven regional units provide high-quality coverage of the terrain for the entire territory of Slovenia. The work of regional units is rounded off by the central unit in Ljubljana, which is responsible for coordination, standardisation of methods and uniform functioning of the Institute outwards and inwards. The Institute provides professional support for decisions of the government and other public institutions, prepares expert opinions in planning procedures of plans and projects in nature and participates in the management of protected areas. The Institute is also responsible for the implementation of various international conventions and European Directives and also carries out tasks related to the management of Natura 2000. The Institute educates and raises awareness about the importance of nature conservation and sustainable coexistence of man and nature.

www.zrsvn.si



Eco Horizon

Eco Horizon is an independent, non-profit association for nature conservation, environment and sustainable development. Established in 2010 in Croatia, the mission of Eco Horizon is to promote the conservation of nature with its ecosystem services and cultural values, encourage sustainable management of natural resources, and support development of transboundary conservation initiatives. Eco Horizon's experts have extensive international experience in diverse aspects of nature conservation and sustainable development. Some of its members are part of the World Commission on Protected Areas (WCPA) of the International Union for Conservation of Nature (IUCN), while the founder of Eco Horizon also serves the function of Chair of IUCN WCPA Transboundary Conservation Specialist Group.

www.ekohorizont.hr

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Foreword

The present volume, *Summary of national assessments of the state of nature conservation systems in South-Eastern Europe*, should be read in conjunction with the publication *State of nature conservation systems in South-Eastern Europe* as it represents its integral part and foundation. Both reports follow the same logic and structure, and their content is presented through the same thematic chapters.

We give warm thanks for their dedicated work to all the authors of the national reports, who provided insights into the nature conservation systems in their countries: Vasil Anastasovski, Milena Bataković, Ferdinand Bego, Taulant Bino, Patricija Gambiroža, Tjaša Đokić, Martina Kačičnik Jančar, Tadej Kogovšek, Goran Krivanek, Srđan Marinčić, Ajla Mehmedović, Biljana Opačić, Ivana Plavac, Dejan Radošević, Goran Sekulić, Nataša Stanišić, Gabrijela Šestani, Petra Štrbenac, Sara Todorović, Ramona Topić, Marija Trikić, Marko Tucakov, Azra Velagić and Irina Zupan. We also wish to acknowledge the support of Jelena Dučić, Saško Jordanov, Klodiana Marika, Andrej Sovinc and Vlatko Trpeski for their reviews of the national reports.

We would like to take this opportunity to once again thank the MAVA Foundation for recognizing the need for strengthened regional cooperation in South-Eastern Europe, and for supporting the development of this milestone publication, in its two volumes.

Boris Erg, Director,
IUCN Regional Office for Eastern Europe and Central Asia (ECARO)

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Abbreviations and acronyms

ACCOBAMS	Agreement on the Conservation of Cetaceans in the Black Sea, Mediterranean Sea and Contiguous Atlantic Area
AEWA	Agreement on the Conservation of African-Eurasian Migratory Waterbirds
BD	Biological Diversity
BfN	German Federal Agency for Nature Conservation
BiH	Bosnia and Herzegovina
CBD	Convention on Biological Diversity
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CMS	Convention on the Conservation of Migratory Species of Wild Animals
ECARO	Regional Office for Eastern Europe and Central Asia
EU	European Union
EUROBATS	Agreement on the Conservation of Populations of European Bats
GEF	Global Environment Facility
GIS	Geographical Information System
GIZ	German Organization for International Cooperation
IPA	Instrument for Pre-accession Assistance
IUCN	International Union for Conservation of Nature
MAK-NEN	Macedonian National Ecological Network
MEPP	Ministry of Environment and Physical Planning of Macedonia
NBSAP	National Biodiversity Strategy and Action Plan
NEPA	Nature and Environmental Protection Agency
NGO	Non-governmental organization
SDC	Swiss Agency for Development and Cooperation
SEE	South-Eastern Europe
SIDA	Swedish International Development Agency
SPA/BD	Protocol Concerning Specially Protected Areas and Biological Diversity in the Mediterranean
TAIB	Transition Assistance and Institution Building Component
UNCCD	United Nations Convention to Combat Desertification
UNFCCC	United Nations Framework Convention on Climate Change
WCPA	World Commission on Protected Areas
WWF	World Wide Fund for Nature



1 Albania

Taulant Bino and Ferdinand Bego



Meandres of river Drin, Albania © Foto-Migawki MD_Shutterstock.com

1.1 Overview of institutions

State institutions

The main state institutions in Albania responsible for various aspects of nature conservation are the following:

- Ministry of Environment
- National Agency of Protected Areas
- Regional Administration of Protected Areas
- National Environmental Agency
- Directorates responsible for forestry and environment within the municipalities.

The Ministry of Environment is the main responsible institution for nature conservation, with the mandate to develop and implement policies related to conservation of nature, environmental protection and sustainable use of natural resources including sustainable management of forests and pastures. The Ministry's Directorate for Biodiversity and Protected Areas employs seven experts.

In January 2014, the Albanian government established the State Inspectorate of Environment, Forests and Waters as a structural agency of the Ministry of Environment. The State Inspectorate consists of twelve regional branches. With 130 forestry police experts and about 300 employees, the State Inspectorate is responsible for inspections related to prevention and control of pollution.

The National Agency of Protected Areas is the youngest state institution in Albania, founded in 2015 by the Decision of Council of Ministers No.102. It reports to the Ministry of Environment and its mandate is the protection of biodiversity through protected area management, collection and distribution of information, environmental education, public awareness raising,

and providing support to sustainable activities in protected areas. Direct management of protected areas is practiced by the newly established Regional Administration of Protected Areas, which reports to the National Agency of Protected Areas.

The National Environmental Agency, established in 2014, employs one expert in protected areas and ten experts in forestry and pastures. Its key mandate is to monitor the state of the environment, prepare relevant reports, including reporting to the European Environment Agency, obtain scientific research and gather and distribute environmental information.

With the new reform, the Regional Directorates of Forestry Service, responsible for forest and wild fauna administration and control, were transferred from the Ministry of Environment to the local government (municipalities) during 2016.

Scientific and other relevant institutions

The main scientific and academic institutions that perform research in the area of nature conservation are:

- Agricultural University of Tirana (Faculty of Forest Science, Faculty of Agriculture and Environment, Faculty of Veterinary Medicine)
- Albanian Academy of Sciences (Section of Natural and Technical Sciences)
- Aleksander Xhuvani University, Elbasan (Faculty of Natural Sciences with Department of Biology)
- Eqrem Cabej University, Gjirokastra (Faculty of Natural Sciences with Department of Biology and Chemistry)
- University of Shkodra (Faculty of Natural Sciences with Department of Biology-Chemistry)
- University of Tirana (Faculty of Natural Sciences with Department of Biology, Botanical Garden and Museum of Natural Sciences)

NGOs

The Albanian NGO scene is very rich, consisting of some 70 NGOs involved in various environmental issues. More than 70% of NGOs are regularly active in nature conservation, while about 35% occasionally shift their field of interest in accordance with the availability of funds. Despite the evident progress in building up NGOs in recent years, the capacity of these organisations still remains at a moderate level. The number of staff is relatively low with about 250 persons employed by all NGOs, while infrastructure facilities and equipment are often insufficient.

Some of the most active NGOs in the field of nature conservation are:

- Albaforest
- Albanian Hunting Federation
- Albanian Ornithological Society
- Albanian Society for the Protection of Birds and Mammals
- Association for Development to Environmental Policies (G&G Group)
- Association 'Protection and Social and Environmental Development ILIRIA'
- Co-PLAN—Institute for Habitat Development
- Environmental Centre for Development, Education and Networking—EDEN Centre
- Institute for Nature Conservation in Albania
- Organic Agricultural Association
- Protection and Preservation of Natural Environment in Albania
- National Federation of Forestry and Pastures
- Regional Environmental Centre Albania.

1.2 Legislation system and policy

National laws

At least seven laws and a number of bylaws are important for regulating nature conservation in Albania, as follows:

1. Law no. 8906 'On protected areas' (2002)—regulates the designation and management of protected areas
2. Law no. 9587 'On the protection of biodiversity' (2006)—regulates the protection and preservation of biological diversity
3. Law no. 10006 'On the protection of wild fauna' (2008)—regulates the protection, management and control of wild fauna, their habitats and migratory routes

4. Law no. 10431 'On environmental protection' (2011)—defines nature protection and serves as a framework law in the field of environment, including nature conservation, regulating prevention and reduction of threats to the environment
5. Law no. 9385 'On forests and forestry service' (2005)—regulates conservation, social and economic activities including development of sustainable tourism in forest areas
6. Law no. 10253 'On hunting' (2010)—provides rules for sustainable hunting ensuring maintenance of ecological equilibrium
7. Law no. 7 'On proclamation of hunting moratorium' (2014)—imposes a two-year hunting ban in Albania in order to improve the status of wild game populations
8. Law no. 61 'On proclamation of hunting moratorium' (2016)—imposes a five-year hunting ban in Albania in order to improve the status of wild game populations
9. Law no. 5 'On proclamation of forest moratorium' (2016)—imposes a ten-year ban in Albania in order to improve the status of forests.

Transposition of EU Nature Directives

As the EU Candidate country, Albania has worked on the alignment of its laws with the EU legal regulations, namely the EU Habitats and Birds Directives. Approximately 98% of the Habitats Directive has been transposed into the national legal framework through Law no. 9868 (2008) (which amends the 2002 Law 'On protected areas') and Law no. 68 (2014). Full transposition is expected soon, since a set of bylaws has already been prepared by the Ministry of Environment. The EU Birds Directive has been transposed at about 92%, mainly through the Law no. 10006 'On the protection of wild fauna' and the Law no. 10253 'On hunting' and bylaws.

Multilateral environmental treaties

Albania ratified some of the most important multilateral treaties relevant for nature conservation, with the year of entry into force shown in Table 1.

Table 1 Multilateral treaties relevant for nature conservation ratified by Albania

Treaty	Entry into force
Convention on Protection of the World Natural and Cultural Heritage (World Heritage Convention)	1989
United Nations Framework Convention on Climate Change (UNFCCC)	1995
Convention on Biological Diversity (CBD)	1996
Convention on Wetlands of International Importance, Especially as Waterfowl Habitat (Ramsar Convention)	1996
Convention on the Protection and Use of Transboundary Watercourses and International Lakes	1996
Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention)	1999
International Plant Protection Convention	1999
United Nations Convention to Combat Desertification (UNCCD)	2000
Agreement on the Conservation of Cetaceans in the Black Sea, Mediterranean Sea and Contiguous Atlantic Area (ACCOBAMS)	2001
Agreement on the Conservation of Populations of European Bats (EUROBATS)	2001
Agreement on the Conservation of African-Eurasian Migratory Waterbirds (AEWA)	2001
Protocol Concerning Specially Protected Areas and Biological Diversity in the Mediterranean (SPA/BD Protocol)	2001
Convention on the Conservation of Migratory Species of Wild Animals (CMS)	2001
Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters (Aarhus Convention)	2001
Convention on International Trade in Endangered Species of Wild Flora and Fauna (CITES)	2003
Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean (Barcelona Convention)	2004
Cartagena Protocol on Biosafety to the CBD	2005

Alignment of national biodiversity strategies with global and EU strategies

In Albania, the first Biodiversity Strategy and Action Plan, adopted in 2000 and covering the period from 2000–2015, was developed as part of the GEF-Biodiversity Enabling Activity-Phase I project. This was the first document developed at the national level to analyse the impact of development on biodiversity and landscape, identify the major threats and propose the main actions to be taken in the short and long-term to improve the situation.

The Ministry of Environment has been coordinating the preparation of the new National Biodiversity Strategy and Action Plan (2014–2020), following the guidance of the CBD Strategic Plan for Biodiversity 2011–2020 and the EU Biodiversity Strategy to 2020, and ensuring also full alignment with other sectoral strategies, including spatial planning, water, energy, forestry, agriculture, transport and infrastructure. This document, formally known as the Document of Strategic Policies for the Protection of Biodiversity in Albania, was officially approved by a Decision of the Council of Ministers in January 2016. The Action Plan includes national objectives such as designating 17% of terrestrial and 6% of marine and coastal protected areas by 2020, fully transposing the EU acquis on nature conservation by 2020, and rehabilitating at least 15% of degraded areas through restoration and implementation of management plans for protected areas.

However, the lack of efficient coordination among sectors remains a major threat to the integration of biodiversity policy into other sectoral policies and strategies.

1.3 Protected areas

Protected area coverage

Protected areas in Albania cover 4,775.65 km² or 16.6% of the country's territory (Figure 1). There has been a significant increase in the surface of protected areas compared to 2005, when only 5.2% of the Albanian territory was protected. Albania has 800 protected areas, with a large majority designated as nature monuments (750), while the largest territory is under the category of national park (7.32%). Other protected areas are categorised throughout the remaining four national protected area categories, i.e. strict nature reserve, nature managed reserve, protected landscape, and multiple use area (Table 2).

Table 2 shows the surface of protected areas in each protection category, indicating a large underrepresentation of marine protected areas, covering about 2% of the marine area. As highlighted in the National Biodiversity Strategy and Action Plan (2014–2020), the government foresees expansion of the protected area network to cover 17% of the Albanian territory by 2020.

Table 2 Number and surface of protected areas in Albania

National protected area category	Number of protected areas	Land surface/km ²	Sea surface/km ²	% of total country surface
Strict Nature Reserve	2	48		0.17
National Park	15	1,972.40	132.61	7.32
Nature Monument	750	34.7		0.12
Nature Managed Reserve	24	1,446.85		5.03
Protected Landscape	5	958.64		3.33
Multiple Use Area	4	182.45		0.63
Total	800	4,643.04	132.61	16.6

Source: National report of Albania



The national protected area categories largely reflect the IUCN protected area management categories (see Table 3). There is no IUCN category Ib in the Albanian protected area system, while the coverage of Ia is very limited. All other categories seem to correspond to the national ones.

Table 3 Protected area categories in Albania in relation to IUCN protected area management categories

National protected area category	Corresponding IUCN protected area management category
Strict Nature Reserve	Ia Strict Nature Reserve
National Park	II National Park
Nature Monument	III Natural Monument or Feature
Nature Managed Reserve	IV Habitat/Species Management Area
Protected Landscape	V Protected Landscape/Seascape
Multiple Use Area	VI Protected Area with Sustainable Use of Natural Resources

Procedure for designating protected areas

In Albania, the designation procedure for protected areas is defined by the Law no. 8906 'On protected areas' and the Decision of the Council of Ministers No.267 'On procedures of proposal and designation of protected areas and their buffer zones'. Protected areas are proclaimed by the decision of the Council of Ministers following the proposal of the Minister of Environment, and upon receipt of opinion from local government, expert institutions, NGOs and private owners in case their property is envisaged for inclusion in the future protected area.

Protected area management planning

During the period of 2004–2015, 14 protected area management plans were developed and adopted for Albanian protected areas for a range of protection categories (national parks, protected landscapes and nature managed reserves) (Table 4). Of the 15 national parks, 9 have a management plan in place. Currently two management plans are in the process of adoption; for the Buna River-Velipoja Nature Managed Reserve and for Shebenik-Jabllanice National Park.

The situation with implementation of the management plans remains rather weak in Albania, due to a lack of funding and human capacity.

Table 4 Protected area management plans in Albania

Management plan for protected area	Year of adoption
Dajti National Park	2004
Vjose-Narta Protected Landscape	2004
Llogora National Park and Karaburun Nature Managed Reserve	2004
Butrint National Park	2011
Kune-Vain Nature Managed Reserve	2011
Shkodra Lake Nature Managed Reserve	2012
Bredhi i Hotoves-Dangelli National Park	2014
Prespa Lakes National Park	2014
Tomorri National Park	2014
Korab-Koritnik National Park	2014
Mali me Gropa-Bize-Martanesh Protected Landscape	2014
Pogradec Lake Protected Landscape	2014
Karaburun-Sazan Marine National Park	2015
Divjaka-Karavasta National Park	2015

Protected area governance and management

As of February 2015, all protected areas are managed and governed by the Regional Administration of Protected Areas which depends on and reports to the National Agency of Protected Areas, despite the complexity of land ownership (*note* that the National Agency of Protected Areas reports to the Ministry of Environment). Meanwhile, inspection tasks remain under the Forestry Police of the Ministry of Environment's State Inspectorate on Environment and Forests.

International recognition of protected areas

Four protected areas in Albania are recognised as Ramsar Sites:

- Karavasta Lagoon (1995)
- Butrint (2003)
- Lake Shkodra and Buna River (2006)
- Albanian Prespa Lakes (2013).

Karavasta Lagoon, Butrint and Albanian Prespa Lakes are all national parks, while Lake Shkodra is a nature managed reserve and Buna River is a landscape protected area. Apart from the international recognition through the Ramsar Convention, Prespa is also included in the UNESCO Biosphere Reserve. The Ohrid-Prespa Transboundary Biosphere Reserve (Ohrid is located in Macedonia) was established in 2014 to recognize cooperation between Albanian and Macedonian authorities in the management of the site. Twelve protected areas are listed as Birdlife's Important Bird Areas.

1.4 Ecological networks

Natura 2000

As a non-EU Member, Albania is not part of the Natura 2000 network. However, being recently accepted as a Candidate State, Albania has been undertaking all legislative action relevant for setting up the Natura 2000 network. The IPA 2013 project, 'Strengthening national capacity in nature protection—Preparation for Natura 2000 network' commenced in 2015 to help Albanian authorities start the process of identification of Special Protection Areas and Special Areas of Conservation, to form part of the future Natura 2000 network.

Emerald Network

Identification of Areas of Special Conservation Interest to form part of the Emerald Network took place from 2002–2008. The result was a list containing 25 proposed Areas of Special Conservation Interest, covering 17.8% of the country's territory. The proposed sites were accepted by the Standing Committee of the Bern Convention in 2011 (Figure 2).



Photo © B. Erg / IUCN



Shkodra, Albania © B. Erg / IUCN

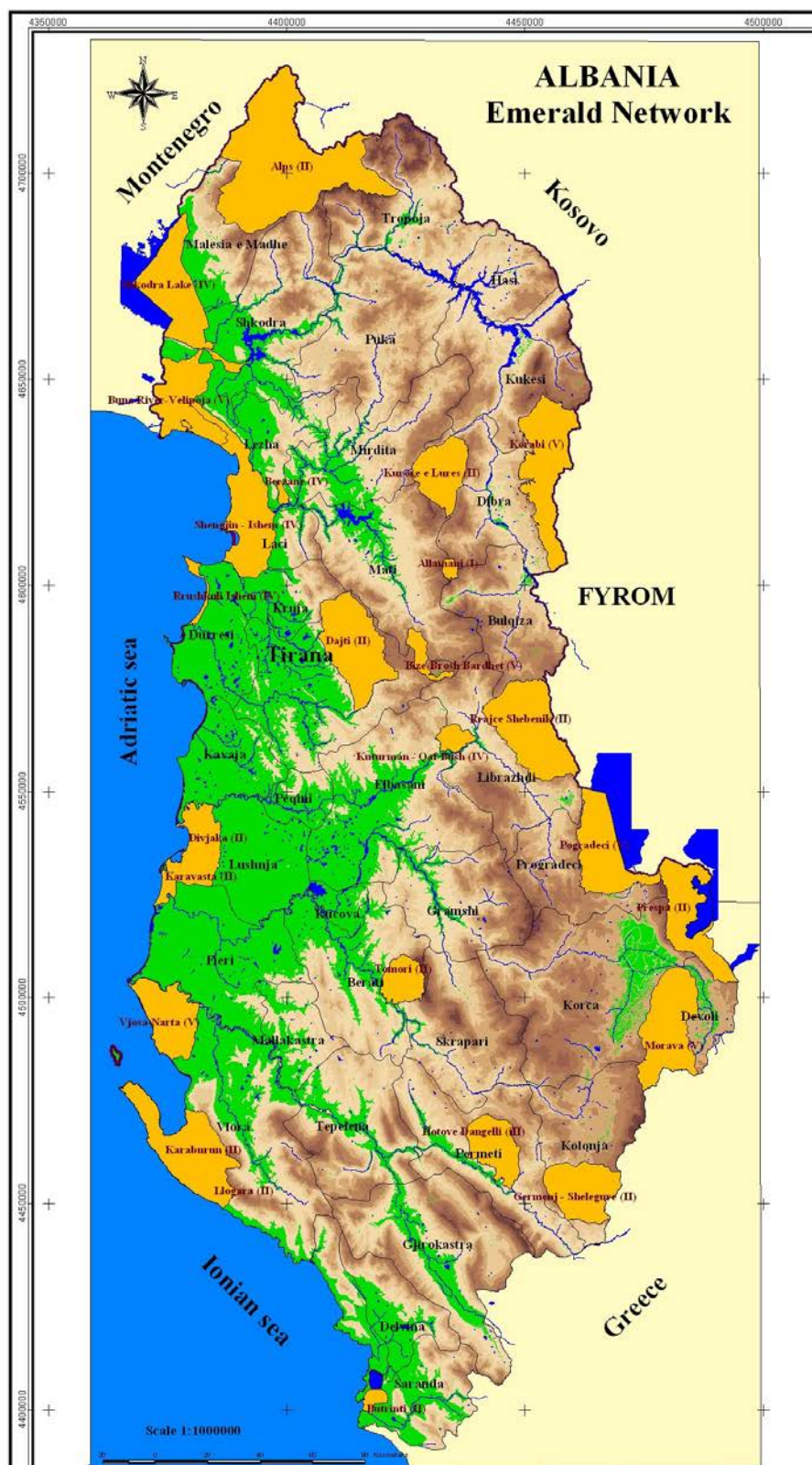


Figure 2 Proposed sites of the Emerald Network in Albania

Source: Council of Europe (2014)

1.5 Conservation of species

Red List

The first Red Lists of Flora and Fauna of Albania were developed in 1995 and 1997, and then revised and updated in 2006 and 2013. Red Lists were prepared for vascular plants, vertebrates, and some main groups of invertebrates, such as molluscs, echinoderms and insects (*Lepidoptera*, *Coleoptera*), but they are still incomplete. Even within the higher vertebrates such as mammals, data on some species are scarce and incomplete (e.g. bats) and many species have been given the status 'Data Deficient'.

Available Red Books are: Red Book of Threatened and Rare Plants of Albania (1995), Red Book of Threatened Plants, Plant Associations and Animals (1997) and Red Book of Threatened Fauna of Albania (2006).

Species management and action plans

There are a number of species action plans, while some species conservation programmes and projects are under implementation. The action plans for brown bear (*Ursus arctos*), lynx (*Lynx lynx*), Pygmy cormorant (*Phalacrocorax pygmaeus*), marine mammals (cetaceans) and Neptune grass (*Posidonia oceanica*) were all prepared in 2007, while the action plan for marine turtles and their habitats was approved in 2012. Each of these action plans provides: updated knowledge about the distribution and conservation status of the concerned species, a thorough assessment of the historic and current threats to the species' populations in Albania, and the objectives and actions to be undertaken to restore and maintain the species' viable populations.

1.6 Main pressures

The main pressures on protected areas and biodiversity in general relate to the increase of human disturbance and resulting loss and degradation of natural habitats, and reduction and extinction of wildlife. Some of the critical threats to biodiversity are prohibited activities, such as illegal hunting, fishing, and overexploitation of natural resources leading to deforestation. Illegal hunting has led to a declining trend of the population of wild species, in particular birds, which for the most part are migratory birds. For almost two decades, the government has been working to find a means of efficient control. Finally, in 2014, the Parliament of Albania passed the law 'On moratorium of hunting' to last for two years, with the aim of minimising pressures on biodiversity. Controlling illegal fishing and overuse of marine resources remain some of the priority issues. In order to better control the overexploitation of forests, a series of measures were introduced, such as the prohibition of timber exports from Albania.

Urbanization, including illegal building of infrastructure, remains a significant problem in some parts of the country, and poses a threat to the environment. Together with industrial development, uncontrolled development of the energy sector and mining, alteration of river courses and hydro-technical works, development of the transport network, pollution generated by diverse sources, soil erosion, and uncontrolled tourism development, are among the more recent threats to biodiversity. Tourism related infrastructure has had adverse impact on the fragile coastal and marine areas in the country.

1.7 Valuation of ecosystem services

Ecosystem valuation in Albania is almost non-existent. However, certain initiatives have been undertaken to map and assess ecosystems and their services (the following overview is based on Burbidge et al., 2015). One of them is the introduction of payment for ecosystem services, started in 2014 by the Ministry of Environment and involving the Institute of Nature Conservation. This initiative aims to develop carbon sequestration projects and develop payment for watershed services schemes. Another initiative is linked to the project 'Afforestation and reforestation project activities: Assisted natural regeneration of degraded lands in Albania', started in 2004 by the Albanian Ministry of Environment, with the Forestry and Water Administration, Italian Ministry for the Environment and Territory, and International Bank for Reconstruction and Development as the trustee of the BioCarbon Fund. The planned duration of the project is 60 years and it focuses on ecosystem services, carbon storage and grazing.

'Transboundary Mountain Massifs of Prokletije/Bjeshkët e Namuna in Montenegro and Albania: Assessment of the Most Valuable Areas for Biodiversity' was developed as part of the IUCN's project 'Sustaining rural communities and their traditional landscapes through strengthened environmental governance in transboundary protected areas of the Dinaric Arc' financed by the Ministry of Foreign Affairs of Finland. The ecosystem services covered were grazing, erosion control, non-timber forest products and cultural services.

The project 'Support to local communities to establish regional protected areas: Assessment of the most valuable areas for biodiversity within Uleza commune and opportunities for ecotourism development', coordinated by the Institute for Nature Conservation in Albania, aimed to identify areas important for human well-being depending on biodiversity and thus to collect information on different ecosystem services provided in the study area (e.g. wood production and non-timber forest products).

1.8 Nature information system

Data on nature conservation in Albania is contained within the Environmental Information Monitoring System, managed by the National Environmental Agency. This system was built through the project 'Consolidation of environmental monitoring system in Albania'; however, it is currently non-functional. The Ministry of Environment expects to have a functional protected area database system in place in 2017. It will serve mainly for data concerning the network of protected areas, but will also host other relevant information on nature conservation in the country.

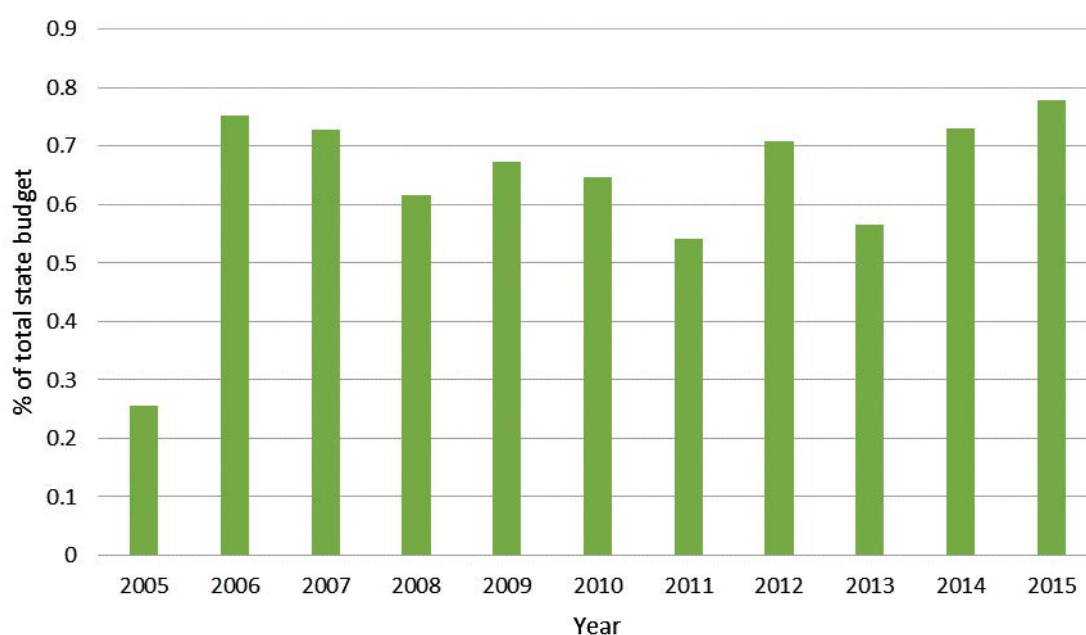
1.9 Financing nature conservation

Nature conservation in Albania is largely financed by the state budget and donor contributions (Table 5). Despite the latest increase in financing from the state budget, as seen in Figure 3, donor contributions still represent the majority of overall financing.

The Ministry of Environment has the right to receive revenues from tourism related activities developed in the forestry fund. Any revenue generated from this activity feeds directly into the state budget. Also, any income generated from concessions is allocated directly to the state budget.

Table 5 Main funding sources for nature conservation in Albania

Funding source	Institution	Comment
State budget	Ministry of Environment, Regional National Agency of Protected Areas, National Environmental Agency, Municipalities, National Environmental Inspectorate	
Fees	Dajti National Park, Kune-Vain Nature Managed Reserve, Syri i Kalter Nature Monument	Relates to entrance fees and fines, but revenues are deposited in the state budget.
Other sources	Foreign donors, NGOs	Swedish International Development Agency (SIDA), Critical Ecosystem Partnership Fund, MAVA Foundation, GEF, GIZ, Japan International Cooperation Agency, etc.

Figure 3 State budget allocations for environmental protection including nature conservation in Albania (2005–2015)

1.10 Capacity building

A number of study tours and training workshops have been organised for the employees of the nature conservation sector of Albania, namely for the staff engaged with protected area management. However, frequent changes, removal and replacement of staff engaged in nature conservation and protected area administration caused by political rotations, make the progress in capacity building rather weak and unsustainable. Furthermore, the employees of nature conservation institutions are limited both in number and qualifications. To date, almost all employees have been foresters and forest technicians, with limited qualification for working in nature conservation sector. There are almost no conservation biologists, terrestrial and marine ecologists, communication officers, managers or similar professions to efficiently address nature conservation issues inside and outside of protected areas. Therefore, a holistic approach is needed in the reform of the nature conservation sector and administration and management of protected areas in Albania.

Some of the main capacity development needs relate to the following areas:

- Management of protected areas, with special focus on marine protected areas
- Establishment of effective protected area administration and staffing
- Zoning of protected areas
- Monitoring of biodiversity and data management
- Visitor management and protected area interpretation
- Establishing partnerships in the management of protected areas
- Financing nature conservation
- Raising public awareness and media relations
- Nature conservation and wildlife management in areas beyond protected areas.

2 Bosnia and Herzegovina

Azra Velagić, Dejan Radošević, Sara Todorović



2.1 Overview of institutions

BiH consists of two entities, Federation of BiH and the Republic of Srpska, and one district, Brčko, while Federation of BiH is further administratively structured through ten cantons. According to the BiH Constitution, jurisdiction over environmental issues is responsibility of the institutions within the two entities. However, based on the Law on Ministries and Other Administration Bodies of BiH (2003), jurisdiction over certain tasks related to nature conservation was allocated to the Ministry of Foreign Trade and Economic Relations of BiH, which functions at the state level. This report provides an overview of institutions responsible for nature conservation at state, entity, and cantonal levels. The overview does not include the district of Brčko as it has no designated protected areas.

State institutions

The Ministry of Foreign Trade and Economic Relations of BiH is the central institution that defines policies, coordinates activities and harmonizes plans of entity bodies with relevant plans at the international level in the fields of agriculture, energy, environmental protection, development and use of natural resources, and tourism. Two institutions function within this Ministry, which deal with nature conservation to a greater or lesser extent:

- Administration of BiH for Plant Health Protection—responsible for coordination of policy regarding protection of plant species and coordination of alignment of the state legislation with the provisions of the International Plant Protection Convention

- Veterinary Office of BiH—works on the improvement of the efficiency and effectiveness of the overall veterinary medicine service in BiH and partially regulates conservation by preventive veterinary medicine.

The Agency for Statistics of BiH is responsible for providing and maintaining statistical data on the environment. According to Federal Ministry of Environment and Tourism (2014), there is no single institution responsible for collecting, keeping and analysing biodiversity-related data at the state or entity level. This is instead regulated through various institutions having jurisdiction over biodiversity issues. However, with limited cooperation and information flow, biodiversity monitoring and reporting on the state of biological diversity are not at a satisfactory level.

The Inter-Entity Steering Committee for the Environment, established in 2006, consists of eight members, four selected from each entity government. The Inter-Entity body works on environmental and nature conservation issues that required a harmonized approach by the two entities. It has been coordinating and harmonizing laws and policies between the two entities, environmental plans and programmes, monitoring and information systems, providing guidance on transboundary cooperation in conservation, and the development of the Red Lists of BiH, among other issues.

Federation of BiH

Government institutions

The main institutions in the Federation of BiH responsible for nature conservation are:

- Federal Ministry of Environment and Tourism
- Environmental Protection Fund of the Federation of BiH
- Institute for the Protection of Cultural-Historical and Natural Heritage of Sarajevo Canton
- five public enterprises
- two public institutions
- one management department at municipality level.

Federal Ministry of Environment and Tourism acts as the National Focal Point of BiH for the European Environment Agency, the CBD and Cartagena Protocol on Biosafety. Its Environment Sector employs two nature conservation experts. The Ministry carries out administrative and professional tasks related to air, water and soil protection, monitoring and setting environment standards, development of environmental strategies and policies and tourism development.

The Environmental Protection Fund is the central institution for collecting and distributing financial resources for nature conservation in the Federation of BiH. It provides support for the preparation, development and implementation of programmes and projects in nature conservation and sustainable use of biodiversity, among other areas.

Although there is no institute for nature conservation at the entity level, there is an institute whose scope of work includes the protection of natural heritage at the cantonal level— the Institute for the Protection of Cultural-Historical and Natural Heritage of Sarajevo Canton. However, the Institute lacks capacity for nature protection activities as indicated by only one employee working on the protection of natural heritage. Nevertheless, significant activities and projects have been undertaken in recent years in the Sarajevo Canton, such as the development of a Management Plan for the Trebević Protected Landscape, development of the expert analysis for protection of the Bentbaša Protected Landscape, and implementation of the projects 'The situation analysis and review of the protected areas of the Sarajevo Canton (in line with the new Law on Nature Protection of the Federation of BiH)' and 'Analysis and measures for the protection for all individual natural monuments'.

Public enterprises and public institutions are responsible for the management of relevant protected areas (Table 6), also at the cantonal level. All ten cantons and their ministries, including public enterprises and institutions functioning within the cantons, are presented in Table 6.

Table 6 Institutions relevant for nature conservation at the cantonal level in the Federation of BiH

Name of the canton	Institution
Una-Sana Canton	Ministry of Construction, Spatial Planning and Environmental Protection Public Enterprise Una National Park
Posavina Canton	Ministry of Transport, Communications, Tourism and Environmental Protection
Tuzla Canton	Ministry of Urban Planning, Spatial Planning and Environmental Protection Public Institution Konjuh Protected Landscape
Zenica-Doboj Canton	Ministry of Spatial Planning, Transport and Communications and Environmental Protection Public Enterprise Zavidovići Ltd. responsible for the management of Tajan Nature Monument
Bosnian Podrinje Canton	Ministry of Urban Planning, Spatial Planning and Environmental Protection
Central Bosnia Canton	Ministry of Spatial Planning, Reconstruction and Return
Herzegovina-Neretva Canton	Ministry of Trade, Tourism and Environmental Protection Public Enterprise Hutovo Blato Nature Park Public Enterprise Blidinje Nature Park Public Enterprise Vjetrenica-Popovo polje
West Herzegovina Canton	Ministry of Spatial Planning, Natural Resources and Environmental Protection
Sarajevo Canton	Ministry of Spatial Planning and Environmental Protection Institute for the Protection of Cultural and Natural Heritage of Sarajevo Canton Public Institution Protected Nature Areas of Sarajevo Canton
Canton 10	Ministry of Construction, Reconstruction, Spatial Planning and Environmental Protection

Other relevant institutions indirectly linked to nature conservation in the Federation of BiH are the Federal Ministry of Spatial Planning, Federal Ministry of Agriculture, Water Management and Forestry, Federal Administration for Inspection Activities and Federal Office of Statistics.

Scientific and other relevant institutions

Important research institutions in the Federation of BiH are: Agency for the Water Basin of the Adriatic Sea, Agency for the Water Basin of the Sava River, Federal Agro-Mediterranean Institute, Federal Hydrological and Meteorological Institute, Federal Institute for Agropedology, Institute for Genetic Engineering and Biotechnology in Sarajevo (at the cantonal level), and National Museum of BiH.

Relevant academic institutions include:

- College of Tourism and Management (Programme for Geotourism)
- International University of Travnik (Faculty of Ecology)
- Džemal Bijedić University (Faculty of Civil Engineering)
- University of Mostar (Faculty of Agronomy, Faculty of Science and Education, Faculty of Civil Engineering)
- University of Sarajevo (Faculty of Science, Faculty of Forestry, Faculty of Agriculture and Food Sciences, Faculty of Civil Engineering, Faculty of Mechanical Engineering)
- University of Tuzla (Faculty of Technology, Faculty of Science).

NGOs

NGOs are most actively engaged in raising public awareness on biodiversity and environmental issues. Some of the most active NGOs in the field of nature conservation are the following:

- Association of Engineers and Technicians of Horticulture, Sarajevo
- Association for Flora and Fauna Protection, Lukavac
- Centre for Civil Cooperation, Livno
- Centre for Ecology and Energy, Tuzla
- Centre for Energy, Environment and Resources, Sarajevo

- Centre for Environmentally Sustainable Development, Sarajevo
- Livno Youth Centre
- Ecological Coalition of the Una River Basin, Bihać
- Ecological Society for the Protection and Breeding of Birds, Sarajevo
- 'Ekotim' Association for Protection and Improvement of Environment, Nature and Health, Sarajevo
- 'Zeleni Neretva' Environmental Protection Association, Konjic
- Fondeko Association for Stimulation of Sustainable Development and Quality of Life, Sarajevo
- Forest and Environmental Action, Sarajevo
- 'Naše ptice' Ornithological Association, Sarajevo
- Triton Fojnica Association, Fojnica.

The Republic of Srpska

Government institutions

Government institutions of the Republic of Srpska involved in nature conservation are:

- Ministry of Spatial Planning, Civil Engineering and Ecology of the Republic of Srpska
- Republic Institute for the Protection of Cultural, Historical and Natural Heritage
- Environmental Protection and Energy Efficiency Fund of the Republic of Srpska
- Ministry of Agriculture, Forestry and Water Management
- two public institutions for national parks.

In the field of nature conservation, the Ministry of Spatial Planning, Civil Engineering and Ecology carries out administrative and professional activities related to: the overall protection and improvement of the quality of the environment through research, management planning and protection measures, protection of the natural assets of general interest, natural resources, natural and cultural heritage, and supervision of urban planning, construction and environmental protection. It cooperates with relevant ministries and institutions of the Federation of BiH. There are 51 employees in the Ministry, 10 of which are employed in the Ministry's Department for Environmental Protection.

The Republic Institute for the Protection of Cultural, Historical and Natural Heritage, founded in 1976 as a regional institution and transformed into a republic institution in 1995, functions within the Ministry of Education and Culture of the Republic of Srpska. With headquarters in Banja Luka and offices in Pale and Trebinje, the Republic Institute is responsible for: research, evaluation of natural areas under preliminary protection, maintenance of central registry of protected resources, drafting of expert analyses on protecting and using resources during the development of spatial and urban development plans, defining conditions for using protected resources, performing other tasks related to protection and use of natural heritage, information exchange with all relevant institutions in BiH and Europe. Five of the 25 Republic Institute's employees are nature conservation specialists.

The Environmental Protection and Energy Efficiency Fund, established by the Government of the Republic of Srpska, enables financing of projects and programmes in nature conservation.

The mandate of the Ministry of Agriculture, Forestry and Water Management focuses on administrative and professional tasks related to agriculture, water, forestry, veterinary and management of the Sava River Basin and water district of the Trebišnjica River.

Management authorities of two national parks in the Republic of Srpska, established by the Government of the Republic of Srpska, include the Public Institution of Kozara National Park and the Public Institution of Sutjeska National Park. Other protected areas have appointed management institutions, largely local municipalities, and in some cases NGOs.

Scientific institutions and NGOs

Other institutions involved in nature conservation are research, scientific institutions and NGOs. Prominent research institutions are the Genetic Resources Institute (Centre for Biodiversity) and the Institute for the Protection and Ecology of the Republic of Srpska.

The key academic institution is the University of Banja Luka (Faculty of Natural Sciences and Mathematics, Faculty of Technology, Faculty of Forestry, and Faculty of Agriculture).

Three NGOs are particularly active: Arbor Magna, Centre for Environment, and Society for Research and Protection of Biodiversity; all based in Banja Luka.

2.2 Legislation system and policy

National laws

In BiH, there is no central law at the national level that governs nature conservation, and virtually all environmental legislation operates at the entity level. The following national legislation relates to nature conservation to a certain extent:

- Law on Concessions (2002)
- Law on Veterinary Medicine (2002)
- Law on Plant Protection (2003)
- Law on Agriculture, Food and Rural Development (2008)
- Law on Genetically Modified Organisms (2009)
- Law on Animal Protection (2009).

Laws at the entity level

The central law governing nature conservation in the Federation of BiH is the Nature Protection (2013). A number of other laws directly or indirectly guide conservation efforts, e.g.: Law on Forestry (2002), Law on Environmental Protection (2003), Law on the Fund for Environmental Protection (2003), Law on Freshwater Fisheries (2004), Law on Water (2006), and Law on Una National Park (2008).

In the Republic of Srpska, the Law on Nature Protection was adopted in 2014. Some of the other acts relevant for nature conservation are: Law on Water (2006), Law on Freshwater Fisheries (2006), Law on Hunting (2006), Law on Forests (2008), Law on the Environmental Protection (2012), Law on Sutjeska National Park (2012), and Law on Kozara National Park (2012).

Both entities have also passed Natura 2000 Regulation to guide the definition of the status of areas that are not protected but are important from the biodiversity point of view.

There are discrepancies in the legislation between the two entities, and between the federal and cantonal levels, hindering effective planning and management of protected areas in BiH.

Transposition of the EU Nature Directives

BiH has transposed 78% of the EU Birds Directive and 82% the Habitats Directive. There is a substantial set of sub-legal acts prepared and pending adoption.



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Multilateral environmental treaties

BiH has ratified major relevant international conventions and agreements, with years of entry into force shown in Table 7.

Table 7 Multilateral treaties relevant for nature conservation ratified by BiH

Treaty	Entry into force
Convention on Wetlands of International Importance, Especially as Waterfowl Habitat (Ramsar Convention)	1992
Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean (Barcelona Convention)	1992 ¹
Convention on Protection of the World Natural and Cultural Heritage (World Heritage Convention)	1993
United Nations Framework Convention on Climate Change (UNFCCC)	2000
Convention on Biological Diversity (CBD)	2002
United Nations Convention to Combat Desertification (UNCCD)	2002
Framework Agreement on the Sava River Basin	2004
Convention on Cooperation for the Protection and Sustainable Use of the Danube River	2005
Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters (Aarhus Convention)	2008
Cartagena Protocol on Biosafety to the CBD	2009
Convention on International Trade in Endangered Species of Wild Flora and Fauna (CITES)	2009
Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention)	2009
Convention on the Protection and Use of Transboundary Watercourses and International Lakes	2010
European Landscape Convention	2012

¹Year of ratification by succession; entry into force pending

Alignment of national biodiversity strategies with global and EU strategies

State level

In 2003, the governments of the Federation of BiH and the Republic of Srpska finished one of the most important documents at the time for biodiversity conservation—the National Environmental Action Plan. The Action Plan identified short- and long-term priorities in the field of environment, recognizing biodiversity conservation as one of the priorities in BiH.

The first National Biodiversity Strategy and Action Plan of BiH was prepared for the period of 2008–2015, and adopted only in 2011. In 2013, BiH started preparing the second National Strategy for the period 2015–2020, which is planned to be aligned with the CBD Strategic Plan for Biodiversity 2011–2020. Currently, there are 21 national targets drafted, while a set of indicators is proposed for each national target. All national goals are clearly defined, including the action plan for their implementation and achievement. The goals and indicators might still be amended by the time the Strategy is completed and adopted by the Council of Ministries in BiH. The draft National Strategy also contains four implementation plans: a) Communication Plan, b) Capacity Development Plan, c) Scientific Technology Development Plan, and d) Resource Mobilization Plan.

Federation of BiH

The Environmental Protection Strategy of the Federation of BiH (i.e. Federal Strategy) (2008–2018), primarily based on the principles of sustainable development and the guidelines of the EU acquis with the aim of stabilization and accession to the EU, includes the Federal Nature Protection Strategy that features five strategic goals:

- Protection of biodiversity and geodiversity through the establishment and strengthening of an institutional framework for the realization of effective measures
- Sustainable use of natural resources
- Equitable sharing of income
- Reduction of pressures on biodiversity and geodiversity
- Establishment of financial mechanisms for sustainable management of biological and geological diversity.

The Law on Nature Protection of the Federation of BiH provides for the implementation of the ecosystem approach in sustainable species management. The Federal Strategy also adopted the ecosystem approach.

No information is available on the degree of compliance between adopted strategies and other sectoral strategies (e.g. spatial planning, water, forestry, agriculture, etc.).

Republic of Srpska

In addition to the regional strategic document (Strategy for the Implementation of the Framework Agreement on the Sava River Basin), other strategic documents at the level of the Republic of Srpska include:

- Amendments to the Spatial Plan of the Republic of Srpska to 2025
- Strategies for the protection of nature of the Republic of Srpska
- Development Strategy of the Republic of Srpska (in progress).

These strategies are mostly not aligned with other sectoral strategies and there seems to be limited motivation and capacity to use the ecosystem approach in planning.

2.3 Protected areas

Protected area coverage

There are 30 protected areas in BiH, covering 1,062.82 km², which is 2.07% of the BiH territory (Figure 4).. According to the former legal regulations, 153 protected areas were designated in BiH, though the majority were left without legal protection after the adoption of new nature protection laws in both entities. More detailed information on the number and surface of protected areas in each entity is provided in Table 8 and Table 9.

According to the Environmental Protection Strategy of the Federation of BiH and the draft Spatial Plan of the Federation of BiH (2008–2028), the authorities in the Federation of BiH plan to establish 12 new protected areas and thus enlarge the surface of the protected areas to 17% of the entity's territory in total (see Figure 5). New protected areas in plan include four national parks, five nature monuments and six protected landscapes. In the Republic of Srpska, the authorities also envisage enlarging the area covered by protected areas. Based on the Spatial Plan of the Republic of Srpska, plans are in place to protect 15% of the entity's territory.

The protected area management category system is complex, as it is based on the legal regulations in each entity. Both systems have six categories that are relatively easily comparable (Table 10).

Table 8 Number and surface of protected areas in the Federation of BiH

Protected area category / Federation of BiH	Land surface/km ²	Number of protected areas
Strict Nature Reserve	-	-
National Park	198	1
Nature Monument	77.69	4
Protected Habitat	-	-
Protected Landscape	570.56	7
Protected Area with Sustainable Use of Natural Resources	-	-
Total	846.24	12

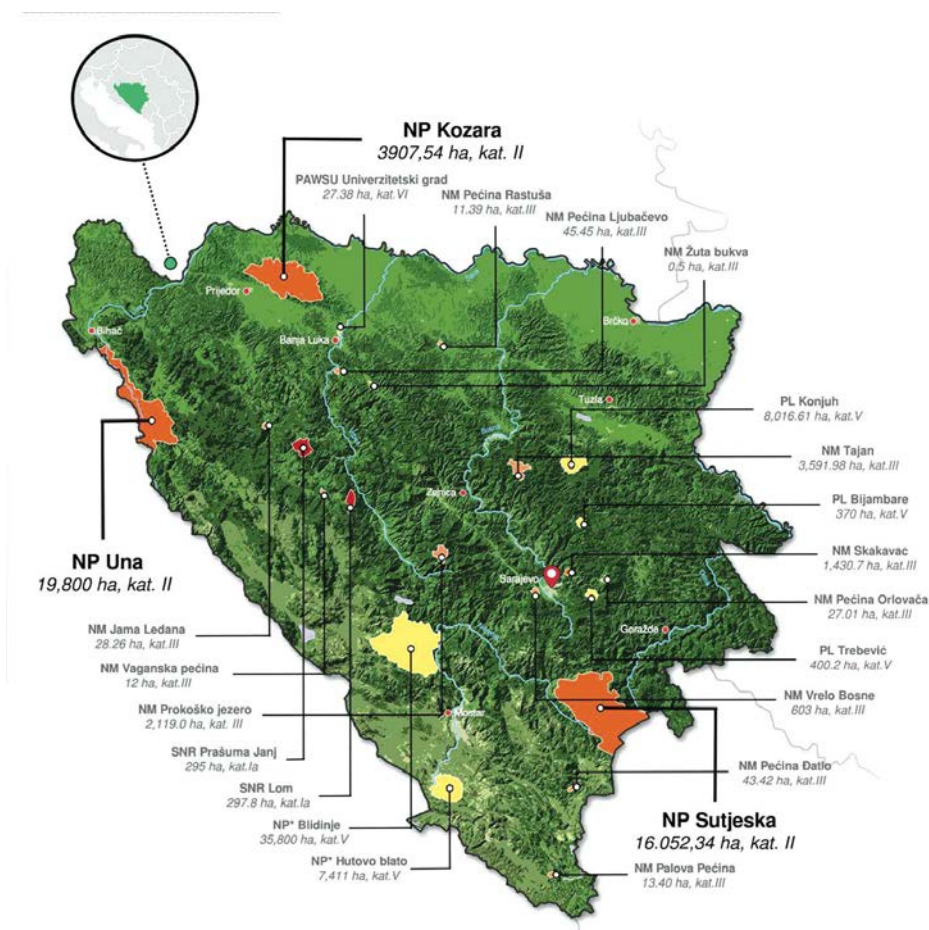


Figure 4 Geographical distribution of protected areas in BiH

Source: Courtesy of CENER21

Table 9 Number and surface of protected areas in the Republic of Srpska

Protected area category / Republic of Srpska	Land surface/km ²	Number of protected areas
Strict Nature Reserve	5.93	2
National Park	199.6	2
Nature Monument	10.41	12
Protected Habitat	-	-
Protected Landscape	-	-
Protected Area with Sustainable Use of Natural Resources	0.63	2
Total	216.57	18

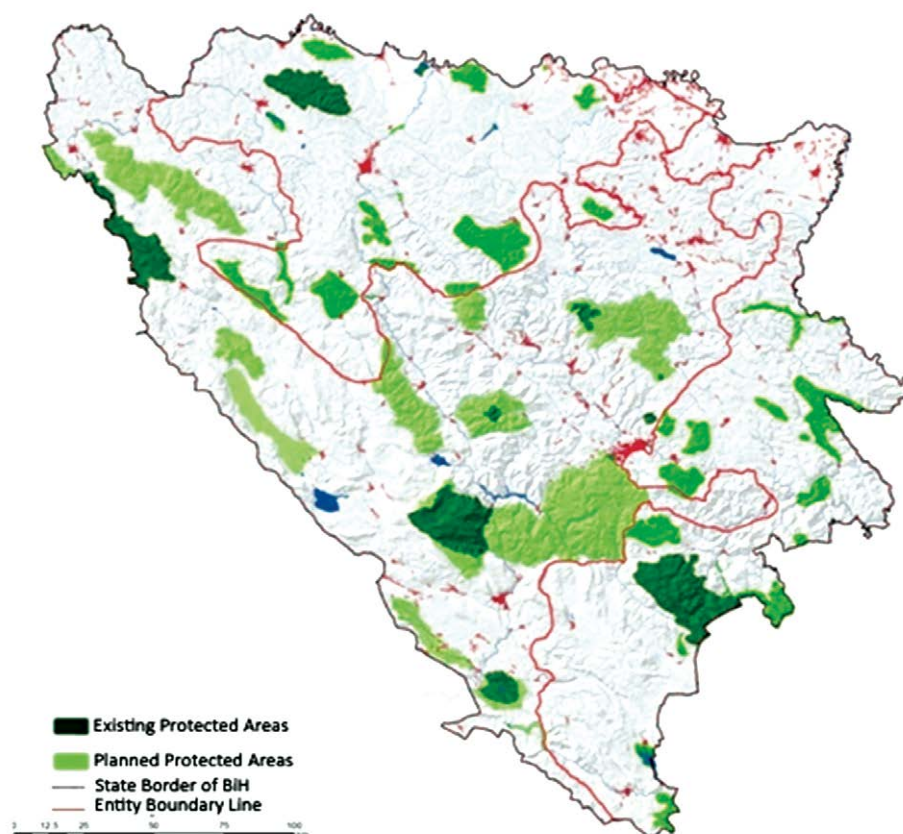


Figure 5 Planned protected areas in BiH

Source: IPSA Institute Sarajevo, Institute for Urbanism of BiH, Eco-Plan Mostar (2012)

Application of IUCN protected area management categories

Categories of protected areas under the Law on Nature Protection of the Federation of BiH (2013) and the Law on Nature Protection of the Republic of Srpska (2016) comply with IUCN protected area management categories, as indicated in Table 10.

Table 10 Protected area categories in BiH according to IUCN protected area management categories

Protected area category (Federation of BiH)	Protected area category (Republic of Srpska)	Corresponding IUCN protected area management category
Ia Strict Nature Reserve	Ia Strict Nature Reserve	Ia Strict Nature Reserve
Ib Wilderness Area	Ib Special Nature Reserve	Ib Wilderness Area
II National Park	II National Park	II National Park
IIIa Nature Park IIIb Monument of Nature and Natural Features	III Nature Monument	III Natural Monument or Feature
IV Habitat/Species Management Area	IV Protected Habitat	IV Habitat/Species Management Area
Va Protected Landscape Vb Regional Park	V Protected Landscape	V Protected Landscape/Seascape
VI Protected Area with Sustainable Use of Natural Resources	VI Protected Area with Sustainable Use of Natural Resources	VI Protected Area with Sustainable Use of Natural Resources

Procedure for designating protected areas

Federation of BiH

According to the Law on Nature Protection, the procedure for designating protected areas in the Federation of BiH depends on the management category of the protected area and its location within the administratively divided units (Table 11). Each protected area is expected to be designated by an individual law, ensuring the geographic boundaries are precisely described and determined and the category of the protected area is assigned. The boundaries should be determined in accordance with the draft Spatial Plan of Federation of BiH (2008–2028) and the Law on Physical Planning and Land Use of Federation of BiH.

If the proposed protected area straddles both entities of BiH, the proposal for the protection must be submitted by the two ministries, the Federal Ministry of Environment and Tourism and the Ministry for Spatial Planning, Civil Engineering and Ecology, in accordance with the Inter-Entity Steering Committee for the Environment.

The establishment of protected areas at the entity or cantonal levels can be carried out with the consent of the municipal councils where the protected area is located (Table 11).

Table 11 Authorities responsible for the establishment of protected areas in the Federation of BiH

Protected area category (Federation of BiH)	Responsible authority		
Ia	Parliament of the Federation of BiH		Inter-entity Steering Committee (if the protected area straddles two entities)
Ib			
II			
IIIa	Cantonal Assembly	Parliament of the Federation of BiH (if the protected area straddles two entities)	
IIIb			
IV			
Va			
Vb			
VI			

Republic of Srpska

National parks in the Republic of Srpska are proclaimed by the Assembly of the Republic of Srpska. The government proclaims protected areas in the categories Ia, Ib, IV and V at the proposal of the relevant ministry and after having obtained the opinion of other competent ministries. Municipalities, after the competent ministry's approval and opinion by the Republic Institute for the Protection of Cultural, Historical and Natural Heritage, may proclaim protected areas in the categories III and VI.

Protected area management planning

Federation of BiH

In the Federation of BiH, 6 of the 10 protected areas have adopted management plans, including the only national park, Una (Table 12). There is a new management plan under development for the Trebević Protected Landscape, while 'Temporary Control Guidelines for Trebević Protected Landscape' currently acts as the guiding document until the management plan is officially adopted.

Table 12 Protected area management plans in the Federation of BiH

Management plan for protected area	Timeframe
Una National Park	2011–2021
Blidinje Nature Park	2011–2021
Hutovo Blato Nature Park	2014–2024
Skakavac Nature Monument	2011–2021
Vrelo Bosne Nature Monument	2007–2017
Bijambare Protected Landscape	2008–2018

Republic of Srpska

In the Republic of Srpska, management plans are currently effective for four protected areas (Table 13).

Table 13 Protected area management plans in the Republic of Srpska

Management plan for protected area	Year of adoption
Kozara National Park	2013
Sutjeska National Park	2013
Lom Strict Nature Reserve	2013
Janj Strict Nature Reserve	2013

Protected area governance and management

Protected area governance in BiH is implemented by the government, largely through public institutions and/or public enterprises. In the Republic of Srpska, the law enables government-delegated management to local authorities. If a protected area, with the exception of national parks, includes forests owned by the Republic of Srpska, the ministry responsible for agriculture, forestry and water management is entrusted with management operations in accordance with the Law on Nature Protection and the Law on Forestry.

International recognition of protected areas

Three protected areas in BiH are Ramsar Sites: Hutovo Blato (2001) and Livanjsko Polje (2008) in the Federation of BiH, and Bardača Wetlands (2007) in the Republic of Srpska. Hutovo Blato and Bardača are also Birdlife's Important Bird Areas, together with Boračko Jezero (Federation of BiH).

2.4 Ecological networks

Natura 2000

The project 'Support to the implementation of the Birds and Habitats Directives in BiH', funded by the Government of Sweden and the EU (2012–2014) supported the identification of potential Natura 2000 sites, preparation of three management plans for proposed Natura 2000 sites (Tišina, Vranica and Orjen-Bijela Gora), preparation of the draft regulations and decrees supporting the establishment of the Natura 2000 network, and establishment of the Natura 2000 information system. Through field research, experts identified over 200 species and 60 habitats of the future Natura 2000 network in a total of 122 areas, which is 18,63% of BiH's territory. This project marked a significant contribution to raising knowledge and public awareness about nature in BiH and the importance of Natura 2000.

Emerald Network

The identification of the Emerald Network sites in BiH was carried out through two projects funded by the Council of Europe. The pilot project 'Establishment of the Emerald Network in BiH' (2004–2006) resulted with identification of 11 Areas

of Special Conservation Interest, covering 1.8% of the country's territory. The list of sites, including its habitat types was developed as one of the results of the project. The Council of Europe decided to extend the pilot project with a second project which resulted in a detailed overview of species in the Areas of Special Conservation Interest. During this project, 17 more potential areas were identified to be part of the Emerald Network. The most recent updated list of candidate Emerald Sites includes 29 nominated sites, covering 4.04% of the country's territory.

2.5 Conservation of species

Red List

Considering that the biodiversity monitoring system in BiH is inadequate, it is a major challenge to provide any analyses or reports on the status of biological diversity. The main problems encountered in relation to the development of Red Lists relate to the lack of data on the status of species, their populations and habitats, and insufficient expertise to perform the work (lack of knowledge about methodology). Nevertheless, several Red Lists were developed, but only at entity level and without alignment at the national level. The Federation of BiH adopted the Red List of Endangered Wild Species and Subspecies of Plants, Animals and Fungi in 2004, while the Republic of Srpska officially adopted its Red List of Protected Flora and Fauna Species in 2012, but without the provision of separate threat categories. The Republic Institute for the Protection of Cultural, Historical and Natural Heritage is currently working on development of a bylaw on protected and strictly protected species.

2.6 Main pressures

Some of the main pressures to biodiversity in BiH are caused by habitat conversion, resources overexploitation, pollution, and uncontrolled introduction of invasive species. Intensive processes of habitat conversion are evident primarily in karst habitats which are transformed into agricultural lands. Overexploitation affects diverse ecosystems, including oak forests in continental areas, Pannonian oak forests, upland beech-fir tree forests, upland deciduous forests, arable land, and freshwaters. Dozens of invasive fish species are present in BiH's freshwaters, but there are no detailed data on their numbers and distribution.

BiH faces many other threats to biodiversity, including water pollution, forest fires, transmission of plant diseases and other pests near protected areas, excessive exploitation of natural resources (including medicinal herbs and fungi), use of chemicals in agricultural production near protected areas and expansion of agricultural areas, fragmentation of forests due to existence of open quarries, poor water and forest management, excessive urbanization in planned protected areas, uncontrolled development of the energy sector based on the construction of hydropower plants, and global climate change and acidification of habitats.

Furthermore, the Federation of BiH detected the following key institutional problems that impact successful management of protected areas:

- Lack of financing
- Insufficient number of employees (experts and technical staff)
- Insufficient scientific research and fieldwork
- Lack of promotion of protected areas on domestic and foreign markets
- Low level of public awareness about the values of protected areas
- Poor legislative framework for nature conservation
- Weak road infrastructure linking protected and non-protected areas
- Illegal activities such as illegal hunting, logging and waste disposal in protected areas.

2.7 Valuation of ecosystem services

There has been little research on the valorisation of ecosystem services in BiH. Available studies are mostly independent and isolated attempts by scientists, students and experts to bring the topic closer to the stakeholders and wider public. A few studies and assessments were conducted within the framework of various projects and most are linked to specific locations:

- **Hutovo Blato**

WWF's pilot project 'Assessment of the ecosystem services of the Hutovo Blato Nature Park according to the Protected Area Benefits Assessment Tool (PA-BAT)' showed that Hutovo Blato is one of the most productive ecosystems in BiH in terms of the organisms inhabiting this wetland and the economic benefits the area provides for the entire region. In 2011, a study in Hutovo Blato identified 163 bird species from 39 families, which accounts for 51% of all bird species and 76.47% of all bird families in BiH. The ecosystems of Hutovo Blato provide economically significant services important for human wellbeing and economy, such as ecotourism and recreation, agriculture, fishing, education, water purification and mitigation of natural hazards.

- **Livanjsko Polje**

As an extraordinary natural phenomenon and a karstic field, Livanjsko Polje represents a combination of wetlands (an important bird species habitat), peatlands and meadows. On the southern side of Livanjsko Polje, traditional agriculture, production of milk and famous brands of delicacy cheese support the sustainability of these diverse and unique habitats. There are many communities of rare and endangered species living here including hen harrier (*Circus cyaneus*), white-tailed eagle (*Haliaeetus albicilla*), Jack snipe (*Lymnocyptes minimus*), and great bittern (*Botaurus stellaris*).

- **Neretva and Trebišnjica Rivers**

The Neretva River basin hosts more than 50% of the total number of species and lower taxonomic units of flora in BiH, and encompasses some 170 endemic and relict species. Additionally, the Neretva and Trebišnjica Rivers have the key role in energy production, in drinking water supply and in agriculture. The threat to the ecosystem is caused by plans to construct seven hydropower plants in addition to the ten already in place.

- **Una National Park**

The economic value of Una National Park was evaluated within the study 'Development of economic transferability study of Plitvice Lakes National Park in Croatia to Una National Park in Bosnia and Herzegovina', funded by UNEP and published in 2016.

- **Medicinal plants, mushrooms and forest products**

The Foreign Trade Chamber of BiH reported that more than 3 million kilograms of medicinal plants and forest fruits were exported in 2010, amounting to an increase in revenue of no less than 68% in comparison to 2009. Medicinal and aromatic plant collection is primarily performed by local middle age population or elderly persons, mostly in rural areas, where the revenues from the sale of medicinal herbs their only source of income. They usually find and pick medicinal and aromatic plants in forests, on mountains and non-cultivated meadows and fields across BiH.

2.8 Nature information system

Information on biodiversity and its status in BiH is scarce and not consolidated in a database system. The major challenge for the country is a lack of an adequate and permanent biodiversity monitoring system, and the absence of a coordination body that would be in charge of monitoring biodiversity.

2.9 Financing nature conservation

The main source of financing nature conservation in BiH mainly come from the entity budgets. This specifically relates to the support generated through the relevant ministries and two environment funds, the Environmental Protection Fund of the Federation of BiH, and the Environmental Protection and Energy Efficiency Fund of the Republic of Srpska.

International donors have been financing the implementation of projects in the field of environmental protection, agriculture and forestry sectors, with an important effect on biodiversity conservation. Some of the key donors are: the EU, UNDP, The World Bank, and governments of Germany, Italy, Czech Republic, Norway, The Netherlands, USA, Sweden, and Japan. Additionally, protected areas in the Sarajevo Canton receive limited revenues from tourism.

2.10 Capacity building

In the Federation of BiH, training workshops for nature conservation officials have been focused mainly on the issues of protection of water resources and climate change. Government officials in the Republic of Srpska participated in a number

of study visits to EU institutions to better understand the processes related to the adoption of the EU acquis for candidate countries, including the EU Birds and Habitats Directives. Apart from one training session organised by IUCN, which focused on application of the criteria for determining the conservation status of species, there were no significant training workshops organised in the field of nature conservation. Some of the essential capacity building needs include:

- Management of Natura 2000
- Database development and maintenance
- Awareness raising and communication
- Biodiversity monitoring
- General guidance in nature conservation
- Effective cross-sectoral cooperation
- Development of the nature conservation system
- Economic valuation of nature.

While there is much room for improvement of the capacity of nature conservation professionals in BiH, efforts have been made in developing the Biodiversity Clearing-House Mechanism of BiH¹ at the national level, as part of the CBD's Clearing-House Mechanism. Its role is to provide the most recent and comprehensive information on biological diversity in BiH, and making it publicly available. This is a very important instrument to raise public awareness, facilitate technical and scientific cooperation, and share knowledge and information. The portal contains national biodiversity-related information required to assist policy makers and stakeholders to meet the obligations defined by the CBD and to conserve and sustainably use biodiversity.



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¹ More information is available at <http://www.bih-chm-cbd.ba/>

3 Croatia

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Photo © IUCN

3.1 Overview of institutions

State institutions

The following are the main state institutions responsible for nature conservation in Croatia:

- Ministry of Environment and Energy
- State Institute for Nature Protection/Croatian Agency for Environment and Nature
- 19 national public institutions for national parks and nature parks
- 21 county public institutions
- 5 local public institutions
- Croatian Environment Agency/Croatian Agency for Environment and Nature
- Environmental Protection and Energy Efficiency Fund.

The Ministry of Environment and Energy is the central executive authority responsible for environmental protection, including nature conservation. Two structural units function within the Ministry, namely:

1. Nature Protection Directorate

The mandate of the Nature Protection Directorate relates to the implementation of the Nature Protection Act, international conventions and agreements, and coordination of administrative and expert tasks in the field of nature conservation. It is the main authority directly responsible for the overall planning and management of the national protected area system, species protection and sustainable use of natural resources, provision of regulatory, administrative and financial supervision

of national public institutions, designation of new protected areas, reporting and maintenance of the protected area registry. There are 31 staff working on administrative and expert tasks within the Directorate.

2. Directorate for Inspectional Affairs

The Directorate for Inspectional Affairs is responsible for the enforcement of all relevant legislative, regulatory and permitting requirements and conditions in protected area control and supervision. It employs 17 inspectors.

The State Institute for Nature Protection (currently part of the Croatian Agency for Environment and Nature) is the key agency responsible for technical issues related to nature conservation. It carries out expert tasks including: collection and analysis of data connected to the nature conservation, development and maintenance of appropriate database on the wild and invasive alien species, habitat types, geodiversity, ecosystems, protected areas and ecological network as the parts of Nature Protection Information System, assessment of the vulnerability of components of biological diversity and development of national Red Lists, standardization and organization of monitoring biodiversity and geodiversity and proposing measures for their protection, preparation of background studies for legal protection of new protected areas and ecological network, development of standards and systems related to management planning, implementation of plans and assessment of protected area and ecological network management effectiveness, technical preparations for wildlife management planning, preparation of national reports on the state of nature and reports in accordance with the EU regulations, evaluation of influence, control and eradication of alien species, reintroduction and repopulation of wild species in nature, and organization and implementation of the capacity building programme for employees in the nature protection public sector. The State Institute employs a total of 48 people, of whom 42 are nature conservation experts.

In June 2015, the Croatian government adopted a decree on merging of the State Institute for Nature Protection and the Croatian Environment Agency in the newly established Croatian Agency for Environment and Nature. The new Agency will take over all the tasks and responsibilities of existing institutions related to nature conservation in the coming period.

The key mandate of all public institutions (19 national, 21 county and 5 local) is to manage protected areas and ecological network (Natura 2000) sites. Each national public institution is directly responsible for the development and implementation of a ten-year plan and an annual management plan, and daily management of the national and nature parks under its jurisdiction. County and local public institutions perform the same activities for protected areas other than national and nature parks. Of the 1,499 employees in public institutions at all levels, 268 work in Conservation and Nature Supervision Services.

The Croatian Environment Agency (currently part of the Croatian Agency for Environment and Nature) is a public institution responsible for the collection, integration and processing of environmental data, and submission of relevant reports to the European Environment Agency. Of the 60 employees, only 2 are nature conservation experts.

The Environmental Protection and Energy Efficiency Fund is an extra-budgetary fund that receives revenues from various environmental taxes and special regulation fees and provides grants for conservation among other sectors. No data is available on the number of nature conservation experts employed in the Fund.

Scientific and other relevant institutions

Many scientific and academic institutions, museums and institutes carry out research and collect data on biodiversity, geodiversity and/or landscape diversity that can be used in nature conservation. Some of the key institutions are:

- Croatian Academy of Sciences and Arts, Zagreb (Institute of Ornithology)
- Croatian Forest Research Institute, Zagreb
- Croatian Geological Institute, Zagreb
- Croatian Hydrographic Institute, Zagreb
- Croatian Natural History Museum, Zagreb
- Institute of Oceanography and Fisheries, Split
- Mountain and Sea Institute-Malacological Museum, Split
- Natural History Museum, Rijeka
- Natural History Museum, Split
- National Museum, Zadar (Science Department)
- National Weather Service, Zagreb
- Ruđer Bošković Institute, Rovinj (Centre for Marine Research)
- Ruđer Bošković Institute, Zagreb (Institute for Marine and Environmental Research)
- University of Dubrovnik (Institute for Marine and Coastal Areas)

- University of Osijek (Department of Biology)
- University of Split (Faculty of Science)
- University of Zagreb (Faculty of Science, Faculty of Agriculture, Faculty of Forestry, Faculty of Veterinary Medicine)
- Varaždin City Museum.

NGOs

About 30 NGOs are engaged in diverse activities ranging from the promotion of nature conservation, policy influence, to conducting expert activities such as research and monitoring of biodiversity. Most of them operate on a voluntary basis in their local communities and are often engaged in children education programmes, raising public awareness and specific environment or nature matters. They are normally linked through formal and informal networks of associations, such as the Green Forum, Blue Forum, Green Telephone Network, that serve as a platform for information and experience exchange. NGOs are well networked with the international organisations and NGOs, such as IUCN, CEEWEB for Biodiversity, Birdlife International, WWF, MedPAN, AdriaPAN and the European Environmental Bureau. Some of the active NGOs include:

- Association for Biological Research-BIOM
- Biology Students Association-BIUS
- Brod Ecological Society
- Bioteka
- Croatian Biospeleological Society
- Croatian Dragonflies Society Platycnemis
- Croatian Herpetological Society-Hyla
- Croatian Ornithological Society
- Green Action/Friends of the Earth Croatia
- Green Istria
- Green Osijek
- Institute of Marine Research and Conservation Blue World
- Mediterranean Monk Seal-Association for Research and Nature Conservation
- Sunce.

3.2 Legislation system and policy

National laws

In 2013, the Croatian Parliament adopted the new Nature Protection Act. With the related bylaws, this law governs nature conservation in the country and incorporates the provisions of the EU Nature Directives and international conventions.

A number of other key legal provisions regulate conservation of nature, such as:

- Act on Genetically Modified Organisms (70/2005, 137/2009, 28/2013, 47/2014).
- Ordinance on wildlife crossings (5/2007)
- Ordinance on the conditions for keeping, methods of marking and records on protected animals in captivity (70/2009)
- Ordinance on strictly protected species (144/2013)
- Act on the Transboundary Traffic and Trade of Wildlife (94/2013)
- Ordinance on the list of habitat types, habitat maps and threatened and rare habitat types (88/2014).

There is a need for more efficient coordination with other cross-sectoral national laws concerning the environment and utilization of natural resources, such as the Forests Act, Hunting Act, Water Act, Construction and Physical Planning Act, Mining Act, Waste Act and others.

Transposition of the EU Nature Directives

As an EU Member State, Croatia has completed full transposition of the EU Habitats Directive and Birds Directive, and other EU nature conservation related directives and regulations.

Multilateral environmental treaties

Croatia is a signatory of many multilateral environmental treaties that fully or partially refer to the field of nature conservation (Table 14).

Table 14 Multilateral treaties relevant for nature conservation ratified by Croatia

Treaty	Entry into force
Convention on Wetlands of International Importance, Especially as Waterfowl Habitat (Ramsar Convention)	1991
Convention on Protection of the World Natural and Cultural Heritage (World Heritage Convention)	1992
Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean (Barcelona Convention)	1992
United Nations Framework Convention on Climate Change (UNFCCC)	1996
Convention on the Protection and Use of Transboundary Watercourses and International Lakes	1996
Convention on Biological Diversity (CBD)	1997
Convention on Cooperation for the Protection and Sustainable Use of the Danube River	1998
Convention on International Trade in Endangered Species of Wild Flora and Fauna (CITES)	2000
Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention)	2000
Convention on the Conservation of Migratory Species of Wild Animals (CMS)	2000
Agreement on the Conservation of Populations of European Bats (EUROBATS)	2000
Agreement on the Conservation of African-Eurasian Migratory Waterbirds (AEWA)	2000
Agreement on the Conservation of Cetaceans in the Black Sea, Mediterranean Sea and Contiguous Atlantic Area (ACCOBAMS)	2001
United Nations Convention to Combat Desertification (UNCCD)	2001
Protocol Concerning Specially Protected Areas and Biological Diversity in the Mediterranean (SPA/BD Protocol)	2002
Cartagena Protocol on Biosafety to the CBD	2003
European Landscape Convention	2004
Framework Agreement on the Sava River Basin	2004
Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters (Aarhus Convention)	2007
International Convention for the Regulation of Whaling and its Protocol	2007

Alignment of national biodiversity strategies with global and EU strategies

The guiding strategic document for Croatian nature conservation is the National Strategy and Action Plan for the Protection of Biological and Landscape Diversity, adopted by the Croatian Parliament in 2008. Since it precedes the CBD Strategic Plan for Biodiversity 2011–2020 and the EU Biodiversity Strategy to 2020, the National Strategy is not aligned with the objectives featured in these international instruments. However, in mid-2014, the government initiated a review of the National Strategy. Five national strategic objectives have been defined, all aligned with the above mentioned global and EU strategies. The ecosystem approach and landscape scale analysis have been taken into consideration throughout the planning process. The draft National Strategy is currently in the adoption procedure foreseen for 2017.

Due to poor cooperation among sectors at the national level, alignment of the National Strategy with other relevant sectoral strategies remains a challenge. In terms of regional strategic documents, there are several strategies, such as the Danube Strategy and Adriatic-Ionian Strategy, which are marginally dedicated to nature conservation. However, there are no official regional strategies related strictly to nature conservation.

3.3 Protected areas

Protected area coverage

According to the Croatian Nature Protection Act, a protected area is defined following IUCN's definition (Dudley, 2008). Croatia has designated 407 protected areas divided into nine national protected area categories, totalling 6,914.22km² in land surface and 617.62km² sea surface (Figure 6). This accounts for 8.55% of the total country surface protected (Table 15). If compared to the global and European levels, Croatia is significantly behind in protecting the marine ecosystems, as less than 2% of the marine area is protected.

Table 15 Number and surface of protected areas in Croatia

National protected area category	Number of protected areas	Land surface/km ²	Sea surface/km ²	% of total country surface
Strict Reserve	2	24.19	-	0.03
National Park	8	750.14	216.52	1.10
Special Reserve	77	282.29	114.95	0.45
Nature Park	11	3,818.94	189.01	4.55
Regional Park	2	1,018.45	-	1.16
Monument of Nature	80	2.10	-	0.002
Significant Landscape	82	980.84	97.14	1.22
Park-Forest	26	29.85	-	0.03
Monument of Park Architecture	119	7.42	-	0.01
Total	407	6,914.22	617.62	8.55

Source: Croatian Agency for Environment and Nature (2015)

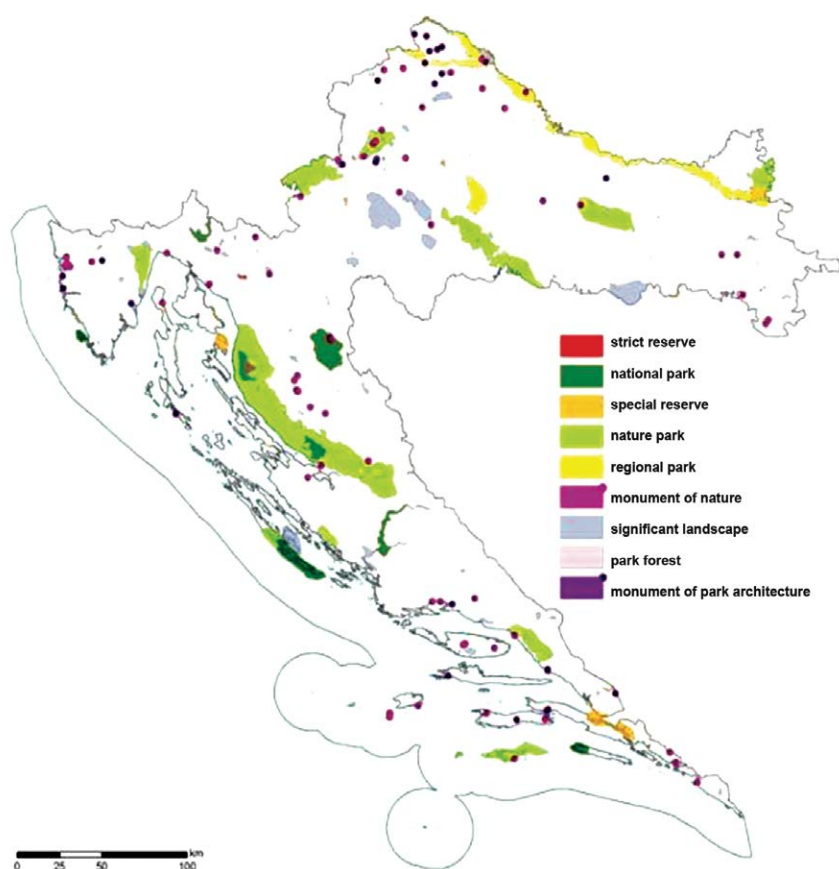


Figure 6 Geographical distribution of protected areas in Croatia

Source: Croatian Agency for Environment and Nature (2015)

Application of IUCN protected area management categories

IUCN protected area management categories can be assigned to most of the national protected area categories (Table 16), though in reality, some protected areas have not been managed according to the IUCN category they claim to be. For example, some national parks would not fit IUCN category II due to the high percentage of actively managed semi-natural habitats such as grasslands, where biodiversity is maintained through grazing.

Interestingly, although the Nature Protection Act recognizes nine categories of protected areas, the national report states that park-forest and monument of park architecture do not fit under the IUCN definitions of a protected area, and thus no IUCN management category can be assigned to these categories (Table 16). This is clearly a gap that needs to be addressed in the future.

Table 16 Protected area categories in Croatia in relation to IUCN protected area management categories

National protected area category	Corresponding IUCN protected area management category
Strict Reserve	Ia Strict Nature Reserve
National Park	II National Park
Special Reserve	IV Habitat/Species Management Area
Nature Park	V Protected Landscape/Seascape
Regional Park	V Protected Landscape/Seascape
Monument of Nature	III Natural Monument or Feature
Significant Landscape	V Protected Landscape/Seascape
Park-Forest	Not applicable
Monument of Park Architecture	Not applicable

The analysis of the protected area network in Croatia according to the IUCN protected area management categories shows a significant part of IUCN category II and V in the total surface of protected areas, while IUCN category III is the least represented. Although IUCN category V is the most represented in Europe, none of the countries have such a prevailing proportion of this category, while Croatia has more than 80%. Considering it is a very demanding category to manage, the effectiveness of existing protected area network in Croatia largely depends on human and financial management capacity.

Procedure for designating protected areas

The procedure for proclaiming a protected area in Croatia follows the guidelines laid down in the Nature Protection Act. Depending on the management category, the area is proclaimed by the Croatian Parliament (for national parks and nature parks), the government (for strict and special reserves), or a regional self-government body (for regional parks, monuments of nature, significant landscapes, park-forests, and monuments of park architecture).

The role of the State Institute for Nature Protection (within the Croatian Agency for Environment and Nature) in the designation of new protected areas at the national level relates to drafting the expert analysis background document, following the request of the Ministry of Environment and Energy and containing all necessary information, i.e. a detailed description of the area's characteristics and values, an assessment of the state of the area, proposal for the most effective management regime, and an assessment and proposed source of the required funds. A protected area Proclamation Act is then drafted based on two documents: the Institute's expert analysis and a Statement of the governing body adopting the Proclamation Act. During a 30-day public hearing period, the public is given access to the proposed law/bylaw and the expert analysis with the complete cartographic documentation. Following this, the Proclamation Act and public responses are put to a vote by the competent authorities.

Protected area management planning

All Croatian protected areas have a designated management body. According to the Nature Protection Act, the immediate management of protected areas is delegated to public institutions founded by the state, county or local authorities. Each national and nature park is managed by a national public institution and it is at least partially financed from the state budget. All other protected area categories are managed and funded by county public institutions.

Management plans last for ten years, with an option for amendments after five years (see Table 17 for existing management plans). In Croatia, 16 protected area management plans have been adopted, including for seven of the eight national parks. There is only one adopted management plan for the North-western Dugi Otok Significant Landscape. Management plans for several other protected areas and Natura 2000 sites have been drafted, although none have been adopted. Management plans for the following protected areas are in the development phase: Mljet National Park, Žumberak-Samoborsko Gorje Nature Park, Lastovsko Otočje Nature Park, and Biokovo Nature Park.

Table 17 Protected area management plans in Croatia

Management plan for protected area	Year of adoption
Paklenica National Park	2007
Plitvice Lakes National Park	2007
Risnjak National Park	2007
Sjeverni Velebit National Park	2007
Velebit Nature Park	2007
Lonjsko Polje Nature Park	2008
Medvednica Nature Park	2010
Učka Nature Park	2010
Vransko Jezero Nature Park	2010
Kopački Rit Nature Park	2011
Krka National Park	2011
Papuk Nature Park	2011
Telašćica Nature Park	2012
Kornati National Park	2014
North-western part of Dugi Otok Significant Landscape	2014
Brijuni National Park	2016

An ordinance on protection and conservation needs to be drafted for all protected areas. It regulates and stipulates the measures for conservation and use of a protected area, as well as the administrative measures for irreverence of the ordinance and the Nature Protection Act. Physical plans for areas with special characteristics, based on the State Institute's expert analysis and developed by the Ministry of Construction and Physical Planning, determine the spatial organisation of an area, its terms of use and the protection of areas in national parks and nature parks.

Criteria for systematic conservation planning have not yet been developed. In 2012, an analysis of habitat types in protected areas at the national level showed that the proportion of habitat types in protected areas was not representative compared to their proportion in the whole country, concluding that there was no systematic conservation planning throughout the national nature conservation history. All habitat types are represented in protected areas. In all but one category (monument of park architecture), forests are the most represented habitat type, while marine ecosystems have the lowest protected area coverage (only about 2% of habitat type surface). Marine habitats are considered as an absolute priority in conservation planning, although the desired percentage is not yet clear.

Protected area governance and management

Governance is not a clear and frequently used term in Croatia. Referring to the IUCN governance types, Croatia largely practices governance by government, characterized by a relatively centralized system in which one or more bodies of the government have authority and responsibility for establishing public institutions and determining their conservation goals.

Governance of national and nature parks follows the management plan and annual protected area protection, maintenance, conservation, promotion and utilization programme. This programme is adopted by the Governing Council of the Public Institution responsible for certain protected area with the consent of the Ministry of Environment and Energy and following the expert opinion of the State Institute for Nature Protection. The adoption of annual programmes for other protected areas requires the consent of the regional self-government body, along with the expert opinion of the State Institute.

According to the Management Effectiveness Tracking Tool questionnaire in national parks and nature parks for 2012, the ratio of government owned protected area land versus privately owned land was 65:35, which clearly shows the need to implement more varied governance regimes. Legal mechanisms for partially delegating governance responsibility exist in that the decision-making authority can be given to a third person under certain conditions, although formal responsibility

always remains with the state's institutions. In the last few years, this model of delegated jurisdiction and management has de facto been implemented in Gajna Significant Landscape, which is managed by an NGO and with decisions taken by the County Council and the NGO.

International recognition of protected areas

Plitvice Lakes National Park has been on the UNESCO World Heritage List since 1979 and it is the only World natural Heritage Site in the country. Velebit Mountain Nature Park is a UNESCO Biosphere Reserve (1977), while the Regional Park Mura-Drava-Danube was designated as the Mura Drava Danube transboundary Biosphere Reserve in 2012, shared with Hungary. Five Ramsar Sites in Croatia include four sites designated in 1993; the nature parks Kopački Rit, Lonjsko Polje and Mokro Polje including Krapje Dol, Crna Mlaka, Neretva River Delta; and one site designated in 2013; Vransko Lake. Furthermore, international recognition of Papuk Nature Park as Papuk UNESCO Global Geopark adds to the network of diverse internationally designated sites in Croatia since 2015 (Figure 7).

A number of protected areas are under consideration for applying for international recognition. Kornati National Park, Velebit Mountain Nature Park and Telašćica Nature Park are on the Tentative List of World Heritage Sites. The Lika field and the Ogulin-Plaški plateau are being evaluated as possible Ramsar Sites. Mljet and Kornati national parks, and Telašćica and Lastovo otočje nature parks are also being considered for the List of Specially Protected Areas of Importance for the Mediterranean, under the Barcelona Convention.

At the regional level, Croatia is currently engaged in preparation of a nomination 'Dinaric karst' for inclusion on the Tentative List of the UNESCO World Heritage Convention, jointly with BiH, Italy, Montenegro, Serbia and Slovenia. Another similar initiative currently in realization is related to the European beech forests serial site.



Figure 7 Internationally recognised protected areas in Croatia

Source: Croatian Agency for Environment and Nature (2015)

3.4 Ecological networks

Natura 2000

The list of Natura 2000 sites was adopted by Croatian government in 2013 as part of the Regulation on the ecological network. The Natura 2000 network covers 36.67% of the land territory and 16.39% of inland waters and territorial sea, putting Croatia at the top with Slovenia and Bulgaria in terms of percentage of the land territory included within Natura 2000. The network includes 742 proposed Sites of Community Importance (of which 171 are cave objects) and 38 Special Protection Areas (Table 18). Around one quarter of Natura 2000 surface (26.14%) is already protected in Croatia, as seen in Figure 8.

Table 18 Natura 2000 network in Croatia

	Land surface / km ²	% of the country's land surface	Coastal marine waters / km ²	% of the country's internal and territorial waters	Total surface / km ²	% of the country's total surface	Number of Natura 2000 sites
proposed Sites of Community Importance	16,059.57	28.38	4,903.12	15.44	20,962.69	23.73	742
Special Protection Areas	17,107.55	30.23	1,040.13	3.28	18,147.68	20.54	38
Natura 2000 total	20,754.97	36.67	5,204.63	16.39	25,959.6	29.38	780

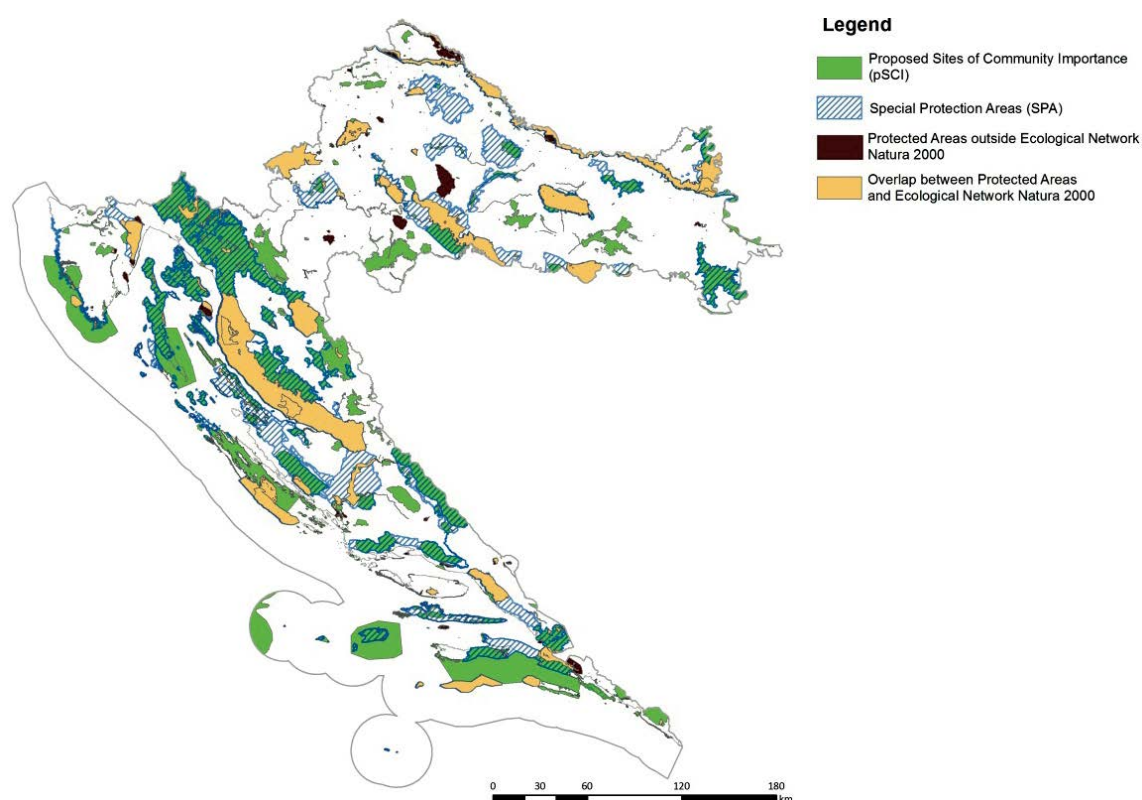


Figure 8 Overlaps between Natura 2000 network and protected areas

Source: Croatian Agency for Environment and Nature (2015)

Sufficiency of the Croatian Natura 2000 proposed Sites of Community Importance was assessed during a Biogeographical Seminar in 2014. The proposed Sites of Community Importance listed in the 2013 Regulation on ecological network were officially adopted by the European Commission as Sites of Community Importance in December 2014. Amendments of the government's Regulation were adopted in 2015 to incorporate the conclusions of the Biogeographical Seminar.

Emerald Network

The Council of Europe financed the implementation of Emerald Network pilot-projects in a number of European countries, including Croatia, in the period 2001–2003. In 2005 and 2006, thanks to financing from the European Environment Agency and in coordination with the Council of Europe, the implementation of phase II of the project resulted with the list of proposed Areas of Special Conservation Interest, including more than 90% of the area of estimated future final proposal for the Emerald Network sites. Throughout phase III in 2011, proposals of Areas of Special Conservation Interest for Croatia (and Albania, BiH, Macedonia, Montenegro and Serbia) were analysed by the European Environment Agency. As an EU Member State since 2013, Croatia established its Natura 2000 network upon accession. This proposal was somewhat revised comparing to the initial proposal from 2011.

Other ecological networks

In 2007, the Croatian government designated the National Ecological Network, composed of important sites for conservation of rare and endangered species and habitat types at the national and international level. The National Ecological Network covered 47% of the land and 39% of marine areas, as well as two corridors; corridor for sea turtles and the Palagruža-Lastovo-Pelješac corridor for migratory birds. According to the Nature Protection Act from 2013, the National Ecological Network proclaimed in 2007 is no longer in force and was substituted by the Natura 2000 network.

3.5 Conservation of species

Red List

In Croatia, 21 Red Lists have been developed to date, for: vascular flora (2005), mammals and freshwater fish (2006), sea anemones, ground beetles and stoneflies (2007), fungi, saltwater fish, dragonflies and lichens (2008), cave fauna (2009), freshwater and brackish water crustacean (2011), and terrestrial and freshwater snails and sea algae and sea grasses (proposals completed in 2011, with categories for some species revised in 2012); and revised Red Lists for reptiles and amphibians (2012), butterflies (2013) and birds (2013).

In all the Red Lists, a total of 2,954 threat assessments were conducted, which does not cover all species known in these groups in Croatia, but certainly covers the most threatened ones. The most threatened groups regarding the proportion of threatened species are freshwater fishes (42%) and cave fauna (37%), followed by terrestrial and aquatic snails, dragonflies and breeding birds (each 23%).

Based on the most recent assessment of the status of lynx population in 2011 and 2012, it can be concluded that this species changed its IUCN Red List category from Near Threatened to Critically Endangered.

Species management and action plans

Management plans and action plans were developed for wolf (*Canis lupus*), lynx (*Lynx lynx*) and brown bear (*Ursus arctos*), while a number of other species management plans are in draft version.

The first management plans for wolf and lynx were each adopted in 2004, revised after five years, and officially adopted as management plans with action plans for the period 2010–2015. The Wolf Management Plan defined a series of activities to protect the wolf in the most harmonious possible cohabitation with man. One of the important elements for the efficient wolf management is transboundary cooperation with Slovenia, especially in research, monitoring and management measures. Two EU LIFE projects have helped to improve this collaboration, LIFE 'CRO-Wolf' (2002–2005) and LIFE 'SLO-Wolf' (2010–2013).

The Lynx Management Plan sets three main tasks: the first was to ensure the long-term survival of the lynx population in Croatia, the second was to eliminate or mitigate conflicts with humans, and the third to coordinate actions with neighbouring Slovenia and BiH. The Lynx Management Plan in Croatia is fully compatible with the common Slovenian-Croatian Strategic Plan for the Dinaric lynx population. This strategy was the result of the Interreg IIIA project 'Transboundary cooperation in management, conservation and research of the Dinaric lynx population (DinaRis)' started in 2005.

Since 2005, brown bears in Croatia have been managed according to the Brown bear Management Plan, revised in 2008. Implementation of the plan is supervised by the National Committee consisting of the representatives of different stakeholders (hunters, foresters, scientists and state institutions). Hunting quota and hunting season are regulated by yearly action plans. An operational bear emergency team was formed, operating according to a protocol and trying to prevent the appearance of all bear related issues, react in any unusual situation and help monitor all bear related issues. Also, there is active transboundary cooperation with Slovenia.

Draft management plans with action plans have been prepared for Croatian dace (*Telestes polylepis*), karst meadow viper (*Vipera ursinii macrops*), European otter (*Lutra lutra*) and saker falcon (*Falco cherrug*). Management plans for cetaceans and sea turtles are currently under development within the IPA Adriatic CBC project 'Network for the conservation of cetaceans and sea turtles in the Adriatic (NETCET)', that started in 2012. Croatia has also participated in the preparation of a conservation plan for migratory shark species.

Protocols

A Protocol on the reporting and actions in the case of encountering dead, sick or injured strictly protected marine animals was established in 2010. Since then, intensive activities have been ongoing on the expansion of the network of collaborators, the establishment of a comprehensive system for information gathering and preparation of a plan of activities in case of encountering dead, sick or injured strictly protected marine species.

Protocols for wolf and lynx were also prepared, and preparations have started for the drafting of the Protocol for monitoring of lethal bat fungal infections and the Protocol on the reporting and actions in case of encountering bats in residential buildings.

3.6 Main pressures

The main pressures on habitats are caused by human activities, such as watercourse regulation, water regime modifications, construction and tourism, while species are mostly threatened by direct habitat destruction. Excessive use through commercial harvesting of plants and fungi, or through fishing, exposes the populations of a number of wild species to danger. Intensive agriculture and tourism, pollution of water, soil and air, and poaching constitute significant threats to wild species. A decline in traditional low-productivity agriculture has also been identified, causing transformation of previously large pastures and meadows into wooded groves, with their loss of biodiversity. The impacts of climate change, with recorded influences on reproductive periods and success, migrations, and changes in species distribution, should not be disregarded.

Most of these pressures are relevant for protected areas. Further threats in protected areas are related to construction and tourism development. Also, protected areas note a constant decrease of financing by the state. In recent years, this has resulted in insufficient employment of new nature conservation experts and a lack of continuous education for existing staff. Such a situation calls for the need to find alternative funding sources.

3.7 Valuation of ecosystem services

The most recent study of ecosystem services, the Study of Freshwater Ecosystem Services in Croatia, prepared within GEF/UNDP project 'Support to the implementation of the CBD Strategic Plan 2011–2020 in Croatia', evaluated the benefits of freshwater ecosystems in the Danube basin implemented in a pilot-area of the Drava River. Detected ecosystem services relevant for the Sava-Drava-Danube floodplains include: provisioning services (timber production, biomass energy, fish production and angling, game and hunting, drinking water supply, agriculture production, energy production), regulating services (flood mitigation, sediment deposition, water self-purification, carbon sequestration-storage, local climate regulation, air quality, erosion prevention, drought mitigation and water storage), supporting services (habitats for species,

biological corridors) and cultural services (aesthetic value, recreation/tourism, naive art, local crafts-willow baskets, traditional architecture, indigenous breeds).

In recent years, there have been several projects and studies related to the assessment of economic values of biodiversity. A master's thesis from 2013 dealt with the economic valuation of biodiversity and ecosystem services as a tool for improvement of sustainable management in Vransko Jezero Nature Park. The WWF project 'The Dinaric Arc ecoregion-Protected areas for a living planet' evaluated economic benefits of Sjeverni Velebit National Park and Velebit Nature Park. The Guidelines for Sustainable Rural Development with recommendations based on the valuation of ecosystem services, were prepared within the framework of the GEF/UNDP COAST project 'Conservation and sustainable use of biodiversity in the Dalmatian coast'.

3.8 Nature information system

The State Institute for Nature Protection (as part of the Croatian Agency for Environment and Nature) is responsible for the establishment and maintenance of the national Nature Protection Information System. This system contains various thematic databases, applications and web services for storage, maintenance and exchange of data related to nature conservation in Croatia. The main Nature Protection Information System's components include:

- CRO Fauna—operational and partially publicly available
- CRO Flora—operational and partially publicly available
- CRO Speleo—under development
- CRO Habitats—operational and publicly available
- Natura 2000—operational and publicly available
- Protected areas—operational and publicly available.

Three databases containing information on habitats, Natura 2000 and protected areas, are publicly available via a specialized web portal². Efforts are being made on achieving compliance with relevant national and international standards, including the EU INSPIRE Directive which aims to create an EU spatial data infrastructure for the purposes of the EU environmental policies and activities that may have impact on the environment.

3.9 Financing nature conservation

Nature conservation in Croatia is primarily funded by the state budget and to a lesser extent by county and municipality budgets. Since the late 1990s, the EU and other international funds have played a significant role. From 2008 to 2012, funds from the state budget were declining (Figure 9).

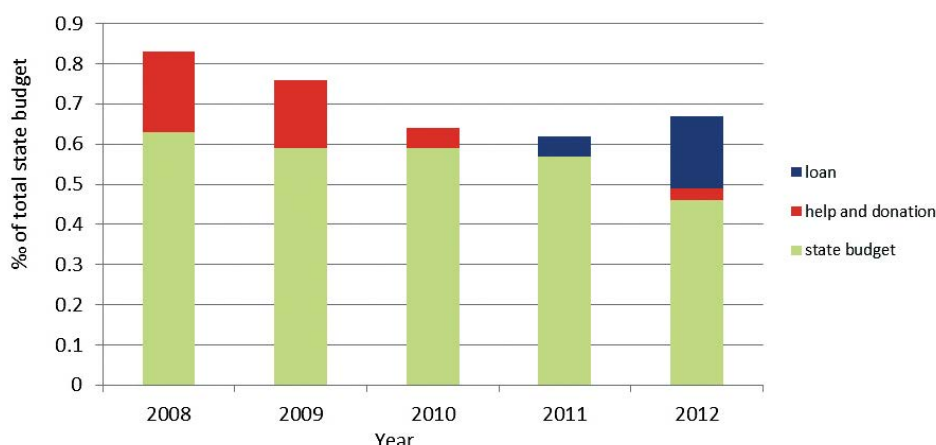


Figure 9 State budget allocations for nature conservation in Croatia (2008–2012)

The amount of allocated funds for national parks from the state budget differs for each park, depending on alternative sources of income (Figure 10). National parks with the highest revenues from alternative sources of funding receive the least support from the state budget. For example, Plitvice Lakes National Park is nearly entirely self-financed park, followed by the Krka and Brijuni national parks. These national parks also have the most developed visitor infrastructure and the highest number of visitors on a yearly basis. In most national parks, the largest expenditure goes to overhead and salaries (between

² Please see <http://www.iszp.hr>

62% and 96% of the overall expenditure). National parks with the largest revenue from alternative sources allocate only a small percentage of their revenue to nature conservation programmes (less than 2.5% of the overall revenue), while those with smaller budgets invest a higher percentage of their budgets in nature conservation programmes.

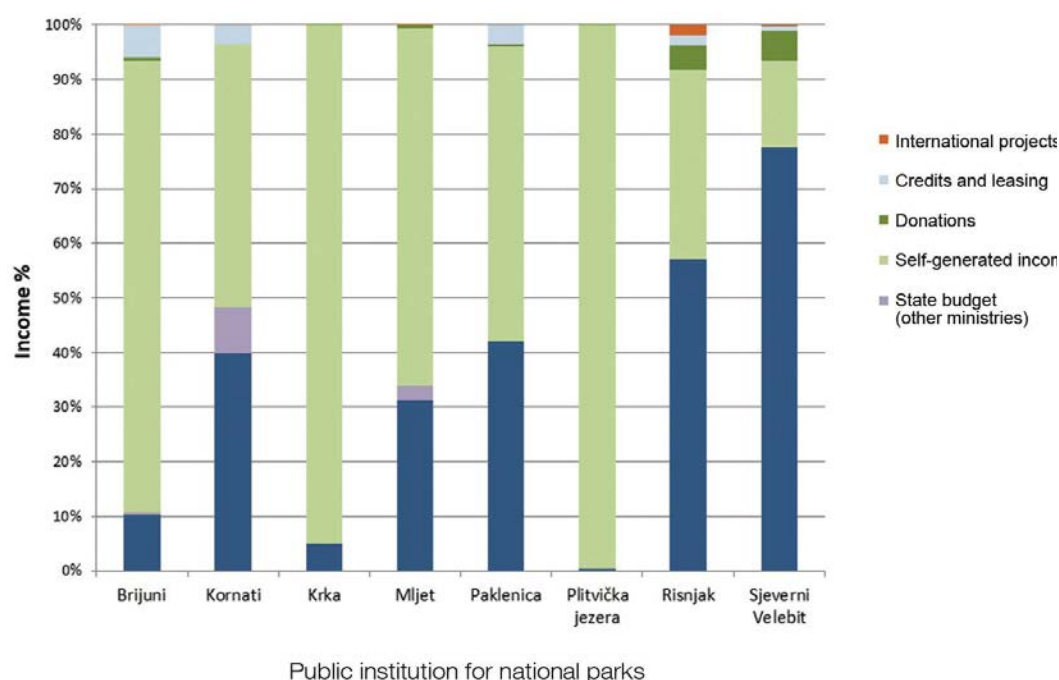


Figure 10 Sources of annual revenues in Croatian national parks (2008–2012)

The average yearly budgets of nature parks are significantly lower than those of national parks, although their management activities may require more funding than national parks. They are also more dependent on the state budget than national parks, the exception being Telašćica Nature Park with only 36% of funding coming from the state budget (Figure 11). About 9% of the overall budgets in nature parks is returned to nature conservation programmes, and most of the budget is spent on overhead and salaries.

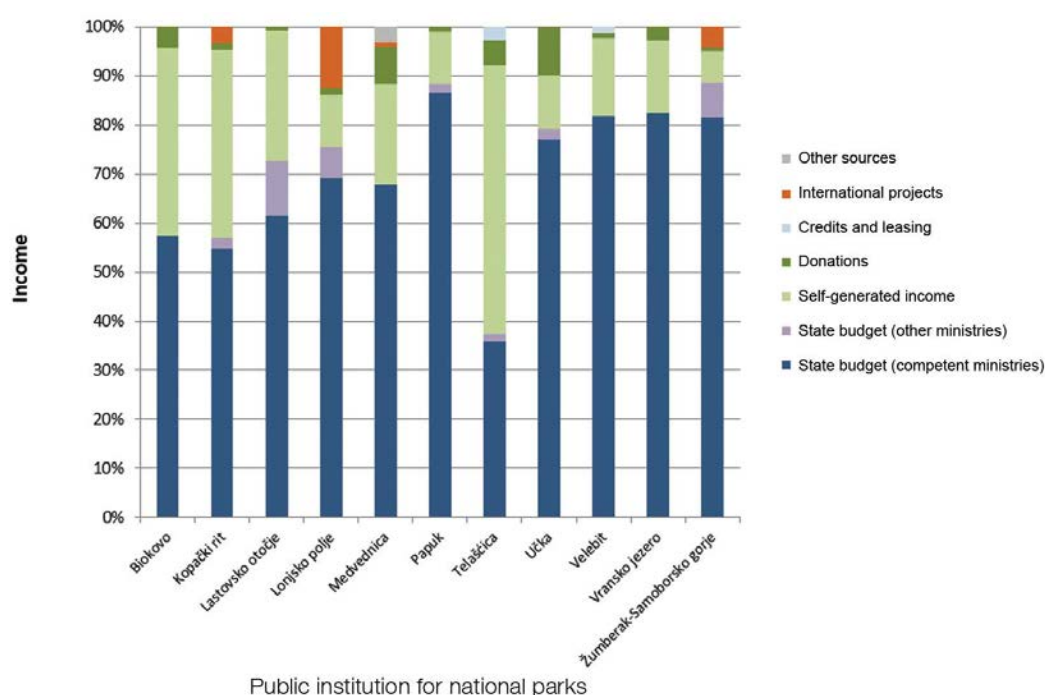


Figure 11 Sources of annual revenues in Croatian nature parks (2008–2012)

Table 19 provides an overview of the most common funding sources for nature conservation in Croatia.

Table 19 Main funding sources for nature conservation in Croatia

Funding source	Institution	Comment
State budget	Ministry of Environment and Energy, State Institute for Nature Protection (under the Agency for Environment and Nature), public institutions, NGOs	National and nature parks are funded by the state budget, while other protected areas are funded by county, city or municipality budgets.
Concessions	Potentially all public institutions	Those with concessions (strict reserves cannot have concessions on their territory).
Tourism	Potentially all public institutions	Although tourism is one of the main sources of revenue from protected areas, in general it does not fund nature conservation activities. The income of public institutions generated by tourism is mostly used for investing in further tourism activities.
Fees	Potentially all public institutions	Relates to those protected areas that charge fees, mostly national parks and some nature parks.
Other sources	Ministry of Environment and Energy, State Institute for Nature Protection (under the Agency for Environment and Nature), public institutions, NGOs	EU funds, Environment Fund, embassies of individual countries (USA, Netherlands, Switzerland, Norway, Finland), national agencies of individual countries (e.g. SIDA), international foundations (MAVA), private multinational companies (donations), .

3.10 Capacity building

The Annual Ranger Services Seminars have been organised by the Ministry of Environment and Energy since 2001. They enable exchange of knowledge, skills and practical experiences, discussions on problems and training in supervisory nature conservation tasks.

A number of other training seminars have been organised since 2007. The State Institute for Nature Protection organises regular Annual Conservation Services meetings in cooperation with certain public institutions, with the aim to gather organizations and information, exchange experiences and train about 100 state institution employees in conservation services. Furthermore, the Ministry of Environment and Energy holds yearly preparatory seminars for exams in nature inspection, and it organizes a number of workshops and trainings on targeted topics within individual projects.

Since 2011, the State Institute's Training Programme for employees of nature protection institutions has offered a series of training modules to acquire specific knowledge and skills intended for additional education of employees working in the system. Until 2016, 17 thematic modules were developed and their implementation was supported with the assistance of the EU Integration of Natura 2000 project, UNDP/GEF project PARCS 'Strengthening the institutional and financial sustainability of the national system of protected areas' and the IUCN project 'Towards strengthened conservation planning in South-Eastern Europe'. These modules include topics such as: introduction to conservation biology and professional foundations of nature conservation, management planning, public involvement in protected area management, interpretation and education, monitoring and reporting in accordance with the EU Habitats Directive, development of fundamental management competencies, monitoring of Natura 2000 species, implementation and enforcement of legislation on transboundary movement and trade in wild species in the EU, strengthening the role of rangers and staff of expert services in the treatment of injured, sick or dead strictly protected species, participatory protected area management, Nature Protection Information System and its use, and Geographical Information System (GIS) in nature conservation.

As a result of analyses performed through the EU Integration of Natura 2000 project, WWF's project 'Strengthening the marine protected area network in Croatia (MedPAN South)', and BfN/ProPark's project 'Capacity building plans for efficient protected area management in Eastern Europe', the following institutional and individual competencies were identified as deficient:

- Human resource management and business organization
- Financial management (finding relevant international funding sources, project planning, development and management)
- Strategic planning
- Fundamentals of conservation biology, geosciences and mechanisms for nature conservation

- State of nature assessments and conservation planning
- Conflict resolution, stakeholder participation
- Sustainable community development (socio-economic analysis of the area, promotion of sustainable development)
- Communication skills, awareness raising, marketing and public relations (interpretation), educational programmes, visitor management
- Law enforcement (understanding of the law, jurisdiction and control)
- Field skills (navigation, first aid, rescue)
- Other general skills and knowledge (foreign languages, computer programmes, databases and GIS).



Photo © IUCN

4 Macedonia

Vasil Anastasovski

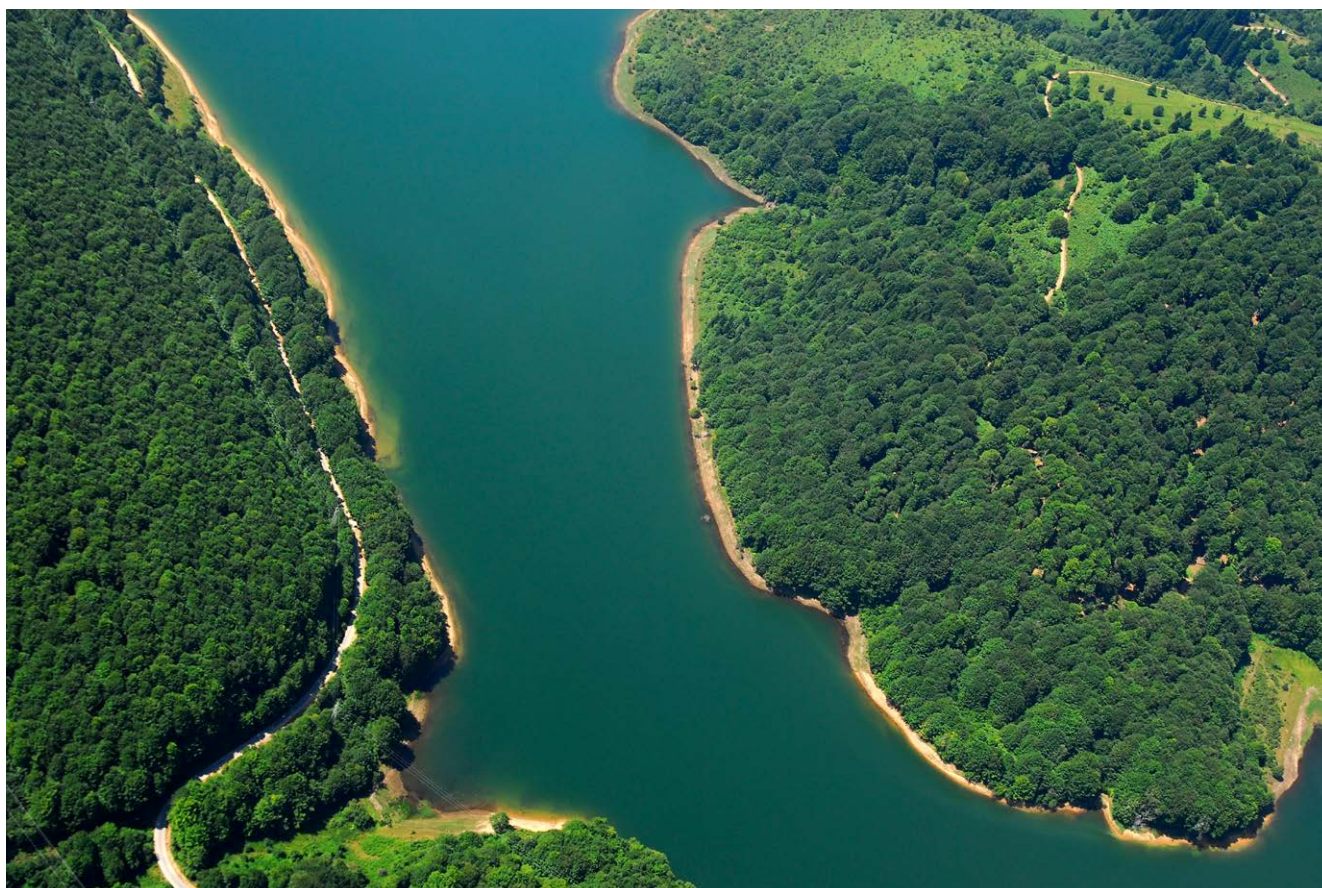


Photo © Lj. Stefanov

4.1 Overview of institutions

State institutions

The Ministry of Environment and Physical Planning (MEPP) of Macedonia is the main responsible state institution for the nature conservation sector with a mandate to develop and implement relevant policies, conserve and manage biological and landscape diversity and natural heritage, and control and supervise the enforcement of the provisions of the Law on Nature Protection. The Administration for Environment is a structural body of the MEPP responsible for expert work in protected areas, including 14 nature conservation experts. Among other tasks, it keeps the registry and cadastre of protected areas and monitors the status of nature. The Administration for Environment's Sector of Nature is organized through four units:

- Unit for Protection of Natural Heritage
- Unit for Biodiversity
- Unit for Spatial Planning in Protected Areas and Geodiversity
- Unit for Genetically Modified Organisms.

Three public institutions were established to directly manage and protect the three national parks, namely Pelister, Mavrovo and Galičica, employing 14, 73 and 15 people, respectively. Public institutions have the mandate to protect the natural values of national parks and create conditions for tourism development in accordance with the principles of sustainable development.

Another relevant state institution partially involved in nature conservation is the Ministry of Agriculture and Water Economy, with nine experts in its Department of Forests and Hunting. This Ministry is responsible for conservation, management and sustainable use of forests, pastures and waters.

Scientific and other relevant institutions

There are a number of important research institutes, museums and academic institutions important for nature conservation sector, such as:

- Hydrobiological Institute, Ohrid
- Institute of Pharmacology, Skopje
- Institute for Livestock, Skopje
- Macedonian Academy of Sciences and Arts
- Macedonian Museum of Natural History, Skopje
- National Hydrological and Meteorological Service, Skopje
- Scientific Rice Institute, Kočani
- University of Skopje (Faculty of Natural Sciences and Mathematics, Institute of Biology, Faculty of Forestry, Faculty of Agriculture and Food, and Faculty of Veterinary Medicine)
- Veterinary Institute, Skopje.

NGOs

Among NGOs, four stand out for their work in the field of nature conservation, all are based in the capital Skopje:

- BIOECO-Society for the Investigation and Conservation of Biodiversity and the Sustainable Development of Natural Ecosystems
- Bird Study and Protection Society of Macedonia
- Macedonian Ecological Society
- Macedonian Mycological Society.

4.2 Legislation system and policy

National laws

The Constitution of the Republic of Macedonia (1991) is the basis for the establishment and development of a system of nature protection. Additionally, a number of legal provisions are important for nature conservation sector:

- Law on Nature Protection (Official Gazette of the Republic of Macedonia no. 67/04, 14/06, 84/07, 35/10, 47/11, 148/11, 59/12, 13/13, 163/13, 41/14, 146/15, 39/16, 63/16)—regulates nature protection by protecting biological and landscape diversity, natural heritage, in and outside of protected areas, as well as protection of natural rarities
- Law on the Environment (Official Gazette of the Republic of Macedonia no.53/05, 81/05, 24/07, 159/08, 83/09, 48/10, 124/10, 51/11, 123/12, 93/13, 187/13, 42/14, 44/15, 129/15, 192/15, 39/16)—regulates protection and restoration of the quality of environment, protection of biological diversity and sustainable use of natural resources, including regulating the procedure for environmental management
- Law on Waters (Official Gazette of the Republic of Macedonia no.87/08, 6/09, 161/09, 83/10, 51/11, 44/12, 23/13, 163/13, 180/14, 146/15, 52/16)—regulates conservation, management and sustainable use of all water resources
- Law on Managing the World Natural and Cultural Heritage of the Region of Ohrid (Official Gazette of the Republic of Macedonia no.75/10)—regulates the obligations of the state and municipalities of Ohrid, Struga and Debarca related to management of natural and cultural heritage in the Ohrid World Heritage Site
- Law on Protection of Ohrid, Prespa and Dojran Lakes (Official Gazette of SFRJ no.45/77, 8/80, 51/88, 10/90)—provides for preservation of natural state of the lakes
- A set of laws for the proclamation of protected areas (2005–2014)—pursuant to the Law on Nature Protection, MEPP is obliged to revalorize protected areas under protection since prior to enactment of this Law and to prepare new proclamation acts. The process of revalorization and re-proclamation of protected areas is not yet fully completed.

Other sectoral laws related to conservation, management and sustainable use of biodiversity/natural resources include:

- Law on Forests (Official Gazette of the Republic of Macedonia no.64/09, 24/11, 53/11, 25/13, 79/13, 147/13, 43/14, 160/14, 33/15, 44/15, 147/15, 7/16, 39/16)
- Law on Hunting (Official Gazette of Republic of Macedonia no 26/09, 82/09, 136/11, 1/12, 69/13, 164/13, 187/13, 33/15, 147/15, 193/15)
- Law on Fisheries and Aquaculture (Official Gazette of Republic of Macedonia no.7/08, 67/10, 47/11, 53/11, 95/12, 164/13, 116/14, 154/15, 193/15, 39/16)
- Law on Pasture (Official Gazette of Republic of Macedonia no.3/98, 101/00, 89/08, 105/09, 42/10, 116/10, 164/13, 193/15, 215/15)
- Law on Genetically Modified Organisms (Official Gazette of Republic of Macedonia no.35/08, 163/13, 146/15)
- Law on Veterinary Health (Official Gazette of Republic of Macedonia no.113/07, 24/11, 136/11, 123/12, 123/15, 154/15, 53/16)
- Law on Animal Welfare and Protection (Official Gazette of Republic of Macedonia no.149/14, 149/15, 53/16).

Transposition of the EU Nature Directives

Macedonia has made significant progress in transposition of the EU Habitats and Birds Directives, enabled mainly through the Law on Nature Protection and adoption of secondary legislation: Lists of threatened and protected wild species of plants, fungi, animals and their parts (2012), the Ordinance on nature protection records (2012), the Ordinance on the content of the study for valorisation or revalorisation of protected areas (2012), the Ordinance on the content of protected areas management plan and annual programmes for nature protection (2012) and Lists on determining strictly protected and protected wild species (2011).

To date, 55% of Habitats Directive and 84% of Birds Directive have been transposed in the national legislation.

Multilateral environmental treaties

Table 20 shows the most important international conventions and agreements adopted by Macedonia.

Table 20 Multilateral treaties relevant for nature conservation ratified by Macedonia

Treaty	Entry into force
Convention on Wetlands of International Importance, Especially as Waterfowl Habitat (Ramsar Convention)	1991
Convention on Protection of the World Natural and Cultural Heritage (World Heritage Convention)	1997
United Nations Framework Convention on Climate Change (UNFCCC)	1998
Convention on Biological Diversity (CBD)	1998
Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention)	1999
Convention on the Conservation of Migratory Species of Wild Animals (CMS)	1999
Agreement on the Conservation of Populations of European Bats (EUROBATS)	1999 ¹
Agreement on the Conservation of African-Eurasian Migratory Waterbirds (AEWA)	2000
Convention on International Trade in Endangered Species of Wild Flora and Fauna (CITES)	2000
Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters (Aarhus Convention)	2001
United Nations Convention to Combat Desertification (UNCCD)	2002
European Landscape Convention	2004
Cartagena Protocol on Biosafety to the CBD	2005
Convention on the Protection and Use of Transboundary Watercourses and International Lakes	2015

¹Year of ratification

Alignment of national biodiversity strategies with global and EU strategies

In 2013, Macedonian authorities initiated the development of the National Strategy for Biological Diversity with Action Plan within the GEF/UNEP/MEPP project 'Support to the Republic of Macedonia for revision of the National Strategy for Biological Diversity with Action Plan and development of the Fifth National Report to the CBD'. In 2016, the draft was prepared in alignment with the EU Biodiversity Strategy to 2020 and Aichi Biodiversity Targets.

According to the Law on Nature Protection, in July 2016, MEPP developed draft National Strategy for Nature Conservation with Action Plan. This is a 10-year planning document and includes the long-term foundations for nature protection policy. The draft Strategy was prepared within the frame of the project 'Programme for Nature Conservation in Macedonia', funded by the Swiss Development Cooperation and coordinated by Helvetas Swiss Intercooperation and Farmahem in cooperation with MEPP. The project also resulted with preparation of The Study of Geodiversity and Geological Heritage of the Republic of Macedonia and Other Components of Nature (Biological and Landscape Diversity).

Other strategic documents that partially or fully relate to nature conservation in Macedonia are:

- National Environment Action Plan I (1996)
- Study on the Protection of Natural Heritage (1999)
- Strategic Action Plan for Prespa Park (2001)
- Biodiversity Strategy and Action Plan of the Republic of Macedonia (2004)
- National Environment Action Plan II (2006)
- Local Environment Action Plans
- Local Biodiversity Action Plans for municipalities of Gostivar, Mavrovo, and Rostuše and Debar (2012–2017)
- National Strategy for Tourism Development (2012–2017).

The National Strategy and Action Plan for the Protection of Biological Diversity from 2004 (covering the period 2004–2008) includes elements connected to the ecosystem approach, such as key information on the main ecosystems and protected area network. Priority activities relating to further implementation of the ecosystem approach are:

- Preparation of case studies featuring the ecosystem approach
- Implementation of the principles and guidelines of the ecosystem approach to achieve integrated conservation and management of land, water and living resources
- Integration of the ecosystem approach into agriculture, fisheries, forestry and other sectors that affect biodiversity
- Capacity building
- Revision of the National Biodiversity Strategy with Action Plan
- Development and adoption of the National Nature Protection Strategy
- Establishment of Transboundary Protected Areas
- Development of ecological networks
- Development of management plans for protected areas.

4.3 Protected areas

Protected area coverage

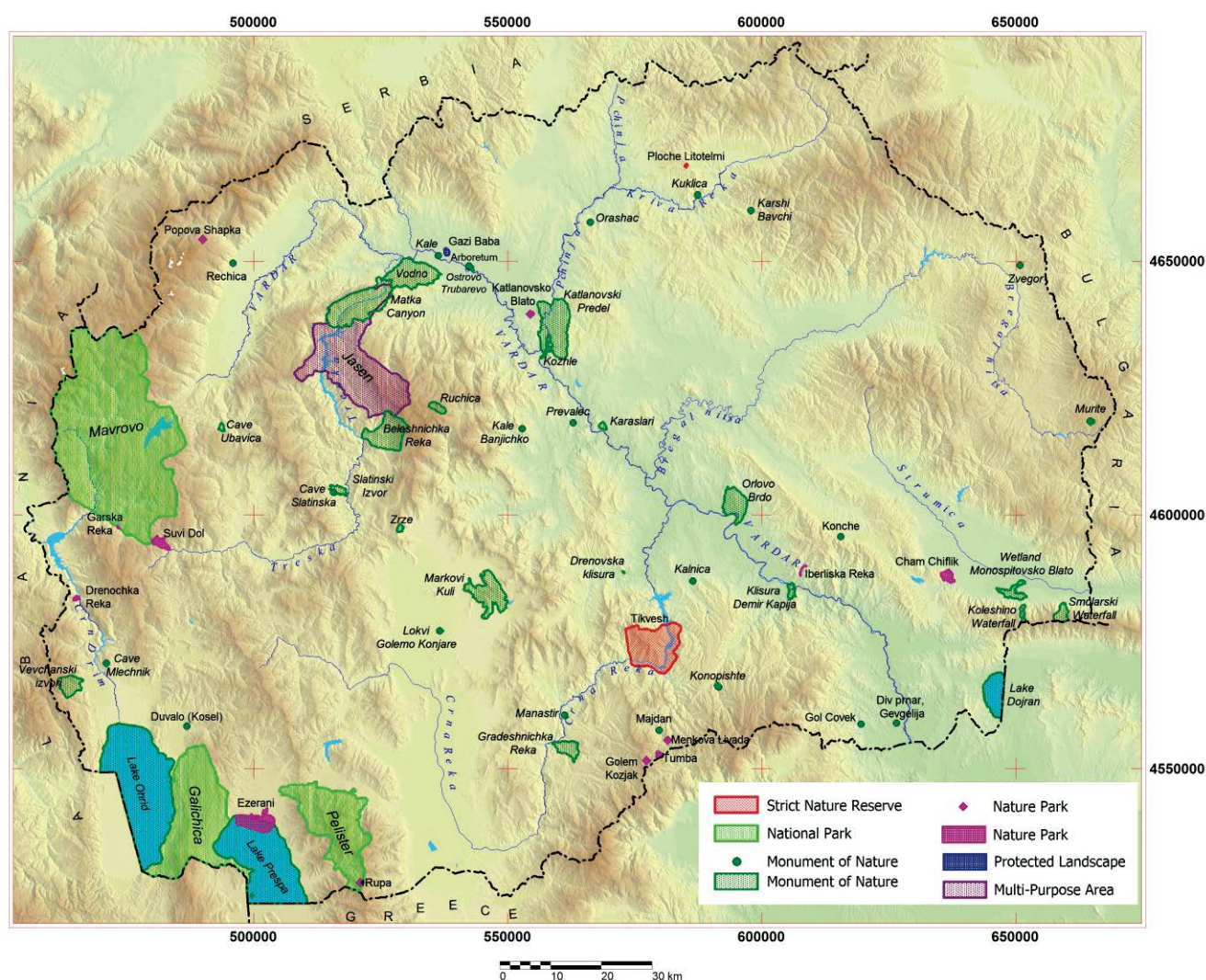
Protected areas in Macedonia cover 2,300.83 km², which makes 8.97% of the country's territory (Figure 12 for protected area distribution). Of the 86 protected areas, 67 are designated under the category of monument for nature, although the largest area falls under the category of national parks (4.5%; Table 21). The Sectoral Study of the Preservation of Natural Heritage prepared for the Spatial Plan of Macedonia until 2020 envisages an increase of the percentage of protected areas to cover 11.5% of the whole territory.

The process of re-evaluation of protected areas and their proclamation in accordance with the Law on Nature Protection is currently being implemented but is still not completed.

Table 21 Number and surface of protected areas in Macedonia

National protected area category	Number of protected areas	Land surface/km ²	% of total country surface
Ia Strict Nature Reserve	2	77.87	0.30
Ib Wilderness Area	-	-	-
II National Park	3	1,148.70	4.50
III Monument of Nature	67	789.67	3.07
IV Nature Park	12	30.45	0.11
V Protected Landscape	1	1.08	0.01
VI Multi-Purpose Area	1	253.05	0.98
Total	86	2,300.83	8.97

Source: Ministry of Environmental and Nature Protection (2014); Ministry of Environmental and Nature Protection Republic of Macedonia (2014)

**Figure 12 Geographical distribution of protected areas in Macedonia**

Source: MEPP (2012)

Application of IUCN protected area management categories

Six national protected area categories and corresponding IUCN protected area management categories are shown in Table 22. Each of the national protected area categories is comparable to the corresponding IUCN category.

Table 22 Protected area categories in Macedonia in relation to IUCN protected area management categories

National protected area category	Corresponding IUCN protected area management category
Ia Strict Nature Reserve	Ia Strict Nature Reserve
Ib Wilderness Area	Ib Wilderness Area
II National Park	II National Park
III Monument of Nature	III Natural Monument or Feature
IV Nature Park	IV Habitat/Species Management Area
V Protected Landscape	V Protected Landscape/Seascape
VI Multi-Purpose Area	VI Protected Area with Sustainable Use of Natural Resources

Procedure for designating protected areas

The procedure for proclamation of protected areas in Macedonia is specified by the Law on Nature Protection and each designated protected area acquires the status of natural heritage. Protected area categories I-IV must be proclaimed by law, while protected area categories V and VI are proclaimed by the national government. The proposal to declare a protected area can be submitted by the state administration, municipal councils (including the City of Skopje), scientific institutions or other agencies, organizations and associations. The proposal needs to include the expert analysis, cartographic information and a technical study on valorisation or revalorisation of the area, and it is submitted to the state administration responsible for nature conservation.

Protected area management planning

According to the Law on Nature Protection, management plans for protected areas must be adopted within two years from the proclamation of a protected area. The duration of each management plan is ten years, while the assessment of preliminary results is done prior to the expiry of the fifth year from the adoption of the plan. Management plans for the following protected areas have been adopted:

- Pelister National Park Management Plan (2006)
- Galičica National Park Management Plan (2011)
- Ezerani Nature Park Management Plan (2012).

The management plans for the following protected areas are in draft version: Tikveš Strict Nature Reserve, Canyon Matka, Smolare and Kolečino waterfalls, Prespa Lake, and Markovi Kuli Monuments of Nature, Jasen Multi-Purpose Area and Mavrovo National Park.

For national parks, public institutions are formed as the main responsible bodies for day-to-day management and conservation. Each public institution consists of the National Park Management Board, Director, expert collegium and the Board for control of finances. The National Park Management Board consists of five members: two staff members of the relevant national park, two representatives of MEPP and one representative of the relevant municipality. Macedonian law provides for the involvement of non-governmental stakeholders in a National Park Management Board through the establishment of a Council of Stakeholders, thus entitled to provide an opinion on the draft management plan for the park and implementation of certain programmes in the management plan, and to propose a review of the management plan. However, there has not been one case yet where the Council of Stakeholders was established. The law also provides for the establishment of Scientific Councils for national parks.

In the case of multi-purpose areas, the government establishes a public enterprise responsible for management, while some monuments of nature, strict nature reserves, and nature parks are administrated by local municipalities.

Protected area governance and management

Governance of protected areas in Macedonia is practiced by the government, with MEPP being the overall responsible authority for nature conservation policy-making and its implementation. In several cases, the government has delegated management to a number of municipalities. For example, the Municipality of Vevčani manages the Vevčani Springs Natural Monument, the Municipality of Novo Selo manages the Smolare Waterfall Natural Monument, the Municipality of Dojran

manages the Dojran Lake Natural Monument, and the Municipality of Prilep manages the Lokvi-Golemo Konjare Natural Monument. However, all of these municipalities cope with challenges concerning the enforcement of nature protection legislation due to lack of available resources. A positive example is the Municipality of Resen, which manages the Prespa Lake Natural Monument and the Ezerani Nature Park, which has established a special unit for management and implementation of the programmes for monitoring and protected area measures.

In several cases, due to lack of capacity and resources, municipalities have further delegated protected area management to other bodies, i.e. the Municipality of Makedonski Brod delegated management of the Slatino Springs Natural Monument to the Ursus Speleos Speleological Society, while the Municipality of Kratovo delegated management of the Kuklica Natural Monument to the NGO Izvor-Kratovo.

International recognition of protected areas

Four areas in Macedonia have international recognition. Ohrid Lake was inscribed on the UNESCO World Heritage List in 1979 as a natural heritage site, followed by the recognition of the cultural heritage of part of the old town of Ohrid in 1980. Today, the Natural and Cultural Heritage of the Ohrid Region is a mixed World Heritage Site. Macedonia hosts two Ramsar Sites, Prespa Lake (1995) and Dojran Lake (2007). The youngest international recognition is that of Ohrid-Prespa UNESCO transboundary Biosphere Reserve (2014), established by Macedonia and Albania.

4.4 Ecological networks

Natura 2000

Identification of potential Special Protection Areas and Special Areas of Conservation of the Natura 2000 network has been conducted within the project IPA TAIB 'Strengthening the capacities for implementation of Natura 2000', implemented in 2016–2017. The project aimed to achieve further alignment of the national legislation on nature protection with the EU acquis, i.e. the Habitats and the Birds Directives, and began with the inventory of data on natural habitats and species of conservation interest of the EU and the initial selection of potential areas for inclusion in the Natura 2000 network. The project also entailed development of a GIS map for Natura 2000, strengthening of administrative capacity, and activities to raise public awareness about the Natura 2000 network.

Emerald Network

From 2002 to 2008, four projects with the aim of development of the national Emerald Network containing Areas of Special Conservation Interest were implemented in Macedonia. The national Emerald Network, officially nominated to the Standing Committee of the Bern Convention, includes 35 areas, covering 29% of the country's territory (Figure 13). Of the total number of 187 endangered habitat types listed in Resolution No. 4 of Bern Convention, 33 were identified in Macedonia, while of 927 European species requiring specific habitat conservation measures listed in Resolution No. 6, 167 are present in Macedonia, including 7 invertebrates, 13 fish species, 3 amphibians, 7 reptiles, 115 birds, 17 mammals and 5 plant species.

The development of the Emerald Network represents a basic tool for preparing the Natura 2000 network. It also represents a useful instrument for the conservation of areas of great ecological value and a framework for cooperation within a homogenous network of areas covering the whole of Europe.

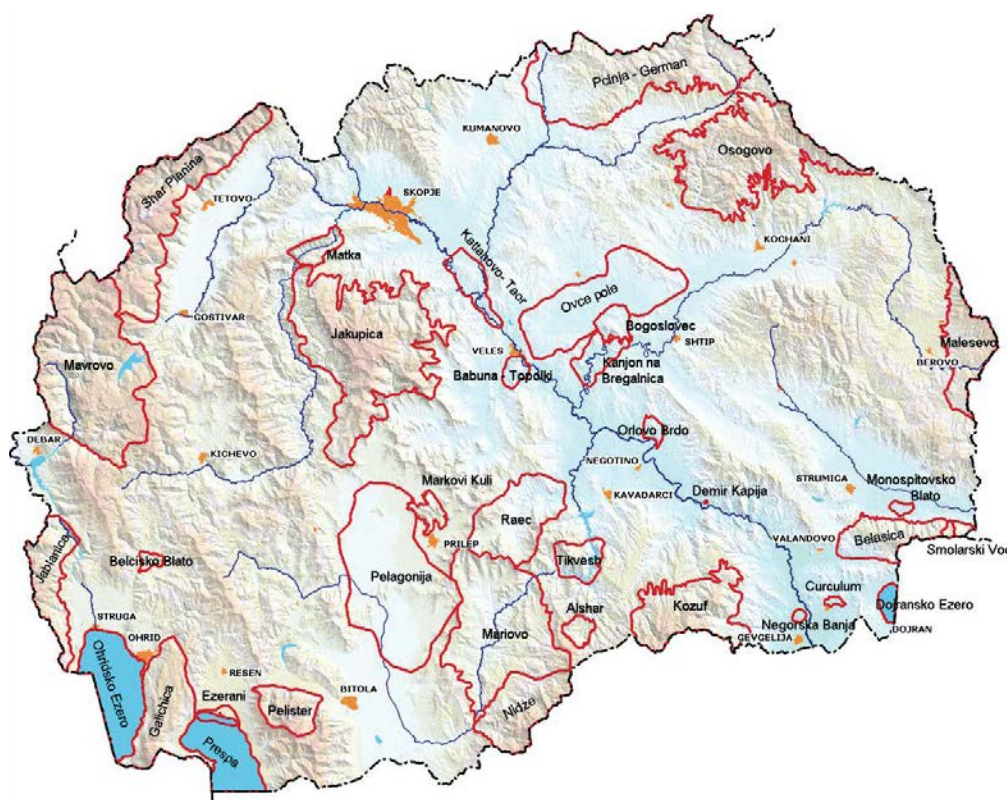


Figure 13 Emerald Network of Macedonia

Source: MEPP (2008)

Other ecological networks

National Ecological Network (MAK-NEN) proposal

A proposal for the National Ecological Network (MAK-NEN) as a coherent network of core areas, corridors, buffer zones and restoration areas, was developed in the framework of the MAK-NEN project which was implemented by Macedonian Ecological Society, European Centre for Nature Conservation, MEPP, and financed by the Dutch Government. Brown bear was chosen as the flagship species of the ecosystems for defining the ecological corridors, and the Brown Bear Corridors Management Plan was prepared in 2011.

Representative network of protected and potential protected areas

A draft Representative network of protected and potential protected areas was developed within the UNDP/GEF/MEPP project (2008–2011). The network includes 99 areas: 34 representative protected areas selected from the existing protected areas, 42 representative areas selected from the total of 193 areas nominated for protection as listed in the National Spatial Plan, and 23 additionally identified areas that are significant for protection.

European Green Belt

The Macedonian part of the European Green Belt borders neighbouring countries in the extent of 5,125 km², which represents 19.93% of the total area of the country and includes 11 protected areas:

- Pelister National Park (border with Greece)
- Mavrovo National Park (border with Albania)
- Galičica National Park (border with Albania)
- Ohrid Lake Natural Monument (border with Albania)
- Prespa Lake Natural Monument (border with Albania and Greece)
- Dojran Lake Natural Monument (border with Greece)
- Vevčani Springs Natural Monument (border with Albania)
- Smolare Waterfalls Natural Monument (border with Greece)
- Kolešino Waterfalls Natural Monument (border with Greece)
- Majdan Natural Monument (border with Greece)
- Ezerani Nature Park (border with Greece).

4.5 Conservation of species

Red List

In Macedonia, there are no officially adopted Red Lists yet, though three are in draft versions; Draft Red List of fungi (2012), Draft Red List of butterflies (2012) and Draft Red List of Orthoptera (2014). Preparation of the first Red Book for at least one taxonomic group is planned within the frame of the GEF/UNEP/MEPP project 'Achieving biodiversity conservation through creation and effective management of protected areas and mainstreaming biodiversity into land use planning'.

Assessments based on the annexes of the EU directives

Macedonia completed the List of Bird Species as per Annex I of the EU Birds Directive, within the framework of the UNDP/GEF/MEPP project 'Strengthening the environmental, institutional and financial sustainability of the system of protected areas in Macedonia'. The overall number of Annex I bird species identified in Macedonia is 117, of which about 82 regularly occur on the territory of Macedonia. After the completion of the List, full systematic analysis of these bird species was carried out within the EU co-funded project 'Wings across the Balkans', implemented by Macedonian Ecological Society, MEPP, and the Ministry of Agriculture, Forestry and Water Economy. There is a further need to assess the location of sites hosting the habitats and species listed in Annex I of Birds Directive and to identify potential Special Protection Areas.

Within the framework of the same project, the National Check List of Plant and Animal Species in Protected Areas was completed in 2010. In terms of the EU Habitats Directive, a draft list of Annex I natural habitat types, Annex II and Annex IV species present in Macedonia were prepared in the framework of the project for the development of the Emerald Network. The current assessments for important EU habitats, species and birds are being performed within the IPA TAIB project 'Strengthening the administrative capacity for implementation of Natura 2000'.

Species management and action plans

Only a few species have been regularly monitored in Macedonia, including the Balkan lynx (*Lynx lynx balcanicus*) and Prespa trout (*Salmo peristericus*). In 2012, action plans were prepared for brown bear (*Ursus arctos*), mountain tea (*Sideritis raeiseri*), stinking juniper (*Juniperus foetidissima*), Prespa barbel (*Barbus prespensis*), reed beds (*Phragmites* sp.) and caves (focus on bats) in the transboundary context of the Prespa Park, while in 2008, an action plan was developed for Prespa trout.

Additionally, three Local Biodiversity Action Plans include measures for conservation of important species and habitats at the local levels for the municipalities of Gostivar, Mavrovo, Rostuše and Debar.

4.6 Main pressures

The main pressures affecting the integrity of protected areas in Macedonia relate to the following:

- Energy demands (environment pollution, building hydropower accumulations and energy transportation infrastructure, mining of minerals, coal and other materials)
- Transportation (roads, railways)
- Urbanization and development (conversion of land for construction)
- Tourism (infrastructure development)
- Excessive wood-cutting (unsustainable forestry practices)
- Illegal fishing
- Agriculture (livestock grazing, cultivation of crops).

4.7 Valuation of ecosystem services

Initial application of the concept of ecosystem services and the related economic valuation of nature was performed in the study 'Evaluation of the Natural Values of the Shar Mountain and Assessment of their Market Value' in 2008, prepared by the Macedonian Ecological Society and funded by the MEPP's Programme for Environmental Investments. In 2009, UNDP

developed the study 'Economic Valuation of Protected Areas: Options for Macedonia' that focused on the economic value of protected areas in the country based on the study cases Tikveš Strict Nature Reserve and Matka Canyon Monument of Nature.

UNDP developed another study in 2013 'New Achievements in Conservation in the Country: Economic Arguments for Long-Term Protection of Ezerani Nature Park', which revolved around the concept of ecosystem services. The study identified the ecosystem services of Ezerani Nature Park and estimated the economic value of the key ecosystem services, as a basis for assessing the costs and benefits of environmental restoration in the area.

4.8 Nature information system

In Macedonia, MEPP established the National Information System for Biodiversity with a dedicated web portal in 2011. This central database covers scientifically verified data on species and habitats in the country, including data on protected areas and areas nominated for protection. However, the database is not currently functioning due to technical issues.

As part of meeting the goals of Article 18 of the CBD, the national clearing-house mechanism portal³ website was established and its contents are currently under development, as to assist policy makers and other stakeholders in implementing the NBSAP. The Natura 2000 database for collection of all data under the IPA projects is operational.

4.9 Financing nature conservation

State budget allocations for nature conservation in Macedonia varied significantly on a yearly basis from 2007 until 2014 (Figure 14), with the exceptions being in 2009 and 2012 when the government did not adopt the usual annual Programme for the environmental investment. In other years since 2007, nature conservation, scientific research and activities related to public awareness raising and environmental education, have been streamlined through this Programme. Nevertheless, the state budget has been decreasing considerably in recent years.

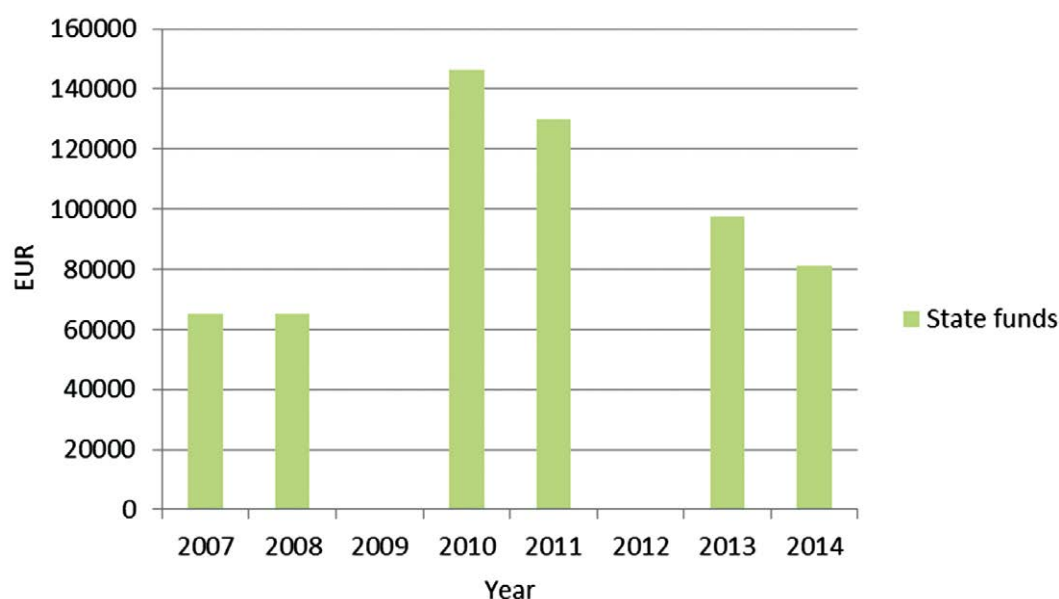


Figure 14 State budget allocations for nature conservation in Macedonia (2007–2014)

According to the provisions of the Law on Nature Protection, public institutions for national parks are eligible for financing by the state budget, local municipalities and by compensation through diverse fees (e.g. entrance fee, parking fee, fee for sustainable use of resources in protected areas). So far, public institutions for national parks have been largely self-financed through revenues generated by timber harvesting (sanitation harvest, firewood collection), collection of medicinal plants and forest products. As to provide easier access to alternative sources of funding, in 2013 the government approved the decision of public institutions of the Pelister, Galičica and Mavrovo national parks on the levels of compensation from tourism related services.

³ <http://biodiverzitet-chm.mk>

International donors (EU, bilateral donors, GEF) have traditionally played an important role in funding Macedonia's protected areas (Table 23). It is recommended that continuing efforts are made to access international funds and where possible to expand the range of funds utilized.

Table 23 Main funding sources for nature conservation in Macedonia

Funding source	Institution	Comment
State budget	MEPP	Programmes for environmental investment.
Sustainable tourism	Public institutions	
Fees	Public institutions	Entrance fees are restricted to national parks. Fees are also charged for sustainable use of natural resources and for conducting business activities in protected areas.
Other sources	MEPP, public institutions, NGOs	Projects funded by: German Ministry of Foreign Affairs, Swiss Government, Critical Ecosystem Partnership Fund, EU, MAVA Foundation.

It is recognized that there is a need to diversify sources of income and introduce alternative financial instruments on a short- and medium-term basis. For example, possible sources of funding that could generate higher and more stable income to Macedonian protected areas would be: carbon offsets, debt-for-nature swap projects, establishment of various forms of trust funds, establishment of a "Renewable Fund" for protected areas, redistribution of the existing revenues from taxes, duties and charges levied on fossil fuel production and trade, vehicle registration, water management, tourist tax, biodiversity offsets (for damages inflicted on ecosystems in protected areas), and the establishment of public-private partnerships. In 2016, a step forward was taken by promoting the establishment of the Fund for Nature Prespa-Ohrid which will further strengthen transboundary cooperation in conservation of the Prespa-Ohrid region shared by Macedonia, Greece and Albania. The Fund for Nature Prespa-Ohrid is expected to start operating in 2017.

Furthermore, in the frame of the EU/UNDP/MEPP project, 'Improving the management of protected areas' (2017–2018), a grant scheme will be established to finance the implementation of pilot measures that have three main goals: to address priority needs in improving the management of protected areas, where possible including those proposed as Natura 2000 sites, to promote more sustainable use of natural resources, and to demonstrate through practical examples that nature protection and economic development of local communities can go hand in hand.

4.10 Capacity building

A number of capacity development workshops and seminars for management of protected areas, environmental networks and transboundary cooperation were held in Macedonia in recent years. As part of the UNDP/GEF/MEPP project 'Strengthening the ecological, institutional and financial sustainability of Macedonia's protected area system' (2008–2011), representatives of local self-government, NGOs, the MEPP's Sector of Nature, national parks, public enterprises and other institutions managing protected areas attended the following training workshops:

- Legislative and institutional aspects of the valorisation, proclamation, planning and management of protected areas
- Biodiversity research and skills for monitoring and managing nature conservation in protected areas
- Communication, awareness raising and public relations
- Financing, donations and effects on the local economic development with emphasis on tourism
- Communication, technology and elementary GIS training.

In the frame of the project 'Regional environmental network for accession to the EU', training sessions focused on strengthening the capacities of the MEPP's nature conservation experts in the development and implementation of protected area and Natura 2000 management plans, and assessments of impacts on nature.

Furthermore, a TAIEX Workshop for EU Nature Legislation and Policy was held in Skopje in 2014, focused on the implementation of Habitats Directive and the establishment and management of Natura 2000 sites. Within the project 'Programme for conservation of nature in Macedonia', funded by the Swiss Agency for Development and Cooperation (SDC), training courses on nature conservation were held for the representatives of the municipalities of the East Planning Region.

In the frame EU/UNDP/MEPP project 'Improving the Management of Protected Areas' (2017–2019), a grant scheme will be established to finance the implementation of pilot measures which have three main goals: to address priority needs in improving the management of protected areas, where possible including those proposed as Natura 2000 sites; to promote more sustainable use of natural resources; and to demonstrate through practical examples that nature protection and the economic development of local communities can go hand in hand.

Positive steps forward have been taken in strengthening international relations with organisations such as IUCN, SDC, GIZ, WWF, UNDP, and UNEP in the field of nature conservation.

There is a need to further strengthen the capacity in the following areas:

- Implementation of relevant EU policy
- Impact assessments for developing plans and projects related to the establishment of Natura 2000 network
- Inventory and management of Natura 2000 network
- Monitoring of biodiversity
- Digitalisation of baseline monitoring data and linkages with the existing information system
- Economic valuation of protected areas.



Photo © V. Anastasovski

5 Montenegro

Milena Bataković, Nataša Stanišić



5.1 Overview of institutions

State institutions

The main state institutions responsible for nature conservation in Montenegro include:

- Ministry of Sustainable Development and Tourism
- Nature and Environmental Protection Agency
- Public Enterprise for National Parks of Montenegro
- Public Enterprise for Coastal Zone Management
- Ministry of Agriculture and Rural Development
- Directorate for Forests
- Local governments
- Directorate for Inspection.

The Ministry of Sustainable Development and Tourism is the main authority responsible for the development and implementation of the provisions of the Environmental Law and the Law on Nature Protection. Its mandate with regards to the nature conservation sector includes: formulation of relevant policies and regulations, ensuring compliance with EU policies and legislation on nature conservation, coordination of planning for Natura 2000 procedures, reporting to the European Commission, education and communication. The Ministry's Department for Protection of Nature, Biodiversity and Land is dedicated to nature conservation and employs two experts.

The Environmental Protection Agency was established in 2008 by the Government of Montenegro. The Environmental Protection Agency was transformed into the Nature and Environmental Protection Agency (NEPA) in 2017. The former Institute for Nature Protection became an integral part of the Environmental Protection Agency. A total of 14 people nature conservation experts are employed in the Agency, mainly in its Sector for Nature Protection, Monitoring, Analysis and Reporting. Among many tasks, the Agency is in charge of monitoring of the state of nature, development of relevant studies in the process of establishment of protected areas, preparation and realization of monitoring programmes, development and

maintenance of the database on the environment (including biodiversity), development of strategic environmental impact assessments and environmental impact assessments, approvals for the collection, use, breeding, keeping and trafficking of wild animals, approvals for the collection, use, cultivation, keeping and movement of protected wild herbs and fungi, scientific and educational research, educational activities and free public access to information regarding nature protection.

The Public Enterprise for National Parks of Montenegro, established in 1992 under provisions of the Law on Nature Protection and the Law on National Parks, is responsible for conservation and management of Montenegro's five national parks, including the development and implementation of periodic management plans and annual programmes (which require direct government approval), and promotion of the parks. It comprises six administrative units, one for each national park and a central headquarter in the capital, Podgorica. The Public Enterprise is governed by a Governing Board that consists of five people (three professionals appointed by the Ministry of Sustainable Development and Tourism and two staff members of the national parks) and the Director. The Scientific Committee advises the Board and the Director on specific issues. 191 people are employed in the Public Enterprise for National Parks, of which 84 staff members include park rangers.

The Public Enterprise for Coastal Zone Management is responsible for management of marine protected areas. Three nature conservationists are employed in the enterprise. However, there are no marine protected areas in Montenegro declared as yet.

The Ministry of Agriculture and Rural Development employs ten nature conservation specialists and is responsible for developing regulations related to forest and water management in protected areas other than national parks and other tasks. The Directorate for Forests is an operating agency that implements the laws and regulations developed by the Ministry of Agriculture and Rural Development.

Protected areas that are not managed by the above institutions are managed by local governments. The Directorate for Inspection supervises the activities related to nature protection laws.

Scientific and other relevant institutions

Several scientific institutions work in nature conservation related issues. The Marine Biology Institute in Kotor, operating within the University of Montenegro and performing research linked to marine ecosystems, is one such institution. The University of Montenegro's Department for Biology Studies also performs research focused on different taxonomic groups.

NGOs

Some of the main NGOs that are active in nature conservation in Montenegro include:

- Centre for Protection and Research of Birds of Montenegro
- Green Home
- Montenegrin Ecological Society
- Nautilus
- Mediterranean Centre for Environmental Monitoring
- The Greens of Montenegro.

Some of the areas where NGOs have contributed considerably are: raising of public awareness on the values and threats to protected areas, promotion of protected areas and transboundary cooperation, research and biodiversity information, initiatives for conservation of new areas and strengthening cooperation with local communities.

5.2 Legislation system and policy

National laws

The Law on Nature Protection (2016) is the central law that regulates governing nature protection. The Law on National Parks (2014) governs the conservation of national parks, including provisions for the conditions for conservation, sustainability and maintenance of flora, fauna and fungi, improvement and rational use of resources, protection of special natural values, research and use of national parks for the needs of science, education, tourism, culture and recreation, and prevention of actions that would deteriorate the state of national parks.

The Law on Environment (2016) regulates environmental protection and sustainable development, while other relevant laws and regulations in the area of nature conservation include:

- Law on Animal Welfare (2008)
- Law on Wildlife and Hunting (2008)
- Law on Marine Fisheries and Mariculture (2009)
- Law on Forests (2010)
- Decision on the level of compensation for destroyed specimens of protected species of animals and plants and wild animals which are prohibited to hunt, their nests, litters, eggs and the young in the territory of National Parks of Montenegro (1997)
- Decision on designation of protection of certain species of plants and animals (2006)
- Decision on the manner, conditions and timeframe related to the allowed use of assets of national parks (2006)
- Decision on the establishment of the Nature Protection Office of Montenegro (2009)
- Decision on the level and method of payment of fees for the use of assets of national parks, performance of business activities and provision of services (2009)
- Ordinances for Management of Protected Areas (eight Ordinances regulating diverse management issues related to protected areas).

Transposition of the EU Nature Directives

Montenegro has progressed well towards transposition of the EU Habitats and Birds Directives, especially following the adoption of the new Law on Nature Protection in 2016. The Birds Directive has been transposed in the amount of 83%. Secondary legislation planned for transposition of Habitats Directive's Annexes II, IV and V is under development, and it will be finalized after assessing and preparing the reference lists for all taxonomic groups.

Multilateral environmental treaties

Multilateral treaties ratified by Montenegro are shown in Table 24.

Table 24 Multilateral treaties relevant for nature conservation ratified by Montenegro

Treaty	Entry into force
Convention on Biological Diversity (CBD)	2006
Convention on Wetlands of International Importance, Especially as Waterfowl Habitat (Ramsar Convention)	2006
Cartagena Protocol on Biosafety to the CBD	2006
Convention on Protection of the World Natural and Cultural Heritage (World Heritage Convention)	2007
United Nations Framework Convention on Climate Change (UNFCCC)	2007
Convention on International Trade in Endangered Species of Wild Flora and Fauna (CITES)	2007
United Nations Convention to Combat Desertification (UNCCD)	2007
Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean (Barcelona Convention)	2007
Protocol Concerning Specially Protected Areas and Biological Diversity in the Mediterranean (SPA/BD Protocol)	2007
Convention on Cooperation for the Protection and Sustainable Use of the Danube River	2008
European Landscape Convention	2009
Convention on the Conservation of Migratory Species of Wild Animals (CMS)	2009
Agreement on the Conservation of Cetaceans in the Black Sea, Mediterranean Sea and Contiguous Atlantic Area (ACCOBAMS)	2009
Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters (Aarhus Convention)	2010
Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention)	2010
Agreement on the Conservation of Populations of European Bats (EUROBATS)	2011
Agreement on the Conservation of African-Eurasian Migratory Waterbirds (AEWA)	2011
Convention on the Protection and Use of Transboundary Watercourses and International Lakes	2014

Alignment of national biodiversity strategies with global and EU strategies

The National Biodiversity Strategy with Action Plan (2016–2020) sets out objectives related to the protection, management and sustainable use of biological diversity and equitable sharing of benefits in forests, freshwaters, marine and coastal and mountain areas. By adapting the Aichi Targets to the national context, a total of 17 national objectives structured around five strategic goals have been proposed, together with indicators to monitor progress towards their achievement. The Action Plan is strongly focused on the value of protected areas for providing ecosystem services and goods.

The most recent strategic document is the National Strategy on Sustainable Development until 2030 that determines priorities and measures to achieve smart, sustainable and inclusive growth, paying particular attention to the development of green economy. It recognises nature protection as an important objective.

There is generally a lack of harmonisation with sectors such as energy, infrastructure, water, forestry, transport and agriculture. For example, the Strategy for the Development of Energy Sector (2014–2030) and spatial plans for the development of large energy generating facilities failed to provide for the inclusion of assessment of important biodiversity. This in particular refers to planned utilisation of hydropower. Similarly, detailed spatial plans in the coastal region allowed for excessive construction of infrastructure without due considerations of impacts on coastal ecosystems.

Mainstreaming of biodiversity in fishing and hunting strategies and plans is not satisfactory and is largely impeded by lack of reliable baseline data. In the transport sector, there has been significant improvement compared to previous practices; however, much remains to be done to adequately address negative impacts of transport on biodiversity, in particular for marine ecosystems. Measures to protect autochthonous plant and animal species are integrated in relevant agricultural plans and programmes though their implementation needs to be improved, and the same applies for measures to control pollution from agriculture.

The highest progress with mainstreaming biodiversity into other sectoral policy is evident in tourism and forestry sectors, even though the progress is more visible at strategic than at the operational level.

5.3 Protected areas

Protected area coverage

Protected areas in Montenegro cover 1,721.12 km², which is 12.46% of the country's territory (Table 25). Five national parks (Durmitor, Skadar Lake, Lovćen, Biogradska Gora and Prokletije) comprise the largest surface under the protected area regime (7.3%).

Table 25 Number and surface of protected areas in Montenegro

National protected area category	Number of protected areas	Land surface/km ²	% of total country surface
National Park	5	1,012	7.32
Regional Park	2	481.16	3.48
Monument of Nature	46	136.2	0.98
Landscape with Outstanding Features	4	3.22	0.02
Strict and Special Nature Reserve	4	1.5	0.01
Areas protected by municipal regulations	1	150	1.08
Total	62	1,721.12¹	12.46¹

¹Due to the overlap of certain nature reserves and larger protected areas, the total surface of protected areas and its percentage do not match the sum of surfaces and percentages in these columns.

The names of the national protected area categories as shown in Table 25 (provided in the national report of Montenegro) do not entirely correspond to those provided by the Law on Nature Protection (2016). According to the Law, the following categories of protected areas apply: national park, strict and special nature reserve, nature park, landscape with outstanding features, regional park and natural monument. Many protected areas were established prior to the 2008 Law on Nature

Protection and according to categories in effect at that time. Adjustment and alignment of the old and new categories has not yet been concluded and thus the information in Figure 15 should be considered with caution.

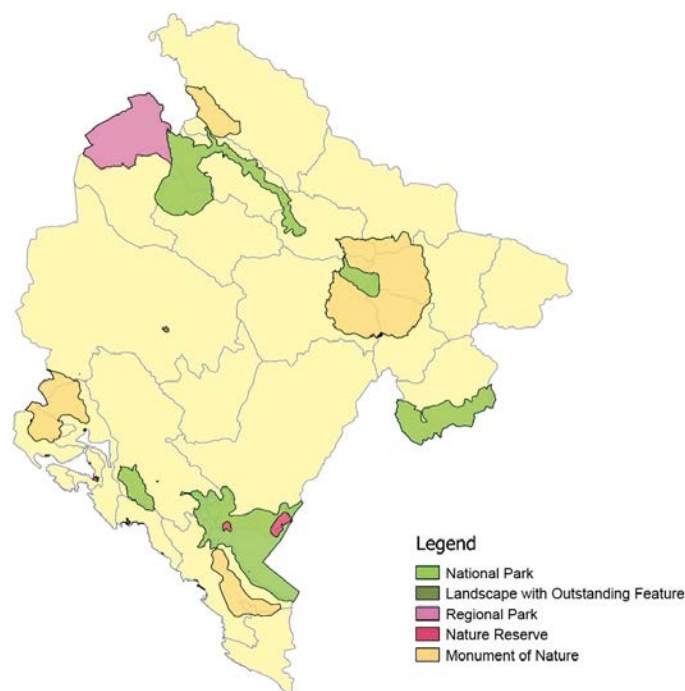


Figure 15 Geographical distribution of protected areas in Montenegro

Application of IUCN protected area management categories

According to the national report of Montenegro, national protected area categories do not fully correspond to IUCN management categories and are not fully comparable.

Procedure for designating protected areas

The procedure for designation of a protected area in Montenegro is initiated with the ministry or local self-government's request for a study on nature protection. This study encompasses the following information: description of the natural values and characteristics, the state of resources and estimated valorisation, opinion on protecting the area, proposal of a national protected area category, a map with geographical boundaries or location signage based on the data from the property cadastre, consequences deriving from the proclamation act, particularly concerning the ownership rights and ongoing business activities, and sources of financing.

National parks are proclaimed by the Parliament, strict and special nature reserves, nature parks and strictly protected and protected species and habitats by the government, while regional parks, nature parks and natural monuments and landscape with outstanding features located in the area of local self-government are proclaimed by the local self-government. In this process, local self-government always needs to seek approval of the competent ministry and the opinion by the ministry in charge of agriculture, forestry and water management. Protected areas within the Public Maritime Domain and protected areas whose territory spans more than one municipality are proclaimed by the government.

Protected area management planning

Management Plans for Durmitor, Skadar Lake, Lovćen, Biogradska Gora and Prokletije national parks cover the period from 2016–2020. The responsibility of the day-to-day management of the parks resides with the public enterprise established for each park. Apart from the national parks, a management plan has also been developed for one other protected area, Piva Regional Park, for the period 2016–2021.

Protected area governance and management

Governance of protected areas in Montenegro is highly centralized. Governance of national parks is through the state by the Public Enterprise for National Parks. For other protected areas, there are examples of government-delegated management. For example, Lipska Pećina Monument of Nature is managed by the Lipska Pećina private company, while Piva Regional Park is managed by a private company established by the municipality.

International recognition of protected areas

Durmitor National Park has been a UNESCO World natural Heritage Site since 1980. Together with the Tara River canyon, it forms the Tara River Basin Biosphere Reserve, established in 1976. Montenegro has two Ramsar Sites: Skadarsko jezero (1995) and Tivat Saline (2013).

5.4 Ecological networks

Natura 2000

The preparatory activities related to Natura 2000 network establishment started in 2009 within the scope of the project 'Montenegro and Natura 2000: Strengthening the capacity of government and civil sector to adapt to EU nature protection acquis', through cooperation with WWF, the then Institute for Nature Protection of Montenegro and Daphne-Institute of Applied Ecology. The project resulted with a draft Reference List of Natura 2000 Habitats and Species in Montenegro, using previous knowledge from the Emerald Network project and desktop data analysis. The draft version of the Catalogue of Natura 2000 Habitats for Montenegro was also prepared.

Nevertheless, the results did not allow for full identification and mapping of potential Natura 2000 sites. This is one of the objectives of the IPA project 'Strengthening of the environmental protection system in Montenegro', which began in mid-2016.

Emerald Network

The Ministry of Environmental Protection and Physical Planning, in cooperation with the experts, initiated work on the development of the Emerald Network in Montenegro within a project funded by the Council of Europe (2005–2008). Standard forms for most of the Emerald Network sites were completed. The proposal of the Emerald Network's Areas of Special Conservation Interest consisting of 32 areas was officially nominated to the Standing Committee of the Bern Convention.

5.5 Conservation of species

Red List

The Ministry of Sustainable Development and Tourism and the Nature and Environmental Protection Agency regularly prepare the annual State of Environment Reports. Information for the State of Environment Report is based on the data and results collected through the implementation of the Monitoring Programme for the Environment and collaboration with institutions responsible for different thematic areas. However, this Programme does not provide sufficient information about the state, factors of threats and threats to biodiversity. Also, there is very limited availability of detailed data on biodiversity, as most taxonomic groups have been poorly investigated. This in turn influences the quality of measures undertaken to conserve species. The information that is gathered remains largely unpublished, or if published, these reports, research results, masters or doctoral dissertations or papers, are not publicly available. The scope of annual biodiversity monitoring programmes, conducted since 2000, has been reducing from year to year due to financial restrictions and lack of human resources, resulting with incomplete and unreliable assessments of the status of biodiversity. The overall result is that so far, no Red Lists have been developed.

Species management and action plans

Only one species Action Plan, for the Dalmatian pelican, has been adopted (2004).

5.6 Main pressures

Relative economic expansion in Montenegro in recent years has resulted in a range of new pressures on biodiversity, with intensification of some of the existing pressures. Economic sectors, such as tourism, forestry, construction, industry, and transport, all act as underlying causes of biodiversity decline. Growth of the tourism sector brings challenges related to the protection of environment and biodiversity. Urbanization has accelerated, including planned and illegal construction, primarily in the narrow coastal belt, across the central plain area and around the natural lakes. Illegal infrastructural development has been occurring both in and around protected areas, thus controlling urbanisation is the main priority for addressing the root causes of biodiversity loss.

Overexploitation of forests, rivers and lakes, including illegal logging, extraction, hunting and fishing is another critical challenge, due to inadequate enforcement of regulations. Illegal hunting and fishing often occur in protected areas such as Tara River, Skadar Lake, Ulcinj Long Beach and others.

Pollution of freshwater, marine and forest ecosystems coming from urban, industrial sources, and agricultural run-off, relates to the problems of inadequate management of communal waste and wastewater, and control of pollution.

Land use change, including conversion of agricultural land into built areas and abandonment of traditional land use practices such as grazing and haying, also lead to the loss of biodiversity.

Generally, some of the main reasons for insufficient progress in implementing measures to address underlying causes of pressures on biodiversity reside in the low awareness about biodiversity conservation at all levels, including among decision-makers and citizens (Montenegro Ministry of Sustainable Development and Tourism, 2014). Lack of data and sound approaches to decision-making, insufficient level of coordination and cooperation among various sectors, and weaknesses in the management of protected areas add to inefficient dealing with pressures and challenges concerning biodiversity.

5.7 Valuation of ecosystem services

Awareness of the value and importance of ecosystem services for human welfare is at a low level in Montenegro, including among the general public and decision-makers. Ecosystem services, as important contributors to socio-economic development and human wellbeing, have been recognized by Montenegro Ministry of Sustainable Development and Tourism (2014), though the valuation of ecosystem services and integration of the value of biodiversity in decision making is rare.

Examples of economic valuation of ecosystem services in Montenegro include the studies 'Economic Evaluation of the Tara River', developed by WWF in 2005, 'The Economic Value of Protected Areas in Montenegro', prepared by UNDP and the Institute for Strategic Studies and Prognoses in 2011, and 'Montenegro: The Economic Value of Biodiversity and Ecosystem Services', prepared within the GEF/UNDP project 'National biodiversity planning to support the implementation of the CBD 2011–2020 Strategic Plan in Montenegro' in 2013. The latter report estimated that the value of selected biodiversity and ecosystem services in Montenegro is about 982 million EUR, 55% of which is associated with socio-cultural services such as recreation and tourism. If compared with Montenegro's GDP in 2011, at 5.24 billion EUR, the estimated value of biodiversity and ecosystem services is almost a fifth of the overall GDP. Interestingly, the value of these services is more than twice the estimated value of agricultural, forestry and fisheries sectors.

5.8 Nature information system

Since 2008, the Environmental Protection Agency has been working to develop a comprehensive database on biodiversity that would be part of the central information system. However, due to major obstacles such as the lack of available, relevant biodiversity information, it has not been possible to develop an adequate database yet. Data on biodiversity is generally characterized by significant gaps in determining the number of species, population dynamics, ecology and degree of genetic variations for most species.

Recently, there has been progress on the development of the Central National Information System on the Environment. This system would also include data on biodiversity. A separate database on protected areas is also currently under development and is expected to be finalized in 2017.

5.9 Financing nature conservation

The Public Enterprise for National Parks of Montenegro may be funded by the state, local governments, collection of fees, donations, or other sources. In 2013, the income of all national parks was over EUR 1.5 million (see Figure 16 for main sources of income without inclusion of the state budget). Adding to that, the state budget participated in the overall budget of all national parks with a little over EUR 500,000 divided among all the national parks. Funding sources for key institutions are shown in Table 26.

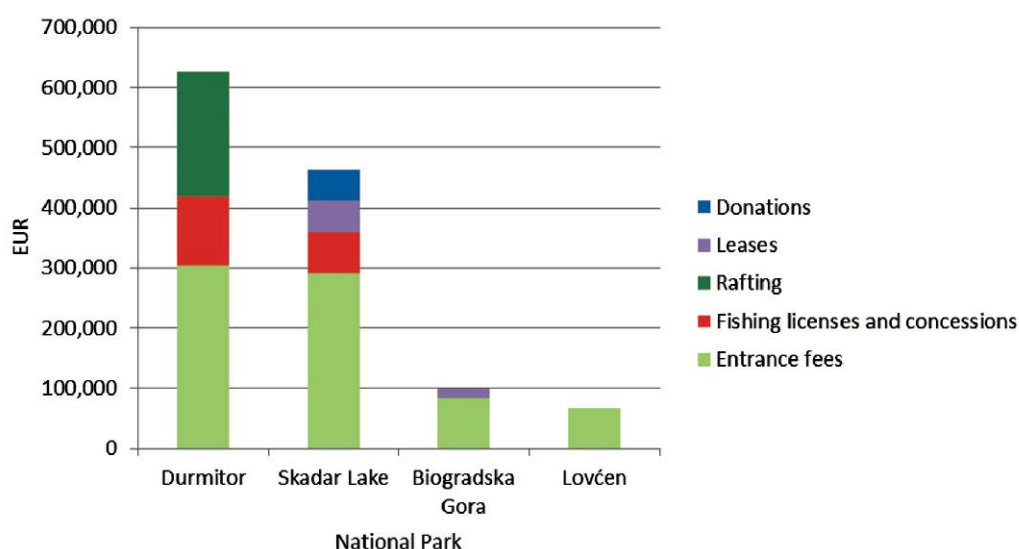


Figure 16 Sources of revenue other than the state budget for national parks of Montenegro in 2013 (excluding Prokletije NP due to data unavailability). Data for Lovcen are based on calculations from 2012.

Source: RAC/SPA (Ed.). (2014)

Table 26 Main funding sources for nature conservation in Montenegro

Funding source	Institution	Comment
State budget	All institutions	
Concessions	Ministry of Rural Development and Agriculture Public Enterprise for National Parks of Montenegro	
Tourism	Public Enterprise for National Parks of Montenegro	
Fees	Public Enterprise for National Parks of Montenegro	
Other sources	All institutions	GEF/UNDP Fund EU IPA funds

5.10 Capacity building

Montenegro faces a number of issues that hinder efficient nature conservation. One of the issues is lack of resources, both human and financial for nature conservation. State budget allocations are limited and there is no participation of the private sector in conservation. A very small number of educational and research institutions provides specialised training for biodiversity conservation and management measures. Protected area management capacities continue to be weak, while public support for nature conservation remains limited, causing low political support.

In previous years, training workshops have mainly focused on developing knowledge and skills in protected area management, identification and mapping of Natura 2000 sites, preparation of project proposals and GIS techniques, financial planning in national parks, and strengthening the skills of rangers, primarily in law enforcement.

There is a need for further strengthening of the following capacities:

- Project management cycle (with special attention to financial reporting and project implementation)
- Methodology for the development of Red Lists
- Management plans and specific measures for the most vulnerable species
- Methods for valorisation of ecosystem services
- GIS techniques in mapping of species and habitats
- Compensatory measures in protected areas and raising public interest for conservation
- Public relations (relationship with visitors and the public) and promotion of protected areas
- Structural organisation of biodiversity database
- Methodology for the assessment of protected area management effectiveness
- Planning of short- and long-term monitoring of species and habitats
- Skills of rangers in national parks.



National Park Prokletije © B.Erg IUCN

6 Serbia

Goran Sekulić, Marko Tucakov, Srđan Marinčić, Marija Trikić



Photo © B. Erg / IUCN

6.1 Overview of institutions

State institutions

The institutional framework for nature conservation in Serbia includes the following key institutions:

- Ministry of Agriculture and Environmental Protection
- Serbian Environmental Protection Agency
- Institute for Nature Conservation of Serbia
- Secretariat for Urbanism and Environmental Protection of Vojvodina Province
- Institute for Nature Conservation of Vojvodina Province
- Local self-governments (cities, city of Belgrade and municipalities)
- Public institutions for management of national parks
- Public Enterprise 'Srbijašume'
- Public Enterprise 'Vojvodinašume'.

The Ministry of Agriculture and Environmental Protection is the central institution for state administration regarding environmental and nature protection. It employs about 20 nature conservation specialists working in the Sector for Environmental Protection and 9 inspectors for nature protection. Within the Ministry are the Directorate for Forests, the Plant Protection Directorate and the Republic Directorate for Water Management.

The Serbian Environmental Protection Agency employs 80 people and is responsible for the development, regulation and maintenance of the national information system for environmental protection. It is the central entity that collects all the

information on the environment from the responsible bodies, such as data on protected areas from the institutes for nature conservation. The Agency is also responsible for cooperation with the European Environment Agency and submits environmental data to the European Environment Information and Observation Network (EIONET).

The Institute for Nature Conservation of Serbia (with 62 employees, 29 experts) and the Institute for Nature Conservation of Vojvodina Province (with 28 experts) are expert institutions with delegated competencies in the conservation and enhancement of the natural heritage of the Republic of Serbia. They are responsible for the development of expert studies for the designation of protected areas, monitoring of species and habitats, planning and implementation of specific conservation measures, education in nature conservation and other related activities at the national level. The Institute for Nature Conservation of Vojvodina Province has a mandate at the level of the Vojvodina Autonomous Province.

A part of the competencies in the field of environmental protection have been decentralized to the provincial level. The Secretariat for Urbanism and Environmental Protection of Vojvodina Province works in the field of protection of nature, among other issues. It employs 6 nature conservation experts.

Administrative bodies of local self-governments perform part of the administrative and technical tasks related to nature protection, including adoption of programmes for use and protection of natural values and programmes to protect the environment, establishment of special compensation measures for conservation and improvement of the environment, and designation and funding of protected areas at the local level.

The primary mandate of public institutions for national parks is protected area management, while public enterprises 'Srbijašume' and 'Vojvodinašume' also manage an important set of protected areas.

Scientific and other relevant institutions

There are a number of scientific, academic, and other state institutions whose mandate extends to the field of nature conservation. Some of the most prominent include:

- Institute for Multidisciplinary Research
- Institute of Botany and Botanical Garden 'Jevremovac'
- Institute for Medicinal Plant Research 'Dr Josif Pančić'
- Institute for Biological Research 'Siniša Stanković'
- Institute of Forestry
- Institute for Pesticides and Environmental Protection
- Institute for Plant and Environmental Protection
- Institute of Soil Science
- Natural History Museum in Belgrade
- University of Belgrade (Faculty of Forestry, Faculty of Agriculture, Faculty of Mining and Geology, Faculty of Biology and Faculty of Geography)
- Republic Geodetic Authority
- Republic Hydrology and Meteorology Service of Serbia
- Provincial Secretariat for Agriculture, Forestry and Water.

Protected areas may be managed by different institutions, including NGOs, private companies, and religious entities if the conditions for sufficient management capacity are met. The capacity of potential managing institutions is regulated by the Ordinance on the conditions to be met by managers of protected area (2009). Some of the managers of protected areas on the territory of Serbia include:

- Mokra Gora Nature Park limited liability company
- Surdulica Municipality public enterprise
- Greenery Belgrade public utility company
- Arandjelovac National Museum
- Resavska Cave public enterprise
- Belosavac Zagubica public utility company
- Faculty of Forestry, University of Belgrade
- Faculty of Biology - Institute of Botany 'Josif Pančić'
- Niš City Directorate public utility company
- Sremska Mitrovica Conservation Movement
- Uvac Reserve limited liability company

- Sjenica Tourist Board
- NATURA Centre for Natural Resources
- Čačak Tourist Board
- Vranje Diocese, Serbian Orthodox Church
- Gradac Ecological Society
- DTD Ribarstvo LTD
- Ečka fish production company
- Fruška Gora National Park Public Institution
- Kraljevac Fishermen Association
- Nature Conservation Movement of Sremska Mitrovica
- Nature Reserves of Zrenjanin Public Institution
- Novi Bečej hunting association
- Okanj Environmental Protection Society
- Palić-Ludaš public enterprise
- Perjanica hunting association
- Titelski Breg public enterprise
- Tikvara Sports and Recreation Centre public enterprise
- Ruma Tourist Board
- Varoš public utility company
- Vojvodina Water public water management company.

NGOs

There are no concise data on the number of NGOs involved with nature and environmental protection, though there are is assumed to be over 400. Some of the most active NGOs in Serbia include:

- Artrust
- Birds of Prey Protection Fund
- Birds of Prey Protection Foundation 'Griffon Vulture'
- Bird Protection and Study Society of Serbia
- EcoDev
- Ekoist
- Endemit
- Green Network of Vojvodina
- League for Ornithological Action
- Protego
- Riparia
- Young Researchers of Serbia.

6.2 Legislation system and policy

National laws

The central law governing the protection and conservation of nature, biological, geological and landscape diversity is the Law on Nature Protection (2009, amended in 2010 and 2016). Other relevant laws are:

- Law on National Parks (2015)
- Law on Environmental Protection (2004, 2009, 2016)
- Law on Strategic Impact Assessment (2004, 2009)
- Law on Environmental Impact Assessment (2004, 2009)
- Law on Air Protection (2009, 2013)
- Law on Spatial Plan of the Republic of Serbia (2010)
- Law on Game and Hunting (2010)
- Law on Forests (2010, 2012, 2015)
- Law on Waters (2010, 2012, 2016)
- Law on Protection and Sustainable Use of Fish Stocks (2014)
- Law on soil protection (2015).

There is a wide range of subordinate legislation regulating the specific aspects of nature conservation, including:

- Decree on the Ecological Network (2010)
- Decree on the control of the use and trade in wild flora and fauna (2005, latest revision in 2011)
- Decree on the Protection Regimes (2012)
- Decree on establishing the list of projects for which is required an impact assessment and list of projects for which environmental impact assessment may be required (2008)
- Ordinance on the content and manner of keeping the register of protected natural areas (2010)
- Ordinance on conditions to be met by the managing authority of protected area (2009)
- Ordinance on the transboundary movement and trade of protected species (2009, 2014)
- Ordinance on compensatory measures (2010)
- Ordinance on habitat types, the criteria for the selection of habitat types, sensitive, endangered, rare and priority for protection habitat types (2010)
- Ordinance on special technical-technological solutions which enable unobstructed and safe communication of wild animals (2010)
- Ordinance on proclamation and protection of strictly protected and protected wild species of plants, animals and fungi (2010, 2011, 2016)
- Ordinance on evaluation criteria and categorization procedure of protected areas (2015).

Transposition of the EU Nature Directives

The national legislation is almost fully aligned with the EU nature protection acquis. The EU Habitats and Birds Directives are nearly completely transposed through relevant laws and accompanying subordinate legislation. Both directives will be fully transposed until 2020. The Decree on appropriate assessment will be adopted by the Government in 2017, while the Decree on the Ecological Network will be amended in 2017 to improve the definition of obligations from the Habitats Directive. Implementation plan for both directives was prepared in 2015 with the support of UNDP.

Multilateral environmental treaties

The implementation of international conventions of which Serbia is a signatory contributed to the improvement of nature conservation. The most relevant conventions and agreements can be seen in Table 27.

Table 27 Multilateral treaties relevant for nature conservation ratified by Serbia

Treaty	Entry into force
Convention on Wetlands of International Importance, Especially as Waterfowl Habitat (Ramsar Convention)	1992
Convention on Protection of the World Natural and Cultural Heritage (World Heritage Convention)	2001
United Nations Framework Convention on Climate Change (UNFCCC)	2001
Convention on Biological Diversity (CBD)	2002
Convention on Cooperation for the Protection and Sustainable Use of the Danube River	2003
Framework Agreement on the Sava River Basin	2004
Cartagena Protocol on Biosafety to the CBD	2006
Convention on International Trade in Endangered Species of Wild Flora and Fauna (CITES)	2006
Convention on the Conservation of Migratory Species of Wild Animals (CMS)	2008
Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention)	2008
United Nations Convention to Combat Desertification (UNCCD)	2008
Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters (Aarhus Convention)	2009
Convention on the Protection and Use of Transboundary Watercourses and International Lakes	2010
European Landscape Convention	2011

Alignment of national biodiversity strategies with global and EU strategies

The main strategic guidance in nature conservation is provided in the Biodiversity Strategy of the Republic of Serbia for the period 2011–2018. The Ministry of Agriculture and Environmental Protection coordinated the revision of this Strategy in the framework of the UNDP/GEF project 'National biodiversity planning to support the implementation of the CBD 2011–2020 Strategic Plan in the Republic of Serbia'. The draft revised Strategy is prepared in accordance with global Strategic plan 2011–2020 of the UNCBD and its Aichi targets, and EU Biodiversity Strategy, and in accordance with latest amendments of the Law on Nature Protection (Official Gazette 36/09, 88/10, 91/10 and 14/16). Strategic objectives and targets for biodiversity conservation and the action plan will be adopted in the form of the Strategy for Nature Conservation, as the foundation strategy and will also encompass geodiversity and landscape diversity strategic area. Its adoption by the Government of the Republic of Serbia is envisaged in 2017.

Other relevant strategies are: National Strategy on Sustainable Development (2008), Spatial Development Strategy of the Republic of Serbia (2009–2013–2020), National Programme for Environmental Protection (2010), National Strategy on Sustainable Use of Natural Goods and Resources (2012), and National Strategy on Approximation of the Environment of the Republic of Serbia (2011).

6.3 Protected areas

Protected area coverage

According to data from the Central Register of Protected Natural Areas of Serbia, there are 464 protected areas in Serbia, covering 6.54% (5,787.05 km²) of the country's territory. Their distribution is shown in Figure 17. The Nature Protection defines the following protected natural assets: protected areas, protected species and movable protected nature documents. Seven types of protected areas in Serbia include: national park, nature park, protected landscape, strict nature reserve, special nature reserve, nature monument, and protected habitat. The largest surface falls under the category of nature park (Table 28).

The designation of protected areas is based on the importance and category of the proposed area:

- Category I—protected areas of national and international importance, proclaimed by the Government of Serbia. A national park is proclaimed by the National Assembly
- Category II—protected areas of regional/provincial importance, proclaimed by the Government of Serbia or by the Vojvodina provincial government
- Category III—protected area of local importance, proclaimed by the local self-government.

Table 28 Number and surface of protected areas in Serbia

National protected area type	Number of protected areas	Land surface/km ²
National Park	5	1,502.24
Nature Park ¹	16	2,143.59
Protected Landscape ²	20	656.06
Reserves – Strict and Special Nature Reserves ³	70	1,341.69
Nature Monument ⁴	349	129.33
Protected Habitat	4	14.14
Total	464⁵	5,787.05

¹Includes the category of regional natural park, as defined by legislation prior to entry of the 2009 Act into force.

²Includes the category of an outstanding natural landscape, as defined by legislation prior to entry of the 2009 Act into force.

³Includes the categories of scientific research reserve and general nature reserve, as defined by legislation prior to entry of the 2009 Act into force.

⁴Includes cultural-historical areas with the following categories: nature monuments, memorial nature monument, and natural area around an immovable cultural property, as defined in the legislation prior to entry of the 2009 Act into force.

⁵Protected species are also part of protected natural assets, and thus are also included in the Central Register of Protected Natural Areas of Serbia as a separate category, which is excluded for the purpose of this publication. Protected species are defined by Ordinance on promulgation and protection of strictly protected and protected wild plants, animals and fungi (2010) and Regulation on control of the use and trafficking of wild flora and fauna (2005, 2005, 2007, 2008, 2010).

Source: Courtesy of Institute for Nature Conservation Serbia

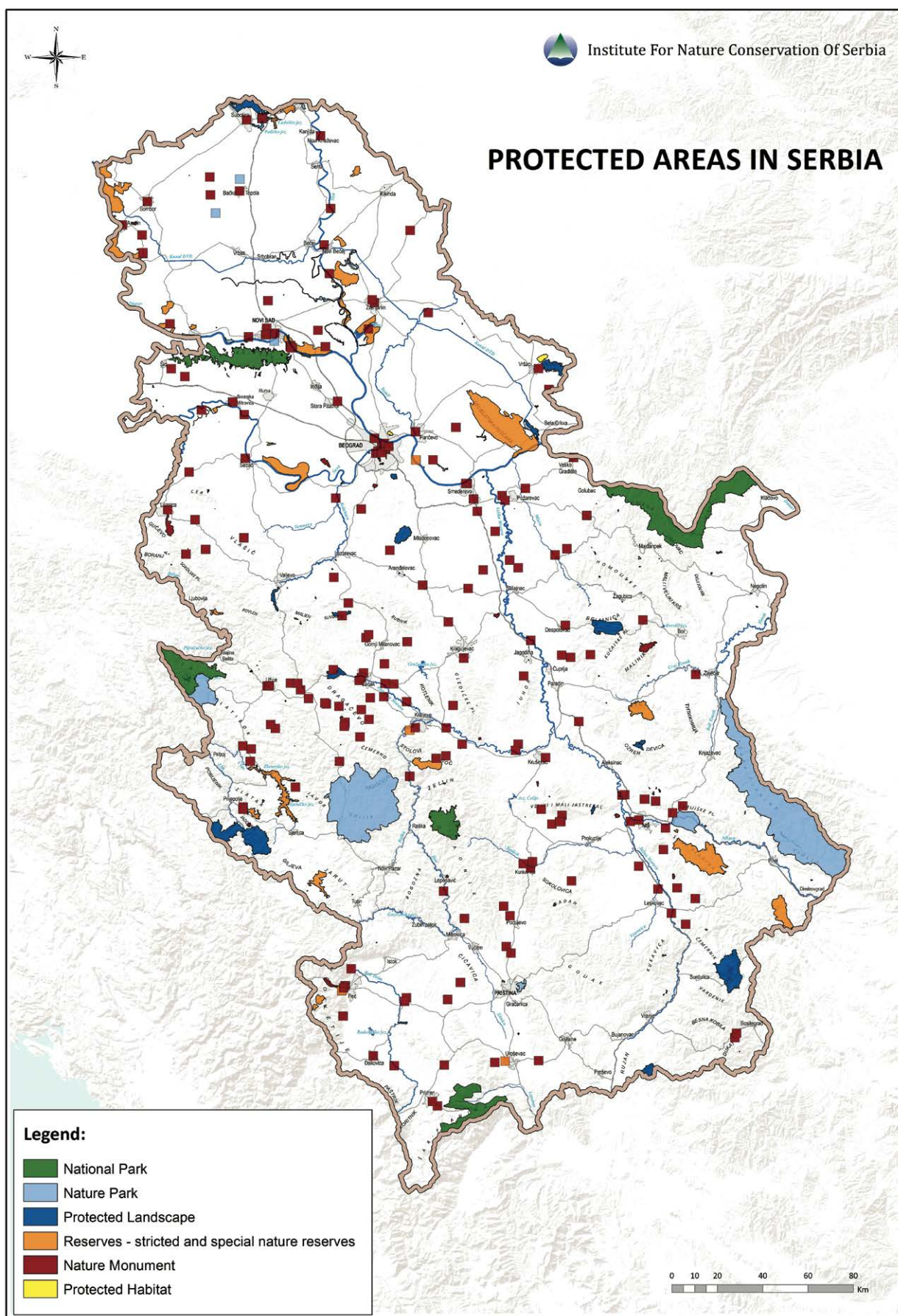


Figure 17 Geographical distribution of protected areas in Serbia

Source: Courtesy of the Institute for Nature Conservation Serbia

Application of IUCN management categories

National categorization is not fully aligned with the IUCN protected area management categories. Categorization principles of protected areas in Serbia are based on the Criteria of evaluation functions and purposes of areas including actual and potential contribution to the protected area, as opposed to the IUCN categories which are based on management goals. Most of the protected areas in Serbia comply with IUCN categories V and III, while only national parks are assigned as IUCN category II.

Procedure for designating protected areas

Protection of the area is primarily based on the strategic documents of Serbia (Spatial Plan of the Republic of Serbia) and the Midterm Programme and Annual Programme of work of the institutes for nature conservation. Subjects of nature conservation (from individuals to organizations) can also initiate the conservation of a certain area of interest. Following evaluation of an area, an expert study is developed by the Institute for Nature Conservation of Serbia or the Institute for Nature Conservation of Vojvodina Province (for Vojvodina). The study includes details on the proposed geographical boundaries, protection zones and cadastral municipalities, natural values, cultural heritage, tourism and socio-economic aspects, protection regimes, obligatory and facultative protective and management measures, concept and nature protection guidelines and the proposal of the managing authority (optional). The study is submitted to the competent authority for preparation of the draft act on protection.

Based on the expert study, the competent authority develops the Protection Act which is then assessed by authorities and stakeholders through a public hearing. After the public hearing and any corrections, the competent authority submits the Protection Act to the government for adoption. If the conditions are met and the study is approved, the area is proclaimed a protected area by the National Assembly (for a national park), the national government (for category I), the national or provincial government (for category II), or local self-government or the City of Belgrade (for category III). In the case of category III, if a protected area spans the territory of two or more local self-government units, the competent authorities of those local self-government units jointly proclaim the protected area, with the consent of the ministry responsible for nature conservation.

Protected area management planning

In Serbia, public institutions, established by the national government, are responsible for the management of national parks. Other types of protected areas may be managed by different institutions and bodies, including NGOs, private companies, religious entities, if the conditions of adequate management capacity are met. The capacity of potential managing institutions is assessed according to detailed guidelines outlining the conditions to be met by the managing authority of protected area.

According to the Protection Act, each protected area is required to develop a management plan for 10-year period. The content and scope of the management plan are defined by the Nature Protection Act. Management plans are developed by the protected area management body, usually with little to no participation of other stakeholders. Following the public hearing, the competent authority adopts the plan.

All sectoral documents (spatial planning, agriculture, forestry, water management, fishing, hunting, etc.) are required to be aligned with the Nature Protection Act and the management plan, as these serve as the basic control and strategic documents for the protected area. The government gives its consent to the management plan for national parks with the previous opinion of other relevant ministries. Management plans for protected areas, designated by a government decision (categories I and II) require the consent of the competent ministry for nature conservation with the previous opinion of other relevant ministries. The authority competent for nature conservation in Vojvodina and local self-governments, with the previous opinion of the Institute, approve the management plans for category III protected areas.

The management plans for five national parks, Djerdap, Kopaonik, Tara, Fruška Gora, and Šar Planina are currently in the adoption procedure pursuant to the new Law on National Parks. The list of 59 approved protected area management plans for which the Ministry gives consent is shown in Table 29.

Table 29 Protected area management plans in Serbia approved by the Ministry

Protected area	Timeframe
Kukavica Strict Nature reserve	2015-2024
Mustafa Strict Nature reserve	2015-2024
Tesne Jaruge Strict Nature reserve	2016-2025
Zelenika Strict Nature reserve	2016-2025
Iznad Tatalije Strict Nature reserve	2016-2025
Prokop Nature reserve	2011-2020
Gornje Podunavlje Special Nature Reserve	2011-2020
Deliblatska Peščara Special Nature Reserve	2011-2020
Koviljsko-Petrovaradinski rit Special Nature Reserve	2012-2021
Obedska bara Special Nature Reserve	2011-2020
Bagremara Special Nature Reserve	2011-2020
Zasavica Special Nature Reserve	2012-2021
Jelašnička klisura Special Nature Reserve	2011-2020
Paljevine Special Nature Reserve	2013-2022
Klisura reke Mileševke Special Nature Reserve	2015-2024
Jerma Special Nature Reserve	2015-2024
Mala jasenova glava Special Nature Reserve	2015-2024
Karađorđevo Special Nature Reserve	2014-2023
Uvac Special Nature Reserve	2013-2022
Slano Kopovo Special Nature Reserve	2011-2020
Ludaško jezero Special Nature Reserve	2010-2019
Selevenjske pustare Special Nature Reserve	2012-2021
Carska bara Special Nature Reserve	2012-2021
Kraljevac Special Nature Reserve	2010-2019
Titelski breg Special Nature Reserve	2013-2022
Goč-Gvozdac Special Nature Reserve	2016-2025
Okanj bara Special Nature Reserve	2014-2023
Ritovi donjeg Potisja Special Nature Reserve	2016-2025
Suva planina Special Nature Reserve	2016-2025
Golija Nature park	2011-2020
Sićevačka klisura Nature Park	2011-2020
Stara planina Nature Park	2010-2019
Dolina Pčinje Protected Landscape	2010-2019
Lepterijsko-Sokograd Protected Landscape	2011-2020
Vlasina Protected Landscape	2012-2021
Ovčarsko-kablarska klisura Protected Landscape	2012-2021
Subotička peščara Protected Landscape	2011-2020
Kamena gora Protected Landscape	2015-2024
Ozren-Jadovnik Protected Landscape	2015-2024
Krupajsko vrelo Nature Monument	2014-2023
Homoljska potajnica Nature Monument	2014-2023
Vrelo Mlave Nature Monument	2014-2023
Resavska pećina Nature Monument	2014-2023
Lisine Nature Monument	2014-2023
Cerjanska pećina Nature Monument	2011-2020
Đavolja varoš Nature Monument	2012-2021
Lazarev kanjon Nature Monument	2011-2020
Botanička bašta Jevremovac Nature Monument	2011-2020
Risovača Nature Monument	2013-2022

Promuklica Nature Monument	2015-2024
Prerasti u kanjonu Vratne Nature Monument	2015-2024
Klokočevac Nature Monument	2011-2020
Dunavski park Nature Monument	2012-2021
Stopica pećina Nature Monument	2011-2020
Slapovi Sopotnice Nature Monument	2010-2019
Ripaljka Nature Monument	2011-2020
Prebreza Nature Monument	2010-2019
Park Bukovičke banje Nature Monument	2013-2022
Dolina potoka Bigar Nature Monument	2016-2025

Source: Courtesy of the Ministry of Environmental Protection

Protected area governance and management

Protected area governance in Serbia is largely implemented by government. The full implementation and surveillance of measures prescribed in the Protection Act is the minimum demand and responsibility of protected area managers. In practical management issues, managers regularly consult with nature conservation institutes and, in the issues of financing, the Ministry for Agriculture and Environmental Protection, Secretariat for Urban Planning and Environmental Protection and local self-governments (depending where the areas are situated and the category of the protected area). Institutions have regular (but very limited) budgets for financing the basic needs of protected areas and the invitations are announced once to twice per year. However, real management effectiveness is often influenced by many constraints. The most evident is the fact that many managers of protected areas are also the main users of the natural resources of the areas they manage and the main source of pressure to the protected areas and biodiversity, especially in the case of public forestry enterprises, water management companies and hunting associations.

International recognition of protected areas

There are ten Ramsar Sites in Serbia covering 0.72% of the territory (639.19 km²), including: Ludaško Lake (1977), Obedska Bara (1977), Stari Begej/Carska Bara Special Nature Reserve (1996), Slano Kopovo (2004), Labudovo Okno (2006), Peštersko Polje (2006), Gornje Podunavlje (2007), Vlasina (2007), Zasavica (2008) and Koviljsko-Petrovaradinski Rit (2012). Proposal for a new site, Djerdap, is currently in the nomination procedure.

Golija-Studenica was established as a UNESCO Biosphere Reserve in 2001, comprising Golija Nature Park and the surroundings of the Studenica monastery. In 2017, Bačko Podunavlje was inscribed as Serbia's second UNESCO Biosphere Reserve.

Other areas of international importance defined in Serbia are 42 Important Bird Areas (IBA) providing the basis for the establishment of SPAs according to the Birds Directive, 62 Important Plant Areas (IPA) and 40 Prime Butterfly Areas (PBA).

6.4 Ecological networks

Natura 2000

The identification and establishment of Natura 2000 network is ongoing. In recent years, the Republic of Serbia has implemented a series of activities and projects to prepare for the establishment of the Natura 2000 network. The IPA twinning project 'Strengthening administrative capacities for protected areas in Serbia (Natura 2000)' was implemented in Serbia from 2010–2012, with the aim of supporting the alignment of the national legislation with the EU Directives, prepare proposals for the Natura 2000 network, raise institutional capacity and develop a communications strategy. The project resulted in the preparation of a preliminary list of 43 Special Protection Areas and a reference list of habitats types as proposed Sites of Community Importance. Two pilot management plans for potential Natura 2000 sites were also developed for Tara National Park and Obedska Bara Special Nature Reserve.

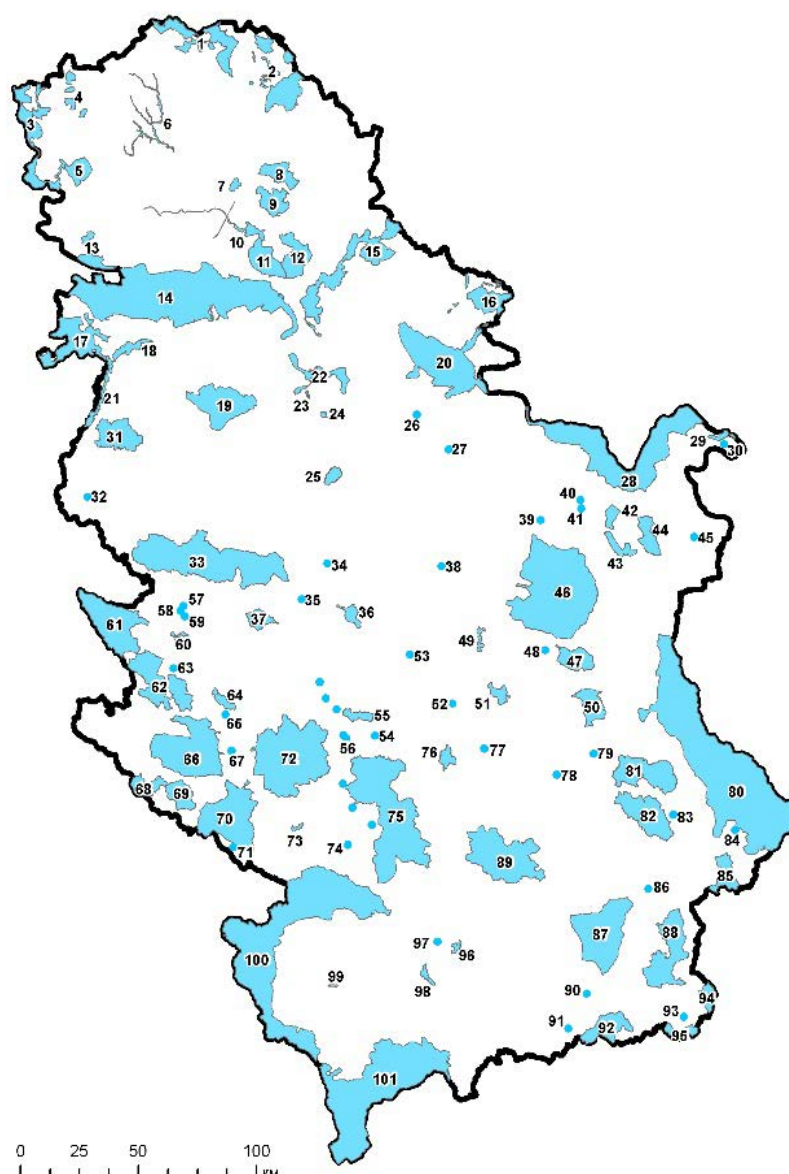


Figure 18 Map of the ecological network of the Republic of Serbia

Source: MoE/INCS

The second IPA project related to Natura 2000, 'Capacity building to implement 'acquis' standards and conventions in nature protection—establishment of Natura 2000' focused on data collection, mapping of habitats and species, preparation of proposals for Special Protection Areas and Sites of Community Importance and the Supply Tender for IT equipment and software for the Serbian NATURA 2000 Database. Natura 2000 process (data collection, mapping) is also supported by resources from the national budget within the framework of the contract between the Ministry of Agriculture and Environmental Protection and the Institute for Nature Conservation of Serbia for the project 'Establishing the ecological network of Serbia' (2015–2020).

Emerald Network

The Council of Europe financed the implementation of the Emerald Network pilot-project in 2005 entitled 'Establishment of Emerald ecological networks in the countries of South East Europe'. A total of 61 sites were officially nominated as candidate Emerald sites to the Standing Committee of the Bern Convention. These sites are particularly important for the protection and conservation of species and habitats (69 habitat types listed in Annex I and 143 species listed in Annex II of the EU Habitats Directive) and covers 10.192,69 km² (11.48%) of the territory of Serbia.

Other ecological networks

Pursuant to Article 38 of the Law on Nature Protection, the ecological network of the Republic of Serbia is established as a functionally and spatially connected entity in order to conserve habitat types of particular importance for the protection, renewal and/or improvement of degraded habitats and for the conservation of habitats of wild species of flora and fauna (Figure 18). The ecological network comprises nationally and internationally important ecological areas and ecological corridors and represents an assembly of functionally or spatially connected areas which through their biogeographic presence and representativeness significantly contribute to the conservation of biodiversity and sustainable utilization of resources, including the ecologically significant areas of the EU Natura 2000 network. The Decree on Ecological Network (Official Gazette of the RS, no. 102/2010) regulates the ecological network and provides guidelines for management and funding. The ecological network of Serbia covers 18,492.01 km² or 20.93% of country's territory.

Collection and verification of data for the ecological network is done with the support of projects 'Establishing the ecological network of Serbia', and "Development of the Red Book of Plants, Animals and Fungi in the Republic of Serbia" financed from the national budget.

6.5 Conservation of species

Red List

The first Red Book in Serbia, the Red Data Book of Flora of Serbia—Extinct and Critically Endangered Species, was published in 1999. The Red Book of Butterflies of Serbia (Lepidoptera: Hesperioidea and Papilionoidea) was released in 2003, followed by the Red Books of Fauna (I—amphibians and II—reptiles), published in 2015. Concerning vertebrates, only a Preliminary List of Species of Vertebrate Red Book was developed in 1990–1991, as the starting point for the development of a comprehensive Red List of vertebrates. Currently, there is an ongoing project financed by the Ministry of Agriculture and Environmental protection, 'Development of the Red Book of plants, animals and fungi in the Republic of Serbia' (2015–2017), which will further the preparation of Red Books. The Red Book of Birds is in its final phase of preparation.

At the broader regional level, species and habitats in the Serbian part of the Carpathians were assessed for the Carpathian Red List of species and habitats, drafted within the project 'Bioregio Carpathians' (2014).

Species management and action plans

The Institute for Nature Conservation of Serbia monitors more than 20 species of plants and animals, while the Institute for Nature Conservation of Vojvodina Province has been monitoring 5–10 species of plants and animals since 2005. In terms of specific action plans, six strategic documents were prepared: Action Plan for wetland protection in the Republic of Serbia (2007), Action Plans for protection and conservation of brown bear (*Ursus arctos*), wolf (*Canis lupus*) and lynx (*Lynx lynx*) (all adopted in 2007), Action Plan for the management of sturgeon species in fishing waters of the Republic of Serbia (2005), and Action Plan for invasive species (2007).

At the broader regional level, partners from Serbia contributed to the development of the Balkan Vulture Action Plan (2002). The institutions involved were the Institute for Nature Conservation of Serbia and NGOs, Birds of Prey Protection Foundation 'Griffon Vulture' and Natura Balkanika Nature Society.

6.6 Main pressures

The main pressures on biodiversity and habitats in Serbia relate to economic development, development of infrastructure and the energy sector, and uncontrolled tourism activities.

6.7 Valuation of ecosystem services

Ecosystem services are increasingly being considered in environmental and conservation planning, although valuation of ecosystem services in Serbia is still in the initial stages. The concept is still not widely accepted by the public and there is no adopted methodology or system for implementing such research. However, a number of site-specific studies on the valuation of biodiversity and awareness raising projects have been conducted in recent years:

- The Institute for Nature Conservation of Vojvodina Province implemented the project 'Application of a principle of sustainable use of areas important for conservation of biodiversity within ecological network in the Autonomous Province of Vojvodina' in 2011.
- Research on valuation of a part of ecosystem services, i.e. wood resources and selected non-wood forest products, began in Kopaonik National Park in 2013.
- The project 'Benefits of ecosystem services of the Djerdap National Park for the local community' (started in 2014) is being implemented by the Institute for Nature Conservation of Serbia in partnership with Djerdap National Park, as part of the broader 'Bioregio Carpathians' project financed by the EU Cross-border Cooperation Programme for South-eastern Europe. A study will be developed on the ecosystem services in Djerdap and their integration with the economic and development policy.
- A study for valuation of ecosystem services was developed for the Koviljsko-Petrovaradinski Rit Special Nature Reserve in the framework of the UNDP/GEF financed project 'Ensuring financial sustainability of protected areas' (2015), implemented by the Institute for Nature Conservation of Vojvodina Province.

Several other region-wide projects included promotion and awareness raising of the valuation of ecosystem services in Serbia. The project 'Biodiversity and ecosystem services for local sustainable development in the Western Balkans' (2009–2013), was implemented by the European Centre for Nature Conservation, Regional Environmental Centre and local authorities of 18 municipalities in the SEE, focused on raising awareness of local people on the value of nature. One of the results of the 'Danube Payment for Ecosystem Services (PES) project: promoting payments for ecosystem services and related sustainable financing schemes in the Danube basin', implemented by WWF, with the financial support of the GEF through UNEP and the European Commission, was the Analysis of PES Needs and Feasibility in Serbia (2012).

6.8 Nature information system

The Environmental Protection Agency manages the environment information system, including nature protection indicators at national level. The Institute for Nature Conservation of Serbia manages the Central Register of Protected Natural Areas of Serbia and cooperates regularly in the exchange of data with other government institutions that collect data on the environment at national level, i.e. the Republic Geodetic Authority, Statistical Office of the Republic of Serbia, and Environmental Protection Agency. The Institute is also responsible for developing an information system for the distribution of species and habitats, though relatively low amounts of data have been digitised thus far.

The two systems managed by the Institute are not publicly available nor connected to other available databases. For example, a number of NGOs joined in the Consortium of civil society organizations for mapping and monitoring biodiversity of Serbia, and this group has recently started the development of an open access species and habitats database called BioRaS.⁴ Another database, Biodiversity of Aquatic Ecosystems in Serbia (BAES database), has been compiled by the Faculty of Mathematics and Natural Sciences of the University of Kragujevac, while the List of Invasive Species has been developed by the Department of Biology and Ecology of the Faculty of Mathematics and Natural Sciences of the University of Novi Sad.

Plans are in place to establish a digital database on the Natura 2000 network, which will be managed by the Institute for Nature Conservation of Serbia.

6.9 Financing nature conservation

The main sources of financing nature conservation are national, provincial and municipal budgets, depending on the category of protected areas. However, these budgets are usually insufficient to cover basic functioning costs. Figure 18 provides information on the allocation of budget from the Ministry of Agriculture and Environmental Protection for protected areas in 2007–2009 in absolute numbers. It is evident that the budget decreased significantly in 2008 and 2009 compared to 2007. Most budget funds for protected areas are spent on covering the current costs of institutional financing and staff salaries. Some managers of protected areas (mainly NGOs) have well-developed schemes for additional financing, including generation of income from ecotourism and selling of branded products. Public enterprises for forestry mostly rely on

⁴ See <http://www.bioras.petnica.rs/home.php>

income generated by timber production. Public institutions for national parks also mostly rely on funds generated by timber production, although with a tendency to decrease such practices in the future.

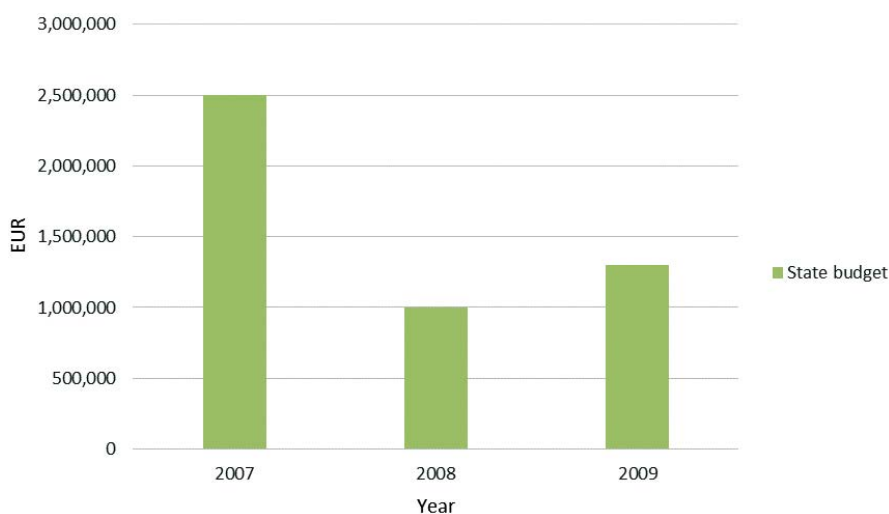


Figure 19 State budget allocations for nature conservation in Serbia (2007–2009)

Other sources of financing nature conservation include: charges for utilization of natural resources in protected areas, revenues from tourism, donations and grants. The most significant sources of international funds are the EU pre-accession funds (IPA). Additionally, certain funding is obtained from UNDP/GEF, World Bank, European Bank for Reconstruction and Development, United States Agency for International Development, GIZ, and others.

According to the UNDP-developed protected areas financial scorecard (a tool for tracking the progress of financial sustainability of protected area system at the national level), the ‘financial health’ of the protected area system in Serbia increased from 27.6% in 2009 to 38.7% in 2013. This result seems to be due to an improved legal framework, increase in government funding for protected areas and significant increases in tourism revenues. All these elements demonstrate that the Serbian protected area system is moving towards improved and more sustainable funding.

The Green Fund (Environmental budgetary fund) was established by a Decision of the Government of the Republic of Serbia in 2016 for the purpose of financing, preparation, implementation and development of programmes, projects and other activities in the fields of, among others, biodiversity conservation and sustainable use of protected areas.

6.10 Capacity building

Capacity building is usually organised *ad hoc* and within individual projects. These are usually short workshops or expert missions, e.g. the TAIEX expert mission on Appropriate Assessment undertaken in November 2016, facilitated by international experts and the EU. The Ministry of Agriculture and Environmental Protection organizes specialized gatherings for managers of protected areas on an annual basis. Lecturers at these workshops are normally employees of the ministry, nature conservation institutes, or international organizations.

Some of the main needs for capacity development are:

- Development and execution of management plans (implementation of management techniques)
- Strengthened communication skills
- Data management and exchange
- Assessment of ecosystem services.

7 Slovenia

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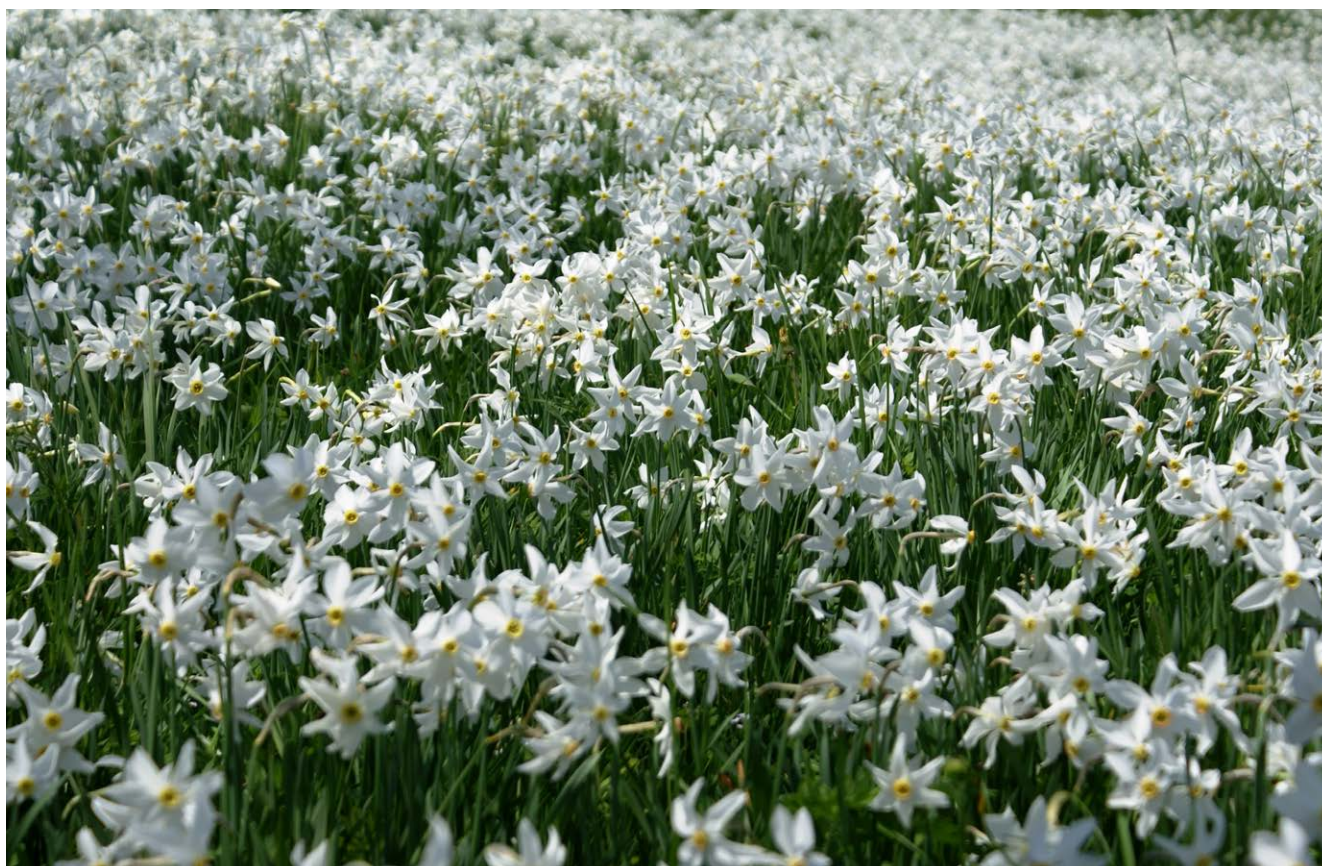


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7.1 Overview of institutions

State institutions

The main state institutions responsible for nature conservation in Slovenia are:

- Ministry of the Environment and Spatial Planning
- Slovenian Environment Agency
- Institute of the Republic of Slovenia for Nature Conservation
- Seven national public protected area management institutions
- Managers of protected areas at the local level

The Ministry of the Environment and Spatial Planning is the central institution that sets policies and coordinates work on environmental protection and nature conservation. Its Sector for Nature Conservation within the Environment Directorate employs around 16 experts. Some of the most important tasks of the Ministry include: preparation of legal regulations related to nature conservation, alignment of regulations of other ministries with nature conservation legislation, preparation of national nature conservation programme, integration of a nature conservation agenda into strategic development programmes, coordination of the establishment of protected areas, coordination of obligations under the EU regulations.

The Slovenian Environment Agency, a structural unit of the Ministry of the Environment and Spatial Planning, ensures effective implementation of relevant legislation and administrative procedures and prepares reports on the state of environment, among other tasks. Its Sector for Nature employs around 15 experts. Administrative tasks of the Agency are: issuing of permits, implementation of tasks under CITES, administrative tasks related to the protection of underground caves, tasks relating to compensation for damage caused by protected animal species, management of various environment records, i.e. databases.

The Institute of the Republic of Slovenia for Nature Conservation, established in 1999, is the main national technical organization in the field of nature conservation. The headquarters of the Institute are in Ljubljana, while seven regional units provide high-quality coverage of the terrain throughout Slovenia. The work of the regional units is rounded off by the central unit, which is responsible for coordination, standardisation of methods and uniform functioning of the Institute outwards and inwards. The Institute of the Republic of Slovenia for Nature Conservation employs around 90 people, around 77 of whom are nature conservation experts, and 63 are financed through the state budget. The Institute provides professional support to the government and other public institutions, prepares expert opinions on plans and projects in nature, participates in the management of protected areas and Natura 2000 network, monitors the state of conservation of nature, and works on environmental education and awareness raising.

National public institutions for protected area management employ approximately 180 people and have a mandate to directly manage seven protected areas. Other managers of protected areas include local municipalities and public institutions established at the local municipality level.

Scientific and other relevant institutions

A number of scientific institutes and other relevant institutions conduct research and implement projects in the nature conservation sector, including:

- Jovan Hadži Biological Institute
- Centre for Cartography of Fauna and Flora
- Chamber of Agriculture and Forestry of Slovenia
- Fisheries Research Institute
- Institute for Water of the Republic of Slovenia
- National Institute of Biology (Marine Biological Station in Piran)
- Nature History Museum of Slovenia
- Notranjski Museum in Postojna
- Slovenian Academy of Sciences and Arts
- Slovenian Forest Service
- Slovenian Forestry Institute
- University of Maribor (Faculty of Agriculture, Faculty of Science and Mathematics-Biology Department)
- University of Nova Gorica (Faculty of Science and Environment)
- University of Ljubljana (Faculty of Biotechnology-Biology Department, Agronomy Department).

NGOs

There are about 30 NGOs active in the field of nature conservation and environmental protection, including:

- Botanical Society of Slovenia
- Society for the Study of Amphibians and Reptiles
- Society for Study and Conservation of Butterflies Slovenia
- Speleological Association of Slovenia
- Society for Observation and Study of Birds Slovenia (DOPPS-Birdlife Slovenia).

7.2 Overview of the legislation system

National laws

The central law governing nature conservation is the Nature Conservation Act (in effect since 1999, latest update in 2014). Many other laws are also important for nature conservation, such as:

- Environmental Protection Act
- Waters Act
- Act on the Protection of Underground Caves
- Animal Protection Act
- Decree on protected wild animal species
- Decree on protected wild plant species

- Decree on Special Protection Areas (Natura 2000)
- Decree on protection of wild fungi
- Decree on the categories of valuable natural features
- Decree on habitat types
- Decree on ecologically important areas
- Rules on the inclusion of endangered plant and animal species in the Red List
- Rules on the designation and protection of valuable natural features
- Rules on taking of brown bear and wolf from the wild.

Transposition of the EU Nature Directives

The EU Habitats and Bird Directives are fully transposed into the Slovenian national legislation through the Nature Conservation Act and a number of pieces of subordinate legislation.

Multilateral environmental treaties

Slovenia is a Party to many important multilateral environmental treaties, as shown in Table 30.

Table 30 Multilateral treaties relevant for nature conservation ratified by Slovenia

Treaty	Entry into force
Convention on Wetlands of International Importance, Especially as Waterfowl Habitat (Ramsar Convention)	1992
Convention on Protection of the World Natural and Cultural Heritage (World Heritage Convention)	1992
Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean (Barcelona Convention)	1993
Convention on the Protection of the Alps (Alpine Convention)	1995
Convention on Biological Diversity (CBD)	1996
United Nations Framework Convention on Climate Change (UNFCCC)	1996
Convention on Cooperation for the Protection and Sustainable Use of the Danube River	1998
Convention on the Conservation of Migratory Species of Wild Animals (CMS)	1999
Convention on the Protection and Use of Transboundary Watercourses and International Lakes	1999
Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention)	2000
Convention on International Trade in Endangered Species of Wild Flora and Fauna (CITES)	2000
United Nations Convention to Combat Desertification (UNCCD)	2001
Cartagena Protocol on Biosafety to the CBD	2003
Protocol Concerning Specially Protected Areas and Biological Diversity in the Mediterranean (SPA/BD Protocol)	2003
Agreement on the Conservation of African-Eurasian Migratory Waterbirds (AEWA)	2003
Agreement on the Conservation of Populations of European Bats (EUROBATS)	2004
European Landscape Convention	2004
Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters (Aarhus Convention)	2004
Agreement on the Conservation of Cetaceans in the Black Sea, Mediterranean Sea and Contiguous Atlantic Area (ACCOBAMS)	2006
International Convention for the Regulation of Whaling and its Protocol	2006

Alignment of national biodiversity strategies with global and EU strategies

The Biodiversity Conservation Strategy of Slovenia was adopted by the government in 2001 and covers the period from 2002–2012. It is currently under revision and it is expected that the new Strategy will be adopted in the near future.

Sectoral strategies dealing with the use of natural resources (e.g. fishery, water management, spatial planning, forestry and hunting) are aligned with the Natura 2000 Management Programme for Slovenia (2015–2020).

7.3 Protected areas

Protected area coverage

Nearly 1,400 diverse protected areas cover 2,728.81 km² or 13.43% of Slovenia, out of which only 1.36% are marine protected areas (Table 31). The following categories of protected areas are applied in Slovenia:

- Large protected areas or nature parks (national park, regional park, landscape park);
- Small protected areas (strict nature reserve, nature reserve, nature monument) (Figure 19).

Triglav National Park, the country's only national park, together with other landscape parks, cover the largest area under protected area regime.

Table 31 Number and surface of protected areas in Slovenia

National protected area category	Number of protected areas	Land surface/km ²	Sea surface/km ²	% of total country surface
National Park	1	839.82		4.14
Regional Park	3	450.02		2.21
Landscape Park	54	1,168.37	1	5.76
Strict Nature Reserve	1	0.02		
Nature Reserve	66	63.91		0.31
Nature Monument	1,268	205.31	0.36	1.01
Total	1,393	2,727.45	1.36	13.43

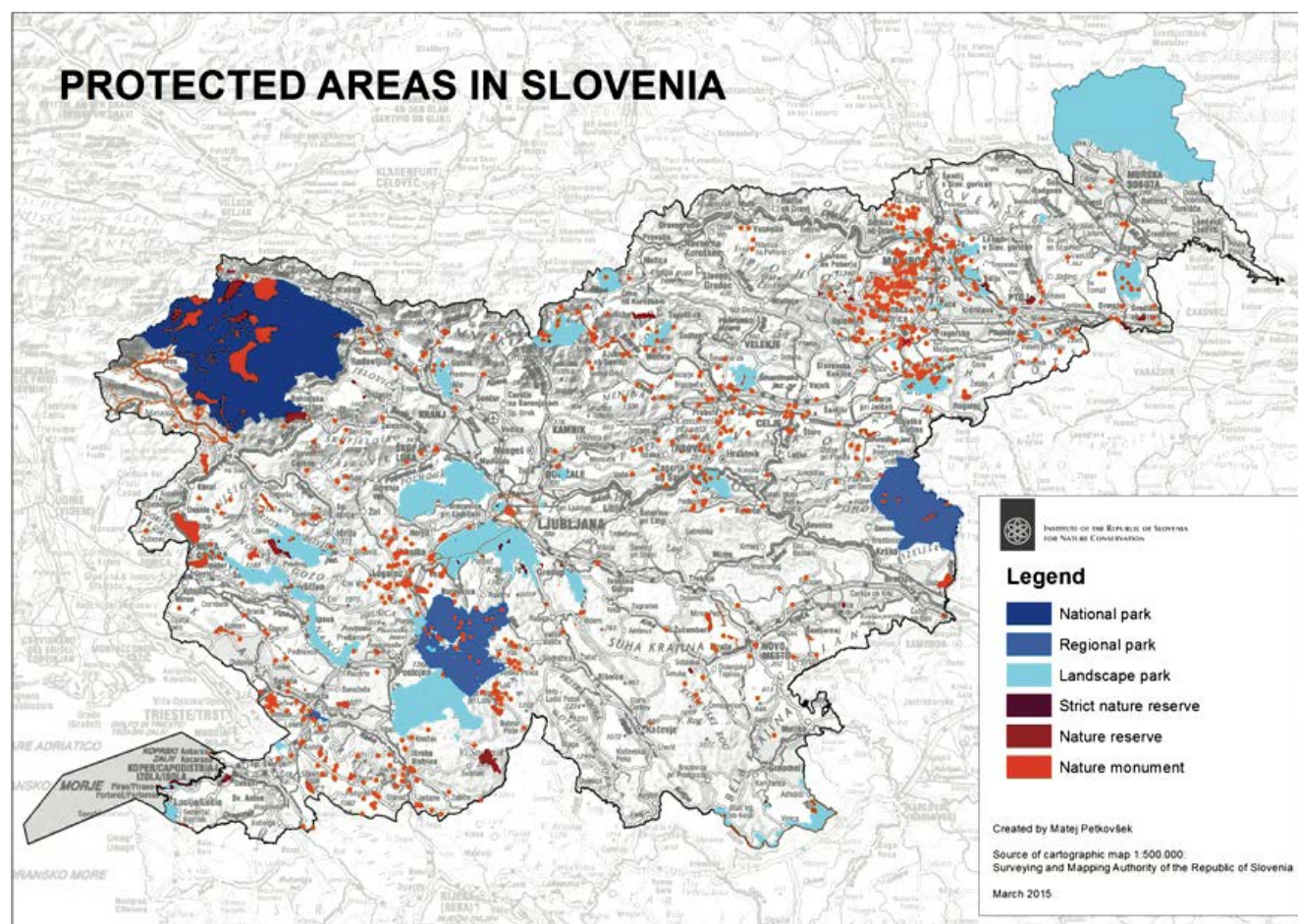


Figure 20 Protected areas in Slovenia

Application of IUCN protected area management categories

The national and corresponding IUCN management categories are shown in Table 32. However, according to an analysis (Sovinc et al., 2011), nature protected area standards do not entirely fulfil the IUCN protected area management objectives for the assigned categories.

Table 32 Protected area categories in Slovenia according to IUCN protected area management categories

National protected area category	Corresponding IUCN protected area management category
National park	II National Park / V Protected Landscape/Seascape
Regional park	V Protected Landscape/Seascape / II National Park
Landscape park	V Protected Landscape/Seascape
Strict nature reserve	Ia Strict Nature Reserve
Nature reserve	IV Habitat/Species Management Area / Ia Strict Nature Reserve
Nature monument	III Natural Monument or Feature

Procedure for designating protected areas

The process of designation of a protected area in Slovenia is stipulated in the Nature Conservation Act. The process begins with the preparation of an expert proposal for protection, prepared by a professional service (Institute of the Republic of Slovenia for Nature Conservation). Based on the expert proposal, the competent ministry prepares the instrument of protection (Protection Act), which is then put into the public hearing process. Following the adoption of the Protection Act, the proponent prepares and adopts a protected area management plan that defines development orientations, the method of implementation of the protection, use and management of the protected area. Protected areas may be established by the government, the competent authority of one or more local communities, or jointly. In some cases and with agreement with the state, the local community may establish a protected area.

Protected area management planning

The protected area management plan directs the development orientations, the manner of protection, use and management of protected area and detailed orientations for the protection of valuable natural features in the protected area, while taking into account the development needs of the local community. Pursuant to the Protection Act, the protected area management plan is adopted by the body that has adopted the instrument of protection. The management plan for the protected area established by the state is adopted by the government in a decree. Local communities in a protected area participate in the procedure for the adoption of the management plan by providing their opinions. The proposal for the protected area management plan is drawn up by the manager pursuant to the instrument of protection and with technical assistance of the organisation responsible for nature conservation.

According to the Nature Conservation Act, all national and regional parks must have management plans. The Nature Conservation Act also defines the contents of the protected area management plan. According to the acts on conservation, management plans are also obligatory for all landscape parks.

To date, four management plans have been adopted, as seen in Table 33.

Table 33 Protected area management plans in Slovenia

Management plan for protected area	Timeframe	Year of adoption
Sečovelje Salina Landscape Park	2011–2021	2011
Škocjan Caves Regional Park	2013–2017	2014
Škocjan Bay Nature Reserve	2015–2024	2015
Triglav National Park	2016–2025	2016

Protected area governance and management

The predominant governance type of protected areas in Slovenia is governance by government. In compliance with the instrument of protection, the body that establishes a protected area (usually central government or the local government) may manage the area on its own through a service unit, it may establish a public institution to manage the area, or grant a concession for management. Management of protected areas is implemented according to the Nature Conservation Act and the Protection Act that may determine that small protected areas need not have specific managers, though the conservation goals are ensured directly by the ministry or local community.

Examples of government-delegated concessions include the Sečovelje Salina Landscape Park where the concession for management was granted to a private company, and the Škocjan Bay Nature Reserve, where the concession was granted to an NGO. Both concessions were granted by the central government, while there is also an example of concession given by local municipality to a private company for management of protected area Tivoli, Rožnik and Šiška hill.

A public institution at municipal level has been established for the management of the Logarska Dolina Landscape Park. It consists of local municipality and a company (established by the local community).

International recognition of protected areas

Slovenia has one UNESCO World Heritage Site, Škocjan Caves, designated in 1986. There are three UNESCO Biosphere Reserves: Julian Alps (2003), Karst (2004), and Kozjansko & Obsotelje (2010). Three Ramsar Sites include: Sečovelje Salt Pans (1993), Škocjanske Jame (1999), and Lake Cerknica and its environs (2006). Further on, two UNESCO Global Geoparks include Idrija and the transnational Karawanken-Karavanke (Austria/Slovenia).

7.4 Ecological networks

Slovenia designated its Natura 2000 network in 2004, followed by the network's enlargement in 2013 and 2016. The network consists of 31 sites of Special Protection Areas under the Birds Directive and 324 sites of Special Areas of Conservation under the Habitats Directive. The network of 355 sites in total encompasses 7,684 km², which is approximately 37.16% of the country's territory. The sites are home to 114 plant and animal species and 60 habitat types protected by the Habitats Directive, and 119 species protected by the Birds Directive.

The Natura 2000 Management Programme for the period 2015–2020 was adopted by the Slovenian government in April 2015. The document outlines the conservation objectives for the Natura 2000 sites and measures to attain them, indicators for monitoring to establish the efficiency of measures to achieve a favourable status of species of wild flora and fauna, their habitats and habitat types, measures of protection, and research activities required to improve knowledge of the ecology of species of wild flora and fauna, and habitat types.

7.5 Conservation of species

Red List

In 2002, Slovenia prepared a Red List of endangered species that includes over 2,600 taxa from 42 taxonomic groups of plants and animals. The Red List served as a scientific groundwork for elaboration of the Rules on inclusion of endangered plant and animal species in the Red List, adopted in 2002. Further on, the Red List of fungi was adopted in 2010.

The main focus of future work is to improve and update the existing database, since most of the currently available data is outdated (most Red Lists were prepared in the 1990s). Progress has been made during the past decade in the assessment of birds as DOPPS-Birdlife Slovenia accumulated a comprehensive data set.

Species management and action plans

Strategies and action plans for large carnivores, brown bear, wolf, and lynx in Slovenia have all been prepared. The Strategy for conservation and sustainable management of wolf (*Canis lupus*) was prepared in 2009, while the Action Plan for management of wolf (*Canis lupus*) in Slovenia was further detailed for the period of 2013–2017. Brown bear is managed in accordance with the Strategy for management of brown bear (*Ursus arctos* L.) adopted in 2002. The Strategy of conservation and sustainable management of lynx (*Lynx lynx*) has been prepared for the period 2016–2026, while there are plans to prepare an action plan for beaver (*Castor fiber*).

7.6 Main pressures

Some of the main threats to biodiversity in Slovenia include intensification of agriculture, spread of invasive species, intensification of forest exploitation, uncontrolled urbanization and development of infrastructure for industrial, commercial and recreational purposes, pollution of land, surface waters, groundwater and the sea, watercourse regulation, intensive fish farming, overgrowth of hay meadows and pastures due to the abandonment of traditional land uses, and traffic.

7.7 Valuation of ecosystem services

In Slovenia, several studies have been conducted on ecosystem services in specific areas. A wider comprehensive study covering all biogeographic regions and diverse ecosystems with their services in the country is yet to be completed.

Currently, the 'AlpES' (note that 'ES' stands for 'ecosystem services') project (2015–2018), financed by the EU Interreg Alpine Space programme, aims to: develop an Alpine ecosystem services concept, carry out mapping and assessment of ecosystem services for the Alpine area, make the results publicly available to enable analyses, and ensure a multi-level and cross-sectoral transfer of the project results to the stakeholders via innovative, tailored and transferable learning tools and targeted activities.

In 2010, the Guidelines on the Economic Evaluation of Natural Assets of the Protected Areas were developed as part of a project 'Managing natural assets and protected areas as sustainable regional development opportunities (NATREG)' financed by the South East Europe Transnational Cooperation Programme. The Guidelines suggest the most common economic evaluation methods of ecosystem services in protected areas, providing a quick reference for the most useful methods. The methods were tested in Lovrenška Lakes Forest Reserve resulting in the publication 'Economic Evaluation of Ecosystem Services of the Lovrenška Lakes', released in 2011.

Another site-based study on valuation of ecosystem services was the Ecosystem Services Evaluation in the Škocjan Caves Regional Park (2011), prepared within the framework of WWF's project 'The Dinaric Arc Ecoregion-Protected areas for a living planet'. Several other important studies focused on the development of the concept of multifunctional forest management and ecosystem services, socio-economic analysis of the Adriatic Sea in Slovenia, and improved management of natural capital.

7.8 Nature information system

Slovenia's nature conservation information system is available through the Nature Conservation Atlas,⁵ managed by the Institute of the Republic of Slovenia for Nature Conservation. The Atlas contains nature conservation datasets as Natura 2000, ecologically important areas, valuable natural features, protected areas, habitat types, nature conservation guidelines, conservation measures and management. Some data are publicly available.

⁵ See <http://www.naravovarstveni-atlas.si>

7.9 Financing nature conservation

Public institutions are largely financed from the following sources: state budget, municipal budget, grants and donations, revenues from sale of goods and services, entrance fees (tourism), international assistance programmes and international projects (e.g. EU programmes such as LIFE, HORIZON 2020, ERASMUS+, structural and investment funds, the Swiss contribution, the Norwegian Financial Mechanism).

Between 2011 and 2016, the state budget for nature conservation was declining.

7.10 Capacity building

Capacity building workshops to date have been conducted through project activities and mainly organized by the Institute of the Republic of Slovenia for Nature Conservation. These workshops focused on various aspects of management of protected areas, communication and interpretation.

Further strengthening of capacity is needed primarily in the following areas:

- Valuation of ecosystem services
- Communication and interpretation
- Compensation measures
- Assessment of carrying capacity in protected areas.



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References

- Burbidge, T., Civic, K., Delbaere B. and Schrauwen, A. (2015). *Initiatives related to mapping and assessment of ecosystems and their services in EECCA and SEE countries* – Scoping Document. Tilburg, the Netherlands: ECNC. <<https://www.ecnc.org/uploads/2015/02/Initiativesrelated-to-mapping-and-assessment-of-ecosystems-and-their-services-in-EECCA-and-SEE-countries-scoping-document.pdf>>. Accessed on 23 February 2017.
- Dudley, N. (ed.) (2008). *Guidelines for Applying Protected Area Management Categories*. Gland, Switzerland: IUCN. <https://doi.org/10.2305/IUCN.CH.2008.PAPS.2.en>
- Federal Ministry of Environment and Tourism (2014). *Fifth National Report to the United Nations Convention on Biological Diversity of Bosnia and Herzegovina*. <<https://www.cbd.int/doc/world/ba/ba-nr-05-en.pdf>>. Accessed on 20 March 2016.
- IPSA Institute Sarajevo, Institute for Urbanism of BiH, Eco-Plan Mostar (2012). *Spatial Plan of FBiH 2008–2028*. Sarajevo, Mostar.
- Montenegro Ministry of Sustainable Development and Tourism (2014). *The Fifth National Report to the United Nations Convention on Biological Diversity*. <<https://www.cbd.int/doc/world/me/me-nr-05-en.pdf>>. Accessed on 20 March 2016.
- Sovinc, A., Fišer Pečnikar, Ž., Gosar, A. (2011). 'Govorimo isti jezik?: primerjava mednarodnih in slovenskih meril kategorizacije zavarovanih območij'. In: Nared, J., Perko, D., Razpotnik Visković, N. *Razvoj zavarovanih območij v Sloveniji*. Regionalni razvoj 3. Ljubljana: Založba ZRC.



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