FIRST NATIONAL REPORT OF THE REPUBLIC OF SERBIA
TO THE UNITED NATIONS CONVENTION ON BIOLOGICAL DIVERSITY

July 2010
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## ACRONYMS AND ABBREVIATIONS

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Full Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>AP</td>
<td>Autonomous Province</td>
</tr>
<tr>
<td>CARDS</td>
<td>Community Assistance for Reconstruction, Development and Stabilisation</td>
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<tr>
<td>CBD</td>
<td>Convention on Biological Diversity</td>
</tr>
<tr>
<td>CITES</td>
<td>Convention on International Trade in Endangered Species of Wild Flora and Fauna</td>
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<tr>
<td>EEA</td>
<td>European Environmental Agency</td>
</tr>
<tr>
<td>EIA</td>
<td>Environmental Impact Assessment</td>
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<tr>
<td>EIONET</td>
<td>European Environment Information and Observation Network</td>
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<tr>
<td>EU</td>
<td>European Union</td>
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<tr>
<td>GDP</td>
<td>Gross domestic product</td>
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<tr>
<td>GEF</td>
<td>Global Environment Facility</td>
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<tr>
<td>GIS</td>
<td>Geographical information system</td>
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<tr>
<td>GMO</td>
<td>Genetically modified organism</td>
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<tr>
<td>IBA</td>
<td>Important Bird Areas</td>
</tr>
<tr>
<td>INP</td>
<td>Institute for Nature Protection</td>
</tr>
<tr>
<td>IPA</td>
<td>Important Plant Areas</td>
</tr>
<tr>
<td>IPA</td>
<td>Instrument for Pre-Accession Assistance</td>
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<tr>
<td>LEP</td>
<td>Law on Environmental Protection</td>
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<tr>
<td>LNP</td>
<td>Law on Nature Protection</td>
</tr>
<tr>
<td>MAFWM</td>
<td>Ministry of Agriculture, Forestry and Water Management</td>
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<tr>
<td>MEA</td>
<td>Multilateral environmental agreement</td>
</tr>
<tr>
<td>MoME</td>
<td>Ministry of Mining and Energy</td>
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<tr>
<td>MOH</td>
<td>Ministry of Health</td>
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<tr>
<td>MESP</td>
<td>Ministry of Environment and Spatial Planning</td>
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<tr>
<td>NCBS</td>
<td>National Council for Biological Safety</td>
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<tr>
<td>NCSD</td>
<td>National Council for Sustainable Development</td>
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<tr>
<td>NEPP</td>
<td>National Environmental Protection Programme</td>
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<tr>
<td>NGO</td>
<td>Non-governmental organization</td>
</tr>
<tr>
<td>NSSD</td>
<td>National Strategy for Sustainable Development</td>
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<tr>
<td>PA</td>
<td>Protected Area</td>
</tr>
<tr>
<td>PBA</td>
<td>Prime Butterfly Area</td>
</tr>
<tr>
<td>RS</td>
<td>Republic of Serbia</td>
</tr>
<tr>
<td>SAP</td>
<td>Stabilization and Association Process</td>
</tr>
<tr>
<td>SEA</td>
<td>Strategic environmental assessment</td>
</tr>
<tr>
<td>SEPA</td>
<td>Serbian Environmental Protection Agency</td>
</tr>
<tr>
<td>UNCCD</td>
<td>United Nations Convention to Combat Desertification</td>
</tr>
<tr>
<td>UNDP</td>
<td>United Nations Development Programme</td>
</tr>
<tr>
<td>UNEP</td>
<td>United Nations Environmental Programme</td>
</tr>
<tr>
<td>UNESCO</td>
<td>United Nations Educational, Scientific and Cultural Organization</td>
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<tr>
<td>UNFCCC</td>
<td>United Nations Framework Convention on Climate Change</td>
</tr>
</tbody>
</table>
1. EXECUTIVE SUMMARY

The global decline in biological diversity, i.e. the loss or impairment of habitats, species and genetic variety within species, is leading to a frequently irreparable impoverishment of nature and might undermine the very foundations of humanities future existence. The Convention on Biological Diversity has been designed to reverse this trend by improving the conservation and sustainable use of biological diversity.

By signing this agreement, the Republic of Serbia expressed its devotion to achieve the goals of convention and to integrate biodiversity conservation into all other sectors. This is an important milestone for improving the state of biodiversity at both national and international levels, taking into account the three main principles of CBD - the conservation of biological diversity, the sustainable use of its components and the fair and equitable sharing of the benefits arising from the utilization of genetic resources.

This report is Serbia’s response to Decision II/17 of the Second Conference of the Parties to the Biodiversity Convention, concerning the form and intervals of national reports by Contracting Parties requested under Article 26 of the Convention. According to the Decision, the first national reports by Parties are to focus as far as possible on measures taken from the implementation of Article 6 of the Convention (General Measures for Conservation and Sustainable Use), as well as the information available on national country studies on biological diversity. An Annex to Decision II/17 contains suggested guidelines for national reporting and the content of this report is following these suggested guidelines.

The report is divided into the following chapters:

- Part 2 provides brief information on Serbia’s geography, climate, population and economy;
- Part 3 summarizes the status and importance of biodiversity in Serbia;
- Part 4 provides an overview of the main threats to biodiversity in Serbia;
- Part 5 summarizes policy, legal and institutional framework in Serbia;
- Part 6 describes the country’s orientation for the future in biodiversity conservation

Annexes 1-9 provide additional information relevant for this report.
2. INTRODUCTION

2.1 Geographic Profile

Serbia is situated in the central part of the Balkan Peninsula in the South Eastern Europe. It covers the area of 88,361 km\(^2\). The main climate type is mild-continental with four seasons yearly. The rivers of Serbia bring waters to the Black, Adriatic and Aegean seas. The northern part of the country is mainly filled with plains, while central and southern parts are hilly to mountainous. It is estimated that Serbia has ca. 55% of arable lands, 27% being forest. Fifteen mountain peaks pass over 2000m.

Pannonian basin, which with its southern parts belongs to Serbia, has the following geomorphologic parts: alluvial plains, river terraces, loess plateau and hills. The geological base consists of sand, gravel, sill mud and loess. The hills in northern Serbia have a varying geology: metamorphic rocks from the Triassic, Cretaceous and Pliocene mixed with posttercier formations. The hilly-mountainous part of Serbia is characterized by even more heterogeneity, mainly consisting of the five huge ranges: Rhodopian, Carpathian, Balkan, Dinaric and Scardo-Pindic massifs. They are geologically distinctive and heterogeneous (from various type of metamorphic rocks, limestone, silicate, serpentines, etc.), and have an extremely high petrological diversity.

*Figure 1: The position of the Republic of Serbia in Europe*

2.2 Climate Profile

Climate in Serbia is also very heterogeneous due to its geographic position, orography, the presence of river systems, vegetation, etc.

Within the territory of Serbia various climatic types are represented: danubian type (eastern part), illyric type (western part), moesian type (central part), mountain-illyric type (western part), oro-mesian type (central, eastern part), mountain-submediterranean-adriatic type
(south-western part), mountain-submediterranean-aegean type (central-southern part), pannonian (northern part) and a few transitional climate types. The situation is even more complex when taking into consideration various meso- and microclimatic types, which are preconditions for high biodiversity rates, but also important factors in biodiversity conservation.

Climatic, orografic and geological heterogeneity of Serbia creates diversity of soil types as well. They are classified into few main types: automorphic (mainly zonal and climatogenic soil types), hygromorphic (developed by the water activities, mainly azonal), halomorphic (with high salt content, mainly intrazonal) and subhydric (developed on the bottom of the water basins).

Average annual air temperatures vary with altitude. Areas at altitudes between 300 and 500m have an average annual temperature of around 10.0°C, and those of over 1000 m altitude around 6.0°C. July is the warmest month of the year with mean monthly temperatures in the interval from 11.0 to 22.0°C. The lowest temperatures are usually recorded in January, ranging between –35.6 and –21.0°C.

Serbia has a predominantly continental pattern of precipitation with higher amounts in the warmer period of the year. Most precipitation occurs in June and May, while February and October have the least. South-western Serbia has a Mediterranean precipitation pattern with maximums in November, December and January, and minimums in August. Snow cover is characteristic of the period between November and March, and sometimes even April and October, but snowfall also occurs in other months of the year in mountainous areas exceeding 1000m. January has the highest number of days with snow cover, accounting for an average of 30-40% of the total number of snowy days.

Annual solar radiation ranges between 1500 and 2200 hours annually.

Surface air circulation is mostly the result of orographic factors. In the warmer part of the year, winds from north-west and west prevail, while easterly and south-easterly winds, the so-called “košava”, predominate in the colder period of the year. Winds from the south-western direction prevail in the mountainous parts of south-western Serbia.

Figure 2: Climate trends in Serbia, left: temperature trend in °C for period 1951–2004; right: precipitation trend in % for period 1951–2000
2.3 Population Profile

The ethnic population of the Republic of Serbia is diverse as a result of the country's turbulent past. The majority of the population of Serbia is Serbs, but another 37 nationalities also live on its territory. Periodic population censuses in Serbia were performed in 1921, 1931, 1948, 1953, 1961, 1971, 1981, 1991 and 2002. The last 2002 census counted the population of Serbia at 7,498,001 excluding southern province Kosovo and Metohija and 9,981,929 including Kosovo and Metohija and refugees. Population growth rate was -0.739% in 2000 and is estimated to -0.468% in 2008. Estimation of age structure in 2000 is as follows: 0-14 years: 19.95% (male 1,028,355; female 963,366); 15-64 years: 65.22% (male 3,187,746; female 3,322,425); 65 years and over: 14.83% (male 638,204; female 841,833). Sex ratio in Serbia is at birth: 1.08 male(s)/female; under 15 years: 1.07 male(s)/female; 15-64 years: 0.96 male(s)/female; 65 years and over: 0.76 male(s)/female; total population: Serbia - 0.95 male(s)/female. Birth rate in 2009 was 9.19 births/1,000 population. Infant mortality rate: 20.13 deaths/1,000 live births in 2000 and 13.86 deaths/1,000 population in 2009. The average population density of population in Serbia is 111 individuals per square kilometer.

Urban population comprises 52% of the total population (2008). The rate of urbanization is a 0.5% annual rate of change (estimation for the period 2005-10).

Figure 3: Population structure in Serbia with estimation until 2020

Source: Republic Institution for Statistics (RZZS)

2.4 Economic Profile

At the end of 2000, Serbia embarked upon a process of transition towards market economy, which led to significant economic growth. Macroeconomic activity from 2001 until 2005 was characterized by introduction of sustainable macroeconomic stability as well as sustainable and stable economic growth.
After 2000, the country went through the economic liberalization, and experienced fast economic growth (GDP per capita went from $1,160 in 2000 to $6,782 in 2008). Furthermore, the country has been preparing for membership in the European Union, its most important trading partner. Estimated GDP (PPP) of Serbia for 2008 is $78.83 billion which is $10,679 per capita. At present, main economic problems include high unemployment rate (14%) and a large trade deficit ($11 billion). Being the only European country with free trade agreements with the EU and Russia, Serbia expects more economic impulses and high growth rates in the coming years. In recent years, Serbia has seen an increasingly swift foreign direct investment trend.

3 THE BIODIVERSITY OF SERBIA

3.1 Overview

Biological diversity represents the variation of life forms within a given ecosystem, biome, territory or entire Earth. Following the United Nations Conference on Environment and Development (UNCED) in Rio de Janeiro in 1992, the concept of "biological diversity" became the subject of an agreement under international law, namely the Convention on Biological Diversity. Biological diversity refers to the variability among living organisms of all origins. It comprises of both the diversity of ecosystems and species, as well as the genetic variety within species.

Serbia’s status as a centre of biodiversity in Europe is to a high degree determined by its geological age, geomorphology, and climatic conditions and, in particular, by its role as refuge for a number of species during the glacial periods. Thus, the Balkan and Pannonian regions of the country harbor numerous endemic-relict floral elements from previous geological ages. Serbia hosts 39% of Europe's vascular plant species, 51% of its fish fauna, 74% of its bird fauna and 67% of all mammal species. Furthermore the country offers a resting place for many migratory species, including endangered ones. The total number of all species that live in Serbia represents 43.3% of all existing species in Europe.

3.2 Ecosystem and Habitat Diversity

The extensive range of ecosystems types in Serbia is largely the result of its geographic position, the influence of climate, relief and elevation variety.

Available data say that there are over 1000 plant communities and ecosystem types in Serbia. Serbia has a large biomic diversity (from north to south – steppic, broad deciduous forests, boreal forests, and tundra in high mountains). Beside climate-zonal vegetation, many extrazonal, intrazonal and azonal ecosystem types are present. There is also a rich diversity of aquatic ecosystems including river floodplains, lakes, wetlands, bogs, and mountain rivers.

Ecosystem diversity can be presented by the number of plant communities recorded in Serbia: approximately 1200 associations and some 500 sub-associations. Many of these communities express endemic, relic or both characteristics, which portray the importance and uniqueness of Serbian ecosystem diversity. According to the plant communities which define ecosystems, the following ecosystem groups can be mentioned: hydrophyllous, hygrophyllous, xerophyllous, mesophyllous and submesophyllous vegetation with plain and montane, subalpine, cryophyllous types, further halophyllous, psamophyllous vegetation and numerous types of broad-leaves and coniferous forest types.

Also, interesting ecosystems where no green plants can be found should be mentioned, such as the cave ecosystems which are numerous and under-explored in Serbia.

Annexes 1, 2 and 3 provide lists of habitats, their numbers and types.
3.3 Species Diversity

Serbia covers approximately 2.1% of the European continent; however, it hosts 39% of its vascular flora, 40% of Europe’s bryophyte flora, 51% of fish fauna, 49% of reptiles and amphibians fauna, 74% of bird fauna and 67% of mammal species.

Having in mind that a lot of wildlife and plants discovered their habitat in this area during periods of glaciation in northern Europe, it is not surprising that Serbia has numerous relic species diversity as well. Serbia, due to its position, also has a rich endemic species (Balkan endemics – 8.06% or 287 species, local endemics - 1.5% or 59 species).

On the other hand, Serbia is, even on a world scale, a wintering, resting and nesting/breeding ground for migrating animals on their passage from the north and south and the opposite in the autumn/spring time and on their going and return migratory journeys (e.g. migratory birds, bats).

### Species diversity by groups

<table>
<thead>
<tr>
<th>Species group</th>
<th>Species (*with Montenegro)</th>
<th>Internationally significant species present in Serbia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Macromycetes</td>
<td>625</td>
<td>73</td>
</tr>
<tr>
<td>Lichens</td>
<td>586</td>
<td>8</td>
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<tr>
<td>Freshwater algae</td>
<td>ca. 1400</td>
<td>13</td>
</tr>
<tr>
<td>Bryophytes</td>
<td>631</td>
<td>37</td>
</tr>
<tr>
<td>Vascular plants</td>
<td>3662</td>
<td>243</td>
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<tr>
<td>Rhizopoda*</td>
<td>236</td>
<td>11</td>
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<tr>
<td>Rotatoria*</td>
<td>326</td>
<td>4</td>
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<td>Nematods*</td>
<td>327</td>
<td>5</td>
</tr>
<tr>
<td>Oligochaets*</td>
<td>77</td>
<td>?</td>
</tr>
<tr>
<td>Earthworms*</td>
<td>79</td>
<td>12</td>
</tr>
<tr>
<td>Molusks*</td>
<td>ca. 400</td>
<td>77</td>
</tr>
<tr>
<td>Claadocera*</td>
<td>91</td>
<td>6</td>
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<tr>
<td>Copepods*</td>
<td>72</td>
<td>8</td>
</tr>
<tr>
<td>Amphipods</td>
<td>33</td>
<td>12</td>
</tr>
<tr>
<td>Opilions*</td>
<td>66</td>
<td>9</td>
</tr>
<tr>
<td>Pseudoscorpions</td>
<td>ca. 200</td>
<td>35</td>
</tr>
<tr>
<td>Mites*</td>
<td>1237</td>
<td>280</td>
</tr>
<tr>
<td>Insects</td>
<td>ca. 35000</td>
<td>198</td>
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<tr>
<td>Fishes</td>
<td>110</td>
<td>19</td>
</tr>
<tr>
<td>Amphibians and reptiles</td>
<td>132</td>
<td>31</td>
</tr>
<tr>
<td>Birds</td>
<td>382</td>
<td>350</td>
</tr>
<tr>
<td>Mammals</td>
<td>96</td>
<td>3</td>
</tr>
</tbody>
</table>

** There is a variety of groups of organisms mainly microorganisms and lower life forms for which there are no data for Serbia

In Serbia some 44,200 taxa of living organisms were recorded. However, due to many under-recordings, taxonomical problems and ignorance of many groups, the number of species diversity is estimated to 60,000 recent taxa. More detailed lists are provided in Annexes 4 and 5.

3.4 Genetic Diversity

Genetic resources of biodiversity in Serbia can be estimated as rich since there are numerous varieties, sorts and types of autochthonous populations of all plants, animals and microorganisms. However, the exact data for most of the organisms are still missing.

The potential of genetic diversity in Serbia is usually marked in forests and natural grasslands. The data on genetic diversity are available for certain forest trees, namely *Picea omorika, Picea abies, Pinus nigra* and *Acer heldreichii*. Large genetic resources are present.
in endemic and relic species like *Pinus peuce*, *Pinus heldreichii*, *Pinus nigra* ssp. *gocensis*, *Taxus baccata*, *Prunus laurocerasus*, *Fraxinus pallisae*, *Corylus colurna*, *Daphne blagayana* etc.

As autochthon genetical resources, large values are estimated within native grassland species *Alopecurus pratensis*, *Arrhenatherum elatius*, *Festuca pratensis*, *Dactylis glomerata*, *Phleum pratense*, *Poa pratensis*, *Lotus corniculatus*, *Trifolium* ssp. and other.

Certain data on the genetical distinct populations of bryophytes diverging from other European ones are present for European rare and endangered species *Hilpertia velenovskyi*. European widely but scattered distributed moss *Rhytidium rugosum* has a very geographically differentiated genetical structure, while the liverwort *Metzgeria furcata* fits well genetically into European lineages.


In Serbia, there are over 1200 sorts of agricultural plants: ca. 80 annual and perennial, over 740 cereals, over 170 industrial plants, over 70 sorts of forage crops, over 120 vegetable sorts, over 40 fruit sorts, over 50 grape vine sorts and 6 sorts of horticultural and medicinal plants.

On the other hand, the demestificated animals lost genetic potential due to the increase of production in certain sorts. Some sorts are already extinct or almost extinct: two pork sorts, one cattle sort and many sorts of poultry. More targeted action is needed to keep important and maintaining not only certain species, but various genetic features of the diverse organisms also as potential resources (detailed list provided in Annex 6).

3.5 Protected Areas

Currently, 5.86% of the territory of the Republic of Serbia is under some protection regime (518,204 ha). The total number of protected areas are 463 (5 National parks, 16 Nature parks, 16 Landscapes of extraordinary characteristics, 72 Special nature reserves, 312 natural monuments and 42 areas of cultural and historic values). As natural rarities, 429 animal and 215 plant species are protected in Serbia. The protected areas undergo special regimes of protection from the most severe (I) until not severely protected with possibility of sustainable use of resources (III). However, there are also protected areas which still are not under any protection regime. There are 9 Ramsar sites in Serbia with total area of 55627 ha (0.63% of total territory): Obedska bara, Ludasko jezero, Stari Begej-Varska bara, Slano kopovo, Gornje podunavlje, Zasavica, Vlasina, Labudovo okno and Pestersko polje.

Nature park Golija represents is designated as the UNESCO Biosphere Reserve Golija-Studenica.
In 1995, European environmental ministers supported the Pan-European Strategy of Biological and Landscape Diversity, which was the basis for the establishment of the Pan-European Ecological Network (PEEN). The aim of this network is to provide long-term conservation of ecosystems, habitats and species of importance for protection at the European level. The base for the establishment of such networks is provided through a relevant database on the endangerment status and distribution of plant and animal species throughout Europe. PEEN stipulates existence of a central zone, which would be made of Natura 2000 and Emerald areas. It also stipulates existence of corridors that connect central zones and enable migration and dispersion of species, as well as transitional zones and recovery areas, which would be under lower degree of protection than the central zone. It is becoming clear that endangered species cannot be protected only by forming isolated nature reserves.

Protection and conservation of nature are among most important parameters of Serbia’s future development within the EU accession process. Natura 2000 is a network of protected areas, which obliges every EU member state to provide adequate status for endangered species and habitat types at its territory, as stated in the Appendices of Birds Directive and Habitat Directive, which in practice implies adequate management in these areas. Taking into account that Serbia aspires to the European integrations, establishment of Natura 2000 network is, without any doubts, a strategic priority in protection of biological diversity. In addition to legal and institutional frameworks, which have been defined, key elements of the establishment of Natura 2000 ecological network are seen in the following: definition of subjects in charge of the Natura 2000 areas management; identification of process initiators; organizational structures; definition of stakeholders, responsibilities and functions to be
performed by certain institutions; necessity for the establishment of new institutions; implementation of management plans, etc.

The Emerald Network is an ecological network which comprises Areas of Special Conservation Importance (ASCI), i.e., spatial wholes and habitats of special national and international importance from the biological diversity conservation aspect. The project on establishing the Emerald network was launched by the Council of Europe, as a part of its work under the Bern Convention, or The Convention on the Conservation of European Wildlife and Natural Habitats. This Convention, adopted in 1979 (ratified by Serbia), regulates protection of endangered plant and animal species and certain types of habitats. Sixty-one areas in Serbia have been nominated for the Emerald ecological network. The nominated areas are particularly important for protection and conservation of wild plant and animal species and their habitats. The Emerald network is based on the same principles as the Natura 2000 network and is formally seen as preparation for the implementation of the Habitat Directive. Taking into account that new EU member states, as well as other countries with accession yet to come, they are obligated to submit a list of proposed areas for ecological network Natura 2000 with an appropriate database. The implemented Emerald project in Serbia provides direct support to the achievement of this goal.

Sixty-one sites in Serbia have been designated as Important Plant Areas - IPA, 42 as Important Bird Areas – IBA (total area of 12596 km²) and 40 as Prime Butterfly Area (total area of 9036 km²) sites.

There are more than 30 managers of protected areas in Serbia, ranging from public enterprises to local nongovernmental and tourist organizations, private sector and even church and military. An overview of protected areas and their managers is provided in Annexes 7 and 8.

3.6 Economically important species

In Serbia over 700 species of medicinal plants are known, out of which some 400 are officially registered and 280 are the subject of trade. One hundred and fifty two plant species are legally protected from use and trade and these species are the subject of collecting control. In the forest sector, economical importance has 282 species of trees and shrubs. In addition, it should be noted that there is a large potential of plants (ca. 180 melliferous species) and ecosystems for honey production and as habitats for pollinators that are used in agriculture.

The fungi represent the group of organisms that the population has difficulties establishing control and estimates. Some estimates say that there is an extensive collection of fungi in Serbia (1,395 tons per year). Collected are species from the genera Agaricus, Boletus, Morchella as well as rare and expensive Tuber.

Hunting incomes are made mainly from 12 species of mammals and 7 bird species that have economical importance as game species. Twenty-nine species of freshwater fish have economic value including pike, carp, zander, sturgeon, and perch. For many local communities the utilization of biological resources continues to be important for their nutritional well-being and economic health. Many others species, including a large amount of microorganisms, have a great importance for different economic sectors. In total, 122 wild species of plants, fungi and animals are under strict control of use and trade. The quotes for collecting are adjusted yearly. Some of these species are of relic character and the main threat is over-collecting.
4 THREATS TO BIODIVERSITY IN SERBIA

4.1 Overview

Although Serbia is rich in biodiversity, the country has suffered a progressive loss of biodiversity as a result of human activity. In particular, agriculture, industrial development, urbanization, forest extraction, hunting, fishing, energy and mining, transport and tourism are the sectors that have impacts on the biological diversity. Also, uncontrolled pollution, alteration of river courses and hydrotechnical works, mineral resource extraction and overexploitation of biological resources are also significant endangering factors.

4.2 Pollution

Air, water and soil pollution have been continuous major threats to biodiversity in Serbia. Industrial pollution decreased in the last years of the economic transition process due to significant reductions in industrial activities. Agriculture runoff is also a major pollutant factor in some areas. Part of the interior waters which could sustain a rich biological diversity is polluted.

*Figure 5: Main air pollution hot spots in Serbia*
Surface waters in Serbia are seriously endangered by various sources of physical, chemical and biological pollution. The deterioration resulted from the development of heavy industry and an increase of urban areas and increasing communal and industrial wastewaters. The irresponsible discharge of high concentrations of organic and inorganic pollutants over a period of years led to the total or partly deterioration of riverine ecosystems.

**Figure 6: Concentration of pollutants in air per year**

<table>
<thead>
<tr>
<th>Town</th>
<th>SO₂</th>
<th>Soot</th>
<th>NO₂</th>
<th>TDM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Belgrade</td>
<td>7 – 10</td>
<td>29 - 57</td>
<td>32 – 36</td>
<td>146–312</td>
</tr>
<tr>
<td>Niš</td>
<td>6 – 10</td>
<td>8 – 41</td>
<td>11– 28</td>
<td>169 –244</td>
</tr>
<tr>
<td>Novi Sad</td>
<td>21 - 30</td>
<td>9</td>
<td>3 – 8</td>
<td>156-180</td>
</tr>
</tbody>
</table>

Source: Institute for Public Health

**Figure 7: Major industrial sites and water pollution**

Source: ENVSEC
Soil pollution in Serbia is extensive and represents a serious threat to biodiversity. There are several distinct sources of pollution:

- Industry and mining (through atmospheric emissions and wastewater – primarily from heavy metals)
- Use of pesticides and fertilizers (persistent organic compounds)
- Improper disposal of wastes (toxic organic substances)
- Transportation, especially exhaust gases from fairly old vehicles (heavy metals, sulphates, nitrogen oxide)
- Trans-border pollution etc.

The regions of heavy pollution are mainly around industrial centers with pollutants concentration overlapping in between or decreasing from the sources. Bio-monitoring is carried on sporadically, if at all.

Since the contaminant deposits reach the soil through the air these two segments are in direct relationship. The regions of the country with the highest amounts of soil pollution are also the same as those characterized by high amounts of air pollution (this also includes agricultural regions, with air pollution primarily coming from volatile toxic compounds, ammonia, nitrates, phosphorus etc). The most frequent pollutants in the air of urban or industrial centers are $\text{SO}_x$, $\text{NO}_x$, $\text{CO}_x$, chloro-fluorocarbons (CFCs), smoke and microdust (<10 μm), which is breathable and also has high concentrations of heavy metals.

Lately, it has become more evident that there is a presence of enriched uranium in some ecosystems, including key ecosystems such as high mountain ecosystems. These are remnants from the NATO bombing in 1999.
4.3 Environmental changes

Continuous migration of people from rural to urban areas and this increasing concentration of the population in the centers of the city represents a serious problem not only from a global socioeconomic aspect, but from a spatial aspect as well, thus creating pressure on the environment. On the other hand, the rural areas remain abandoned with the overall result being a loss of productive land, and more natural areas are being converted and used for agricultural purposes.

4.3.1 Consequences of the land use

The main consequences of land use are reflected in erosion, caused by rain washing in hilly areas or eolic, which is the case in northern Serbia (AP Vojvodina). Extensive use of land requires the extensive use of fertilizers especially chemically synthetic ones, which cause the changes not only in the agricultural ecosystems itself, but also in the neighboring ecosystems, especially affecting the biodiversity in waters and soils. Once abandoned, the used land takes a long period to recover potentially native vegetation.

The other problem in land use is overgrazing in some areas, which also reduces soil resources and contributes to the loss of biodiversity and to erosion, especially in sloppy areas.

*Figure 9: The trends in agriculture surface use in Serbia*

<table>
<thead>
<tr>
<th>Year</th>
<th>Total agricultural land</th>
<th>Total</th>
<th>Cultivated surfaces and orchards</th>
<th>Vineyards</th>
<th>Meadows</th>
<th>Pastures</th>
<th>Fish pools, rushes and ponds</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>5109</td>
<td>4259</td>
<td>3356</td>
<td>245</td>
<td>71</td>
<td>587</td>
<td>815</td>
</tr>
<tr>
<td>2001</td>
<td>5111</td>
<td>4255</td>
<td>3355</td>
<td>243</td>
<td>69</td>
<td>588</td>
<td>821</td>
</tr>
<tr>
<td>2002</td>
<td>5107</td>
<td>4255</td>
<td>3351</td>
<td>245</td>
<td>69</td>
<td>590</td>
<td>817</td>
</tr>
<tr>
<td>2003</td>
<td>5115</td>
<td>4253</td>
<td>3345</td>
<td>246</td>
<td>67</td>
<td>594</td>
<td>826</td>
</tr>
<tr>
<td>2004</td>
<td>5113</td>
<td>4252</td>
<td>3344</td>
<td>244</td>
<td>66</td>
<td>598</td>
<td>823</td>
</tr>
<tr>
<td>2005</td>
<td>5112</td>
<td>4242</td>
<td>3330</td>
<td>239</td>
<td>64</td>
<td>609</td>
<td>832</td>
</tr>
<tr>
<td>2006</td>
<td>5105</td>
<td>4228</td>
<td>3318</td>
<td>238</td>
<td>62</td>
<td>610</td>
<td>838</td>
</tr>
<tr>
<td>2007</td>
<td>5092</td>
<td>4218</td>
<td>3299</td>
<td>240</td>
<td>59</td>
<td>620</td>
<td>835</td>
</tr>
</tbody>
</table>

Source: Eastagri

*Figure 10: The trends of pesticides and chemical use in agriculture in Serbia*

<table>
<thead>
<tr>
<th>Year</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pesticides and chemicals used in agriculture in Serbia (in tones)</td>
<td>7774</td>
<td>5805</td>
<td>6157</td>
<td>7418</td>
</tr>
</tbody>
</table>

Source: Eastagri

There are no systems to control and monitor land used by plant and animal breeders. Another problem in Serbia is arising from the surface mining activities as large areas of waste land remain afterwards and so far there has not been a systemic approach to this problem.
4.3.2 Consequences of the resource use

Traditional harvesting and grazing practices in Serbia present an opportunity to support a rural population living within the limits of the available biological resources, especially within or in surrounding of protected areas. Tourism could be developed to provide such communities with additional sources of revenue, while offering incentives to retain or revive traditional practices that are sustainable or to develop new means for using natural resources sustainably. There is a great potential to develop ecological tourism activities in many of Serbia’s natural areas.

On the other hand, Serbia faces many changes as it moves towards a market economy. As the country’s economic wealth grows in the future, new environmental pressures and challenges will certainly arise. The private ownership of land, rises in personal consumption and the manufacturing of consumer goods, the privatization of industry, will bring both new threats as well as new opportunities for the protection of biodiversity.

<table>
<thead>
<tr>
<th>FRA 2010 categories</th>
<th>Area (1000 hectares)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forest</td>
<td>2,313</td>
</tr>
<tr>
<td>Other wooded land</td>
<td>287</td>
</tr>
<tr>
<td>Other land</td>
<td>6,146</td>
</tr>
<tr>
<td>...of which with tree cover</td>
<td>272</td>
</tr>
<tr>
<td>Inland water bodies</td>
<td>90</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>8,836</strong></td>
</tr>
</tbody>
</table>

Source: EBRD renewables

Figure 12: Structure of resources for primary energy production in Serbia in 2008.

On the basis of an evaluation of the impacts of climate change on biodiversity, the horizontal and vertical distribution of plant and animal species is changing (i.e. migration toward the north and/or migration to higher elevations). Such changes will particularly affect the relict plant and animal species living in high mountain zones. Within these zones, many refugial
phytocenoses are present which would be endangered by temperature increase and by the accompanying decreases or distributional changes in precipitation.

With an increase in temperature of 3.2°C over the next 100 years, even the highest peaks would suffer higher mean annual temperatures on par with the current temperatures in the higher subalpine zones (i.e., the zones of species distribution would migrate upward by 500 m), so that alpine pastures would be expected to disappear completely on some mountains. In contrast to the alpine pastures, the thermophilic communities would suffer devastation and some species even desertification. Other climate-zonal communities would experience changes in their areal and elevational distributions, depending on the rate of advancement of changes caused by climate.

Currently, the Government of Serbia is taking steps to implement the provisions of the UNFCCC and the Kyoto protocol; however, activities that would determine the impacts of climate change on biodiversity are still missing.

**Figure 13: Wood energy production and use in Serbia**

<table>
<thead>
<tr>
<th>Wood energy supply</th>
<th>Unit (m³/metric tonnes)</th>
<th>Annual or average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Firewood</td>
<td>2,119,100 m³</td>
<td>34%</td>
</tr>
<tr>
<td>Charcoal</td>
<td>24,500 m³</td>
<td></td>
</tr>
<tr>
<td>Bark</td>
<td>119,400 m³</td>
<td>2%</td>
</tr>
<tr>
<td>Wood chips, Sawdust</td>
<td>526,100 m³</td>
<td>9%</td>
</tr>
<tr>
<td>Biofuel briquette and pellet</td>
<td>102,700 m³</td>
<td>2%</td>
</tr>
<tr>
<td>Black liquor</td>
<td>nda</td>
<td>nda</td>
</tr>
<tr>
<td>Recovered construction wood</td>
<td>nda</td>
<td>nda</td>
</tr>
<tr>
<td>Others:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Woody biomass outside forests</td>
<td>7,300 m³</td>
<td></td>
</tr>
<tr>
<td>Forest residues</td>
<td>552,800 m³</td>
<td>9%</td>
</tr>
<tr>
<td>Undefined (fuelwood obtained on illegal logging, etc)</td>
<td>2,722,100 m³</td>
<td>44%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>6,174,000</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

Source: MAFWM-Directorate for Forests

**Figure 14: Forest sources and land use for wood energy**

<table>
<thead>
<tr>
<th>Region</th>
<th>Assortment Structure</th>
<th>Deciduous forests</th>
<th>Coniferous forests</th>
<th>Total (m³)</th>
<th>Deciduous forests</th>
<th>Coniferous forests</th>
<th>Total (m³)</th>
<th>TOTAL (m³)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Technical wood</td>
<td>891,002</td>
<td>275,592</td>
<td>1,166,594</td>
<td>467,223</td>
<td>333,128</td>
<td>800,351</td>
<td>1,966,945</td>
</tr>
<tr>
<td></td>
<td>Fuelwood</td>
<td>974,025</td>
<td>0</td>
<td>974,025</td>
<td>1,102,802</td>
<td>0</td>
<td>1,102,802</td>
<td>2,076,807</td>
</tr>
<tr>
<td></td>
<td>Wood residues</td>
<td>207,224</td>
<td>37,581</td>
<td>244,805</td>
<td>248,861</td>
<td>58,787</td>
<td>307,648</td>
<td>552,453</td>
</tr>
</tbody>
</table>

Source: MAFWM-Directorate for Forests

**4.3.3 Human influence on the landscape**

Human influence on landscape and so on biodiversity can be linked with main human activities: agriculture, forestry, hunting, fishing, energy, transport and tourism.
Total agricultural land in Serbia covers 64.86% of the territory and arable lands are 55.06%. Pastures and hay fields are present with approximately 20% of agricultural lands. The main threats in this area are: native habitat destruction, extended and over-exploitation, effects to native ecosystems of the use of agro-chemistry and agro-machinery. The area of wetlands has also been significantly reduced. The loss of wetlands has been particularly dramatic along the Danube, Sava and Morava rivers where many wetlands have been converted to agricultural lands.

Figure 15: Potentials of renewable energy production and sources in Serbia

![Map showing potentials of renewable energy production and sources in Serbia](image)

Source: Ministry of Mining and Energy

Figure 16: Planned production and potential of Renewable Energy in Serbia in 2009

<table>
<thead>
<tr>
<th>Energy Source</th>
<th>Production (toe)</th>
<th>Potentials (Mtoe)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Geothermal energy</td>
<td>4,700</td>
<td>0.20</td>
</tr>
<tr>
<td>Large Hydro</td>
<td>923,000</td>
<td>1.00 - 250 TJ/year</td>
</tr>
<tr>
<td>Small Hydro</td>
<td>4,300</td>
<td>100 - 200 TJ/year</td>
</tr>
<tr>
<td>Biodiesel</td>
<td>300</td>
<td>50 - 100 TJ/year</td>
</tr>
<tr>
<td>Fuel wood</td>
<td>163,000</td>
<td>&lt;= 50 TJ/year</td>
</tr>
<tr>
<td>TOTAL</td>
<td>1,095,300</td>
<td>3.83</td>
</tr>
</tbody>
</table>

Source: Ministry of Mining and Energy

Various types of forests cover approximately one third of the country’s territory. Lately the forestation of Serbia slightly increased, but exploitation and cutting of old-growth forests and ecologically climatogenic stands are in threat. However, in Serbia there are still good forest ecosystems both within and out of protected areas. Some stands have retained a high level of natural species composition and quality.
Serbia is an energy dependent country whose energy production is developed, but does not satisfy the country's needs. Since the strategic interest of Serbia is to become energy independent and given that there are potentials to increase production, the pressure from this area on biodiversity is expected to increase. Besides direct habitat destruction, the pollution of waters, air and soils are the main consequences from energy sector development. Indirectly, the energy sector produces a lot of waste deposition, which also impacts biodiversity.
In Serbia, there are 323 hunting stands. The hunting is controlled and does not cause the significant damages to the populations of hunting wildlife (deer, roe buck, wild boar, chamois, fallow deer, mouflon, rabbits, partridge). The main problem in this area remains poaching, and its control. Some 196 bird species are prohibited from hunting permanently.

Twelve fish species out of 98 species recorded in Serbia are subject of economically based fishing, while the others are not subject to fishing; their population is rather collaterally damaged. The main threats in this area are: lack of water registry and monitoring of fish populations, inadequate control of fisheries, and use of prohibited fishing tools, poaching, allochtonous species introduction, water pollution and draining of waters for other purposes especially areas where fish spawn take place.

The transport system in Serbia is irregularly developed and the increase of this sector is expected in the coming years. The negative effect to biodiversity is further expected by direct and indirect habitat destruction and fragmentation as well as by pollution.

The tourism in Serbia increasing and the highest pressure to biodiversity are visible in fragile and localized high-mountain ecosystems where more and more construction for winter sport tourism is taking place. There are more and more initiatives for rural tourism and ecotourism, which combine tourism, rural development and nature protection.

5 LEGAL, POLICY AND INSTITUTIONAL FRAMEWORKS FOR BIODIVERSITY CONSERVATION IN SERBIA

5.1 Overview

Serbia has demonstrated its interest in, and commitment to the conservation of biodiversity and natural areas through the ratification of international agreements, the adoption of a national legal framework and the establishment of a large number of protected areas. Despite these efforts, Serbia has experienced difficulties in implementing policies and
strategies to achieve effective biodiversity conservation. Beside a lack of financial resources, there is a lack of appropriate institutional structures for biodiversity conservation.

Serbia had the first legislative on nature conservation in 1349 (Dusan’s legal code, article 123 on forest cut prohibition and plantation of the new forests). In 1412, Despot Stefan proclaimed the first Low on Mining that regulated property and use. In 1840, the first rule on fauna protection was established, the so called “Visocaja Naredba” prohibited hunting of deer and hunting closed season on rabbits, “wild goats” and birds. The first area completely protected in Serbia was Obedska Bara, which was established as a protected area in 1874, and the first natural assets protected in Serbia were forest reserves Ostrozub, Mustafa and Feljesanain in 1948. The first national park was established in Serbia in 1960 – National Park Fruska Gora.

Today, there are 1032 protected natural assets in Serbia or more than 6% of Serbia’s total territory and the Government set a target of protecting 11% by the end of 2010.

Even though there are numerous scientific and research institutions in Serbia, biodiversity scientific research is largely uncoordinated and data and information that is collected is not easily accessible often even inaccessible.

5.2 Institutional and Policy Framework

The Ministry of Environment and Spatial Planning (MESP) has the overall responsibility to ensure that environmental protection systems are in place and to ensure the sustainable use of natural resources (air, land, minerals, fish, flora and fauna species). MESP is responsible for the preparation of strategic documents, plans and programmes in the area of environmental protection. The Ministry has the overall responsibility for the harmonization and implementation of environmental legislation in the Republic of Serbia and is currently focused on the EU approximation. The MESP has the following responsibilities and competencies in the field of nature protection: protection and preservation of biodiversity, protection and preservation of protected areas, protection, improvement and sustainable use of ichthiofauna, permits for internal and international transportation of endangered and protected wild flora and fauna, implementation of international conventions and environmental and sustainable development related inspection.

Secretariat for Environmental Protection and Sustainable Development of the Autonomous Province of Vojvodina has an important role at the regional level and is in charge of nature protection of the Autonomous Province of Vojvodina territory.

The Institute for Nature Protection (INP) of the Republic of Serbia plays an important role at the level of the state and of the autonomous province. This state institution is responsible for professional control, support, protection and improvement of Serbia’s natural heritage and its biological and geological diversity. The Institute for Nature Protection, has competences in the protection of protected areas such as parks, nature reserves, wild flora and fauna habitats, and is also responsible for overseeing the use of these natural resources. The INP assists the Ministry of Environment and Spatial Planning (MESP) in assessing new protected areas and making recommendations for the establishment, planning and management of protected areas. The INP maintains significant technical and institutional capacity for biodiversity conservation. Biodiversity monitoring is among the responsibilities of the Institute for Nature Protection and is focused on protected areas and species. The INP delivers data on bio and geodiversity and the state of natural resources to the MESP and other relevant institutions. It produces a number of publications and a quarterly bulletin. In cooperation with European Environmental Agency, the INP operates as a national reference centre and has been the main implementation institution for the Emerald Network project for including Serbia
in the Natura 2000 programme. The Institute for Nature Protection has completed a GIS survey of protected nature areas.

Based on the Law on Determination of Competences of the AP Vojvodina from 2009, AP Vojvodina established the Provincial Institute for Nature Protection through its authorities, in order to perform the activities on nature protection and protection of natural goods that are located on the territory of AP Vojvodina.

Next to the MESP and the Institute, certain nature protection competencies and responsibilities are within the following institutions:

**The Ministry of Agriculture, Forestry and Water Management (MAFWM)** - Forestry Department (Forests and Hunting), Plant Protection Department and Veterinary Department (controlling cross border transport of endangered and protected wild flora and fauna). The responsibility of the Directorate of Forests includes the preparation of forest management plans which contain specific and appropriate guidelines for particular protected areas as well as inspection and supervision in forestry issues. The mandate of MAFWM covers Genetically Modified Organisms (GMOs), work on the Implementation of Cartagena Protocol, Biosafety Clearing House, Organization of National Committee for Biological Safety, registration and protection of plant varieties, genetic resources, laboratory accreditations, phytosanitary inspectorate, as well as control of quality of food and animal food.

**Ministry of Science and Technology** under its programme provides financial support for fundamental and applicative research in biology and biodiversity as well as in the area of biotechnologies.

Other ministries with responsibilities related to the environment and nature protection include the **Ministry of Economy and Regional Development** (including industry), the **Ministry of Health** (including enforcement of sanitary regulations relevant to the environment), the **Ministry of Infrastructure** (road, air, rail and water traffic), and the **Ministry of Energy and Mining** (including energy efficiency, approval for extraction of mineral resources other than underground water, and renewable energy sources).

The **Serbian Environmental Protection Agency (SEPA)** is responsible for data collection and reporting on the status of biodiversity. Established in 2004, under the MESP, with main responsibilities to develop, harmonize and manage the national environmental information system (especially regarding the status of environmental media) and develop a register of polluters, to collect environmental data and report on environmental conditions and environmental policy implementation, to develop procedures for processing and assessing environmental data, to update data on the Best Available Techniques and practices to support IPPC, and to cooperate with and report to the European Environmental Agency (EEA) and the European Environment Information and Observation Network (EIONET).

The **Fund for Environmental Protection** has been established as a general fund for the environment but has a mandate to include biodiversity conservation and protected areas in its financing objectives. The Fund was established under the MESP by the 2004 Law on Environmental Protection. The fund generates revenues from different environmental taxes and some fees. Additionally, revenue can also come from the resources collected from privatization, bilateral and multilateral cooperation and different donations. Almost 90% of the fund resources are collected from taxes while the rest is transferred from the general government budget. The fund distributes its financing based on a specific standard that prescribes both uses and reporting criteria.

Other institutions that have a role in nature protection include public enterprises managing Tara, Djerdap, Kopaonik, Fruska gora and Mountain Sara National Parks, Public Enterprises Srbijasume and Vojvodinasume as well as other protected areas managers listed in Annex 7.
Policy framework related to nature conservation includes several strategies and policy documents:

The **National Strategy for the Accession to the European Union** adopted in 2005, is among the strategic documents with impact on the overall national policy in the future and is of major importance for the policy of sustainable development.

The **Poverty Reduction Strategy for Serbia** pays attention on environmental aspects of poverty reduction through the concept of getting an income in changed conditions and obtaining higher support on a local level.

Also, the Government of Serbia adopted the **National Strategy for Sustainable Development** in 2007. As the most important nature conservation objectives, this Strategy identifies drafting a relevant legislation, ratifying international agreements on biodiversity and conservation, enlarging the network of PAs, establishing ecological corridors and network of ecologically important areas, establishing an effective system of biomonitoring and information systems on wildlife and other rare species, and developing a registration system for biological diversity in Serbia.

The **National Environmental Protection Program (NEPP)** is the fundamental strategic document for environmental protection in Serbia. The document identifies the key environmental policy objectives as short-term policy objectives (2010-2014), ongoing policy and long-term policies and instruments (2015-2019) for the achievement of the identified policy objectives.

The **Spatial Plan of the Republic of Serbia** was adopted in 1996 and later replaced with Spatial Development Strategy of Republic of Serbia, defines basic goals in the field of nature conservation and environmental protection. One of these goals is that, by 2010, 11% of Serbian territory should be under some type of protection.

The **Forestry Development Strategy of the Republic of Serbia** refers to the protection and conservation of forest areas. This strategy emphasizes that improving the designation, conservation and management of PAs is of strategic importance for Serbian nature conservation policy, requiring “harmonized development of the ecological, economic, social and cultural forest functions”.

The process of preparation of **National Strategy for Sustainable Use of Natural Resources and Goods** is ongoing and it is expected that this Strategy will be adopted in 2010.

The **Biodiversity Strategy and Action Plan (BSAP)** is currently being developed and is expected to be adopted during 2010.

5.3 Legal Framework

In addition to the above mentioned specific strategies and plans, nature conservation in Serbia is regulated directly by the 2009 Law on nature protection and indirectly by several laws, e.g. bylaws, and directly by specific provisions of certain legal acts. Altogether there are more than 130 different regulative norms applicable. Protection of environment and nature protection is in process of harmonization with regulations of the European Union. In May 2009, the Government adopted 16 laws related to environment and nature protection and made a great progress in its EU accession process.

All activities in the area of nature protection are regulated with the following set of laws and subsidiary legal documents:
Constitution of the Republic of Serbia (“Official Gazette of RS”, No. 83/06). The Constitution declares that citizens have the right to a healthy environment and the right to be informed about the state of the environment, but also a responsibility to protect it.

Law on environmental protection (“Official Gazette of RS”, No. 135/04, 36/09). This Law defines criteria and conditions for sustainable use and protection of natural resources and assets, covers environmental protection of air, water, land, soil, forests, protected natural areas and national parks, and protection against waste, ionizing radiation, noise and vibrations, defines measures and conditions for environmental protection (prevention). The Law also defined conditions for operation of facilities and installations, environmental quality standards and emission standards (ambient and emission limit values), bans and limitations; environmental management systems, standards for technologies, products, processes and services, environmental labeling, remediation measures, systems for issuing environmental permits and approvals, hazardous substance protection measures (production, transport and handling), environmental monitoring (monitoring and information systems), and policy regarding fines.

Law on nature protection (“Official Gazette of RS”, No. 36/09). This Law is fully aligned with EU standards and, for the first time, it defines types of natural assets as: protected areas, protected species and moveable nature protected documents. According to the Law, there are seven types of protected areas in Serbia, three categories as well as three protection regimes that are defined by legal acts. Seven basic types of protected natural areas (PAs) are the following: strict nature reserve, special nature reserve, national park, monument of nature, protected habitat, landscape of extraordinary characteristics and nature parks. The Law on Nature Protection (LNP) introduces the concept of Protected Area „Manager” instead of curator/guardian as stipulated by the former Law on Environmental Protection and Law on Nature Parks. Besides this, the Law also brings in National Nature Protection Symbol as well as basis for the numerous sub-laws that should regulate this area in more detail. Some of those have already been drafted, and are currently in the process of public discussion. Those are: The Regulation on criteria for selection of PA managers; The Decision on general taxes for usage of protected areas and Regulation on official ID card for guardians/rangers of protected areas.

Law on National Parks (“Official Gazette of RS”, No. 39/93, 44/93, 53/93, 67/93, 48/94)

Law on Strategic Environmental Assessment (SEA) (“Official Gazette of RS”, No. 135/04). According to this Law all national plans and programmes as well as municipal spatial and land use plans should undergo strategic environment assessment.

Law on Environmental Impact Assessment (“Official Gazette of RS”, No. 135/04, 36/09). In the EIA procedure, there is the list of projects for which an impact assessment is mandatory and the list of projects for which an impact assessment may be required. Both lists are in accordance with Annex I of the EU Directive 97/11 amending EU Council Directive 337/85.

Other laws relevant to nature protection and biodiversity conservation include:


Biosafety regulation is more severe than in EU regulations. All bio-material entering Serbia is checked by sanitary inspection for the presence of genetic modifications. Only accredited laboratories can perform this control and in cases where genetic modification is detected and GM is not in the GMO register, the material is either destroyed or sent back to expediter. The
existing **Law on GMO** ("Official Gazette of RS", No. 41/09) is in accordance with EU 90/220/EEC. This Law also defines the function of gene bank.

### 5.4 International Conventions and Agreements

Serbia is a party to a number of Multilateral Environmental Agreements and Conventions related to nature protection and biodiversity. Serbia ratified the **UN Convention on Biological Diversity** in 2002 ("Official Gazette of SRJ" 11/01) and acceded to its **Cartagena Protocol** in 2006. This not only underscores Serbia's commitment to the principle of biodiversity conservation, but it also provides legitimacy for incorporating biodiversity protection into the regulatory framework. Serbia is a party to the **UN Framework Convention on Climate Change – UNFCCC** (succeeded in 2001) and its **Kyoto Protocol** (ratified in 2007) as well as the **UN Convention to Combat Desertification – UNCCD** (ratified in 2008).


A list of international conventions and agreements that Serbia is a part to is provided in Annex 9.

### 5.5 Research and Scientific Activities

Serbia has a strong scientific research tradition in the area of natural sciences. Scientific research is carried out by various universities, organizations and institutions. There are research programs in ecology, together with local applied research programs that are addressing various aspects of biodiversity and nature conservation. A primary drawback is that research and scientific activities are not coordinated or prioritized. Furthermore, there is no system for organizing and disseminating information. An analysis of the various research activities should be undertaken in order to develop a coherent, focused, and cost effective research program for biodiversity conservation.

Not always connected with university and research program there are a number of initiatives for ex-situ conservation in botanical gardens, parks, dendrological collections, flower collections, aquariums, terrariums, gene banks, and collections of micro-organisms that are of interest for agriculture, for food and other industrial sectors, and for a variety of other biotechnological applications that are now developing.

The most important scientific institutions (universities, institutes) include:

- Faculty of Biology, University of Belgrade (education/ research)
- Faculty of Agriculture, University of Belgrade (education/ research)
- Faculty of Forestry, University of Belgrade (education/ research)
- Faculty of Veterinary Medicine, University of Belgrade (education/ research)
- Faculty of Science, University of Novi Sad (education/ research)
5.6 The Role of NGOs

In addition to the state institutions in the field of environmental protection and nature conservation, numerous non-governmental organizations are active in this area. These organizations range from highly professionalized groups to local volunteer organizations acting both at national and international level. Some have undertaken a wide range of initiatives, including contributing pressure to achieve policy or management improvements and organizing various field activities (garbage clean-up, species protection, etc.). Together local, regional and international governments, agencies and institutions, have also often organized or participated effectively in cooperative projects in the area of biodiversity conservation. For example, the NGO “Fund for the protection of prey birds” is taking care on the Serbian population of rare European wide and endangered vulture *Gyps fulvus*.

Presently, Serbia has more than 200 registered NGOs dealing with environmental issues. They are part of a bigger community of more than 20,000 civic organizations and associations that operate in the country, out of which every fifth was established between 1990 and 2001. Environmental NGOs account for almost 12 percent of the total number of NGOs in Serbia, and are the third biggest group within all NGOs, followed by developmental and social service oriented NGOs.

5.7 Financing biodiversity conservation

Environmental financing sources in Serbia involve funds from the national budget which are allocated through ministries, institutions and funds, local self government budgets, and funds that come from many bilateral and multilateral treaties. The most significant international funds are the EU pre-accession funds.

Basic competences in this area are located within the Ministry of Environment and Spatial Planning. This institution, since its start in 1991, it has passed through many transformations (it was merged with other sectors, it was a directorate, etc.), very often marginalized and observed as a “cost” by higher levels decision makers and other economically stronger sectors. This also affected funding of this area. It was only when the Environmental Protection Fund was established that activities in this area started to be financed in an organized manner, in addition to regular budget allocations for the operation of competent institutions. In the majority of sectors, biodiversity is still seen only declaratively as an economic category, so substantial changes in strategic orientation are still missing. The Law on Environmental Protection Fund (2009) stipulates earmarked utilization of finances.

The Fund’s means are used in compliance with the law, the statute, the Fund’s working programme, and they are used, *inter alia*, for the following:

1) Protection, conservation and improvement of air quality, water, soil and forest quality, as well as for mitigation of climate change and protection of ozone layer;
2) Protection and conservation of biodiversity and geodiversity;
3) Encouraging of sustainable use of protected areas;
4) Encouraging of sustainable development of rural areas;
5) Incentives for education, research and development studies, programmes, projects and other activities, including demonstration activities;
6) Financing of programmes of eco education and public awareness raising related to environmental issues and sustainable development.

Out of the total Fund’s budget in 2008, which amounted to 1.5 billion RSD, about 20 million RSD was allocated for protection and sustainable use of biodiversity, which is only 1.3% of total funds. In 2009, total budget of the Fund for all activities amounted to approximately 2 billion RSD.

Funding of protected areas is mostly provided from the budget, from utilization of natural resources, revenues gained from tourism, donations and other sources. Most of the budget funds which flow into the protected areas are spent for current costs of the institutional financing and for staff. The Ministry of Environment and Spatial Planning is responsible for protected areas at the national level, is financing activities in protected areas through various projects, which contributes to higher degree of utilization of funds intended for protection and development of biodiversity in natural areas. Activities which are financed through such projects include marking and maintenance of paths, rehabilitation of degraded areas, development of information systems, construction of visitors’ centre, monitoring, reintroduction programmes and general status improvement in protected areas. In order to obtain funds for such activities, protected areas’ managers submit their projects to the Ministry. The Ministry of Environment and Spatial Planning allocated about 2.5 million Euros for protected areas in 2007, about 1 million Euros in 2008, and a total of 1.3 million Euros was allocated in 2009.

Average amounts at the protected areas system level which are received from the Government through competent institutions ranges around 25%. In total, protected areas with currently available funds still miss about 50% to cover basic functioning costs, and about 75% for optimal functioning.

The Ministry of Environment and Spatial Planning also finance the development of applied projects in the area of biodiversity protection primarily within protected areas, as well as development of individual action plans for protection of endangered species, development of the Red Books and the Red Lists of endangered plant and animal species.

It is interesting to mention that although the country has significant external debt (in 2009 it was estimated at 22.2 billion Euros, while external debt of public sector amounts to 7.1 billion Euros), there were no attempts to introduce mechanism of debt conversion, or any bilateral negotiations about this mechanism.

Certain funds are allocated from the budget of the Government of AP Vojvodina to the Provincial Secretariat for Environmental Protection and Sustainable Development. The funds that were allocated in 2009 for biodiversity and protected areas development amounted to approximately 30 million RSD. Activities financed from the Provincial Secretariat include: sanation and revitalization of sensitive ecosystems (salty lands, steppe, old forests, wetlands, grasslands and shallow pools), monitoring of sensitive ecosystems of threatened species, biodiversity protection of particularly threatened communities, development of tourism infrastructure in PAs, capacity building of PAs managers and education of rangers.

The Ministry of Agriculture, Forestry and Water Management provides financial support to protected areas for certain activities. The Directorate for forests, a part of the Ministry, approves and finances projects related to afforestation, improvement of habitat conditions, production of seeds and seedlings, nurseries, construction of forest roads for afforestation and protection against fire, as well as for scientific projects. In 2009, the available budget for these activities was about 450 million RSD.

The Ministry of Agriculture, Forestry and Water Management also finances work of the Expert Council for Biosafety. This Ministry uses incentives to support conservation of
autochthonic species based on the principle of direct payment per domestic animal head, and until 2008 it had also encouraged the development of farms with autochthonic races, procurement of new breeding heads, keeping and maintenance of the national and reserve seed collections, maintenance of the national database for plant genetic resources, quality control and multiplication of samples in the national seed collection for the gene bank needs, maintenance and sustainable use of collection nurseries of fruit and vines, collections of crops, forage, industrial and medical crops, vegetables, as well as maintenance of autochthonic plant genetic resources in small husbandries. Also, the Ministry provides financial support to the organic production development through introduction of direct payment per head or per hectare.

Based on the competition procedure, the Ministry of Science finances development of basic, technological and innovative projects in various scientific areas, thus supporting research related to biodiversity protection and biosafety.

The European Commission introduced a unified financial instrument for pre-accession assistance – IPA for the budgeting period 2007-2013, which consolidated all the previous pre-accession funds. This unique instrument is intended to support the EU candidate countries, as well as potential candidate countries. Serbia, as a potential candidate for the EU membership, currently has access to first two IPA components: 1) support to transition process and development of institutions and 2) regional and transboundary cooperation. In 2009, Serbia will have access to 190 million Euros from IPA funds for development projects. The planned measures contained in the Rural Development Programme which refer to conservation of traditional races should be financed through IPARD funds staring from 2011, in the amount of 937,500 Euros annually (compared to 600,000 Euros in 2007). This would support 1,000 agricultural husbandries, i.e. between 4,000 and 10,000 animals of endangered autochthonic races.

In addition to the IPA funds, Serbia obtains certain funds for environmental projects from donations, loans, international assistance funds, the UN funds and international organizations instruments, programmes and funds, such as the Global Environmental Facility (GEF), the World Bank, the European Bank for Reconstruction and Development (EBRD), the United Nations Development Programme (UNDP), the United States Agency for International Development (USAID), the Swedish International Development and Cooperation Agency, the German Organization for Technical Cooperation (GTZ) and others. The Memorandum of Understanding, signed with the EU in June 2007, enabled Serbia a lawful participation in the 7th Framework Programme for Research and Technological Development (FP 7).

The current level of environmental investments in Serbia is low (between 2001 and 2005 it was about 0.3% of GDP, while estimations of the revised Memorandum on Budget and Economic and Fiscal Policy are 0.4% of GDP in 2008), and financing from the industry and private sector is insufficient. In their pre-accession period, new EU member states from Central Europe invested between 1.5% and 2.5% of GDP into the environment. Based on the Sustainable Development Strategy, it has been planned to achieve 1.5% of GDP of environmental investments in 2014, while achievement of target allocation for the environment of 2.5% of GDP is foreseen in 2017.

6 NATIONAL BIODIVERSITY STRATEGY AND ACTION PLAN – NBSAP

6.1 Current biodiversity conservation initiatives

Ministry of science and environment (2003-2005) financed and implemented the project “Harmonization of the national nomenclature in habitat classification with the international standards” with aim to make comparable habitat conservation the main unit for valid
biodiversity conservation with the international habitat classifications (e.g. EUNIS, Palearctis, CORINE, RAMSAR, IUCN, etc.)
This is important as an initial step in biodiversity monitoring and information system establishment.

Other relevant ongoing or finalizing projects funded and implemented by various development partners (IUCN, WWF, STAR, FAO, EUCARPIA, IPGRI, UNDP, UNEP, WB) include:

- EU funded Twining NATURA 2000 project on Strengthening Administrative Capacities for Protected Areas in Serbia (establishment of NATURA 2000)

- The Emerald network is an ecological network to conserve wild flora and fauna and their natural habitats of Europe, which was launched in 1998 by the Council of Europe as part of its work under the Convention on the Conservation of European Wildlife and Natural Habitats or Bern Convention that came into force on June 1, 1982. The Emerald Network is based on the same principles as Natura 2000, and represents its de facto extension to non-EU countries. Serbia is preparing over 60 sites for including in Emerald networks.

- The Regional Environmental Reconstruction Program (REReP) was the main environmental component of the former Stability Pact for SEE. REReP was initiated under the Stability Pact for South Eastern Europe and endorsed by ministries of SEE countries — including Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Former Yugoslav Republic of Macedonia, Montenegro, Romania, Serbia and Kosovo (under UNSCR 1244). The countries adopted the programme priorities and translated them into priority projects. Under the Stability pact a few projects were realized or are still under implementation: Belgrade Waste Water, City of Subotica Municipal Infrastructure Reconstruction Programme, Pancevo canal rehabilitation complementary project, Pilot River Basin Plan for Sava River, Danube Regional Investment Support Facility

- The European Green Belt initiative has the vision to create the backbone of an ecological network that runs from the Barents to the Black sea, spanning some of the most important habitats for biodiversity and almost all distinct biogeographical regions in Europe. A Green Belt network of protected areas will contribute to the conservation of biodiversity – first of all by harmonizing management methods on both sides of the border. The Green Belt connects National Parks, Nature Parks, Biosphere Reserves and transboundary protected areas as well as non-protected areas along or across borders and it supports regional development initiatives based on nature conservation. The Green Belt is an initiative that is tailored to fit the current political situation and the development taking place now, focussing on some of Europe’s most impressive and fragile landscapes. The first site-based project coordinated by IUCN within this initiative focuses its activities on the Gornje Podunavlje Special Nature Reserve (SNR) in Serbia. Gornje Podunavlje, a large marshy complex bordering Hungary and Croatia, is one of the last remaining big floodplains in Europe. The other one is to raise awareness about Biodiversity and Sustainable Community Development in the Stara Planina Area. The aim of the project is to manage the conservation of biodiversity and sustainable development in the Stara Planina region (Serbia and Bulgaria) within the European Green Belt, as well as to enhance the economic growth for the surrounding villages and to support successful initiatives in this field.

- World Bank also supports many activities in Serbia. At present the project entitled Transitional Agriculture Reform concerning agro-environment is being implemented. This project is funded partially by the GEF.
- UNDP/GEF “National Biodiversity Strategy and Action Plan - NBSAP” Development of NBSAP, national reports and biodiversity CHM
- UNDP/GEF “Ensuring financial sustainability of the protected area system of Serbia” - the objective of the project is to improve the financial sustainability of Serbia’s protected area system and will be achieved through 1. Enabling legal and policy environment for improved PA financial sustainability; 2. Increasing revenue-streams for the PA system; and 3. Institutional and individual capacity of PA institutions to raise PA management cost-effectiveness.

- The WWF Danube-Carpathian Programme is implementing a program entitled 2010 Protected Areas Programme – The Carpathian Mountains Ecoregion – Phase 1. This program seeks to promote and support the implementation of the Convention of Biological Diversity Program of Work for Protected Areas. The overall goal for the project is to enable parties to the CBD from the ecoregion to achieve the 2012/2012 targets of the Program of Work on Protected Areas, in particular the establishment of a scientifically based and representative regional network of well-managed protected areas that are sustainably financed, ensure effective participation of local communities and provide social and economic benefits.

- WWF “Strengthening the capacity of governments and civil sector in Serbia and in Montenegro to adapt to EU nature protection aquis.” The goal of that project is to build up skills and competencies for government authorities and the civil sector in Serbia and Montenegro to successfully adapt to the EU's legal biodiversity protection standards, as one important step in securing Euro-Atlantic integration.

6.2 NBSAP Priority areas and national goals

1. BIODIVERSITY CONSERVATION

1.1 Threatened Biological Diversity
Objective: Enable Serbia’s species and ecological communities threatened with extinction to survive and thrive in their natural habitats and retain their genetic diversity and potential for evolutionary development. Restore biological diversity in degraded areas. Complement in-situ conservation measures by maintaining ex-situ facilities and conducting ex-situ conservation measures.

1.1.1 Threatened species
1.1.2 Threatened ecological communities
1.1.3 Ecological Restoration
1.1.4 Ex-situ conservation

1.2 Managing Threatening Processes
Objective: Monitor, regulate, and minimize processes and activities that have or are likely to have significant adverse impacts on biological diversity.

1.2.1 Non-native species and genetically modified organisms
1.2.2 Pollution/Contamination
1.2.3 Fire

2. PROTECTED AREA SYSTEM

2.1 Protected Area System Effectiveness
Objective 1.1: Establish and manage a comprehensive, adequate, and representative system of protected areas covering Serbia’s biological diversity.
Objective 1.2: Ensure the availability of sufficient financial resources for maintenance and expansion of the protected area system of Serbia while enhancing the long-term financial sustainability of the system.
3. SUSTAINABLE USE OF BIODIVERSITY, ACCESS AND BENEFIT SHARING, AND ECONOMIC VALUATION

3.1 Sustainable use of biological diversity
Objective 3.1: Develop new and strengthen existing mechanisms to ensure the sustainable use of Serbia’s biological diversity. Promote these mechanisms widely within public and private sectors.

3.2 Access and benefit sharing
Objective 3.2: Ensure that social and economic benefits of the use of genetic material and other products and services derived from Serbia’s biological diversity accrue to Serbia.

3.3 Economic valuation of biodiversity
Objective 3.3: Increase national awareness and use of economic valuation of biodiversity techniques as a mechanism for more accurately assessing and accounting for the economic trade-offs between biodiversity protection and human activities that may result in biodiversity loss.

4. POLICY, LEGAL, INSTITUTIONAL, AND FINANCIAL FRAMEWORKS FOR BIODIVERSITY CONSERVATION

4.1 Policy Framework
Objective 4.3: Strengthen and expand the policy framework for biodiversity conservation.

4.2 Legal Framework
Objective 4.2: Strengthen the legal framework for biodiversity conservation and ensure enforcement and compliance of biodiversity related legislation.

4.3 Institutional Framework
Objective 4.3: Strengthen the institutional framework for biodiversity conservation.

4.4 Financial Framework
Objective 4.4: Strengthen and expand financing for biodiversity conservation and provide incentives for biodiversity conservation within all sectors.

5. INTEGRATION OF BIOLOGICAL DIVERSITY CONSERVATION INTO OTHER SECTORS

5.1 National integrated policies and guidelines
Objective 5.1: Develop and implement national integrated policies for the conservation and sustainable use of biological diversity.

5.2 Integration of biodiversity into other sectors
Objective 5.2: Improve the integration of biodiversity concerns into all relevant sectors.
  5.2.1 Agriculture and livestock
  5.2.2 Forestry
  5.2.3 Wildlife Resources
  5.2.4 Mining
  5.2.5 Water Resources
  5.2.6 Tourism and outdoor recreation

6. KNOWLEDGE BASE

6.1 National Biodiversity Information System
Objective 6.1: Collect, review, and synthesize available data and information on biological
diversity to provide a basis for assessing the status of, monitoring, conservation, and sustainable use of biological diversity.

6.2 Biodiversity Monitoring
Objective 6.2: Establish a national program to identify and monitor priority species, habitats, and genetic components of biodiversity as well as the effects of activities and processes that threaten components of biodiversity and their causes.

6.3 Biodiversity Research
Objective 6.3: Support aimed at understanding and maintaining biological diversity in Serbia.

7. CAPACITY BUILDING

7.1 Technical capacity building
Objective 7.1: Build and strengthen capacities within all relevant public and private institutions for biodiversity conservation and sustainable use.

7.2 Infrastructure and Equipment
Objective 7.3: Develop necessary infrastructure and provide essential equipment for biodiversity monitoring, conservation, and sustainable use within relevant institutions.

8. EDUCATION, PUBLIC AWARENESS, AND PARTICIPATION

8.1 Formal Education
Objective 8.1: Generate a greater understanding of the importance of biodiversity and develop skills for studying and protecting biodiversity through integration of information about biodiversity in formal educational curricula.

8.2 Public Awareness
Objective 8.2: Foster public understanding, support, and action for biodiversity conservation through the integration of biodiversity information in formal educational curricula.

8.3 Participation
Objective 8.3: Involve local residents and communities in planning, decision-making, and implementation for biodiversity conservation.

9. INTERNATIONAL COOPERATION

9.1 Coordination with other international instruments for biodiversity conservation
Objective 9.1: Ensure coherency of and coordination between this strategy and other international biodiversity-related commitments and agreements.

9.2 Regional and international collaboration
Objective 9.2: Ensure continued and effective international cooperation for the protection of biodiversity.

10. CLIMATE CHANGE

10.1 National action on climate change
Objective 10.1: Develop national strategies and mechanisms to understand, plan for, and minimize potential impacts of climate change on biological diversity.

10.2 Climate change research, monitoring, and evaluation.
Objective 10.2: Increase capacity among relevant institutions to monitor and predict impacts of climate change on biodiversity and evaluate the effectiveness of adaptation strategies and actions.
10.3 Climate change awareness
Objective 10.3: Increase awareness among all sectors and the general public of climate change impacts and adaptation strategies.

11. IMPLEMENTATION OF THE STRATEGY

11.1 Financing of the strategy
Objective 11.1: Ensure a diverse portfolio of sources and strategies for long-term funding of the strategy. Ensure that the costs of biological diversity conservation are equitably shared among institutions and stakeholders such that they reflect contributions to degradation and benefits from protection or use.

11.2 Coordination, review, and updating of the strategy
Objective 11.2: Establish appropriate mechanisms and develop necessary capacities to implement, monitor, and refine the strategy.
## ANNEXES

1. List of habitats of Serbia

<table>
<thead>
<tr>
<th>Vegetation Class</th>
<th>Species No.</th>
<th>% Species</th>
</tr>
</thead>
<tbody>
<tr>
<td>Querco-Fagetea Br.-Bl. et Vilieger 1937 (forests of oak and beech)</td>
<td>1498</td>
<td>52.49</td>
</tr>
<tr>
<td>Festuco-Brometea Br.-Bl. et R. Tx. 1943 (grasslands with fescue and brome)</td>
<td>1194</td>
<td>41.84</td>
</tr>
<tr>
<td>Molinio-Arhenatheretea R. Tx. 1937 (Molinia meadows)</td>
<td>895</td>
<td>31.36</td>
</tr>
<tr>
<td>Vaccinio-Piceetea Br.-Bl. 1939 emend. Zupančić 1976 (forests with spruce and bilberry)</td>
<td>703</td>
<td>24.63</td>
</tr>
<tr>
<td>Erica-Pinetetea Ht. 1959 (forests with pines and heath)</td>
<td>683</td>
<td>23.93</td>
</tr>
<tr>
<td>Festucetae vaginatae Soó 1968 emend. Vicherek 1972* (grasslands with vaginate fescue)</td>
<td>681</td>
<td>23.86</td>
</tr>
<tr>
<td>Festuco-Seslerietea Barbero et Bonim 1969 (grasslands with fescue and Sesleria)</td>
<td>673</td>
<td>23.58</td>
</tr>
<tr>
<td>Asplenietea trichomanis Br.-Bl. 1934 corr. Oberd. 1977 (rock vegetation with maiden hair dwarf spleenwort)</td>
<td>568</td>
<td>19.90</td>
</tr>
<tr>
<td>Artemisietea vulgaris Lohm., Prsg. et R. Tx. 1950 (vegetation with mugwort)</td>
<td>524</td>
<td>18.38</td>
</tr>
<tr>
<td>Juncetea trifidi Hadač 1944 (grasslands with three leaved rush)</td>
<td>441</td>
<td>15.45</td>
</tr>
<tr>
<td>Betulo-Adenostyletea Br.-Bl. et R. Tx. 1943 (birch forests)</td>
<td>357</td>
<td>12.51</td>
</tr>
<tr>
<td>Nardo-Callunetea Preising 1949 (heathlands with Nardus and Calluna)</td>
<td>333</td>
<td>11.67</td>
</tr>
<tr>
<td>Bidentetea tripartitii Tx., Lohm. et Prsg. 1950 (wetlands with burr marigold)</td>
<td>327</td>
<td>11.46</td>
</tr>
<tr>
<td>Chenopodietea Br.-Bl. 1949 (vegetation with goose-foot)</td>
<td>301</td>
<td>10.55</td>
</tr>
<tr>
<td>Stellarietea mediae Tx., Lohm. et Prsg. 1950 (vegetation with starworts)</td>
<td>292</td>
<td>10.23</td>
</tr>
<tr>
<td>Epilobietea angustifolii R. Tx. Et Præising 1950 (vegetation with willow herb)</td>
<td>291</td>
<td>10.20</td>
</tr>
<tr>
<td>Phragmitetea communis R. Tx. et Preising 1942 (vegetation with common reed)</td>
<td>290</td>
<td>10.16</td>
</tr>
<tr>
<td>Festuco-Puccinellietea Soó 1968 (grasslands with fescue and punch)</td>
<td>246</td>
<td>8.62</td>
</tr>
<tr>
<td>Plantaginetea majoris Tx. et Prsg. 1950 (vegetation with greater plantain)</td>
<td>242</td>
<td>8.48</td>
</tr>
<tr>
<td>Scheuchzerio-Caricetea fuscae (Nordhagen 1936) R. Tx. 1937 (wetlands with sedges)</td>
<td>238</td>
<td>8.34</td>
</tr>
<tr>
<td>Alnetea glutinosae Br.-Bl. et Prsg. 1950 (forests with alder)</td>
<td>220</td>
<td>7.71</td>
</tr>
<tr>
<td>Drypetea spinose Quezel 1967 (vegetation with commune dripide)</td>
<td>211</td>
<td>7.39</td>
</tr>
<tr>
<td>Isoeto-Nanojuncetea Br.-Bl. Et Tx. 1943 (wetlands with quillwort and small rushes)</td>
<td>148</td>
<td>5.19</td>
</tr>
<tr>
<td>Agropyretea repensis Oberd., Th. Muller et Gors 1967 (grasslands with chientent)</td>
<td>148</td>
<td>5.19</td>
</tr>
<tr>
<td>Thero-Brachypodietea Br.-Bl. 1947 (grassland with chientent)</td>
<td>112</td>
<td>3.92</td>
</tr>
<tr>
<td>Paliuretea Trinajstić 1978 (vegetation with Christ's thorn)</td>
<td>85</td>
<td>2.98</td>
</tr>
<tr>
<td>Thero-Salicornietea Pignatti 1953 emend. R. Tx. 1955 (vegetation with glasscorns)</td>
<td>11</td>
<td>7.70</td>
</tr>
<tr>
<td>Thlaspietalia rotundifoli Br.-Bl. et al. 1947(vegetation with penny-cress)</td>
<td>72</td>
<td>2.52</td>
</tr>
<tr>
<td>Potametea R. Tx. et Preising 1942 (water vegetation with pondweeds)</td>
<td>66</td>
<td>2.31</td>
</tr>
<tr>
<td>Salicetea purpureae Moor 1958 (vegetation with purple osier)</td>
<td>52</td>
<td>1.82</td>
</tr>
<tr>
<td>Salicetea herbaceae Br.-Bl. et al .1947 (vegetation with draf willow)</td>
<td>46</td>
<td>1.61</td>
</tr>
<tr>
<td>Montio-Cardaminetea Br.-Bl. Et Tx. 1943 (vegetation with cardamom)</td>
<td>40</td>
<td>1.40</td>
</tr>
<tr>
<td>Charetea Fukarek 1961 ex Krauch 1964 (water vegetation with stoneworts)</td>
<td>37</td>
<td>1.30</td>
</tr>
<tr>
<td>Lemnetea W. Koch et R. Tx. 1954 (flotant water vegetation with duckweeds)</td>
<td>36</td>
<td>1.26</td>
</tr>
<tr>
<td>Ruppietea maritimae J. Tüxen 1960 (water vegetation typed with widgeongrass)</td>
<td>19</td>
<td>0.67</td>
</tr>
</tbody>
</table>
Source: Lakusic (2005)

2. Estimated number of habitat types in Serbia as estimated by vegetation communities

<table>
<thead>
<tr>
<th>Vegetation Class</th>
<th>Vegetation where vascular plants are predominated</th>
<th>Vegetation where lichens are predominated</th>
<th>Vegetation where bryophytes are predominated</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class</td>
<td>41</td>
<td>7</td>
<td>11</td>
<td>59</td>
</tr>
<tr>
<td>Ordo</td>
<td>81</td>
<td>11</td>
<td>22</td>
<td>114</td>
</tr>
<tr>
<td>Alliance</td>
<td>177</td>
<td>19</td>
<td>46</td>
<td>242</td>
</tr>
<tr>
<td>Suballiance</td>
<td>26</td>
<td>0</td>
<td>0</td>
<td>26</td>
</tr>
<tr>
<td>Number of associations</td>
<td>1198</td>
<td>52</td>
<td>149</td>
<td>1399</td>
</tr>
<tr>
<td>Number of infra-association lavel</td>
<td>971</td>
<td>0</td>
<td>0</td>
<td>971</td>
</tr>
<tr>
<td>Estimated number of valid coenoses</td>
<td>700-800</td>
<td>50</td>
<td>150</td>
<td>≈ 1000</td>
</tr>
<tr>
<td>Estimated number of valid coenoses at infra-association lavel</td>
<td>400-500</td>
<td></td>
<td></td>
<td>≈ 500</td>
</tr>
</tbody>
</table>

Source: Lakusic (2005)
3. Habitat types of Serbia

1. TERRESTRIAL SURFACE WATER HABITATS
   
   A. Terrestrial stagnant freshwater habitats
      - permanent ologotrophic lakes, bogs and ponds
      - permanent mesotrophic lakes, bogs and ponds
      - permanent eutrophic lakes, bogs and ponds
      - permanent dystrophic lakes, bogs and ponds
      - permanent terrestrial salt and brackish lakes, bogs and ponds
      - temporary lakes, bogs and ponds (wet phases)
   
   B. Terrestrial running freshwater habitats
      - sources, fountains and geysirs
      - permanent, fast and turbulent water runnings with no level fluctuations
      - permanent, slow, calm water runnings with no level fluctuations
      - river runnings with level fluctuations, upstream of estuary
      - temporary running waters (wet phase)
      - water film running over rocks lateraly of main stream
   
   C. Litoral zone of terrestrial surface water
      - species rich helophyte groupation
      - high helophyte groupation at the water basin edges
      - water shrub groupation at the water basin edges
      - species poor groupation or amphibian vegetation
      - pioneering and ephemeral vegetation at the periodically inundated water sides
      - water sides of soft and unstable sediments with or without sparse vegetation
      - water sides with stable substrates with or without sparse vegetation
      - terrestrial habitats depending on water sprey or water flow

2. SWAMP, MIRE, BOGS AND FENS
   
   - high or low swamps
   - valley, poor and transitional swamps
   - mires rich in bases
   - boscage and reed, usually without free standing water surface
   - terrestrial salty and brackish fens and reeds

3. GRASSLANDS AND HIGH HERBACEOUS HABITAS
   
   - dry grasslands
   - moderately wet grasslands
   - seasonal wet and wet grasslands
   - alpine and subalpine grasslands
   - woodland aperture and clearings and high herbaceous habitats
   - innerland salty habitats with domination of grasses and herbaceous

4. HEATLANDS, BUSHES AND TUNDRA
   
   - arctic, alpine and subalpine bushy habitats
   - moderate and mediterranean-montane bushy habitats
   - moderate bushy heatlands
   - macchia, matoral and thermo-mediterranean bushy habitats
   - spinous mediterranean heatlands (phrygana, small bushes and related vegetation on cliff sides)
   - river and fen bushy vegetation
   - hedgerow
   - bush plantations

5. FORESTS AND WOODED HABITATS AND OTHER WOODED SURFACES
   
   - broadleaf deciduous forests
   - coniferous forests
   - mixed deciduous and coniferous forests
- alleys, small anthropogenic woodlands, recently cuted, young forest and wood derived from cutings

6. INNERCONTINENTAL HABITATS WITH FAINTLY DEVELOPED VEGETATION
   - terrestrial underground caves, cave systems, corridors and waters
   - rock creeps
   - innercontinental cliffs, rocky plateaux and flat surfaces and huge boulders
   - various innercontinental habitats with or without scattered vegetation

7. REGULARLY OR RECENTLY CULTIVATED AGRICULTURE, HORTICULTURE OR DOMESTIC HABITATS
   - arable lands and gardens of crops
   - cultural surfaces of gardens and parks

8. CONSTRUCTION, INDUSTRIAL AND OTHER ARTIFICIAL HABITATS
   - urban, suburban and rural construction
   - sparse tenements
   - industrial zones out of which the extraction process is performed
   - transport networks and other areas of surface construction
   - waters originated from humans and related structures
   - waste deposition sites
4. Species under strict control of use and trade in Serbia (beside CITES species)

<table>
<thead>
<tr>
<th>Plants (Planta)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fam. Alliaceae</td>
</tr>
<tr>
<td>1. Allium ursinum L.</td>
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<tr>
<td>Fam. Araliaceae</td>
</tr>
<tr>
<td>2. Hedera helix L.</td>
</tr>
<tr>
<td>Fam. Aristolochiaceae</td>
</tr>
<tr>
<td>3. Asarum europaeum L.</td>
</tr>
<tr>
<td>Fam. Asteraceae</td>
</tr>
<tr>
<td>4. Achillea clypeolata Sibth. &amp; Sm.</td>
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<tr>
<td>5. Achillea millefolium L.</td>
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<tr>
<td>6. Arctium lappa L.</td>
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<tr>
<td>7. Carlina acaulis L.</td>
</tr>
<tr>
<td>8. Inula helenium L.</td>
</tr>
<tr>
<td>9. Petasites hybridus (L.) P. Gaertner, B. Meyer &amp; Scherb</td>
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<tr>
<td>10. Solidago virgaurea L.</td>
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<tr>
<td>11. Tussilago farfara L.</td>
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<tr>
<td>Fam. Betulaceae</td>
</tr>
<tr>
<td>12. Betula pendula Roth</td>
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<tr>
<td>Fam. Boraginaceae</td>
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<tr>
<td>13. Pulmonaria oficinalis L.</td>
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<td>14. Symphytum officinale L.</td>
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<tr>
<td>Fam. Caryophyllaceae</td>
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<tr>
<td>15. Gypsophila paniculata L.</td>
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<td>16. Herniaria glabra L.</td>
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<td>17. Herniaria hirsuta L.</td>
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<td>Fam. Cornaceae</td>
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<td>19. Cornus mas L.</td>
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<td>Fam. Corylaceae</td>
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<td>20. Corylus avellana L.</td>
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<td>Fam. Cupressaceae</td>
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<td>21. Juniperus communis L.</td>
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<td>22. Juniperus communis L. ssp. nana Syme</td>
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<td>Fam. Equisetaceae</td>
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<td>23. Equisetum arvense L.</td>
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<td>Fam. Ericaceae</td>
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<tr>
<td>24. Arctostaphylos uva- ursi (L.) Sprengel</td>
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<tr>
<td>Fam. Fabaceae</td>
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<tr>
<td>25. Anthyllis vulneraria L.</td>
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<tr>
<td>26. Genista tinctoria L.</td>
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<td>27. Glycirhiza glabra L.</td>
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<td>28. Melilotus oficinalis (L.) Pallas</td>
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<td>29. Ononis spinosa L.</td>
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<td>Fam. Fumariaceae</td>
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<td>30. Fumaria oficinalis L.</td>
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<td>Fam. Gentianaceae</td>
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<tr>
<td>31. Centaurium umbelatum Gilib</td>
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<tr>
<td>32. Gentiana asclepiadea L.</td>
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<td>33. Gentiana cruciata L.</td>
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<td>Fam. Geraniaceae</td>
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<td>34. Geranium robertianum L.</td>
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<td>Fam. Hypericaceae</td>
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<tr>
<td>35. Hypericum barbatum Jacq.</td>
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<td>36. Hypericum maculatum Crantz</td>
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<td>37. Hypericum perforatum L.</td>
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<td>38. Hypericum rumelicum Boiss.</td>
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<td>Fam. Iridaceae</td>
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<tr>
<td>39. Iris germanica L.</td>
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<tr>
<td>40. Iris pseudoacorpus L.</td>
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<td>Fam. Lamiaceae</td>
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39
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<thead>
<tr>
<th>No.</th>
<th>Species</th>
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<tbody>
<tr>
<td>41</td>
<td>Glechoma hederacea L.</td>
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<tr>
<td>42</td>
<td>Glechoma hirsuta Waldst. &amp; Kit.</td>
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<td>43</td>
<td>Lamium album L.</td>
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<td>Leonurus cardiaca L.</td>
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<td>Marrubium vulgare L.</td>
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<td>Melissa officinalis L.</td>
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<td>Origanum vulgare L.</td>
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<td>48</td>
<td>Satureja kitaibeli Wierzb.</td>
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<td>49</td>
<td>Satureja montana L.</td>
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<td>Teucrium chamaedrys L.</td>
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<td>Teucrium montanum L.</td>
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<td>Thymus sp.</td>
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<td>Colchicum autumnale L.</td>
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<td>54</td>
<td>Convallaria majalis L.</td>
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<td>Ruscus aculeatus L.</td>
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<td>Ruscus hypoglossum L.</td>
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<td>Veratrum nigrum L.</td>
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<td>Althaea officinalis L.</td>
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<td>Malva sylvestris L.</td>
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<td>Epilobium montanum L.</td>
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<td>Epilobium parviflorum Schreber</td>
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<td>Polygonum bistorta L.</td>
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<td>64</td>
<td>Athyrium filix- femina (L.) Roth</td>
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<td>65</td>
<td>Dryopteris filix- mas (L.) Schott</td>
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<td>66</td>
<td>Primula elatior (L.) Hill</td>
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<td>67</td>
<td>Primula veris L.</td>
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<td>Primula vulgaris Hudson</td>
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<td>Aconitum vulparia Reichenb.</td>
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<td>70</td>
<td>Helleborus odorus Waldst. &amp; Kit.</td>
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<td>Hepatica nobilis Schreber</td>
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<td>Frangula alnus Miller</td>
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<td>73</td>
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<td>74</td>
<td>Crataegus monogyna Jacq.</td>
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<td>75</td>
<td>Crataegus oxycantha L.</td>
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<td>76</td>
<td>Crataegus pentagyna Waldst.&amp; Kit. ex Willd.</td>
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<td>77</td>
<td>Fragaria vesca L.</td>
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<td>78</td>
<td>Geum urbanum L.</td>
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<td>79</td>
<td>Potentilla erecta (L.) Rochel</td>
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<td>80</td>
<td>Prunus spinosa L.</td>
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<td>81</td>
<td>Rosa canina L.</td>
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<td>82</td>
<td>Rubus fruticosus L.</td>
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<td>83</td>
<td>Rubus idaeus L.</td>
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<td>84</td>
<td>Galium odoratum (L.) Scop.</td>
<td>Fam. Rubiaceae</td>
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<td>85</td>
<td>Galium verum L.</td>
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<td>86</td>
<td>Rubia tinctorum L.</td>
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<td>87</td>
<td>Sambucus nigra L.</td>
<td>Fam. Sambucaceae</td>
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<td>88</td>
<td>Euphrasia sp.</td>
<td>Fam. Scrophulaceae</td>
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<td>89</td>
<td>Veronica officinalis L.</td>
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<td>90</td>
<td>Tilia cordata Miller</td>
<td>Fam. Tiliaceae</td>
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<td>91</td>
<td>Tilia tomentosa Moench</td>
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<tr>
<td>Fam. Vaccinaceae</td>
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<td>92. Vaccinium myrtillus L.</td>
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</table>

<table>
<thead>
<tr>
<th>Fam. Violaceae</th>
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<tbody>
<tr>
<td>93. Viola odorata L.</td>
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<tr>
<td>94. Viola tricolor L.</td>
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<table>
<thead>
<tr>
<th>Lichens (Lihenes)</th>
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<tbody>
<tr>
<td>Fam. Usneaceae</td>
</tr>
<tr>
<td>1. Usnea barbata (L.)Web.In Wigg</td>
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<table>
<thead>
<tr>
<th>Fam. Parmeliaceae</th>
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<tbody>
<tr>
<td>2. Evernia prunastri (L.) Ach</td>
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<tr>
<td>3. Cetraria islandica (L.) Ach</td>
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</table>

<table>
<thead>
<tr>
<th>Fungi (Fungi)</th>
</tr>
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<tbody>
<tr>
<td>Fam. Boletaceae</td>
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<tr>
<td>2. Boletus aestivalis (Paulet) Fr.</td>
</tr>
<tr>
<td>4. Boletus pinophilus Pilat &amp; Dermerk</td>
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</tbody>
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<table>
<thead>
<tr>
<th>Fam. Cantharellaceae</th>
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<tbody>
<tr>
<td>5. Cantharellus cibarius L. Fr.</td>
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</table>

<table>
<thead>
<tr>
<th>Fam. Russulaceae</th>
</tr>
</thead>
<tbody>
<tr>
<td>7. Lactarius delicosus (L.) S.F.Gray.</td>
</tr>
<tr>
<td>8. Lactarius deterrimus Groger</td>
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<tr>
<td>9. Lactarius salmonicolor Heim &amp; Lecl.</td>
</tr>
<tr>
<td>10. Lactarius sanguifluus (Paul.) Fr.</td>
</tr>
<tr>
<td>11. Lactarius semisanguifluus Heim &amp; Lecl.</td>
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</table>

<table>
<thead>
<tr>
<th>Fam. Marasmiaceae</th>
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<tbody>
<tr>
<td>12. Marasmius oreades (Bolt. Fr.) Fr.</td>
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<table>
<thead>
<tr>
<th>Fam. Tuberaceae</th>
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<tr>
<td>13. Tuber magnatum</td>
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<tr>
<td>14. Tuber aestivum</td>
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<td>15. Tuber brumale</td>
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Animals

<table>
<thead>
<tr>
<th>Fam. Acipenseridae</th>
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<tr>
<td>1. Huso huso</td>
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<table>
<thead>
<tr>
<th>Fam. Testudinidae</th>
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<tbody>
<tr>
<td>2. Testudo hermanni</td>
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<table>
<thead>
<tr>
<th>Fam. Viperidae</th>
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<td>3. Vipera ammodytes</td>
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<th>Fam. Ranidae</th>
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<tr>
<td>4. Rana kl. Esculenta</td>
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<td>5. Rana lessonae</td>
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<td>6. Rana ridibunda</td>
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<th>Fam. Helicidae</th>
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<tr>
<td>7. Helix aspersa</td>
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<td>8. Helix leucorum</td>
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<tr>
<td><strong>Fam. Hirudinidae</strong></td>
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<tr>
<td>10.</td>
</tr>
</tbody>
</table>
5. Strictly protected species in Serbia

**Mammals**

1. *Barbastella barbastellus*
2. *Canis lupus*
3. *Castor fiber*
4. *Chionomys nivalis*
5. *Cricetus cricetus*
6. *Dinaromys bogdanovi*
7. *Dryomys nitedula*
8. *Eptesicus serotonus*
9. *Felis silvestris*
10. *Hypsugo savii*
11. *Lutra lutra*
12. *Lynx lynx*
13. *Micromys minutus*
14. *Microtus leichtensteini*
15. *Miniopterus schreibersii*
16. *Muscardinus avellanarius*
17. *Mustela erminea*
18. *Mustela eversmanii*
19. *Myotis nivalis*
20. *Myotis bechsteinii*
21. *Myotis daubentonii*
22. *Myotis dasycneme*
23. *Myotis capaccinii*
24. *Myotis daubentonii*
25. *Myotis mystacinus*
26. *Myotis myotis*
27. *Myotis bechsteinii*
28. *Myotis mystacinus*
29. *Myotis nattereri*
30. *Neomys fodiens*
31. *Nyctalus leisleri*
32. *Nyctalus noctula*
33. *Nyctalus pygmaeus*
34. *Pipistrellus kuhlii*
35. *Pipistrellus nathusii*
36. *Pipistrellus pipistrellus*
37. *Plecotus auritus*
38. *Plecotus austriacus*
39. *Rhinolophus blasii*
40. *Rhinolophus euryale*
41. *Rhinolophus ferrumequinum*
42. *Rhinolophus hipposideros*
43. *Rhinolophus mehelyi*
44. *Sicista subtilis*
45. *Sorex alpinus*
46. *Spalax leucodon*
47. *Spermophilus citellus*
48. *Talpa caeca*
49. *Ursus arctos*
50. *Vesperilio murinus*
51. *Vormela peregusna*

**Birds**

1. *Accipiter brevipes*
2. *Accipiter nisus*
3. *Acrocephalus arundinaceus*
4. *Acrocephalus palustris*
5. *Acrocephalus schoenobaenus*
6. *Actitis hypoleucus*
7. *Aegithalos caudatus*
8. *Aegolius funereus*
9. *Aegypius monachus*
10. *Aerocephalus melanopogon*
11. *Aerocephalus paludicola*
12. *Aerocephalus scirpaceus*
13. *Alauda arvensis*
14. *Alcedo atthis*
15. *Alectoris graeca*
16. *Anas acuta*
17. *Anas clypeata*
18. *Anas penelope*
19. *Anas querquedula*
20. *Anas strepera*
21. *Anser anser*
22. *Anser brachyrhynchus*
23. *Anser erythropus*
24. *Anthus campestris*
25. *Anthus cingulatus*
26. *Anthus pratensis*
27. *Anthus spinolaetta*
28. *Anthus trivialis*
29. *Apus apus*
30. *Apus pallidus*
31. *Aquila chrysaetos*
32. *Aquila clanga*
33. *Aquila heliaca*
34. *Aquila pomarina*
35. *Ardea purpurea*
36. *Ardea ralloides*
37. *Arenaria interpres*
38. *Asio flammeus*
39. *Asio otus*
40. *Athene noctua*
41. *Aythya fuligula*
42. *Aythya marila*
43. *Aythya nyroca*
44. *Bombycilla garrulus*
45. *Bonasa bonasia*
46. *Botaurus stellaris*
47. *Branta bernicla*
48. *Branta ruficollis*
49. *Branta ruficollis*
50. *Bubo bubo*
51. *Bubulcus ibis*
52. *Buphagus nyroca*
53. *Buphagus pygargus*
54. *Buteo buteo*
55. *Buteo lagopus*
56. *Buteo rufinus*
57. *Calaferella brachydactyla*
58. *Calaferella rufescens*
59. *Calidris alba*
60. *Calidris minuta*
61. *Calidris alba*
62. *Calidris ferruginea*
63. *Calidris minuta*
64. *Calidris temminckii*
65. *Caprimulgus europeanus*
66. *Carduelis cannabina*
67. *Carduelis carduelis*
68. *Carduelis chloris*
69. *Carduelis flammea*
70. *Carduelis flavirostris*
71. *Carpodacus erythrinus*
72. *Carduelis spinus*
73. *Catharacta skua*
74. *Catharacta skua*
75. *Certhia brachydactyla*
76. *Certhia familiaris*
77. *Cetia cetti*
78. *Charadrius alexandrinus*
79. *Charadrius dubius*
80. *Charadrius hiaticula*
81. *Chlidonias hybrida*
82. *Chlidonias leucopterus*
83. *Chlidonias niger*
84. *Ciconia ciconia*
85. *Ciconia nigra*
86. *Circus cincus*
87. *Circus circaetaus galicus*
88. *Circus aeruginosus*
89. *Circus cyaneus*
90. *Circus macrourus*
91. *Circus pygargus*
92. *Cisticola*
93. *Clamator glandarius*
94. *Clamator glandarius*
95. *Clamator glandarius*
96. *Colymba livia*
97. *Colymba livia*
98. *Coracias garrulus*
99. *Crex crex*
100. *Cuculus canorus*
101. *Cynthus clypeata*
102. *Cynthus cyaneus*
103. *Delichon urbica*
104. *Dendrocoptes leucotis*
105. *Dendrocoptes major*
106. *Dendrocoptes minor*
107. *Dendrocoptes minor*
108. *Dendrocoptes syriacus*
109. *Dryocopus martius*
110. *Egretta garzetta*
111. *Emberiza calandra*
112. *Emberiza cia*
113. *Emberiza cia*
114. *Emberiza citrinella*
115. *Emberiza hortulana*
116. *Emberiza*
117. *Emberiza schoeniclus*
118. *Eremophila alpestris*
119. *Enthus rubecula*
120. *Eudromias morinellus*
121. *Falco biarmicus*
122. *Falco cherrug*
123. *Falco columbarius*
124. *Falco naumanni*
Motacilla cinerea

128. Falco vespertinus
129. Ficedula albicollis
130. Ficedula hypoleuca
131. Ficedula parva
132. Ficedula semitorquata
133. Galerida cristata
134. Gallinago gallinago
135. Gallinago media
136. Gavia arctica
137. Gavia immer
138. Gavia stellata
139. Glareola pratinctica
140. Glaucidium passerinum

141. Grus grus
142. Gypaetus barbatus
143. Gyps fulvus
144. Haematopus ostralegus
145. Himantopus himantopus
146. Hieraetetus fasciatus
147. Hieraetetus pennatus
148. Himantopus himantopus
149. Hippolais icterina
150. Hippolais olivetorum
151. Hippolais pallida
152. Hirundo daurica
153. Hirundo rustica
154. Ixobrychus minutus
155. Jynx torquilla
156. Lanius collurio
157. Lanius excubitor
158. Lanius minor
159. Lanius nubicus
160. Lanius senator
161. Larus fuscus
162. Larus marinus
163. Larus melanocephalus
164. Larus minutus
165. Limicola falcinellus
166. Limosa limosa
167. Locustella fluvatilis
168. Locustella luscinioidaes
169. Locustella naevia
170. Loxia curvirostra
171. Lullula arborea
172. Luscinia luscinia
173. Luscinia megarhynchos
174. Luscinia svecica
175. Lymnocryptes
dalichocephalus
176. Melanitta fusca
177. Melanitta nigra
178. Melanocorypha callandra
179. Mergus albellus
180. Mergus merganser
181. Mergus serrator
182. Merops apiaster
183. Milvus milvus
184. Milvus migrans
185. Monticola saxatilis
186. Monticola solitarius
187. Montifringilla nivalis
188. Motacilla alba
189. Motacilla cinerea

190. Motacilla flava
191. Muscicapa striata
192. Neophron percnopterus
193. Nebria rufina
194. Nucifraga caryocatactes
195. Numenius arquata
196. Numenius phaeopus
197. Numenius tenuirostris
198. Nycticorax nycticorax
199. Oenanthe hispanica
200. Oenanthe oenanthe
201. Oriolus oriolus
202. Otis tarda
203. Otus scops
204. Oxyura leucocephala
205. Pandion haliaetus
206. Panurus biarmicus
207. Parus atus
208. Parus caeruleus
209. Parus cristatus
210. Parus lugubris
211. Parus major
212. Parus montanus
213. Parus palustris
214. Passer hispaniolensis
215. Pelecanus crispus
216. Pelecanus onocrotalus
217. Pernis apivorus
218. Petronia petronia
219. Phalacrocorax pygmeaus
220. Phalaropus fulicarius
221. Phalaropus lobatus
222. Philomachus pugnax
223. Phoenicopeterus roseus
224. Phoenicurus ochruros
225. Phoenicurus phoenicurus
226. Phylloscopus collybita
227. Phylloscopus sibilatrix
228. Phylloscopus trochilus
229. Phylloscopus bonelli
230. Picoidea tridactyla
231. Picus canus
232. Picus viridis
233. Platelea leucorodia
234. Plectrophenax nivalis
235. Plegadis falcinellus
236. Piquia riparia
237. Pluvialis squatarola
238. Podiceps nigricollis
239. Podiceps auritus
240. Podiceps cristatus
241. Podiceps griseigena
242. Porzana parva
243. Porzana porzana
244. Porzana pusilla
245. Prunella collaris
246. Prunella modularis
247. Pyrrhocorax graculus
248. Pyrrhocorax pyrrhocorax
249. Pyrrhocorax pyrrhocorax
250. Rallus aquaticus

251. Recurvirostra avosetta
252. Regulus ignicapillus
253. Regulus regulus
254. Remiz pendulinus
255. Riparia riparia
256. Rissa tridactyla
257. Saxicola rubetra
258. Saxicola torquatus
259. Scolopax rusticola
260. Serinus serinus
261. Sitta europaea
262. Sitta neumayer
263. Somateria mollissima
264. Stercorarius longicaudus
265. Stercorarius parasiticus
266. Stercorarius pomarinus
267. Sterna albifrons
268. Sterna caspia
269. Sterna hirundo
270. Sterna nilotica
271. Strix aluco
272. Strix uralensis
273. Sturnus roseus
274. Sylvia atricapilla
275. Sylvia borin
276. Sylvia cantillans
277. Sylvia communis
278. Sylvia curruca
279. Sylvia hortensis
280. Sylvia melanocephala
281. Sylvia nisoria
282. Tachybaptus ruficolis
283. Tachymarptis melba
284. Tadorna ferruginea
285. Tadorna tadorna
286. Tetrao urogallus
287. Tetrax tetrax
288. Tichodroma muraria
289. Tringa ochropus
290. Tringa glareola
291. Tringa nebularia
292. Tringa ochropus
293. Tringa stagnatilis
294. Tringa totanus
295. Troglydotes troglodytes
296. Turdus iliacus
297. Turdus merula
298. Turdus philomelos
299. Turdus pilaris
300. Turdus torquatus
301. Turdus viscivorus
302. Tyto alba
303. Uupa epops
304. Vaneilia vaneilia

Reptiles

1. Ablepharus kitaibelii
2. Alygrioides nigropunctatus
3. Coronella austriaca
4. Cytoptodon kotschyi
5. Darevskia praticola
6. Dolichophis caspius
7. Elaphe quatuorlineata
Amphibians
1. Bombina bombina
2. Bombina variegata
3. Bufo bufo
4. Hyla arborea
5. Lissotriton vulgaris
6. Mesotriton alpestris
7. Pelobates fuscus
8. Pelobates syriacus
9. Pseudepidalea viridis
10. Rana dalmatina
11. Rana graeca
12. Rana temporaria
13. Salamandra atra
14. Salamandra salamandra
15. Triturus carnifex
16. Triturus cristatus
17. Triturus dobrogicus
18. Triturus karelinii

Fishes
1. Acipenser gueldenstaedtii
2. Acipenser nuditentris
3. Acipenser stellatus
4. Acipenser sturio
5. Alburnus chalcoides
6. Alosta immaculata
7. Anguilla anguilla
8. Barbus cyclolepis
9. Carassius carassius
10. Cobitis elongata
11. Eudontomyzon danfordi
12. Eudontomyzon mariae
13. Eudontomyzon stankokaramani
14. Eudontomyzon vladkyovi
15. Gymnocephalus baloni
16. Huso huso
17. Leucaspius delineatus
18. Misgurnus fossilis
19. Oxynoemachius bureschii
20. Pachychilon pictum
21. Rhodeus amarus
22. Rutilus karamani
23. Sabanejewia balcanica
24. Sabanejewia bulgarica
25. Salmo marmoratus
26. Telestes souffia
27. Tinca tinca
28. Umbra krameri
29. Zingel streber
30. Zingel zingel

Spiders
1. Centromerus cavernarum
2. Centromerus serbicus
3. Cicusina cicur
4. Coelotes inermis
5. Cybaeus balkanicus
6. Fageilus ensigerus
7. Harpactea complicata
8. Histopana laeta
9. Leptophantes leprosus
10. Leptophantes speleorum
11. Porrhomma campbelli
12. Porrhomma convexum
13. Porrhomma lativulum
14. Tegeneria campestris
15. Tegeneria domestica
16. Tegeneria ferruginea
17. Tegeneria silvatica

Opilions
1. Cyphophthalmus ere
2. Cyphophthalmus klisurae
3. Cyphophthalmus novelieri
4. Cyphophthalmus serbicus
5. Leibournum rumelicum
6. Mittostoma cancellatum
7. Odellus serbicus
8. Rilaena serbica
9. Trojanela serbica

Pseudoscorpions
1. Chthonius (Chthonius) bogovinae
2. Chthonius (Chthonius) ischocheles
3. Chthonius (Chthonius) iugoslavicus
4. Chthonius (Chthonius) ladidentatus
5. Chthonius (Chthonius) lesnik
6. Chthonius (Chthonius) persimilis
7. Chthonius (Chthonius) stevanovici
8. Chthonius (Ephippiochthonius) bidentatus
9. Chthonius (Ephippiochthonius) kemza
10. Chthonius (Ephippiochthonius) microtuberculatus
11. Chthonius (Ephippiochthonius) tetrachelatus
12. Chthonius (Globochthonius) panici
13. Chthonius (Globochthonius) polychaetus
14. Chthonius (Globochthonius) purgo
15. Neobisium babinszub
16. Neobisium babusniceae
17. Neobisium carpticum
18. Neobisium cephalonicum
19. Neobisium fusimanum
20. Neobisium macrodactylum
21. Neobisium meridieseribicum
22. Neobisium rajkodimitrijevici
23. Neobisium remyi
24. Neobisium stankovici
25. Neobisium stitkovense
26. Neobisium sylvaticum
27. Neobisium tarae
28. Roncus bak
29. Roncus goljae
30. Roncus gruai
31. Roncus ivanjicae
32. Roncus jarilo
33. Roncus pannonius
34. Roncus pantici
35. Roncus parablothroides
36. Roncus pikjaki
37. Roncus remesianensis
38. Roncus satoi
39. Roncus sotiri
40. Roncus starivliha
41. Roncus strahor
42. Roncus svantevi
43. Roncus svarozici
44. Roncus svanteviti
45. Roncus sotiro
46. Roncus talaon
47. Tyrannochthonius psoglav

Branchiopods
1. Eoleptestheria spinosa
2. Imnadia banatica
3. Imnadia cristata
4. Imnadia pannonica

Chilopods
1. Lithobius lakatnicensis
2. Lithobius trebinjanus

Diplopods
1. Apfelbeckia lendenfeldi miracula
2. Apfelbeckia subterranea
3. Apfelbeckia wohiberedi
4. Belbogosoma bloweri
5. Brachydesmus (Absurdodesmus) jalziici
6. Brachydesmus (Brachydesmus) herzegovinensis
7. Brachydesmus (Brachydesmus) herzegovinensis sericus
8. Brachydesmus (Brachydesmus) troglubus
9. Brachydesmus (Stylobachydesmus) avelae
10. Brachydesmus (Stylobachydesmus) pancici
11. Dyocerosoma drimicum
12. Haasea intermedia
13. Lamellotyphlus sotirovi
14. Leptoiulus sarajevoen
15. Perunos trojanica
16. Polydesmus (Nomarchus) undeviginti
17. Serboiulus deelemani
18. Serboiulus lucifugus
19. Serbosoma beljanicae
20. Serbosoma crucis
21. Serbosoma kucajensis
22. Serbosoma lazarevensis
23. Serbosoma zagubicae
24. Svarogosoma bozidarcurcici
25. Typhloiuus (Typhloiuus) albanicus
26. Typhloiuus (Typhloiuus) nevoi
27. Typhloiuus (Typhloiuus) serborum
28. Typhloiuus (Typhloiuus) caviola
29. Bembidion (Bembidionotitizkya) rhodopense
30. Bembidion (Sinechostictus) kosti
31. Bembidion (Trepanes) maculatum serbicu
32. Bembidion (Trepanes) maculatum serbicu
33. Bembidion (Trepanes) maculatum serbicu
34. Bembidion (Trepanes) maculatum serbicu
35. Carabus (Calathus) croaticus ljubetensis
36. Carabus (Calathus) bosnicus
37. Carabus (Neocalathus) albanicu
38. Carabus (Microcallisthenes) pernix
39. Carabus (Microcallisthenes) relictum
40. Carabus (Archicarabus) montivagus velepticus
41. Carabus (Archicarabus) pseudomontivagus
42. Carabus (Chaetocarabus) intricatus montenegro
43. Carabus (Chaetocarabus) intricatus starenis
44. Carabus (Eucarabus) ulrichi arrogon
45. Carabus (Eucarabus) ulrichi cernosnjenis
46. Carabus (Eucarabus) ulrichi fabrizioi
47. Carabus (Eucarabus) ulrichi fastuosus
48. Carabus (Eucarabus) ulrichi gornjakensis
49. Carabus (Eucarabus) ulrichi kucajensis
50. Carabus (Eucarabus) ulrichi nastasi
51. Carabus (Eucarabus) ulrichi pernix
52. Carabus (Eucarabus) ulrichi pseodoarrogans
53. Carabus (Eucarabus) ulrichi rhlensis
54. Carabus (Eucarabus) ulrichi transdiernea
55. Carabus (Eucarabus) ulrichi werner
56. Carabus (Megodontus) caelatus sarajevens
57. Carabus (Megodontus) croaticus babinjensis
58. Carabus (Megodontus) croaticus bosiljici
59. Carabus (Megodontus) croaticus kraetscheri
60. Carabus (Megodontus) croaticus ljubetensis
Cheilosia alba
Cheilosia griseifacies
Cheilosia insignis
Cheilosia melanura
rubra
Cheilosia schnabli
Chalcosyrphus piger
Chalcosyrphus rufipes
Chalcosyrphus valgus
Chalcosyrphus piger
(Parahipparchia)
gardetta
Colias caucasica
Colias myrmidon
Cucujus cinnaberinus
Curcicia bolei
(Deltomerus) nopsai
(Deltomerus) paradoxus
(Biharotrechus) reufi
(Dicentrius) paradoxus
Leptidea morsei
Maculinea arion
Maculinea alcon
Lycaena dispar
Cervus
Euphydryas maturna
Eumerus tauricus
Eumerus sinuatus
Eumerus argyropus
ausonia
Euchloe (Euchloe)
Esperarge climene
Empusa fasciata
Epeorus
(Epeorus) zecevici
Magdelainella huusseni
serbi
(Parahipparchia)
Maculinea alcon
Hipparchia
Magdelainella nonveilleri
(juno) vernather
Eirechius
gracilior
Eirechius
gracilior
Oeles (Oeles)
lucescens
Lithax niger
Libelloides macaronius
Leptusa serbica
Leptusa kosmajensis
Leptusa jeanneli
cisdanubiensis
Lepisma
(Trichoptera)
Lathrobium coeca
Lathrobium scardicum
Lathrobium oblita
Lathrobium knirschi
Lathrobium irenae
Lathrobium hlavaci
Lathrobium gracilior
Lathrobium stolense
Lathrobium sevanei
Lathrobium kosmajense
Lathrobium jeanneli
cisdanubiensis
Lepisma
(Trichoptera)
Lathrobium coeca
Lathrobium scardicum
Lathrobium oblita
Lathrobium knirschi
Lathrobium irenae
Lathrobium hlavaci
Lathrobium gracilior
Lathrobium stolense
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Lathrobium kosmajense
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cisdanubiensis
Lepisma
(Trichoptera)
Lathrobium coeca
Lathrobium scardicum
Lathrobium oblita
Lathrobium knirschi
Lathrobium irenae
Lathrobium hlavaci
Lathrobium gracilior
Lathrobium stolense
Lathrobium sevanei
Lathrobium kosmajense
Lathrobium jeanneli
cisdanubiensis
Lepisma
(Trichoptera)
221. *Magdelainella milojibrjakoviciana*
222. *Nebria (Alpaeus) bosnica sturanyi*
223. *Nebria (Alpaeus) dahlii veletibica*
224. *Nebria (Alpaeus) ganglbaueri ganglbaueri*
225. *Nebria (Alpaeus) speiseri*
226. *Nebria (Alpaeus) telekiana*
227. *Necrodes littoralis*
228. *Nedinitus beogradensis*
229. *Neohalacis osmicida*
230. *Neurocrassus serbicicus*
231. *Nicrophorus germanicus*
232. *Nymphalodes antipa*
233. *Nymphalodes vaualbum*
234. *Nymphalodes xanthomelas*
235. *Omphreus (Omphreus) bischoffi*
236. *Omphreus (Omphreus) gracilis*
237. *Omphreus (Omphreus) morio albanicus*
238. *Omphreus (Omphreus) morio serbicicus*
239. *Omphreus (Omphreus) ovcaensis*
240. *Omphreus (Omphreus)*
241. *Onconotus servillei*
242. *Onconthophagus (Furcomothphagus) furcatus*
243. *Ophthalmoniphetodes suvae*
244. *Orgulus vasici*
245. *Ortheneva gemmula*
246. *Ortheneva montana*
247. *Oryctes nasicornis*
248. *Osmotherma eremita*
249. *Otiorynchus (Cryphiphooides) ganglbaueri*
250. *Otiorynchus (Cryphiphooides) mendax*
251. *Otiorynchus (Erechnurus) relictus*
252. *Otiorynchus (Erechnurus) splendidus*
253. *Otiorynchus (Erechnurus) kopaonicensis*
254. *Otiorynchus (Erechnurus) solitarius*
255. *Otiorynchus (Erechnurus) tanyerus*
256. *Otiorynchus (Mesianomus) circrhomenis*
257. *Otiorynchus (Mesianomus) priserensis*
258. *Otiorynchus (Otiolehus) inunctus*
259. *Otiorynchus (Pendragon) serbicicus*
260. *Otiorynchus (Pirossovedus) bosnicus obtusidens*
261. *Otiorynchus (Pirossovedus) albanicus*
262. *Otiorynchus (Prilisvanus) albanicus torus*
263. *Otiorynchus (Prilisvanus) cymophanus*
264. *Otiorynchus (Prilisvanus) lumensis*
265. *Otiorynchus (Prilisvanus) malisorum*
266. *Otiorynchus (Provadius) liliputanus*
267. *Otiorynchus (Stupamacus) kruerepi armipes*
268. *Otiorynchus (Stupamacus) macdonicus conorhynchus*
269. *Otiorynchus (Stupamacus) sharthagensis*
270. *Palingenia longicada*
271. *Papares libelluloides*
272. *Panipherus serbicicus*
273. *Papilio machaon*
274. *Paradaulius deveryniga*
275. *Paradaulius georgevitchi*
276. *Paradaulius stankovitchi*
277. *Paradaulius winkleri*
278. *Parnassius apollo*
279. *Parnassius nnemosyne*
280. *Pedestredorcadion jubitense*
281. *Pheggomisetes globiceps*
282. *Pheggomisetes ninae*
283. *Phleuonopsis (Pholeuonopsis) magdelaineri*
284. *Phleuonopsis cvijici*
285. *Phleuonopsis zlatiborensis*
286. *Pholidoptera aptera aptera*
287. *Pholidoptera transylvanica*
Moluscs

1. Balea (Alinda) bicipitata balcanica
2. Balea (Alinda) bicipitata panici
3. Balea (Alinda) bicipitata urosevici
4. Balea (Alinda) bicipitata vlasinensis
5. Balea (Alinda) panici
6. Balea (Alinda) wagneri stojicevici
7. Balea (Balea) perversa
8. Belgrandiella bunarbasa
9. Belgrandiella serbica
10. Bulgarica (Bulgarica) moellendorffi banjana
11. Bulgarica (Bulgarica) moellendorffi moellendorffi
12. Bulgarica (Bulgarica) stolii
13. Bulgarica (Pavlovicia) pavlovici pavlovici
14. Bulgarica (Pavlovicia) pavlovici purpurascens
15. Bythinella drimica alba
16. Bythinella nonveilleri
17. Bythinella opaca uleola
18. Bythinella pesterica
19. Bythinella serborientalis
20. Caringera eximia
21. Chondrina spelta serbica
22. Grossuana euxina euxina
23. Grossuana euxina remesiana
24. Grossuana euxina serbeca
25. Helicigona kollari
26. Helicigona trizona balcanica
27. Helicigona trizona inflata
28. Helicigona trizona jastrebensis
29. Helix (Helix) dormitoris hajensis
30. Helix (Helix) dormitoris kolashinensis
31. Helix (Helix) dormitoris stolacensis
32. Helix (Helix) vladaica
33. Herilla bosniensis bosniensis
34. Herilla bosniensis kusceri
35. Herilla bosniensis semistriata
36. Herilla jabucica excedens
37. Herilla ziegleri accedens
38. Herilla ziegleri amalae
39. Herilla ziegleri jaeckeli
40. Herilla ziegleri limana
41. Herilla ziegleri rascana
42. Herilla ziegleri tarenisis
43. Iglica (Raphica) illyrica
44. Lacinaria pygmea
45. Lithoglyphus apertus
46. Macedonica frauenfeldifrauenfeldi
47. Macedonica frauenfeldi moellendorffi
48. Macedonicafrauenfeldi occidentalis
49. Macedonicafrauenfeldi pavlovici
50. Macedonica pirotana janensis sporadica
51. Montenegro isatra
52. Orientalina curta picensis
53. Sarajana apelbecki driniana
54. Segmentina nitida
55. Sosia diodonta
56. Terranigra kosovica
57. Unio crassus
58. Vertigo angustor
59. Vestia (Brabenecia) ranoejici
60. Vestia (Vestiella) roschitzi minima
61. Vestia (Vestiella) roschitzi trigonostoma

Oligochaets

1. Cernosvitovia biserialis
2. Cernosvitovia crnicae
3. Cernosvitovia dudichi
4. Cernosvitovia roschitzi trigonostoma
5. Cernosvitovia roschitzi minima
6. Cernosvitovia roschitzi strobilaceus
7. Cernosvitovia roschitzi thunbergiana
8. Cetrelia cetrarioides
9. Anaptychia crinalis
10. Anaptychia sarmentosa
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89. Anaptychia sarmentosa
90. Anaptychia sarmentosa
91. Anaptychia sarmentosa
92. Anaptychia sarmentosa
93. Anaptychia sarmentosa
94. Anaptychia sarmentosa
95. Anaptychia sarmentosa
96. Anaptychia sarmentosa
97. Anaptychia sarmentosa
98. Anaptychia sarmentosa
99. Anaptychia sarmentosa
100. Anaptychia sarmentosa

Fungi

1. Albatrellus ovinus
2. Amanita vittadini
3. Battarea phalloides
4. Boletus dupainii
5. Boletus impolitus
6. Boletus regius
7. Boletus rhodoxanthus
8. Boletus satanas
9. Catchathelsma imperiale
10. Entoloma bloxamii

Lichens

1. Aleactoria sarmentosa
2. Anaptychia crinalis
3. Cetrelia cetrarioides
4. Collema fragrans
5. Collema nigrescens
6. Evernia divaricata
7. Fuscosparnaria saubinetii
8. Graphis elegans
Bryophytes

9. Heterodermia speciosa
10. Hypogymnia vittata
11. Lepholemma polyanthes
12. Leprocaulon microspermicum
13. Leptogium hedenbrandii
14. Leptogium saturninum
15. Leptogium teretisculum
16. Letharia vulpina
17. Lobaria amplissima
18. Lobaria scrobiculata
19. Menegazzia terebrata
20. Moelleropsis nebulous
21. Nephoroma bellum
22. Normandina pulchella
23. Pannaria rubiginosa
24. Parmotrema chinense
25. Peltigera collina
26. Peltigera malacea
27. Physcia biziana
28. Physcia leptalea
29. Physcia tribacia
30. Sclerophora peronella
31. Solorina spongiosa
32. Sphaerophorus globosus
33. Thelotrema lepadinum
34. Trachelopis wallrothii
35. Tuckneraria laureri
36. Usnea longissima
37. Usnea scabratra

Ferns

1. Adiantum capillus-veneris
2. Asplenium adiantum-nigrum
3. Botrychium multifidum
4. Cystopteris alpina
5. Cystopteris montana
6. Diphasiastrum alpinum
7. Diphasiastrum complanatum
8. Dryopteris affinis
9. Dryopteris cristata
10. Dryopteris dilatata
11. Dryopteris submontana
12. Equisetum fluviatile
13. Lycopodium annotinum subsp. annotinum
14. Lycopodium clavatum subsp. clavatum
15. Marsilea quadrifolia
16. Matteuccia struthiopteris
17. Notholaena maranthae
18. Oreopteris limbosperma
19. Phegopteris connectilis
20. Plutaria globulifera
21. Polystichum braunii
22. Thelypteris palustris subsp. palustris

Flower plants

1. Abies borisii-regis
2. Acer Heldreichii
3. Acer hyrcanum subsp. intermedium
4. Achillea alexandri-regis
5. Achillea chrysocoma
6. Achillea ochroleuca
7. Achillea pindicola subsp. corabensis
8. Achillea pseudopectinata
9. Achillea pscherocephala
10. Aconitum anitaura
11. Aconitum toxicum subsp. toxicum
12. Aconitum variegatum subsp. nasutum
13. Adenophora lilifolia
14. Adonis vernalis
15. Agrimonia eupatoria subsp. grandi
16. Aldrovanda vesiculosa
17. Alisma gramineum
18. Alkanna illyricus subsp. monspessulanus
19. Alkanna pulmonaria
20. Alkanna scardica
21. Alkanna tomentosa subsp. tomentosa
22. Allium atrovioleaceum
23. Allium cyriilii
24. Allium ericetorum
25. Allium flavum subsp. tauricum
26. Allium fuscum
27. Allium guttaturn subsp. dalmaticum
28. Allium pallens subsp. tenuiforum
29. Allium paniculatum subsp. marginatum
30. Allium rhodopeum
31. Alnus abetulobeta subsp. abetulobeta
32. Althaea
33. Allthaea wawensia
34. Alyssum corymbosoides
35. Alyssum linifolium
36. Alyssum montanum subsp. serbicicum
37. Amphoricarpos autariatus
38. Anagallis minima
39. Anchusa ochroleuca
40. Androsace elongata
41. Androsace lactea subsp. lactea
42. Anemone apennina
43. Anemone sylvestris
44. Angelica palustris
45. Anthyllis aurea
46. Aquilegia grata
47. Aquilegia panicini
48. Arabis hybrida
49. Arabis nova
50. Arabis scopulina
51. Arctostaphylos alpinus
52. Aristolochia merxmuelleri
53. Armoracia macrocarpa
54. Artemisia austriaca
55. Artemisia panicini
56. Asparagus pseudosuber
57. Asperula doerfleri
58. Asperula setulosa
59. Asperula tenella
60. Asphodeline lutea
61. Astragalus angustifolius subsp. angustifolius
62. Astragalus dasyanthus
63. Astragalus exscapus subsp. exscapus
64. Astragalus falaci
65. Astragalus glycyrhylloides subsp. serbicicus
66. Astragalus hypoglottis subsp. gremlii
67. Astragalus monspessulanus subsp. illyricus
68. Astragalus sulcatus
69. Astragalus varius
70. Astragalus wilmottianus
71. Aubrieta gracilis subsp. scardica
72. Aurinia rupestris 118. Ceratocephala falcata 164. Daphne laureola
subsp. hispanica 119. Ceratocephala subsp. falcata 165. Dianthus behriorum
subsp. macedonica 120. Chorispora tenella 166. Dianthus diutinus
73. Ballota hispanica 121. Ciceria virosa 167. Dianthus
subsp. lepuznica giganteiformis subsp.
74. Barbarea vulgaris 122. Cirsium boujartii 168. Dianthus moesiacus
subsp. ipekuznica subsp. boujartii 169. Dianthus
75. Bassia sedoides 123. Cirsium brachycephalum 170. Dianthus nitidus
subsp. carpatica subsp. perfoliatum 171. Dianthus scardicus
subsp. carpathica 124. Cirsium heterophyllum 172. Dianthus serotinus
76. Betula pubescens 125. Cirsium heterotrichum 173. Dianthus superbus
subsp. carpathica subsp. vulgaris 174. Dianthus
77. Blackstonia perfoliata 126. Cirsium tymbphaseum subsp. superbus
subsp. perfoliata 129. Clematis alpina subsp.
78. Bornmuellera dieckii 130. Coelogyssum viride subsp. alpina
cumbutatum subsp. betonicifolius 132. Colchicum bivonae 181. Draba nemorosa
commutatum subsp. macedonicum 133. Colchicum subsp. silikosa
80. Bupleurum 134. Consolida hungaricum
subsp. longifolium 135. Convulvulus 182. Draba silikosa
subsp. longifolium 136. Convulvulus alpinus 183. Dracocephalum
81. Bupleurum 137. Convulvulus albi 184. Drosera rotationalia
ranunculoides 138. Convulvulus angulata 185. Drymocallis
subsp. ranunculoides 139. Corallorhiza testiculata
bissetsierii 140. Crambe tataria 186. Edraianthus sericus
subsp. pannasicus 141. Crepis baldaccii
82. Bupleurum 142. Crepis berticse 187. Elatine hydropiper
subsp. pannasicus 143. Crepis macdonica subsp. hydropiper
83. Buxus sempervirens 144. Crepis pannonica 188. Elatine triandra
84. Cachrys alpina 145. Crocus banaticus 189. Eleocharis parva
85. Cachrycristata 146. Crocus dalmaticus 190. Epipactis atrorubens
86. Cachrycerulaceae 147. Crocus oligier subsp. subsp. atrorubens
88. Callitriche palustris subsp. dracocephalum
89. Callitriche stagnalis 149. Crocus rujanensis 192. Epipactis microphylla
90. Calluna vulgaris 150. Cyperus longus subsp. 193. Epipactis palustris
subsp. vulgaris 151. Cyperus pannonicus 194. Epipogium aphyllum
91. Campanula calycialata 152. Cyperus rotundus L. 195. Eranthis hiemalis
92. Campanula scutellata 153. Cyperus ruyschiana 196. Erigeron epiriticus
93. Campanula secundifiora subsp. albicans 154. Cytisus absinthioides
94. Campanula thyroids 155. Cytisus monadelphus subsp. 197. Eriohiphorum gracile
subsp. thyroids 156. Cytisus rotundus subsp. subsp. gracile
95. Camphorosma monspeliaca 157. Cytisus longus 198. Eryngium planum
96. Cardamine amara 158. Cytisus pannonicus subsp. 199. Eryngium serbicam
subsp. balcanica 159. Cytisus pannonicus 200. Erysimum canum
97. Cardamine carnosa 160. Cytisus rotundus L. 201. Erysimum crepidifolium
100. Cardamine waldreichii 163. Cytisus monadelphus subsp. marschallianum
101. Carducus ramosissimus 164. Cytisus subsp. albus
102. Carex limosa 165. Cytisus purpureus 204. Erysimum velcevii
103. Carex secalina 166. Cytisus pygmaeus 205. Euphorbia angulata
104. Carum gracum 167. Dactylorhiza cordigera
subsp. serpentinicum subsp. bosniaca 168. Dactylorhiza
105. Centaurea derventana 169. Dactylorhiza fistulisosa
106. Centaurea finazzeri 170. Dactylorhiza incarnata
107. Centaurea graeca 171. Dactylorhiza maculata
108. Centaurea subsp. nosnica 172. Dactylorhiza saccifera
109. Centaurea ogwanoffii 173. Dactylorhiza subsp. nodia
110. Centaurea orientalis 174. Dactylorhiza
subsp. sadleriana 175. Dactylorhiza behriorum
111. Centaurea scabiosa 176. Dactylorhiza diutinus
subsp. sadleriana 177. Dactylorhiza moesiacus
112. Centaurea tauscheri 178. Dactylorhiza subsp. bakari
113. Centranthus longiflorus subsp. montenegro
subsp. junceus 207. Fagus sylvatica
114. Cephalaria flavia 159. Dactylorhiza cordigera
subsp. flavia subsp. cordigera
115. Cephalaria passtrictensis 160. Dactylorhiza fistulosus
subsp. carpathica 161. Dactylorhiza incarnata
116. Cerasium dinaricum 162. Dactylorhiza maculata
117. Cerasium neocardicum 163. Dactylorhiza saccifera
256. *Hieracium bulgaricum* subsp. *bupleuroides* subsp. *malacosericeum*
259. *Hieracium coloriscapum* subsp. *stenopyllophorum*
260. *Hieracium djimilense* subsp. *brachytrichophytes*
261. *Hieracium djimilense* subsp. *cordatifrons*
262. *Hieracium durmitoricum* subsp. *erythrocarpum* subsp. *aculeatissimum*
264. *Hieracium gugleri* subsp. *svernianum*
265. *Hieracium gaudryi* subsp. *carnelianum*
266. *Hieracium gaudryi* subsp. *hayekianum*
267. *Hieracium grossianum* subsp. *schefferianum*
268. *Hieracium guentheri* subsp. *portenius*
269. *Hieracium helbreichii* subsp. *pseudopilosissimum*
270. *Hieracium jankae* subsp. *marmoreforme*
272. *Hieracium jurassicum* subsp. *papraceum*
273. *Hieracium macrodonta* subsp. *gigantophyllum*
274. *Hieracium markovanum*
275. *Hieracium marmoreum* subsp. *scheffiti*
276. *Hieracium marmoreum* subsp. *scheffleri*
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282. *Hieracium pannonicum* subsp. *xerophytes*
283. *Hieracium pannonicum* subsp. *xerophytes*
284. *Hieracium pseudosparsum*
285. *Hieracium racemosum* subsp. *semigrigensens*
286. *Hieracium racemosum* subsp. *semigrigensens*
287. *Hieracium scheffleri* subsp. *scheffleri*
288. *Hieracium sercopilum* subsp. *acropiloacapillum*
289. *Hieracium sparsum* subsp. *ipekanum*
290. *Hieracium sparsum* subsp. *lavidicanum*
291. *Hieracium sparsum* subsp. *pilosifrons*
292. *Hieracium transiens* subsp. *staraeplaninae*
293. *Hieracium velenovskyi* subsp. *scheffleri*
294. *Hieracium wiesbaurianum* subsp. *lavidicae*
295. *Hippuris vulgaris*
296. *Hypocorym*
297. *Hypericum hyssopifolium*
298. *Hypericum montbretii*
299. *Hypericum olympicum*
300. *Hymenolobus procumbens* subsp. *procumbens*
301. *Hypecoum pseudograndiflorum*
302. *Hyssopus officinalis*
303. *Hystrichium virgatum*
304. *Hystrichium olympicum*
305. *Ilex aquifolium*
306. *Iris sibirica*
307. *Iris sintenisii*
308. *Iris spurius* subsp. *spurius*
309. *Iris spurius* subsp. *spurius*
310. *I. Jacobaea athonnae*
311. *I. Jacobaea athonnae*
312. *I. Jacobaea athonnae*
313. *Juncus capitatus*
314. *Juncus triglumis* subsp. *triglumis*
315. *Juniperus foetidissima*
316. *Juniperus sabina*
317. *Kasabia vitifolia*
318. *Kasabia radiata* subsp. *radiata*
319. *Kasabia radiata* subsp. *radiata*
320. *Kasabia radiata* subsp. *radiata*
321. *Kasabia radiata* subsp. *radiata*
322. *Laburnum alpinum*
323. *Laburnum anagyroides*
324. *Lactuca aurea*
325. *Lactuca hispida*
326. *Lathyrus grandiflorus*
327. *Lathyrus palustris*
328. *Lathyrus paniculatus*
329. *Lathyrus pannonicus* subsp. *pannonicus*
330. *Lepidium falcatum*
331. *Lesousia hybrida*
332. *Lepidium aculeatissimum*
333. *Ligusticum albanicum*
| 482. | Silene schmuckeri   | 513. | Triglochin palustre   |
| 483. | Silene vallesia subsp. graminea   | 514. | Tuberaria guttata   |
| 484. | Sisymbrium polymorphum   | 515. | Tulipa hungarica   |
| 485. | Sisyrinchium bermudiana   | 516. | Tulipa scardica   |
| 486. | Soldanella pindicola   | 517. | Tulipa serbica   |
| 487. | Solenanthus krasnii   | 518. | Typha minima subsp. minima   |
| 488. | Solenanthus scardicus   | 519. | Typha shuttleworthii   |
| 489. | Sparganium natans   | 520. | Umbilicus luteus   |
| 490. | Spicaria crenata   | 521. | Urtica kiovensis   |
| 491. | Spiranthes aestivalis   | 522. | Utricularia intermedia   |
| 492. | Spiranthes spiralis   | 523. | Utricularia minor   |
| 493. | Stachys milanii   | 524. | Valeriana dioica subsp. dioica   |
| 494. | Stachys serbica   | 525. | Valerianella muricata   |
| 495. | Stipa joannis   | 526. | Venetata dubia   |
| 496. | Stipa mayeri   | 527. | Veratrum lobelianum   |
| 497. | Stipa pulcherrima   | 528. | Verbascum scardicola   |
| 498. | Suaeda pannonica   | 529. | Veronica bachoferii   |
| 499. | Spergula perennis   | 530. | Veronica barrelieri   |
| 500. | Symphyandra wanneri   | 531. | Veronica baumgartenii   |
| 501. | Tanacetum larvatum   | 532. | Veronica fruticans   |
| 502. | Taxus baccata   | 533. | Veronica thessalica   |
| 503. | Teucrium arduini   | 534. | Vinca herbacea   |
| 504. | Thalictrum alpinum   | 535. | Vincetoxicum fuscatum subsp. fuscatum   |
| 505. | Tozzia alpina subsp. carpatica   | 536. | Viola dukadjinica   |
| 506. | Tragopogon flocosus   | 537. | Viola persicifolia   |
| 507. | Trapa annosa   | 538. | Viola pumila   |
| 508. | Traunsteinera globosa   | 539. | Viscaria asterias   |
| 509. | Tremastelma palaestinum   | 540. | Waldsteinia ternata subsp. trifolia   |
| 510. | Trifolium vesiculosum   | 541. | Wulzenia bleciciii   |
| 511. | Trifolium wettsteinii   |
| 512. | Triglochin maritimum   |

**Algae**

| 1. | Bangia artropurpurea   |
| 2. | Batrachospermum cayennense   |
| 3. | Batrachospermum confusum   |
| 4. | Batrachospermum ectocarpum   |
| 5. | Batrachospermum turffosum   |
| 6. | Batrachospermum virgato-decaisneanum   |
| 7. | Chara braunii   |
| 8. | Chara canescens   |
| 9. | Chara globularis   |
| 10. | Chara hispida   |
| 11. | Chara tenuispina   |
| 12. | Chara virgata   |
| 13. | Hildenbarandia rivularis   |
| 14. | Nitella capillaris   |
| 15. | Nitella gracilis   |
| 16. | Nitella monodactila   |
| 17. | Nitella mucronata   |
| 18. | Nitella opaca   |
| 19. | Nitella syncarpa   |
| 20. | Nitellopsis obtusa   |
| 21. | Paralemanea annulata   |
| 22. | Paralemanea catenata   |
| 23. | Thorea hispida   |
| 24. | Tolypella intricata   |
| 25. | Tolypella prolifer   |
6. Autochthonic races and sorts of domestic animals

<table>
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<th>Species</th>
<th>Sort</th>
<th>Population No.</th>
<th>Location No.</th>
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<td>Nonius</td>
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### 7. Protected areas in Serbia

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<th>Area in Ha</th>
<th>Date of Establishment</th>
<th>Manager</th>
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<td>63,608.45</td>
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<td><strong>16 Nature Parks</strong></td>
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<td>DOO Park prirode Mokra Gora, Užice</td>
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<td>Nature park</td>
<td>Kamaraš</td>
<td>267.96</td>
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8. List of planned protected areas in Serbia

National Parks:
- Prokletije
- Sara (expansion)

Nature Parks and Landscapes of Extraordinary Characteristics:
- Zlatibor
- Radan
- Mojsinjske Mountains
- Stalacka Gorge (S. Morava)
- Mali Rzav Gorge
- Ozren-Jadovnik
- Ras-Sopocani
- Kamena Gora
- Mali Vrsacki Rit
- Kucajske Mountains
- Valjevska Mountains
- Celijski Hydroaccumulation
- Djetinja Gorge

Reserves and Monuments of Nature:
- Goc
- Beljanska Bara
- Okanj Bara
- Rtanj
- Misevka Gorge (expansion)
- Ozren Meadows (expansion)
- Pastures of Great Bustard (Pasnjaci velike droplje) (expansion)
9. International Conventions and Agreements

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<td>1958 Convention on the Continental Shelf</td>
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<td>1960 (GENEVA) Convention concerning the Protection of Workers against Ionising Radiations</td>
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### Regional and subregional agreements

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Ac= Accession; Ad=Adherence; De=denounced; Si= Signed; Su: Succession; Ra= Ratified.