

FAA SECTION 119

**BIODIVERSITY ANALYSIS
FOR SERBIA AND MONTENEGRO**

Prepared for:
United States Agency for International Development
Mission to the Federal Republics of Yugoslavia

Submitted By:

Loren L. Schulze
and
The Environmental Information Systems and
Networking Project (Contract No. EE-C-00-98-00001-00)
DevTech Systems, Inc.

May 2002

Final Report

Note

This document was prepared under the auspices of United States Agency for International Development (USAID) by a Biodiversity Analysis Team. The team was comprised of Dr. Loren L. Schulze, team leader and consultants from the Environmental Information Systems and Networking Project managed by DevTech Systems, Inc. Dr. Bruce A Byers consultant ecologist was responsible for the ecological analysis and Violeta Orlovic was responsible for the institutional analysis. The statements and opinions expressed herein are not necessarily those of either USAID or DevTech Systems, Inc.

Table of Contents

Table of Contents	1
List of Appendices	3
Executive Summary	4
Introduction	5
Section One: Conservation Needs and Opportunities in Serbia and Montenegro	5
I. Overview of the Biodiversity of Serbia and Montenegro	6
A. Introduction	6
1. Ecosystem Diversity	7
1. Ecosystem Diversity	7
2. Species Diversity	7
3. Ecological Processes	9
4. Genetic Diversity	9
5. Areas of Special Importance for Conserving Biodiversity in the FRY	10
B. The Values of Biodiversity as a Resource for Sustainable Development	11
II. Threats to the Biodiversity of Serbia and Montenegro	12
A. Habitat Destruction or Degradation	12
B. Overexploitation or Overharvesting of Particular Species	13
C. Pollution	13
D. Introduction of Invasive, Non-native Species	14
E. Threatened and Endangered Ecosystems and Species	14
F. Concluding Observations on the Threats to Biodiversity in Serbia and Montenegro	14
III. Overview of Conservation Efforts in Serbia and Montenegro	16
A. Overview	16
1. Conservation Areas	16
2. Protected Species	16
3. Species Managed for Sustainable Use	17
B. Legal and Policy Framework for Natural Resources Management and Conservation in Serbia and Montenegro	17
1. At the Federal Republic of Yugoslavia level	17
2. At the Republic of Serbia Level	18
3. At the Republic of Montenegro Level	19
C. Institutions Involved in Conservation and their Capacity and Effectiveness	20
1. Government Institutions and Agencies	21
a. At the Federal Level	21
b. At the Republic of Serbia Level	21
c. At the Republic of Montenegro Level	23
d. At the Local Government Institutions and Agencies Level	24
2. At the Nongovernmental Organizations (NGOs) Level	25
3. At the International Agency, Organization and Donor Level	26
4. Other Potential Donors	27
5. Institutional Needs Analysis	27
D. Economic Reform and Development and Biodiversity Conservation in Serbia and Montenegro	28

1. Status of Ownership of Forestlands in Serbia and Montenegro	28
2. Enterprises for Natural Resources Management in Serbia and Montenegro	28
3. Privately Owned Biodiversity Conservation Areas	29
Section Two: USAID Programs and Conservation Needs in Serbia and Montenegro	1
A. Current USAID/FRY Contributions to Meet the Biodiversity Needs.....	31
B. Opportunities to Address Biodiversity Needs in the USAID Strategic Objectives.....	31
C. Potential Application of Additional Resources of Support for Biodiversity Concerns.....	36
D. Concluding Remarks	37

List of Appendices

Appendix 1	Scope of Work: Biodiversity Analysis for Serbia and Montenegro
Appendix 2	Review of Biodiversity in FRY and Recommendations for Further Actions, Regional Environmental Center
Appendix 3	Topography of the FRY
Appendix 4	Potential Vegetation of the FRY
Appendix 5	Major Protected Areas (excluding State Forest Lands) in Serbia
Appendix 6	UNEP-World Conservation Monitoring Center (WCMC) List of Protected Areas in the FRY
Appendix 7	Distribution of Forests in Serbia
Appendix 8	Distribution of Forests in Montenegro
Appendix 9	List of Protected Species in Montenegro
Appendix 10	IUCN Red List for FRY
Appendix 11	International Treaties and Conventions Applicable to Serbia and Montenegro
Appendix 12	Biodiversity Analysis Team Contacts in Serbia
Appendix 13	Biodiversity Analysis Team Contacts in Montenegro
Appendix 14	References
Appendix 15	Current Internet Resources for Serbia and Montenegro Relating to Environmental Issues

Executive Summary

A Biodiversity Analysis was conducted for USAID/Federal Republics of Yugoslavia (FRY) (Serbia and Montenegro) during the period of 8 April 2002 to 27 April 2002. The purpose of the analysis was to identify the needs and opportunities for biodiversity conservation in Serbia and Montenegro, and to examine the extent to which USAID's strategic plans contribute to meeting these needs, and to take advantage of these opportunities. Section 119 of the Foreign Assistance Act (FAA) requires USAID to analyze national needs for biodiversity conservation, and identify potential opportunities for USAID to make contributions toward meeting these needs, in all country strategy documents. This Biodiversity Analysis was carried out to ensure compliance with these provisions of the FAA.

The analysis began in Washington, D.C. prior to departure for Serbia and Montenegro with the USAID Bureau for Europe and Eurasia's Environmental Officer and technical staff, and World Bank staff who had recently returned from missions in the FRY. In the FRY, the Team met with USAID staff in both Serbia and Montenegro to gain an understanding of the Mission's program goals and strategic objectives under their newly developed strategies. In both republics, the Team met with a wide range of biodiversity stakeholders and USAID partners and implementing agencies, including government agencies and non-governmental organizations with visits to several national parks and other areas important for biodiversity conservation in both republics. The Team reviewed all of the available background documentation on biodiversity and its conservation in Serbia and Montenegro, and obtained and analyzed all of the available maps that were relevant.

This report describes a range of opportunities available for linking the objectives already identified in USAID's newly developed Country Strategies for Serbia and Montenegro with biodiversity conservation. The Team focused on the Results Framework for each country, by Strategic Objective, and to the Intermediate Results level. The Team's analysis is intended to help USAID/FRY find ways to take advantage of these opportunities to benefit both people and nature in Serbia and Montenegro through relative small changes in their ongoing and proposed activities, and at little or no additional cost. (See Section Two, B. *Opportunities to Address Biodiversity Needs in the USAID Strategic Objectives*)

The Team's conclusions and recommendations are found in Section Two, C. *Concluding Remarks*. Many of the recommendations focus on the largest, most heavily funded activity for USAID programs in both Serbia and Montenegro, the Community Revitalization through Democratic Action (CRDA) program. No-cost or low-cost suggestions, such as establishing bonus incentives for biodiversity-related activities in the Community Development Committee grant awarding system are proposed. Additional recommendations aim at the privatization program and other aspects of the democracy program.

Introduction

Section 119 of the Foreign Assistance Act (FAA) requires that:

“Each country development strategy statement or other country plan prepared by the Agency for International Development shall include an analysis of: (1) the actions necessary in that country to conserve biological diversity, and (2) the extent to which the actions proposed for support by the Agency meet the needs thus identified. (FAA, Sec. 119(d).”

The strategic objectives of the USAID strategies for Serbia and Montenegro are not directly aimed at biodiversity conservation, environmental protection, or natural resources management. Rather, they emphasize strengthening democracy and governance through more and better-informed participation by all citizens in political and economic decision-making, and more responsive and accountable democratic institutions, as well as improving economic opportunities and living conditions, especially at the local level.

This report, therefore, primarily emphasizes the *opportunities* available for linking the objectives already identified in the Serbia and Montenegro strategies with biodiversity conservation.

Section One: Conservation Needs and Opportunities in Serbia and Montenegro

Section One: Conservation Needs and Opportunities in Serbia and Montenegro

I. Overview of the Biodiversity of Serbia and Montenegro

A. Introduction

A detailed biodiversity assessment of the Federal Republic of Yugoslavia (FRY) was conducted by the Regional Environmental Center (REC) for USAID/FRY (see Appendix 2, Review of Biodiversity in FRY and Recommendations for Further Action). The present biodiversity analysis complements the REC assessment and provides additional analysis of conservation measures as well as responses by the FRY, nongovernmental organizations (NGOs) and donors to adequately determine current conservation needs in the FRY.

Biological diversity, or biodiversity, is the variety and variability of life, including the diversity of genes within species, the diversity of species, the diversity of ecosystems, and the diversity of ecological processes that both support and result from this diversity. Biodiversity is the foundation for the Earth's essential goods and services. It provides both material and nonmaterial values and benefits. Biodiversity conservation is important for sustainable development because it is the natural biological wealth that supports human life and well-being.

The republics of Serbia and Montenegro comprise the territory of Federal Republic of Yugoslavia (FRY). With a combined land area of 102,136 square kilometers, Serbia and Montenegro make up only 0.07 percent of the world's land area, or about 2 percent of Europe. Despite its small size, however, the biodiversity of the FRY is relatively high compared to other countries in Europe. The reasons for this comparatively rich biodiversity are:

- The variety of climate, topography, and geology found here; and
- The long-term ecological and evolutionary history of this region as a biological crossroads.

In terms of climate, the FRY is situated between three principal climatic regions of Europe and is influenced by each: the northern (boreal and temperate), eastern (Pontic), and southern (Mediterranean) regions. The country is topographically diverse, with elevations ranging from sea level on the Adriatic Coast to peaks of over 2,600 meters. In general, three topographic regions can be distinguished: the Pannonian Plain in the north, at elevations of 200 meters or less; the hill-and-valley region of central Serbia at elevations of 200 to 1,000 meters; and mountains rising above 1,000 meters, found mainly in western Serbia and Montenegro, but with isolated ranges in the south and southeast (see Appendix 3, Topography of the FRY).

Climatic and topographic diversity combine to create the terrestrial ecosystem diversity of Serbia and Montenegro. The marine ecosystem of the Adriatic Sea is another component of the ecosystem diversity of the FRY. The broad patterns of ecosystem diversity determined by climate and topography are locally modified by the geological diversity of rocks and soils, contributing to even greater ecosystem, species, and genetic diversity. The diverse ecosystems and species of Serbia and Montenegro in turn give rise to a diversity of valuable ecological processes.

1. Ecosystem Diversity

Eleven major ecosystems, categorized by vegetation, are found in the FRY (see Appendix 4, Potential Vegetation of the FRY). Almost all major European ecosystems are represented: Mediterranean evergreen forests along the Adriatic coast, sub-Mediterranean mixed-deciduous forests and scrub vegetation found inland from the coast in Montenegro; deciduous forests of several types in lowland, foothills, and mountain areas; mountain forests of pine, spruce, and fir; steppe (grasslands that develop in regions of wind-deposited soil) and forest-steppe; and alpine grasslands above treeline in the high mountains.

2. Species Diversity

Serbia and Montenegro are species-rich. One cause of this comparatively high species diversity is the climatic, topographic, and geological diversity of these republics, as already described. Another is their history as a biological crossroads and Ice Age refuge, discussed below. Table 1 gives species diversity estimates for the FRY for the major groups of organisms.

Table1. Species Diversity of Major Groups of Organisms Estimated for Yugoslavia.

<u>Taxonomic Group</u>	<u>Estimated Number of Species in FRY</u>
Flowering Plants	3,905-4,182
Mosses & Liverworts	565
Freshwater Algae	1,400
Marine Algae	1,500
Lichens	516
Mushrooms	1,000 recorded, up to 4,500 est.
Insects	>37,000
Snails	400
Fish	465
Amphibians	26
Reptiles	44
Birds	382
Mammals	96

Sources: Stevanovic, 1999; Federal Ministry for Development, Science and Environment, 2000; Regional Environmental Center, 2002

For the flowering plants, the Balkan Peninsula is the most species-rich part of Europe. Serbia and Montenegro, with an estimated 4,182 species, are among the most diverse parts of the Balkan Peninsula – only Greece and Bulgaria are comparable (Stevanovic 1999). According to the World Conservation Union/IUCN, the territory of the FRY, together with the mountainous area of Bulgaria, is one of six European centers and 153 world centers of plant diversity (REC, 2002).

The estimated number of insects (>37,000) in the FRY is certainly among the highest in Europe (REC, 2002).

The Balkan Peninsula in general is known for its high level of “endemism” – that is, of unique species found only in this region and nowhere else. An analysis of the flora of the Balkans found that about 27 percent of the species were endemic to the region. The number of Balkan endemics in the FRY is about 392 species and subspecies, or about 9 percent of the flowering plant species found in the country (Stevanovic, 1999). Eighty-seven narrow-range endemic plant species are found only in the FRY and nowhere else (REC, 2002), and 59 of these only in Serbia (Stevanovic, 1999).

The mountains of Serbia and Montenegro are one of the most important Ice Age refuge regions of Europe, in which species that were found at lower elevations and were much more widely distributed during periods of colder climate can still find a suitable habitat (Stevanovic, 1999). The isolation of many relict species on mountain ranges during the last several million years of changing climate is the main reason for the relatively high proportion of endemic species in the FRY and in the Balkan Peninsula in general (see Box 1 for one example, the Serbian Spruce, *Picea omorika*). The Prokletije and Sar Planina mountain ranges in southern Serbia are especially rich in these high-mountain endemic species, but other mountains such as Koritnik, Pastrok, Kopaonik, Stara Planina and Suva Planina have their share.

Box 1: The Serbian Spruce, *Picea omorika*, is found only in a small area in western Serbia and eastern Bosnia, in mountains above the Drina River such as Tara Mountain in Tara National Park. It is usually found on calcareous soils at elevations between 400 and 1,700 meters, usually on steep, north-facing slopes. Fossil remains show that during the Tertiary era millions of years ago it was widespread in Europe, but after the Pleistocene Ice Ages it survived only on Tara and a few other mountain ranges. Some call it a “living fossil.”

This species was first identified by the famous Serbian botanist Pancic in 1876, at a locality now in Tara National Park. The spruce trees at this original location were destroyed by the construction of the dam for a pumped-hydropower facility built after WWII. It is obvious that at that time adequate environmental impact assessment methods for safeguarding biodiversity during infrastructure development projects were not being used – an important lesson for today. The few remaining stands of this unique, narrowly-endemic species are now protected, such as in Tara National Park.

This is a beautiful spruce, with a narrow shape and growing up to 50 meters tall. It is now widely used as an ornamental tree in central and northern Europe and in North America. It is of exceptional value in landscaping and horticultural applications because it is fast-growing, tolerant of poor soils, insect and disease resistant, and able to tolerate air pollution in cities.

For more information: <http://www.botanik.uni-bonn.de/conifers/pi/pic/omorika.htm>

Besides high mountain endemism, endemic plants that are restricted to certain types of underlying rock or soil are common. One example would be the many species found only on serpentine substrates, such as on Tara Mountain in western Serbia. Another example would be the salt-tolerant or “halophytic” species of the Velika plaza area near Ulcinj, at the mouth of the Bojana River in Montenegro. Still another example would be plants found only in the remnants of steppe grassland vegetation in Vojvodina.

Numerous endemic and relict species are found in some groups of invertebrates, particularly those that are found in caves and subterranean waters. Although relatively little is known about the diversity of these groups, some species seem to have an extremely restricted distribution, often confined to a single cave system (REC, 2002).

3. Ecological Processes

The diverse ecosystems and species of Serbia and Montenegro in turn give rise to a diversity of valuable ecological processes. For example, forest ecosystems of all types protect catchments and watersheds, regulating water flows and maintaining water quality. On steep slopes they protect soils from erosion, and leaf fall contributes to the formation of soil and nutrient cycling that maintains soil fertility. Forests also contribute to climate regulation and the prevention of global warming by absorbing and storing carbon from the atmosphere. Forests produce oxygen and can absorb pollution from the air, an especially valuable service in and near many urban areas. Wetlands and other aquatic ecosystems can also absorb and in some cases break down and detoxify hazardous chemicals polluting surface waters. The diversity of predator species – such as hawks, owls, bats, foxes, weasels, snakes, lizards, frogs, and fish – keeps populations of crop, livestock, and human pests from growing unchecked. Without them farmers might suffer from outbreaks of crop-eating insects, mice, or rabbits, for example. Many native plants and agricultural crops as well depend upon the services of a diversity of insect pollinators to set their fruit and seed.

4. Genetic Diversity

Except for the narrowly-endemic species found only in the FRY, most species here are more widely distributed. Some may be found throughout Europe, for example. However, even these more widely distributed species found in the FRY contain within them genetic diversity that makes them able to tolerate the unique habitats and conditions found in the FRY. Populations of some important tree species, such as English oak (*Quercus robor*), Norway spruce (*Picea abies*), black pine (*Pinus nigra*), Scotch pine (*Pinus sylvestris*), and European beech (*Fagus sylvatica*) undoubtedly have unique genotypes in the FRY that control such things as tolerance of climatic and soil conditions and resistance to pests and diseases.

Local varieties of crops and livestock found within the traditional farming communities of Serbia and Montenegro are also a kind of genetic diversity with a great deal of potential value. One facet of conserving biological diversity in the FRY is conserving this type of genetic diversity of crops and livestock that have specific adaptations to the conditions of the region.

5. Areas of Special Importance for Conserving Biodiversity in the FRY

An analysis of the factors that have given rise to the rich diversity of ecosystems, species, ecological processes, and genetic variation within species in Serbia and Montenegro points toward some general categories of areas that should be of particular importance to the conservation of biodiversity (REC, 2002). These include:

- Preserved forest ecosystems representing the different types of forest found in the FRY;
- Forest areas in which monitoring for stand composition, growth rate, health, and other factors has taken place over the long term. Such areas could be forest preserves that have not been cut or managed, or stands managed for timber, or both. (Example: preserved and managed stands in Tara National Park that have been surveyed and monitored every 10 years for about 40 years);
- High mountain regions with characteristic mountain ecosystems well-represented or preserved; some of these mountain regions form borders between the FRY and neighboring countries (Bulgaria and Bosnia and Herzegovina), and so will require transboundary conservation efforts (Examples: Kopaonik, Durmitor, Prokletije, Sar Planina, Stara Planina);
- Mountain regions in which traditional human activities have maintained and even increased biodiversity through centuries of maintaining the open pastures of mountain meadows. These areas are potential candidates for Biosphere Reserve status under the UNESCO Man and the Biosphere program (examples: Golia Mountain, Stara Planina);
- Gorges and canyons that have been identified as important refugial centers for relict and endemics species (Example: the canyon of the Lazareva Reka in eastern Serbia);
- Remaining steppes and sands of Vojvodina (Examples: Deliblato Sands, Subotica-Horgoš's Sands);
- Wetlands (swamps, marshes, ponds) in Vojvodina, many of which provide habitat for migratory birds from elsewhere in Europe and have been identified as wetlands of international importance under the Ramsar Convention (Examples: Suboticka wetlands and Ludas Lake, Stari Begej-Carska Bara, and Obedska Bara);
- Karst regions in most of Montenegro and parts of Serbia (SW and E), with their numerous caves and pits, which support an exceedingly rich fauna of cave dwelling invertebrates, many of them narrow endemics;
- Coastal and inland saline lands and sea shore sands (Example: Velika Plaža near the city of Ulcinj in Montenegro);
- Mountain bogs around mountain and glacial lakes;

- Traditional roosts and breeding sites of rare birds (Examples: nesting islands for the Dalmatian pelican in Skadar Lake; roosts and breeding sites for the Griffon Vulture (*Gyps fulvus*);
- Skadar Lake, the largest lake in the Balkan Peninsula, a transboundary conservation area and wetland of international importance.

B. The Values of Biodiversity as a Resource for Sustainable Development

Biodiversity conservation is important for sustainable development because ecosystems, ecological processes, species, and genetic diversity are the natural biological wealth that supports human life and well-being. Biodiversity is the foundation for the Earth's essential goods and services. It provides both material and nonmaterial values and benefits.

The relatively high percentage of endemic species found in the FRY – many of which, like the Serbian Spruce, *Picea omorika*, are relict species from the Ice Age – represents a somewhat unique kind of nonmaterial value of a scientific nature. Careful scientific study of these species may eventually lead to a better understanding of how climate changes affect vegetation and ecosystems. Now, in an age when human-caused climate change seems to be occurring, we need such knowledge more than ever. Without adequate efforts to conserve this unique group of species in the FRY, the potential for learning lessons from them about the effect of climate change will be lost forever.

II. Threats to the Biodiversity of Serbia and Montenegro

Conservation biologists have identified four general kinds of threats to biological diversity. These are in order of priority for Serbia and Montenegro:

- Reduction in the area of natural ecosystems or habitats from conversion to other uses such as agriculture or cities
- Overexploitation or overharvesting of particular species
- Pollution
- Introduction of invasive, non-native species, including diseases, which can drive some native species to extinction

Examples from Serbia and Montenegro of each of these kinds of threats are given below:

A. Habitat Destruction or Degradation

Conversion of natural habitat to urban areas, crop or pasture land, other highly modified human-dominated ecosystems is the leading cause of biodiversity loss in most of the world. In northern Serbia, the long-term degradation and destruction of wetlands, salt marshes, steppes, forest-steppes and sandy steppes provides an example of this threat (REC, 2002). Ecosystems in mountain areas are less threatened by this kind of habitat conversion, but some mountain habitats are threatened by forest clearing, burning of dwarf shrub vegetation, extensive grazing, and in a few cases the uncontrolled development of infrastructure for tourism.

For rivers, changes in water flow patterns represent a special kind of habitat destruction or degradation. For example, the hydropower dam above Bajina Basta on the Drina River in western Serbia has drastically altered the flow regime of the river, threatening the local population of *Hucho hucho*, the huchen or Danube salmon – which has been called the biggest salmon in the world – a highly prized sport fish that attracts tourists to the area. The clearing of forest land for use as pastures is also a threat in some mountain areas of Serbia, such as Sar planina and Prokletije Mountain. The routing of a major highway near Ludas Lake in northern Vojvodina, a Ramsar Convention “wetland of international importance,” is another example of habitat degradation. This example shows the importance of paying attention to important biodiversity areas in planning infrastructure projects.

In Montenegro, one example of how habitat conversion or degradation could threaten biodiversity is the proposed development of tourist infrastructure (such as hotels, roads, and houses) at Velika plaza near Ulcinj. Part of this area supports a unique community of salt-tolerant plants, and very careful and sensitive development will be needed to protect them and their habitat. Another threatened area is the Solika salt marsh at the south end of Tivat Bay near Kotor, an important bird area. An unpermitted dock is currently under construction in this area, and the conversion of parts of the marsh to ponds for shrimp aquaculture is also under discussion.

B. Overexploitation or Overharvesting of Particular Species

Harvesting of particular, high-value species at levels beyond their reproductive capacity is a perennial threat to species diversity. In Serbia, the sustainability of the growing exploitation of non-timber forest products of all kinds, such as mushrooms, herbs, and wild berries, is an open question. Collection of some species of mushrooms is stimulated by a market-driven export trade. Forest managers have relatively little knowledge about sustainable levels of harvest of such species, however, and monitoring and enforcement capacity is severely limited even if such knowledge did exist. The killing of wild birds, again driven by an export market in Italy, is perceived as a threat, but in this case also little is known about the magnitude or sustainability of the harvest, which is illegal and uncontrolled. In Montenegro illegal fishing, sometimes with dynamite, is said to take place in the Adriatic Sea. In Skadar Lake illegal harvesting of carp during the breeding season for this fish is also occurring.

Box 2: The European date mussel, *Lithophaga lithophaga*, is a marine bivalve mollusc that is highly prized for food. The scientific name of this species literally means “rock eater,” because it drills and lives in burrows in limestone rocks just below the tide zone along the shoreline. Harvesting it heavily damages the habitat for this and many other species because it requires breaking open the rock substrate with hammers, air-driven hammers, or even explosives. The date mussel is found throughout the Mediterranean and the coasts of Portugal, North Africa, and the Red Sea. Tourism development in areas where the date mussel is found, such as in Montenegro, often increases demand for the species and causes damage to nearshore marine habitats.

This species is protected on Appendix II of the Convention on European Wildlife and Natural Habitats (the Bern Convention), as a “strictly protected fauna species,” and on the list of “endangered or threatened species,” Appendix II of the Barcelona Convention, the framework for the Mediterranean Action Plan.

For more information see: www.nature.coe.int/CP20/tpvs39.e.doc

C. Pollution

Pollution of air and water can affect species and ecosystems at some distance from the source of the pollution, and represents a significant threat to biodiversity in some cases. Acid precipitation resulting mainly from industrial emissions has had a dramatic impact on forests and lakes elsewhere in Europe. In Serbia, we heard anecdotal reports of the effect of pollution on forests in some places, but we have been unable to confirm these reports.

In Montenegro, the World Conservation Monitoring Center reports a potential threat to the Tara River in Durmitor National Park, a UNESCO World Heritage Site, from a lead processing factory upstream. The aluminum plant in Podgorica has apparently contaminated ground water in the area

with a number of hazardous compounds (Misurovic, no date), and some fear that it could eventually affect Skadar Lake. In Serbia, transboundary solid waste in the Drina River at the dam above Bajina Basta is a local environmental concern – mainly because people object to seeing so much trash in the reservoir of the dam – but there is no evidence that this has any significant impact on biodiversity. Acid precipitation affects on forest health from long-distance transport of pollution is of greater concern in Serbia than Montenegro.

Pollution of surface waters in karst areas can be carried underground and threaten the unique fauna of caves and underground waters. Much of Montenegro and parts of Serbia are karst landscapes, and this is a threat of concern in these areas.

D. Introduction of Invasive, Non-native Species

The accidental or deliberate introduction of non-native, alien species, including pests, pathogens, and competitors of sensitive native species, is often a major threat to biodiversity. In Montenegro one example is the apparently deliberate introduction of Chinese carp species into Skadar Lake from the Albanian side. Although there is no evidence that this has affected native fish populations in the lake so far, it is a concern. At the Carska bara wetland in Serbia, a Ramsar site, a species of North American ash is invasive, competing with native species and increasing erosion of the river banks.

E. Threatened and Endangered Ecosystems and Species

Habitat conversion and degradation is undoubtedly the most important threat to ecosystem diversity in the FRY. When the potential for habitat destruction is compared with the list of important areas for biodiversity presented earlier, the most threatened ecosystems in the FRY would include the remaining steppes, sands, and wetlands of Vojvodina, and coastal and inland saline lands and sea shore sands, such as Velika plaza in Montenegro.

With regard to threatened and endangered species in the FRY, the best information available is for flowering plants. *The Red Data Book of Flora of Serbia* (Stevanovic, 1999) lists 121 species or subspecies of plants as “critically endangered.” This book also lists 50 species or subspecies as locally extinct, meaning that they once were found in Serbia, but are no longer present (the possibility exists that some day populations of these locally-extinct plants could be restored to Serbia from surviving populations elsewhere in the region).

For animals, the 2000 IUCN Red List of Threatened Animals identifies 12 mammals, 8 birds, one reptile, 13 fish, and 19 invertebrate species as threatened in Yugoslavia. There is no comprehensive list for all threatened and endangered animal species, but there is a plan to prepare a Red Data Book on animals of Serbia. A Red Data Book for the butterflies of Serbia will soon be published by the Institute for Protection of Nature of Serbia.

F. Concluding Observations on the Threats to Biodiversity in Serbia and Montenegro

The following observations may be made concerning the threats to biodiversity in Serbia and Montenegro:

- The threat from habitat destruction or degradation is complicated by the economic situation that creates pressures to open areas that have traditionally been protected to harvest to generate needed income.
- The threat from overexploitation or overharvesting is complicated by the lack of control by authorities as well as the lack of enforcement of existing laws.
- The threat from pollution does not appear to have as negative an effect on biodiversity as the two threats listed above.
- The introduction of invasive, non-native species has had specific impacts in limited areas.

During the decades of regional conflict in the NATO bombing of 1999, the biodiversity of the region has been affected. In 1999, serious damage was experienced as a result of bombs directed to facilities within national parks and other forested areas. Bridges over the Danube River were bombed and fell into the river. Major sewer lines built into the bridge structure ruptured and flowed directly into the river. The pollution as a result of the bombing of chemical plants and production factories in populated areas continues to have an impact on the growth of vegetation around the sites.

III. Overview of Conservation Efforts in Serbia and Montenegro

A. Overview

Conservation in the FRY involves protecting both areas (which represent parts of ecosystems) and species.

1. Conservation Areas

Conservation areas in Serbia and Montenegro are of several types. The main categories of are:

- National Parks
- Other Areas Managed and Protected for Biodiversity
- Internationally Recognized Conservation Areas (for example, World Heritage sites, Wetlands of International Importance (Ramsar sites), and UNESCO Biosphere Reserves)
- State Forest Lands

Among the first three types of protected areas listed above in the FRY are nine national parks and approximately 150 other areas managed for biodiversity (such as regional parks, protected landscapes, nature parks, and nature reserves). These three categories of protected areas cover approximately five percent of the territory of the republic of Serbia, and eight percent of the territory of Montenegro (REC, 2002). A map of the major protected areas of the first three types in the FRY is given in Appendix 5. A partial list of the first three categories in the FRY is found in Appendix 6.

The last category listed above, State Forest lands, are sometimes not even considered conservation areas or “protected areas.” However, they fit within Category VI of the protected areas categories defined by the IUCN/World Conservation Union, “Managed Resource Protected Area: protected area managed mainly for the sustainable use of natural ecosystems.” Forests are estimated to cover about 2,800,000 hectares in the FRY or about 30 percent of the total land area, of which about 1,900,000 hectares, or 59 percent, are publicly-owned forests, managed by the forestry enterprises of the Republics of Serbia and Montenegro. The remaining 41 percent of forests in the FRY are on private land (Jovic and Stanisic, 2002). A map of forest distribution (but not ownership) in Serbia is found in Appendix 7; a similar map for Montenegro is found in Appendix 8.

2. Protected Species

The listing of individual species as “protected” in the Republics of Serbia and Montenegro is a mechanism for preventing their endangerment. Listed species cannot be harmed or harvested, and special attention is given to protecting habitats for such species. Programs to increase the number and stability of the populations of protected species are sometimes undertaken. A list of plant and animal species protected in Serbia can be found on the website of the Institute for Nature Protection of Serbia. (See Appendix 10.) Such a list of protected species in Montenegro was not available for this Analysis.

3. Species Managed for Sustainable Use

Recognizing that conservation is compatible with sustainable use of wild species, the FRY lists species of many kinds that are harvested and used. Species on this list include mushrooms, herbs, fish, frogs, snails, birds, and mammals. Listing is meant to raise public awareness of the need to harvest these species sustainably, and to provide a mechanism for monitoring harvest levels and enforcing limits on harvests.

B. Legal and Policy Framework for Natural Resources Management and Conservation in Serbia and Montenegro

This section pertains specifically to the legal and policy frameworks internal to the FRY. An illustrative list of International Treaties and Conventions that have relevance to the analysis are found in Appendix 11.

1. At the Federal Republic of Yugoslavia level

The 1992 Constitution of the Federal Republic of Yugoslavia provides for the right to a healthy environment, the right to timely information about the state of the environment, the obligation of the state to take action to this end, and the duty to protect the environment and make use of it in a rational manner. A number of official federal and republic entities have responsibilities to assure the Constitutionally-mandated rights are guaranteed. Of the greatest interest for natural resources management and conservation at the Federal level is the Department for Environment of the Federal Secretariat for Labor, Health and Social Care.

The Resolution on the Environmental Policy in the Federal Republic of Yugoslavia was approved and published in 1993. The Environmental Policy addresses:

- the right to sustainable development in a healthy environment,
- the need for the establishment of appropriate mechanisms for the sustainable use of components of biodiversity and a balanced distribution of the benefits of genetic resources and the application of biotechnology,
- the obligations of the Federal Republic of Yugoslavia emanating from international treaties signed and ratified by Federal Republic of Yugoslavia, and,
- the importance of international cooperation in the conservation of biodiversity with a view to preventing negative impacts on ecosystems and the ecological equilibrium and the rational utilization of biological resources. (Reference: The Resolution on the Policy of Biodiversity Conservation in the Federal Republic of Yugoslavia, Belgrade, December 1993)

More than 150 laws and 100 regulations have been passed at all levels to implement the above-mentioned policy.

Of primary importance to natural resources management and conservation is the Resolution on the Policy of Biodiversity Conservation in the Federal Republic of Yugoslavia which was adopted in

1993 and published in 1994. The Resolution directed that the Policy of Biodiversity Conservation shall be implemented through the execution of the relevant Yugoslav programs to:

- monitor the status of biodiversity in the Federal Republic of Yugoslavia;
- evaluate and conserve the elements of biodiversity of genes, species and ecosystems of national and international significance;
- identify the processes and categories of activities which have or may have a significant negative impact on the conservation of biodiversity in the Federal Republic of Yugoslavia; and,
- evaluate the potential and actual values of the components of biodiversity in the Federal Republic of Yugoslavia as a function of the development of domestic biotechnologies. (Reference: The Resolution on the Policy of Biodiversity Conservation in the Federal Republic of Yugoslavia, Belgrade, December 1993)

By the admission of the Department for Environment of the Federal Secretariat for Labor, Health and Social Care, several problems need to be addressed. The legal framework is inadequate and requires laws, regulations and standards that will be compliant with European Union legislation. Second, the existing legislation is non-harmonized, is vague and inconsistent, and lacks vertical and horizontal coordination. Third, gaps exist in the regulation of the protection of some parts of the environment that should be regulated uniformly. Enforcement of the existing environmental legislation is weak due to unclear responsibilities and inadequate coordination, limited enforceability of legislation and regulations, limited enforcement of the legislation and regulations, and low institutional capacity.

The Department for Environment of the Federal Republic of Yugoslavia has identified five steps necessary to address the problems of the environmental sector. A strategy for sustainable use of natural resources needs to be developed. Once the strategy for sustainable use of natural resources is in place, a national environmental program including action plans will be implemented. Local environmental programs and action plans will address the local level. A law on the system of environmental protection and related laws will be implemented. Finally, the environmental legislation will be harmonized with the European Union directives.

2. At the Republic of Serbia Level

The Constitution of the Republic of Serbia ensures the right to a healthy environment. The right to a healthy environment is defined as one of the basic human rights and preconditions for attaining sustainable development. The Constitution states that it is the duty of citizens to protect and improve the environment according to the law. The Constitution directs the Republic of Serbia to govern and ensure the functioning of the system for protection and improvement of the environment, as well as the protection and improvement of plant and animal organisms.

The Law on Environmental Protection in coordination with its relevant legal acts governs protection measures in planning and construction, air protection, water protection, soil protection, forest protection, natural resource protection, protection from noise, protection from ionizing radiation, protection from hazardous and waste substances, financing of environmental protection,

and inspection monitoring. Special sectoral laws govern management and protection of different environmental media (water, forests, soil, hunting and fishing).

The protection of forests is regulated in the framework of the Law of Environmental Protection of the Republic of Serbia which specifically includes “Necessary measures to ensure protection and improvement of forest ecosystems (forest protection, maintenance and rejuvenation, preservation of the gene fund, improvements of the structure and performing priority functions of the forests; forests defined as protection forests and priority function forests; forests with special purposes; and management of forests and protected natural areas, protection forests and forests with special purposes, to be conducted according to the law and regulations adopted in accordance with the law).

The Law of Environmental Protection and the Law on National Parks address the protection of natural resources. The protection of flora and fauna to be found in protected natural localities is regulated on different levels within the framework of the Law on Environmental Protection, Law on Hunting and the Law on Fishing, among other accompanying legislative acts. The protection of rare and endangered wildlife species falls within the framework of the Law on Environmental Protection. Endangered wild plant and animal species are protected as natural rarities and Serbia foresees the banning of their utilization and control. The protection of wild species of fungi, lichens, plants and animals falls under the Decree on Placing under Control of Utilization and Trade of Wild Plant and Animal Species which was improved in 1999. Permits for collecting such organisms from the environment are issued by the Institute for Nature Protection of the Republic of Serbia.

3. At the Republic of Montenegro Level

The Parliament of the Republic of Montenegro declared Montenegro an Ecological State in 1991. The Constitution also defined Montenegro as an Ecological State in 1992.

The Law on Environment, adopted in April 1996, provides the general framework for environmental protection. Numerous acts will legally define the area of environmental protection once adopted. In addition, the Law on the Protection of Nature, the Law on Forests, and the National Parks Law, among others, contribute to the overall protection of the environment.

The Law on the Protection of Nature protects the nature as a whole along with natural areas of remarkable value. Under this law, the Republic of Montenegro Institute for the Protection of Nature grants the protected area status to certain objects of nature. The Institute protects animal and plant species with designations as rare, endemic and endangered.

National parks are protected by the state as a resource of public interest as defined by the National Parks Law of 1991. The National Parks Law prescribes boundaries of national parks, zones of utmost protection, and standards of protection and utilization of resources in national parks. The National Park Law created public enterprises to protect the four national parks in the Republic, i.e., the mountain Lovcen, Skadar Lake, Biogradska Gora and Durmitor. According to the law, the public enterprises are to keep a cadastre of the ecosystems, their communities and habitats and control the various levels of protection.

The Law on Physical Planning and Arrangement (1995) gives models of physical and urban plans development, procedures of their coordination, authorities in terms of enactment of plans and their realization. Physical plans prescribe the basis for spatial organization of the area they are intended for and direct the physical development according to the natural and social needs, the potential, and to the long-term objectives of economic development.

Other related laws impacting on the management and conservation of Montenegro include:

- The Hunting Law (1980, 1992) established categories for protected and unprotected game.
- The Marine Fishery Law (1979, 1992) prescribes types of marine fishing and terms under which fishing shall be performed.
- The Fresh Water Fishery Law (1976, 1992) also prescribes the types of fishing that can be performed in fresh water areas.

Even though the FRY, Serbian and Montenegrin Constitutions provide for certain rights in reference to the environment, an analysis of the legal and policy framework for natural resources management and conservation in Serbia and Montenegro indicates that the legal and policy framework fails to meet the needs of biodiversity, as follows:

- In spite of the number of laws and policies addressing biodiversity, implementation responsibilities remain difficult due to the lack of rational delegation of authority at the federal, republic and local levels.
- Fiscal austerity has resulted in selective implementation of legislation and policies.
- The enforcement of laws is complicated. Inspectors at the ministry level have no authority to enforce the laws rather inspectors must report infractions to the local legal authorities.
- While efforts could be placed toward improving the issues that impede the full application of the existing legal and policy structure, resources are increasingly being put toward modifying existing laws and policies to be in harmony with those of the European Union.

C. Institutions Involved in Conservation and their Capacity and Effectiveness

Institutions at several levels of government have responsibilities related to environmental protection and biodiversity protection in the Federal Republic of Yugoslavia: the federal level, the republic level, and the municipality level. At the republic level in both Serbia and Montenegro these include different kinds of institutions that can be roughly described as governmental agencies, scientific institutions, and public enterprises.

Nongovernmental organizations (NGOs) of many kinds are also involved in the conservation of the biodiversity and natural resources of the FRY. NGOs include grassroots organizations, groups of experts, professional societies, and informational or activist networks. Finally, international organizations and international donors are involved in conservation in Serbia and Montenegro.

1. Government Institutions and Agencies

a. At the Federal Level

The following institutions have responsibilities at the federal level within the FRY:

- **Federal Secretariat for Labor, Health and Social Care, with its Department for Environment** is in charge of general environmental policy; coordination of ratification and implementation of international conventions; coordination of activities with other federal ministries; and transboundary pollution of water, sea, and air (including the protection of the ozone layer).
- **Federal Ministry of Economy and Internal Trade**, with responsibilities for energy sources; the use of mineral resources; nuclear energy, production and the use of radioactive materials; the preservation of forests; and, the regime of waterways of international interest, including international waters.
- **Federal Hydro–Meteorological Institute** with responsibilities including the monitoring of air, water pollution and radioactivity.
- **Federal Institute for Plant and Animal Genetic Resources**, in charge of preserving and developing agricultural and forestry genetic material.

b. At the Republic of Serbia Level

The following institutions have responsibilities in the Republic of Serbia:

- **The Ministry for Health and Environmental Protection, Directorate for Environmental Protection**, with responsibilities for the entire system of environmental protection, nature conservation, and protection of natural resources from pollution, and for relevant international cooperation. The Inspection Unit within this Directorate has environmental inspectors working at the level of the entire republic and at the provincial, district, and municipal levels.

Due to the process of reorganization of the Government in the Republic of Serbia, it is expected that a new **Ministry for Environment and Natural Resources** will be established by June 2002. It should unite the authorities in natural resources and biodiversity protection, which are now divided among different ministries and bodies. For example, the Ministry for Agriculture, Forestry and Water Resources is in charge of the protection of soil, forest and water resources, with authority to monitor and verify the activities of the Public Enterprise for Water Resources and the Public Enterprise for Serbia Forests. The Ministry for Mining and Energy is in charge of mining control, geological investigations, and approval of exploitation of mineral resources.

- **Institute for Protection of Nature of Serbia** is the main agency responsible for nature conservation in the republic, and has its main office in Belgrade and branch offices in Novi

Sad and Nis. This Institute is charged with the protection of natural areas and plant and animal species. Studies prepared by scientists and other experts working for the Institute are the basis for the designation of protected areas. The Institute for the Protection of Nature is autonomous and separately funded, but coordinates its activities with the Directorate for Environmental Protection (see above), and cooperates with numerous national, regional and international experts and organizations. It is a member of a number of international organizations including the European Association for Protection of Geological Heritage (ProGEO), the EUROPARC Federation, the World Conservation Union (IUCN), and the European Centre for Nature Conservation (ECNC). The main factors limiting the Institute's capacity and effectiveness are lack of office space (in Belgrade), staff, and equipment.

- **Hydro–Meteorological Institute of Serbia** is in charge of the monitoring of air and water at the republic level.
- **Public Institute for Health of Serbia** is in charge of the monitoring of air, noise, water and groundwater at the republic level.
- **Public Enterprise Srbijasume** (“Serbia Forests”) is in charge of the management of state-owned forests, and has offices at the republic, regional, and municipal levels. Srbijasume is the management authority for approximately 70 percent of the protected areas in Serbia as many of these protected areas are forests.
- **Public enterprises for the management of national parks** are established by the Republic Assembly, according to the Law on National Parks of Serbia. There are five such enterprises in Serbia, one for each national park: Fruska Gora, Djerdap, Tara, Kopaonik, and Sar planina.
- ***Faculty of Biology, University of Belgrade** trains students in subjects relevant to biodiversity conservation and environmental protection. Faculty members sometimes cooperate with governmental institutions such as the Institute for Protection of Nature, the Natural History Museum, and ministries on the republic or federal level, to carry out research and produce reports related to conservation and environmental protection. Examples of such collaborative research and publications include **Biodiversity of Yugoslavia** (Federal Ministry for Development, Science and Environment, 2000) and **Red Data Book of Flora of Serbia**. (Stevanovic, 1999).*
- **Botanical Garden and the Institute for Botany** are scientific and educational institutions within the Faculty of Biology, University of Belgrade. They develop programs for visitors and educational groups, and function as a natural and cultural protected area in Belgrade. The Botanical Garden has rich collections of historical and botanical value in their herbarium and exhibits. However, the maintenance of the collections is not adequate due to the lack of funding, and the collections are at risk.
- **Natural History Museum** has more than a one hundred year tradition in the preservation and presentation of museum collections of flora, fauna, and geological specimens.

- In addition, there are several institutions involved in projects related to biodiversity, such as the **Faculties of Biology** in Nis, Kragujevac, and Novi Sad; the **Institute for Biological Research, Belgrade**; and the **Department of Natural Sciences, Academy of Arts and Sciences of Serbia**. For all of these, the lack of human and financial resources is the main, common problem that constrains their capacity and effectiveness.

c. At the Republic of Montenegro Level

The following institutions have responsibilities in the Republic of Montenegro:

- **Ministry of Environmental Protection and Urban Planning** was established in 2001 following a reorganization that merged urban planning responsibilities with the environmental responsibilities that the ministry had had for ten years. Its responsibilities include the protection of biodiversity, natural resources, and the environment in general protection. This ministry has three units, dealing with Environmental Quality, Environmental Policy and Information Systems, as well as the Ecological Inspection Unit. Of importance to biodiversity conservation, this ministry is involved in drafting and passing laws, monitoring compliance with laws, supporting research, and cooperating with international organizations.
- **Ministry of Agriculture, Forestry and Water Resources** is in charge of forest management and timber harvesting, fishing and hunting. Recently, previous forest enterprises have been divided into two parts—one state owned, with 15 units for the protection and management of forests, and, another divided into 14 corporations for harvesting timber. This change was the result of the reorganization and privatization of governmental enterprises in Montenegro. Some of the responsibilities of this ministry overlap with those of the Ministry of Environment and Urban Planning, such as managing protected areas within forests. The control of the collection and trade of species (non-timber forests and others not protected as natural rarities) is regulated by the Regulation Act, issued by the Ministry of Agriculture, Forestry and Water Resources in cooperation with the Ministry for Environmental Protection and Urban Planning.
- **Ministry of Tourism** plans and promotes the development of tourism as one of the strategic priorities of Montenegro. About 30 employees work for the Ministry of Tourism in the preparation and implementation of the Master Plan for Tourism Development, a program financially supported by the DEG Agency (Germany).
- **Institute for Protection of Nature of Montenegro** carries out research used in designating and managing protected natural areas, and has responsibility for the protection of species. Currently research is being carried out on a possible new national park “Prokletije,” and maps of the vegetation and ecological systems of Montenegro are being prepared. The Institute operates under the Law on the Protection of Nature, and is funded by the Ministry of Culture.

- **Republic Institute for Urban Planning** is involved in activities relevant to biodiversity, such as changes to the republic's Physical Plan, as well as physical plans for the four national parks in Montenegro.
- **Public Enterprise for National Parks** is a single public enterprise in charge of the protection and management of the four national parks in Montenegro. (This differs from Serbia, where each national park has its own management enterprise.) This is a self-financing organization supported from the state only through grants for certain services and activities.
- **Faculty of Biology, University of Podgorica**, provides scientific training in fields relevant to environmental management and biodiversity conservation.
- **Institute for Marine Biology, Kotor**, is involved in research on marine ecosystems, and participates in several international projects and initiatives related to marine biodiversity conservation.
- **Natural History Museum of Montenegro** was recently established to focus on the conservation of museum collections of flora, fauna and geology. The Natural History Museum is also involved in a project to conserve populations of the Dalmation pelican on Skadar Lake. The staff of the Museum is mainly comprised of young biologists, specialists in various groups of organisms.
- **The Agricultural Institute** conducts soil research and research on new crop varieties and cultivars, in cooperation with Veterinary Institute and Institute for Sub-tropical Cultures in Bar.
- **Academy of Arts and Science, Department of Natural Sciences** organizes scientific meetings and participates in projects. One such project was the publication of a four volume series on the Fauna of Durmitor.

d. At the Local Government Institutions and Agencies Level

Municipalities have in many cases established municipality-level **secretariats for environmental protection**, with responsibilities for air protection, noise, urban planning, construction permits for smaller facilities, communal waste management, waste collection, landfills location and waste transport. In municipalities that have not established such environmental secretariats these duties are carried out by inspectors from republic-level, operating within the Directorate for Environment, Ministry for Health and Environment.

During the last several decades the conservation of biodiversity at the local level was more or less left to municipalities, without sufficient financial or legal support from the republic government. A few good examples of strong municipal level environmental and conservation actions can be found, however. For example, local "Eco Funds" were established in Uzice and Novi Sad. These are municipal agencies funded by local taxes that carry out environmental

and biodiversity conservation action. Another example is the establishment of a “Green Council” within the municipality of Valjevo.

The lack of coordination between municipalities and the other institutions responsible for environmental conservation (such as Srbijasume or the public enterprises responsible for managing national parks) is a problem. For example, although the public enterprise responsible for a national park is located in the municipality in which the park is located, that public enterprise may not have good communication with local government and may not respond appropriately to local concerns or needs.

2 . At the Nongovernmental Organizations (NGOs) Level

Nongovernmental organizations play an increasingly important role in Yugoslav civil society. There are 134 registered environmental NGOs in FRY, and approximately 80 percent were established during the 1990s (REC, 2001.) A wide variety of NGOs exist, including youth organizations from an earlier era that were supported with funding from the government (so called “social organizations of youth”). Some experts-group NGOs are established to carry out a single project, and are more like consultancy groups than true NGOs. NGOs in the FRY suffer from a lack of definition and public understanding of the role of nongovernmental organizations and civil society in general, as well as a lack of an adequate legal foundation. A Law on NGOs is currently under preparation and may help to strengthen the NGO sector.

Environmental NGOs focus on nature conservation, environmental clean-up activities, and education to raise public awareness and increase participation in environmental protection. The Danube Environmental Network Forum is an NGO that coordinates the efforts and activities of other NGOs interested in environmental problems of the Danube River. The Society for Research and Protection of Birds of Vojvodina, Mustela from Belgrade, the Gips Fulvus Foundation from Valjevo, and Lynx from Podgorica are NGOs that have provided educational materials and implemented protection measures for endangered species. In Valjevo, a local NGO called Gradac has been given the responsibility to manage a protected area, and another small NGO, Gorani Movement, manages a protected area in Zasavica. These grassroots organizations have proven themselves to be active and successful managers of local protected areas. Despite the significant number of environmental NGOs and the significant number of members of these organizations, only a few have adequate financial resources or organizational capacity. Environmental NGOs in FRY were strongly supported in the late 1990s by the Regional Environmental Center (REC) with an office in Belgrade, and, from last year, in Podgorica.

There are some examples that show the potential for successful partnerships between NGOs and governmental institutions in biodiversity conservation. For example, the Serbian Ecological Society, an experts-group NGO, has cooperated with the Institute for Protection of Nature of Serbia in an educational campaign aimed at primary and secondary school children on rare and endangered plants, and on a workshop and publication for teachers called “Biodiversity and the New Millennium.” Another NGO called Young Researchers of Serbia has worked with the Institute for Protection of Nature and Srbijasume (the public enterprise managing state forests) to organize an international camp at the Obedska bara Ramsar site in Vojvodina for the past five

years. The aim of this camp is to protect the wetland and improve conditions for the reintroduction of bird species, which were once found there.

3. At the International Agency, Organization and Donor Level

Sanctions against FRY between 1992 and 2000, negatively affected environmental and biodiversity conservation in the country. During those years, environmental NGOs had minimal access to financial support from international organizations. One of the main sources of funding was the **Regional Environmental Center in Central and Eastern Europe (REC)**, which provided funds obtained from other donors, including USAID. After the environmental accident on Tisza River in Romania, the Tisza River Emergency Program was established, and involved several local NGOs from Vojvodina and experts from the local and national levels. Through the support of the Dutch embassy in Yugoslavia, the REC is currently coordinating a project called “Introduction to Local Environmental Action Plans” (LEAP) in Yugoslavia.

A number of remediation projects were initiated within the **FOCUS Initiative**, established by Switzerland, Russia, Greece and Austria in 1999, such as protection of a wastewater canal in Pancevo, a study of mercury decontamination in HIP Petrohemija Pancevo, soil decontamination in the Beopetrol fuel storage facility in Bogutovac, HIP Azotara fuel storage in Pancevo, and groundwater monitoring in Novi Sad.

UNEP/BTF - United Nations Environment Program/Balkan Task Force

A UNEP/BTF report on the environmental consequences of the NATO bombing serves as a basis for 27 clean up projects started after UNEP opened its office in Belgrade in 2000.

Stability Pact - REReP

The Regional Environmental Reconstruction Program for South Eastern Europe (REReP) was endorsed by the Ministries of Environment of the six South East European (SEE) countries under the Stability Pact in March 2000. FRY joined the REReP in November 2000. REReP provides funding opportunities for biodiversity conservation projects, but due to a large number of proposed projects and slow grant making mechanisms, only a few projects will be funded in the near future. One program funded through REReP focuses on transboundary cooperation for conservation funded by the **Swiss Agency for Development and Cooperation**. Biodiversity conservation and socio-economic development are the focus of the projects started within this program in Stara Planina (Serbia and Bulgaria) and Skadar Lake (Montenegro and Albania). The REC is the implementation agency for this program, which involves national, regional and local experts and NGOs of various kinds.

UNESCO - United Nations Educational, Scientific and Cultural Organization

After the international connections of FRY were reestablished, activities have intensified through cooperation with UNESCO. The first programs to begin were the World Heritage program and the Man and Biosphere program. After years of efforts, the first biosphere reserve in Serbia, Golija-Studenica, has been designated as a Biosphere Reserve in September 2001. This provides an

opportunity to apply for the financial support not only of UNESCO but from other international donors as well. The Institute for Nature Protection has joined with the public enterprise for forest management, Srbijasume, and an NGO called Cenort, to seek funding for a project on “Guidelines for sustainable tourism in biosphere reserves,” involving four other European biosphere reserves.

IUCN - The World Conservation Union (The International Union for the Conservation of Nature)

Although IUCN is not a funding organization, the benefits of being a member include support for participation in international meetings and access to information and literature. The only governmental organization member of IUCN from FRY is the Institute for the Protection of Nature of Serbia.

4. Other Potential Donors

In the year 2001, significant financial support was given to the Ministry for Environment and Health, Directorate for Environment in Serbia, for the design of the new Environmental Law, and of a new Ministry (the main support is provided by OSCE). Funding for developing strategies and programs, especially a national strategy for biodiversity and national environmental planning may be available from UNDP, GEF, World Bank and UNECE which have shown interest in such work.

5. Institutional Needs Analysis

The main issues that constrain the capacity and effectiveness of institutions involved in biodiversity conservation are caused by the decades of political, social and economic isolation, which affected all the aspects of life in the FRY. This isolation led to problems such as:

- Unclear and/or overlapping responsibilities and authority of government institutions at different levels (federal, republics, municipal);
- Gaps between declared strategies and practical implementation of those strategies;
- Lack of communication and coordination between experts and institutions, and between governmental and nongovernmental institutions;
- Lack of adequately trained experts and administrators in most technical and administrative institutions;
- Lack of outreach from responsible technical or administrative institutions to the public;
- Lack of inspection and enforcement capacity due to lack of human, financial and material resources;
- Lack of opportunities for communication and collaboration with international organizations; and,
- Lack of resources for education and professional training to build up the human resources for biodiversity conservation.

D. Economic Reform and Development and Biodiversity Conservation in Serbia and Montenegro

1. Status of Ownership of Forestlands in Serbia and Montenegro

The economic reform and development since the beginning of the decade of the 1990s has been drastically affected by the ten-year economic embargo which was levied against the Federal Republics of Yugoslavia. The impact has also been felt on the ownership of state forest lands and the management of the natural resource base.

In the FRY, forests are either private property or state-owned. The state and private sectors own approximately 60 percent and 40 percent of the forests or area under forests, respectively. (See reference Yugoslav Survey of Forests and Forestry, Number 3, 2000) According to area, the ratio of state to private ownership is 1:1 in Serbia and 3:1 in Montenegro. The difference in ownership structure particularly affects the forest organization and management, as well as some other parameters of forest policy associated with forest ownership structure.

In general, state-owned forests mainly comprise large complexes, they have a relatively better structure and their management is generally believed to have been on a higher level than that of private forests. In contrast, private forests are mainly comprised of small complexes, split into a large number of small plots, and are generally believed to be of a poorer state and have lower yield. Consequently, their contributing share to the timber-related enterprises is only minor.

In regard to the care for forests and rational utilization of forestland and in representing the public interests, the state obligates the owners of the private-sector forests to treat them in accordance with the principles valid for all forests, regardless of ownership type. In other words, the activity of public enterprises is expanded so as to include the performance of technical operations also in the private-sector forests.

The State manages all forests within forests districts, regardless of ownership type, in an attempt to improve their quality and state. Consequently, private owners of small-forested lands are encouraged to maintain their forested lands as forests rather than converting the lands for other uses.

Privatization or restitution of forestland in Serbia is not an issue at present; however, there are suggestions being made that church forests should be returned to their original owners. The single largest entity to gain from the restitution of forest lands is the church. The average area of forest holdings is less than 0.5 ha. In most cases, the holdings are irregular in shape, long and narrow, resulting from the division of holdings among their owners. Such small and fragmented forests are difficult to manage on a sustainable basis.

2. Enterprises for Natural Resources Management in Serbia and Montenegro

In Serbia, 27 forest districts exist incorporating state-owned and private sector forests. All of the 27 forest districts are covered by Srbija Sume Forest Management Public Enterprise. The enterprise includes the cultivation, protection, preservation and exploitation of forests, game

shooting, raising and exploitation, engineering, construction and maintenance of forest roads, preparation of forest management programs, plans and elements, technical operations in private forests, advancement and utilization of generally useful functions of forests and wholesale and retail trade.

In Montenegro, forests are managed by the Crna Gora Sume Public Enterprise based in Pljevlja. The enterprise is responsible for the cultivation, protection, conservation, and utilization of forests, raising and utilization of game, engineering, construction and maintenance of forest roads, preparation of management programs and plans, technical operations in private forests, advancement and utilization of public-beneficial functions of forests, and wholesale and retail trade in forest products.

Public Enterprises for the National Parks of Serbia were formed pursuant to the National Park Law of 1993 and cover five national parks with a total area of 159,525 ha. Separate Public Enterprises exist for each of the five parks include Fruska gora, Djerdap, Tara, Kapaonik, and Sariplanina. The forests in national parks are managed in accordance with special programs of protection based on the Republic Spatial Development Plan.

The National Park Public Enterprise “Crne Gore” was formed pursuant to the National Parks Law of 1991 and includes the following national parks: Durmitor, Biogradska gora, Lovcen, and Skadarsko jezero.

Also in Montenegro, a para-statal enterprise has been created to serve as the planning entity for the development of the southern Montenegrin coast. The Montenegro Coastal Zone Management Enterprise focuses on six coastal municipalities to manage their use and to provide a structure to the development of the coastal zone. The enterprise has the authority to limit development in areas where development may encroach on endemic species. Further, the enterprise conducts monitoring of water quality and has the authority to close beaches if human health becomes a concern.

In Serbia, there is also a Decree on Natural Rarities, which regulates the protection of rare and endangered species.

3. Privately Owned Biodiversity Conservation Areas

A number of privately owned biodiversity conservation areas exist in Serbia and Montenegro. Such privately owned biodiversity areas are on private land, but all of them are protected under the same procedure as those on state-owned land with the exception that the management is given to the private owners. The exact number and their locations are not known because many are referred to as “Monuments” and may exist as a single natural item, such as a tree or a cave. Privately owned caves and trees may be of local interest for historical or sentimental value.

A privately owned botanical garden in Montenegro named Kolasin has been the focus of concern because the owners are now unable to maintain the garden as it is required to be maintained. Other examples exist whereby the care and maintenance of these privately owned biodiversity conservation areas have become difficult due to the existing economic condition.

Analysis of the economic reform and its effect on biodiversity conservation in Serbia and Montenegro results in the following:

- The enterprises responsible for the management and conservation of the natural resource base are supported from the returns from the sale of the resources from those enterprises. Therefore, the National Parks contain major areas that have been harvested or are in the process of rejuvenation due to harvest.
- Pressures exist to advance the privatization or restitution of forestland to those holding prior ownership. The present system of management of forestlands would not then be applicable to the forestlands that are privatized. There are no good data upon which to base a projection as to the impact of forest privatization on forest biodiversity. Regional experience suggests that biodiversity impacts could be positive, negative, both, or neutral. Therefore, technical assistance could be provided to assist in the preparation of legislation and policies for forestland privatization that promote rather than degrade biodiversity.
- The para-statal enterprise for the planning of the development of the southern Montenegrin coast has no enforcement capability. Therefore, the planning process and the actual development that occurs may differ greatly.

Section Two: USAID Programs and Conservation Needs in Serbia and Montenegro

Section Two: USAID Programs and Conservation Needs in Serbia and Montenegro

A. Current USAID/FRY Contributions to Meet the Biodiversity Needs

The Community Revitalization through Democratic Action (CRDA) program in Serbia includes "social and economic infrastructure activities, economic opportunities, and environmental improvement and practices" as the three categories of activities to be undertaken.

Under the social and economic infrastructure activities, nongovernmental organizations are strengthened to be more effective in their local communities. The NGOs that have benefited from these activities include environmental NGOs with specific interests in non-traditional forest products.

Under economic opportunities, CRDA has supported small-scale collecting, processing and marketing of mushrooms, honey, berries, rose hips and other naturally occurring products. Guidelines have been prepared by various entities, including the Institute for Nature Protection, which serve to inform collectors and processors of measures to protect the natural resource base.

Under environmental improvement and practices, CRDA has supported a number of community activities involving community water and wastewater improvement.

The singular item the USAID/FRY has supported that could be considered toward meeting biodiversity needs was a CRDA-organized "Earth Day 2002" event. The one-day event served as an awareness raising opportunity for school children to become involved in numerous activities around the Earth Day theme.

An activity similar to the USAID's CRDA program in Serbia has been initiated in Montenegro.

The combined impact of the abovementioned activities toward meeting the biodiversity needs of Serbia and Montenegro is minimal. CRDA does provide a framework to build upon and it can serve as an example of how a project can address biodiversity needs in other areas in the USAID programs in the two republics.

B. Opportunities to Address Biodiversity Needs in the USAID Strategic Objectives

The following section describes how and to what extent actions proposed in the country strategies for the Republic of Serbia and the Republic of Montenegro could meet the biodiversity needs identified in Section I of this report. The Biodiversity Analysis Team focused on the Results Framework for each country by Strategic Objective, and Intermediate Results level. By design, the two country strategies are based on the same Strategic Objectives. By necessity, the Intermediate Results differ between the two republics. Therefore, specific comments will be grouped with each republic's Intermediate Results under their common Strategic Objectives. Where applicable and when recommendations are similar for both republics, the recommendation will simply refer the reader to the prior recommendation.

These recommendations propose a series of low-cost and no-cost revisions in existing programs that could help meet the biodiversity conservation need identified in Section One.

Strategic Object 1.3: Accelerated Development and Growth of Private Enterprises

For Serbia:

IR 1.3.1 Financial and Banking Systems Stabilized and Restructured

Recommend: In the process of assisting in restructuring the financial and banking system of Serbia, USAID could follow the lead of the Northern Tier countries of Central and Eastern Europe and develop an environmental fund to support environmental investment in support of biodiversity. At the present time, fees and fines collected by the various official entities relating to access or use of the natural resource base go directly to the Serbian central treasury and are not generally thought to return to the environmental sector. An environmental fund would help to provide the funding for the sector while providing a positive image for the collection of the funds. The Harvard Institute for International Development (HIID) provided the technical input for the environmental funds of the Northern Tier through the C4EP Project. HIID wrote extensively about their experiences in the region. Also, contacting the Ministries of Environment in the Northern Tier countries would bring up-to-the-date information on the utility of the environmental funds in each country.

IR 1.3.2 State and Socially-Owned Enterprises Privatized

Recommend: The state-owned forests are in the process of being privatized and former owners are to receive restitution of their former forests. In Bulgaria, the restitution of the forests to private hands has been accompanied by unsustainable harvesting of the forests with the sole intent to harvest the trees with little if any concern for the invaluable biodiversity in the forest. The USAID program in Serbia could assist in the privatization of state-owned forests in a way that supports biodiversity conservation. One particularly unique opportunity exists to open a dialogue with Bulgaria on a pilot basis concerning the privatization of forestlands on the Bulgaria/Serb border. EE/EEST/ENR technical assistance was critical in this process in Bulgaria and, following the USAID/Washington reorganization, technical assistance should be available from the Forestry Team in the EGAT Pillar. Efforts may also be coordinated with the Swiss development program or the World Wildlife Fund/World Bank Alliance activities on forest certification.

Also, USAID experience in the Northern Tier countries lends support to the preparation of environmental liability legislation to directly deal with the issue of environmental debt, encourage privatization and support for protection of the environment. Environmental debt refers to the accompanying result of poor environmental management resulting in a less attractive investment, such as an efficient copper smelter on the property of a six hundred year old sludge heap. USAID/Slovakia, with the implementation assistance of the Environmental Law Institute, assisted in drafting legislation that separated the economically attractive portion from the environmentally unattractive portion. Such legislation dramatically changed the privatization process in that country.

IR 1.3.3 Commercial and Related Laws Enhanced and Strengthened

Recommend: As the USAID Mission in Serbia pursues this IR in general, particular focus on the formulation of legislation and policies to promote transparency, combat environmental corruption and promote conservation would be appropriate. The USAID/Slovakia environmental legislation and policy experience is exemplary to what may be a model for USAID expectations in Serbia. The enforcement of contract law is critical for attracting investors who are interesting in doing environmentally sound management. The public awareness and education to build and sustain a constituency for economic reform included under this IR could also include examples that relate to the environment, in general, and biodiversity, in particular.

IR 1.3.4 FRY/Serbian Economy Reconnected to World and Regional Market Networks

Recommend: While reconnecting to the world and regional market networks, equal emphasis could be paid to the concerns unique to biodiversity and products, such as non-timber forest products, while tying these into the CRDA economic opportunities. Efforts may be made to ratify and implement international accords for transparent trade to address illegal trade of endemic and diverse species. The transparency issue is particularly important. As a separate republic, Serbia is in the process of signing a number of international accords and the time is right for interventions in the biodiversity area. Serbia may also consider working with the World Wildlife Fund/IKEA Initiative, which is committed to promoting responsible forestry to secure forest resources for the present and the future. CITES training for customs and law enforcement agents is also recommended.

For Montenegro:

IR 1.3.1 Increased Soundness of Fiscal Management

Recommend: As part of the restructuring of the tax system, assistance could be provided to assist in the development of an environmental fund to support environmental infrastructure in support of biodiversity. The return of fees and fines for conservation needs may serve as an example to demonstrate the utility of a transparent budgeting process. Additional comments follow those suggested for the IR 1.3.1 for Serbia.

IR 1.3.3 Private Enterprises Strengthened

Recommend: See the recommendation for IR 1.3.2 for Serbia above. Specifically, the emphasis on the development of the Adriatic Coast of Montenegro would be improved with special focus on coastal tourism and ecotourism.

Strategic Objective 2.0: More Effective, Responsive and Accountable Democratic Institutions

For Serbia:

IR 2.0.1 Capacity and Competitiveness of Independent Media Enhanced

Recommend: While developing a more professional independent news media through training, institutional capacity-building and limited donations of equipment, biodiversity examples could be included in the process. In the process of selection of individuals of the media to participate in the various USAID-supported activities, extra effort could be taken to assure the inclusion of journalists with background in or special responsibilities in biodiversity. The Biodiversity Analysis Team agreed to provide the Mission with an illustrative list of such journalists. USAID/FRY should also consider building on the success of USAID/Sofia “Biodiversity Conservation and Economic Growth Projects” work in developing a “green media”. The Bulgaria Biodiversity and Economic Growth project has achieved excellent results in the strengthening media with respect to promoting awareness of biodiversity conservation and environmental issues.

IR 2.0.2 Civil Society, Political Party and Trade Union Capacity to Serve and Represent Citizens Strengthened

Recommend: In order to raise the profile of biodiversity in Serbia, USAID-supported activities could be focused to assist communities and individual citizens to articulate conservation needs and priorities, to press political leaders to incorporate biodiversity issues, and to monitor the government’s performance in the area of biodiversity. When selecting NGOs to participate in NGO strengthening activities, special attention could be given to NGOs involved in conservation activities. While supporting civil society efforts to form and maintain partnerships with government, efforts should be made to seek out opportunities to form and maintain partnerships with government that focus on biodiversity issues as well.

IR 2.0.3 Rule of Law Increased

Recommend: When a law is broken, others are impacted in many ways. In Serbia, for example, laws exist that prohibits the use of dynamite while fishing in lakes or rivers. When that law is broken, others fishing in the area may be harmed, their boats or legal means of fishing may be damaged, and the general, diverse population of sea life of the area may be permanently altered. Such an example could be included in training for NGOs which will raise the level of awareness of biodiversity issues in the general population. The training of judges in environmental law would also be a key. In Bulgaria, the Rule of Law program conducted pilot courts related to environmental law.

For Montenegro:

IR 2.0.1 Enhanced Capacity and Competitiveness of Independent Media

Recommend: See recommendation for IR 2.0.1 for Serbia above.

IR 2.0.2 Strengthened Civil Society, Political Party and Trade Union Capacity to Represent Citizens Strengthened

Recommend: See recommendation for IR 2.0.2 for Serbia above.

IR 2.0.3 More Effective, Independent and Accountable Legal Institutions

Recommend: Montenegro is at a point in development when many decisions will be made which will have irreversible impact on the biodiversity of the republic. For example, the pressure to develop the southern coastal area of Montenegro is greater than ever before. Support to strengthen open and transparent participatory decision-making legal processes would assure that issues such as biodiversity issues are brought to the table during the process. In the long run, improved inspection on behalf of the government employees controlling the use of natural resources will be as helpful to improve the operation of the legal institutions as providing training for judges and lawyers.

Strategic Objective 2.1: Increased, Better Informed Citizens' Participation Participation in Political and Economic Decision-Making

For Serbia:

IR 2.1.1 Active Community Development Committees

Recommend: While encouraging citizens to take an active role in local decision-making through the creation and development of community development committees (CDCs), efforts should be taken to assure that the CDCs develop a strong voice in the decision to finance biodiversity – related issues which affect their lives.

IR 2.1.2 Disadvantaged Groups Participate in Community Development Committees

Recommend: In the process of supporting activities that ensure that disadvantaged groups are incorporated into the local decision-making process and have a voice in the selection of community development activities, it is imperative that representatives, including NGOs with interests in biodiversity-related issues, are incorporated as active members in the CDCs.

IR 2.1.3 Increased Inter-Community Cooperation

Recommend: Projects funded through the CRDA Program has a primary goal to bring together people from different communities to work together on solving a common problem. A secondary goal may be to increase awareness of the natural resource base of the communities, including biodiversity. The CDCs could implement a proposal evaluation system that gives specific credit for the inclusion of biodiversity-related issues. Also, the CDCs could provide bonus funding to proposals that focus on biodiversity concerns. The awareness can go beyond the environment. The awareness to actual co-management of an important biological resource or park is critical when the resource overlaps several communities.

IR 2.1.4 Improved Local Living Conditions

Recommend: The goal of the IR is to improve infrastructure, generate employment, and improve the environment through the provision of matching funding to CDCs. Incentives could be given to the CDCs to focus on financing activities that focus on biodiversity concerns. This IR is the only

IR that specifically mentions environment. Consequently, an increased effort to include biodiversity concerns here is especially important to help the Mission meet the environmental goal of the CRDA program.

IR 2.1.5 More Effective, Responsible and Accountable Local Governance

Recommend: Improvement in the competence of new local leaders as managers to provide basic services and infrastructure for their citizens could be extended to support the local government managers to more adequately manage the protected areas near or surrounding the municipalities.

For Montenegro:

IR 2.1.1 Citizens Improve their Living Conditions through Participation in Community Development Committees

Recommend: Same as IR 2.1.2 for Serbia above.

IR 2.1.2 Improved Interaction between Citizens and Local Government

Recommend: Encouraging increased transparency of local governments results in a better informed body of citizens more able to make decisions and address community priorities effectively. In the context of biodiversity, a fundamental result of increased transparency is the advancement of grass roots environmental processes in the decisions on how money should be spent, whether public expenditures are made according to plans and priorities, and the process for issuing public contracts for civil works that may have an impact on the natural resource base. Wherever possible, transparency of local government could be promoted to aid in the improved interaction between citizens and local government on biodiversity issues.

C. Potential Application of Additional Resources of Support for Biodiversity Concerns

The USAID/FRY Mission has a number of resources available for use that could be focused to support biodiversity issues in Serbia and Montenegro. An illustrative listing of these resources follows:

International Visitor's Program--The International Visitor's Program selects individuals from the host country for travel to the United States to participate on an individualized, focused program to public and private institutions around a particular theme. A precedent has been set by the U.S. Embassy in the selection of a person in the Directorate for Environment for travel to the U.S. during September 2002. Several focused programs on the theme of biodiversity are suggested as excellent utilization of the available program:

- Rangers working in national forests or protected areas to U.S. Fish and Wildlife Service
- Inspectors to State Fish and Game Services
- Marine Biologist from the Institute of Marine Biology in Kotor to the Chesapeake Bay Foundation

- Museum curators to match with professionals in U.S. universities or major museums
- Nature conservation professionals to visit major U.S. NGOs interested in biodiversity

Small Grant Program--The small grant program is managed by the Mission to provide small grants for host-country individuals and organizations. Suggestions to include biodiversity in the small grant program follow:

- Support to further scientific and educational aspects of biodiversity at the Botanical Garden
- Support to preserve and prepare museum specimens and collections for educational purposes
- Support a visitor's center at national parks to inform public of value of conservation of the biodiversity

Sister City Program--The Sister City Program is a privately-funded program to match a U.S. city with a city from another country with mutual interests to develop a mutually-rewarding relationship. Sister City arrangements between the Municipality of Bajina Basta and a U.S. city with similar natural resource interests, including biodiversity, could be developed.

Serbian and Montenegrin/American Associations--Such associations exist to promote relationships between the ethnic group within the U.S. and their former homeland. Any number of activities on a host of topics could be supported by the associations. Such an association could choose to focus on the natural resource base, especially biodiversity issues.

USAID/Washington Pillar--Upon reorganization, support from the USAID/Washington pillar focusing on biodiversity may provide support to the Institute for Nature Protection through technical assistance in the development of the National Action Plan for Biodiversity in Protection Areas.

D. Concluding Remarks

The Foreign Assistance Act requires that USAID strategies and resulting programs seek out and take advantage of the opportunities to promote sustainable development through the use and conservation of biodiversity. In the previous section, recommendations related to each of USAID's Strategic Objectives in the Strategies for Serbia and Montenegro were proposed. These recommendations emerged from conversations with USAID staff, program implementers, and representatives of government institutions dealing with the conservation of biodiversity and natural resources.

To assist the USAID/FRY to most easily implement the activities in the previous section in Serbia and Montenegro, a prioritized list of suggested no-cost or low-cost actions follows:

1. In both Serbia and Montenegro the Community Revitalization through Democratic Action (CRDA) Programs already have environmental "planks." The first suggestion is to assure that the Community Development Committees include representatives with interests in biodiversity-related issues are incorporated as active members.

2. Support for biodiversity conservation is demonstrated by the actual funding of such activities. The second suggestion is to modify the grant-giving process of the Community Development Committees so that special credit is given to proposals that take advantage of opportunities for linking biodiversity conservation with the main objectives of the CRDA -- social and economic infrastructure, economic opportunities, and environmental improvement and practices. Additional funding for activities linked to biodiversity conservation could also be provided.
3. CRDA should focus community development activities in communities bordering forests, national parks and protected areas. This would strengthen the community economy and decrease the need for citizens to turn to the forests and protected areas for their livelihood. The indirect effect would also be to decrease the pressure on the forests, parks and protected areas for collection of firewood and other non-timber forest products.
4. Community development activities funded by CRDA should involve the local government secretariat for environmental protection to ensure that the community development activities are sensitive to conservation of biodiversity issues.
5. USAID's programs that involve training of local media staff in order to improve the free access to information that underpins participatory, democratic decision-making should include training of journalists in biodiversity and environmental issues. The programs focusing on democratic institutions, in general, and the training of local media, in particular, should include journalists with a background in or special responsibilities for the dissemination of biodiversity and environmental information to the general public.
6. In general, it would be beneficial for USAID implementers to incorporate examples that involve biodiversity-related issues or concerns when conducting, planning, or training related to activities in Serbia or Montenegro. An example of a linkage between biodiversity conservation and an activity that at first glance seems unrelated was given in the previous section, under the Rule of Law Intermediate Result (IR), concerning illegal fishing and its effect on law-abiding fishermen.
7. Taking full advantage of opportunities for linking CRDA programmatic objectives with biodiversity conservation, additional staff members with some professional training in environmental specialties could be employed. Further, once additional biodiversity-related activities mentioned earlier in this section are incorporated in the CRDA program, the need for staff trained environmental or biodiversity conservation professionals will increase.

The USAID program in Montenegro has an environmentally-trained professional on its staff. USAID Serbia has staff with environmental academic training; however, that staff person's day-to-day activities do not permit focusing on environmental issues at the level.

The recent reorganization of the Bureau for Europe and Eurasia staff at the Washington, D.C. level will potentially reduce the level of technical, environmental support that the Missions may expect to receive at the Bureau level. Future environmental support that the Missions may expect to

receive at the "Pillar" level is yet to be defined. The supposition under which the reorganization was designed was that Missions would absorb the staffing responsibility for the diminished level of USAID/Washington, D.C. or hire local staff members to compensate for the decreased level of Bureau technical support.

Given the relatively large amount of funding relative to other Mission in the Bureau for Europe and Eurasia and the fast time-line for U.S. assistance to Serbia and Montenegro, it is recommended that the Mission in Serbia consider the hiring of an environmentally trained person on their staff to address environmental issues, in general, and biodiversity issues, in particular. Such a person could contribute to many of the other needs of the Mission, as well. For example, the transfer to Serbia and Montenegro of the progressive experiences of the Northern Tier USAID Missions would be greatly enhanced if such an environmental professional were on the staff. The privatization process could be greatly enhanced through well-directed discussions on environmental funds, environmental liability legislation, and environmental policy. Such a person could contribute to other Mission programs by working with other U.S. Embassy staff to coordinate activities relevant to biodiversity and environmental conservation.

List of Appendices

Appendix 1	Scope of Work: Biodiversity Analysis for Serbia and Montenegro
Appendix 2	Review of Biodiversity in FRY and Recommendations for Further Actions, Regional Environmental Center
Appendix 3	Topography of the FRY
Appendix 4	Potential Vegetation of the FRY
Appendix 5	Major Protected Areas (excluding State Forest Lands) in Serbia
Appendix 6	UNEP-World Conservation Monitoring Center (WCMC) List of Protected Areas in the FRY
Appendix 7	Distribution of Forests in Serbia
Appendix 8	Distribution of Forests in Montenegro
Appendix 9	List of Protected Species in Montenegro
Appendix 10	IUCN Red List for FRY
Appendix 11	International Treaties and Conventions Applicable to Serbia and Montenegro
Appendix 12	Biodiversity Analysis Team Contacts in Serbia
Appendix 12	Biodiversity Analysis Team Contacts in Montenegro
Appendix 13	References
Appendix 14	Current Internet Resources for Serbia and Montenegro Relating to Environmental Issues

Appendix 1

Scope of Work: Biodiversity Analysis for Serbia and Montenegro

Appendix 1

Scope of Work: Biodiversity Analysis for Serbia and Montenegro

I. Purpose and Objective

The purpose of this task is to conduct an assessment of biodiversity conservation needs for the purposes of complying with sections 117 and 119 of the Foreign Assistance Act of 1961, as amended, and country strategy guidelines under ADS 201.3.4.11 and ADS 204.5. Based on this assessment, assist the Mission to define how its new five-year country program strategy contributes to conservation needs, as required by agency regulations. This assessment could also serve as a planning tool to assist USAID/Serbia & Montenegro in better integrating environment concerns into their overall program.

II. Background

Environmental Policies guiding USAID Strategies

USAID/Belgrade is currently in the process of developing new country strategic plans for Serbia and Montenegro. The Serbia strategy has been finalized and was being reviewed in Washington at the time this SOW was prepared.

The U. S. Foreign Assistance Act of 1961 Section 119 requires USAID to assess national needs for biodiversity and potential USAID contributions to these needs in all country strategy documents. Specifically, FAA Section 119(d), Country Analysis Requirements requires that:

“Each country development strategy statement or other country plan prepared by the Agency for International Development shall include an analysis of: (1) the actions necessary in that country to conserve biological diversity, and (2) the extent to which the actions proposed for support by the Agency meet the needs thus identified. (FAA, Sec. 119(d).”

This requirement is also articulated in USAID's Automated Directives System (ADS), Section 201.3.4.11.b on, mandatory environmental analysis for strategic plans.

Statement of Work

Under the direction of a team leader, the assessment team shall evaluate biodiversity concerns in Serbia & Montenegro. The focus of all activities taken under this assignment is two fold: 1) to identify actions necessary to conserve biodiversity, and 2) to describe how and to what extent actions proposed in the country strategic plans meet, or could meet, the biodiversity needs thus identified.

Earlier in 2002, USAID/Belgrade contracted the Regional Environmental Center for Central Eastern Europe (REC) Belgrade Office to conduct a preliminary review of biodiversity in the Federal Republic of Yugoslavia (FRY). This report, entitled "Review of Biodiversity in FRY and Recommendations for Further Actions," provides a good description of the country's taxonomic diversity, habitat types and threatened and endangered species. It also provides a general overview of conservation measures, including policy and legislation in Biodiversity Conservation, the protected areas system, and institutions involved in biological diversity. USAID considers the scientific assessment of biodiversity by the REC study to be adequate. However the more detail and analysis of conservation measures (policies, legal frameworks and institutions) as well as responses by the FRY government, NGOs and donors is required to adequately determine current conservation needs in the FRY.

For this assignment, the assessment team will focus on a) more rigorous analysis of the conservation needs in the FRY, and b) an assessment of how and to what extent the Mission Strategy contributes to these needs. The team is expected to build upon the work already completed by the REC, utilizing as much of the biodiversity description as possible, and giving appropriate credit to the authors of that report. Please find the REC study attached to this SOW.

The assessment team shall perform the following activities:

A) Data collection:

1. Prior to departure, hold meetings with the Bureau Environmental Officer and E&E Bureau technical staff, and the World Bank to gather relevant information on regional programs and agency environmental regulations.
2. After arrival in the field, meet with USAID/Serbia & Montenegro to get an understanding of those Mission's ongoing sectoral assessments, program goals and objectives under their new strategies. The Missions also may provide the team with advice and protocol on approaching USAID partners and host country organizations with respect to this assignment. The team shall be aware of sensitivities related to an assessment exercise (i.e. the potential for raising expectations, and the need to be clear as to the purpose of the assessment) and respect Mission guidance. The team will discuss organizations to be contacted and any planned site visits with the Mission and coordinate as required.
3. The Mission Environment Officer will facilitate meetings with other S.O. Teams at USAID to allow the team to gain a full understanding of the country program and strategy. The USAID Environmental Officers will help facilitate interaction and information exchange with any other teams in the field as necessary.

4. Obtain, review and analyze existing documentation on biodiversity conservation in Serbia and Montenegro including the earlier work prepared by the Regional Environmental Center (REC) under contract to the Serbia Mission and also information such as that prepared by government agencies, bilateral donors, and national and international NGOs. Examples of such documentation may include National Environmental Action Plan (NEAP); National Biodiversity Conservation Strategy; Global Environment Fund (GEF) project reports; UNESCO Biosphere projects; UNDP and NGO reports; etc., as available.
5. Hold meetings with relevant ministries and agencies, donor organizations, NGOs, and other organizations who are knowledgeable about biodiversity conservation, cross cutting issues, or implementing noteworthy projects, and gather relevant information.
6. If necessary, conduct one to three priority site visits to supplement understanding of interviews, literature, and current environmental infrastructure.

B) Analysis: Assess and summarize the needs for biodiversity conservation in the two areas based on key threats and analysis of country donor and NGO responses to meet these needs. Prepare a report on the status of biodiversity conservation efforts in Serbia and Montenegro and implications for USAID or other donor programming and environmental monitoring which shall define the actions necessary for conservation..

C) Report Preparation: At a minimum, this report shall 1) clearly articulate the actions necessary to conserve biodiversity in these areas, and 2) define the extent to which actions proposed in the Strategic Plans meet the biodiversity conservation needs identified. The report shall include:

- ***A general overview of major ecosystem types, highlighting important or unique aspects of the country's biodiversity, including important endemic species and their habitats. (This in large part has been met by the work completed by the REC. The REC description may be used, with appropriate citation of the authors)***
- A general summary of natural areas of particular importance to biodiversity conservation, such as forests, wetlands, coastal areas critical for species reproduction, feeding or migration, if relevant by type and size, relative to overall resources by type. Important existing documents which detail this information should be referenced. (This may be covered in the REC study and may be incorporated with appropriate citation.)
- Plant and animal species that are endangered or threatened with extinction. Endangered species of particular social, economic or environmental importance should be briefly highlighted and described, as should their habitats. (This is adequately covered in the REC Study and should be incorporated.). An updated list, such as the IUCN red list should be included as an annex;

- An assessment of framework laws for biodiversity conservation and national policies and strategies. This should include the status of public financing for conservation, the status of country participation in major international treaties, the country's protected area system, and monitoring systems. The effectiveness of these measures should be addressed and reasons for failure or weakness cited, if relevant.
- Current, and potential future, *primary* threats to biodiversity whether they are ecological (examples include climate change, fire, pests, floods), related to human use (examples include agriculture, war damage repair, industrial contamination, legal/illegal deforestation, siltation), or institutional (examples include failed policies, forest restitution, environmental regulation/enforcement) or trans-boundary issues as appropriate.

An overview of conservation efforts in Serbia and Montenegro including their scope and effectiveness. This should include a general assessment of institutional capacity of the various government and non-government organizations involved in conservation and the relative effectiveness of their interventions (policies or programs) as well as those funded by international donors. Priority conservation needs which lack donor or local support should be highlighted.

- An assessment of how USAID's overall program and proposed country strategy meets the needs for biodiversity conservation. This shall include activities under all the Mission strategic objectives.
- Assessment and conclusive statements of how and to what extent the USAID country strategic plans contribute to the biodiversity needs in Serbia and Montenegro.

Recommendations of how the proposed country strategic plan could better integrate environmental and biodiversity concerns, if relevant. This could include any potential opportunities for USAID to support biodiversity conservation or related environmental activities that are consistent with Mission program goals and objectives.

A. Methodology:

EEST/ENR will field a team of consultants for this assignment, which will work with USAID/Serbia's Environmental Officer, Mr. Michael Enders and the Mission Program office, as follows:

- Loren Schulze (Team Leader)
- Bruce Byers, Ph.D. (Biodiversity Specialist)
- Violeta Orlovic (Local Institutional Specialist)

B. Deliverables:

The primary deliverable under this task order is an Assessment Report for USAID/Serbia and Montenegro, which examines the biodiversity/natural resources and environmental issues and identifies contributions and/or potential contributions to biodiversity/natural resource management needs by the Mission. Attachment 1 is an example of two different tables of contents. It is expected that the final deliverable will be organized along these lines although not all of the sections in these examples may be appropriate for this report.

Three hard copies and one electronic copy of a draft report, in English, are due to the Mission and E&E/ENR offices, for comment, prior to submission of a final document. They must be submitted not later than May 10, 2002. The final report, in English, is due to the Mission and E&E/ENR offices no later than May 17, 2002. Two hard copies and one electronic copy of this assessment, in Microsoft Word format, shall be provided to the Mission Program Offices as well as to the E&E Bureau Environmental Officer.

The second deliverable is an in-country Mission exit briefing to be scheduled before leaving the country.

C. Reporting Requirements

III. Anticipated Level of Effort and Schedule

The LOE for this assignment is a total of 73 person-days as follows:

- Information gathering, field assessment, analysis, meetings with relevant counterparts, GoB, donor, and NGO representatives and Mission debriefing (49 person-days).
- Report Preparation (including incorporating USAID comments (24 person-days).

Schedule: EEST/ENR will field a team April 8, 2002. Elements of the team will stay through April 27, 2002 with a Mission briefing suggested to be scheduled for April 26. The team will be composed of the following technical consultants:

- Loren Schulze (Team Leader) (33 days total- 19 in Serbia)
- Bruce Byers, Ph.D. (Biodiversity Specialist) (22 days total- 11 in Serbia)
- Violeta Orlovic (Local Institutional Specialist) (18 days total)

Logistics:

The team will coordinate logistics with the USAID/ Mission Environment Officer. Mission will assist the team by providing key references and contacts as well as logistical support where necessary (i.e.translators, assistance with travel and hotel reservations for Podgorica, drivers, computers).

USAID/ Serbia & Montenegro's Program Office will also help facilitate meetings with other Mission SO Team Leaders or their staff to fully brief the team on USAID's program and future vision for their strategy.

Appendix 2

REVIEW OF BIODIVERSITY IN FRY AND RECOMMENDATIONS FOR FURTHER ACTIONS

Appendix 2

REVIEW OF BIODIVERSITY IN FRY AND RECOMMENDATIONS FOR FURTHER ACTIONS

Regional Environmental Center for Central and Eastern Europe Country Office Yugoslavia, Belgrade

Authors: Dr DMITAR Lakušić and Dr Aleksandar Četković

1. BIODIVERSITY ASSESSMENT

1.1. Principal Geographical and Ecological Determinants

The territory of Federal Republic of Yugoslavia (FRY), with an area of 102,173 km², makes only 0.07% of the entire world's land, and 2.1% of the European continent. Along a 600 km horizontal transect, from the Montenegrin coast in the southwest through Pannonian Plain (Vojvodina) in the north, and along the vertical transect in the mountains of Serbia and Montenegro, segments/equivalents of almost all major European zonobiomes are represented (Mediterranean evergreen forests along the Adriatic coast, sub-Mediterranean mixed-deciduous forests and scrubs in Mediterranean hinterlands, deciduous forests in lowland, hilly and montane zones, boreal-type forests in subalpine belts, steppes and forest-steppes in Vojvodina; also, the high-alpine and oro-Mediterranean "oro-biomes" above the timber line in high-montane regions). In more generalized respect, 5 out of the 12 principal terrestrial biomes of the world may be distinguished, and the complex of marine biota may be regarded as the sixth biome.

Yugoslavia may be divided into four distinct geographical/orographic entities:

- Northern lowland part, belonging to the Pannonian Plain;
- Central part – mountains, hills and valleys of the Balkan mainland; and
- Adriatic coast in Montenegro;
- Adriatic Sea.

Biogeographically, the territory of Yugoslavia may be divided into the five regions (Mediterranean, Central European, Pontic-Southsiberian, Circum-boreal and Central-South-European montane regions), 8 subregions and 20 provinces (STEVANOVIĆ, 1995). It is situated between three principal eco-climatic regions of Europe: northern (boreal and temperate), eastern (Pontic) and southern (Mediterranean). General biogeographical characteristics are locally modified and diversified by varied orographic and petrographic composition of the territory, as well as by complex history of the flora and fauna, during the late Tertiary and Pleistocene, resulting in the complex composition of the biota and ecosystems, and their mosaic distribution. The territory of Yugoslavia encompasses some of the most important Ice Age refuge regions of Europe. Southern location of Yugoslav territorial waters, within the Adriatic Sea Basin, accounts for the relatively great diversity of marine biota.

1.2. Review of Taxonomic Diversity

Being located in the central part of the Balkan Peninsula bordering southeastern Pannonian Plain, at the crossroads of varying biogeographical impacts and routes, the biota in Yugoslavia are, generally, very rich and varied, relative to the other countries and regions in Europe of comparable size. As usual, when such large and diversified segments of biota are considered, the availability of the basic information on the floristic/faunal composition, distribution, basic taxonomy, etc. is quite heterogeneous, hence the reliability of diverse conclusions is also variable.

Yugoslavia is among the floristically the most diverse parts of the Balkan Peninsula, comparable only to Greece and Bulgaria. According to the international criteria of IUCN-WMC, the territory of FR Yugoslavia, together with the mountainous area of Bulgaria, represents one of the six European and one of the 153 world's centres of floristic diversity. Within its territory, 44.28% of the native mosses and 38.93% of the vascular plants of Europe are found; it comprises about 60% of plant species in the flora of the Balkan Peninsula (7,500).

Table 1. The ratio between the number of taxa of vascular plants and the respective territories of some Mediterranean, Central and West European countries.

TERRITORY	No of taxa (S)	Area (A) (sq km)	Log (S)/ Log (A)
Serbia (STEVANOVIĆ et al., 1995)	sp. 3,272	88,361	0.710
	sp.+ssp. 3,662		0.718
Montenegro (STEVANOVIĆ et al., 1995)	sp. 2,920	13,812	0.836
	sp.+ssp. 3,136		0.844
Yugoslavia (STEVANOVIĆ et al., 1995)	sp. 3,905	102,173	0.716
	sp.+ssp. 4,182		0.722
Greece (STRID, TAN, 1997)	sp.+ssp. 5,700	132,562	0.733
Albania (WALTER, GILLET, 1998)	sp. 3,031	28,748	0.780
Bulgaria (VELČEV, KOŽUHAROV, 1992)	sp. 3,572	110,669	0.704
	sp.+ssp. 4,400		0.722
Rumania (WALTER, GILLET, 1998)	sp. 3,400	237,500	0.657
Croatia (WALTER, GILLET, 1998)	sp. ca. 3,000	56,538	ca. 0.752
Slovenia (TRPIN, VREŠ, 1995)	sp.+ssp. 3,216	20,251	0.813

TERRITORY	No of taxa (S)	Area (A) (sq km)	Log (S)/ Log (A)
Bosnia & Herzegovina (FUKAREK, 1956)	sp.+ssp. 3,760	51,129	0.759
Hungary (WALTER, GILLET, 1998)	sp. 2,214	93,030	0.673
France (WALTER, GILLET, 1998)	sp. 4,630	550,986	0.638
Netherlands (WALTER, GILLET, 1998)	sp. 1,221	43,800	0.665
Great Britain (WALTER, GILLET, 1998)	sp. 1,666	229,850	0.601

According to the most recent estimates, flora of Yugoslavia comprises around 1,400 species of freshwater algae, 1,500 species of marine algae, 565 species of mosses, and 4,182 taxa (3,905 species and 277 subspecies, classified in 888 genera and 157 families) of vascular plants, which places Yugoslavia among European countries with the greatest floristic diversity and density per unit area (Tab. 1). The extraordinary taxonomical richness of the Yugoslav vascular flora is obvious in comparison with that of the whole Europe, which comprises some 11,000 species, in 1,541 genera and 203 families. In addition to the plants, some 516 species of lichens are recorded, and the mycoflora includes around 1,000 recorded species of macromycetes (the latter estimated at 3,500-4,500 species).

The share of endemic, endemo-relict and relict plants greatly contribute to the richness and diversity of the flora of Yugoslavia, being specific and different from other parts of Europe. The number of Balkan endemics in Yugoslavia is particularly great, amounting to 392 taxa (species or subspecies), which accounts for 9.15% of the flora of Yugoslavia.

Predominant kind of endemism in Yugoslavia, as well as in the Balkans generally, is the high-montane one. The greatest diversity centers of endemic flora are mainly high mountains, such as Prokletije, Šar-Planina, Koritnik, Paštrik, Kopaonik, Stara Planina and Suva Planina, with 31-90 endemic species recorded per 100 sq km (UTM 10 x 10 km). In addition to high-montane endemism, the edaphic endemism i.e. that related to particular bedrock is also great. Of special interest are serpentine habitats, particularly in W. and C. Serbia and Metochia, inhabited with ophiolitic endemic flora.

Of particular, global significance and great scientific interest are endemics restricted to the territory of Yugoslavia – the local endemics; there are 87 locally endemic plants, that makes ca 2% of the total vascular flora of Yugoslavia, or 22% of the total endemic flora of Yugoslavia. Particularly large number of locally endemic plants inhabit the mountains of Prokletije and Šar-Planina. Among local endemics, of particular significance are those belonging to endemic Balkan genera, like: *Pancicia* (*P. serbica*), *Protoedraianthus* (*P. tarae*), *Petteria* (*P. rhamentacea*), *Halascya* (*H. sendtneri*), *Amphoricarpus* (*A. neumayeri*, *A. autariatus*, *A. bertisceus*); also, some subendemic genera are also very important, particularly *Ramonda* (*R. serbica*, *R. nathaliae*) and *Edraianthus* (ca. 20 Balkan endemics).

Local endemics are mostly of Tertiary origin (paleostenoendemics, endemo-relicts). Generally, relicts in the vascular flora of Yugoslavia are of particular importance as potential genetical resources. These ancient plants are principally distributed in southern areas, scattered throughout the Mediterranean, but in only few other parts of Europe. In Yugoslavia they occupy specific habitats, primarily canyons, gorges and mountain tops, as well as the remaining enclaves of steppe regions in Vojvodina. According to their age of origin, the relicts are classified into Tertiary, glacial, boreal, and xerothermal elements.

The basic knowledge about the diversity of many animal taxa, and in particular, about the status of threat, is rather scanty, with exception of limited number of groups – principally the vertebrates, butterflies, and few others (Tab. 2).

Table 2. A) The number of taxa in some animal groups, recorded or estimated (marked with *) within the territory of Yugoslavia; B) number of species of butterflies recorded in Serbia and some other territories.

A		B	
Group of Animals	FR Yugoslavia / No. of species	Territory	Rhopalocera / No. of species
Opiliones	66	Europe	441
Pseudoscorpiones	>200	Serbia	192
Orthoptera	192	Macedonia (FYR)	199
Heteroptera	>700	Bulgaria	209
Coleoptera	*10,000	Greece	232
Lepidoptera	*4,000	Italy	241
Diptera	*10,000		
Hymenoptera	*10,000		
Pisces	465		
Amphibia	26		
Reptilia	44		
Aves	382/260		
Mammalia	96		

The estimated number of insects (>37,000) is certainly among the highest in Europe, but these numbers can not be appropriately verified (except for the best studied groups and some general numeric regularities); nevertheless, entomofauna comprise as much as 30 (out of about 35 known) insect orders and over 70% of known insect families. The number of the so far examined non-insect invertebrates is estimated to approximately 15,000. About 465 fish (Chondrichthyes and Osteichthyes) and lampreys (Cephalaspidomorpha) species were recorded in the waters of Yugoslavia, of which some 115 species live in freshwaters and more than 405 in the Adriatic Sea. There are 70 species of amphibians and reptiles, 382 species of birds and 96 species of terrestrial mammals that were also recorded within the territory of Yugoslavia.

Out of stated 382 species of birds, which are either regularly, occasionally or potentially present in Yugoslavia, the number of regularly occurring species is 333, of which there are 260 species of breeding birds; comparing this parameter, as most relevant for biodiversity assessments, with the total of 300 species of breeding birds in the whole of the Balkan Peninsula, we may conclude that Yugoslavia supports 87% of Balkan diversity, the percentage which is much higher than in many other countries. Similarly, we may establish that Yugoslavia harbors 51.16% of the European fish fauna, 74.03% of the European birds and 67.61% of the European mammals. The percentage for the amphibians and reptiles (combined) is somewhat less remarkable – 25.27%, but this is largely due to the extremely great faunistic richness of some small periphery areas of Europe; otherwise, just few individual countries have the number of taxa similar to Yugoslavia (Italy and Greece – 74 species each, Spain – 66).

Numerous endemic and relict species, and even quite large number of endemic genera/subgenera, are represented in some groups of invertebrates, particularly the endogean and cave-dwelling ones (including those in subterranean waters); generally, the groups comprising predominantly these cryptobiontic taxa are characterized with markedly restricted distribution, often confined to a single speleological system. Lower percentages of endemism are documented in groups of principally phanobiontic taxa, although there are several lineages of flightless insects (in several groups of Coleoptera, Orthoptera, etc.) with remarkable number of locally distributed species, particularly in higher-altitude habitats or various refugial areas with preserved ancient types of ecosystems; these taxa are usually characterized with infraspecific differentiation, comprising numerous locally restricted subspecies. Also, there is a share of endemic taxa even in some hydrobiontic groups, usually those confined to small montane stream-systems or certain lakes. Troglotic and endogean species are supposedly of particularly remote origin, dating back to earlier Tertiary (often termed "living fossils"), while some of the high-montane and other phanobiontic elements could represent more recent evolutionary events (neoendemisms).

1.3. Biodiversity “Hot-spots”

In accordance with the spatial distribution of major (prevailing) and special (unique) habitat types, as well as the patterns of distribution of various groups of flora and fauna, some natural areas in Yugoslavia are (or should be) of particular concern for biodiversity conservation (either for their uniqueness or the extraordinary taxonomic and/or ecological richness). Such areas are usually termed centers of biodiversity (and/or endemism), or the "hot-spots" for biodiversity conservation:

- High-montane regions with preserved oroclimax ecosystems (825 plant species were recorded within the area of 100 sq km on the Kopaonik Mt, and about 1,600 species at 600 sq km on the Durmitor Mt.);
- Gorges and canyons, as the most important refugial centers for relict and endemics species (in the canyon of the Lazareva Reka in eastern Serbia, in the area of only 10 sq km, 720 species of vascular plants were recorded);

- Remaining steppes and sands of Vojvodina (in the Deliblato Sands, in the area of 300 sq km, about 900 taxa of vascular flora have been recorded and in Subotica-Horgoš's Sands in the area of 250 sq km, 515 species have been found);
- Swamps, marches and ponds in the region of Vojvodina (including 3 of 4 Ramsar sites in Yugoslavia, see below), and some other wetland habitats (particularly important for rich bird fauna);
- Mountain bogs around mountain and glacial lakes;
- Preserved forest communities of the different types (particularly specific polydominantly structured forest of Tertiary origin);
- Karst regions in most of Montenegro and several parts of Serbia (SW and E), with its numerous caves and pits, supporting exceedingly rich fauna of predominantly stenoendemic taxa of various underground invertebrates (many of these regions correspond to the hot-spot areas of other kinds – mountains, canyons, heavy forests, etc.);
- Coastal and inland saline lands and sea shore sands (particularly the site "Velika Plaža" near the city of Ulcinj – the strip of more than 12 km long sandy beach and characteristic set of hinterland habitats).

2. THREATS AND RISKS TO BIODIVERSITY IN FRY

There are various forms and kinds of documented or potential threats to biodiversity in Yugoslavia, as well as marked differences with respect to threat status of various groups of biota and their specific habitats. Comprehensive treatment of this issue is presented in the reference book *Biodiversity of Yugoslavia with Survey of Internationally Important Species* (STEVANOVIĆ, VASIĆ & Eds.?, 1995), wherein around 1,600 wild plants and animal species of international significance (c.f. "Code of Practice ..." – ECE/UN, 1992) are listed for the territory of FR Yugoslavia. Also, a comprehensive and updated treatment of the endangered vascular flora in Serbia is given in the first volume of *The Red Data Book of Flora of Serbia* (STEVANOVIĆ & Ed.?, 1999), based on the new IUCN categories and criteria; therefore, a summary review of endangered higher plants is included below, as representative (=best documented) example of general trends for most groups of biota in Yugoslavia.

The rich and heterogeneous flora of Yugoslavia and the Balkan Peninsula is extremely fragile and vulnerable with respect to extent of negative antropo-zoogenic influences. However, our recent preliminary researches corrected the previous indications, that 20% of flora of Yugoslavia is threatened (STEVANOVIĆ et al. 1995). Fortunately, the majority of threatened plants are ranked only as rare (R – according to old IUCN categories, i.e. the lowest threat category).

According to *The Red Data Book of Flora of Serbia*, there are 171 extinct (EX) and critically endangered (CR) taxa, accounting for about 5% of the total flora of Serbia. Out of these, 50 taxa (29.2%, or 1.5% of the flora of Serbia) are extinct, whereas 121 taxa (70.8%, or 3.5% of the flora of Serbia) are critically endangered. The percentage of 5% of extinct and critically endangered taxa in the flora of Serbia mostly corresponds to that of European average. However, the percentage is much lower in comparison with that of some western- and central European countries, such as Netherlands, Belgium, Switzerland, Czech Republic and Slovakia, which amounts to between 10 and 20%.

EX and CR (sub)populations are present in the greatest number in lowlands of Vojvodina and southern Pomoravlje. This is the consequence of the long-term degradation and destruction of wetlands, salt marshes, steppes, forest-steppes and sandy steppes. Human impact was most intensive in the second half of the twentieth century. Thus, judging by the high number of EX and CR taxa, the sandy steppes in Bačka, Banat and Podunavlje, wetlands in the surrounding of Belgrade, Novi Sad, Šabac, Sombor and Subotica, steppes of Fruška Gora and Titel Hill, Telečka loess plateau and the surrounding of Niš, as well as salt marshes of the Tisza River basin and southern Pomoravlje (Lalinac salt marsh) etc., are the most endangered in Serbia. The greatest number of EX populations (subpopulations) has been recorded in the surrounding of towns, such as Belgrade, Novi Sad, Niš, Bečej, Subotica, Negotin, Vranje etc., and in the lowlands of Vojvodina (Bačka, Banat and Srem) as well as in the region of the former Vlasina peat-bog, now submerged in the artificial lake (Vlasina Reservoir).

Due to complex bedrock composition and orography, the mountain regions are distinguished by varying types of habitats, and thus by general floral and vegetational diversity, whereby endemic plants, i.e. local and stenoendemic taxa as well as widely distributed montane plants, having "insular" type of distribution, are of particular importance. Consequently, CR and EX taxa of mountain regions are locally, and often disjunctly distributed, being confined to only one or a few surrounding mountains.

In comparison to lowland regions- where the destruction of natural habitats have been caused by strong human impacts such as amelioration, urbanization, irrigation, soil and water pollution - in the mountains these impacts are not expressed to such an extent or are localized. However, mountains are affected by forest clearing, burning of dwarf shrub vegetation, extensive grazing and recent expansive and uncontrolled development of tourism. Despite these human impacts, the number of 8 EX taxa in the mountain regions of Serbia is comparatively small, and represents only 16% of the total number of EX taxa in Serbia.

3. ASSESSMENT OF CONSERVATION MEASURES

Various measures, relevant for the conservation of biological diversity in Yugoslavia, were established during the previous decades, although the perception of biodiversity issues, as such, was not present until recently. Generally, the current (as well as previous) status of the legislative in biodiversity conservation may not be regarded as fully

harmonized and well-balanced, particularly regarding somewhat conflicting competencies of various government, administrative, and management actors at various levels (federal, member states and local/regional), but the real problems (like in many other countries) should be addressed to the low effectiveness in legal enforcement (the state which, in Yugoslavia, is not at all restricted to the biodiversity/environmental sector).

3.1. Yugoslav Policy and Legislation in Biodiversity Conservation

FR Yugoslavia is the signatory of the Convention on Biological Diversity since 1992, but only recently (in late 2001), CBD was finally ratified, along with some other important conventions: the Bonn Convention (1979) and the Washington – "CITES " Convention (1973). Also, Yugoslavia (as SFRY) has earlier signed and ratified some other related conventions and agreements, such as the Ramsar Convention (1975) and Convention concerning the Protection of the World Cultural and Natural Heritage (UNESCO, 1975), that stipulates list of natural heritage (the Durmitor Mt. with the Tara River canyon, the Kotor and Risan Bays in Boka Kotorska, both in Montenegro, and most recently, the Golija Mt. in Serbia, were proclaimed "UNESCO sites" in Yugoslavia), and some other documents referring to UN and specially Mediterranean countries.

Although faced with rather unfavorable political situation during the international sanctions in 1990's, republic and federal governments had initiated several projects on biodiversity in Yugoslavia, which resulted in publishing important reference books: *Biodiversity of Yugoslavia with Survey of Internationally Important Species*, *The Red Data Book of Flora of Serbia 1. Extinct and Critically Endangered Taxa* and *Identification and Categorization of Fragile Ecosystems in Yugoslavia*. Some other strategic studies have been performed or initiated, like: *Criteria for Evaluation of Applicable Potentials of Biodiversity of FR Yugoslavia*, projects for the preparation of Red Data Books of fauna, etc. Positive attitude of the country can be seen in the Resolution on Biodiversity Conservation Policy of Yugoslavia (Federal Government, 1994) that defines the base, goals and priorities of biodiversity conservation.

In accordance with Federal Constitution, the legislative concerning the management of natural resources, including the sustainable use of biodiversity, is mostly established on the republic (member states) level. In both republics, the legal basis is set by Acts on Environment Conservation (1991, 1996) that define the conservation of the biota and natural heritage. Other legal acts (books of regulations, enactments, by-laws etc.) deal with mandatory impact assessment study for various environmentally harmful activities, and with list of species under various protection regimes. There are 215 plant and 427 animal species designated (somewhat inadequately) as nature rarities in Serbia, as well as 52 plant and 314 animal species in Montenegro; further 156 plants and animals (in Serbia) are included through the control of collecting and trading. The Act of Natural Parks (1993) regulates the conservation of species and their habitats in national parks. The laws on hunting in Serbia (1991) and Montenegro (1993) define species under permanent hunting ban and by-laws deal with close seasons. The Act of Marine Fishing

(1992), together with the subordinated by-law, regulates the fishing and use of other marine organisms. Currently, draft of the new Law on the Environmental Protection in Serbia is being circulated and publicly debated; it should have a general coverage of all nature resources, including aspects of biodiversity conservation, but the comprehensive treatment of all biological resources (with supposedly reformed approach to biodiversity) is planned to be covered by the separate law.

3.2. Protected Nature Areas in Yugoslavia

Both republics developed the network of protected nature areas of different categories and protection regimes. There are ca 1,700 items, covering over 4,000,000 ha, or some 4% of the Yugoslav territory. Specially valuable objects for environmental and biodiversity protection are 9 national parks, 20 regional parks and 122 nature reserves covering over 80% of protected areas, or some 3% of the state territory. Within the national parks, there are about 40 strictly protected nature reserves. Five percent of the territory of Serbia, and around 8% of the territory of Montenegro is regulated for nature protection; the Landscape Management Plane of the Republic of Serbia (1994) projects to protect 10% of the territory by the year of 2010. A large number of nature areas in Yugoslavia is registered or nominated for attainment of international status, and 4 sites are already designated as Ramsar sites (3 in Serbia and 1 in Montenegro, coinciding with the respective national park). In 1996, the Belgrade Bureau of the National and Nature Parks of Europe was opened.

Generally, distribution of the national parks enables the representative coverage of most important and best preserved ecosystems in Yugoslavia, from Pannonian lowlands and its flooded and brim forests, marshes, steppes and continental sands, through hilly and montane region of Serbia and Montenegro, to the Mediterranean littoral and sub-littoral parts. The majority of the national parks and other strictly protected areas are in the montane parts of the country, with altitudinal span encompassing the wide range of ecosystems and landscapes along the altitudinal gradient (equivalent to the corresponding zonal biomes distributed over much larger latitudinal distances). In addition to this, the national parks include some azonal and intrazonal ecosystems and ecotones, important for sustaining of some specialized segments of biodiversity. The protected natural heritage in Yugoslavia covers only 31 caves, but primarily as specific geomorphologic features in the Carpatho-Balkan and Dinaric Karst; the protection of their rich and famous endemic fauna of troglobionts is still not adequately regulated. Some marine and brackish ecosystems are also included in the system of legal protection, and 18 littoral sand and gravel beaches are on the list of protected natural objects, but with somewhat different and more liberal protection regimes.

Table 3. Review of most important categories of Nature Protected Areas in Yugoslavia.

National Parks and World Natural Heritage Sites*	Surface Area (ha)	Number of Strict Nature Reserves
SERBIA		
Tara	19,200	12
Kopaonik	11,800	11
Fruška gora	25,393	2
Đerdap	63,500	9
Šar planina	39,000	13
MONTENEGRO		
Durmitor*	39,000	9
Biogradska gora	5,400	1
Lovćen	6,300	2
Lake Skadar	40,000	3
Kotor-Risan Bay*	15,000	-
RAMSAR SITES		
Obedska bara	9,820	
Lake Ludaško	387	
Carska bara	1,676	
Lake Skadar	40,000	

As mentioned at the beginning of Chapter 3, the existence of the protected area network and the relevant legislative do not ensure the adequate management and sufficient level of protection within the declared areas, including the highest-ranked categories. Also, any more detailed information of the protected biota, ecosystems and landscapes are largely inadequate or hardly accessible (with few exceptions).

3.3. Institutions in Biological Diversity

There is a quite a number of institutions in FR Yugoslavia engaged in various biodiversity studies and management, including conservation issues. Institutes for Nature Protection of Serbia and Montenegro, respectively, are in charge of expert evaluation and control of management of protected area and species, including the proposal of various measures and directives. Taxonomists and ecologists in scientific institutes, university centers, and natural history museums (Belgrade, Novi Sad, Niš, Kragujevac, Podgorica, Kotor, Bar), although not sufficiently numerous, are qualified and experienced for biodiversity inventory and relevant ecological case-studies (as mentioned above). However, the scientific policy in biology (and related environmental sciences) for many decades was not favorable for these basic disciplines, and the difficult financial situation in last decade (combined with numerous obstacles due to political situation in the region), greatly decreased the institutional capacity in this field.

Botanical gardens and nurseries (Belgrade, Goč, Kolašin) as well as development units within numerous forestry and agricultural organizations and even Zoos (Belgrade, Subotica) are technically equipped for ex-situ biodiversity conservation. However, the technical and personal capacity of management staff in protected areas, including public companies and non-governmental organizations, are generally not well-balanced.

Recently, there is a growing number of biodiversity related NGOs, so that their role and importance will increase. Also, there are some positive examples of fruitful cooperation of NGOs with scientific institutions and nature protection administration/management, but still there is a urgent need for promotion and improvements in this practice.

4. RECOMMENDED “STRATEGIC” STEPS

Various forms of support are needed to improve Yugoslavia's capacity to sustainably manage its natural resources, particularly in the segment of biodiversity (this Assessment principally covers native flora and fauna, and characteristic ecosystems). Some aspects of great importance for biodiversity conservation, like various pollution issues and climate change, are not specifically treated below, since these will be (or already have been) integrated into more general environmental assessments, plans, strategies and other relevant documents.

Apparently, some actions and initiatives should have higher priority, particularly regarding the general situation in Yugoslavia during previous decade, and the current developments. We propose the following set of recommendations, which should address the most important actions and needs, to be supported and assisted in due course:

4.1. Reforms of the Biodiversity Related Legislative and Management Practice

- Elementary/preliminary harmonization of the domestic legislative related to the biodiversity conservation with international standards, which should enable/include:
 - Adoption and/or implementation of various conventions, declarations and agreements (either already signed/ratified or not);
 - Internal harmonization of the biodiversity related legislative with respect to currently unbalanced state of regulations at federal (Yugoslavia), republic (member states: Serbia and Montenegro) and local levels, particularly regarding the conflicting competencies of various government, administrative, expert and management institutions and decision-makers.
- Development of national biodiversity policy, including:
 - Development of national strategies and action plans for the conservation and sustainable use of biological diversity and genetical resources;

- Updating of the environmental laws, with improved integration of biodiversity conservation issues into relevant sectoral or cross-sectoral plans, programmes and policies (particularly urgent in forestry, fisheries and agriculture sectors);
- Development and legal reinforcement of biodiversity/environmental impact assessment and biodiversity management systems;
- Development of socio-economic instruments in biodiversity policy and biodiversity funding;
- Development of mechanisms for the improved enforcement of the environmental legislative (both existing and forthcoming).
- Strengthening of the capacity and legal competencies of the national environmental/biodiversity protection agencies and their inspectorates (including institutional and financial support for establishing the programmes for their continual scientific and/or technical education and training).
- Development and implementation of a biodiversity monitoring systems and its integration in the framework of biodiversity/environmental information systems (based on extensive use of remote sensing, satellite imagery, GIS, digital mapping and other novel information technologies).
- Expanding and strengthening the protected area network and relevant legislative (revision of standards and criteria for protected area categorization and management practice).
- Expanding the reforestation programmes (including the revision of the current practice) and rehabilitation/restoration of wetlands of particular importance to biodiversity conservation (Ramsar sites, etc.)
- Supporting public participation in biodiversity-related decision-making;
- Supporting design and implementation of Local environmental action plans as tools for involving public and local communities in biodiversity conservation and protection.

4.2. Strengthening the Scientific Basis for Biodiversity Conservation

- Strengthening of the capacity of the biodiversity research and educational institutions:
 - Support for the existing institutional capacity improvement and the prosperity of the existing human resources;
 - Support for the international cooperation, training and exchange programmes for research and teaching staff;
 - Facilitation the access to scientific information (financial and other support for obtaining the relevant new books, reports, specialized publications, scientific journals, etc.);
 - Providing the financial and technical support for the adequate equipment and supply needs;
 - Reform and/or upgrading of the existing curricula in environmental education, particularly at secondary/high school and university levels.

- Support to national scientific project focused to overcome the lack of basic information on various taxonomic groups and geographical areas of particular conservation concern, including:
 - Creation/update of general species inventories, and in particular, the Red Lists and Red Data Books of threatened taxa, and revision/update of the existing ones (where necessary);
 - Detailed revision and update of the existing scientific knowledge and evidence of the most important categories of protected areas;
 - Various species- and community-level studies and programmes (including in-situ and ex-situ conservation), as well as interdisciplinary environmental research, etc.
- Support to specific scientific projects focused to:
 - Provide the more detailed and accurate information on anthropogenic threats and impacts, particularly the adverse effects on critically endangered species and specific ecosystems;
 - Establish/improve national standards in various local and regional environmental impact assessment studies;
 - Development of comprehensive monitoring programmes (with emphasis on establishing the national criteria and standards for implementation of these activities in the future).
- Development of national (and regional) biodiversity information systems and clearinghouse mechanisms (including establishment of data management for biodiversity monitoring systems); two aspects are to be emphasized in association with this objective:
 - Need for financial, educational and technical support for the implementation and extensive use of remote sensing and GIS-based technologies;
 - Development and legal reinforcement of exchange and repatriation of relevant information, from all publicly available (and publicly financed) sources.
- Establishment of National Biodiversity Network, which should incorporate and promote some of the most important objectives and incentives from the above points (listed in chapter 4.2.).
- Facilitation and support to development of regional (transboundary) and international scientific project and cooperative initiatives in biodiversity conservation, focused on wide range of scientific topics (from basic taxonomic, biogeographical and ecological studies on taxa and areas of common interest to several parties, to interdisciplinary case-studies, restoration, rehabilitation and reintroduction programmes - in-situ and ex-situ conservation, etc.).

4.3. Public Awareness and Related Issues

- Encouragement and strengthening of NGO network related to biodiversity issues.

- Promotion of awareness and understanding of biodiversity and its sustainable use (including development of specific educational and public awareness programmes), particularly in areas of great importance and value (protected areas of various categories, habitats of the critically endangered species, etc.), as well as in sectors which inevitably bear conflicting interests (fisheries and hunting, forestry and forest industry, tourism and "ecotourism", energetic and transport systems, etc.).
- Encouragement of cooperation between governmental authorities, state-owned economy systems (energetics, transport, water-management, forestry, agriculture, etc.) and the private sector to develop sustainable use of biological resources.

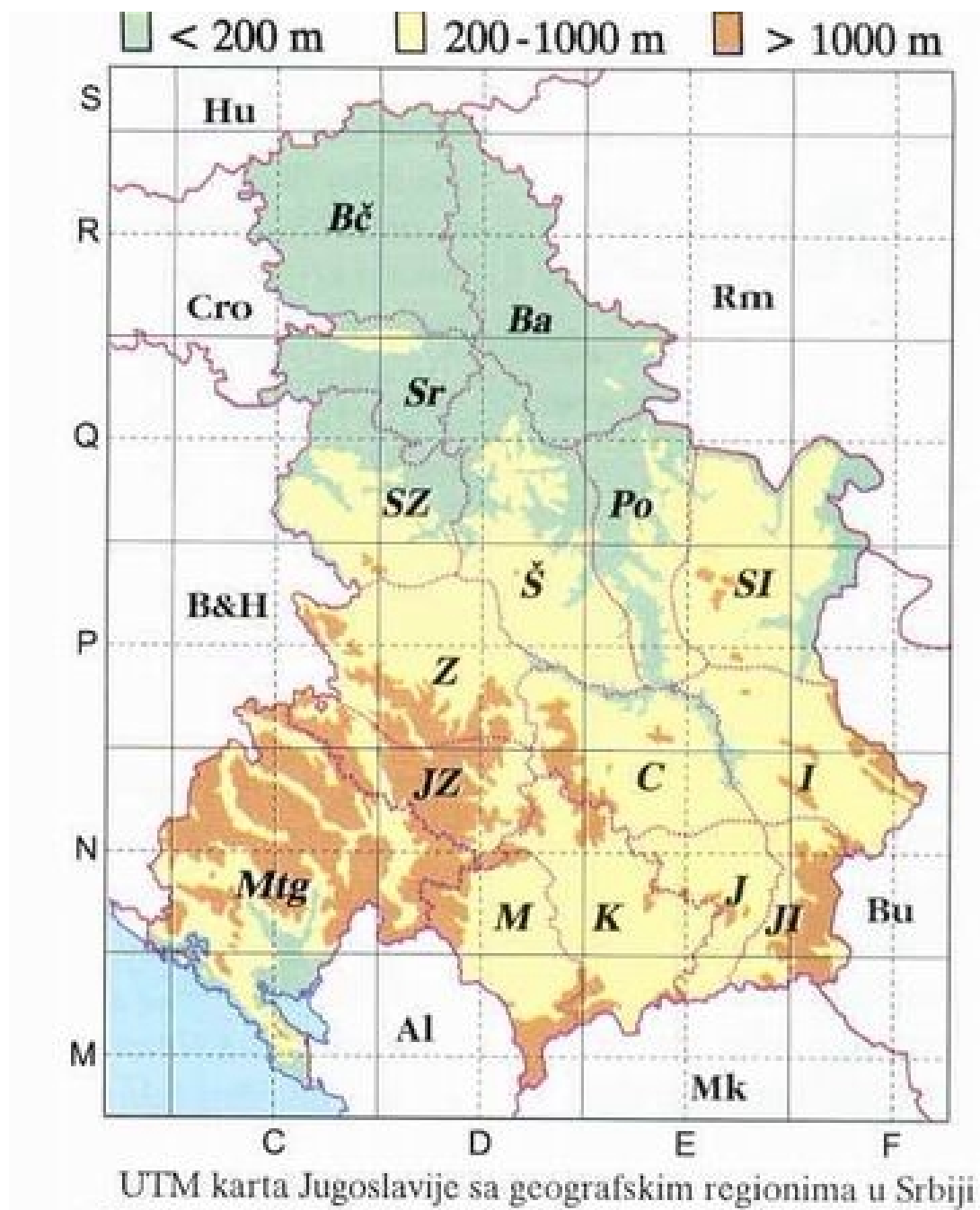
CONCLUDING REMARK TO CHAPTER 4: Some of the above mentioned "strategic steps" are already in process of implementation and/or development, but it seems that substantial support would be necessary to achieve the appropriate/desired objectives and effectiveness in a reasonably short period.

Appendix 3

Topography of FRY

Appendix 3

Topography of FRY

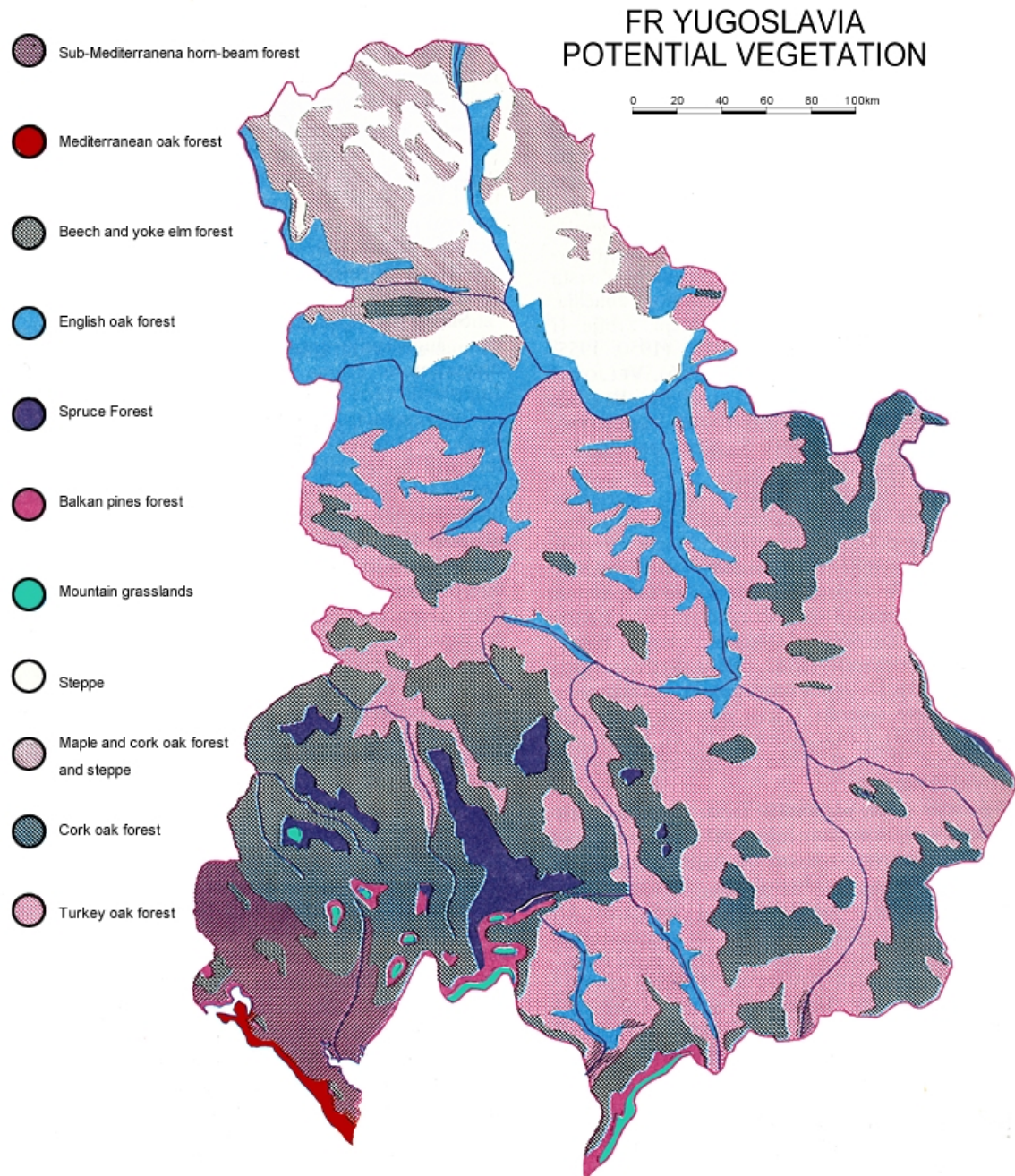


Appendix 4

Potential Vegetation of the FRY

Appendix 4

Potential Vegetation of the FRY



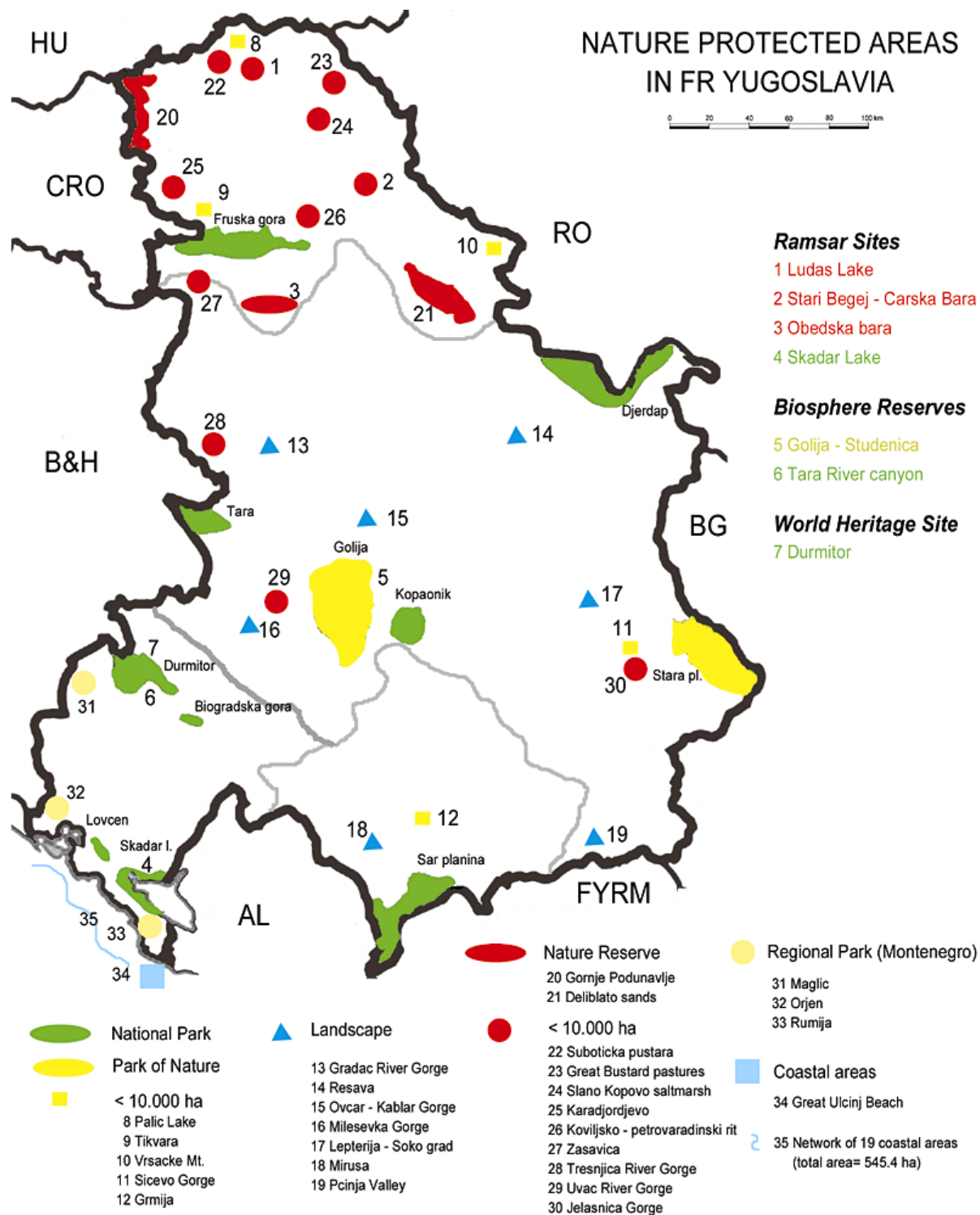
Source: Stevanovic, V., Jovanovic, S., Lakusic, D. (1995): Vegetation diversity in Yugoslavia. - In: Stevanovic, V., Vasic V. (eds.): Biodiversity of Yugoslavia with the review of internationally important species. - Faculty of Biology & Ecology, Belgrade

Appendix 5

Major Protected Areas (excluding State Forest Lands) in the FRY.

Appendix 5

Major Protected Areas (excluding State Forest Lands) in the FRY.



Appendix 6

UNEP-World Conservation Monitoring Center (WCMC) List of Protected Areas in FR Yugoslavia

Appendix 6

UNEP-World Conservation Monitoring Center (WCMC) List of Protected Areas in FR Yugoslavia (Source: <http://www.unep-wcmc.org/>)

Historical Sanctuary

Name	IUCN category	Size (hectares)	Location	Date
Gradiste Memorial (Serbia)	V	40	-	1969
Kadinjaca Memorial (Serbia)	V	53	-	1973
Mackov Kamen Memorial (Serbia)	V	12	-	1976
Orasac Memorial (Serbia)	V	39	-	1970
Park Oplenac (Serbia)	V	83	-	1967
Radovanjski lug Memorial (Serbia)	V	47	-	1971
Stolice Memorial (Serbia)	V	31	-	1972
Tatkova Zemunica Memorial (Serbia)	V	370	-	1971

Landscape Park

Name	IUCN category	Size (hectares)	Location	Date
Brdo Spas kod Budve (Montenegro)	V	131	-	1968
Dolina Pcinje (Serbia)	V	2606	42,19'00N - 21,54'00E	1996

National Park

Name	IUCN category	Size (hectares)	Location	Date
Biogradska Gora (Montenegro)	II	5400	42,52'N - 19,37'E	1952
Djerdap (Serbia)	IV	63500	44,34'00N - 22,15'00E	1974
Durmitor (Montenegro)	II	32100	43,08'N - 19,03'E	1952
Fruska Gora (Serbia)	V	25000	45,09'00N - 19,35'00E	1960
Kopaonik (Serbia)	V	11800	43,17'00N - 20,48'00E	1981
Lovcen (Montenegro)	II	6400	42,22'N - 18,52'E	1952
Sar-Planina (Serbia)	II	39000	42,11'00N - 20,58'00E	1986
Skadarsko jezero (Montenegro)	II	40000	42,15'N - 19,15'E	1983
Tara (Serbia)	II	19200	43,55'00N - 19,25'00E	1981

Natural Monument

Name	IUCN category	Size (hectares)	Location	Date
Djalovica Klisura (Montenegro)	III	1600	-	1968
Djavalja varos (Serbia)	III	67	42,59'00N - 21,24'00E	1959
Homoljska potajnica (Serbia)	III	4	44,16'00N - 21,49'00E	1995
Kuprajsko vrelo (Serbia)	III	9	44,11'00N - 21,35'00E	1979
Lisine (Serbia)	III	10	44,06'00N - 21,38'00E	1974
Petnicka Pecina (Serbia)	III	8	44,14'00N - 19,56'00E	1950
Resavska pecina (Serbia)	III	11	44,04'00N - 21,38'00E	1972
Ribnica (Serbia)	III	28	44,13'00N - 20,05'00E	1977
Risovaca (Serbia)	III	16	44,18'00N - 20,35'00E	1954
Vrelo Mlave (Serbia)	III	6	44,11'00N - 21,47'00E	1979

Nature Park

Name	IUCN category	Size (hectares)	Location	Date
Grmija (Serbia)	V	1168	40,05'00N - 21,13'00E	1987
Lepterijsko-Soko grad (Serbia)	V	204	-	1969
Ozrenjske livade (Serbia)	V	826	-	1973
Palic (Serbia)	V	713	46,03'00N - 19,43'00E	1982
Palic-Ludas (Serbia)	V	6360	-	1982
Panonijska (Serbia)	V	3937	-	1975
Ponjavska (Serbia)	V	133	44,33'00N - 20,47'00E	1995
Rajac (Serbia)	V	1200	-	1963
Sicevacka klisura (Serbia)	V	7746	43,19'00N - 22,07'00E	1977
Suboticka suma (Serbia)	V	4430	46,04'N - 19,40'E	1982
Tikvara (Serbia)	V	508	45,14'00N - 19,22'00E	1996

Regional Nature Park

Name	IUCN category	Size (hectares)	Location	Date
Gornje Podunavlje (Serbia)	V	9996	45,43'N - 19,04'E	1982
Resava (Serbia)	V	10000	-	1957
Stari Begej (Serbia)	V	1327	-	1986
Veliki i Mali Strabac i Trajanova Tabla (Serbia)	V	899	-	1975

Nature Reserve

Name	IUCN category	Size (hectares)	Location	Date
Barska reka (Serbia)	Ib	79	43,18'00N - 20,46'00E	1996
Bilo (Serbia)	IV	23	43,55'00N - 19,20'00E	1950
Bosman-Sokolovac(Serbia)	Ia	296	44,36'00N - 22,00'00E	1973
Boyana (Bojana) River Delta (Serbia)	IV	19	44,38'00N - 21,42'00E	1973
Ciganski potok (Serbia)	Ib	55	44,32'00N - 22,00'00E	1970
Coka Njalta sa Pesacom (Serbia)	Ia	618	44,34'00N - 22,00'00E	1970
Crvene stene (Serbia)	Ib	46	43,55'00N - 19,22'00E	1950
Crveni potok (Serbia)	Ib	15	43,55'00N - 19,25'00E	1950
Duboka (I,II) (Serbia)	IV	66	43,54'00N - 20,51'00E	1996
Gobelja-Ostre stene (Serbia)	Ib	98	43,19'00N - 20,44'00E	1996
Golem bor (Serbia)	Ib	35	42,14'00N - 20,48'00E	1960
Golubacki grad (Serbia)	Ib	11	44,39'00N - 21,41'00E	1971
Jankove bare (Serbia)	Ib	54	43,19'00N - 20,46'00E	1996
Jelak (Serbia)	Ib	21	43,55'00N - 20,52'00E	1985
Jelasnicka klisura (Serbia)	IV	115	43,16'00N - 22,03'00E	1995
Kanjon Boljetinske Reke-Greben (Serbia)	IV	114	44,31'00N - 22,03'00E	1970
Karaula stula (Serbia)	Ib	17	43,55'00N - 19,17'00E	1961
Klisura Dervente (Serbia)	IV	200	43,57'00N - 19,21'00E	1996
Klisura Race (Serbia)	IV	381	43,55'00N - 19,30'00E	1996
Klisura Reke Resave (Serbia)	IV	2717	43,14'00N - 19,56'00E	1995
Konjska Glava-Planinski Masiv Severni K. (Serbia)	IV	25	-	1970
Kotorsko Risanski Zaliv (Montenegro)	V	12000	42,29'N - 18,38'E	1979
Koviljsko-petrova-redinski rit (Serbia)	IV	4840	45,11'00N - 20,02'00E	1996
Kozje stene (Serbia)	Ib	81	43,20'00N - 20,44'00E	1996
Lepenski vir (Serbia)	Ib	99	44,33'00N - 22,01'00E	1970
Ljuti breg (Serbia)	Ib	25	43,55'00N - 19,20'00E	1950

Name	IUCN category	Size (hectares)	Location	Date
Lojanik (Serbia)	IV	5	-	1963
Ludasko jezero (Serbia)	IV	387	46,06'00N - 19,49'00E	1982
Malinik-Područje Planine Malinik (Serbia)	IV	58	-	1959
Manastirska tapija (Montenegro)	IV	120	-	1968
Metodje (Serbia)	Ib	80	43,55'00N - 20,51'00E	1996
Mrijestiliste Ukljeve na Skadarskom jezeru (Monte)	IV	600	-	1965
Mrkonje (Serbia)	Ib	55	43,21'00N - 20,49'00E	1996
Mustafa (Serbia)	IV	80	-	1969
Obedska bara (Serbia)	IV	9820	44,43'00N - 20,01'00E	1968
Osljak (Serbia)	Ib	20	42,13'00N - 20,48'00E	1960
Panceva Oka (Montenegro)	IV	300	-	1968
Pavlovica Brod-Deo Klisure Reke Uvac (Serbia)	IV	267	-	1971
Perucac (Serbia)	Ib	190	43,57'00N - 19,23'00E	1996
Pod Gorusicom-područje Planine Tare (Serbia)	IV	12	-	1950
Popovo prase (Serbia)	Ib	30	42,12'00N - 20,51'00E	1960
Prebreza-Nalaziste Fosilnih Ostataka (Serbia)	IV	1	-	1963
Racanska Sljivovica (Serbia)	Ib	18	43,54'00N - 19,30'00E	1957
Ravniste (Serbia)	IV	138	-	1976
Rusenica (Serbia)	IV	300	42,15'00N - 20,49'00E	1955
Samokovska reka (Serbia)	Ib	67	43,17'00N - 20,47'00E	1996
Sastojina Lovora i Oleandera I.V.S. (Montenegro)	IV	40	-	1968
Selevenjske pustare (Serbia)	IV	677	46,08'00N - 19,53'00E	1996
Skadarsko lake partial (Montenegro)	IV	0	42,15'N - 19,15'E	
Somrda (Serbia)	Ib	22	44,32'00N - 21,52'00E	1970
Stari Begej-Carska bara (Serbia)	IV	1676	45,15'00N - 20,23'00E	1994
Strbacko korito (Serbia)	Ib	1048	44,37'00N - 22,17'00E	

Name	IUCN category	Size (hectares)	Location	Date
Suvo Rudiste (Serbia)	Ib	30	43,16'00N - 20,50'00E	1996
Tresnjica (Serbia)	IV	595	44,20'00N - 19,33'00E	1995
Vinatovaca (Serbia)	Ib	37	44,05'00N - 21,45'00E	1974
Vucak (Serbia)	Ib	67	43,20'00N - 20,46'00E	1996
Zelenicje-Planine Ostrozub (Serbia)	IV	42	-	1972
Zmakevski potok (Serbia)	Ib	6	43,21'00N - 19,33'00E	1996
Zvij (Serbia)	IV	691	-	1971
Zvijezda (Serbia)	V	2502	43,59'00N - 19,15'00E	1971

Explanation of IUCN Category Classification

The IUCN system is comprised of six main categories for protected areas. Their definitions, described below are from the IUCN publication “Guidelines for Protected Area Management Categories”, 1994:

Category I Strict Nature Reserve/Wilderness Areas

Ia. Strict Nature Reserve

These are areas of land and/or sea possessing some outstanding or representative ecosystems, geological or physiological features and/or species, available primarily for scientific research and/or environmental monitoring.

Ib. Wilderness Area

This is a large area of unmodified or slightly modified land and/or sea, retaining its natural character and influence, without permanent or significant habitation, which is protected and managed so as to preserve its natural condition.

Category II National Park

This is a natural area of land and/or sea, designated to (a) protect the ecological integrity of one or more ecosystems for present and future generations, (b) exclude exploitation or occupation inimical to the purposes of designation of the area and (c) provide a foundation for spiritual, scientific, educational, recreational and visitor opportunities, all of which must be environmentally and culturally compatible.

Category III Natural Monument

This is an area containing one or more, specific natural or natural/cultural features that are of outstanding or unique value because of their inherent rarity, representative or aesthetic qualities or cultural significance.

Category IV Habitat/Species Management Area

This is an area of land and/or sea subject to active intervention for management purposes to ensure the maintenance of habitats and/or to meet the requirements of specific species.

Category V Protected Landscape/Seascape

This is an area of land, with coast and sea as appropriate, where the interaction of people and nature over time has produced an area of distinct character with significant aesthetic, ecological and/or cultural value, and often with high biological diversity. Safeguarding the integrity of this traditional interaction is vital to the protection, maintenance and evolution of such an area.

Category VI Managed Resource Protected Area

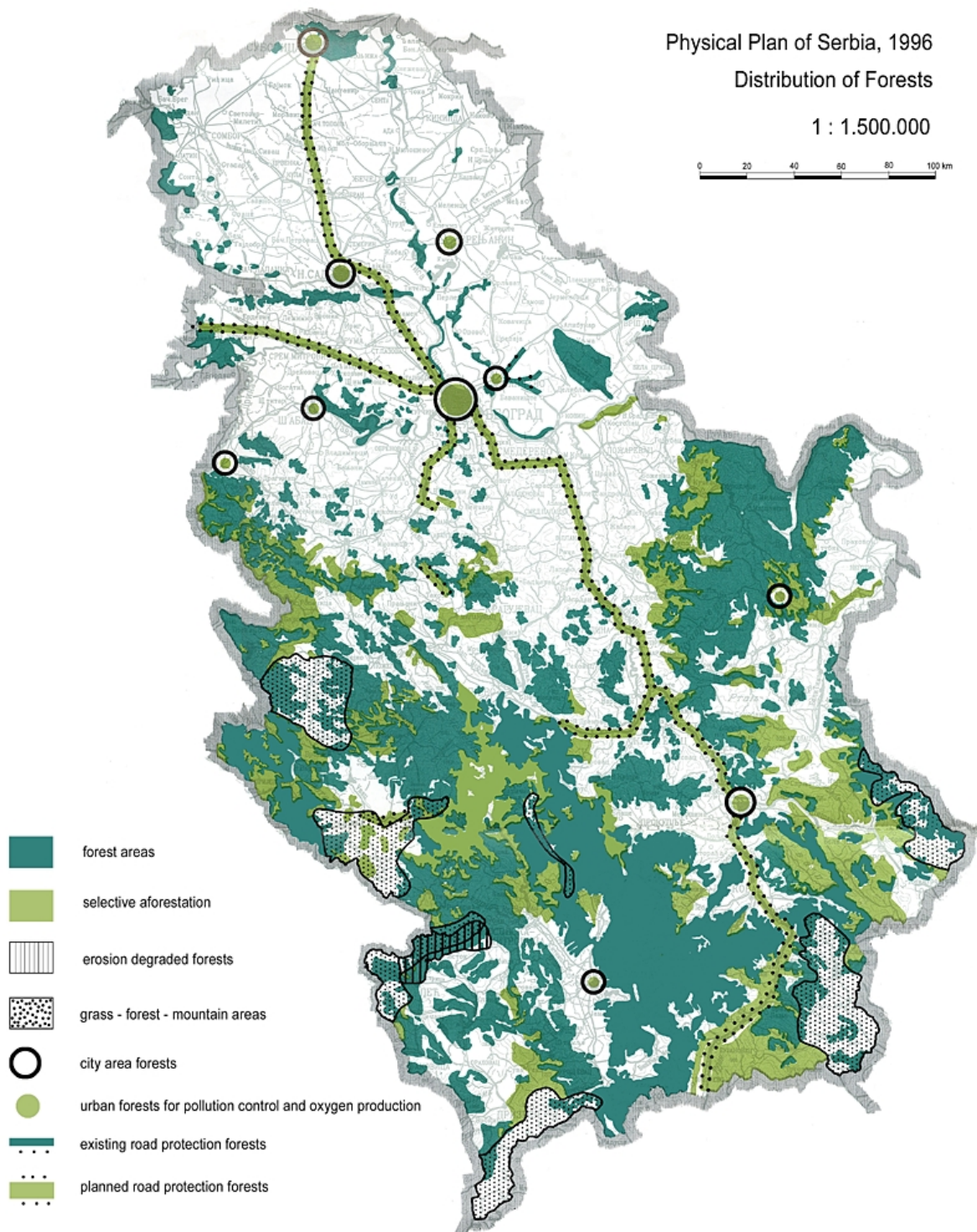
This is an area containing predominantly unmodified natural systems managed to ensure long-term protection and maintenance of biological diversity, while providing at the same time a sustainable flow of natural products and services to meet community needs.

Appendix 7

Distribution of Forests in Serbia.

Appendix 7

Distribution of Forests in Serbia.

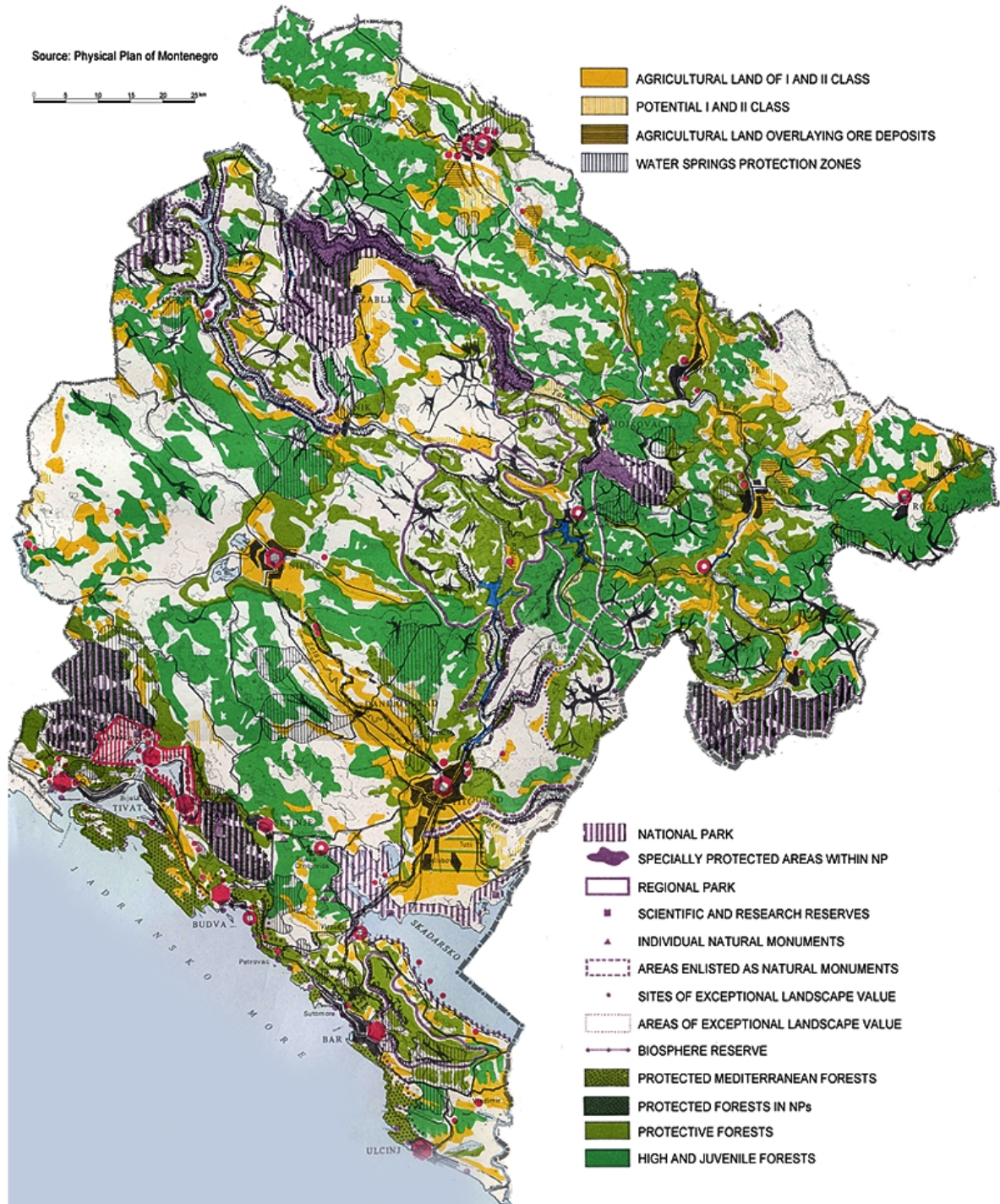


Appendix 8

Distribution of Forests in Montenegro.

Appendix 8

Distribution of Forests in Montenegro.



Appendix 9

List of Protected Species in Montenegro

Appendix 9

List of Protected Species in Montenegro

Rjesenjem Republickog zavoda za zastitu prirode
zasticeno je 50 biljnih i 314 zivotinjskih vrsta
("Sl. list SRCG" br. 36/82)

Protected Flora Species

Common (Local) Name	Name
ZLIJEZDACA	<i>Adenophora lilifolia</i> / L. / <i>Ledeb ex A.DC.</i>
LUK	<i>Allium phthioticum</i> Boiss, & <i>Heldr.</i>
BRDJANKA	<i>Arnica montana</i> L.
BALDACIJEVA LAZARKINJA	<i>Asperula baldaccii</i> / Halacsy / Ehrend
ZVJEZDAN	<i>Aster alpinus</i> L. subsp. <i>dolomiticus</i> / Beck / Hay
CRNA TRAVA	<i>Bruckenthalia spiculifolia</i> / <i>Salisb. / Rchb.</i>
SIMSIR	<i>Buxus sempervirens</i> L.
ALPSKI RAZLICKAK	<i>Centaurea alpina</i> L.
KACUNAK	<i>Colchicum hungaricum</i> Janka
BLAGAJEV JEREMICAK	<i>Daphne blagayana</i> Frey.
CRVENI JEREMICAK	<i>Daphne cneorum</i> L.
VELIKI JEREMICAK	<i>Daphne laureola</i> L.
MALIJEV JEREMICAK	<i>Daphne malyana</i> Blecic
KNAPOV KARANFIL	<i>Dianthus knappii</i> / Pant. / <i>Asch. ex Kan</i>
BALKANSKA DIOSKOREJA	<i>Dioscorea balcanica</i> Kosanin
GLISICEV ZVONCAC	<i>Edraianthus gliscii</i> Cernj & <i>Soska</i>
VETSTAJNOV ZVONCAC	<i>Edraianthus wettsteinii</i> Hal. & Bald.
USPRAVNA KOSITERNICA	<i>Ephedra major</i> Host
RUMENA CRNJUSA	<i>Erica carnea</i> L.
PLANINSKI KOTRLJAN	<i>Eryngium alpinum</i> L.
DRVENASTA MLECIKA	<i>Euphorbia dendroides</i> L.
VELEMUN	<i>Gentiana kochina</i> Perr. & <i>Song.</i>
LINCURA	<i>Gentiana lutea</i> L. ssp. <i>symphyandra</i> Murb.
SABLJICA	<i>Hermodactylus tuberosus</i> / L. /Salisb.
DALMATINSKI ZUMBUL	<i>Hyacinthella dalmatica</i> / <i>Baker / Chouard</i>
BOZIKOVINA	<i>Ilex aquifolium</i> L.

Common (Local) Name	Latin Name
RUNOLIST	<i>Leontopodium alpinum</i> Cass.
KOZONOSKA	<i>Loroglossum hircinum</i> / L. / Rich.
ALPSKA PRECICA	<i>Lycopodium alpinum</i> L.
MAJEROVA METLJIKA	<i>Myricaria ernesti-mayeri</i> Lakusic
KOSTOLOM	<i>Narthecium scardicum</i> Kosanin
MISJE UHO	<i>Omphalodes verna</i> Mch.
PCELICE	<i>Cijeli rod Ophrys</i>
KACUN	<i>Orchis simia</i> Lam.
KACUNAK	<i>Orchis cordigera</i> Fr.
BALUCKA	<i>Pancreatium maritimum</i> L.
BASINA	<i>Phagnalon rupestre</i> / L. / DC.
DEBELJCA	<i>Pinguicula balcanica</i> Casper
DIVLJA SLIVA	<i>Prunus pseudarmeniaca</i> Heldr. & Sart ex Boiss
SKADARSKI DUB	<i>Quercus robur</i> subsp. <i>scutariensis</i> Cernj.
SRPSKA RAMONDIA	<i>Ramondia serbica</i> Panc.
VELIKI PELIN	<i>Salvia brachyodon</i> Vand.
GRIZEBAHOVA KAMENIKA	<i>Saxifraga grisebachii</i> Degan & Dorfl. subsp. <i>Montenegrina</i> / Hal. & Bald. / Micevski & Mayer
KAMENIKA	<i>Saxifraga stellaris</i> L.
KRUPNOCVJETNA PUSINICA	<i>Silene macrantha</i> / Pancic / Neumayer
TISA	<i>Taxus baccata</i> L.
JABLAN	<i>Trollius europaeus</i> L.
DIVLJA LALA	<i>Tulipa grisebachiana</i> Pant.
PANCICEV ODOLJEN	<i>Valeriana pancicii</i> Hal. & Bald.
BLECICEVA VULFENIJA	<i>Wulfenia blecicii</i> Lakusic

Protected Fauna Species

Common (Local) Name	Name
INSEKTI	<i>Classis Insecta</i>
SUMSKI MRAV	<i>Formica rufa L.</i>
JELENAK	<i>Lucanus cervus L.</i>
NOSOROZAC	<i>Oryctes nasicornis L.</i>
LASTIN REPAK	<i>Papilio machaon L.</i>
JEDARCE	<i>Papilio podalirius L.</i>
SREDOZEMNI LASTIN REPAK	<i>Papilio alexanor Esp</i>
APOLONOV LEPTIR	<i>Parnassius apollo L.</i>
RIBE -	<i>Classis Pisces</i>
ZETSKA MEKOUSNA	<i>Salmothymus obtustirostris zetensis Kar.</i>
VODOZEMCI	<i>Classis Amphibia</i>
COVJECJA RIBICA	<i>Proteus anguinus Laur.</i>
ZABA CESNJARKA	<i>Pelobates fuscus Laur.</i>
VELIKA KRASTACA	<i>Bufo bufo L.</i>
ZELENA KRASTACA	<i>Bufo viridis Laur.</i>
GATALINKA	<i>Hyla arborea L.</i>
PLANINSKI MRMOLJAK	<i>Triturus alpestris Laur.</i>
VELIKI MRMOLJAK	<i>Triturus cristatus Laur.</i>
OBICNI MRMOLJAK	<i>Triturus vulgaris L.</i>
GMIZAVCI -	<i>Classis Reptilia</i>
SUMSKA KORNJACA	<i>Testudo hermanni Gm.</i>
BARSKA KORNJACA	<i>Emys orbicularis L.</i>
RJECNA KORNJACA	<i>Clemmys caspica Valen.</i>
BLAVOR	<i>Ophisaurus apodus Pall.</i>
OBICNI SLEPIC	<i>Anguis fragilis L.</i>
MOSORSKI GUSTER	<i>Lacerta mosorensis Kolomb.</i>
OSTROGLAVI GUSTER	<i>Lacerta oxycephala Dum. et Bib.</i>
ZIDNI GUSTER	<i>Lacerta muralis Laur.</i>
PLANINSKI GUSTER	<i>Lacerta vivipara Jacq.</i>
KRAISKI GUSTER	<i>Lacerta melisellensis Braun</i>
PRIMORSKI GUSTER	<i>Lacerta sicula Raf.</i>
SIVI GUSTER	<i>Lacerta agilis L.</i>
GUSTER ZELENBAC	<i>Lacerta viridis Laur.</i>
VELIKI ZELEMBAC	<i>Lacerta trilineata Bed.</i>
MEDITERANSKI GUSTER	<i>Algyroides nigropunctatus Dum. et Bib.</i>
BARSKA BJELOUSKA	<i>Tropidonotus natrix L.</i>
RIJECNA BJELOUSKA	<i>Tropidonotus tessellatus Laup.</i>
SMUKULJA	<i>Coronella austriaca Laur.</i>
PRIMORSKI SMUK	<i>Zamenis gemmonensis Laur.</i>

Common (Local) Name	Name
ZMIJA SILAC	<i>Zamenis dahlia Fitz.</i>
OBICNI SMUK	<i>Coluber longissimus Laur.</i>
SARENI SMUK	<i>Columberleopardinus Bonap.</i>
PRUGASTI SMUK	<i>Coluber quatorlineatus Lacep.</i>
MRKI SMUK	<i>Coelopeltis monspessulana Herm.</i>
PTICE	<i>Classis Aves</i>
<u>MORSKI GNJURCI</u>	<u><i>Familia Gaviidae</i></u>
MORSKI GNJURAC MALI	<i>Gavia stellata Pontopp.</i>
MORSKI GNJURAC SREDNJI	<i>Gavia arctica L.</i>
MORSKI GNJURAC VELIKI	<i>Gavia immer L.</i>
MORSKI GNJURAC ZUTOKLJUNI	<i>Gavia adamsi Gray</i>
GNJURCI	<i>Familia Podicipedidae</i>
MALI GNJURAC	<i>Podiceps ruficollis Pall.</i>
CRNOVRATI GNJURAC	<i>Podiceps nigricollis Brehm</i>
USATI GNJURAC	<i>Podiceps auritus L.</i>
RIDJOGRLI GNJURAC	<i>Podiceps griseigena Bodd.</i>
VELIKI CUBASTI GNJURAC	<i>Podiceps cristatus L.</i>
ZAVOJI	<i>Familia Procellariidae</i>
MALI ZAVOJ	<i>Puffinus puffinus Brunn.</i>
ZUTOKLJUNI ZAVOJ	<i>Procellaria diomedea Scop.</i>
PELIKANI	<i>Familia Pelecanidae</i>
BIJELI PELIKAN	<i>Pelecanus onocrotalus L.</i>
KUDRAVI PELIKAN	<i>Pelecanus crispus Bruch.</i>
KORMORANI –	<i>Familia Phalacrocoracidae</i>
VELIKI KORMORAN	<i>Phalacrocorax carbo L.</i>
CUBASTI KORMORAN	<i>Phalacrocorax aristotelis L.</i>
MALI KORMORAN	<i>Phalacrocorax pygmaeus Pall.</i>
CAPLJE	<i>Familia Ardeidae</i>
BUKAVAC	<i>Botaurus stellaris L.</i>
BUKAVCIC	<i>Ixobrychus minutus L.</i>
MALA BIJELA CAPLJA	<i>Egretta garzetta L.</i>
AFRICKA CRNA CAOLJA	<i>Egretta gularis Bosc.</i>
VELIKA BIJELA CAPLJA	<i>Egretta alba L.</i>
ZUTA CAPLJA	<i>Ardeola ralloides Scop.</i>
GAK	<i>Nycticorax nycticorax L.</i>
AFRICKA ZUTA CAPLJA	<i>Bubulcus ibis L.</i>
SIVA CAPLJA	<i>Ardea cinerea L.</i>
CRVENA CAPLJA	<i>Ardea purpurea L.</i>
RAZNJEVI	<i>Familia Threskiornithidae</i>
CRNI RAZANJ	<i>Plegadis falcinellus L.</i>
BIJELI KASIKAR	<i>Platalea leucorodia L.</i>

Common (Local) Name	Name
RODE	Familia Ciconiidae
BIJELA RODA	<i>Ciconia ciconia</i> L.
CRNA RODA	<i>Ciconia nigra</i> L.
PLOVKE	Familia Anatidae
SARENA UTVA	<i>Tadorna tadorna</i> L.
ZLATOKRILA UTVA	<i>Todorna ferruginea</i> Pall.
PLOVKA PREVEZ	<i>Netta rufina</i> Pall.
BARSUNASTI TURPAN	<i>Melanitta fusca</i> L.
CRNI TURPAN	<i>Melanitta</i> L.
SJEVERNA GAVKA	<i>Somateria mollissima</i> L.
PLOVKA LEDENJARKA	<i>Clangula hyemalis</i> L.
MALI RONAC	<i>Mergus albelus</i> L.
SREDNJI RONAC	<i>Mergus serrator</i> L.
VELIKI RONAC	<i>Mergus merganser</i> L.
BJELOGLAVA PLOVKA	<i>Oxyura leucocephala</i> Scop.
RIBARI	Familia Pandionidae
ORAO RIBAR	<i>Pandion haliaetus</i> L.
JASTREBOVI	Familia Accipitridae
JASTREB OSICAR	<i>Pernis apivorus</i> L.
CRVENKASTA LUNJA	<i>Milvus milvus</i> L.
MRKA LUNJA	<i>Milvus korschun</i> Gm.
ORAO BJELOREPAN	<i>Haliaetus albicilla</i> L.
JASTREB KOKOSAR	<i>Accipiter gentilis</i> L.
KRATKOPRSTI KOBAC	<i>Accipiter brevipes</i> Severtz.
OBICNI KOBAC	<i>Accipiter nisus</i> L.
RIDJI MISAR	<i>Buteo rufinus</i> Cretz.
OBICNI MISAR	<i>Buteo buteo</i> L.
PATULJASTI ORAO	<i>Hieraaetus pennatus</i> Gm.
PLANINSKI ORAO	<i>Hieraaetus fasciatus</i> Vieill.
ORAO KLIKTAS	<i>Aquila clanga</i> Pall.
ORAO KLOKOTAS	<i>Aquila pomarina</i> C. L. Brehm
KRALJEVSKI ORAO	<i>Aquila heliaka</i> Sav.
SURI ORAO	<i>Aquila chrysetos</i> L.
BIJELA KANJA	<i>Neophron percnopterus</i> L.
ORAO BRADAS	<i>Gypaetus barbatus</i> L.
CRNI STRVINAR	<i>Aegypius monachus</i> L.
SUP BJELOGLAVI	<i>Gyps fulvus</i> Habl.
ORAO ZMIJAR	<i>Circaetus gallicus</i> Gm.
POLJSKA EJA	<i>Circus cyaneus</i> L.
STEPSKA EJA	<i>Circus macrourus</i> Gm.
EJA LIVADARKA	<i>Circus pygargus</i> L.
EJA MOCVARICA	<i>Circus aeruginosus</i> L.
SIVA LUNJA	<i>Elanus caerus</i> ruleus Desf.

Common (Local) Name	Name
SOKOLOVI	Familia Falconidae
STEPSKI SOKO	<i>Falco cherrug</i> Grey
PLANINSKI SOKO	<i>Falco biarmicus</i> Tamm.
SIVI SOKO	<i>Falco peregrinus</i> Tunst.
SOKO LASTAVICAR	<i>Falco subbuteo</i> L.
MRKI SOKO	<i>Falco eleonora</i> Gene
MALI SOKO	<i>Falco columbarius</i> L.
SIVA VJETRUSKA	<i>Falco vespertinus</i> L.
STEPSKA VJETRUSKA	<i>Falco naumanni</i> Fleicsh.
OBICNA VJETRUSKA	<i>Falco tinnunculus</i> L.
KOKE	Familia Phasianidae
LJESTARKA	<i>Tetrastes bonasia</i> L.
VELIKI TETRIJEB - zenka	<i>Tetrao urogallus</i> L.
TETRIJEB RUZEVAC	<i>Lyrurus tetrix</i> L.
ZDRALLOVI	Familia Gruidae
SIVI ZDRAL	<i>Grus grus</i> L.
DROPLJE	Familia Otidae
VELIKA DROPLJA	<i>Otis tarda</i> L.
MALA DROPLJA	<i>Otis tetrax</i> L.
BARSKO KOKE	Familia Rallidae
BARSKI PETLOVAN	<i>Rallus aquaticus</i> L.
BARSKI PETLIC	<i>Porzana porzana</i> L.
BARSKI PETLIC SREDNJI	<i>Porzana parva</i> Scop.
MALI BARSKI PETLIC	<i>Porzana pusilla</i> Pall.
PRDAVAC	<i>Crex crex</i> L.
BARSKA KOKA	<i>Gallinula chloropus</i> L.
OSTRIGARI	Familia Haematopodidae
SARENI OSTRIGAR	<i>Haematopus ostralegus</i> L.
ZUJAVCI	Familia Charadriidae
ZUJAVAC BLATARIC	<i>Charadrius hiaticula</i> L.
ZUJAVAC SLJEPIC	<i>Charadrius dubius</i> Scop.
MORSKI ZUJAVAC	<i>Charadrius alexandrinus</i> L.
PLANINSKI ZUJAVAC	<i>Eudromias morinellus</i> L.
ZUJAVAC ZLATAR	<i>Pluvialis apricaria</i> L.
SIVI ZUJAVAC	<i>Pluvialis squatarola</i> L.
VIVAK	<i>Vanellus vanellus</i> L.
VIVAK MAMUZAR	<i>Vanellus spinosus</i> L.
SLJUKE	Familia Scolopacidae
BLATARIC PATULJAK	<i>Calidris minuta</i> Leisl.
OBICNI BLATARIC	<i>Calidris alpina</i> L.

Common (Local) Name	Name
MRKI BLATARIC	<i>Calidris ferruginea</i> Pontopp.
PRUDNIK UBOJICA	<i>Philomachus pugnax</i> L.
MRKI PRUDNIK	<i>Tringa erythropus</i> Pall.
CRVENONOGI PRUDNIK	<i>Tringa totanus</i> L.
KRIVOKLJUNI PRUDNIK	<i>Tringa stagnatilis</i> Gunn.
PRUDNIK PIJUKAVAC	<i>Tringa ochropus</i> L.
PRUDNIK MIGAVAC	<i>Tringa glareola</i> L.
MALI PRUDNIK	<i>Tringa hypoleucos</i> L.
OBICNA MULJACA	<i>Limosa limosa</i> L.
CRNOREPA MULJACA	<i>Limosa lapponica</i> L.
CARSKA SLJUKA, ZLOVREMENICA	<i>Numenius arquata</i> L.
ZLOVREMENICA TANKOKLJUNA	Numenius tenniurostris Vieill.
ZLOVREMENICA SREDNJA	<i>Numenius phaeopus</i> L.
DUGONOGI PRUDNIK	<i>Himantopus himantopus</i> L.
SABLJARKA	<i>Recurvirostra avosetta</i> L.
NOCNI POTRCI	Familia Burhinidae
NOCNI POTRK	<i>Burhinus oedicephalus</i> L.
ZIJAVCI	Familia Glareolidae
ZIJAVAC OGRALICAR	<i>Glareola pratincola</i> L.
GALEBOVI	Familia Laridae
CRNOGLAVI GALEB	<i>Larus melanocephalus</i> Temm.
MALI GALEB	<i>Larus minutus</i> Pall.
OBICNI GALEB	<i>Larus ridibundus</i> L.
SREBRNASTI GALEB	<i>Larus argentatus</i> L.
SIVI GALEB	<i>Larus canus</i> L.
MRKI GALEB	<i>Larus fuscus</i> L.
CRNA CIGRA	<i>Chlidonias niger</i> L.
BJELOKRILA CIGRA	<i>Chlidonias leucopterus</i> Temm.
BJELOBRADA CIGRA	<i>Chlidonias hybrida</i> Pall.
DEBELOKLJUNA CIGRA	<i>Galochelidon nilotica</i> Gm.
VELIKA CIGRA	<i>Hydroprogne tschegrava</i> Lep.
DUGOKLJUNA CIGRA	<i>Sterna sandvicensis</i> Lath.
OBICNA CAPLJA	<i>Sterna hirundo</i> L.
MALA CIGRA	<i>Sterna albifrons</i> Pall.
NJORKE	Familia Alcidae
MALA NJORKA	<i>Alca torda</i> L.
KUKAVICE	Familia Cuculidae
OBICNA KUKAVICA	<i>Cuculus canorus</i> L.
KUKAVICA AFRICKA	<i>Clamator glandarius</i> L.

Common (Local) Name	Name
SOVE	Familia Strigidae
VELIKA USARA	<i>Bubo bubo</i> L.
MALA USARA	<i>Asio otus</i> L.
RITSKA SOVA	<i>Asio flammeus</i> Pontopp.
CUK USATI	<i>Otus scops</i> L.
CUK GACASTI	<i>Aegolius tunereus</i> L.
CUK OBICNI	<i>Athene noctua</i> Scop.
SUMSKA SOVA	<i>Strix aluco</i> L.
DUGOREPA SOVA	<i>Strix uralensis</i> Pall.
KUKUVIJE	Familia Tytonidae
KUKUVIJA OBICNA	<i>Tyto alba</i> Scop.
LEGNJEVI	Familia Caprimulgidae
LEGANJ MRACNJAK	<i>Caprimulgus europaeus</i> L.
CIOPE	Familia Apodidae
BLIJEDA CIOPA	<i>Apus pallidus</i> Shell.
CRNA CIOPA	<i>Apus apus</i> L.
VELIKA CIOPA	<i>Apus malba</i> L.
ZLATOVRA	Familia Coraciidae
ZLATOVRA	<i>Coracias garrulus</i> L.
<u>VODOMARI ALEDINDDAE</u>	Familia Alcedinidae
VODOMAR	<i>Alcedo atthis</i> L.
PUPAVCI	Familia Upupidae
PUPAVAC, BALIN KOKOT	<i>Upupa epops</i> L.
DJETLICI	Familia Picidae
VIJOGLAVA	<i>Jynx torquilla</i> L.
ZELENA ZUNA	<i>Picus viridis</i> L.
SIVA ZUNA	<i>Picus canus</i> Gm.
CRNI DJETLIC	<i>Dryocopus martius</i> L.
VELIKI SARENI DJETLIC	<i>Dendrocopus major</i> L.
SIRIJSKI DJETLIC	<i>Dendrocopus syriacus</i> Hempr. & Ehrenb.
SREDNJI DJETLIC	<i>Dendrocopus medius</i> L.
MALI DJETLIC	<i>Dendrocopus minor</i> L.
LILIFORDOV DJETLIC	<i>Dendrocopus lilfordi</i> Sharpe & Dress.
TROPSKI DJETLIC	<i>Picoides tridactylus</i> L.
LASTE	Familia Hirundinidae
GORSKA LASTA	<i>Hirundo rupestris</i> Scop.
SEOSKA LASTA	<i>Hirundo rustica</i> L.
DAURSKA LASTA	<i>Hirundo daurica</i> L.
GRADSKA LASTA	<i>Delichon urbica</i> L.
LASTA BREGUNICA	<i>Riparia riparia</i> L.
SEVA	Familia Alaudidae
KRATKOPRSTA SEVA	<i>Calandrella cinerea</i> Gm.
VELIKA SEVA	<i>Melonocorypha calandra</i> L.
PLANINSKA SEVA	<i>Eremophila alpestris</i> L.

Common (Local) Name	Name
CUBASTA SEVA	<i>Galerida cristata L.</i>
SUMSKA SEVA	<i>Lullula arborea L.</i>
PLISKE	<i>Familia Motacillidae</i>
STEPSKA TREPTTELJKA	<i>Anthus campestris L.</i>
SUMSKA TREPTTELJKA	<i>Anthua trivialis L.</i>
LIVADSKA TREPTTELJKA	<i>Anthus pratensis L.</i>
RIDJOGRLA TREPTTELJKA	<i>Anthus cervinus Pall.</i>
PLANINSKA TREPTTELJKA	<i>Anthus spilonetta L.</i>
VELIKA TREPTTELJKA	<i>Anthus novaeseelandiae Gm.</i>
ZUTA PLISKA	<i>Motacilla flava L.</i>
PLANINSKA PLISKA	<i>Motacilla cinerea Tunst.</i>
BIJELA PLISKA	<i>Motacilla alba L.</i>
SVRACCI	<i>Familia Laniidae</i>
RUSI SVRACAK	<i>Lanius collurio L.</i>
CRVENOGLAVI SVRACAK	<i>Lanius senator L.</i>
SIVI SVRACAK	<i>Lanius minor Lm.</i>
VELIKI SVRCAK	<i>Lanius excubitor L.</i>
VUGE	<i>Familia Oriolidae</i>
VUGA ZLATNA	<i>Orolius orolius L.</i>
CVORCI	<i>Familia Sturnidae</i>
OBICNI CVORAK	<i>Sturnus vulgaris L.</i>
RUZICASTI CVORAK	<i>Pastor roseus L.</i>
VRANE	<i>Familia Corvidae</i>
GAVRAN	<i>Corvus corax L.</i>
LJESNIKARA	<i>Nucifraga caryocatactes L.</i>
CRVENOKLJUNA GALICA	<i>Pyrrhocorax pyrrhocorax L.</i>
ZUTOKLJUNA GALICA	<i>Pyrrhocorax graculus L.</i>
GACAC	<i>Corvus frugilegus L.</i>
SVILOREPE	<i>Familia Bombicillidae</i>
SVILOREPA KUGARA	<i>Bombicilla garrulus L.</i>
VODENI KOSovi	<i>Familia Cinclidae</i>
VODENI KOS	<i>Cinclus cinclus L.</i>
CARICI	<i>Familia Troglodytidae</i>
CARIC	<i>Troglodites troglodites L.</i>
POPICI	<i>Familia Prunellidae</i>
OBICNI POPIC	<i>Prunella modularis L.</i>
PLANINSKI POPIC	<i>Prunella collaris Scop.</i>
GRMUSE	<i>Familia Sylvidae</i>
SVILOREPI CVRCIC	<i>Cettia cetti Temm.</i>
SEVARSKI CVRCIC	<i>Lisciniola melanopogon Temm.</i>
TRSTENJAK ISTOCNJEK	<i>Acrocephalus paludicola Vieill.</i>
TRSTENJAK ROGOZAR	<i>Acrocephalus schoenobaenus L.</i>
TRSTENJAK MLAKAR	<i>Acrocephalus palustris Bechst.</i>

Common (Local) Name	Name
TRSTENJAK CVRKUTIC	<i>Acrocephalus scirpaceus</i> Herm.
VELIKI TRSTENJAK	<i>Acrocephalus arundinaceus</i> L.
ZUTI VOLJIC	<i>Hippolais icterina</i> Vieill.
KRATKOKRILI VOLJIC	<i>Hippolais polyglota</i> Vieill.
VOLJIC MASLINAR	<i>Hippolais olivetorum</i> Strick.
SIVI VOLJIC	<i>Hippolais pallida</i> Hempr. & Ehrenb.
PIRGASTA GRMUSA	<i>Sylvia nisoria</i> Bechst.
GRMUSA SMOKVARICA	<i>Sylvia hortensis</i> Gm.
VRTNA GRMUSA	<i>Sylvia borin</i> Bodd.
CRNOGLAVA GRMUSA	<i>Sylvia atricapilla</i> L.
OBICNA GRMUSA	<i>Sylvia communis</i> Lath.
GRMUSA CEVRLJINKA	<i>Sylvia curruca</i> L.
CRNOREPA GRMUSA	<i>Sylvia melanocephala</i> Gm.
RIDJOGRLA GRMUSA	<i>Sylvia cantillans</i> Pall.
ZVIZDAK KOVACIC	<i>Phylloscopus trochilus</i> L.
GORSKI ZVIZDAK	<i>Phylloscopus boneli</i> Vieill.
OBICNI ZVIZDAK	<i>Phylloscopus collybita</i> Vieill.
SUMSKI ZVIZDAK	<i>Phylloscopus sibilatrix</i> Bechst.
KRALJICI	Familia Regulidae
OBICNI KRALJIC	<i>Regulus regulus</i> L.
VRTOGLAVI KRALJIC	<i>Regulus ignicapillus</i> Tem.
MUHARICE	Familia Muscicapidae
SARENA MUHARICA	<i>Ficedula hypoleuca</i> Pall.
BJELOVRATA MUHARICA	<i>Ficedula albicollis</i> Temm.
MALA MUHARICA	<i>Ficedula parva</i> Bechst.
SIVA MUHARICA	<i>Muscicapa striata</i> Pall.
Common (Local) Name	Name
DROZDOVI	Familia Turdidae
DUGOREPA GRMUSA	<i>Cercotrichas galactotes</i> Temm.
OBICNA TRAVARKA	<i>Saxicola rubetra</i> L.
CRNOGLAVA TRAVARKA	<i>Saxicola torquata</i> L.
OBICNA BJELKA	<i>Oenanthe oenanthe</i> L.
MEDITERANSKA BJELKA	<i>Oenanthe hispanica</i> L.
DROZD KAMENJAR	<i>Monticola saxatilis</i> L.
DROZD MODRULJ	<i>Monticola solitarius</i> L.
CRVENDAC	<i>Erithacus rubecula</i> L.
PLANINSKA CRVENREPKA	<i>Phoenicurus ochruros</i> Gm.
OBICNA CRVENREPKA	<i>Phoenicurus phoenicurus</i> L.
MALI SLAVUJ	<i>Luscinia megarhynchos</i> C. L. Brehm
MODOVOLJKA	<i>Luscinia svecica</i> L.

Common (Local) Name	Name
DROZD BRANJUG	<i>Turdus pilaris L.</i>
DROZD OGLICAR	<i>Turdus torquatus L.</i>
KOS	<i>Turdus merula L.</i>
DROZD CRVENIH POTKRILA	<i>Turdus iliacus L.</i>
DROZD PJEVAC	<i>Turdus philomelos C. L. Brehm</i>
DROZD IMELAS	<i>Turdus viscivorus L.</i>
TIMALIJE	<i>Familia Timalinae</i>
BRKATA SJENICA	<i>Panurus biarmicus L.</i>
DUGOREPE SJENICE	<i>Familia Aegithalidae</i>
DUGOREPA SJENICA	<i>Aegithalos caudatus L.</i>
SJENICE	<i>Familia Paridae</i>
PLANINSKA SIVA SJENICA	<i>Parus montanus Bald.</i>
OBICNA SIVA SJENICA	<i>Parus palustris L.</i>
MEDITERANSKA SJENICA	<i>Parus lugubris Temm.</i>
CUBASTA SJENICA	<i>Parus cristatus L.</i>
JELOVA SJENICA	<i>Parus ater L.</i>
SJENICA PLAVIC	<i>Parus caeruleus L.</i>
VELIKA SJENICA	<i>Parus major L.</i>
BRGLJEZI	<i>Familia Sittidae</i>
BAGLJEZ PUZAVAC	<i>Sitta europea L.</i>
BAGLJEZ KAMENJAR	<i>Sitta neumayer Michah</i>
PUZGAVCI	<i>Familia Tichodromadidae</i>
PUZGAVAC	<i>Tichodroma muraria L.</i>
PUZICI	<i>Familia Certhiidae</i>
KRATKOKLJUNI PUZIC	<i>Certhia familiaris L.</i>
DUGOKLJUNI PUZIC	<i>Certhia brachydactyla C. L. Brehm</i>
BIJELE SJENICE	<i>Familia Remizidae</i>
BIJELA SJENICA	<i>Remiz pendulinus L.</i>
TKALJE	<i>Familia Ploceidae</i>
DOMACI VRABAC	<i>Passer domesticus L.</i>
SPANSKI VRABAC	<i>Passer hispaniolensis Temm.</i>
POLJSKI VRABAC	<i>Passer montanus L.</i>
VRABAC KAMENJAR	<i>Passer petronia L.</i>
SNIJEZNA VRABAC	<i>Montifringilla nivalis L.</i>
ZEBE	<i>Familia Fringillidae</i>
OBICNA ZEBA	<i>Fringilla coelebs L.</i>
PLANINSKA ZEBA	<i>Fringilla montifringilla L.</i>
DIVLJA KANARINKA	<i>Serinus serinus L.</i>
ZELENTARKA	<i>Carduelis chloris L.</i>
CIZAK	<i>Carduelis spinus L.</i>
STIGLIC	<i>Carduelis carduelis L.</i>
KONOPLJARKA	<i>Achanthis canabina L.</i>
KRSTOKLJUN	<i>Loxia curvirostra L.</i>
ZAMOVKA	<i>Pyrrhula pyrrhula L.</i>

Common (Local) Name	Name
TRESNJAR	<i>Coccothraustes coccothraustes L.</i>
STRNADICE	<i>Familia Emberizidae</i>
VELIKA STRNADICA	<i>Emberiza calandra L.</i>
OBICNA STRNADICA	<i>Emberiza citrinella L.</i>
PLANINSKA STRNADICA	<i>Emberiza cia L.</i>
VRTNA STRNADICA	<i>Emberiza hortulana L.</i>
CRNOGRLA STRNADICA	<i>Emberiza cirlus L.</i>
CRNOGLAVA STRNADICA	<i>Emberiza melanocephala Scop.</i>
MOCVARNA STRNADICA	<i>Emberiza schoeniclus L.</i>
SISARI	<i>Classis Mammalia</i>
SIJEPI MISEVI - sve vrste koje zive na teritoriji Crne Gore	<i>Red Chiroptera</i>
GLODARI	<i>Red Rodentia</i>
SLIJEPO KUČE	<i>Spalax leucodon Nordmann</i>
<u>MESOZDERI</u>	<i>Red Carnivora</i>
HERMELIN	<i>Mustella erminea L.</i>
VIDRA	<i>Lutra lutra L.</i>
KITOVİ	<i>Red Cetacea</i>
SREDOZEMNA MEDVJEDICA	<i>Monachus monachus.</i>

Appendix 10

List of Endangered Species: IUCN Red List for Yugoslavia

Appendix 10

List of Endangered Species: IUCN Red List for Yugoslavia

#	[Scientific Name]	Common Name(s)	Red List
1	Acipenser gueldenstaedtii (Black Sea stock)	RUSSIAN STURGEON (E)	EN A1acde
2	Acipenser naccarii	ADRIATIC STURGEON (E) ESTURGEON DE L'ADRIATIQUE (F) ESTURIÓN DEL ADRIÁTICO (S)	VU A1ac
3	Acipenser ruthenus (Caspian and Black Sea drainage stock)	STERLET (E)	VU A1cd
4	Acipenser ruthenus	STERLET (E)	VU A1c+2d
5	Acipenser stellatus (Black Sea stock)	STELLATE STURGEON (E)	EN A1acde+2d
6	Acipenser stellatus	STAR STURGEON (E) STELLATE STURGEON (E) ESTURGEON ÉTOILÉ (F) ESTURIÓN ESTRELLADO (S)	EN A2d
7	Acipenser sturio	BALTIC STURGEON (E) COMMON STURGEON (E) ESTURGEON COMMUN (F) ESTURIÓN COMÚN (S)	CR A2d
8	Acrocephalus paludicola	AQUATIC WARBLER (E)	VU A1c+2c
9	Aeshna viridis		LR/nt
10	Alosa fallax	TWAIT SHAD (E) TWAITE SHAD (E)	DD
11	Alosa pontica		DD
12	Aphanius fasciatus	SOUTH EUROPEAN TOOTHCARP (E)	DD
13	Aquila heliaca	IMPERIAL EAGLE (E) AIGLE IMPÉRIAL (F) AGUILA IMPERIAL ORIENTAL (S) AGUILA IMPERIAL (S)	VU C1
14	Aspius aspius	ASP (E)	DD
15	Astacus astacus	NOBLE CRAYFISH (E)	VU B2bce+3bcd
16	Atherina boyeri		DD
17	Austropotamobius pallipes	WHITE-CLAWED CRAYFISH (E)	VU B2bce+3bcd

#	[Scientific Name]	Common Name(s)	Red List
18	Austropotamobius torrentium	STONE CRAYFISH (E)	VU B2bce+3bcd
19	Aythya nyroca	FERRUGINOUS DUCK (E) FERRUGINOUS POCHARD (E) WHITE-EYED POCHARD (E) FULIGULE NYROCA (F) PORRÓN PARDO (S)	LR/nt
20	Barbastella barbastellus	WESTERN BARBASTELLE (E)	VU A2c
21	Bombina bombina	EUROPEAN FIRE-BELLIED TOAD (E)	LR/cd
22	Buprestis splendens	GOLDSTREIFIGER (E)	VU A1c
23	Carabus intricatus	BLUE GROUND BEETLE (E)	LR/nt
24	Carassius carassius (European subpopulation)	CRUCIAN CARP (E)	LR/nt
25	Chalcalburnus chalcoides	DANUBE BLEAK (E)	DD
26	Chondrostoma scodrensis		CR A1a , B1+2e
27	Cobitis elongata	BALKAN LOACH (E)	DD
28	Coenagrion mercuriale	SOUTHERN DAMSELFLY (E)	VU A2c
29	Crex crex	CORN CRAKE (E) CORNCRAKE (E) RÂLE DES GENÊTS (F)	VU A2c
30	Cucujus cinnaberinus		VU A1c
31	Cyprinus carpio (River Danube subpopulation)	WILD COMMON CARP (E)	CR A2ce
32	Cyprinus carpio	WILD COMMON CARP (E)	DD
33	Dinaromys bogdanovi	BALKAN SNOW VOLE (E)	LR/nt
34	Dryomys nitedula	FOREST DORMOUSE (E)	LR/nt
35	Elaphe situla	LEOPARD SNAKE (E)	DD
36	Emys orbicularis	EUROPEAN POND TURTLE (E) CISTUDE D'EUROPE (F)	LR/nt
37	Eoleptestheria spinosa		VU B1+2bcd+3c
38	Eriogaster catax		DD
39	Eudontomyzon danfordi	CARPATIAN BROOK LAMPREY (E)	LR/nt

#	[Scientific Name]	Common Name(s)	Red List
40	Eudontomyzon mariae	UKRANIAN BROOK LAMPREY (E)	DD
41	Eudontomyzon vladykovi	VLADYKOV'S LAMPREY (E)	LR/nt
42	Falco naumanni	LESSER KESTREL (E) FAUCON CRÉCERELLETTE (F) CERNÍCALO PRIMILLA (S)	VU A1bce+2bce
43	Formica aquilonia		LR/nt
44	Formica lugubris		LR/nt
45	Formica polyctena	EUROPEAN RED WOOD ANT (E)	LR/nt
46	Formica pratensis var. nigricans	EUROPEAN RED WOOD ANT (E)	LR/nt
47	Formica rufa	RED WOOD ANT (E)	LR/nt
48	Glis glis	FAT DORMOUSE (E)	LR/nt
49	Gobio albipinnatus	WHITE-FINNED GUDGEON (E)	DD
50	Gobio kessleri	KESSLER'S GUDGEON (E)	DD
51	Gobio uranoscopus	DANUBE GUDGEON (E)	DD
52	Graphoderus bilineatus		VU B1+2ac
53	Gymnocephalus baloni	BALON'S RUFFE (E)	DD
54	Gymnocephalus schraetzer	SCHRAETZER (E) STRIPED RUFFE (E)	VU A1ace
55	Haliaeetus albicilla	GREY SEA EAGLE (E) WHITE-TAILED EAGLE (E) PYGARGUE COMMUN (F) PYGARGUE À QUEUE BLANCHE (F) PIGARGO COLIBLANCO DE GROENLANDIA (S) PIGARGO COLIBLANCO (S) PIGARGO EUROPEO (S)	LR/nt
56	Hirudo medicinalis	MEDICINAL LEECH (E) SANGSUE MÉDICINALE (F) SANGSUE OFFICINALE (F)	LR/nt
57	Hucho hucho	DANUBE SALMON (E) HUCHEN (E)	EN A2bcde B1+2bce
58	Huso huso (Black Sea stock)	BELUGA (E)	EN A1acde+2d

#	[Scientific Name]	Common Name(s)	Red List
59	Huso huso	BELUGA (E, F, S) EUROPEAN STURGEON (E) GIANT STURGEON (E) GREAT STURGEON (E)	EN A2d
60	Hyla arborea	EUROPEAN COMMON TREE FROG (E) EUROPEAN TREE FROG (E) RAINETTE VERTE (F)	LR/nt
61	Hyles hippophaes		DD
62	Hypodryas maturna	SCARCE FRITILLARY (E)	DD
63	Imnadia banatica		VU D2
64	Imnadia cristata		VU D2
65	Imnadia panonica		VU D2
66	Knipowitschia panizzae		DD
67	Lutra lutra	COMMON OTTER (E) EURASIAN OTTER (E) EUROPEAN RIVER OTTER (E) OLD WORLD OTTER (E) LOUTRE COMMUNE (F) LOUTRE D'EUROPE (F) LOUTRE DE RIVIÈRE (F) NUTRIA COMÚN (S)	VU A2cde
68	Lycaena dispar	LARGE COPPER (E)	LR/nt
69	Lycaena ottomanus		VU A1ac
70	Maculineaalcon	ALCON LARGE BLUE (E)	LR/nt
71	Maculinea arion	LARGE BLUE (E)	LR/nt
72	Maculinea nausithous	DUSKY LARGE BLUE (E)	LR/nt
73	Maculinea teleius	SCARCE LARGE BLUE (E)	LR/nt
74	Micromys minutus	HARVEST MOUSE (E)	LR/nt
75	Microtus felteni		LR/nt
76	Microtus thomasi		LR/nt
77	Misgurnus fossilis	WEATHERFISH (E)	LR/nt

#	[Scientific Name]	Common Name(s)	Red List
78	Monachus monachus	MEDITERRANEAN MONK SEAL (E) PHOQUE-MOINE MÉDITERRANÉEN (F)	CR C2a
79	Morimus funereus		VU A1c
80	Mus spicilegus	STEPPE MOUSE (E)	LR/nt
81	Muscardinus avellanarius	COMMON DORMOUSE (E) HAZEL DORMOUSE (E)	LR/nt
82	Myotis bechsteini	BECHSTEIN'S BAT (E)	VU A2c
83	Myotis capaccinii	LONG-FINGERED BAT (E)	VU A2c
84	Myotis emarginatus	GEOFFROY'S BAT (E)	VU A2c
85	Myotis myotis	GREATER MOUSE-EARED BAT (E) LARGE MOUSE-EARED BAT (E)	LR/nt
86	Myrmecoxenus gordiagini		VU D2
87	Nannospalax leucodon		VU D2
88	Neogobius fluviatilis		DD
89	Neogobius gymnotrachelus		DD
90	Neogobius kessleri	KESSLER'S GOBY (E)	DD
91	Niphargus hrabei		VU B1+2bcde
92	Niphargus valachicus		VU B1+2bcde
93	Numenius tenuirostris	LONG-BILLED CURLEW (E) SLENDER-BILLED CURLEW (E) COURLIS À BEC GRÊLE (F) ZARAPITO FINO (S)	CR C2b, D
94	Nyctalus lasiopterus	GIANT NOCTULE (E)	LR/nt
95	Nyctalus leisleri	LESSER NOCTULE (E)	LR/nt
96	Ohrdohauffenia drimica		EX
97	Orthotrichum scanicum		VU A1ce
98	Osmoderma eremita	HERMIT BEETLE (E)	VU A1c

#	[Scientific Name]	Common Name(s)	Red List
99	Otis tarda	GREAT BUSTARD (E) GRANDE OUTARDE (F) OUTARDE BARBUE (F) AVUTARDA EUROASIÁTICA (S) AVUTARDA (S)	VU A2c
100	Pachychilon pictum	ALBANIAN ROACH (E)	LR/nt
101	Parnassius apollo	APOLLO BUTTERFLY (E) APOLLO (E) MOUNTAIN APOLLO (E) APOLO (S) MARIPOSA APOLLO (S)	VU A1cde
102	Pelecanus crispus	DALMATIAN PELICAN (E) PÉLICAN DALMATE (F) PÉLICAN FRISÉ (F) PELÍCANO CEÑUDO (S) PELÍCANO RIZADO (S)	LR/cd
103	Pelecus cultratus	ZIEGE (E)	DD
104	Phalacrocorax pygmeus	PYGMY CORMORANT (E)	LR/nt
105	Pinus peuce		LR/nt
106	Platyta maaseni		DD
107	Pomatoschistus canestrinii	CANESTRINI'S GOBY (E)	DD
108	Rhinolophus blasii	BLASIUS' HORSESHOE BAT (E)	LR/nt
109	Rhinolophus euryale	MEDITERRANEAN HORSESHOE BAT (E)	VU A2c
110	Rhinolophus ferrumequinum	GREATER HORSESHOE BAT (E)	LR/nt
111	Rhinolophus hipposideros	LESSER HORSESHOE BAT (E)	VU A2c
112	Rhinolophus mehelyi	MEHELY'S HORSESHOE BAT (E)	VU A2c
113	Rosalia alpina	ROSALIA LONGICORN (E)	VU A1c
114	Sabanejewia aurata	GOLDSIDE LOACH (E)	DD
115	Saga pedo	PREDATORY BUSH CRICKET (E)	VU B1+2bd
116	Salmo dentex		DD
117	Salmo marmoratus		DD
118	Salmo montenegrinus		DD
119	Salmothymus obtusirostris	ADRIATIC SALMON (E)	EN A1ace

#	[Scientific Name]	Common Name(s)	Red List
120	Sciurus vulgaris	RED SQUIRREL (E)	LR/nt
121	Sicista subtilis	SOUTHERN BIRCH MOUSE (E)	LR/nt
122	Spermophilus citellus	EUROPEAN SOUSLIK (E) EUROPEAN SQUIRREL (E)	VU A1c
123	Stizostedion volgensis	VOLGA ZANDER (E)	DD
124	Syngnathus abaster		DD
125	Tetrax tetrax	LITTLE BUSTARD (E) OUTARDE CANEPETIÈRE (F) SISÓN (S)	LR/nt
126	Theodoxus transversalis		DD
127	Triturus dobrogicus	DANUBE CRESTED NEWT (E)	DD
128	Troglocaris anophthalmus		VU B1+2cde
129	Umbra krameri	EUROPEAN MUD-MINNOW (E)	VU A1ace
130	Vipera ursinii	MEADOW VIPER (E) ORSINI'S VIPER (E) VIPÈRE D'ORSINI (F) VIPÈRE DES STEPPES (F)	EN A1c+2c
131	Vormela peregusna ssp. peregusna	EUROPEAN MARBLED POLECAT (E)	VU A1cd
132	Zingel streber	STREBER (E)	VU A1ce+2ce
133	Zingel zingel	ZINGEL (E)	VU A1ce+2ce
134	Zosterisessor ophiocephalus		DD

Citation: Hilton-Taylor, C. (compiler) 2000. *2000 IUCN Red List of Threatened Species*. IUCN, Gland, Switzerland and Cambridge, UK. xviii + 61pp. Downloaded on **09 May 2001**.

2000 IUCN RED LIST FOR BULGARIA AND CLASSIFICATION DEFINITIONS

EXTINCT (EX) - A taxon is Extinct when there is no reasonable doubt that the last individual has died.

EXTINCT IN THE WILD (EW) - A taxon is Extinct in the wild when it is known only to survive in cultivation, in captivity or as a naturalised population (or populations) well outside the past range. A taxon is presumed extinct in the wild when exhaustive surveys in known and/or expected habitat, at appropriate times (diurnal, seasonal, annual), throughout its historic range have failed to record an individual. Surveys should be over a time frame appropriate to the taxon's life cycle and life form.

CRITICALLY ENDANGERED (CR) - A taxon is Critically Endangered when it is facing an extremely high risk of extinction in the wild in the immediate future, as defined by any of the criteria (A to E) as described below.

ENDANGERED (EN) - A taxon is Endangered when it is not Critically Endangered but is facing a very high risk of extinction in the wild in the near future, as defined by any of the criteria (A to E) as described below.

VULNERABLE (VU) - A taxon is Vulnerable when it is not Critically Endangered or Endangered but is facing a high risk of extinction in the wild in the medium-term future, as defined by any of the criteria (A to E) as described below.

LOWER RISK (LR) - A taxon is Lower Risk when it has been evaluated, does not satisfy the criteria for any of the categories Critically Endangered, Endangered or Vulnerable. Taxa included in the Lower Risk category can be separated into three subcategories:

Conservation Dependent (cd). Taxa which are the focus of a continuing taxon-specific or habitat-specific conservation programme targeted towards the taxon in question, the cessation of which would result in the taxon qualifying for one of the threatened categories above within a period of five years.

Near Threatened (nt). Taxa which do not qualify for Conservation Dependent, but which are close to qualifying for Vulnerable.

Least Concern (lc). Taxa which do not qualify for Conservation Dependent or Near Threatened.

DATA DEFICIENT (DD) A taxon is Data Deficient when there is inadequate information to make a direct, or indirect, assessment of its risk of extinction based on its distribution and/or population status. A taxon in this category may be well studied, and its biology well known, but appropriate data on abundance and/or distribution is lacking. Data Deficient is therefore not a category of threat or Lower Risk. Listing of taxa in this category indicates that more information is required and acknowledges the possibility that future research will show that threatened classification is appropriate. It is important to make positive use of whatever data are available. In many cases great care should be exercised in choosing between DD and threatened status. If the range of a taxon is suspected to be relatively circumscribed, if a considerable period of time has elapsed since the last record of the taxon, threatened status may well be justified.

NOT EVALUATED (NE) A taxon is Not Evaluated when it has not yet been assessed against the criteria.

The criteria for Critically Endangered, Endangered and Vulnerable

CRITICALLY ENDANGERED (CR)

A taxon is Critically Endangered when it is facing an extremely high risk of extinction in the wild in the immediate future, as defined by any of the following criteria (A to E):

A) Population reduction in the form of either of the following:

- 1) An observed, estimated, inferred or suspected reduction of at least 80% over the last 10 years or three generations, whichever is the longer, based on (and specifying) any of the following:
 - a) direct observation
 - b) an index of abundance appropriate for the taxon
 - c) a decline in area of occupancy, extent of occurrence and/or quality of habitat
 - d) actual or potential levels of exploitation
 - e) the effects of introduced taxa, hybridisation, pathogens, pollutants, competitors or parasites.
- 2) A reduction of at least 80%, projected or suspected to be met within the next 10 years or three generations, whichever is the longer, based on (and specifying) any of (b), (c), (d) or (e) above.

B) Extent of occurrence estimated to be less than 100 km² or area of occupancy estimated to be less than 10 km², and estimates indicating any two of the following:

- 1) Severely fragmented or known to exist at only a single location.
- 2) Continuing decline, observed, inferred or projected, in any of the following:
 - a) extent of occurrence
 - b) area of occupancy
 - c) area, extent and/or quality of habitat
 - d) number of locations or subpopulations
 - e) number of mature individuals
- 3) Extreme fluctuations in any of the following:
 - a) extent of occurrence
 - b) area of occupancy
 - c) number of locations or subpopulations
 - d) number of mature individuals

C) Population estimated to number less than 250 mature individuals and either:

- 1) An estimated continuing decline of at least 25% within three years or one generation, whichever is longer or
- 2) A continuing decline, observed, projected, or inferred, in numbers of mature individuals and population structure in the form of either:
 - a) severely fragmented (i.e. no subpopulation estimated to contain more than 50 mature individuals)
 - b) all individuals are in a single subpopulation

D) Population estimated to number less than 50 mature individuals.

E) Quantitative analysis showing the probability of extinction in the wild is at least 50% within 10 years or three generations, whichever is the longer.

ENDANGERED (EN)

A taxon is Endangered when it is not Critically Endangered but is facing a very high risk of extinction in the wild in the near future, as defined by any of the following criteria (A to E):

A) Population reduction in the form of either of the following:

- 1) An observed, estimated, inferred or suspected reduction of at least 50% over the last 10 years or three generations, whichever is the longer, based on (and specifying) any of the following:
 - a) direct observation
 - b) an index of abundance appropriate for the taxon
 - c) a decline in area of occupancy, extent of occurrence and/or quality of habitat
 - d) actual or potential levels of exploitation
 - e) the effects of introduced taxa, hybridisation, pathogens, pollutants, competitors or parasites.
- 2) A reduction of at least 50%, projected or suspected to be met within the next 10 years or three generations, whichever is the longer, based on (and specifying) any of (b), (c), (d), or (e) above.

B) Extent of occurrence estimated to be less than 5000 km² or area of occupancy estimated to be less than 500 km², and estimates indicating any two of the following:

- 1) Severely fragmented or known to exist at no more than five locations.
- 2) Continuing decline, inferred, observed or projected, in any of the following:
 - a) extent of occurrence
 - b) area of occupancy
 - c) area, extent and/or quality of habitat
 - d) number of locations or subpopulations
 - e) number of mature individuals
- 3) Extreme fluctuations in any of the following:
 - a) extent of occurrence
 - b) area of occupancy
 - c) number of locations or subpopulations
 - d) number of mature individuals

C) Population estimated to number less than 2500 mature individuals and either:

- 1) An estimated continuing decline of at least 20% within five years or two generations, whichever is longer, or
- 2) A continuing decline, observed, projected, or inferred, in numbers of mature individuals and population structure in the form of either:
 - a) severely fragmented (i.e. no subpopulation estimated to contain more than 250 mature individuals)
 - b) all individuals are in a single subpopulation.

D) Population estimated to number less than 250 mature individuals.

E) Quantitative analysis showing the probability of extinction in the wild is at least 20% within 20 years or five generations, whichever is the longer.

VULNERABLE (VU)

A taxon is Vulnerable when it is not Critically Endangered or Endangered but is facing a high risk of extinction in the wild in the medium-term future, as defined by any of the following criteria (A to E):

A) Population reduction in the form of either of the following:

- 1) An observed, estimated, inferred or suspected reduction of at least 20% over the last 10 years or three generations, whichever is the longer, based on (and specifying) any of the following:
 - a) direct observation
 - b) an index of abundance appropriate for the taxon
 - c) a decline in area of occupancy, extent of occurrence and/or quality of habitat
 - d) actual or potential levels of exploitation
 - e) the effects of introduced taxa, hybridization, pathogens, pollutants, competitors or parasites.
- 2) A reduction of at least 20%, projected or suspected to be met within the next ten years or three generations, whichever is the longer, based on (and specifying) any of (b), (c), (d) or (e) above.

B) Extent of occurrence estimated to be less than 20,000 km² or area of occupancy estimated to be less than 2000 km², and estimates indicating any two of the following:

- 1) Severely fragmented or known to exist at no more than ten locations.
- 2) Continuing decline, inferred, observed or projected, in any of the following:
 - a) extent of occurrence
 - b) area of occupancy
 - c) area, extent and/or quality of habitat
 - d) number of locations or subpopulations
 - e) number of mature individuals
- 3) Extreme fluctuations in any of the following:
 - a) extent of occurrence
 - b) area of occupancy
 - c) number of locations or subpopulations
 - d) number of mature individuals

C) Population estimated to number less than 10,000 mature individuals and either:

- 1) An estimated continuing decline of at least 10% within 10 years or three generations, whichever is longer, or
- 2) A continuing decline, observed, projected, or inferred, in numbers of mature individuals and population structure in the form of either:
 - a) severely fragmented (i.e. no subpopulation estimated to contain more than 1000 mature individuals)
 - b) all individuals are in a single subpopulation

D) Population very small or restricted in the form of either of the following:

- 1) Population estimated to number less than 1000 mature individuals.
- 2) Population is characterized by an acute restriction in its area of occupancy (typically less than 100 km²) or in the number of locations (typically less than five). Such a taxon would thus be prone to the effects of human activities (or stochastic events whose impact is increased by human activities) within a very short period of time in an unforeseeable future, and is thus capable of becoming Critically Endangered or even Extinct in a very short period.

E) Quantitative analysis showing the probability of extinction in the wild is at least 10% within 100 years.

Appendix 11

International Treaties and Conventions Applicable to Serbia and Montenegro

Appendix 11

International Treaties and Conventions Applicable to Serbia and Montenegro

There are several conventions and documents adopted by the global community which are the most significant for biodiversity preservation and policy development. We will present its basic principles of these conventions and documents and describe their current status in the Federal Republic of Yugoslavia.

Convention on Biological Diversity (CBD)

The Convention on Biological Diversity provides an internationally recognized framework within which countries can work together to conserve biological diversity. By virtue of its near universal ratification, it codifies approaches and principles that guide current biodiversity conservation programs around the world, and it is arguably the most important international agreement for biodiversity conservation. It was adopted and signed by most of the countries participated in UN Conference in Rio de Janeiro, in 1992. The United States is one of the only countries in the world that has not ratified the convention, although it is a signatory.

The objectives of the CBD are to promote the conservation of biodiversity, encourage the sustainable use of its components, and achieve the equitable sharing of the benefits arising from the use of genetic resources. These objectives are to be implemented through a comprehensive approach that includes ecosystems, species and genetic resources. The convention promotes partnership among nations through scientific and technical cooperation, access to financial resources, and the transfer of environmentally sound technology.

Several key points about the Convention on Biological Diversity should be mentioned:

- every USAID-presence country is a party to the CBD, so USAID staff can use the CBD and the guidance from its Conference of Parties (COP) to encourage conservation action in the country in which they serve; and,
- the Global Environment Facility, to which the U.S. contributes, is the interim financing mechanism to implement the CBD.

Specific obligations of Parties to the CBD include:

- Development of national strategies, plans or programs for the conservation and sustainable use of biological diversity;
- Integration of the conservation and sustainable use of biological diversity into the relevant sectoral and cross-sectoral plans, programs and policies;
- Identification of components of biological diversity, important for its conservation and sustainable use;
- Identification of processes and activities which have, or are likely to have; significant adverse impacts on the conservation and sustainable use of biodiversity;

- Establishment of a system of protected areas to conserve biodiversity; and,
- Establishment of mechanisms to respect, preserve and maintain the knowledge, innovations, and practices of indigenous and local communities embodying traditional lifestyles relevant to the conservation and sustainable use of biodiversity.

The Cartagena Protocol on Biosafety

The *Cartagena Protocol on Biosafety* is a legally binding protocol within the CBD that addresses potential environmental impacts of living modified organisms (LMOs) derived from biotechnology that cross international borders. It requires parties to abide by specific procedures for advanced informed agreement of shipment of biotech products destined for release into the environment, such as biotech-derived seeds. There are other, less stringent provisions related to food, animal feed, and fiber for processing. More than 130 countries have signed the protocol, though it has not yet come into force.

FRY signed the Convention in Rio in 1992, but did not ratify it until 2001. However, the basic principles and recommendations were included in national legislation (on federal and republic level) and policies regulating the protection of resources, species and ecosystems. (See Section V. Legal Framework). At this moment, the process of preparation of a Biodiversity Strategy is in process involving ministries at the federal and republic levels as well as institutions in charge.

Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)

The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) entered into effect in 1975. As of September 2000, 152 countries were parties to CITES. The fundamental goal of this treaty is to protect species from overexploitation due to international trade.

CITES requires governments to regulate the international trade in endangered species based on a system of permits, corresponding to varying degrees of protection that depend on the biological status of the species. The treaty calls for species to be listed on one of three appendices. Appendix I lists species threatened with extinction, and international commercial trade in these species is banned by CITES. Approximately 900 species have been placed on Appendix I. Appendix II lists species that might become threatened if trade is not sufficiently controlled. Appendix III lists species that are not currently threatened by trade, but which require international cooperation for adequate trade regulation within individual countries that are parties to the treaty. Species on Appendices II and III, about 29,000 species, may be traded under certain conditions.

Parties to CITES are obligated to:

- designate management and scientific authorities to carry out certain functions specified in the treaty;

- prohibit trade in violation of the Convention;
- penalize trade in violation of the Convention; and,
- confiscate specimens illegally traded or possessed.

Countries continue to put in place institutional, legal, regulatory, and scientific structures to implement CITES. There is still limited awareness of CITES at the sub-national or local level in many of the countries where species listed by CITES occur and where illegal trade may originate.

Several key points about the CITES treaty should be mentioned:

- USAID may not implement any activity or program that violates CITES;
- USAID should ensure that factors associated with biological and ecological sustainability are incorporated into activities that use wild fauna or flora;
- USAID staff should determine whether the host country has signed and ratified CITES and to what degree they are effectively implementing the convention; and,
- The U.S. Fish and Wildlife Service is the agency delegated with CITES management authority and responsibility within the U.S. government, so interagency cooperation is required.

FRY joined the parties of the Convention in 2001. Since the protection of wild animal and plant species was regulated by national laws and decrees, activities that are undergoing which follow the principles of the Convention are continued with every opportunity taken to apply more powerful mechanisms of control of export and import. The Federal Secretariat for Environment is in charge of giving permits for import, export and transportation of endangered species of wild animals and plants.

The United Nations Framework Convention on Climate Change

The United Nations Framework Convention on Climate Change (UNFCCC) provides a legal and institutional framework for international action to address climate change that may be caused by greenhouse gas emissions from human activities. It was adopted at the U.N. Conference on Environment and Development in 1992 by 153 nations, and was ratified by the U.S. in the same year. Parties to the Climate Change Convention agreed in principle to:

- limit emissions of greenhouse gases;
- gather relevant information;
- develop strategies for adapting to climate change; and,
- co-operate on research and technology transfer.

This “framework” convention also established a process for future negotiations, which have been held annually since 1995.

The Convention sets an “ultimate objective” of stabilizing atmospheric concentrations of greenhouse gases at safe levels. Such levels, which the Convention does not quantify, should be achieved within a time frame sufficient to allow ecosystems to adapt naturally to climate change, to ensure that food production is not threatened and to enable economic development to proceed in a sustainable manner. To achieve this objective, all countries have a general commitment to address climate change, adapt to its effects, and report on the action they are taking to implement the Convention. The Convention divides countries into two groups: those listed in its Annex 1 (industrialized nations) and those that are not listed (so-called “non-Annex 1 Parties”).

The ***Kyoto Protocol***, an agreement adopted in principle by the parties to the UNFCCC in Kyoto, Japan, in 1997, identified emissions targets and timetables for industrialized nations and proposed market-based mechanisms for meeting those targets. To date, 50 countries have ratified the Kyoto Protocol. The Protocol must be ratified by 55 parties to the convention, representing at least 55 percent of global 1990 CO₂ emissions, to enter into force.

The Kyoto Protocol establishes legally binding commitments for developed countries to reduce collective emissions by at least 5 percent below 1990 levels by 2008-2012. In addition to meeting emission reductions domestically, the Protocol includes market mechanisms such as:

- *Joint Implementation*, which would allow countries with explicit emissions targets to obtain credit for project-based greenhouse gas emission reductions in other countries;
- *International Emissions Trading*, which would allow countries with explicit emissions reduction targets to trade greenhouse gas allowances among themselves; and,
- *The Clean Development Mechanism*, which would allow countries with explicit emissions targets to receive credit for certified emissions reductions from project activities undertaken in developing countries, and allow private and public sector entities worldwide to enter into cooperative projects to reduce emissions in the developing world.

The UNFCCC entered into force in 1994 in the U.S. The U.S. opposes the Kyoto Protocol and will not seek ratification. However, the U.S. has pursued the following:

- USAID’s *Climate Change Initiative (CCI)*, a 5-year, \$1 billion program launched in 1998, focuses on energy efficiency (to reduce emissions), land use (for carbon sequestration), increasing participation of developing countries in the UNFCCC process, and reducing vulnerability to the impacts of climate change.
- In February 2002, President Bush announced a new U.S. Climate Change Strategy. This plan calls for \$155 million for USAID, which will continue to be a major source of climate technical assistance to development countries.

FRY ratified this Convention in 1997.

The Ramsar Convention on Wetlands

The Convention on Wetlands, signed in Ramsar, Iran in 1971, provides the framework for national action and international cooperation for the conservation and wise use of wetlands and their resources. The purpose of the convention is to stem progressive encroachment and loss of wetlands, recognizing their fundamental ecological functions and their economic, cultural, scientific, and recreational values. One-hundred-twenty-three countries are currently parties to the Ramsar Convention. The United States ratified this treaty in 1976. Treaty membership is open for signature indefinitely, and the Convention urges all countries to join the agreement if they have not already done so.

Parties to the Ramsar Convention are obligated to:

- designate at least one national wetland for inclusion in a List of Wetlands of International Importance;
- accept the responsibility for conservation, management and wise use of migratory birds, waterfowl in particular;
- establish wetland nature reserves, cooperate in the exchange of information, and train personnel for wetland management; and,
- convene wetlands and waterfowl conferences as the need arises.

The treaty currently lists 1050 wetland sites, totaling 78.7 million hectares, are identified as Wetlands of International Importance. Seventeen of these are in the U.S.

Some key points about this convention include:

- the Ramsar Convention provides a forum for information exchange among countries;
- the Ramsar Convention is not preservationist in approach, but maintains a focus on sustainable use, which is usually a more acceptable approach from a developing country's perspective;
- private as well as public lands can be designated as Ramsar sites, providing a mechanism for public-private cooperation; and,
- Ramsar may provide links to other conventions or USAID activities, such as the Convention on Biological Diversity, International Coral Reef Initiative, Convention on Migratory Species, Tropical Forestry Conservation Act (TFCA).

FRY is a signatory since 1976, and ratified the Convention in 1977. It was incorporated into national legislation (Law on Environment, Law on Protection of Nature). At the federal level, the National Committee for Cooperation with Ramsar Biro was established, and experts from the Institutes for Nature Protection (Belgrade, Podgorica) are involved in preparation of the proposals for the designation of additional wetlands as Ramsar sites.

Convention on Protection of World Natural and Cultural Heritage, UNESCO

This Convention defines the principles of protection of a cultural heritage and protection of natural heritage of exceptional and universal value (natural monuments, geological

heritage, habitats of especially important rare and endangered plant and animal species, natural areas of exceptional value – from the point of view of science, conservation or its natural beauty). There exists a list of cultural and natural heritage which comprises the areas from around the world selected following the criteria of the Convention

Cooperation with UNESCO is officially the responsibility of the Yugoslav Commission for Cooperation with UNESCO of the Federal Ministry for Foreign Affairs. The Convention's principles have been incorporated in laws and regulations at the republic level, such as the Environmental Law, the Law on the Protection of Nature, and the Law on National Parks.

International Commission for the Protection of the Danube River (ICPDR)

The International Commission for the Protection of the Danube River (ICPDR) has the mandate to address decision making, management and coordination of regional cooperation among the countries of the Danube River Watershed. Operational activities include Danube River Basin management; monitoring, laboratory and information management, emissions; accident emergency prevention and warning systems, and ecological issues. The FRY is a signatory of the Conference of the Parties which organized the ICPDR.

Agreements related to the Adriatic Sea

International agreements concerning the marine resources of the Adriatic Sea will be important to the sustainable development of the Republic of Montenegro, and the FRY should become involved in these agreements. The Barcelona Convention and the Mediterranean Action Plan consist of one such agreement, and a subsidiary plan for the Adriatic Sea is under discussion.

B. Internationally Recognized Conservation Areas

World Cultural and Natural Heritage, UNESCO

The following are areas from FRY on the List of the World Cultural and Natural Heritage including NP Durmitor with Tara River Gorge (Montenegro), Kotor – Risan Bay including the town of Kotor (Montenegro), Stari Ras – Sopocani and Studenica monasteries (Serbia).

Following the criteria of the Convention, and, the Institute for the Protection of Nature of Serbia selected five unique natural sites for selection for application for the World List of Cultural and Natural Heritage: National Park Djerdap, Special Nature Reserve Deliblatska Pescara, National Park Tara, Djavolja varos Natural Monument, and the National Park Sar planina.

Biosphere Reserves – UNESCO Man and the Biosphere Reserves Program

Two areas from FRY are on the list of biosphere reserves of UNESCO MAB: the Tara River Gorge, in the National Park Durmitor, Montenegro and Golija – Studenica Biosphere Reserve, Serbia.

The Institute for Protection of Nature of Serbia has proposed other areas for this list: Gornje Podunavlje Nature Park, the Special Nature Reserve Obedska bara, the Special Nature Reserve Deliblatska Pescara, the National Park Djerdap, the Kucajske Mountains, the National Park Tara, the Nature Park Stara Planina, the Prokletije Mountain, and the National Park Sar Planina

Protected Natural Areas as Ramsar Sites

At this moment, there are four Ramsar sites in FRY: Ludasko Lake, Obedska Bara and Stari Begej – Carska Bara (Serbia – Vojvodina) and Skadar Lake (Montenegro). Within the Institute for the Protection of Nature of Serbia, documentation for five other areas to be proposed for the list of Ramsar sites is under preparation.

Transboundary Areas

As part of the project “Support to Protected Transboundary Areas”, which is part of the Action Plan “Parks for Life” (promoted by the IUCN and Europarc Federation), the Institute for Protection of Nature of Serbia selected the following areas: Nature Park Suboticke Sume (with National Park Kiskunksag, Hungary); National Park Djerdap (in cooperation with the Romanian “Iron gates” area; Stara Planina Nature Park (in cooperation with Bulgaria); National Park Sar Planina (in cooperation with Macedonia); the future National Park Prokletije (in cooperation with Montenegro and Albania); the National Park Tara (in cooperation with Bosnia and Herzegovina, Republic Srpska); the Nature Park Gornje Podunavlje (in cooperation with Croatia – Kopacki Rit area; and, Hungary – Danube – Drava National Park.

The Nature Park Gornje Podunavlje was included in 1997 in European Biosphere Reserve “Drava – Mura”, within the project led by European Agency “Euronatur”, with the aim to protect valuable natural areas along the two rivers. Four countries joined the project – Austria, Slovenia, Croatia, Hungary. In 1998, the FRY became the fifth country.

The project of transboundary cooperation in protection of the area in cooperation with Croatia and Hungary has been proposed to REReP (Stability Pact), with the aim to protect its biodiversity but also to develop the model of “Peace Park”, a basic role in overcoming the conflicts in area affected by war in recent times. One of the partners in the development of the project is the World Wildlife Federation’s Danube – Carpatian Program.

All those efforts have been made not only to promote protected areas of FRY at international level and to join common programs, but to contribute to preserving of its biodiversity by making national and international networks of protected natural sites.

Appendix 12

Biodiversity Assessment Team Contacts in Serbia

Appendix 12

Biodiversity Assessment Team Contacts in Serbia

1. Alonzo Fulgham, Program Officer, USAID/FRY, Belgrade.
2. Adriana Lazinica, Senior Program Management Specialist, USAID/FRY, Belgrade.
3. Radoje Lausevic, Director, Country Office for Yugoslavia, Regional Environmental Center for Central and Eastern Europe, Belgrade.
4. William Bellis, Political Officer, US Embassy/Belgrade, Belgrade.
5. Michael J. Enders, Director, General Development Office, USAID/FRY, Belgrade.
6. Mark Pickett, General Development Officer, USAID/FRY, Belgrade.
7. Arthur J. Flanagan, General Development Officer, USAID/FRY, Belgrade.
8. Spike Stephenson, Director, USAID/FRY, Belgrade.
9. William S. Foerderer, Director, Economic Policy and Finance, USAID/FRY, Belgrade.
10. Katherine Stevens, Democracy Officer, USAID/FRY, Belgrade.
11. Mazen Fawzy, Chief of Party, Mercy Corps, Community Revitalization through Democratic Action Program, Belgrade.
12. Myriam Khoury, Deputy Chief of Party, Mercy Corps, Community Revitalization through Democratic Action Program, Belgrade.
13. Suzana Dordevic-Milosevic, Agricultural and Rural Development Task Force, G17 plus, Belgrade.
14. Brian Holst, Director, CHF International, Community Revitalization through Democratic Action Program, Belgrade.
15. Nikola Marjanovic, Technical Director, CHF International, Community Revitalization through Democratic Action Program, Belgrade.
16. Deborah A. Lange, Executive Director and Research Facility, The Brownfields Center, Department of Civil and Environmental Engineering, Carnegie Mellon – University of Pittsburgh, Pittsburgh.
17. Predrag Aleksic, Deputy Director, State Enterprise for Forest Management, Belgrade.
18. Dragomir Novcic, Director of Forest Protection, State Enterprise for Forest Management, Belgrade.
19. Slobodan Vucicevic, Executive Manager of the Development and Research Department, State Enterprise for Forest Management, Belgrade.
20. John Dalton, Program Director, America's Development Foundation, Community Revitalization through Democratic Action Program, Novi Sad.
21. Terrence P. Grace, Community and Economic Development Unit Manager, America's Development Foundation, Community Revitalization through Democratic Action Program, Novi Sad.
22. Jelena Burgic, Environmental Coordinator, America's Development Foundation, Community Revitalization through Democratic Action Program, Novi Sad.
23. Nedeljko Kovacev, Head of the Department of the Institute for Protection of Nature of Serbia, Novi Sad.
24. Dragisa Savic, Advisor, Public Enterprise for the National Park "Fruska Gora, Novi Sad.

25. Sreten Djordjevic, President, Ecological Society “Gradac”, Valjevo.
26. Dragic Tomic, President, Mushroom Society, Valjevo.
27. Srdjan Zivic, Society for the Research of Herbs, Valjevo.
28. Boban Tomic, Mayor, Municipality of Bajina Basta, Bajina Basta.
29. Jovan Duric, Director, Sportsko Turisticki Centar, Bajina Basta.
30. Milan Skrnjic, Director, Department of Infrastructure, Municipality of Bajina Basta, Bajina Basta
31. Representative of the Society of Fishermen “Mladica,” Bajina Basta.
32. Representative of the Mountain Organization of Bajina Basta, Bajina Basta.
33. Representative of the Scout Organization of Bajina Basta, Bajina Basta.
34. Vladimir Stamenic, Director of Environmental Movement of Bajina Basta, Bajina Basta.
35. Delivoje Duric, Director of the Public Enterprise “National Park Tara,” Bajina Basta.
36. Jasminka Milosevic, Advisor, Institute for Protection of Nature of Serbia, Belgrade.
37. Andjelka Mihajlov, Director of the Directorate for Environment, Ministry of Health and the Environment for Serbia, Belgrade.
38. Dragoslava Jakovic, Head of the Division for Nature Protection, Ministry for Health and Environment of Serbia, Belgrade
39. Ljiljana Pekovic, Advisor, Division for Nature Protection, Directorate for Environmental Protection, Ministry for Health and Environment of Serbia, Belgrade
40. Tatjana Veljkovic, Junior Advisor, Directorate for Environmental Protection, Ministry for Health and Environment Protection, Ministry for Health and Environment of Serbia, Belgrade
41. Milica Risojevic, Junior Advisor, Directorate for Environmental Protection, Ministry of Health and Environment of Serbia, Belgrade
42. Miroslav Nikcevic, Assistant Federal Secretary and Head of Environment Department, Federal Secretary of Labor, Health and Social Care.
43. Dragoljub Todoc, Senior Advisor, Environment Department, Federal Secretary of Labor, Health and Social Care.
44. Miroslav Spasojevic, Senior Counselor, Department for International Cooperation, Federal Secretariat for Development and Science.
45. Vladimir Stevanovic, PhD, Institute for Botany, Faculty of Biology, University of Belgrade, Belgrade
46. Dmtar Lakusic, PhD, Institute for Botany, Faculty of Biology, University of Belgrade, Belgrade
47. Aleksandar Cetkovic, PhD, Institute for Zoology, Faculty of Biology, University of Belgrade, Belgrade
48. Srdjan Stamenkovic, PhD, Institute of Zoology, Faculty of Biology, University of Belgrade, Belgrade
49. Slobodan Puzovic, Deputy Director, Institute for Protection of Nature of Serbia, Department of Novi Sad, Novi Sad
50. Igor Vavgic, Inspector, Environmental Inspectorate of Serbia, Division in Novi Sad, Novi Sad
51. Vladimir Petrovic, General Director, Public Enterprise ECICA, Zrenjanin.
52. Heather Armstrong, Executive Officer, USAID/FRY, Belgrade.

Appendix 13

Biodiversity Assessment Team Contacts in Montenegro

Appendix 13

Biodiversity Assessment Team Contacts in Montenegro

1. Vladan Raznatovic, Program Specialist for the Program Development Office, USAID/Podgorica.
2. Howard R. Handler, Officer-in Charge, USAID/Podgorica.
3. William Gelman, Liaison Officer, USAID/Podgorica.
4. Vasilije Buskovic, Senior Advisor for Biodiversity and Protected Areas, Ministry of Environmental Protection and Physical Planning, Podgorica.
5. Aleksandar Raznatovic, Advisor for Fisheries, National Parks of Montenegro, Podgorica.
6. Aco Djuraskovic, Chief Inspector, Ministry of Environmental Protection and Physical Planning, Podgorica.
7. Blazo Krunic, Advisor to the Minister, Ministry for Agriculture, Forestry and Water Management, Podgorica.
8. Jelena Paovic, Senior Advisor for the Master Plan for Tourism and Sustainable Development of National Parks, Ministry of Tourism, Podgorica.
9. Saska Ivanovic, Advisor to the General Manager, Public Enterprise for Coastal Zone Management, Budva.
10. Secretary General for the Public Enterprise for Coastal Zone Management, Budva.
11. Sreten Mandic, Director, Institute of Marine Biology, Kotor.
12. Zoran Kljajic, Senior Researcher, Institute of Marine Biology, Kotor.
13. Dusan Vukanic, Scientific Advisor, Institute of Marine Biology, Kotor.
14. Vesna Macic, Biologist, Institute of Marine Biology, Kotor.
15. Garret Tankosic-Kelly, Head of Office, United Nations Development Programme, Podgorica.
16. Katlin Brasic, Programme Associate, United Nations Development Program, Podgorica.
17. Milosav Miso Andelic, Deputy General Manager and Manager for National Park Lovcen, Public Enterprise for National Parks, Podgorica.
18. Radosav Nikcevic, Society for the Protection and Development of Forests, Podgorica.
19. Zlatko Bulic, General Manager, Institute for Protection of the Nature, Podgorica.
20. Mr. Nedic, Head of the Hydrobiology Unit, Institute for Protection of the Nature, Podgorica.
21. Ondrej Vizi, Director, Natural History Museum of Montenegro, Podgorica.

Appendix 14

References

Appendix 14

References

- Federal Ministry for Development, Science and Environment. 2000. Biological Diversity of FR Yugoslavia: Assessments, Threats and Conservation Policies. Jovan Angelus, Editor-in-Chief. Published by Ecolibri-Bionet, Belgrade. (26 pp. booklet in Serbian and English)
- Jovic, Dusan, and Mirjana Stanisic. 2002. Report on Forest Condition in Yugoslavia. Federal Secretariat for Labour, Health and Social Care, Environment Department. Belgrade.
- Misurovic, Ana. No Date. Management of Drinking, Surface and Underground Water Polluted by Waste from Aluminum Industry. Yugoslavia Center for Ecotoxicological Research of Montenegro. Podgorica, Montenegro, FRY.
- Prokic, Snezana. 2002. Conservation and Promotion of Biological Diversity of Forest Ecosystems. European Forest Sector Outlook Studies report for the UN Economic Commission for Europe, Timber Section (15 pp. in English, available as PDF file at: <http://efsos.fastnet.ch/fichiers/home/documents/Prokic.doc>)
- Rankovij, Nenad, and Vukovij, Miljoj. 2000. Forests and Forestry. Yugoslav Survey, No. 3. Faculty of Forestry, Belgrade.
- REC (Regional Environmental Center for Central and Eastern Europe). 2002. Review of Biodiversity in FRY and Recommendations for Further Actions. Unpublished report prepared for USAID-FRY by the Yugoslavia Country Office, Belgrade. Authors: Dmtar Lakusic and Aleksandar Cetkovi. (12 pp. in English).
- Resolution on the Policy of Biodiversity Conservation in the Federal Republic of Yugoslavia. 2000. Belgrade.
- Stevanovic, Vladimir (Ed.) 1999. The Red Data Book of Flora of Serbia. 1. Extinct and Critically Endangered Taxa. Ministry of Environment of the Republic of Serbia; Faculty of Biology, University of Belgrade; and Institute for Nature Protection of the Republic of Serbia. Belgrade. (566 pp., in Serbian and English)

APPENDIX 15

Current Internet Resources for Serbia and Montenegro Relating to Environmental Issues

APPENDIX 15

Current Internet Resources for Serbia and Montenegro Relating to Environmental Issues

The following resources include numerous Internet resources and several documents available either electronically or in hard copy. They were gathered to assist with the creation of the 2002 Serbia and Montenegro Biodiversity Assessment to be conducted by the United States Agency for International Development (USAID). The Internet resources have been divided into three sections for ease of navigation. These sections are *Serbia and Montenegro Sites*, *International Efforts in Serbia and Montenegro*, and *Other Internet Resources*. Section 4, *Other Media*, consists of a list of documents available in print.

A brief explanation is provided for each web site and resource.

Section 1. Serbia and Montenegro Sites

This section contains web sites from various sectors of the Government(s) of Serbia and Montenegro, National Institutions, and local NGO's.

Institute for Protection of Nature of Serbia – A very useful site for Environmental Information in Yugoslavia

- <http://www.natureprotection.org.yu/english/index.php>

IBISS - Institute for Biological Research

- <http://www.ibiss.bg.ac.yu/english/indexeng.htm>

Republic of Montenegro - Programme of Economic and Social Development

- http://www.donors.cg.yu/economic_reform/eco_soc.pdf

YuEco - Ecology in Yugoslavia – contains facts, information and contacts for organizations in Yugoslavia

- http://members.tripod.com/yusky_vidlib/text/facts/facts.htm - facts
- http://members.tripod.com/yusky_vidlib/text/institut.htm - Non-governmental Institutions in Yugoslavia (Ecology)

Environmental Policy in Serbia and Prospects

- http://www.inaffairs.org.yu/1095/EN/txt/ekoloski/ekoloski_2.html

Section 2. International Efforts in Serbia and Montenegro

This section provides Internet resources available from numerous international non-governmental organizations and donor governments working in Serbia and Montenegro.

The Convention on Biological Diversity (CBD)– This is the official web site for the Secretariat of the CBD

- <http://www.biodiv.org/world/map.asp?lg=0&ctr=yu> - While no documents are available at this time Yugoslavia did just ratify the convention in January of 2002 and contact information is available for government officials.

EU-DGXI (European Union, Directorate General XI – Environment) – These sites are part of the environment department of the EU.

- http://europa.eu.int/comm/environment/funding/intro_en.htm - “The purpose of this section is to give an overview of the current funding opportunities available from Environment DG.”
- <http://europa.eu.int/comm/environment/nature/directive/birdspriority.htm> - This is the main page to numerous specie specific action plans from BirdLife International

EU -The EU's relations with the Federal Republic of Yugoslavia - While not specific to environment and biodiversity, this site covers EU assistance to Yugoslavia, Serbia, Kosovo, and Montenegro.

- http://europa.eu.int/comm/external_relations/see/fry/index.htm

The European Centre for Nature Conservation

- <http://www.ecnc.nl/doc/projects/ebri/natbilfu.html> - This site contains a listing of potential funding Sources for CEE
- <http://www.ecnc.nl/doc/europe/country/yugoslav.html> - Nature Conservation in Yugoslavia, including contact information for Government, NGO's, Research Institutes, etc.

European Commission/The World Bank. Economic Reconstruction and Development in South East Europe. This European Commission / World Bank website aims to provide a real-time working tool to help donors identify the current situation in South East Europe and the macroeconomic needs of the countries

- <http://www.seerecon.org/FRYugoslavia/fry.htm>
- <http://www.seerecon.org/FRYugoslavia/FRYDonorPrograms.htm> - A thorough list with links of all donor activities in the county.
- <http://www.seerecon.org/FRYugoslavia/lgdb-fry.pdf> - The Little Green Data Book 2001 - Quick reference environmental data from World Development Indicators 2001.

GEF (Global Environmental Facility) – “The Global Environment Facility was established to forge international cooperation and finance actions to address four critical threats to the global environment: biodiversity loss, climate change, degradation of international waters, and ozone depletion.”

- <http://www.gefweb.org/index.html> -GEF's main page

The rather long link below will take you to a listing of a GEF project of which involves Yugoslavia, a project brief link in the far right column of the table:

- <http://edcnts2.cr.usgs.gov/scripts/esrimap.dll?name=gef&Cmd=Map&Search=dbsearch&format=gef&Left=-180&Bottom=-90&Right=180&Top=83.6235961914063&Random=705547512&fipscode=YU&focalsearch=All&opsearch=All&iasearch=All&typesearch=All&operator=less&fundsearch=&keysearch=&IncludeMap=IncludeMap>

Regional Environmental Center (REC) – “The Regional Environmental Center for Central and Eastern Europe (REC) is a non-advocacy, not-for-profit organization with a mission to assist in solving environmental problems in Central and Eastern Europe (CEE). The Center fulfils its mission through encouraging cooperation among non-governmental organizations, governments and businesses, supporting the free exchange of information and promoting public participation in environmental decision-making. “

- <http://www.rec.org/REC/Publications/CountryReports/Yugoslavia.PDF> - Strategic Environmental Analysis of FR Yugoslavia
- <http://www.rec.org/REC/Publications/CountryReports/Kosovo.PDF> - Strategic Environmental Analysis of Kosovo
- <http://www.padrigu.gu.se/EDCNews/Reviews/Scandiaconsult2000.pdf> - Strategic Environmental Analysis of Albania, Bosnia & Herzegovina, Kosovo and Macedonia
- <http://www.rec.org/REC/Introduction/CountryOffices/Yugoslavia.html> - REC Yugoslavia country page
- <http://www.rec.org/REC/Databases/GovDir/PDFs/Yugo.pdf> - Directory of Environmental Government contacts.
- http://www.rec.org/REC/Maps/yug_map.html - map of Yugoslavia
- <http://www.rec.org/REC/Programs/REREP/> - The Regional Environmental Reconstruction Programme (REReP)

USAID Yugoslavia

- <http://www.usaid.gov/country/ee/yy/> - USAID’s page with current country information as well as current SO information

World Bank (WB)

- <http://lnweb18.worldbank.org/eca/eca.nsf/66d6f5004ed085ca852567d10011a8b8/491897f86aaa345f85256ad2004f5dd1?OpenDocument> - WB information for Yugoslavia
- <http://www4.worldbank.org/sprojects/Project.asp?pid=P074618> - Montenegro Environmental Infrastructure Project and links to associated documents.
- http://www.worldbank.org/data/countrydata/aag/yug_aag.pdf -Yugoslavia, country at a glance

World Health Organization

- http://europa.eu.int/comm/environment/enlarg/bmtf_report.pdf - Report of the International Task Force for Assessing the Baia Mare Accident

United Nations (UN) Sites

Internet sites of the various UN programs with specific information relating to environmental issues in Serbia/Montenegro are contained below.

Sustainable Development Department (SD), Food and Agriculture Organization of the United Nations (FAO)

- <http://www.fao.org/sd/ltdirect/ltforum/ltfo0000.htm> - This is the main page for “The Bertinoro initiative” pertaining to land tenure in CEE

UN Sustainable Development Sites

Agenda 21

- <http://www.un.org/esa/sustdev/agenda21.htm> - main site for Agenda 21
- <http://www.un.org/esa/sustdev/issueslist.htm> - Agenda 21 issues list

Agenda 21 - Yugoslavia Specific

- <http://www.un.org/esa/agenda21/natinfo/countr/yugosl/index.htm> - overall site for Agenda 21 information on Yugoslavia
- <http://www.un.org/esa/agenda21/natinfo/countr/yugosl/natur.htm> - Agenda 21 Natural Resource information for Yugoslavia
- <http://www.un.org/esa/agenda21/natinfo/countr/yugosl/eco.htm#tour> - Agenda 21 – sustainable tourism in Yugoslavia

UNESCO SITES (United Nations Educational, Scientific and Cultural Organization)

- <http://www2.unesco.org/mab/br/brdir/directory/contact.asp?code=YUG> - contains the National Contact Information for Yugoslavia Biosphere reserves as well as links for their descriptions.
- <http://www2.unesco.org/mab/br/brdir/europe-n/Yugoslaviemap.htm> - Yugoslavia Biosphere Reserve Location Map
- <http://www.unesco.org/whc/sp/yug.htm> - listing of World Heritage Activities and International Assistance provided by the World Heritage Fund through 1997 (in US\$)
- <http://www.unesco.org/whc/sites/100.htm> - Durmitor National Park, Montenegro.
- http://www.unesco.org/courier/2000_05/uk/planet2.htm - news article - *THE POLLUTION OF THE BALKANS*

UNEP (United Nations Environment Program)

UNEP GRID/Arendal

- <http://www.grida.no/enrin/htmls/yugo/index.htm> - Main UNEP page for Yugoslavia
- <http://www.grida.no/inf/news/news99/finalreport.pdf> - The Balkan Task Force report, "The Kosovo Conflict - Consequences for the Environment and Human Settlements,"
- <http://www.grida.no/geo2000/english/index.htm> - this is the web version of the Global Environment Outlook 2000.
- <http://www.grida.no/enrin/biodiv/biodiv/cbd/funding.htm> - links to information about available funding for nature conservation in Europe.

Section 3. Other Internet Resources

CIA World Factbook 2001 for Yugoslavia. It is a reliable overview of basic country statistics.

- <http://www.cia.gov/cia/publications/factbook/geos/sr.html>

CITES - Convention on International Trade in Endangered Species of Wild Fauna and Flora

- <http://www.cites.org>

IUCN 2000 Red List of Threatened Species

- <http://www.redlist.org/> - Main page
- <http://www.redlist.org/search/search.php?freetext=&modifier=phrase&criteria=wholedb&redlistCategory%5B%5D=all&country%5B%5D=YU®ions=all&aquatic=all&Submit.x=46&Submit.y=10> - IUCN Red List for Yugoslavia

World Resources Institute (WRI) - provides information, ideas, and solutions to global environmental problems.

- <http://www.wri.org/biodivconv.html>
- http://earthtrends.wri.org/country_profiles/index.cfm?theme=1&CFID=16482&CFTOKEN=31490578 - WRI Earthtrends Site it contains country specific environmental information, including notes and sources, about the key variables for each topic area. View the charts and graphs to find the vital statistics for Serbia and Montenegro (note: you must search the database for Yugoslavia).

The United States - Central and Eastern European Environment Foundation

- <http://www.useuroenvirofoundation.org/yugoslavia.htm> - A brief environmental overview "Natural treasures damaged by war, embargoes"

Environmental Assessment in Countries in Transition –

- <http://matisse.ceu.hu/departs/envsci/eianetwork/index.html> - Main page
- <http://matisse.ceu.hu/departs/envsci/eianetwork/legislation/#fry> - listing of environmental legislation in Yugoslavia

WWF – Ecoregions - Dinaric Mountains mixed forests

- http://www.worldwildlife.org/wildworld/profiles/terrestrial/pa/pa0418_full.html#location

The Adriatic Conference - The Planning Situation In Yugoslavia - General And Specific Framework

- <http://www.univ.trieste.it/~vplanet/atti/Stojkov.doc>

Alschen, Sergei. "Chapter 5. NATO's Destruction of the Environment in Yugoslavia."

- http://www.iacenter.org/warcrime/5_envir.htm

Zimonjic, Vesna Peric. "Environment-Yugoslavia: Nato's Chemical Warfare."

- http://www.oneworld.org/ips2/mar00/10_22_031.html

First International Conference on Environmental Recovery of Yugoslavia

- <http://www.me.berkeley.edu/~ENRY2001/Conclusions.html>

National Report prepared for the 7th Meeting of the Conference of the Contracting Parties to the Convention on Wetlands (Ramsar, Iran, 1971

- http://www.ramsar.org/cop7_nr_yugoslavia.htm

Militarism And Ecology: Nato Ecocide In Serbia By Vojin Joksimovich

- <http://www.oea.serbian-church.net/info/108.html>