

**RESULTS FROM THE EU BIODIVERSITY STANDARDS SCIENTIFIC
COORDINATION GROUP (HD WG) IN BOSNIA AND HERZEGOVINA**

June 2008

<p>RESULTS FROM THE EU BIODIVERSITY STANDARDS SCIENTIFIC COORDINATION GROUP (HD WG) IN BOSNIA AND HERZEGOVINA</p> <p><i>30th June 2008</i></p>

1	INTRODUCTION	4
2	BACKGROUND INFORMATION ON BIH.....	5
3	IDENTIFIED SOURCES OF INFORMATION	8
3-a	Relevant institutions	8
3-b	Experts.....	9
3-c	Relevant scientific publications	10
3-c-i)	Birds.....	10
3-c-ii)	Fish	12
3-c-iii)	Mammals	12
3-c-iv)	Other groups of animals.....	12
3-c-v)	Flora and vegetation.....	14
3-c-vi)	Nature protection	21
3-c-vii)	Other related documents, publications, studies, data sources	21
3-c-viii)	Digital information existing and availability	22
4	COMMITMENTS AND LEGISLATION.....	24
4-a	Relevant international commitments.....	24
4-b	Relevant legislation.....	25
5	KEY STAKEHOLDERS AND CAPACITIES	28
5-a	Governmental	28
5-a-i)	State level.....	28
5-a-ii)	Entity level.....	28
5-a-iii)	Cantonal level	30
5-a-iv)	Inter-entity level.....	30
5-a-v)	Municipality level (in FBiH and RS).....	30
5-a-vi)	District Brcko.....	30
5-b	Related relevant administrative bodies	30
5-c	Relevant stakeholders for the process other than governmental.....	32

5-d	Relevant stakeholders in the EU institutions	33
5-e	Relevant NGOs	33
5-f	Other relevant stakeholders	36
6	RELEVANT PROJECTS AND PROCESSES.....	38
6-a	Past.....	38
6-b	Ongoing	40
6-c	Planned.....	43
7	IDENTIFIED RELEVANT POSSIBLE FINANCING MECHANISMS.....	44
7-a	National	44
7-b	Non national.....	44
7-c	Further potential financing sources.....	45
8	SOME KEY ISSUES PARTICULARLY RELEVANT TO THE EU BIODIVERSITY PROTECTION STANDARDS	47
8-a	Biogeographic regions.....	47
8-b	Identified EU natural values (“present” with scientific reference, “not present”, “scientific reserve”, including final summary figures per groups).....	49
	8-b-i) Habitats of Annex I of the HD	49
	8-b-ii) Species of Annex II, IV and V of the HD.....	52
	8-b-iii) Birds from the Annexes I, II/1, II/2, III/1 and III/2 of the Birds Directive	57
8-c	Some identified challenges and opportunities.....	61

1 Introduction

With support from the Norwegian Ministry of Foreign Affairs, WWF's Mediterranean Programme launched the project "Living Heart of Europe" in February 2008. Within the framework of this project, the "EU Biodiversity Standards Scientific Coordination Group (HD WG)" was established. The main goal of this HD WG was to prepare a report that aiming at identifying existing relevant information relevant for the identification and selection of the main biodiversity values and areas in Bosnia and Herzegovina according to the EU Biodiversity Protection Standards (i.e. the Nature Directives).

This activity follows the previous Working Group created in the framework by the WWF's Mediterranean Programme "Living Neretva" in 2007, which came up with an equivalent report for the Neretva catchment area in BiH¹.

The HD WG had three members, supervised by representatives of relevant ministries responsible for environment at entity and state level:

- Vladimir Stupar, Faculty of Forestry, University of Banja Luka, stuparvladimir@gmail.com
- Dejan Kulijer, National museum of Bosnia and Herzegovina, Sarajevo, dejan.kulijer@gmail.com
- Sulejman Redžić, Faculty of Science, University of Sarajevo, redzic0102@yahoo.com

The HD WG activity has been coached and supported by WWF's experts Branko Vucijak and Alberto Arroyo.

This report report compiles all identified existing information relevant for a potential site identification and designation process for Natura 200 sites in Bosnia and Herzegovina. It intended to be a key reference for any institution or person interested in the issue. It includes information on institutions, experts, publications, digital information, legislation, stakeholders, projects and financing mechanisms, with links and contact details to make possible to get further information.

It also provides some first relevant information related with the EU biodiversity protection standards, like biogeographic regions, a first analysis of the presence of habitats and species of Community Interest in BiH, and some challenges and opportunities identified during the collection process, which could be useful for the definition of next steps.

¹ For more information see http://www.panda.org/about_wwf/where_we_work/europe/what_we_do/balkans/index.cfm?uProjectID=BA0001

2 Background information on BiH

Bosnia and Herzegovina is situated in the southeastern Europe taking a central position of the Balkan peninsula. Its total surface is 51.129 km². Border length amounts 1.537 km, of which land border is 762,5 km, river 751 km and sea 23,5 km. Bosnia and Herzegovina shares its border with the Republic of Croatia (931 km), Serbia (375 km) and Montenegro (249 km). Northern parts of Bosnia and Herzegovina face the Sava river, while its southern parts reach the Adriatic Sea at Neum city. Dinaric Alps chains extend between plain and hills of Posavina in the North, and Adriatic bay in the South. Dinaric mountain chains extend from NW to SE. Beside orogenous folders, in the Dinaric mountain system dominate also plateaus. By tectonic movements and splits evolved valleys, lowlands and karst fields.

Climate of Bosnia and Herzegovina is temperate, but more extreme than one could expect solely from its geographic position. Dinaric alpine region strongly modifies mediterranean currents coming from the South, whereas it prevents the penetration of cold air from inland to the coast. But, mediterranean influences still protrude deep inland by Neretva river valley. Climate of Bosnia and Herzegovina shows high diversity level. Between areas of temperate continental and modified mediterranean (adriatic) climate, there are areas with continental, pre-alpine and alpine climate.

The extreme richness of living world that exists on our territory is the result of ecological heterogeneity of Bosnia and Herzegovina, its geomorphological and hydrological diversity, specific geological past and its ecoclimate diversity. Flora, fauna and fungia of Bosnia and Herzegovina are considered to be among the most diverse in Europe, being especially important in terms of global biodiversity due to its high level of endemism and relictness.

Special characteristics of this area represent many canyons and cliffs of Bosnia-Herzegovina's rivers (canyons of the Una, Neretva, Drina river, canyons and cliffs of tributaries in upper flow of the Bosna river, and a middle part of flow of the Vrbas river with the highly interesting canyon of the Ugar river running between mountains Vlačić, Čemernica and Manjača).

Below the highest peaks of Bosnia-Herzegovina's mountains, in an area of cirques, are to be found development centres of glacial flora and fauna, which witness about the after Ice Age time on the Balkan peninsula. There are over 450 species and sub-species of vascular plants that are recognized to be endemic, which makes Bosnia-Herzegovina's flora one of the most unique in Europe.

Identified was 5.134 taxa. This fact underlines the floristic richness of Bosnia and Herzegovina and places our country among the richest ones in Europe, along with the Republic of Croatia, Italy, Greece and others.

Major part of these species is terrestrial or semi-terrestrial, while a limited number of them is bounded to the aquatic environment.

Table 1. – Taxonomic diversity of higher plants

	Family	Genus	Species	Sub-species	Hybrid	Total number of species, sub-species and hybrids
Bryophyta	52	187	565	0	0	565
Pteridophyta	14	26	61	8	2	71
Spermatophyta	161	858	3256	1078	164	4498
Total	227	1071	3882	1086	166	5134

High diversity of insects (especially hydrophilous), then fish and mammals makes fauna of Bosnia and Herzegovina recognizable on the European scale, whereas some of animal's groups (organisms that inhabit caves or fish that live in karst sinking streams) make it remarkable on global scale.

Based on the actual knowledge of animal kingdom we can make the assessment of biodiversity by phylogenetic groups of vertebrates, as shown in Table 2:

Table 2. – Assessment of vertebrates diversity in Bosnia and Herzegovina

Animal group	Number of families	Number of genera	Total number of species	Number of threatened species in B&H	Number of endemic species
Fish	27	69	119	?	12
Amphibians	7	8	20	3	6
Reptiles	12	26	38	11	12
Birds	60	165	326	97	-
Mammals	19	51 (2?)	85 (+2?)	24	9
Total	125	319 (2?)	588 (2?)	135	39

The diversity of habitats both aquatic and terrestrial ones, on horizontal and vertical profile of Bosnia and Herzegovina, has promoted a diversification of many invertebrates.

In correlation with the achieved investigation level and realized abundance, it is assessed that groups with greatest abundancy are some of insects : Coleoptera (beetles), Lepidoptera (butterflies) and Hymenoptera (sawflies).

As a consequence of present pressures, many animals became endangered and got, unfortunately, in the Red list. It will be possible to discuss a real threat of distinct avertebrates in details, after Red book of Bosnia and Herzegovina gets done.

Today, our base for planned activities represent Annexes of Habitat's Directive by which are concerned following insects inhabiting our territory and requiring habitat's conservation :

Table 3. – Insects concerned by Habitat's Directive, Annex II, in BiH

<i>Lucanus cervus</i>	<i>Lycaena dispar</i>
<i>Dolichelasmus unicornis</i>	<i>Rosalia alpina</i>
<i>Morimus funereus</i>	<i>Nymphalis vaualbum</i>
<i>Euprestis splendens</i>	<i>Callimorpha (Euplagia, Panaxia) quadripunctaria</i>
<i>Osmoderma eremita</i>	
<i>Carabus variolosus</i>	<i>Eriogaster catax</i>
<i>Carabus hampei</i>	<i>Euphydryas (Eurodryas, Hypodryas) aurinia</i>
<i>Cerambyx cerdo</i>	<i>Hypodryas maturna</i>
<i>Graphoderus bilineatus</i>	<i>Leptidea morsei</i>

On the biological and landscape's diversity of B&H exercised are pressures on both scales national and global.

Assessed pressures on biological diversity are:

- Habitats conversion
- Unsustainable use of resources
- Logging, hunt and poaching
- Permanent pollution of all environmental spheres
- Devastation and destruction of ecosystems
- Degradation and fragmentation of ecosystems
- Disturbance in wilderness
- Unsustainable gathering of economically important species
- Uncontrolled use of pesticides and fertilisers
- Uncontrolled introduction of alien species
- Uncontrolled introduction and manipulation with GMOs

Most intensive pressures on landscape diversity are:

- Construction of full infrastructure :
 - Construction of traffic network;
 - Construction of power facilities (hydro-accumulation, power plants, power transmission, pipelines, gasslines etc.;
 - Construction of water supply facilities (catchment areas, trenches, dam lakes,retentions, dams);
- Agricultural activities (melioration, replotting, exhausting of habitats by monoculture, use of pesticides and fertilisers);
- Uncontrolled urbanisation and ruralistion;
- Disharmony between development goals by sectors;

Based on the state's assessment made in the framework of NBSAP's project, emphasized are following characteristics of landscape's and biological diversity in B&H:

- High level of genetic, species and ecosystem's diversity;
- High preservation level of landscape diversity's units important on european and global scale;
- Significant degree of changes, reffering to the distribution and composition of climax ecosystems;
- Protruding loss trend regarding biological and landscape's diversity, caused by wide spectrum of anthropogenous factors;

3 Identified sources of information

3-a Relevant institutions

Table 4. – Relevant institutions in BiH

Institution	City	Contact	Website
Universities			
Faculty of Science, University of Sarajevo	Sarajevo	+387 (0) 33 649 196 +387 (0) 33 250 510	www.pmf.unsa.ba
Faculty of Forestry, University of Sarajevo	Sarajevo	+387 (0) 33 614 003	www.sumfak.co.ba
Faculty of Forestry, University of Banja Luka	Banja Luka	+387 (0) 51 464 628	www.sfbf.org
Faculty of Agriculture, University of Banja Luka	Banja Luka	+387 (0) 51 312 390	www.agric.rs.sr
Faculty of Natural Sciences, University of Banja Luka	Banja Luka	+387 (0) 51 319 142	www.pmfbl.org
Faculty of agronomy, University of Mostar	Mostar	+387 (0) 36 325 015	www.sve-mo.ba/af
Faculty of Science and Education, University of Mostar	Mostar	+387 (0) 36 355 458	
Faculty of Civil engineering, University of Mostar	Mostar	+387 (0) 36 355 011 +387 (0) 36 355 000	www.gfmo.ba
Faculty of Civil engineering, University Džemal Bijedić, Mostar	Mostar	+387 (0) 36 570 730 +387 (0) 36 570 032	
Museums			
National Museum of Bosnia and Herzegovina	Sarajevo	+387 (0) 33 668 027	www.zemaljskimuzej.ba
Museum of RS	Banja Luka	+387 (0) 51 215 973	
Research centers			
Center for ecology and natural resources, Faculty of Science, University of Sarajevo	Sarajevo	+387 (0) 33 649 196	www.cepres.pmf.unsa.ba
Federal Institute for Agropedology	Sarajevo	+387 (0) 33 268-262	
The agricultural institute of RS	Banja Luka	+387 (0) 51 303 112	www.poljinstbl.com
Agrarian Mediterranean institute of Federation BiH	Mostar	+387 (0) 36 314 393	
Other institutions			
Cantonal institute for protection of cultural, historical and natural heritage	Sarajevo	+387 (0) 33 475 020	www.spomenici-sa.ba
Institute for cultural, historical and natural heritage of RS	Banja Luka	+387 (0) 51 215 474	www.heritagers.org
Hydro Engineering Institute, Srajevo	Sarajevo	+387 (0) 33 212 466	www.heis.ba
Hydro Meteorological Institute of FBiH	Sarajevo	+387 (0) 33 276 700	www.fhmzbih.gov.ba
Federal bureau for land surveying	Sarajevo	+387 (0) 33 472 469	
Hydro Meteorological Institute of RS	Banja Luka	+387 (0) 51 789 456	www.meteo-rs.com
The Institute for Urbanism of the Republic of Srpska	Banja Luka	+387 (0) 51 216 614	www.iu-rs.com

3-b Experts

Table 5. – Relevant experts in BiH

Name	Field of expertise	Institution	Contact
PhD Sulejman Redžić	Botany, Phytocoenology	Faculty of Science, University of Sarajevo	033/649-196 redzic0102@yahoo.com
PhD Dubravka Šoljan	Botany	Faculty of Science, University of Sarajevo	061/173-240 lsoljan@bih.net.ba
PhD Čedomil Šilić	Botany	Retired, National Museum of Bosnia and Herzegovina, Sarajevo	033/ 444 761
PhD Nada Šumatić	Botany	Faculty of Forestry, University of Banja Luka	051/464-628 sumatic2006@yahoo.com
PhD Ljiljana Topalić-Trivunović	Botany	Faculty of Technology, University of Banja Luka	065/897-604 ljiljat@blic.net
BSc Sabaheta Abadžić	Botany	National Museum of Bosnia and Herzegovina, Sarajevo	061/534-306
PhD Edina Muratović	Botany	Faculty of Science, University of Sarajevo	edinalmuratovic@yahoo.com
BSc Sabina Trakić	Phytocoenology	Faculty of Science, University of Sarajevo	033/649-196 strakic@email.com
BSc Vladimir Stupar	Phytocoenology	Faculty of Forestry, University of Banja Luka	065/692-006 stuparvladimir@gmail.com
MSc Jugoslav Brujić	Phytocoenology	Faculty of Forestry, University of Banja Luka	051/464-628 arbormagna@yahoo.com
PhD Petar Grgić	Bryophyta	Faculty of Science, University of Banja Luka	
PhD Dubravka Hafner	Algae	Faculty of Science and Education, University of Mostar	+387 (0) 36 355 458
BSc Alma Hadžiahmetović	Algae	Faculty of Science, University of Sarajevo	alma.h80@gmail.com
PhD Boro Pavlović	Zoology	Faculty of Science, University of Banja Luka	pavlov@blic.net
PhD Suvad Lelo	Zoology	Faculty of Science, University of Sarajevo	033/250-453 suvad_lelo@yahoo.com
PhD Milenko Radević	Zoology	Faculty of Science, University of Banja Luka	+387 (0) 51 319 142 radevic@blic.net
BSc Stjepan Matić	Zoology	Nature Park Hutovo Blato	+387 36 814 716
MSc Dražen Kotrošan	Ornithology	National Museum of Bosnia and Herzegovina, Sarajevo	033 453 158 kotrosan@bih.net.ba
MSc Brane Gašić	Ornithology	Museum of RS, Banja Luka	+387 (0) 51 215 973
PhD Rifat Škrijelj	Ichthyology	Faculty of Science, University of Sarajevo	033/250-445 rifats@bih.net.ba
PhD Sadbera Trožić- Borovac	Hydrozoology	Faculty of Science, University of Sarajevo	033/250-454 sadberatb@yahoo.com

Name	Field of expertise	Institution	Contact
MSc Zoran Stanivuković	Entomology	Faculty of Forestry, University of Banja Luka	051/464-628 stanivukovic19@yahoo.com
BSc Dejan Kulijer	Entomology	National Museum of Bosnia and Herzegovina, Sarajevo	+387 (0)63 732 051 dejan.kulijer@gmail.com
PhD Senka Barudanović	Nature Conservation	Faculty of Science, University of Sarajevo	033/250-489 sebarudanovic@gmail.com
MSc Tihomir Predić	Agroecology	Institute for Agriculture, Banja Luka	+387 51 321 490 agrohemiija@blic.net
PhD Jakov Pehar	Agriculture	Agricultural institute, Mostar	036/314-393 agro.in.mo@tel.net.ba
PhD Mihajlo Marković	Pedology	Faculty of Agronomy, University of Banja Luka	+387 (0) 51 312 390 markovic@urc.bl.ac.yu
MSc Boris Marković	Physical planning	“Projekt” a.d., Banja Luka	065/926-008 kamelija@teol.net

3-c Relevant scientific publications

Literature is available mainly in national and university libraries in Sarajevo, Mostar and Banja Luka, as well as in libraries of National Museum of BiH and Museum of RS. There is also a great number of herbarium collections and analogue maps available in these institutions.

Digital maps as well as satellite images of terrain are mainly property of institutions which perform land surveying.

Scientific journals:

- Glasnik zemaljskog muzeja Bosne i Hercegovine (The National Museum Herald of Bosnia and Herzegovina)
National Museum of Bosnia and Herzegovina
Tel: + 387 33 668 027
E-mail: muzej@citynet.ba
web site: www.zemaljskimuzej.ba
- Glasnik šumarskog fakulteta Univerziteta u Banjoj Luci (Forestry Faculty Journal – published twice a year)
sfbl.org/english/glasnik.htm
- Godišnjak Biološkog Instituta Univerziteta u Sarajevu (Annual of the Institute of Biology, University of Sarajevo)

3-c-i) Birds

- 1) BirdLife International, 2004: *Birds in Europe: population estimates, trends and conservation status*. BirdLife International (BirdLife Conservation Series No.12), Cambridge.
- 2) GAŠIĆ, B., 2001: *Rezultati novih istraživanja faune ptica Republike Srpske*. Ciconia, 10: 108-127.
- 3) GAŠIĆ, B., 2004: *Istraživanja ornitofaune u nacionalnom parku Sutjeska, 2001. godine*. Glasnik Udruženja muzejskih radnika Republike Srpske 2: 155-159.

- 4) GRUBAČ, B., GAŠIĆ, B., 2001: *Savremeni podaci o fauni ptica istočne Hercegovine i susjednih područja (Bosna i Hercegovina)*. Ciconia, 13: 59-76.
- 5) KOTROŠAN, D., 2004: *Dvogodišnja studija ptica u vinogradu "Željuša" (Bosna i Hercegovina)*. Ciconia 13: 49-58.
- 6) KOTROŠAN, D., 2005: *Sistematski prijelagod ptica Bosne i Hercegovine*. Unutar: S. Lelo (urednik), Fauna Bosne i Hercegovine – Biosistematski prijelogedi. Interno izdanje Udruženja za inventarizaciju i zaštitu životinja, Ilijaš, Kanton Sarajevo.
- 7) KOTROŠAN, D., 2005: *Ekološka diferencijacija faune ptica hercegovačkog vinograda "Željuša"*. Radovi poljoprivrednog fakulteta Univerziteta u Sarajevu, 50(55/2): 5-17.
- 8) KOTROŠAN, D., PAPES, M. 2000: *Popis ptica Bosne i Hercegovine*. (manuscript)
- 9) KOTROŠAN, D., PAPES, M. 2007: *Popis ptica zabilježenih u Bosni i Hercegovini od 1888. do 2006. godine*. Bilten mreže posmatrača ptica u Bosni i Hercegovini, Sarajevo.
- 10) KOTROŠAN, D., OBRATIL, S., GAŠIĆ, B., 2005: *Prvi rezultati savremenih istraživanja ornitofaune srednjobosanske planine Ozren*. I Simpozij biologa Republike Srpske, Banja Luka, knjiga sažetaka, pp: 13-14.
- 11) KOTROŠAN, D., DENDER, D., DEROVIĆ, I., 2006: *Red-footed Falcon Falco vespertinus*. Acrocephalus, 27 (128-129): 108-109.
- 12) KOTROŠAN, D., MULAOMEROVIĆ, J., HABUL, A., 2004: *Ornithology and bird protection in Bosnia and Herzegovina: situation and perspectives*. Acrocephalus, 25(122): 149-152.
- 13) MARINKOVIĆ, S., ORLANDIĆ, LJ., KARADŽIĆ, B., 2005: *Area of Griffon Vultures Gyps fulvus in Herzegovina before balkans civil conflict*. I Simpozij biologa Republike Srpske, Banja Luka, knjiga sažetaka, pp: 31-32.
- 14) MATVEJEV, S., VASIĆ, V., 1973: *Aves, Catalogus faunae Jugoslaviae, IV/3*
- 15) MULAOMEROVIĆ, J., 2006: *Purple Heron Ardea purpurea*. Acrocephalus, 27 (128-129): 108.
- 16) OBRATIL, S., 1974: *Ornitofauna ribnjaka Bardača kod Srbca*. GZM BiH (PN) NS 11-12: 153-193.
- 17) OBRATIL, S., 1978: *Gniježđenje vranca velikog - Phalacrocorax carbo (L., 1758) u Bosni i Hercegovini*. GZM BiH (PN) NS 18: 343-347.
- 18) OBRATIL, S., 1980: *Avifauna Bosne i Hercegovine*. Naučni skup "Problemi inventarizacije životinjskog svijeta Bosne i Hercegovine", ANU BiH knj. 47, Odjeljenje za prirodni nauka knj. 8: 131-144.
- 19) OBRATIL, S., 1983: *Struktura i dinamika populacija ptica (Aves) nekih ekosistema na planini Vranici*. GZM BiH (PN) NS 22: 95-114.
- 20) OBRATIL, S., 1983: *Avifauna sjeverne Bosne*. GZM BiH (PN) NS 22: 115-176.
- 21) OBRATIL, S., 1984: *Naselja ptica (Aves) u kopnenim biocenozama kraških polja Hercegovine*. GZM BiH (PN) NS 23: 147-184.
- 22) OBRATIL, S., 1984: *Gniježđenje vranca velikog, Phalacrocorax carbo (L.) na Hutovu blatu*. GZM BiH (PN) NS 23: 185-189.
- 23) OBRATIL, S., 1985: *Ornitofauna Hutovog blata do izgradnje akumulacionog jezera PHE "Čapljina"*. GZM BiH (PN) NS 24: 175-209.
- 24) OBRATIL, S., 1987: *Naselja ptica (Aves) u životnim zajednicama na trajnim plohama nacionalnog parka "Sutjeska"*. Godiš. biol. instit., 40: 73-87.
- 25) OBRATIL, S., MATVEJEV, S., 1989: *Predlog "Crvene liste" ugroženih ptica SR Bosne i Hercegovine*. Naše starine, 18-19:227-235.
- 26) OBRATIL, S., 1992: *Prilog poznavanju avifaune Buškog jezera (Bosna) i užeg priobalnog područja*. GZM BiH (PN) NS 30, 155-168.
- 27) OBRATIL, S., 1996: *Prva istraživanja ornitofaune Hutova blata poslije izgradnje akumulacionog jezera PHE "Čapljina"*. GZM BiH (PN) NS 31: 403-429.
- 28) OBRATIL, S., 2000: *Istraživanja faune ptica na Hutovu blatu u periodu siječanj – prosinac 2000 god*. Nepublikovan izvještaj za projekat "Nova politika gospodarenja močvarom Hutovo blato".
- 29) OBRATIL, S., 2005: *Ptice parka Blidinje i bližeg okruženja*. Prvi međunarodni znanstveni simpozij Blidinje 2005. Zbornik radova, pp: 271-292.

- 30) RUCNER, D., OBRATIL, S., 1973: *Prilog poznavanju avifaune planinskog područja Maglića, Volujka i Zelengore*. *Larus* 25: 61-94.
- 31) SCHNEIDER-JACOBY, M., RUBINIĆ, B., SACKL, P., ŠTUMBERGER, B., 2006: *A preliminary assessment of the ornithological importance of Livanjsko polje (Cetina River Basin, Bosnia and Herzegovina)*. *Acrocephalus*, 27 (128-129): 45-55

3-c-ii) Fish

- 1) HADŽISELIMOVIĆ, R., HAMZIĆ, A., 1999: *Biodiverzitet i biogeografija riba Bosne i Hercegovine*. Soroš fondacija – Fond Otvoreno društvo Bosne i Hercegovine, Sarajevo.
- 2) SOFRADŽIJA, A., 1999: *Slatkovodne ribe i kolouste Bosne i Hercegovine*. Svjetlost, Sarajevo (u štampi).
- 3) STEINDACHNER, F., 1882: *Salmo (Trutta) obtusirostris* var. *oxyrhynchus*. *Ichthyologische Beiträge (XII), Sitzungsberichte der k., Akad. Der Wissenschaften*, 86: 1.
- 4) ŠKRIJELJ, R., 2002: *Populacije riba neretvanskih jezera: ihtiološka monografija*. Prirodno-matematički fakultet Univerziteta u Sarajevu, Sarajevo.
- 5) ŠOLJAN, T., 1980: *Morska fauna Bosne i Hercegovine*. U: *Savjetovanje Problemi inventarizacije životinjskog svijeta Bosne i Hercegovine: stanje i perspektive*. Akademija nauka i umjetnosti, Sarajevo, 1980, Posebna izdanja, knj. XLVII, Odjeljenje prirodnih i matematičkih nauka, knj. 8, 21-31.
- 6) VUKOVIĆ, T., 1977: *Ribe Bosne i Hercegovine*. Svjetlost, sarajevo.
- 7) VUKOVIĆ, T., 1980: *Fauna slatkovodnih riba Bosne i Hercegovine*. Akademija nauka i umjetnosti Bosne i Hercegovine, Sarajevo, 115-120, Posebna izdanja ANU BiH, knjiga 47, Odjeljenje prirodnih i matematičkih nauka, knjiga 8.
- 8) VUKOVIĆ, T., IVANOVIĆ, B., 1971: *Slatkovodne ribe Jugoslavije*. Zemaljski muzej Bosne i Hercegovine, Sarajevo.

3-c-iii) Mammals

- 1) BJEDOV, V., KOTROŠAN, D., 2000: *Popis sisara u Bosni i Hercegovini*. (rukopis).
- 2) ĆUTUK, R., IBROVIĆ, M., KUNOVAC, S., HASANBEGOVIĆ, A., 2000: *Divlja fauna Bosne i Hercegovine, Sisari-Mammalia*. *Veterinaria*, 49: 453-463.
- 3) ĐULIĆ, B., MIRIĆ, D., 1967: *Catalogus faune Jugoslaviae, IV/4 Mammalia*. *Cons. Acad. Sci. et. Art. RSFY*.
- 4) MITCHELL-JONES, A. J., AMORI, G., BOGDANOWICZ, W., KRYŠTUFEK, B., REIJNDERS, P. J. H., SPITZENBERGER, F., STUBBE, M., THISSEN, J.B., VOHRALIK, V., ZIMA, J., 1999: *The Atlas of European Mammals*. T & J Poiser, London.
- 5) KOTROŠAN, D., 2005: *Istorijski pregled proćavanja faune Bosne i Hercegovine u 19. i 20. vijeku*. Unutar: S. Lelo (urednik), *Fauna Bosne i Hercegovine – Biosistematski prijevledi*. Interno izdanje Udruženja za inventarizaciju i zaštitu životinja, Ilijaš, Kanton Sarajevo.
- 6) LELO, S., 2005: *Sistematski prijevled sisara Bosne i Hercegovine*. Unutar: S. Lelo (urednik), *Fauna Bosne i Hercegovine – Biosistematski prijevledi*. Interno izdanje Udruženja za inventarizaciju i zaštitu životinja, Ilijaš, Kanton Sarajevo.
- 7) SOFRADŽIJA, A., MUZAFEROVIĆ, Š., 1999: *Biodiverzitet sisara Bosne i Hercegovine (katalog)*. Soroš Fondacija - Fonda Otvoreno društvo Bosne i Hercegovine, Sarajevo.

3-c-iv) Other groups of animals

- 1) ADAMOVIĆ, Z., 1948: *Spisak vilinih konjica (Odonata) u Biološkom institutu u Sarajevu*. Godišnjak Biološkog instituta, Sarajevo.
- 2) APFELBECK, V., 1896: *Karakteristike faune beskićmenjaka u Bosni i Hercegovini*, GZM, Sarajevo.
- 3) BRELIH, S., DŽUKIĆ, G., 1974: *Reptilia*, *Catalogus faunae Jugoslaviae, IV/2*.

- 4) ČURČIĆ, B., 1974: *Arachnoidea, Pseudoscorpiones*, Catalogus faunae Jugoslaviae, III/3.
- 5) LELO, S. 2000: *Revised inventory of the butterflies of Bosnia and Herzegovina (Insecta: Lepidoptera: Hesperioidea, Papilionoidea)*. Natura Croatica, Zagreb, 9 (2): 139-156
- 6) LELO, S. 2004: *Revizija Rebelovog popisa leptira Bosne i Hercegovine*. Coron's d.o.o., Sarajevo.
- 7) LELO, S. (ed) 2005: *Fauna Bosne i Hercegovine – Biosistematski prijedledi*. Udruženje za inventarizaciju i zaštitu životinja, Ilijaš, Kanton Sarajevo, 108-141.
- 8) LELO, S. 2006: *Endemični taksoni trčuljaka (Insecta: Coleoptera, Carabidae) u Bosni i Hercegovini*. Rukopis.
- 9) LELO, S. 2007: Contribution to knowledge of the fauna of butterflies in Bosnia and Herzegovina, Acta entomologica serbica, 12(2): 73-92
- 10) MATVEJEV, S., 1967. *Orthopteroidea*. Catalogus faunae Jugoslaviae III/6. SAZU, Ljubljana, str. 47.
- 11) MIKŠIĆ, R., 1962: *Scarabaeidae Jugoslavije, I i III dio*, Građa Naučnog društva BiH, 1958, knj. VI, 1965, knj. XXV i II dio, Posebna izdanja SANU, CCCXLVIII
- 12) MIKŠIĆ, R., 1971: *Katalog der Bockkäfer (Cerambycidae) Jugoslawiens*, Sarajevo.
- 13) MIKŠIĆ, S., 1967: *Fauna Orthoptera Bosne i Hercegovine, I, Tettigonioidea*, GZM, Sarajevo.
- 14) Mikšić, S., Cvijović M., Kačanski D. i dr. 1970., Biogeografska analiza entomofaune planina Maglič, Volujak i Zelengora, GZM, Sarajevo.
- 15) MIKŠIĆ, S. 1971: *Endemični, reliktni i novi oblici Orthoptera na planinama Prenj, Čvrstica i Čabulja*. GZM, 10: 119-138.
- 16) MIKŠIĆ, S. 1980: *Fauna Orthoptera Bosne i Hercegovine*. Akademija nauka i umjetnosti Bosne i Hercegovine, Posebna izdanja, knjiga XLVII, Odjeljenje Prirodnih i matematičkih nauka, knjiga 8., Savjetovanje - Problemi inventarizacije životinjskog svijeta BiH - stanje i perspektive, pp 109-114.
- 17) MIKŠIĆ, S. 1983: *Fauna kraškog područja: U: Socijalistička Republika Bosna i Hercegovina, separat iz II izdanja Enciklopedija Jugoslavije* (ed. Filipović, M., Benac, A.), str. 46. Jugoslavenski leksikografski zavod, Zagreb.
- 18) PAVLOVIĆ B. 1989: *Naselja suvozemnih Gastropoda i predviđanje broja vrsta i podvrsta mekušaca u području sliva Drine*. U Flora i vegetacija viših biljaka i fauna Symphyta, Pauropoda i Mollusca u refugijalno-reliktnim ekosistemima kanjona rijeka Tare, Pive, Komarnice, Lima i Drine. (R.Lakušić., M. Dizdarević, P. Grgić, B. Pavlović, S. Redžić). Glasnik Odjeljenja prirodnih nauka, Crnogorska akademija nauka i umjetnosti, 7: 237-281.
- 19) PAVLOVIĆ, B. P., N. PAVLOVIĆ: *Broj vrsta i podvrsta limnofaune Evrope koje žive u krenonskim biotopima Balkanskog poluostrva i problemi njihovog opstanka*. Ecologica Beograd - Banja Luka, posebno izdanje, 6: 135-138. 2000.
- 20) PAVLOVIĆ, B.: *Naselja suvozemnih Gastropoda i predviđanje broja vrsta i podvrsta mekušaca u području sliva Une*. Zbornik rezimea naučnog skupa "Valorizacija prirodnih i društvenih vrijednosti sliva rijeke Une", Bihać-Sarajevo: 31. 1991.
- 21) POČRNJIĆ, Z., ŠOLAJA, M. 1988: *Fauna repatih vodozema u Bosni i Hercegovini*. Tehnološki fakultet, Banja Luka.
- 22) POČRNJIĆ, Z., VUKOVIĆ, T., ŠOLAJA, M. 1987: *Problemi zaštite repatih vodozemaca*. Akademija nauka i umjetnosti Bosne i Hercegovine. Sarajevo.
- 23) POČRNJIĆ, Z., VUKOVIĆ, T., ŠOLAJA, M., BAHTIJAREVIĆ, A. 1985: *Populacija čovječje ribice u pećini Suvaja*. Godišnjak Biol.inst., Sarajevo
- 24) PRETNER, E., 1968: *Coleoptera, Catopidae, Bathysciinae*, Catalogus faunae Jugoslaviae, III/6.
- 25) PROTIĆ, LJ. 2004: *Sistematski prijedled stjenica Bosne i Hercegovine*. Unutar: S. Lelo (urednik), Fauna Bosne i Hercegovine – Biosistematski prijedledi. Interno izdanje Udruženja za inventarizaciju i zaštitu životinja, Ilijaš, Kanton Sarajevo.
- 26) RADOVANOVIĆ, M., 1951: *Vodozemci i gmizavci naše zemlje*. Naučna knjiga, Beograd.
- 27) REBEL, H., 1904: *Studien uber die Lepidopterenfauna der Balkanlander, II Teil Bosnien und Herzegovina*. Annalen des k. k. Naturhistorischen Hofmuseum, 19: 97-377, Wien.
- 28) SKET, B., 2003: *Životinjski svijet Vjetrenice*. U : Lučić, I., Vjetrenica – pogled u dušu zemlje, ArTresor naklada, Zagreb.

3-c-v) Flora and vegetation

- 1) ADAMOVIĆ, L. 1907. *Pflanzengeographische tellung und Gliederung der Balkanhalbinsel*. Aus der Kaiserlich-Koniglichen hof – und Staatsdruckerel, Wien, 91 pgs. + 3 pflancengeographishen Karten.
- 2) BAJIĆ, D., Ž. BJELČIĆ & S. POPOVIĆ, 1952: *Prilog poznavanju flore i vegetacije reke Unca*. God. Biol. inst. (Sarajevo), 5,1-2: 129-142.
- 3) BARUDANOVIĆ, S. 2003. *Ekološko-vegetacijska diferencijacija lišćarsko-listopadnih šuma planine Vranice*. Ph.Thesis, Prirodno-matematički fakultet Univerziteta u Sarajevu, 373 p.
- 4) BATINICA, D. 1950: *Planinski pašnjaci biljne zajednice "Nardetum strictae"*. Godišnjak Biološkog instituta Univerziteta u Sarajevu, III, Fasc. 1-2, 93-114.
- 5) BATINICA, D. 1975: *Pregled travnjačkih fitocenoza na području Romanije sa osnovnim ekološko-gospodarskim karakteristikama*. Godišnjak Biološkog instituta Univerziteta u Sarajevu, XXVIII, 17-27.
- 6) BATINICA D., STEFANOVIĆ V., BJELČIĆ Ž. I MIŠIĆ LJ. 1967-1970: *Izvještaj za vegetacijsku kartu Jugoslavije. – Romanija, Jahorina, Trebević, dolina Prače i Miljacke*. Elaborat Biološkog instituta Univerziteta u Sarajevu.
- 7) BECK-MANNAGETTA, G., 1886-1898: *Flora von Sudbosnien und der angrenzenden Herzegovina*. Ann. Naturh. Mus. 1,2,4,5,6,10,13, Wien.
- 8) BECK-MANNAGETTA, G. 1888. *Die alpine Vegetation der sudbosnisch – herecgovinischen Hochgebirge*. Verh. Zool.-Bot. Ges. Wien.
- 9) BECK-MANNAGETTA, G., 1901: *Die Vegetationsverhältnisse der illyrischen Länder*. Verl. von W. Engelmann, Leipzig.
- 10) BECK-MANNAGETTA, G. 1903: *Flora Bosne, Hercegovine i Novopazarskog Sandžaka, Gymnospermae i Monocotyledones*, I dio Državna štamparija, Sarajevo.
- 11) BECK-MANNAGETTA, G., 1916: *Flora Bosne, Hercegovine i Novopazarskog Sandžaka*, II, Sarajevo.
- 12) BECK-MANNAGETTA, G., 1927: *Flora Bosne i Hercegovine i oblasti Novog Pazara*, III - *Horipetalae*. Beograd – Sarajevo.
- 13) BECK, G. M. & MALY, K., 1950: *Flora Bosnae et Herzegovinae, IV Sympetalae*, pars I, 1-72, Svjetlost, Sarajevo.
- 14) BECK, G. M, MALY, K. & Ž. BJELČIĆ, 1967: *Flora Bosnae et Herzegovinae, IV Sympetalae*, 2, Zemaljski muzej BiH, Sarajevo.
- 15) BECK, G., MALY, K. et BJELČIĆ, Ž., 1974: *Flora Bosne i Hercegovine IV – Sympetalae* 3. Sarajevo.
- 16) BECK, G., MALY, K. et BJELČIĆ, Ž., 1983: *Flora Bosne i Hercegovine IV – Sympetalae* 4. Sarajevo.
- 17) BEUS, V. 1997: *Fitocenologija*, Sarajevo
- 18) BEUS, V., VOJNIKOVIC, S.: (2006): *“Zaštićena i specifična područja šuma i šumskih zemljišta u Bosni i Hercegovini – teritorij F BiH” – PROJEKAT/ Šumarski fakultet Univerziteta u Sarajevu*.
- 19) BJELČIĆ, Ž., 1953: *Bilješke o nekim malo poznatim biljkama iz Bosanske posavine*. God. biol. instit. Sarajevo, sv. 1-2:39-42, Sarajevo.
- 20) Bjelčić Ž. 1954: God. Biol. Inst. Univ., VII, 1-2, Sarajevo. – *Velika Tišina kod Bosanskog Šamca*.
- 21) BJELČIĆ, Ž., 1966: *Vegetacija pretplaninskog pojasa planine Jahorine*. Glas. Zemalj. muz. Bosne Herceg. Sarajevu, prir. nauke (Sarajevo), 5: 31-136.
- 22) BJELČIĆ Ž. 1974: *Izvještaj za vegetacijsku kartu Jugoslavije. – Šire područje Bjelašnice*. (EBIUS).
- 23) BJELČIĆ Ž. 1975: *Izvještaj za vegetacijsku kartu Jugoslavije. – Bjelašnica*. (EBIUS).
- 24) BJELČIĆ, Ž., 1987: *Endemi u biljnom svijetu Bosne i Hercegovine i problem zaštite*. ANUBiH, posebna izdanja, knjiga LXXXII, Odjeljenje prirodnih i matematičkih nauka, knjiga 14: 95-102, naučni skup “Zaštita endema u živom svijetu Jugoslavije”, Sarajevo.

- 25) BJELČIĆ, Ž. & ŠILIĆ, Č.: 1971: *Karakteristične cvjetnice za hercegovački endemni centar pl. Prenj, Čvrsnica i Čabulja*. Glas. Zem. Muz. Bosne i Herc., (NS) (PN), 10: 39-57. Sarajevo.
- 26) BJELČIĆ, Ž., Č. ŠILIĆ, R. LAKUŠIĆ, L. KUTLEŠA, LJ. MIŠIĆ & P. GRGIĆ, 1969: *Neke rijetke i interesantne vrste biljaka sa područja planina Maglića, Volujaka i Zelengore*. ANUBiH, Posebna izdanja, knjiga XI, Odjeljenje prirodnih i matematičkih nauka, knjiga 3: 91-106, Osnovne prirodne karakteristike, flora i vegetacija Nacionalnog parka "Sutjeska", Sarajevo.
- 27) BLAGOJEVIĆ, S.(1976): *Prilog poznavanju cijanoficeja (Cyanophyceae) krških izvorišta*. Acta Bot.Croat. 35,207-215.
- 28) BLAGOJEVIĆ, S.(1976): *Prilog poznavanju algi krških izvorišta u Bosni i Hercegovini. I. Chrysophyceae, Xanthophyceae, Bacillariophyceae*. Godišnjak Biol.in-ta Univ.u Sarajevu. 29, 5-21.
- 29) BLAGOJEVIĆ, S.(1979): *Prilog poznavanju algi krških izvorišta u Bosni i Hercegovini. II Kloroficeje (Chlorophyceae)*. Acta Bot.Croat. 38,125-132.
- 30) BLAGOJEVIĆ, S. HAFNER, D., KRIVOKAPIĆ, K., KAĆANSKI, D.(1986).*Neke hidrobiološke karakteristike akumulacionih jezera na Neretvi i Trebišnjici*. Prirodno – Matematički fakultet .Univerzitet u Sarajevu
- 31) BRAUN-BLANQUET, J. 1964. *Pflanzensoziologie*. Springer Verlag, Wien - New York.
- 32) BRENNAN, S., WITHGOTT, J. (2005): *Biodiversity and Conservation Biology*. (In: Environment; The Science behind the Stories. Pearson, Bewamin Cummings, San Francisco.
- 33) BRUJIĆ J. (2004): *Šumska vegetacija sjevernog dijela planine Uzlomac kod Banjaluke*, 129 stranica teksta i 67 priloga (10 fitocenoloških tabela, 3 tabele, 36 grafikona, 18 karata). Šumarski fakultet Beograd, Odsek za Gajenje šuma., Magistarski rad
- 34) BRUJIĆ J., STUPAR V., MILANOVIĆ Đ., TRAVAR J. I PJANIĆ B. (2007): *Nova nalazišta ozimice (Eranthis hiemalis) u Bosni i Hercegovini*. Glasnik Šum. Fak. Univerz. U B.L. 5: 15-23. Banja Luka.
- 35) BRUJIĆ J., MILANOVIĆ Đ., STUPAR V., TRAVAR J. (2007): *Endemične i ugrožene vrste kanjonskog sistema srednjeg toka Vrbasa*, Međunarodni naučni skup „Ekološke vrijednosti Dinarida (u čast prof. Dr Radomiru Lakušiću)“. Berane – Andrijevica – Plav
- 36) BRUJIĆ J., STUPAR V., MILANOVIĆ Đ., RADOVIĆ P. (2005): *CD – atlas drveća i žbunja Republike Srpske i susjednih područja*, Šumarski fakultet, Banja Luka
- 37) BRUJIĆ J., BUCALO V., STUPAR V., CVJETIĆANIN R., GAŠIĆ B., GAŠIĆ R., MILANOVIĆ Đ., TRAVAR J. I PJANIĆ B. (2006): *Mogućnost izdvajanja zaštićenog područja Klekovača-Lom*, Studija izvodljivosti, MAGA & WALD-project, Banja
- 38) BUCALO V. (1999): *Šumske fitocenoze planine Jadovnik*, Šumarski fakultet Univerziteta u Banjoj Luci, Banja Luka
- 39) BUCALO V., BRUJIĆ J., TRAVAR J. I MILANOVIĆ Đ. (2007): *Flora NP "Kozara"*, Šumarski fakultet i ESRAF Lombardia – Milano, 388 str., Banja Luka
- 40) BUCALO V., BRUJIĆ J., TRAVAR J. I MILANOVIĆ Đ. (2008): *Flora Prašume "Lom"*, Šumarski fakultet, Banja Luka
- 41) BUCALO V., BRUJIĆ J. I TRAVAR J. (2007): *Mreža zaštićenih područja Republike Srpske*. Glasnik Šum. Fak. Univerz. U B.L. 7: 11-22. Banja Luka
- 42) BURLICA Č., TRAVAR J. I BRUJIĆ J. (2001): *Spomenici prirode u šumskim ekosistemima Republike Srpske*. Seminar o zaštiti prirode, Urbanistički zavod Banja Luka, Šipovo
- 43) DIZDAREVIĆ, M., LAKUŠIĆ, R., PAVLOVIĆ, D. & ABADŽIĆ, S. 1979. Pregled ekosistema planine Vranice u Bosni. Zbornik radova II kongresa ekologa Jugoslavije, knjiga 1: 435-482.
- 44) DOKO, A. (2005): *Epifite Hutova Blata*. Diplomski rad. Sveučilište u Mostaru.
- 45) DOMAC R., 1994: *Malaflora Hrvatske*. Skolska knjiga, Zagreb.
- 46) DZWONKO, Z. & LOSTER, S. 2000. *Syntaxonomy and phytogeographical differentiation of the Fagus woods in the Southwest Balkan Peninsula*. Journal of Vegetation Science, 11.5
- 47) ELLENBERG, H. 1986. *Vegetation Mitteleuropas mit den Alpen in oekologischer Sicht*. Eugen Ulmer, Stuttgart.

- 48) FIALA, F. 1889. *Studije o nekojim biljevnim odnošajima u posjednutim zemljama*. Glasnik. Zem. muzeja BiH, 85-88.
- 49) FORMANEK, E., 1888: *Beitrag zur Flora von Bosnien und der Herzegovina*. Österr. Bot. Zeitschr. 38: 419-423.
- 50) FRITSCH, K., 1909: *Neue Beiträge zur Flora der Balkanhalbinsel insbesondere Serbiens, Bosniens und der Herzegowina*, erster teil. Verlag des Naturwissenschaftlichen Vereines für steiermark. Jahrgang 1908., 45:163.
- 51) FUKAREK, P., 1957: *Fitocenološka raspodjela bosanskog i hercegovačkog krša*, Zbornik "Krš BiH" Split, br.3, str. 139-143.
- 52) FUKAREK, P., 1958: *Prilog poznavanju granica krša u BiH*, Geografski pregled Sarajevo, br.2, str. 11-18
- 53) FUKAREK, P., 1962: *Granice raširenja izrazitih flornih elemenata u vegetaciji Hercegovine*, G.P. Sarajevo, str 73-76.
- 54) FUKAREK, P., 1962: *Modro lasinje – Moltkea petraea (Trat.) Gris. rijetki endemni grmić našeg hercegovačkog i crnogorskog krša i njegova zaštita*. Naše starine, 8: 205-209, Sarajevo.
- 55) FUKAREK, P., 1962: *Pionirska vegetacija točila u brdskom pojasu dinarskih planina i njena zaštita*, Naše starine Sarajevo, br. 8, str. 199-204.
- 56) FUKAREK, P., 1966: *Zajednice endemne Munike na planini Prenju u Hercegovini*. Acta Bot. Croat., 25:61-63, Zagreb.
- 57) FUKAREK, P. 1967-1978. *Vegetacijska karta Jugoslavije – teritorij BiH. Razmjer 1: 50 000*. Elaborati Biološkog instituta Univerziteta u Sarajevu.
- 58) FUKAREK, P. 1969. *Prilog poznavanju biljnosocioloških odnosa šuma i šibljika Nacionalnog parka "Sutjeska."*. ANUBiH, Posebna izdanja knjiga XI, Odjeljenje prirodnih i matematičkih nauka, knjiga 3: 189-289.
- 59) FUKAREK, P., 1970: *Fitocenološka istraživanja i kartiranje šumskih i šibljačkih zajednica na hercegovačkim planinama: Orjen, Prejn i Čvrstica*, zbornik radova ANUBIH, Sarajevo, br. 11, str. 175-229.
- 60) FUKAREK, P., 1971: *Šume borova na jugoalvenskom kršu*, Separat JAZU, str.145-162.
- 61) FUKAREK, P., 1979: *Šumske biljne zajednice Jugoslavije*. Zbornik radova II kongresa ekologija Jugoslavije, knjiga I, 55-69, Zadar-Plitvice.
- 62) FUKAREK, P. & STEFANOVIĆ, V. 1958. *Prašuma Perućica i njena vegetacija*. Radovi Poljoprivredno-šumarskog fakulteta u Sarajevu, 3 (3): 93-146.
- 63) GRGIĆ, P. 1972: *Epifitska i lignifilna vegetacija mahovina u području prašume Perućice u Bosni*. God. Biol. Inst. Univ. u Sarajevu, 25, 5 – 41.
- 64) GRGIĆ, P. 1980: *Fitocenoze briofita na vertikalnom profilu Igmana i Bjelašnice*. God. Biol. Inst. Univ. u Sarajevu, 33, 59 – 85.
- 65) GRGIĆ, P. 1982: *Fitocenoze briofita na vertikalnom profilu Igmana i Bjelašnice*. God. Biol. Inst. Univ. u Sarajevu, 35, 47 – 69.
- 66) GRGIĆ, P. 1983: *Prilog poznavanju mahovina u ekosistemima sa Pančićevom omorikom*. Godišnjak Biol. Inst. Vol.36:73-78., Sarajevo.
- 67) Grgić, P. 1985: *Istraženost briofita u Bosni I Hercegovini i njene karakteristike*. Godišnjak. Biol. Inst. Univ., Vol. 38: 33-40., Sarajevo.
- 68) GRUPA AUTORA, 1975: *Hercegovački razvojni endemni centar u sklopu planina Prenj, Čvrstica, Čabulja i Velež*. Elaborat Zemaljskog muzeja BiH (Prirodnjačko odjeljenje), Sarajevo.
- 69) HAYEK, A. 1924-1933. *Prodromus florum peninsulae Balcanicae. Band I, II, III, IV*. Berlin-Dahlem - Berlin.
- 70) HORVAT, I., 1933: *Istraživanje vegetacije hercegovačkih i crnogorskih planina*, Ljetop. Jugosl. akd., 46:110-113, Zagreb.
- 71) Horvat, I., 1960: *Pretplaninske livade i rudine planine Vlašića u Bosni*. Biol. glasnik. Vol. 13, Nr. 2-3: 113-344. Zagreb.

- 72) HORVAT, I., GLAVAČ, V. & ELLENBERG, H. 1974. *Vegetation of Sudosteuropas*. Geobotanica Selecta, IV. Gustav Fischer Verlag, Stuttgart.
- 73) HORVAT, I. & PAWLOWSKI, B. 1939. *Istraživanje vegetacije planine Vranice*. Ljetopis JAZU, Zagreb 51: 149-152.
- 74) HORVATIĆ S., 1967: *Analitička flora Jugoslavije, 1(1)*. Institut za Botaniku Sveučilista u Zagrebu, Grafički zavod Hrvatske, Zagreb
- 75) HORVATIĆ S., TRINAJSTIĆ I., eds. 1973: *Analitička flora Jugoslavije, 1 (2)*. Institut za Botaniku Sveučilista u Zagrebu, Grafički zavod Hrvatske, Zagreb.
- 76) ISAJEV, V., BEUS, V., MATARUGA, M. (2006): *Biodiverzitet zaštićenih područja u Bosni i Hercegovini i njihov značaj za konzervaciju*. Zbornik radova. Naučna konferencija: "Gazdovanje šumskim ekosistemima nacionalnih parkova i drugih zaštićenih područja". Jahorina. 11-24.
- 77) IUCN Conservation Monitoring Centre, Threatened Plants Unit (1997): *List of rare, threatened and endemic plants in Europe (1997 edition)*. European Committee for the Conservation of Nature and Natural Resources, Strasbourg. The Committee for Mapping the Flora of Europe.
- 78) JANCHEN, E., 1906: *Ein Beitrag zur Kenntnis der Flora der Herzegowina*. Mitt. Naturw. Ver. Univers, 4, 3:23-25;4, 4-6:29-36, Wien.
- 79) JERKOVIĆ, L. (1978): *Dijatomeje sliva gornjeg toka rijeke Neretve*, God. Biol. inst. Sarajevo 30, 5-49.
- 80) JERKOVIĆ, L. (1978): *Studija sadašnjeg stanja ekosistema Hutova blata*, God. Biol. inst. Sarajevo.
- 81) JOVANČEVIĆ, M., 1964: *Drveće i grmlje mediteranskog zimzelenog područja Hercegovine*, Radovi Š.F.I. Sarajevo, br. 9, str. 1-48
- 82) JOVANOVIĆ, B., LAKUŠIĆ, R., RIZOVSKI, R., TRINAJSTIĆ, I. & ZUPANČIĆ, M. 1986. *Prodromus phytocoenosum Jugoslaviae ad mappam vegetation M 1: 200 000*. Naucno vijeće vegetac. karte Jugoslavije, Bribir - Ilok.
- 83) KORICA, B., 1950: *Prilog poznavanju flore Veleži (Herzegovina)*. God. Biol. inst. (Sarajevo), 3 1-2: 9-36.
- 84) LAKUŠIĆ, R. 1965: *Ekologija nekih biljnih tercijskih relikata*. God. Biol. Inst. Univ. u Sarajevu, Vol. XVIII: 163-197, Sarajevo.
- 85) LAKUŠIĆ R. et al. 1967 – 1970: Izvještaj za vegetacijsku kartu Jugoslavije. – Planine oko Sutjeske. Elaborat Biološkog instituta Univerziteta u Sarajevu.
- 86) LAKUŠIĆ R. et col. 1967 – 1970: Izvještaj za vegetacijsku kartu Jugoslavije. – Kotlaničko jezero na Zelengori. Elaborat Biološkog instituta Univerziteta u Sarajevu.
- 87) LAKUŠIĆ R. et Mišić LJ. 1967-1970: Izvještaj za vegetacijsku kartu Jugoslavije. – Treskavica. Elaborat Biološkog instituta Univerziteta u Sarajevu.
- 88) LAKUŠIĆ, R. 1969. *Fitogeografsko raščlanjenje visokih Dinarida*. Acta Botanica Croatica 28: 221-226.
- 89) LAKUŠIĆ, R. 1970. *Die Vegetation der sudostlichen Dinariden*. Vegetatio 21: 321-373.
- 90) LAKUŠIĆ, R. 1973: *Prirodni sistem populacija i vrsta roda Edraianthus DC.*, Godišnjak Biol. Inst. Univ., 26: 1-130, Sarajevo.
- 91) LAKUŠIĆ, R. 1975. *Prirodni sistem geobiocenoza na planinama Dinaridima*. God. Biol. inst. Univ. u Sarajevu, 28: 175-191.
- 92) LAKUŠIĆ R. et al. 1975: Izvještaj za vegetacijsku kartu Jugoslavije. – Južna Hercegovina, (EBIUS).
- 93) LAKUŠIĆ, R., 1982: *Planinske biljke*. „Svjetlost“, OOUR Zavod za udžbenike i nastavna sredstva, Sarajevo.
- 94) LAKUŠIĆ, R., BJELČIĆ, Ž., ŠILIĆ, Č., KUTLEŠA, L., MIŠIĆ, LJ., GRGIĆ, P. 1969: *Planinska vegetacija Maglića, Volujaka i Zelengore*. Akademija nauka i umjetnosti BiH, Posebna izdanja, knj. XI, Odjeljenje prirodnih i matematičkih nauka, knj. 3, Osnovne prirodne karakteristike, flora i vegetacija nacionalnog parka "Sutjeska", 181-187.
- 95) LAKUŠIĆ, R., PAVLOVIĆ, D., ABADŽIĆ, S., GRGIĆ, P. 1978: *Prodromus biljnih zajednica Bosne i Hercegovine*. Godišnjak Biološkog instituta Univerziteta u Sarajevu, Posebno izdanje, XXX.

- 96) LAKUŠIĆ, R., PAVLOVIĆ-MURATSPAHIĆ, D., REDŽIĆ, S. 1982: *Vegetacija ekosistema kraških polja Hercegovine*. Godišnjak Biološkog instituta, XXXV, 81-92.
- 97) LAKUŠIĆ R., REDŽIĆ, S. 1989. Flora i vegetacija vaskularnih biljaka u refugijalno-reliktnim ekosistemima kanjona rijeke Drine i njenih pritoka. Glasnik Odjeljenja priro. nauka CANU, 7: 107-205
- 98) LAKUŠIĆ, R., GRGIĆ, P., KUTLEŠA, L., MURATSPAHIĆ, D., REDŽIĆ, S., VUKOREP, OMEROVIĆ, S. 1991: *Struktura i dinamika fitocenoza u ekosistemima tresetišta na planinama Bosne*. Bilten društva ekologe BiH, ser. A, Vol 7: 35-84, Sarajevo
- 99) LAKUŠIĆ, R., REDŽIĆ, S. 1991. *Vegetacija refugijalno-reliktnih ekosistema sliva rijeke Une. / - The Vegetation of Refugeal-relict Ecosystems of Una River Basin/*. Bilten Društva. ekol. BiH, B, 6: 25-73.
- 100) MAGURRAN, A.E. 1988. *Ecological diversity and its measurement*. Princeton University Press, Princeton, New Jersey.
- 101) MALY, K., 1907: *Beitrage zur illyrischen Flora*. Oster. Bot. Zeitschr 57(45): 178185.
- 102) MALY, K., 1919: *Prilozi za floru Bosne i Hercegovine*. Glas. Zem. Muz. Bosne. Herceg. 31: 68. Sarajevo.
- 103) MALY, K., 1920: *Prilozi za floru Bosne i Hercegovine*. Glas. Zem. Muz. Bosne. Herceg. 32: 129-139. Sarajevo.
- 104) MALY, K., 1928: *Prilozi za floru Bosne i Hercegovine*. Glas. Zem. Muz. Bosne. Herceg. 40: 107-166. Sarajevo.
- 105) MALY, K., 1940: *Notizen zur Flora von Bosnien-Herzegovina*. Glas. Zem. Muz. Bosne. Herceg. 52: 21- 46. Sarajevo.
- 106) MALY, K., 1936: *Notizen zur Flora von Jugoslavien*. Glasnik Zemalj. muzeja u Bill 68. Sarajevo, Sv. za prirodne nauke 27-43.
- 107) MARINČEK, L., MUCINA, L., ZUPANČIĆ, M., POLDINI, L., DAKSKOBLER, I., ACCETTO, M. 1992. *Nomenklaturische revision der Illyrischen Buchenwalder (Verband Aremonio-Fagion)*. Studia Geobotanica, 12: 121-135.
- 108) MATARUGA M., MAUNAGA Z., KOPRIVICA M., DUKIĆ V., ČUKOVIĆ D., LJUBOJEVIĆ S., MARČETA D., GOVEDAR Z., STANIVUKOVIĆ Z., MILIĆ M., BURLICA Č., KAPOVIĆ M., BRUJIĆ J., STUPAR V., TRAVAR J. I MILANOVIĆ Đ. (2007): *Stanje šumskih ekosistema planine Vučevo*. Zavod za ZKliPN RS i Šumarski fakultet Banjaluka.
- 109) MIŠIĆ, LJ. 1984. *Vegetacija pašnjaka na planini Treskavici*. Ph.Thesis. Prirodno-matematički fakultet Univerziteta u Sarajevu, 311 pp.
- 110) MUČIBABIĆ, S., VUKOVIĆ, T., BLAGOJEVIĆ, S., REMETA, D., LAKUŠIĆ, R., KAČANSKI, D., MARINKOVIĆ-GOSPODNETIĆ, M., KREK, S., TANASIJEVIĆ, M., ČEPIĆ, V., KOSORIĆ, Đ. (1973): *Lašva u kompleksu ekosistema sliva gornjeg toka Bosne*. I kongres ekologe Jugoslavije. Zbornik referata i rezimea, 27, 29, Beograd.
- 111) MIŠIĆ, Lj., LAKUŠIĆ, R. (1990): *Livadske biljke*. IP "Svjetlost", Zavod za udžbenike i nastavna sredstva, Sarajevo. Zavod za udžbenike i nastavna sredstva Beograd.
- 112) MURBECK, S., 1891: *Beitrage zur Kenntnis der Flora von Sudbosnien und der Herzegovina*. Lunds Universitets Arsskrift, 27: 1-182, Lund.
- 113) NIKOLIĆ, T. ed., 1994: *Index Florae Croaticae, pars 1*. Natura Croatica, vol. 3, suppl. 2, 1-116, Zagreb.
- 114) NIKOLIĆ, T. ed., 1997: *Index Florae Croaticae, pars 2*. Natura Croatica, vol. 6, suppl. 1, 1-232, Zagreb.
- 115) NIKOLIĆ, T. ed., 2000: *Index Florae Croaticae, pars 3*. Natura Croatica, vol. 9, suppl. 1, 1-324, Zagreb.
- 116) OBERDORFER, E., 1983: *Pflanzensoziologische Excursions Flora*. Verlag Eugen Ulmer. Stuttgart.

- 117) PANTOCSEK, J., 1873: *Plantae novae, quas aestat anni 1872, per Herzegovinam et Montenegro "collexit et descripsit"* I,II,III. Osterr. Bot. Zeitschr., 23, 1: 4-6; 3: 79-81; 9: 265-268, Wien.
- 118) PANTOCSEK, J., 1874: *Adnotationes ad Floram et Faunam Herzegovinae, Crnagorae et Dalmatiae*, Verh. des Ver. Naturkunde in Presburg, N. Folge, 2: 1-143, Presburg.
- 119) PANTOCSEK, J., 1881: *Ueber bosnisch-hercegovinische Pflanzen und aus dem Comitate Neutra in Ungarn*. Osterr. Bot. Zeitschr., 31: 347-351, Wien.
- 120) PAVLETIĆ, Z., 1968: *Flora mahovina Jugoslavije*. Inst. za botaniku Sveučilišta. Zagreb.
- 121) PETROVIĆ, B. (2005): *Bacillariophyceae Hutova Blata*. Diplomski rad, Sveučilište u Mostaru
- 122) PRODAN, J., 1910: *Beitrage zur Flora von Bosnien, der Herzegovina und von Suddalmatien*, Ungarische Botanische Blater, 9, 3-4: 93-110, Budapest.
- 123) PRODAN, J., 1912: *Beitrage zur Flora von Bosnia und der Herzegovina, insbesondere der Čabulja planina*, Ungarische Botanische Blater, 11, 1-4: 71-79, Budapest.
- 124) PRODAN, J., 1918: *Neue beitrage zur Flora von Bosnia und der Herzegovina*, Ungarische Botanische Blater, 17: 719-82, Budapest.
- 125) REDŽIĆ, S. 2003. *The syntaxonomy and syngenesis of the Elyno-Seslerietea Br.-Bl. 1948 in the Balkan peninsula*. Annali di Botanica (nuova serie), 3: 53-74.
- 126) REDŽIĆ, S. 2006: *Syntaxonomic diversity as an indicator of ecological diversity - case study Vranica Mts. at the Central Bosnia*. *Biologia*, Section Botany, 61(6) in press.
- 127) REDŽIĆ, S. 2006. *The syntaxonomy of vegetation of Continetal dinaric Alps (W. Balkan)*. MANU, Skopje.
- 128) REDŽIĆ, S., LAKUŠIĆ, R., MURATSPAHIĆ, D., BJELČIĆ, Ž. & OMEROVIĆ, S. 1984. *Struktura i dinamika fitocenoza u ekosistemima planina Cincara i Vitoroga*. God. Biol. inst. Univ. u Sarajevu, 37: 123-177.
- 129) REDŽIĆ, S. & D. ŠOLJAN, 1988: *Adenophora liliifolia (L.) Ledeb ex A. DC. rijetka biljka u flori Bosne i Hercegovine*. Glas. Muz. Bosni Herceg. PN, 27: 74-84.
- 130) REDŽIĆ, S., DIZDAREVIĆ, M. 1998. *Biogeografska karta Bosne i Hercegovine. Geografski atlas BiH, "Sejtarija"*. Sarajevo
- 131) REDŽIĆ, S., ĐUG, S., BARUDANOVIĆ, S. & VELIĆ, S. 1998. *Ekološki informacioni sistem u funkciji rekonstrukcije i prostornog uređenja (sa posebnim naglaskom na upravljanje senzitivnim zonama)*. Simpozij o uspostavi planske upotrebe prostora u poslijeratnoj rekonstrukciji/razvoju. Zbornik radova 121-126.
- 132) REDŽIĆ, S., LAKUŠIĆ, R., MURATSPAHIĆ, D. & BARUDANOVIĆ, S. 1992-95. *Phytocoenoses of subalpine and alpine belt of the mountain Crvanj in Herzegovina*. GZM (PS), N.S. 31: 285-310.
- 133) REDŽIĆ, S., BARUDANOVIĆ, S., ĐUG, S. & KAPETANOVIĆ, T. 2003. *Obrasci ekološkog diverziteta na planini Vranici u Bosni*. Prirodno-matematički fakultet Univerziteta u Sarajevu i Ministarstvo obrazovanja i nauke Federacije BiH, 145 pp.
- 134) RITTER-STUDNIČKA, H. 1953: *Prilozi za floru Bosne i Hercegovine II*. God. Biol. inst. Univ. Sarajevu (Sarajevo), 6, 1-2: 21-38.
- 135) RITTER-STUDNIČKA, H. 1954: *Flora i vegetacija livada kraških polja*: God. Biol. inst. Sarajevu (Sarajevo), 7, 1-2: 25-110.
- 136) RITTER-STUDNIČKA, H. 1958: *Prilozi za floru Bosne i Hercegovine III*. God. Biol. inst. Univ. Sarajevu (Sarajevo), 11, 1.2: 95-122.
- 137) RITTER-STUDNIČKA, H. 1959: *Flora i vegetacija na dolomitima Bosne i Hercegovine IV. Lastva kod Trebinja*. God. Biol. inst. Univ. Sarajevu (Sarajevo), 12, 1-2: 137-186.
- 138) RITER-STUDNIČKA, H. 1963: *Biljni pokrov na serpentinima u Bosni*. God. Biol. Inst. XVI. Sarajevo
- 139) RITER-STUDNIČKA H. 1972: Bot. Jahrb. Syst., 92, 1, Stuttgart; - *Kraška polja BiH*;
- 140) RITER-STUDNIČKA H. 1972: Bot. Jahrb. Syst., 92, 1, Stuttgart; - *Livanjsko polje*.

- 141) RITER-STUDNIČKA H. I GRGIĆ P. 1975: *Izveštaj za vegetacijsku kartu Jugoslavije. – Kraška polja: Kupreško, Dabarsko, Gatačko i Nevesinjsko*. Elaborat Biološkog instituta Univerziteta u Sarajevu.
- 142) RITER-STUDNIČKA H. I GRGIĆ P. 1975: *Izveštaj za vegetacijsku kartu Jugoslavije. – Popovo polje i Hutovo Blato*. Elaborat Biološkog instituta Univerziteta u Sarajevu.
- 143) RODWELL, J.S., SCHAMINEE, J.H.J, MUCINA, L., PIGNATTI, S., DRING, J. & MOSS, D. 2002. *The Diversity of European Vegetation. An overview of phytosociological alliances and their relationships to EUNIS habitats*. Wageningen, NL.EC-LNV. Report EC-LNV nr. 2002/054.
- 144) ROHLENA, J., 1938: *Beitrag zur Flora der Herzegovina*, Vestn. Kral. Čes. Spol. Nauk, Tr. matemat.-pripoved.: 1-19, Praha.
- 145) SLAVNIĆ, Ž. 1954: *O vegetaciji planinskih torova u Bosni*. Godišnjak Biološkog instituta Univerziteta u Sarajevu, 1-2, 169-180.
- 146) SLAVNIĆ Ž. et al. 1972: Elaborat „Kopnene biocenoze kraških polja – Kraška polja Livanjsko, Glamočko i Kupreško”. Elaborat Biološkog instituta Univerziteta u Sarajevu.
- 147) STEFANOVIĆ, V. 1986: *Fitocenologija sa pregledom šumskih fitocenoza Jugoslavije*, Svjetlost Sarajevo,
- 148) STEFANOVIĆ, V., BEUS, V., BURLICA, Č., DIZDAREVIĆ, H. & VUKOREP, I. 1983. *Ekološko-vegetacijska rejonizacija Bosne i Hercegovine*. Šumarski fakultet, Posebna izdanja 17: 1-49.
- 149) SUKOPP, H., WURZEL, A. 2003: *The Effects of Climate Change on the Vegetation of Central European Cities*. Urban Habitats, Urban florae, Vol. 1, No. 1, 3-11.
- 150) SURINA, B., DAKSKOBLER, I. 2005. *Delimitation of the alliances Caricion firmae (Seslerietalia albicantis) and Seslerion juncifoliae (Seslerietalia juncifoliae) in the southeastern Alps and Dinaric mountains*. Plant Biosystems, 139 (3) 399-410.
- 151) ŠILIĆ, Č., 1979: *Acinos* Miller. Monografija rodova *Satureja* L., *Calamintha* Miller, *Micromeria* Bentham, *Acinos* Miller i *Clinopodium* L. u flori Jugoslavije. Zemaljski muzej Bosne i Hercegovine u Sarajevu, Odjeljenje za prirodne nauke. Posebno izdanje: 262 – 355, Sarajevo.
- 152) ŠILIĆ, Č., 1990: *Endemične biljke*. III izdanje, IP „Svjetlost“; Zavod za udžbenike i nastavna sredstva, Sarajevo; Zavod za udžbenike i nastavna sredstva, Beograd.
- 153) ŠILIĆ, Č., 1990: *Atlas drveća i grmlja*. IV izdanje, IP „Svjetlost“; Zavod za udžbenike i nastavna sredstva, Sarajevo; Zavod za udžbenike i nastavna sredstva, Beograd.
- 154) ŠILIĆ, Č., 1990: *Šumske zeljaste biljke*. IV izdanje, IP „Svjetlost“; Zavod za udžbenike i nastavna sredstva, Sarajevo; Zavod za udžbenike i nastavna sredstva, Beograd.
- 155) ŠILIĆ, Č., 1990: *Ukrasno drveće i grmlje*. IP „Svjetlost“; Zavod za udžbenike i nastavna sredstva, Sarajevo; Zavod za udžbenike i nastavna sredstva, Beograd.
- 156) Šilić, Č., 1991: *Scilla lakusicii sp. nov. – nova vrsta genusa Scilla L. i njeni srodnički odnosi sa vrstom S. litardierei Breistr.* GZM (PN) SN, sv. 30: 29-41, Sarajevo.
- 157) ŠILIĆ, Č. & ABADŽIĆ, S. 1991: *Endemične biljne vrste Dinarida i mogućnost primjene nekih vrsta u hortikulturi* (I). GZM (PN; NS, sv. 30: 47-127, Sarajevo.
- 158) ŠILIĆ, Č., 1996: *Spisak biljnih vrsta (Pteridophyta i Spermatophyta) za Crvenu knjigu Bosne i Hercegovine*. Glas. Zem. Muz. Bosne. Herceg. (PN) (NS), sv.31: 1992-1995: 323-367. Sarajevo.
- 159) ŠUMATIĆ, N., TOPALIĆ, Lj., PAVLOVIĆ-MURATSPAHIĆ D. 2001: *Zajednica Polygono-Bidentetum tripartitae (W. Koch. 26) Lohm. 50 na Bardači*. Zbornik radova Naučnog skupa "Zasavica 2001". Sremska Mitrovica, 122-128.
- 160) TRINAJSTIĆ, I., 1975: *Supplementum ad floram analyticam Jugoslaviae*. 3:1-8, Zagreb.
- 161) TRINAJSTIĆ, I., 1976: *Analitička flora Jugoslavije*. Sv. II, br.2: 129-256. Zagreb
- 162) TUTIN, T.G., HEYWOOD, V.H., BURGESS, N. A., MOORE, D. M., VALENTINE, D. H, WALTERS, S. & WEEB, D. A. (eds.) et al. 1964 – 1980. *Flora Europea. Vol. I -V*. Cambridge University Press, Cambridge, London, New York, New Rochelle, Melbourne, Sydney.

- 163) USČUPLIĆ, M. (2005): *Plural use of the protected areas and threats to forest ecosystems*, The International Scientific Conference on "Management of forest ecosystems in national parks and other protected areas", Proceedings, pp. 1-10.
- 164) USČUPLIĆ, M. (2006): *Management with forests in the protected areas*, The First International Scientific Symposium BLIDINJE 2005, Proceedings, pp.195-205.
- 165) VANDAS, K., 1889: *Beitrage zur Kenntniss der Flora von Sud-Herzegovina*. Osterr. Bot. Zeitschr., 39, 5: 179-181; 6: 219-222; 7: 266-269; 8:
- 166) VANDAS, K., 1889: *Beitrage zur Kenntniss der Flora von Sud-Herzegovina*. Osterr. Bot. Zeitschr., 39, 5: 179-181; 6: 219-222; 7: 266-269; 8: 295-297, Wien.
- 167) VANDAS, K., 1890: *Neue Beitrage zur Kenntniss der Flora Bosniens und der Herzegovina*. Sitz.- Ber. boh. Ges. Wiss.: 249-285, Prag.
- 168) VANDAS, K., 1895: *Dalšai prispevki k poznani floristickych pomeru a Hercegoviny*. Zprava cis. kral. realneho a vyššihog gymnasia v Koline za školni rok 1895: 1-25, v Koline.
- 169) VISIANI, R., 1842-1852: *Flora Dalmatica*, 1-3, Lipsiae.
- 170) WEBER, H.E., MORAVEC, J. & THEURILLAT, J.-P. (2000): *International Code of Phytosociological Nomenclature*, 3rd edition. J. Veg. Sci. 11 (5): 739-768.
- 171) WILLNER, W. 2002. *Syntaxonomische Revision der südmitteleuropäischen Buchenwälder* *Syntaxonomical revision of the beech forests of southern Central Europe*. Phytocoenologia, 32 (3) 337-453.

3-c-vi) Nature protection

- 1) AVDIBEGOVIĆ M., SRNDOVIĆ R., 2006: *Zakonska regulativa o zaštićenim područjima u Bosni i Hercegovini*, Međunarodna naučna konferencija – Gazdovanje šumskim ekosistemima Nacionalnih parkova i drugih zaštićenih područja, Jahorina, Zbornik radova 553-559.
- 2) BALOTIĆ, P., STOJANOVIĆ, N., 2006: *Zakonske osnove o zaštićenim područjima u Bosni i Hercegovini*, Međunarodna naučna konferencija – Gazdovanje šumskim ekosistemima Nacionalnih parkova i drugih zaštićenih područja, Jahorina, Zbornik radova 533-539.
- 3) BALOTIĆ, P., STOJANOVIĆ, N., 2006: *Zakonodavni okvir upravljanja zaštićenim područjima*, Međunarodna naučna konferencija – Gazdovanje šumskim ekosistemima Nacionalnih parkova i drugih zaštićenih područja, Jahorina, Zbornik radova 541-551.
- 4) BUCALO, V., BRUJIĆ, J., 2007: *Mreža zaštićenih područja u Republici Srpkjoj*, Glasnik Šumarskog fakulteta u Banjoj Luci, br. 7, 11-22.
- 5) ĐUG, S. 2003. *Diverzitet i konzervacija vegetacije pretplaninskog pojasa planine Vranice*. Ph.Thesis. Prirodno-matematički fakultet Univerziteta u Sarajevu.
- 6) KRAJČIĆ D., GRUJIĆ I., NONIĆ D., 2006: *Proces uspostavljanja i organizovanja Evropske ekološke mreže Natura 2000*, Međunarodna naučna konferencija – Gazdovanje šumskim ekosistemima Nacionalnih parkova i drugih zaštićenih područja, Jahorina, Zbornik radova 517-524
- 7) KRASIĆ, S.P., 2000: *Park prirode Blidinje, 1-38 (s preglednom mapom)*, Ministarstvo gradit. i zaštite okoliša Hercegovačko-neretvanske županije, Mostar
- 8) MARILOVIĆ S., VELJANČIĆ V., 2006: *Analiza propisa značajnih za gazdovanje šumskim ekosistemima, Nacionalnim parkovima i drugim zaštićenim područjima*, Međunarodna naučna konferencija – Gazdovanje šumskim ekosistemima Nacionalnih parkova i drugih zaštićenih područja, Jahorina, Zbornik radova 501-515.

3-c-vii) Other related documents, publications, studies, data sources

- 1) 2005/a: A data overview of the network of Special Protected Areas in EU25. A working paper from the European Topic Center on Biological Diversity, ETC/BD
- 2) ECNC- European centre for nature conservation, 2006: Indicative map of the Pan-European ecological network in south-eastern Europe.

- 3) European Environment Agency, Copenhagen, 2007: *Indicative Map of Biogeographical Regions EUR 15 + 12*.
- 4) NEAP 2003: Akcioni plan za zaštitu okoliša BiH, Sarajevo.
- 5) Institute for land surveying, Sarajevo - Corine land cover map of Bosnia and Herzegovina, 1:100 000, 2000
- 6) (1992): *Council Directive 92/43/EEC of 21 May 1992 on the conservation of Natural Habitats and of Wild Fauna and Flora*. Official Journal of the European Communities, No. L 206, European Commission, Environment DG.
- 7) UNEP, 1992. *Convention on Biological Diversity*. United Nations Environment Programme. Nairobi. Kenya
- 8) EEA. 2005. EUNIS – European Nature Information System. *Habitat Classification*. European Topic Centre for Nature Protection and Biodiversity.
- 9) Forest management maps, 1:25000.
- 10) World Database on Protected Areas, 2005, United Nations Environment Programme, World Conservation monitoring Centre, IUCN World Commission on Protected areas.
- 11) European commission DG environment, 2003: Interpretation Manual of European Union habitats

3-c-viii) Digital information existing and availability

- 1) Geodetic institute of Bosnia and Herzegovina – digital maps of Bosnia and Herzegovina in various scales (available for buying)
- 2) The Institute for Urbanism of the Republic of Srpska, Banja Luka, digital maps of land use in RS – available for buying - www.iu-rs.com
- 3) Canton sarajevo institute for canton planning, Sarajevo (for institutional use) - www.zavodzpr-sa.ba
- 4) Institute for land surveying, Sarajevo - Corine land cover map of Bosnia and Herzegovina, 1:100 000, 2000 (available and free) - dataservice.eea.europa.eu/map/clc_download/?configfile=config_clcdownload.xml
- 5) Center for Ecology and Natural Resources (CEPRES), Faculty of Science, Sarajevo – GIS database of protection areas, emerald network (for institutional use) www.cepres.pmf.unsa.ba
- 6) Agro-pedology Institute, Sarajevo - Land Information System and maps (for institutional use) zapsa@pksa.com.ba
- 7) Hydro Engineering Institute, Sarajevo - water management maps (for institutional use) www.heis.ba
- 8) Public enterprise “BH Šume”- digital forestry maps (under development) (for institutional use)
- 9) Public Enterprise for forestry of RS “Šume RS”- digital forestry maps (under development) www.sumers.org
- 10) Faculty of Forestry, University of Banja Luka – forestry maps (under development), GIS database of network of protection areas - BUCALO, V. et al., 2006: *Projekat mreže zaštićenih objekata prirode* (fazni izvještaj za 2006. godinu), Šumarski fakultet u Banjoj Luci., GIS database of habitat types and endangered plant species of RS (under development) – for institutional use. www.sfbl.org
- 11) Faculty of Agronomy, University of Banja Luka – Pedology maps – for institutional use, www.agric.rs.rs
- 12) Institute for Agriculture, Banja Luka – FAO land use maps 1:200000, ECNC maps. available for buying - www.poljinstbl.com
- 13) Institute for Agriculture, Sarajevo – FAO agriculture maps (for institutional use)
- 14) Institute for Agriculture, Mostar – FAO agriculture maps (for institutional use)
- 15) State office for land surveying, Banja Luka – Development of digital topographic maps, 1:25000 – JICA (under development) - available for buying
- 16) Water Agency “Agencija za vodno područje rijeke Save”, Sarajevo - water management maps (for institutional use) www.voda.ba
- 17) Water Agency “Agencija za vodno područje Jadranskog mora”, Mostar - water management maps (for institutional use) www.jadran.ba

- 18) Public enterprise for water management of RS “Vode RS” - water management maps - available for buying, www.voders.org
- 19) Institute for water management of RS, Bjeljina – Water management maps bijeljina@voders.org
- 20) Projekt” a.d., Banja Luka – Satellite imagery, GIS layers of diverse purposes - available for buying, www.projektad.com
- 21) “Gisdata” Sarajevo - wide range of data covering the entire area of South-Eastern Europe (geoinformation databases and digital cartography) (available for buying) www.gisdata.ba
- 22) “Geocentar” Banja Luka - development of geographic information systems www.geocentar.mapabih.com
- 23) “Infomap” Novi Grad - Aerial surveying www.infomap-rs.net
- 24) , GIS layers of diverse purposes - available for buying, www.infomap-rs.net

Other relevant layers that could be found are: hydrology, geology, pedology, climatology, but all in low scale, or they are limited to local areas.

4 Commitments and legislation

4-a Relevant international commitments

Bosnia and Herzegovina is a signatory of 46 international documents considering environmental issues. The protection and sustainable management of biodiversity is an objective of following documents, to whom Bosnia and Herzegovina is obliged to implement :

Table 6. – Relevant international commitments in BiH

Document	Status in B&H
Convention on Biodiversity (Rio de Janeiro, 1992.)	Ratified in 2002.
Convention on wetlands of international importance (Ramsar, 1971.)	Overtaken by succession
Convention on protection of world cultural and natural heritage (Paris, 1972.)	Overtaken by succession
Convention on Mediterranean Sea's protection from the pollution (Barcelona, 1976.)	Overtaken by succession
International convention on plants protection (Rome 1951.)	Ratified in 1994.
Framework UN Convention on climate changes (Rio de Janeiro, 1992.)	Ratified in 2000.
UN Convention on desertification combat in the countries stroke by severe droughts and/or desertification, (Paris, 1994.)	Ratified in 2002.
Convention on survey of trans-boundary traffic with dangerous waste and its disposal (Basel, 1989.)	Ratified in 2000.
Convention on trans-boundary air pollution over big distance (Geneva, 1979.)	Overtaken by succession
Vienna's Convention on ozon layer 's protection (Vienna, 1985.)	Overtaken by succession
Protocol on protection of Mediterranean Sea from the land pollution (Athen, 1980).	Overtaken by succession
International Convention on pollution by ships (London, 1973.)	Overtaken by succession
Convention on persistent organic pollutants (Stockholm, 2001)	Ratified in 2001.
Convention on international trade with endangered species of wild flora and fauna (Washington, 1973)	In the procedure
Convention on protection of wildlife and natural habitats in Europe (Bern,1979)	In the procedure
Arrhus Convention (Arrhus)	In the procedure
Kyoto protocol	In the procedure
Convention on protection of migratory wild animals (Bonn,1979) Agreement on protection of euroasian-boreoamerican migratory	-

wetland birds; Agreement on protection of European bats	
Convention on Environmental Impact Assessment in trans-boundary sense (ESPOO, 1991.)	-
Convention on protection and use of trans-boundary streams and international lakes (Helsinki, 1992.)	-
Convention on the Transboundary Effects of Industrial Accidents	-
Protocol on especially protected areas and biodiversity in the Mediterranean (Barcelona, 2000)	-
Protocol on biosafety (Kartagena, 2000)	-
Convention on European landscapes (Firenca, 2000)	-

4-b Relevant legislation

The legal framework for the protection of biological and landscape's diversity at national level make the Constitution of B&H, the Constitution of FB&H, the Constitution of RS, Statut of Brčko District, and sets of environmental laws at level of entities and Brčko District.

After the Dayton Peace Agreements, the responsibility in the field of environment comes to governments of entities and District, which have, in the period from 2003 to 2004, adopted sets of environmental laws, as follows:

Table 7. – Relevant legislation in BiH

Federation B&H	Republic of Srpska	Brčko District
Law on nature protection	Law on nature protection	Law on nature protection
Law on environment protection	Law on environment protection	Frame law on environment protection
Law on air protection	Law on air protection	Law on air protection
Law on water protection	Law on water protection	Law on water protection
Law on waste management	Law on waste management	Law on waste management
Law on Fund for environment protection	Law on Fund for environment protection	Law on comunal activities

Endorsed laws on nature protection in Federation B&H, Republic of Srpska and Brčko District are based on Habitat's Directive (EU HABITATS DIRECTIVE (92/43/EEC) and Birds Directive (Council Directive 79/409/EEC), but they are not very well harmonized between each other and with EU standards, and competences which are deriving from those laws are ill defined and not clarified. Classifications used for species and areas are out of date and not correspondent to those of EU. According to this Law on Nature protection "Protected area" is a part of the land that is designated for the protection and maintenance of biological diversity, of natural and cultural resources.

Protected areas in Bosnia and Herzegovina are:

- **natural protected areas**, designated for science purpose or for wilderness protection; they include:

- area of land with extraordinary or representative ecosystems, geological or physiological characteristics and species, which use is mainly scientific and for environment monitoring purpose.
- unchanged or slightly changed large area of land that sustained its natural characteristics and influence, without significant habitat, established in order to preserve natural conditions
- area of land exposed to active interventions of management in order to preserve habitats and specific species needs;
- **national parks**, natural inland and/or shoreline area designated for:
 - protection of ecological integrity of one or more ecosystems for present or future generations.
 - excluding exploitations and visits that can cause changes and degradation of nature.
 - insuring the baselines for spiritual, scientific, educational, recreational and visitors purposes;
- **natural monuments**, are areas with one or more specific natural/cultural characteristics with extraordinary or unique value because of its natural, representative or aesthetic attributes or cultural importance;
- **protected landscapes** are areas of land or shoreline developed by interaction of nature and man with extraordinary aesthetic, ecological and/or cultural values, and often with high value of biological diversity.

In March of 2008 Parliament of Republic of Srpska endorsed the Law on amendments and additions to the Law on Nature protection (01-504/08). The new Law on Nature protection provides with a few new provisions relevant for the process:

- Protected species are species which are close to extinct, are rare and endemic, endangered, vulnerable, and protected internationally by valid International agreements which are ratified by B&H (Article 11)
- Protected areas are classified by IUCN classification (Article 14)
- Some competences were clarified (e.g. areas and species for protection are being proposed by the Republic Institute for the protection of historical cultural and natural heritage of Republic of Srpska)
- The Law is partially corresponding with the other sectors and sectoral laws (e.g. Law on Forests and Ministry for agriculture, forestry and water management)

Possible areas can be designated for Natura 2000 throughout special act of Government of RS and FBiH (article 37 of Law on nature protection of RS, and article 33 of Law on nature protection of FBiH). Sites that can be designated are National parks, protected natural areas, natural monuments if there are species or habitats of common interest by international criteria. Any plan or project which is likely to affect the natural values of a site shall be subject to appropriate assessment of its implications for the site.

However the only document where Natura 2000 and other international instruments of nature protection are mentioned is Law on Nature protection. There is no mentioning of those issues in other relevant documents such as Law on Forests, Law on Hunting, Law on Physical planning and others. Entity legislatures are rather confused concerning this matter and concrete definitions differ from law to law.

In the FBiH some competences are devolved to the cantons. Proposals for designation of protected areas and natural monuments adoption of measures for their management in FB&H are given by relevant Cantonal Ministry.

5 Key stakeholders and capacities

5-a Governmental

5-a-i) State level

Ministry of foreign affairs – negotiation of international agreements

tel: +387 33 281-125, 281-126, 281-289,

fax: +387 33 281-335

e-mail: Nebojsa.Regoje@mvp.gov.ba

web site: www.mvp.gov.ba

Directorate for European integrations – coordination of integration processes of BiH to EU

Tel: +387 33 264-330,

Fax: +387 33 220-157

e-mail: press@dei.gov.ba

web site: www.dei.gov.ba

5-a-ii) Entity level

RS

Ministry of Spatial Planning, Civil Engineering and Ecology of RS - responsible for the application of environmental protection strategy, physical planning, monitoring natural resources.

tel: +381 51 348-600, 348-611

Fax: +381 51 316-174

E-mail: mgr@mgr.vladars.net

Ministry of Education and culture of RS – Responsible for National parks management

tel: 051/331-422

Fax: 051/331-423

E-mail: mp@mp.vladars.net

Ministry of Agriculture, Forestry and Water Management of RS – responsible for managing of natural resources

Bijeljina office

Tel: 055/209-412

Fax: 055/210-353

Banja Luka office

Tel: 051/331-634

Fax: 051/331-631

E-mail: mpps@mpps.vladars.net

Ministry of Science and Technology of RS – responsible for development of scientific, technical and other resources

tel: 051/331-542

Fax: 051/331-548

E-mail: mnk@mnk.vladars.net

FBiH

Ministry of Environment and Tourism of FBiH - environmental protection, drafting environmental strategy and policy, overseeing the activities of the cantonal ministries of environment

Tel: +387 33 562 870

Fax:+ 387 33 201 602

web site: www.fmoit.gov.ba

e-mail: info@fmoit.gov.ba

Ministry of Agriculture, Forestry and Water Management of FBiH - responsible for managing of forest, agricultural and water resources, sustainable development and integral protection of forest ecosystems.

Tel: +387 33 443-338

Fax: +387 33 663-659 i 206-638

web site: www.fmpvs.gov.ba

e-mail: info@fmpvs.gov.ba

Ministry of Finance – responsible for environmental protection funds

Tel: +387 33 203 147;203-148

Fax: +387 33 203 152

web site: www.fmf.gov.ba

e-mail: info@fmf.gov.ba

Ministry of Education and Science of FBiH - development of scientific activity, coordination of scientific-researching activities, development of the scientific-researching institutions, encouragement of fundamental applied researches, development of investment technologies and human resources in scientific-researching field,

Mostar office

Tel: +387 36 355-700

Fax: +387 36 355-742

Sarajevo office

Tel /fax: +387 33 276-380

E-mail: fmonks@bih.net.ba, fmon@bih.net.ba

Ministry for Physical planning of FBiH - planning and improvement of space; policy of land utilization at the Federal level; drafting, enforcing and applying the Physical Plan of the Federation BiH, directing a long-term development in utilization of natural resources;

Tel /fax: + 387 33 473 124
Tel /fax: + 387 33 663 548
e-mail: salko.obhodas@fmpu.gov.ba
web site: <http://www.fmpu.gov.ba/>

5-a-iii) Cantonal level

10 Cantons in FBiH: relevant ministries responsible for environmental and nature protection on cantonal level.

5-a-iv) Inter-entity level

Inter-entity environmental steering body – their task is to provide the expert counseling to authority ministries, making of Red List for BiH, coordination of inter-entity strategy for nature protection in BiH and making the directions for coordination and cooperation in trans-boundary protected areas.

5-a-v) Municipality level (in FBiH and RS)

Responsible for communal activities.

5-a-vi) District Brcko

Department for Agriculture, Forestry and Water management
Tel: 049/217-591

Department for Communal Affairs
Tels: + 387 49 240 612 / + 387 49 240 812

5-b Related relevant administrative bodies

Water Agency “Agencija za vodno područje Jadranskog mora”
Tel: +387 36 397881
Fax: +387 36 397883
email: jsliv@jadran.ba
web site: www.jadran.ba

Water Agency “Agencija za vodno područje rijeke Save”
Tel: +387 33 209 827
Fax: +387 33 209 993
email: info@voda.ba
web site: www.voda.ba

Republic Water Agency of RS

Tel: +387 55 201 784,

fax: 211-517, 220-363

email: rdv@rstel.net ; rdvt@rstel.net ; bijeljina@vodera.org

web: www.vodera.org

Public Enterprise “Elektroprivreda RS”

Tel: +387 59 277 101,

Fax: +387 59 277 120

web site: www.ers.ba

Public Enterprise “Elektroprivreda BiH”

Tel: +387 33 751 000

Tel/fax: +387 33 751 008

web site: www.elektroprivreda.ba

Public Enterprise “Elektroprivreda” HZHB d.d.

Tel. +387 36 310 847, 327 116

fax.+387 36 317 157

email: ephzhh@ephzhh.ba

web site: www.ephzhh.ba

Public Enterprise of Forestry „BH Šume“

Tel/fax: +387 33 668 249

Public Enterprise of Forestry „Šume RS“

Tel : +387 57 405-303; +387 51 214-794

email: uprava@sumers.org; upravabl@sumers.org

web site: www.sumers.org

Public Enterprise „Hercegbosanske Šume“

Tel: +387 34 274 801

Public Enterprise of Forestry „Sarajevo-šume“

Tel/fax : +387 33 219-172

email: uprava@sumers.org; upravabl@sumers.org

web site: www.sarajevo-sume.ba

Public Enterprise National park „Sutjeska“

Tel : +387 58 520 102

fax : +387 58 520 115

E-mail: npsutjeska@blic.net

web site: www.npsutjeska.srbija.net

Public Enterprise National park „Kozara“

Tel : +387 52 211 169

fax : +387 52 232 64

E-mail: info@npkozara.com

web site: www.npkozara.com

Public Enterprise Natural park „Hutovo blato“

Tel./fax: +387 36 814 716, 814 715

E-mail: nikola.zovko.karaotok@tel.net.ba

web site: www.hutovo-blato.ba

Public Enterprise Natural park „Blidinje“

Tel/fax + 387 39 718 514

Tel: + 387 39 718 515

E-mail: park.priode.blidinje@tel.net.ba

web site: www.tel.net.ba/blidinje

5-c Relevant stakeholders for the process other than governmental

Union of hunting associations of Bosnia and Herzegovina

Tel: +387 33 668-209; Fax: +387 33 442-019

web site: www.slobih.ba/

Hunting union of Republic of Srpska

Tel: 057 / 400 760; Fax: 057 / 400 761

E-mail: lsrs@teol.net

web site: www.lovackisavezrs.org

Sport Fishing Association of Bosnia & Herzegovina

Tel/fax: +387 33 663 514

E-Mail: sportsbh@bih.net.ba

Tourism Association of the Federation of Bosnia and Herzegovina

Tel: +387 33 252-900

E-mail: tour.off@bih.net.ba

Tourism Association of Sarajevo Canton

Tel: +387 33 220-724; Fax: +38730 511-588

E-mail: tour.off@bih.net.ba

web site: www.sarajevo-tourism.com

Tourism Association of Una - Sana Canton

Tel: +387 37 310-043
 Fax: +387 37 310-043
 web site: www.tzusk.com

Green Visions

Tel/fax +387033 717290
 E-mail: sarajevo@greenvisions.ba
 web site: www.greenvisions.ba

5-d Relevant stakeholders in the EU institutions

European Commission; DG Environment

www.ec.europa.eu/environment

European Commission: DG for Agriculture and Rural Development

www.ec.europa.eu/agriculture

European Commision; DG Enlargement

www.ec.europa.eu/dgs/enlargement

European Commision: Delegation in Sarajevo

www.europa.ba

European Environment Agency

www.eea.europa.eu

Europe aid – Co-operation office

www.ec.europa.eu/europeaid

5-e Relevant NGOs

Table 8. – Relevant NGOs in BiH

Name of organization	Adress	Phone	Contact person	Field of activity
WWF MEDPO, Bosnia and Herzegovina	Stjepana Tomica 1 71000 Sarajevo	Tel.: +387 33 212 466 Fax: +387 33 207 949	Branko Vicijak	Environment protection policy
Udruženje za zaštitu okoline „Zeleni-Neretva“	Omladinska 4, 88400 Konjic	Tel/fax: 036 728 470 www.zeleni-neretva.ba	Amir Variščić	Environment protection
Ornitološko društvo “Naše ptice”	Semira Frašte 6/14, Sarajevo, 71000	033 453 158 kotrosan@bih.net.ba	Dražen Kotrošan	Research and protection of birds and their habitats in BiH

Name of organization	Adress	Phone	Contact person	Field of activity
NVO EKO BIH	Patke bb, Sarajevo	+387 (0) 33 649 196 ekobih@gmail.com		Research and environment protection
REC - Regionalni centar za okoliš/životnu sredinu	Kalemova 34, Sarajevo	Tel/fax: 033/ 209-130 info@rec.org.ba www.rec.org.ba	Jasna Draganić	Providing assistance for solving of environmental problems
Fondeko	Branilaca Sarajeva 47, Sarajevo	033/ 211-354 fondeko@bih.net.ba www.fondeko.ba	Edin Abadžić	Asociation for sustainable development stimulation and quality of life
COOR - Centre for Environmentally Sustainable Development	Stjepana Tomića 1 71000 Sarajevo	+ 387 33 207 949 coorsa@bih.net.ba www.coor.ba		Organization of programs on environmental protection, sustainable development and sustainable tourism
EKOTIM	Kemala Kapetanovića 17, Sarajevo	Tel/fax: + 387 33 660 587 www.ekotim.net		Environment protection and education
Eko asocijacija "Gorsko oko"	Zuke Džumhura 26/3, Konjic	Tel/fax: 033/221 674 kontakt@gorskooko.ba http://www.gorskooko.ba		Sustainable development and education, public awareness
Omladinska organizacija "Tutto Completo" Kakanj	Omladinska 76, 72240 Čatići - Kakanj	Tel/Fax:++387 32/775-382 tutto_completo@yahoo.com www.tutto-completo.ba		Environment protection and education
Omladinska ekoloska organizacija "Juznjacko plavo nebo"	Dubrovački put br.4; Trebinje 89101	059-260-542 vodoherc@teol.net	Dušan Toholj	Environment protection
Ekološka Udruga «Bura» Mostar	Kralja Tvrtka 5, 88000 Mostar	036 313228	Dražan Rosić	Environment protection

Name of organization	Adress	Phone	Contact person	Field of activity
Udruga prijatelja prirode «Močvara» Čapljina	Ul. Gojka Šuška 36, 88300 Čapljina	036 809040	Zdenka Jelčić	Environment protection and education
EKO Neretva	Zgrada Muzeja, 88420 Jablanica	036/ 753-656 eko-ner@bih.net.ba	Zekija Begović	Environment protection
NVO Solidarnost za jug	Kninska 1, Trebinje, 89101	059/274-000	Dr Stanko Buha	Environment protection
Humanitarna org. „IZVOR“ MOSTAR	Rudarska 93, 88000 Mostar	036/347 007	Sonja Karacic	Environment protection
HRVATSKA EKOLOSKA UDRUGA BUNA	BUNA bb MOSTAR 88202	036 480 380	Damir Brljević	Environment protection
Centar za razvoj Hercegovine	Ložiona bb, Trebinje, 89101	059/260-375	Slobodan Vulešević	Environment protection and education
Ekoloska sekcija Klub skakaca "Mostari"	Stari Most Mostar 88000	0038761683-445	Elvis Redzic	Environment protection
Ekološka udruga Eko-Jasenica	Jasenica bb, Mostar, 88000 Mjesni ured	063/349876	Lazo Rajič	Environment protection
ArborMagna-Banja Luka	Stepe Stepanovića 75a, Banja Luka	065/714143 arbormagna@yahoo.com	Jugoslav Brujić	Nature protection
Ekomreža BiH	Cara Lazara 24, Banja Luka	051 433 142		Environment protection and education
Moja Neretva	Jablanica	036/ 325-018	Danijela Petrović	Environment protection and education

Name of organization	Adress	Phone	Contact person	Field of activity
Ecological organization “Lijepa Naša Neretva”	Mostar	036/ 317-080	Milka Markota	Environment protection and education
Oaza	Mostar	036/ 551-479	Zarema Obradović	Environment protection
Eko Jablanica	Jablanica	036/ 753-656	Idriz Čilić	Environment protection and education

5-f Other relevant stakeholders

United Nations Development Programme (UNDP), supports the development of projects in the environmental focal areas of biodiversity, climate change, international waters, land degradation, persistent organic Pollutants and ozone depletion – GEF Implementing agency - www.undp.org

United Nations Environment Programme (UNEP), their mission is to provide leadership and encourage partnership in caring for the environment by inspiring, informing, and enabling nations and peoples to improve their quality of life without compromising that of future generations - GEF Implementing agency - www.unep.org

The World Bank, a vital source of financial and technical assistance to developing countries around the world - GEF Implementing agency - www.worldbank.org

Norwegian government - The Norwegian Government has stated that Norway shall be a leading nation in environmental policy - www.regjeringen.no

SIDA - The Swedish Agency for International Development Cooperation is a government agency under the Ministry for Foreign Affairs. Sida's goal is to contribute to making it possible for people to improve their living conditions. Sida channels its resources through NGOs, multilateral cooperation, and the EU. www.sida.se

USAID - U.S. Agency for International Development takes an integrated approach to natural resources management. USAID's programs in natural resource management are closely linked with programs to improve health, increase agricultural productivity, mitigate or adapt to climate change. www.usaid.ba, www.usaid.gov/our_work/environment

International Sava River Basin Commission - The International Sava River Basin Commission – the Sava Commission was established by the Framework Agreement on the Sava River Basin signed by the riparian countries (Republic of Slovenia, Republic of Croatia, Bosnia and Herzegovina and the Federal Republic of Yugoslavia). The long-term benefit resulting from the work of the Sava Commission and

implementation of the Framework Agreement on the Sava River Basin, as well as from the fact that the Sava River is part of the Danube Basin, will be establishment of the international legal regime by enforcement of instruments of international water law, international navigation law, international law on environmental protection, as well as the regulations of the European Union being applied to water resources of the Danube River that will be appropriately implemented in the Sava River Basin.

www.savacommission.org

6 Relevant projects and processes

6-a Past

- i) **National Strategy and Action plan for Protection of Biological and Landscape Diversity of BiH** - Following the article 6a of Biodiversity Convention B&H accomplished the project of the preparation of Strategy of B&H and Action Plan for preservation of Biological and Landscape Diversity (2008-2015). The basis for providing the Strategy was the Study of biological and landscape diversity called “Bosnia and Herzegovina – Land of Diversity” that by the way presents the first national report towards the Convention. Institution that was responsible for the project was Ministry of Environment and Tourism of Federation of B&H. The project team was assembled by experts from all B&H.
www.fmoit.gov.ba//index.php?option=com_content&task=view&id=116&Itemid=135
- ii) **Physical Plan for Republic of Srpska**, Ministry of urbanism, construction, communal issues and ecology of Republic of Srpska, Institute for urbanism of Republic of Srpska.
www.iu-rs.com
- iii) **LIFE-Third Countries project “Development of a new management policy for the Hutovo Blato wetlands, Bosnia-Herzegovina”**. Comprehensive scientific research on biodiversity of Hutovo blato was realised through two years period.
ec.europa.eu/environment/life/publications/lifepublications/lifefocus/documents/TCY_1r.pdf
- iv) **GEF project – Protection of the biodiversity of forests and mountains** – this project aims to enforce protection and management of forest and mountain landscapes in the country which are of global importance. The goal of the project is to enlarge the area under forest and mountain ecosystems that formally have status of protected areas, and development of the mechanisms for their protection, regarding that those natural resources are the basis for facilitating life of people in rural areas and increased income from tourism. Institution that was responsible for the project was Ministry of Environment and Tourism of Federation of B&H.
www.fmoit.gov.ba
- v) **The Study on Sustainable Development through Eco-tourism in Bosnia and Hezegovina** - In 2004 year, IURS took part at international project -*The Study on Sustainable Development through Eco-tourism in Bosnia and Herzegovina*. Within this project, it had been worked on preparation of digital models of terrains, ecology maps and the outline of potential tourist destinations with resources. Study area included the region of mountain Velež and catchment of river Pliva.
www.padeco.co.jp/tourism.htm
- vi) **Lower Neretva valley transboundary wetland – RAMSAR** - the project's specific objectives were 1) to provide the most comprehensive inventory data base for the Lower Neretva Valley using the new MedWet Database 2000; 2) to prepare a project aiming at elaboration of a comprehensive transboundary management plan for both Ramsar sites; and 3) to involve local communities in the process of wetland evaluation, planning and decision making. This transboundary project was executed by two counterpart institutions - the Ministry of Environmental Protection and Physical Planning (MEPPP) from Croatia, and from Bosnia & Herzegovina's side - the Ministry of Civil Engineering, Physical Planning and

- Environmental Protection of the Herzegovina-Neretva Canton through its authorized institution the Faculty of Civil Engineering (FCE) in Mostar. Two major sites were targeted under this project, both Ramsar sites - the Neretva Delta in Croatia, and Hutovo Blato in Bosnia & Herzegovina.
www.ramsar.org/sgf/sgf_rpts_neretva1.htm
- vii) **WWF's Living Neretva project** - This project aims to use EU standards to support the administrative bodies responsible for water and natural resources management of the Neretva basin in BiH. The project set the ground for both mapping biodiversity values and hotspots in the Neretva basin in accordance with the Habitats Directive, and promoting the equitable use of water resources according to the Water Framework Directive.
www.panda.org/about_wwf/where_we_work/europe/where/bosnia_herzegovina/neretva/index.cfm
- viii) **Possibility of establishment of Protected area "Klekovača - Lom"** in western B&H, This Study should contribute to the efforts made for protection of endangered and endemic species, and all biodiversity values in the area of mountain Klekovaca, including virgin forest reserve Lom. Financed by World Bank, The study was developed by the consortium Magaprojekt/Waldprojekt
magaprojekt.com
- ix) **Establishment of Emerald Network in Bosnia and Herzegovina, Pilot project** - Establishment of Emerald Network in Bosnia and Herzegovina (BiH) is project that was launched in December 2004, by signing the contract between representatives of the Council of Europe and director of the Centre for Ecology and Natural Resources (CEPRES) which this project was assigned to by Federal Ministry of Environment and Physical Planning. This was only a Pilot project aimed at the capacity training and methodology development at national level. It was intended to establish a team of experts enabled to work on the aforementioned project. Final report on the Emerald Network Pilot Project should had been submitted to the Standing Committee of the Bern Convention in January 2006, which was done on time. In the course of Pilot project, according to the contract, national expert's team had to come up with 10% of total ASCI's in BiH which was altered by the Council of Europe in final project's phase by extending it up to 40%. This was coped with many difficulties, for entire working plan had to be re-scheduled and modified in order to achieve a new goals. In the Pilot Project identified were 11 sites that fulfilled criteria to be designated as ASCI's in BiH. Total coverage of these sites was 90 467.00 ha which made 1,8% of country's total. All identified sites were situated in the alpine biogeographic region.
cepres.pmf.unsa.ba
www.fmoit.gov.ba
- x) **Emerald network project BiH, second project** - project had an objective to recognize Areas of Special Conservation Interest (ASCI) on the territory of Bosnia and Herzegovina and to develop limited database containing both abiotic and biotic parameters for the chosen sites. In the Second Project identified were next 17 sites with coverage of 114 120.00 ha which made another 2,24% of country's total. Thus, all identified Emerald sites (ASCI's) in BiH cover 4,04% of state's territory. Unlike the Pilot Project, the Emerald sites identified in the course of Second Project were equally distributed over biogeographic regions present in BiH, which are : continental, alpine and Mediterranean. Total of 28 areas were identified with coverage of 204 587.00 ha. GIS database was not established. Coordination of activities between team members was arranged by CEPRES, Faculty of Science, where it was placed and manipulated with Emerald software.

cepres.pmf.unsa.ba
www.fmoit.gov.ba

- xi) **Biodiversity of endemic development centers at the area of Herzegovina, as support to goal targets 2010** - Ministry of agriculture, water management and forestry of Federation B&H
ekobih@gmail.com
- xii) **Evaluation of the biodiversity's state in ecosystems of karst fields on the territory of Federation B&H, as a contribution to topic programmes of the Convention on Biodiversity according to Targets 2010** - Ministry of agriculture, water management and forestry of Federation B&H
ekobih@gmail.com
- xiii) **Evaluation of natural values of the environment in Brcko District** - This project is carried out with financial support from Counterpart Int. USA.
www.cepres.pmf.unsa.ba
- xiv) **Valorisation of natural values in "Skakavac" area** - This study was carried out for the Institute for protection of natural, cultural and historical heritage of Kanton Sarajevo. The main objective was to categorise this region in accordance to IUCN criteria, in order to establish and develop system for sustainable nature management in this area.
www.cepres.pmf.unsa.ba
- xv) **Valorisation of natural values in "Bijambare" area** - This project was carried out for the Institute for protection of natural, cultural and historical heritage of Kanton Sarajevo. The main objective was to categorise this region in accordance to IUCN criteria, in order to establish and develop system for sustainable nature management in this area.
www.cepres.pmf.unsa.ba
- xvi) **Valorisation of natural values of biodiversity and ecodiversity on Mt. Igman and Mt. Bjelasnica** - This project was carried out for the Institute for protection of natural, cultural and historical heritage of Kanton Sarajevo. The main objective was to categorise this region in accordance to IUCN criteria, in order to establish and develop system for sustainable nature management in this area.
www.cepres.pmf.unsa.ba
- xvii) **Strengthening the Implementation Capacities for Nutrient Reduction and Transboundary Cooperation in the Danube River Basin (Tranche 2)** - To assure nutrient reduction and sustainable management of water bodies and ecological resources in the Danube River Basin, UNDP/BRC
www.europeandcis.undp.org/environment

6-b Ongoing

- i) **Physical Plan for Federation of B&H** - Preparation activities for creation of the spatial plan of FBiH, Federal ministry for physical planning of Federation of Bosnia and Herzegovina

www.fmpu.gov.ba

- ii) **Project of Establishment of the National Clearing House Mechanism** – The role of Clearing-house mechanism of the Convention on biological diversity is to promote and facilitate technical and scientific cooperation and develop a mechanism for exchanging and integrating information on biodiversity. The clearing-house mechanism contributes to the implementation of the Convention and particularly the achievement of the 2010 target. Identify and implement opportunities to facilitate cooperation that will enhance the capacity to implement priority actions in national biodiversity strategies and action plans.
www.fmoit.gov.ba
- iii) **WWF’s – Living Heart of Europe project** - This project aims to use EU standards to support the administrative bodies responsible for water and natural resources management of BiH. The project will set the ground for both mapping biodiversity values and hotspots in B&H in accordance with the Habitat Directive
www.panda.org
- iv) **Dinaric Arc Initiative (DAI)** - WWF, UNESCO-BRESCE, UNDP, IUCN, the Council of Europe, FAO, Euronatur and SNV concerned with the future of the Dinaric Arc and active in the region with a varied portfolio of projects and initiatives to secure the long-term conservation and sustainable development of this part of Europe have joined forces and created the Dinaric Arc Initiative.
cms.iucn.org/where/europe/index.cfm?uNewsID=123
- v) **Proposal for Network of Protected Areas of Republic of Srpska** - a comprehensive compiled list of potential protected areas in RS according to IUCN classification, financed by Ministry of agriculture, water management and forestry of Republic of Srpska, running by Faculty of Forestry, Banja Luka
sfbl.org/srpski/glasnik/pdf/007/Glasnik%207%20-%20202.pdf
- vi) **Nomination of natural monument Vjetrenica cave for inclusion in UNESCO’s World Heritage List** - National Commission for UNESCO of Bosnia and Herzegovina
www.whc.unesco.org/en/tentativelists/1975/
- vii) **LIFE/SDC project „Protection of Biodiversity of The Sava River Basin Floodplains“** - International project that aims to develop capacities for sustainable management and landuse of the Sava river basin floodplains, CEPRES-Sarajevo and The Agricultural Institute of RS-Banja Luka.
www.cms.iucn.org/where/europe/index.cfm?uNewsID=125
- viii) **Project of Establishment of National Park “Una”** – Project is in its final phase, Federal Ministry of environment and tourism
www.fmoit.gov.ba
- ix) **Evaluation of the possible enlargement of the area of National Park “Sutjeska”**, The Republic Institute for protection of Cultural, Historical and Natural heritage of the Republic of Srpska, Ministry of Culture and Education of Republic of Srpska and Forestry faculty in Banja Luka.
www.heritaggers.org/s/onama/projekti_en.html
- x) **Establishing of protected cultural region “Bardaca-Donja dolina”**, Republic institute for protection of cultural-historical and natural heritage of Republic of Srpska has, based on

- research of LIFE LICENSE project, prepared an expert basis for establishing the protected area - Protected cultural region Bardaca - Donja Dolina. Ministry of spatial planning, civil engineering and ecology should propose to Republic of Srpska Government to put that region under protection.
www.heritagers.org/index_en.html
- xi) **Compilation of the Study for the purposes of proclamation of the nature park Jahorina, 2004**, Republic Institute for protection of Cultural, Historical and Natural heritage of the Republic of Srpska
www.heritagers.org/s/onama/jahorina.html
- xii) **Preparation of document background for the purposes of compilation of the Study for proclamation of the regional park Sipovo and Mrkonjic Grad, 2006**, Republic Institute for protection of Cultural, Historical and Natural heritage of the Republic of Srpska
www.heritagers.org/s/onama/sipovo.html
- xiii) **Strategy for Environment protection of Federation of B&H** - following the Law on Environment protection, Ministry of Environment and Tourism of FB&H is amenable for the preparation of the proposal of the Federal strategy for the environment protection, that would be adopted for a ten years period. Ministry and experts signed a contract for a document preparation in December of 2006, and project activities should have been completed till the December of 2007.
www.okolis.ba
- xiv) **Common Database on Designated Areas (CDDA)** - The European inventory of nationally designated areas holds information about protected sites and about the national legislative instruments, which directly or indirectly create protected areas. The inventory began under the CORINE programme. It is now maintained for EEA by the European Topic Centre on Biological Diversity and is annually updated through Eionet. EEA provides the European inventory of nationally designated areas to the [World Database of Protected Areas \(WDPA\)](#) and to Eurostat.
www.fmoit.gov.ba
- xv) **Project of Establishment of National Park “Bjelasnica, Igman, Treskavica, Visocica”** – Federal Ministry of environment and tourism
www.fmoit.gov.ba
- xvi) **Project of Establishment of National Park “Prenj, Cvrsnica, Cabulja, Vran”** – Federal Ministry of environment and tourism
www.fmoit.gov.ba
- xvii) **Enabling Activities for the Preparation of Bosnia and Herzegovina's Initial National Communication (SNC) to the UN Framework Convention on Climate Change (UNFCCC)** - UNDP Bosnia and Herzegovina; Ministry of Physical Planning, Civil Engineering and Ecology of Republic of Srpska
www.undp.ba
- xviii) **Support for Building National Capacity for Sustainable Environmental Management** - The primary goal of this proposal is to ensure effective and efficient support of UNDP to building of the national capacities for sustainable environmental management.

And to increase awareness of key national stakeholders on importance of environmental issues and actions needed;

www.undp.ba

xix) **Mainstreaming Environmental Governance: Linking Local and National Action in BiH**

– objective is to improve local level environmental planning, enhance management of environmental resources and delivery of environmental services, Increase national environmental awareness and action.

www.undp.ba

6-c Planned

- i) **Emerald network project BiH, third project** - Project objective is to recognize the remaining 20 % of potential Areas of Special Conservation Interest (ASCI) on the territory of Bosnia and Herzegovina and to collect scientific data for all sites.

cepres.pmf.unsa.ba

www.fmoit.gov.ba

- ii) **Bosnia and Herzegovina Biomass Energy for Employment and Energy Security Project**

- The overall project goal is a sustainable reduction of GHG emissions through a transformation of the biomass energy market in Bosnia and Herzegovina, UNDP/BRC

www.undp.ba

- iii) **Local Environmental Action Planning for Sustainability in South Eastern Europe (SEE)**

- The project will be carried out in Bosnia and Herzegovina, the former Yugoslav Republic of Macedonia, Serbia and Kosovo. This project will provide guidance and assistance to 20 municipalities to develop local environmental action plans (LEAPs). The Swedish International Development and Cooperation Agency (Sida) is providing funds to the Regional Environmental Center (REC) to implement the project.

www.rec.org.ba

www.sida.se

- iv) **Biodiversity Conservation in Livanjsko Polje**- Conservation and sustainable use of polje ecosystems through the demonstration of conservation practices and techniques in the Livanjsko Polje, UNDP Bosnia and Herzegovina

www.europeandcis.undp.org/environment

- v) **Mainstreaming Karst Peatlands Conservation Concerns into Key Economic Sectors** - the project will assist in preparation of biodiversity-minded policy instrument (spatial plan), introduce municipal-level regulations for karst field biodiversity use by local population, promote an international (Croatia-BiH) formal agreement and plan for cross-border water management plan.

www.undp.ba

7 Identified relevant possible financing mechanisms

7-a National

- **Fund for the Environment protection of Republic of Srpska and Federation of BiH** - Provides financial assistance for projects that benefit the environment, using the revenues that come from environmental fines (i.e. fines collected from illegal pollution or resource extraction), fees and taxes (i.e. energy taxes, taxes on cars), donations.
www.rec.org.ba/zakoniokolis.htm
- **Extended reproduction of forests fund** –revenues raised from the forest exploitation taxes, are being redirected through the projects related to sustainable management of natural resources– Ministry of Agriculture, Forestry and Water management of Republic of Srpska.
www.vladars.net/sr-SP-Cyrl/Vlada/Ministarstva/mps/Pages/Splash.aspx

7-b Non national

- **Instrument for Pre-accession Assistance (IPA)**

IPA is the new financial instrument for all pre-accession activities funded by the European Commission as of 1 January 2007.

The IPA is made up of five different strands:

1. Assistance for transition and institution building;
2. Cross-border cooperation (with EU Member States and other countries eligible for IPA);
3. Regional development (transport, environment and economic development);
4. Human resources (strengthening human capital and combating exclusion);
5. Rural development.

Table 9. – IPA allocations 2007-2009 under Multi-annual Institutional Financial Framework

Pre-acc. Assistance envelopes, in € Million	2007	2008	2009
Croatia	138.5	146.0	151.2
Former Yugoslav Rep. of Macedonia	58.5	70.2	81.8
Turkey	497.2	538.7	566.4
Albania	61.0	70.7	81.2
Bosnia and Herzegovina	62.1	74.8	89.1
Montenegro	31.4	32.6	33.3
Serbia	186.7	190.9	194.8
Kosovo	63.3	64.7	66.1

http://ec.europa.eu/regional_policy/funds/ipa/index_en.htm

- **LIFE+**

Article 8 (Participation of third countries): Programmes financed through LIFE+ shall be open to the participation of the following countries, provided that supplementary appropriations are received:

(a) EFTA States which have become members of the European Environment Agency in accordance with Council Regulation (EC) No 933/1999 of 29 April 1999 amending Regulation (EEC) No 1210/90 on the establishment of the European Environment Agency and the European environment information and observation network (1);

- (b) candidate countries for accession to the European Union;
 - (c) Western Balkan countries included in the Stabilisation and Association Process.
- <http://ec.europa.eu/environment/life/funding/lifeplus.htm>

- **Seventh Framework Programme (Regulation 1906/2006 of the European Parliament and the Council of 18 December 2006)**

Art 13: In line with the objectives of international cooperation as described by Articles 164 and 170 of the Treaty, the participation of legal entities established in third countries should also be envisaged, as should the participation of international organisations. However, it is appropriate to require that such participation be justified in terms of the enhanced contribution thereby made to the objectives sought under the Seventh Framework Programme.

http://cordis.europa.eu/fp7/home_en.html

- **Global Environment Facility (GEF)**

As the financial mechanism of the Convention on Biological Diversity (CBD), the Global Environment Facility (GEF) helps countries with economies in transition to achieve the objectives of the CBD and generate global environmental benefits in the area of biodiversity. The goal of GEF's biodiversity program is the conservation and sustainable use of biodiversity, the maintenance of the ecosystem goods and services that biodiversity provides to society, and the fair and equitable sharing of the benefits arising out of the utilization of genetic resources.

<http://www.gefweb.org/>

- **Tempus programme ("Modernisation in higher education")**

The Trans-European mobility scheme for university studies is the EU programme that supports the modernisation of higher education in the partner countries of the Western Balkans, Eastern Europe and Central Asia, North Africa and the Middle East. It contributes to creating an area of cooperation in the field of higher education between the European Union and partner countries surrounding the European Union.

http://ec.europa.eu/education/programmes/tempus/index_en.html

7-c Further potential financing sources

- **A public private partnership for protected areas** - Responsible commercialization of protected areas offers a way to capture significant economic value. This is a powerful policy tool for improving the economic sustainability of protected areas, enhancing the quality of services, efficiently leveraging investment in conservation, and, through all this, contributing to the core function of protecting biodiversity (the private partner conducts conservation and biodiversity management activities and use the government's (natural) assets to provide services and generate income, such as by operating shops, lodges, and restaurants).
- **Tourism-related financing mechanisms** - The profits from ecotourism are reinvested exclusively in conservation and education for tourists and local communities. Tourism-related mechanisms that can raise revenue for nature conservation include protected area entry and recreation fees, species-related user fees, hunting fees, hotel and airport taxes and tourist and tourism operator voluntary contributions.
- **Resource-use fees and payments for ecosystem services** - System of payments for environmental services provided by surrounding ecosystems and allocating part of their revenues to financing protection activities in those areas from which resources originate (i.e. Directing a portion of

hydroelectric power revenues to nature conservation can help mitigate ecosystem disruption caused by dam construction).

- **Private company programmes for biodiversity conservation business advertising or sponsorship**
- Private companies contribute to nature conservation through special programs and creative partnerships. Licensing agreements and sponsorships support conservation with revenue earned from selling wildlife related affinity products (such as special credit cards, stamps, coins, or toys). Companies could designate a portion of profits or sales to conservation.

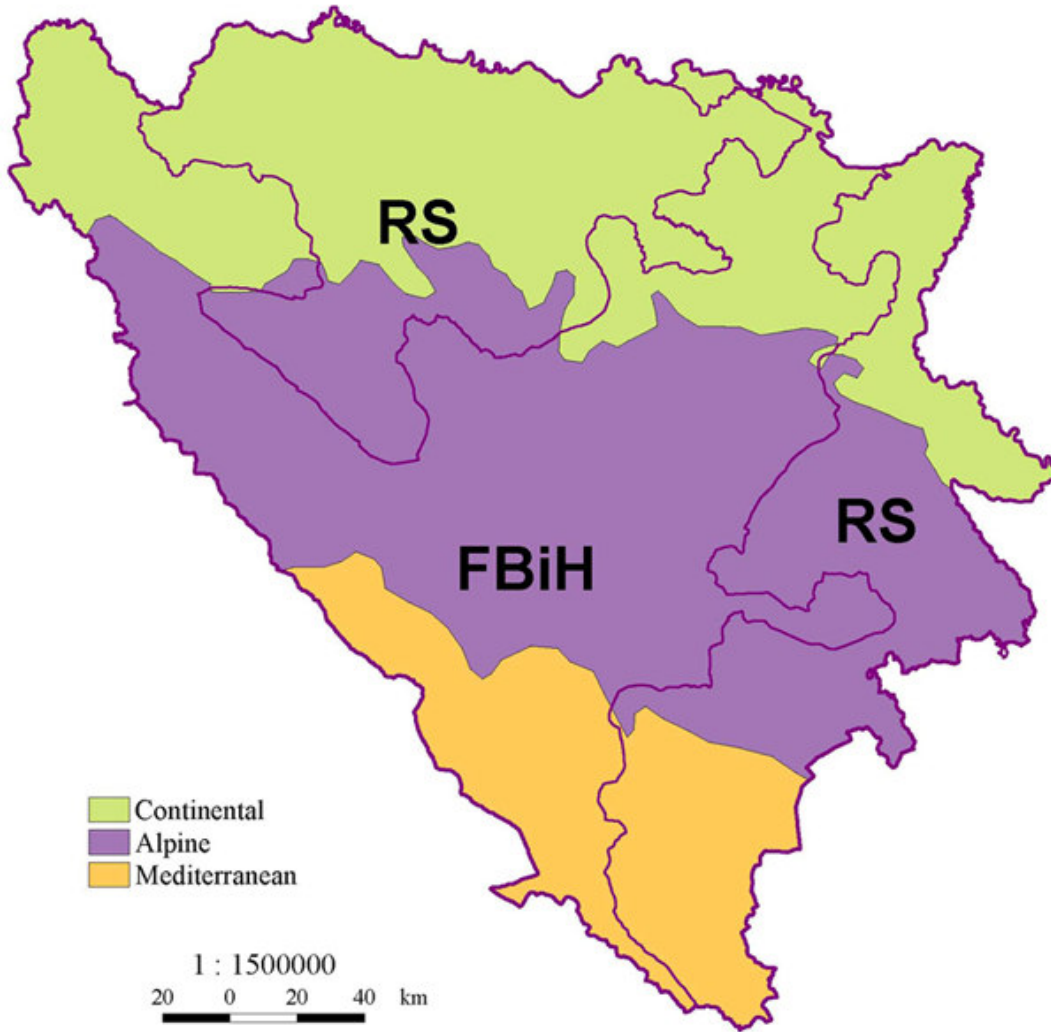
8 Some key issues particularly relevant to the EU biodiversity protection standards

8-a Biogeographic regions

According to the “Indicative Map of Biogeographical Regions EUR 15 + 12” (European Environment Agency, Copenhagen, 2007) there are three biogeographical regions present in BiH:

- i) **Continental**, in the northern part of the country, with lowlands and hills and with high influence of Pannonic plane. Climate is continental with hot summers and cold winters. It is mainly sessile oak-hornbeam forests region.
- ii) **Mediterranean**, in the southern part of the country. With hot summers and mild winters, this is area with the highest annual rainfall in Europe (over 5000mm). Majority of rain falls in winter season. Land is mainly calcareous and dry (Dinaric carst) with lots of underground water flows, caves etc. Main vegetation is submediterranean with downy oak forests and scrubs with dry calcareous grassland.
- iii) **Alpine**, covers the central part of BiH with high mountains of Dinaric range (up to 2368 m). Climate is hard with mild summers and very cold and long winters. There is a very high precipitation during the year. Main vegetation is high forests of beech, fir and spruce, and at the high altitudes alpine grassland.

Map of biogeographical regions in BiH



8-b Identified EU natural values (“present” with scientific reference, “not present”, “scientific reserve”, including final summary figures per groups)

The following tables include the habitats (Annex I) and species (Annex II, IV, V) of the Habitats Directive, by biogeographic region with possible presence in BiH. For each of them, the presence in BiH is documented by a *reference*, a scientific publication which can be found in Chapter 3-c of this document (relevant scientific publications). If there are doubts about its concrete presence, it is expressed by SR (Scientific reference). A similar approach is followed for Birds of Annexes I, II/1, II/2, III/1 I III/2 of the Birds Directive.

8-b-i) Habitats of Annex I of the HD

Table 10. – Habitats of Annex I of the Habitats Directive in BiH

Habitats of Annex I of the Habitats Directive in BiH					
List		Biogeographical regions			Reference (chapter 3-c)
Code	Code description	AL	CO	ME	
3130	Oligotrophic to mesotrophic standing waters with vegetation of the <i>Littorelletea uniflorae</i> and/or of the <i>Isoëto-Nanojuncetea</i>	X	X	X	v)62), v)72)
3140	Hard oligo-mesotrophic waters with benthic vegetation of <i>Chara</i> spp.	X	X		v)62), v)72)
3150	Natural eutrophic lakes with Magnopotamion or Hydrocharition - type vegetation	X	X	X	v)62), v)72)
3160	Natural dystrophic lakes and ponds	X	X		v)62), v)72)
3180	* Turloughs	X		X	v)62), v)72)
3220	Alpine rivers and the herbaceous vegetation along their banks	X			v)62), v)72)
3240	Alpine rivers and their ligneous vegetation with <i>Salix elaeagnos</i>	X		X	v)62), v)72)
3260	Water courses of plain to montane levels with the <i>Ranunculion fluitantis</i> and <i>Callitricho-Batrachion</i> vegetation	X	X	X	v)62), v)72)
3270	Rivers with muddy banks with <i>Chenopodion rubri</i> p.p. and <i>Bidention</i> p.p. vegetation	X	X	X	v)62), v)72)
3280	Constantly flowing Mediterranean rivers with <i>Paspalo-Agrostidion</i> species and hanging curtains of <i>Salix</i> and <i>Populus alba</i>			X	v)62), v)72)
3290	Intermittently flowing Mediterranean rivers of the <i>Paspalo-Agrostidion</i>			X	v)62), v)72)
4060	Alpine and Boreal heaths	X			v)62), v)72)
4070	* Bushes with <i>Pinus mugo</i> and <i>Rhododendron hirsutum</i> (<i>Mugo-Rhododendretum hirsuti</i>)	X			v)62), v)72)
5110	Stable xerothermophilous formations with <i>Buxus sempervirens</i> on rock slopes (<i>Berberidion</i> p.p.)	X	X	X	v)62), v)72)

Habitats of Annex I of the Habitats Directive in BiH					
List		Biogeographical regions			Reference (chapter 3-c)
Code	Code description	AL	CO	ME	
5130	<i>Juniperus communis</i> formations on heaths or calcareous grasslands	X	X	X	v)62), v)72)
5210	Arborescent matorral with <i>Juniperus</i> spp.			X	v)62), v)72)
6110	* Rupicolous calcareous or basophilic grasslands of the <i>Alyso-Sedion albi</i>	X	X	X	v)62), v)72)
6150	Siliceous alpine and boreal grasslands	X			v)62), v)72)
6170	Alpine and subalpine calcareous grasslands	X			v)62), v)72)
6210	Semi-natural dry grasslands and scrubland facies on calcareous substrates (<i>Festuco-Brometalia</i>) (* important orchid sites)	X	X	X	v)62), v)72)
6220	* Pseudo-steppe with grasses and annuals of the <i>Thero-Brachypodietea</i>			SR ²	
6230	* Species-rich <i>Nardus</i> grasslands, on silicious substrates in mountain areas (and submountain areas in Continental Europe)	X	X		v)62), v)72)
62A0	Eastern sub-Mediterranean dry grasslands (<i>Scorzoneratalia villosae</i>)	X		X	v)62), v)72)
6410	<i>Molinia</i> meadows on calcareous, peaty or clayey-silt-laden soils (<i>Molinion caeruleae</i>)	X	X		v)62), v)72)
6430	Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels	X	X		v)62), v)72)
6510	Lowland hay meadows (<i>Alopecurus pratensis</i> , <i>Sanguisorba officinalis</i>)	X	X		v)62), v)72)
6520	Mountain hay meadows	X			v)62), v)72)
7110	* Active raised bogs	X	X	X	v)62), v)72)
7210	*Calcareous fens with <i>Cladium mariscus</i> and species of the <i>Caricion davallianae</i>			X	v)62), v)72)
7220	* Petrifying springs with tufa formation (<i>Cratoneurion</i>)	X	X	X	v)62), v)72)
7230	Alkaline fens	X	X	X	v)62), v)72)
8110	Siliceous scree of the montane to snow levels (<i>Androsacetalia alpinae</i> and <i>Galeopsietalia ladani</i>)	X			v)62), v)72)
8120	Calcareous and calcshist screes of the montane to alpine levels (<i>Thlaspietea rotundifolii</i>)	X	X	X	v)62), v)72)
8160	* Medio-European calcareous scree of hill and montane levels	X	X	X	v)62), v)72)
8210	Calcareous rocky slopes with chasmophytic vegetation	X	X	X	v)62), v)72)
8220	Siliceous rocky slopes with chasmophytic vegetation	X			v)62), v)72)
8230	Siliceous rock with pioneer vegetation of the <i>Sedo-Scleranthion</i> or of the <i>Sedo albi-Veronicion dillenii</i>	X	X		v)62), v)72)
8240	* Limestone pavements	X	X	X	v)62), v)72)
8310	Caves not open to the public	X	X	X	v)62), v)72)
9110	<i>Luzulo-Fagetum</i> beech forests	X	X		v)62), v)72)

² SR-scientific reserve-it should be investigated.

Habitats of Annex I of the Habitats Directive in BiH					
List		Biogeographical regions			Reference (chapter 3-c)
Code	Code description	AL	CO	ME	
9120	Atlantic acidophilous beech forests with <i>Ilex</i> and sometimes also <i>Taxus</i> in the shrublayer (<i>Quercion roboretum</i> or <i>Ilici-Fagenion</i>)	X	X		v)62), v)72)
9130	<i>Asperulo-Fagetum</i> beech forests	X	X		v)62), v)72)
9140	Medio-European subalpine beech woods with <i>Acer</i> and <i>Rumex arifolius</i>	X			v)62), v)72)
9150	Medio-European limestone beech forests of the <i>Cephalanthero-Fagion</i>	X			v)62), v)72)
9160	Sub-Atlantic and medio-European oak or oak-hornbeam forests of the <i>Carpinion betuli</i>	X	X		v)62), v)72)
9170	<i>Galio-Carpinetum</i> oak-hornbeam forests		X		v)62), v)72)
9180	* <i>Tilio-Acerion</i> forests of slopes, screes and ravines	X	X		v)62), v)72)
91B0	Thermophilous <i>Fraxinus angustifolia</i> woods			X	v)62), v)72)
91E0	* Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (<i>Alno-Padion</i> , <i>Alnion incanae</i> , <i>Salicion albae</i>)	X	X		v)62), v)72)
91F0	Riparian mixed forests of <i>Quercus robur</i> , <i>Ulmus laevis</i> and <i>Ulmus minor</i> , <i>Fraxinus excelsior</i> or <i>Fraxinus angustifolia</i> , along the great rivers (<i>Ulmion minoris</i>)		X		v)62), v)72)
91G0	* Pannonic woods with <i>Quercus petraea</i> and <i>Carpinus betulus</i>		X		v)62), v)72)
91H0	* Pannonian woods with <i>Quercus pubescens</i>		X		v)62), v)72)
91K0	Illyrian <i>Fagus sylvatica</i> forests (<i>Aremonio-Fagion</i>)	X	X		v)62), v)72)
91L0	Illyrian oak-hornbeam forests (<i>Erythronio-carpinion</i>)	X	X		v)62), v)72)
91M0	Pannonian-Balkan turkey oak –sessile oak forests		X		v)62), v)72)
91R0	Dinaric dolomite Scots pine forests (<i>Genisto januensis-Pinetum</i>)	X	X		v)62), v)72)
9250	<i>Quercus trojana</i> woods			X	v)62), v)72)
9260	<i>Castanea sativa</i> woods		X	X	v)62), v)72)
9280	<i>Quercus frainetto</i> woods	X	X	X	v)62), v)72)
92A0	<i>Salix alba</i> and <i>Populus alba</i> galleries	X	X	X	v)62), v)72)
9340	<i>Quercus ilex</i> and <i>Quercus rotundifolia</i> forests			X	v)62), v)72)
9410	Acidophilous <i>Picea</i> forests of the montane to alpine levels (<i>Vaccinio-Piceetea</i>)	X			v)62), v)72)
9530	* (Sub-) Mediterranean pine forests with endemic black pines	X		X	v)62), v)72)
95A0	High oro-Mediterranean pine forests	X		X	v)62), v)72)

Table 11. – Distribution of habitats of the Annex I of the EU Habitats Directive by biogeographical regions identified in BiH

	TOTAL	Priority	Alpine		Continental		Mediterranean	
			Present	SR	Present	SR	Present	SR
Number of habitats	64	15	50	-	40	-	31	1

8-b-ii) Species of Annex II, IV and V of the HD

Table 12. – Species of Annex II, IV and V of the Habitats Directive in BiH

Species of Annex II, IV and V of the Habitats Directive in BiH									
List			By Annexes			Biogeographical regions			Reference (chapter 3-c)
No.	Scientific name	Group	II	IV	V	AL	CO	ME	
1	<i>Rhinolophus euryale</i>	Mammals	X	X		X	X	X	iii)1)- 7)
2	<i>Rhinolophus ferrumequinum</i>	Mammals	X	X		X	X	X	iii)1)- 7)
3	<i>Rhinolophus hipposideros</i>	Mammals	X	X		X	X	X	iii)1)- 7)
4	<i>Rhinolophus mehelyi</i>	Mammals	X	X		X	X	X	iii)1)- 7)
5	<i>Rhinolophus blasii</i>	Mammals	X	X		X			
6	<i>Barbastella barbastellus</i>	Mammals	X	X		X	X	X	iii)1)- 7)
7	<i>Miniopterus schreibersi</i>	Mammals	X	X		X	X	X	iii)1)- 7)
8	<i>Myotis bechsteini</i>	Mammals	X	X		X	X	X	iii)1)- 7)
9	<i>Myotis capaccinii</i>	Mammals	X	X		X	X	X	iii)1)- 7)
10	<i>Myotis emarginatus</i>	Mammals	X	X		X	X	X	iii)1)- 7)
11	<i>Myotis myotis</i>	Mammals	X	X		X	SR	SR	iv)7)
12	<i>Myotis blythii</i>	Mammals		X		X	SR	SR	iv)7)
13	<i>Myotis nattereri</i>	Mammals		X		X	SR	SR	iv)7)
14	<i>Myotis mystacinus</i>	Mammals		X		X	SR	SR	iv)7)
15	<i>Vespertilio murinus</i>	Mammals		X		X	SR	SR	iv)7)
16	<i>Eptesicus serotinus</i>	Mammals		X		X	SR	SR	iv)7)
17	<i>Nyctalus noctula</i>	Mammals		X		X	SR	SR	iv)7)
18	<i>Nyctalus leisleri</i>	Mammals		X		X	SR	SR	iv)7)
19	<i>Nyctalus lasiopterus</i>	Mammals		X		X	SR	SR	iv)7)
20	<i>Pipistrellus pipistrellus</i>	Mammals		X		X	SR	SR	iv)7)
21	<i>Pipistrellus nathusii</i>	Mammals		X		X	SR	SR	iv)7)
22	<i>Pipistrellus kuhlii</i>	Mammals		X		X	SR	SR	iv)7)
23	<i>Plecotus auritus</i>	Mammals		X		X	SR	SR	iv)7)
24	<i>Plecotus austriacus</i>	Mammals		X		X	SR	SR	iv)7)
25	<i>Muscardinus avellanarius</i>	Mammals		X		X	SR	SR	iv)7)
26	<i>Dryomys nitedula</i>	Mammals		X		X	SR	SR	iv)7)
27	<i>Cricetus cricetus</i>	Mammals		X	X	SR	SR	X	iv)7)
28	<i>Castor fiber</i>	Mammals	X	X	X	X			iv)7)
29	<i>Canis aureus</i>	Mammals			X			X	iv)7),ii)5)
30	<i>Canis lupus</i> *	Mammals	X	X		X	X	X	iii)1)- 7)
31	<i>Ursus arctos</i> *	Mammals	X	X		X	X	X	iii)1)- 7)
32	<i>Lutra lutra</i>	Mammals	X	X		X	X	X	iii)1)- 7)

Species of Annex II, IV and V of the Habitats Directive in BiH									
List			By Annexes			Biogeographical regions			Reference (chapter 3-c)
No.	Scientific name	Group	II	IV	V	AL	CO	ME	
33	<i>Martes martes</i>	Mammals			X	X	X	X	iii)1)- 7)
34	<i>Mustela putorius</i>	Mammals			X	X	X	X	iii)1)- 7)
35	<i>Lynx lynx</i>	Mammals	X			X			iii)1)- 7)
36	<i>Felis silvestris</i>	Mammals		X		X	X	X	iii)1)- 7)
37	<i>Rupicapra rupicapra balcanica</i>	Mammals	X			X			iii)1)- 7)
38	<i>Tursiops truncatus</i>	Mammals	X	X				X	iv)7), ii)5)
39	<i>Testudo hermanni</i>	Reptiles	X	X				X	iv)3)
40	<i>Emys orbicularis</i>	Reptiles	X	X		X	X	X	iv)3)
41	<i>Algyroides nigropunctatus</i>	Reptiles		X		SR	SR	X	iv)7)
42	<i>Lacerta agilis</i>	Reptiles		X		X	X	X	iv)3)
43	<i>Lacerta trilineata</i>	Reptiles		X				X	iv)7)
44	<i>Lacerta viridis</i>	Reptiles		X		X	X	X	iv)3)
45	<i>Podarcis melisellensis</i>	Reptiles		X				X	iv)7)
46	<i>Podarcis muralis</i>	Reptiles		X		X	X	X	iv)3)
47	<i>Ablepharus kitaibelli</i>	Reptiles		X		SR	X	SR	iv)7)
48	<i>Ophisaurus apodus</i>	Reptiles		X				X	iv)3)
49	<i>Elaphe situla</i>	Reptiles	X	X				X	iv)3)
50	<i>Elaphe quatuorlineata</i>	Reptiles	X	X			X	X	iv)3)
51	<i>Elaphe longissima</i>	Reptiles		X		X	X	X	iv)3)
52	<i>Coluber najadum</i>	Reptiles		X				X	iv)3)
53	<i>Coluber caspius</i>	Reptiles		X		SR	X		iv)7)
54	<i>Coronella austriaca</i>	Reptiles		X		X	X	X	iv)3)
55	<i>Natrix tessellata</i>	Reptiles		X		X	X	X	iv)3)
56	<i>Telescopus falax</i>	Reptiles		X				X	iv)3)
57	<i>Vipera ursinii</i>	Reptiles	X			X			iv)3)
58	<i>Vipera amodites</i>	Reptiles		X		X	X	X	iv)3)
59	<i>Triturus carnifex</i>	Amphibians	X	X		X		X	iv)21-23)
60	<i>Triturus dobrogicus</i>	Amphibians	X				X		iv)21-23)
61	<i>Salamandra atra</i>	Amphibians		X		X			iv)21-23)
62	<i>Proteus anguinus</i> *	Amphibians	X	X		X		X	iv)21-23)
63	<i>Bombina bombina</i>	Amphibians	X	X		X			iv)21-23)
64	<i>Bombina variegata</i>	Amphibians	X	X		X	X	X	iv)21-23)
65	<i>Rana dalmatina</i>	Amphibians		X				SR	iv)21-23)
66	<i>Rana graeca</i>	Amphibians		X		X	X	X	iv)21-23)

Species of Annex II, IV and V of the Habitats Directive in BiH									
List			By Annexes			Biogeographical regions			Reference (chapter 3-c)
No.	Scientific name	Group	II	IV	V	AL	CO	ME	
67	<i>Rana esculenta</i>	Amphibians			X			SR	iv)21-23)
68	<i>Rana ridibunda</i>	Amphibians			X	X	X	X	iv)21-23)
69	<i>Rana temporaria</i>	Amphibians			X			SR	iv)21-23)
70	<i>Pelobates fuscus</i>	Amphibians		X		SR	X		iv)7)
71	<i>Bufo viridis</i>	Amphibians		X		X	X	X	iv)21-23)
72	<i>Hyla arborea</i>	Amphibians		X		X	X	X	iv)21-23)
73	<i>Eudontomyzon danfordi</i> (o)	Fish	X				X		ii)1)-8)
74	<i>Petromyzon marinus</i> (o)	Fish	X					SR	ii)1)-8)
75	<i>Lampetra fluviatilis</i>	Fish			X			SR	ii)1)-8)
76	<i>Lampetra planeri</i> (o)	Fish	X			SR	SR	SR	iv)7)
77	<i>Huso huso</i>	Fish			X		SR		iv)7)
78	<i>Acipenser naccarii</i> *	Fish	X	X				SR	ii)1)-8)
79	<i>Acipenser sturio</i> *	Fish	X	X			SR	X	ii)1)-8)
80	<i>Acipenser stellatus</i>	Fish			X		SR		iv)7)
81	<i>Acipenser ruthenus</i>	Fish			X	SR	X		iv)7)
82	<i>Acipenser nudiiventris</i>	Fish			X		SR		iv)7)
83	<i>Acipenser gueldenstaedtii</i>	Fish			X		SR		iv)7)
84	<i>Alosa fallax nilotica</i>	Fish	X					SR	ii)1)-8)
85	<i>Alosa kessleri</i>	Fish			X	SR	SR	SR	iv)7)
86	<i>Hucho hucho</i> (natural populations) V	Fish	X		X	X	X		ii)1)-8)
87	<i>Salmo marmoratus</i> (o)	Fish	X			X		X	ii)1)-8)
88	<i>Thymallus thymallus</i>	Fish			X	X	X	X	ii)1)-8)
89	<i>Umbra krameri</i> (o)	Fish	X			X	X		ii)1)-8)
90	<i>Alburnus albidus</i> (o)	Fish	X					X	ii)1)-8)
91	<i>Aspius aspius</i> (V)	Fish	X			X	X		ii)1)-8)
92	<i>Barbus barbus</i>	Fish			X	SR	SR	SR	iv)7)
93	<i>Barbus meridionalis</i> (V)	Fish	X		X	X	X		ii)1)-8)
94	<i>Chalcalburnus chalcoides</i> (o)	Fish	X			X	X		ii)1)-8)
95	<i>Gobio albipinnatus</i> (o)	Fish	X			X	X		ii)1)-8)
96	<i>Gobio kessleri</i> (o)	Fish	X			X	X		ii)1)-8)
97	<i>Gobio uranoscopus</i> (o)	Fish	X			X	X		ii)1)-8)
98	<i>Phoxinellus adspersus</i> (o)	Fish	X					X	ii)1)-8)
99	<i>Phoxinellus alepidotus</i> (o)	Fish	X					X	ii)1)-8)
100	<i>Phoxinellus ghetaldi</i> (o)	Fish	X					X	ii)1)-8)

Species of Annex II, IV and V of the Habitats Directive in BiH									
List			By Annexes			Biogeographical regions			Reference (chapter 3-c)
No.	Scientific name	Group	II	IV	V	AL	CO	ME	
101	<i>Phoxinellus metohiensis</i> (o)	Fish	X					X	ii)1)-8)
102	<i>Phoxinellus pstrossi</i> (o)	Fish	X					X	ii)1)-8)
103	<i>Rhodeus sericeus amarus</i> (o)	Fish	X					X	ii)1)-8)
104	<i>Rutilus rubilio</i> (o)	Fish	X			X	SR		iv)7)
105	<i>Rutilus pigus virgo</i> (V)	Fish	X			X	X		ii)1)-8)
106	<i>Cobitis elongata</i> (o)	Fish	X				X		ii)1)-8)
107	<i>Misgurnus fossilis</i> (o)	Fish	X				X		ii)1)-8)
108	<i>Sabanejewia aurata</i> (o)	Fish	X				X		ii)1)-8)
109	<i>Aphanius fasciatus</i> (o)	Fish	X					X	ii)1)-8)
110	<i>Gymnocephalus schraetzer</i>	Fish	X				X		ii)1)-8)
111	<i>Gymnocephalus baloni</i>	Fish	X	X		SR	SR	SR	SR iv)7)
112	<i>Zingel streber</i> (o)	Fish	X				X		ii)1)-8)
113	<i>Zingel zingel</i> (V)	Fish	X				X		ii)1)-8)
114	<i>Knipowitschia panizzae</i> (o)	Fish	X					X	ii)1)-8)
115	<i>Pomatoschistus canestrini</i> (o)	Fish	X					X	ii)1)-8)
116	<i>Cottus gobio</i> (o)	Fish	X					X	ii)1)-8)
117	<i>Hirudo medicinalis</i>	Invertebrates			X	X	X	X	iv)7)
118	<i>Helix pomatia</i>	Invertebrates			X	X	X	X	iv)18)-20)
119	<i>Vertigo angustior</i> (o)	Invertebrates	X			SR	SR	X	iv)7)
120	<i>Lithophaga lithophaga</i>	Invertebrates		X				X	iv)18)-20)
121	<i>Pinna nobilis</i>	Invertebrates		X				X	iv)18)-20)
122	<i>Congerius kusceri</i>	Invertebrates		X				X	iv)18)-20)
123	<i>Unio crassus</i>	Invertebrates	X	X		X	X	SR	iv)7)
124	<i>Astacus astacus</i>	Invertebrates			X	X	X	X	iv)18)-20)
125	<i>Austropotamobius torrentium*</i>	Invertebrates	X			X	X		iv)18)-20)
126	<i>Austropotamobius pallipes</i> (V)	Invertebrates	X		X	X	SR		iv)18)-20)
127	<i>Bolbelasmus unicornis</i>	Invertebrates	X	X		SR	SR		iv)18)-20)
128	<i>Carabus variolosus</i>	Invertebrates	X	X		X			iv)7)
129	<i>Carabus hampei</i>	Invertebrates	X	X		X			iv)7),8)
130	<i>Cerambyx cerdo</i>	Invertebrates	X	X		X	X	X	iv)18)-20)
131	<i>Graphoderus bilineatus</i>	Invertebrates	X	X		X	X	X	iv)24)
132	<i>Lucanus cervus</i>	Invertebrates	X			X	X	X	iv)24)
133	<i>Morimus funereus</i>	Invertebrates	X			X	X	X	iv)24)

Species of Annex II, IV and V of the Habitats Directive in BiH									
List			By Annexes			Biogeographical regions			Reference (chapter 3-c)
No.	Scientific name	Group	II	IV	V	AL	CO	ME	
134	<i>Osmoderma eremita</i> *	Invertebrates	X	X		X	X	X	iv)24)
135	<i>Rosalia alpina</i> *	Invertebrates	X	X		X			iv)24)
136	<i>Callimorpha quadripunctaria</i> (o) *	Invertebrates	X			X			iv)6)
137	<i>Eriogaster catax</i>	Invertebrates	X	X		SR	X		iv)8)
138	<i>Euphydryas aurinia</i> (o)	Invertebrates	X			X	X	X	iv)6)
139	<i>Hypodryas maturna</i>	Invertebrates	X	X		X	X	X	iv)6)
140	<i>Leptidea morsei</i>	Invertebrates	X	X		X	X		iv)6)
141	<i>Lopinga achine</i>	Invertebrates		X		X			iv)5)
142	<i>Lycaena dispar</i>	Invertebrates	X	X		X	X	X	iv)6)
143	<i>Maculinea arion</i>	Invertebrates		X		X			iv)5)
144	<i>Nymphalis vaualbum</i> *	Invertebrates	X	X		X		SR	iv)6)
145	<i>Papilio alexanor</i>	Invertebrates		X		X		SR	iv)5)
146	<i>Parnassius apolo</i>	Invertebrates		X		X			iv)6)
147	<i>Parnassius mnemosyne</i>	Invertebrates		X		X			iv)5)
148	<i>Zerynthia polyxena</i>	Invertebrates		X		X	X	X	iv)6)
149	<i>Leucorrhinia pectoralis</i>	Invertebrates	X	X			X		iv)1)
150	<i>Sphagnum</i> L. spp	Plants			X	X	X	X	v)7)-16), v)162)
151	<i>Asplenium adnigrum</i> Milde (R)	Plants	X			X	X		v)7)-16), v)162)
152	<i>Botrychium simplex</i> Hitchc. (V)	Plants	X			SR			v)7)-16), v)162)
153	<i>Marsilea quadrifolia</i> L. (V)	Plants	X			SR	X	SR	v)7)-16), v)162)
154	<i>Lycopodium</i> spp.	Plants			X	X	X		v)7)-16), v)162)
155	<i>Echium russicum</i> J.F.Gemlin	Plants	X			X			v)7)-16), v)162)
156	<i>Adenophora lilifolia</i> (L.) Ledeb. ex A. DC. (V)	Plants	X			X			v)7)-16), v)162)
157	<i>Cerastium dinaricum</i> G. Beck et Szysz. (V)	Plants	X			X			v)7)-16), v)162)
158	<i>Thlaspi jankae</i> A. Kern. (R)	Plants	X			X			v)7)-16), v)162)
159	<i>Aquilegia kitaibelii</i> Schott (E)	Plants	X			X			v)7)-16), v)162)
160	<i>Pulsatilla grandis</i> Wenderoth (R)	Plants	X			X			v)7)-16), v)162)
161	<i>Arnica montana</i> L.	Plants			X	X			v)7)-16), v)162)
162	<i>Eryngium alpinum</i> L. (V)	Plants	X			X			v)7)-16), v)162)
163	<i>Gentiana lutea</i> L	Plants			X	X			v)7)-16), v)162)

Species of Annex II, IV and V of the Habitats Directive in BiH									
List			By Annexes			Biogeographical regions			Reference (chapter 3-c)
No.	Scientific name	Group	II	IV	V	AL	CO	ME	
164	<i>Gladiolus palustris</i> Gaud. (V)	Plants	X					X	v)7)-16), v)162)
165	<i>Scilla litardierei</i> Breistr. (V)	Plants	X			X			v)7)-16), v)162)
166	<i>Ruscus aculeatus</i> L.	Plants			X		X	X	v)7)-16), v)162)
167	<i>Galanthus nivalis</i> L.	Plants			X	X	X	X	v)7)-16), v)162)
168	<i>Cypripedium calceolus</i> L. (E)	Plants	X			X		X	v)7)-16), v)162)
169	<i>Liparis loeselii</i> (L.) Rich. (Syn.: <i>Pseudorchis loeselii</i> (L.) S.F.Gray) (Ex)	Plants	X					SR	v)7)-16), v)162)

Table 13. – Distribution of groups of species by Annexes II, IV and V of the EU Habitats Directive by biogeographical regions identified in BiH

Groups of species	Presence in BiH	Annex II	Priority	Annex IV	Annex V	Alpine		Continental		Mediterranean	
						Present	SR	Present	SR	Present	SR
Mammals	38	18	2	33	5	35	1	15	17	18	16
Reptiles	20	5	0	19	0	9	3	11	1	17	1
Amphibians	14	5	1	10	3	9	1	7	0	7	3
Fish	44	35	2	3	11	12	5	18	10	14	8
Invertebrates	33	21	5	23	4	27	3	17	3	15	3
Plants	20	14	0	0	6	15	2	6	0	5	2
TOTAL	169	98	10	88	29	122	15	105	31	108	32

8-b-iii) Birds from the Annexes I, II/1, II/2, III/1 and III/2 of the Birds Directive

Table 14. – Birds of Annex I, II/1, II/2, III/1 and III/2 of the Birds Directive in BiH

	Species	Annex I	Annex II/1	Annex II/2	Annex III/1	Annex III/2	Reference (chapter 3-c)
1	<i>Gavia stellata</i>	X					i)1)-31)
2	<i>Gavia arctica</i>	X					i)1)-31)
3	<i>Gavia immer</i>	X					i)9)
4	<i>Podiceps auritus</i>	X					i)1)-31)
5	<i>Pelecanus onocrotalus</i>	X					i)1)-31)
6	<i>Pelecanus crispus</i>	X					i)1)-31)
7	<i>Phalacrocorax pygmaeus</i>	X					i)1)-31)
8	<i>Botaurus stellaris</i>	X					i)1)-31)
9	<i>Ixobrychus minutus</i>	X					i)1)-31)
10	<i>Nycticorax nycticorax</i>	X					i)1)-31)

	Species	Annex I	Annex II/1	Annex II/2	Annex III/1	Annex III/2	Reference (chapter 3-c)
11	<i>Ardeola ralloides</i>	X					i)1)-31)
12	<i>Egretta alba</i>	X					i)1)-31)
13	<i>Egretta garzetta</i>	X					i)1)-31)
14	<i>Ardea purpurea</i>	X					i)1)-31)
15	<i>Ciconia nigra</i>	X					i)1)-31)
16	<i>Ciconia ciconia</i>	X					i)1)-31)
17	<i>Plegadis falcinellus</i>	X					i)1)-31)
18	<i>Platalea leucordia</i>	X					i)1)-31)
19	<i>Phoenicopterus ruber</i>	X					i)9)
20	<i>Cygnus cygnus</i>	X					i)1)-31)
21	<i>Cygnus olor</i>			X			i)1)-31)
22	<i>Anser albifrons</i>			X		X	i)1)-31)
23	<i>Anser anser</i>		X			X	i)1)-31)
24	<i>Anser erythropus</i>	X					i)1)-31)
25	<i>Anser fabalis</i>		X				i)1)-31)
26	<i>Branta ruficollis</i>	X					i)1)-31)
27	<i>Netta rufina</i>			X			i)1)-31)
28	<i>Anas penelope</i>		X			X	i)1)-31)
29	<i>Anas strepera</i>		X				i)1)-31)
30	<i>Anas crecca</i>		X			X	i)1)-31)
31	<i>Anas platyrhynchos</i>		X		X		i)1)-31)
32	<i>Anas acuta</i>		X			X	i)1)-31)
33	<i>Anas querquedula</i>		X				i)1)-31)
34	<i>Anas clypeata</i>		X			X	i)1)-31)
35	<i>Tadorna ferruginea</i>	X					i)1)-31)
36	<i>Marmaronetta angustirostris</i>	X					i)1)-31)
37	<i>Aythya marila</i>			X		X	i)1)-31)
38	<i>Aythya ferina</i>		X			X	i)1)-31)
39	<i>Aythya fuligula</i>		X			X	i)1)-31)
40	<i>Aythya nyroca</i>	X					i)1)-31)
41	<i>Melanitta fusca</i>			X			i)1)-31)
42	<i>Bucephala clangula</i>			X			i)1)-31)
43	<i>Mergus serrator</i>			X			i)1)-31)
44	<i>Mergellus albellus</i>	X					i)1)-31)
45	<i>Oxyura leucocephala</i>	X					i)1)-31)
46	<i>Pandion haliaetus</i>	X					i)1)-31)
47	<i>Pernis apivorus</i>	X					i)1)-31)
48	<i>Milvus migrans</i>	X					i)1)-31)
49	<i>Milvus milvus</i>	X					i)1)-31)
50	<i>Haliaeetus albicilla</i>	X					i)1)-31)
51	<i>Gypaetus barbatus</i>	X					i)1)-31)
52	<i>Neophron percnopterus</i>	X					i)1)-31)
53	<i>Gyps fulvus</i>	X					i)1)-31)
54	<i>Aegypius monachus</i>	X					i)1)-31)
55	<i>Circaetus gallicus</i>	X					i)1)-31)
56	<i>Circus aeruginosus</i>	X					i)1)-31)

	Species	Annex I	Annex II/1	Annex II/2	Annex III/1	Annex III/2	Reference (chapter 3-c)
57	<i>Circus cyaneus</i>	X					i)1)-31)
58	<i>Circus pygargus</i>	X					i)1)-31)
59	<i>Circus macrourus</i>	X					i)9)
60	<i>Accipiter brevipes</i>	X					i)1)-31)
61	<i>Buteo rufinus</i>	X					i)1)-31)
62	<i>Aquila pomarina</i>	X					i)1)-31)
63	<i>Aquila clanga</i>	X					i)1)-31)
64	<i>Aquila heliaca</i>	X					i)1)-31)
65	<i>Aquila chrysaetos</i>	X					i)1)-31)
66	<i>Hieraetus pennatus</i>	X					i)1)-31)
67	<i>Hieraetus fasciatus</i>	X					i)1)-31)
68	<i>Falco naumanni</i>	X					i)1)-31)
69	<i>Falco columbarius</i>	X					i)1)-31)
70	<i>Falco biarmicus</i>	X					i)1)-31)
71	<i>Falco cherrug</i>	X					i)1)-31)
72	<i>Falco peregrinus</i>	X					i)1)-31)
73	<i>Falco vespertinus</i>	X					i)1)-31)
74	<i>Bonasa bonasia</i>	X		X			i)1)-31)
75	<i>Tetrao tetrix</i>	X		X			i)1)-31)
76	<i>Tetrao urogallus</i>	X		X		X	i)1)-31)
77	<i>Alectoris graeca</i>		X				i)1)-31)
78	<i>Perdix perdix</i>		X		X		i)1)-31)
79	<i>Phasianus colchicus</i>		X		X		i)1)-31)
80	<i>Coturnix coturnix</i>			X			i)1)-31)
81	<i>Grus grus</i>	X					i)1)-31)
82	<i>Porzana porzana</i>	X					i)1)-31)
83	<i>Porzana parva</i>	X					i)1)-31)
84	<i>Porzana pusilla</i>	X					i)1)-31)
85	<i>Crex crex</i>	X					i)1)-31)
86	<i>Rallus aquaticus</i>			X			i)1)-31)
87	<i>Gallinula chloropus</i>			X			i)1)-31)
88	<i>Fulica atra</i>		X			X	i)1)-31)
89	<i>Haematopus ostralegus</i>			X			i)1)-31)
90	<i>Tetrax tetrax</i>	X					i)9)
91	<i>Otis tarda</i>	X					i)9)
92	<i>Himantopus himantopus</i>	X					i)1)-31)
93	<i>Recurvirostrata avosetta</i>	X					i)9)
94	<i>Burhinus oedicnemus</i>	X					i)1)-31)
95	<i>Glareola pratincola</i>	X					i)1)-31)
96	<i>Charadrius alexandrinus</i>	X					i)1)-31)
97	<i>Charadrius morinellus</i>	X					i)1)-31)
98	<i>Pluvialis apricaria</i>	X		X		X	i)1)-31)
99	<i>Pluvialis squatarola</i>			X			i)1)-31)
100	<i>Vanellus vanellus</i>			X			i)1)-31)
101	<i>Lymnocyptes minimus</i>		X			X	i)1)-31)
102	<i>Gallinago gallinago</i>		X			X	i)1)-31)

	Species	Annex I	Annex II/1	Annex II/2	Annex III/1	Annex III/2	Reference (chapter 3-c)
103	<i>Gallinago media</i>	X					i)1)-31)
104	<i>Scolopax rusticola</i>		X			X	i)1)-31)
105	<i>Philomachus pugnax</i>	X		X			i)1)-31)
106	<i>Limosa limosa</i>			X			i)1)-31)
107	<i>Numenius arquata</i>			X			i)1)-31)
108	<i>Numenius phaeopus</i>			X			i)1)-31)
109	<i>Numenius tenuirostris</i>	X					i)1)-31)
110	<i>Tringa erythropus</i>			X			i)1)-31)
111	<i>Tringa glareola</i>	X					i)1)-31)
112	<i>Tringa nebularia</i>			X			i)1)-31)
113	<i>Larus canus</i>			X			i)1)-31)
114	<i>Larus fuscus</i>			X			i)1)-31)
115	<i>Larus ridibundus</i>			X			i)1)-31)
116	<i>Larus melanocephalus</i>	X					i)1)-31)
117	<i>Larus minutus</i>	X					i)1)-31)
118	<i>Sterna nilotica</i>	X					i)1)-31)
119	<i>Sterna sandvicensis</i>	X					i)1)-31)
120	<i>Sterna albifrons</i>	X					i)1)-31)
121	<i>Sterna hirundo</i>	X					i)1)-31)
122	<i>Sterna caspia</i>	X					i)9)
123	<i>Chlidonias hybridus</i>	X					i)1)-31)
124	<i>Chlidonias niger</i>	X					i)1)-31)
125	<i>Columba livia</i>		X				i)1)-31)
126	<i>Columba oenas</i>			X			i)1)-31)
127	<i>Columba palumbus</i>		X		X		i)1)-31)
128	<i>Streptopelia decaocto</i>			X			i)1)-31)
129	<i>Streptopelia turtur</i>			X			i)1)-31)
130	<i>Bubo bubo</i>	X					i)1)-31)
131	<i>Glaucidium passerinum</i>	X					i)1)-31)
132	<i>Strix uralensis</i>	X					i)1)-31)
133	<i>Asio flammeus</i>	X					i)1)-31)
134	<i>Aegolius funereus</i>	X					i)1)-31)
135	<i>Caprimulgus europaeus</i>	X					i)1)-31)
136	<i>Alcedo atthis</i>	X					i)1)-31)
137	<i>Coracias garrulus</i>	X					i)1)-31)
138	<i>Picus canus</i>	X					i)1)-31)
139	<i>Dryocopus martius</i>	X					i)1)-31)
140	<i>Dendrocopos medius</i>	X					i)1)-31)
141	<i>Dendrocopos leucotos</i>	X					i)1)-31)
142	<i>Dendrocopos syriacus</i>	X					i)1)-31)
143	<i>Picoides tridactylus</i>	X					i)1)-31)
144	<i>Alauda arvensis</i>			X			i)1)-31)
145	<i>Melanocorypha calandra</i>	X					i)1)-31)
146	<i>Calandrella brachydactyla</i>	X					i)1)-31)
147	<i>Lullula arborea</i>	X					i)1)-31)
148	<i>Anthus campestris</i>	X					i)1)-31)

	Species	Annex I	Annex II/1	Annex II/2	Annex III/1	Annex III/2	Reference (chapter 3-c)
149	Luscinia svecica	X					i)1)-31)
150	Acrocephalus melanopogon	X					i)1)-31)
151	Acrocephalus paludicola	X					i)9)
152	Hippolais olivetorum	X					i)1)-31)
153	Turdus merula			X			i)1)-31)
154	Turdus pilaris			X			i)1)-31)
155	Turdus philomelos			X			i)1)-31)
156	Turdus iliacus			X			i)1)-31)
157	Turdus viscivorus			X			i)1)-31)
158	Sturnus vulgaris			X			i)1)-31)
159	Sylvia nisoria	X					i)1)-31)
160	Ficedula parva	X					i)1)-31)
161	Ficedula albicollis	X					i)1)-31)
162	Lanius collurio	X					i)1)-31)
163	Lanius minor	X					i)1)-31)
164	Garrulus glandarius			X			i)1)-31)
165	Pica pica			X			i)1)-31)
166	Corvus monedula			X			i)1)-31)
167	Corvus frugilegus			X			i)1)-31)
168	Corvus corone			X			i)1)-31)
169	Emberiza hortulana	X					i)1)-31)

Table 15. – Distribution of bird species of Annexes I, II/1, II/2, III/1 and III/2 of the EU Birds Directive in BiH

	Annex I	Annex II/1	Annex II/2	Annex III/1	Annex III/2
Number of species	113	20	41	4	15

8-c Some identified challenges and opportunities

General remarks

- In despite of very large number of scientific papers that regard to flora, fauna, habitats and ecosystems diversity, BiH does not posses enough that can be used in appliance of the criteria given.
- BiH does not possess databases and modern inventories of flora, fauna, habitat types and ecosystems.
- There is a lack of digitized maps, satellite images, GIS layers of relevant data in appropriate scales.
- There are no Red Lists of habitats and species in BiH.
- A big number of BiH endangered, specific or endemic species and habitat types are not listed in the Annexes of Habitats directive.
- There is a lack of capacity and knowledge in institutions on entity and state level related in the field of biodiversity protection according to European standards.

- The current state of environment protection in BiH is quite complex, due to the institutional structure and complex division of competences.
- Public awareness on environmental issues is at very low level. There is a lack of environmental issues treatment in education process, media, politics etc.
- Historical factor and traditionally bad attitude to environmental issues
- Very high influence of different socio-economic factors on the state environmental policies (e.g. energetic, forestry, tourism), in front of a low priority level of environmental protection.
- Small percent of protected areas.

Some identified challenges

- The present environmental legislation in BiH is not harmonised between different sectors – this could be complicated by the new sets of sectoral (environmental) laws that are already endorsed or in procedure in Republic of Srpska.
- The present environmental legislation is not fully harmonised with EU regulations and standards – also could be complicated by constant improvement of the Environmental laws.
- There is a lack of legal regulations and guidance documents that would support practical implementation of the legal provisions.
- There is not a full accordance between the Development Strategy of Bosnia and Herzegovina and ecotouristic and economic potentials that present and future protected areas possess. This fact is a final consequence of public awareness state and poor knowledge on environmental management;
- There is no legislation in BiH related with CBD's implementation at national level.
- At present there is no environmental institution on the state level, as an environmental agency has not been established in BiH yet. In the environmental field there is a lack of formal coordination is being practised, neither among municipalities nor between cantons.
- Environmental administration is scattered (splitted between spatial planning sector, water administration and other institutions but without proper cross-sectoral cooperation). With three levels of autonomy and up to four levels of administrative layers public administration is very complex also in the environmental field (resulting with gaps, delays, overlapping, duplication and unequal standards).
- There is a significant gap in the policy area. Some strategic documents have been produced (National Environmental Action Plan – NEAP, National Biodiversity Strategy and Action Plan NBSAP), but their use among government officials at the various levels is limited and the implementation-rate of the measures foreseen in these documents is very low.
- There is also a significant gap in the legislative field. Basic legislation has advanced towards European harmonisation, but secondary legislation is lagging behind. This blocks implementation at all levels. This basic legislation prescribed the adoption of sub-laws (legal acts that are required for implementation of adopted laws) and defined responsibilities of different bodies in this respect, but in practice, work is done on the basis of old rules and regulations despite the existence of modern primary legislation.
- Environmental monitoring is very fragmented between the various administrative structures.
- There is a lack of scientific capacities and scientific data.
- Public awareness and participation in decision-making is very low.

Some suggestions to move forward

- It would be helpful to ensure a better level of coordination level through the creation of a policy and coordination unit at state level.
- The establishment of an environment agency could provide a very valuable environmental professional support at all levels.
- A positive way forward would be to work on the harmonization of the national legislation with the EU legislation.
- Some implementation work on the national level could save costs and more efficient in terms of use of resources.
- A reorganising -and possibly merging- of inspectorates (including environmental, forestry, water) which are now scattered between the various administrative structures could be positive.
- Private and public support could be better mobilised between the various administrative structures, including citizens, relevant stakeholders and public administration.