



Sustainable Development Atlas

Framework for a comprehensive and balanced management plan of “Sharr” National Park Kosovo¹

Volume I: Introduction and Methodology

Ergin Hajredini

Peter Bank

Florian Bemmerlein-Lux

Ismail Gagica

Halil Ibrahimi

With contributions from Prof. Dr. Behxhet Mustafa – Ecologist, Prof. Dr. Fadil Millaku - Biologist, Dr. Achim Milbradt – Biologist, Michael Voit - Rural Development Planner, Prof. Xhevdet Elezi - Soil scientist – agronomist, Arneni - National Forest Consultancy Company, NGO Finches – Ornithologists, Todd Wassel – Tourism Specialist, Kaltrina Salihu – Community Officer, Bashkim Susuri – Journalist and Project Associate, Bardh Xerxa – Ecologist, Ajhan Hadzija – Tourism Coordinator, Sharr National Park Directorate, the Municipal Working Group of Dragash/Dragaš Municipality and Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH, Rural Economic Development Programme.

Project Manager:

Maria Elena Zuniga Barrientos

Output supervisor and officer in charge:

Halil Ibrahimi

Dragash / Dragaš, Kosovo

¹ Programme of Cooperation between the institutions of Kosovo[1] and the United Nations Development Programme - Kosovo Programme Action Plan 2011 – 2015 ([1] Kosovo under United Nations Security Council resolution 1244 (1999))

December 2013

Table of content volume I: “Introduction and Methodology”

Acronyms	8
1. Guiding words	10
2. Introduction	11
3. Concept and methodology.....	14
3.1. Concept.....	14
3.2. Step 1 and 2 - Resource base and assessment	16
3.3. Step 3 - Spatial development objectives	18
3.4. Step 4 – Integration of the spatial development objectives	18
3.5. The zoning concept.....	19
3.6. Summary.....	22
4. The National Park “Sharr/Šar”	23
5. Maps of the Sustainable Development Atlas 1:60 000 (Table 5-1: List of SDA Maps) ...	24
6. Glossary	25
7. Literature	26

List of Tables volume I: “Introduction and Methodology”

Table 5-1: List of SDA Maps.....	24
----------------------------------	----

List of Figures volume I: “Introduction and Methodology”

Figure 2-1: <i>Relationship between the MDP, related Strategic Environmental Assessment and the guidance provided by the Sustainable Development Atlas</i>	13
Figure 3-1: <i>Approach of the Sustainability Atlas</i>	15
Figure 3-2: <i>Spatial Development Objectives: from SDA Resource Assessment to SDA Guidance</i>	17
Figure 3-3: <i>Decision tree for the key resource ‘Forest’</i>	20
Figure 3-4: <i>Fragment of SDA Guidance Map for the key resource “Forest”</i>	20
Figure 3-5: <i>Fragment of Spatial Resistance Map</i>	21
Figure 3-6: <i>Fragment of Functional Structure Map</i>	21

Volume II: Baseline

Table of content volume II

1. Baseline Maps
 - 1.1. Overview of the Sharr/Šar National Park
 - 1.2. Geology and mineral resources
 - 1.3. Soil
 - 1.4. Water resources
 - 1.5. Real land use
 - 1.6. Biosphere resources - vegetation
 - 1.7. Biosphere resources - fauna
 - 1.8. Climate
2. Annex to Volume II Baseline Maps
 - 2.1. Data sources water resources Dragash / Dragaš Municipality
 - 2.2. Plant communities of Sharr/Šar National Park listed in Annex I of EU-Habitat-Directive
 - 2.3. List of most important and endangered plant species of the Sharr/Šar National Park
 - 2.4. Bird species of Sharr/Šar National Park listed on the Annexes of EU Bird Directive
 - 2.5. Butterflies species observed in Sharr/Šar National Park with endangered or vulnerable IUCN-Status or listed in Annexes II or IV of the EU Habitat Directive
 - 2.6. Amphibian and reptile species observed in the Sharr/Šar National Park

List of Tables volume II

- Table 1-1: List of baseline maps
- Table 1-2: Average seasonal temperature in Sharr/Šar National Park
- Table 1-3: Precipitation and average temperature during Vegetation Period
- Table 1-4: Yearly rainfall in m³ per watershed
- Table 1-5: Area for water resources regeneration per watershed
- Table 1-6: Water courses per watershed
- Table 1-7: Average monthly flow rates of major rivers
- Table 1-8: Land Use types in Sharr/Šar National Park in ha and %
- Table 2-2: Data sources water resources
- Table 2-3: Plant communities of Sharr/Šar National Park listed in Annex I of EU-Habitat-Directive
- Table 2-4: List of most important and endangered plant species
- Table 2-5: Bird species of Sharr/Šar National Park listed on the Annexes of EU Bird Directive
- Table 2-6: Butterflies species observed in Sharr/Šar National Park with endangered or vulnerable IUCN-Status or listed in Annexes II or IV of the EU Habitat Directive
- Table 2-7: Amphibian and reptile species observed in Sharr/Šar National Park with endangered or vulnerable IUCN-Status or listed in Annexes II or IV of the EU Habitat Directive

List of Figures volume II

- Figure 1-1: Slope classes in National park "Sharr/Šar"
- Figure 1-2: Altitude Profile of the territory of Dragash / Dragaš Municipality
- Figure 1-3: Slope profile of the territory of Sharr/Šar National Park
- Figure 1-4: Overview of the Sharr/Šar National Park (B1)
- Figure 1-5: Classes of rocks in Sharr/Šar National Park
- Figure 1-6: Geology and mineral resources (B3)
- Figure 1-7: Soil classes in Sharr/Šar National Park
- Figure 1-8: Soil (B4)
- Figure 1-9: Climate diagram for Sharr/Šar National Park
- Figure 1-10: Climate (B5)
- Figure 1-11: Water resources in Sharr/Šar National Park (B6)



Figure 1-12: Comparison of land uses in the sub-basins of Sharr/Šar National Park

Figure 1-13: Comparison of land uses in the basins of Sharr/Šar National Park

Figure 1-19: Consolidated land uses in Sharr/Šar National Park (B7.2)

Figure 1-20: Real land use in Sharr/Šar National Park (B7.1)

Figure 1-21: Biosphere resources – vegetation (B8)

Figure 1-22: Biosphere resources - fauna (B9)

Volume III:

Table of content volume III

1. Assessment maps
 - 1.1. Assessment of biodiversity (A1)
 - 1.1.1. Assessment of vegetation and flora (A1.1)
 - 1.1.2. Assessment of biodiversity - fauna
 - 1.2. Location and ownership structure of Sharr/Šar National Park (A2)
 - 1.3. Assessment of water resources
 - 1.3.1. Water regeneration, threats and quality (A3.1)
 - 1.4. Assessment of natural hazards (A4)
 - 1.4.1. Erosion risk (A4.1)
 - 1.4.1. Avalanche risk (A4.2)
 - 1.4.2. Landslide, rockfall areas risk (A4.3)
 - 1.5. Assessment of forest and agriculture (A5)
 - 1.5.1. Conditions of forests (A5.1)
 - 1.5.2. Forest functions (A5.2)
 - 1.5.3. Productive capacity of soils (A5.3)
 - 1.5.4. Livestock and suitability for crops (A5.4)
 - 1.6. Assessment of tourist potential (A7)
2. Annex
 - 2.1. Assessment for water quality
 - 2.2. Model for erosion risk
 - 2.3. Model for avalanche risk analysis
 - 2.4. Model for landslide risk
 - 2.5. Assessment criteria for the forest functions
 - 2.6. Suitability of soils and recommendations for agricultural use

List of Tables volume III

- Table 1-1: List of assessment maps
- Table 1-2: Area and percentage of habitat types mapped, which are protected according to EU Flora-Fauna-Habitat Directive
- Table 1-3: Area and percentage of vegetation types / land uses with high potential for plant biodiversity
- Table 1-4: Numbers of important plant species
- Table 1-5: Number of animal species recorded within the Sharr/Šar National Park during the studies 2011/12
- Table 1-6: Important areas for water regeneration
- Table 1-11: Classification of forest functions
- Table 2-1: Water quality based on family biotic index values
- Table 2-2: The physical habitat assessment explanation table
- Table 2-6: Pedological types of soil in the Sharr/Šar National Park based on the classes of prolificacy and groups of suitability for plant production
- Table 2-7: Classes of suitability and the level of utilisation for determined cultures, based on the cultivation manner and the level of machinery



List of Figures volume III

- Figure 1-1: Vegetation and flora (A1.1)
Figure 1-2: Fauna (A1.2)
Figure 1-3: Sharr/Šar National Park border (Republic of Kosovo 2012)
Figure 1-4: Area inside and outside the planned Sharr/Šar Mountain National Park in Dragash / Dragaš
Figure 1-5: Ownership structure inside and outside Sharr/Šar National Park in Dragash / Dragaš Municipality
Figure 1-6: Ownership structure within Sharr/Šar Mountain National Park in Dragash / Dragaš Municipality
Figure 1-7: Topographic map – Sharr/Šar National Park (A2.2)
Figure 1-8: Assessment of water resources - regeneration, threats, and quality (A3.1)
Figure 1-10: Soil erosion risk in the different altitude classes of Sharr/Šar National Park
Figure 1-11: Soil erosion risk within the sub-watershed of Sharr/Šar National Park
Figure 1-12: Assessment of erosion risk (A4.1)
Figure 1-13: Avalanche risk areas within the Sharr/Šar National Park
Figure 1-14: Avalanche risk areas within 300m distance from settlements
Figure 1-15: Assessment of avalanche risk (A4.2)
Figure 1-17: Property situation of forest area of Sharr/Šar National Park in Dragash / Dragaš territory (in ha)
Figure 1-18: Age classes in Sharr/Šar National Park forests (in ha)
Figure 1-19: Specific management requirements in Sharr/Šar National Park forests (in ha)
Figure 1-20: Assessment of the conditions of forests (A5.1)
Figure 1-21: Forest area dedicated to the various forest functions (in ha)
Figure 1-22: Assessment of the forest functions (A5.2)
Figure 1-23: Suitability of soils (in ha)
Figure 1-24: Assessment of productive capacity of soils (A5.3)
Figure 1-25: Assessment of livestock and suitability for crops (A5.4)
Figure 1-27: Assessment of cultural heritage and tourist potential (A7)
Figure 2-1: Correlation between steepness and avalanche risk

Volume IV:

Table of content volume IV

1. Guidance Maps
 - 1.1. Objectives and principles for sustainable development of Sharr/Šar National Park
 - 1.2. Guiding development principles for Sharr/Šar National Park
 - 1.3. Nature conservation (G1.1)
 - 1.4. Zoning of Sharr/Šar National Park (G1.2)
 - 1.5. Forest (G2.1)
 - 1.6. Agriculture (G2.2)
 - 1.7. Water (G3)
 - 1.8. Functional structure and tourism (IG1)
2. Annex
 - 2.1. CORINE land use types
 - 2.2. Remarks for preferential habitats (a)
 - 2.3. Remarks for non-preferential habitats (b)
 - 2.4. Protection categories of the Law

List of Tables volume IV

- Table 1-1: List of Guidance Maps
Table 1-2: % and size of the different guidance areas of nature conservation
Table 1-3: % and size of the different guidance areas of nature rehabilitation and development
Table 1-4: Decision criteria for the guidance of nature conservation

Table 1-5: % and size of the different guidance areas for forest

Table 1-6: Percentage and size of the different guidance areas for agriculture

List of Figures volume IV

Figure 1-1: Guidance for nature conservation (G1.1)

Figure 1-2: Decision criteria for the zoning of the National Park (G1.2)

Figure 1-3: Decision criteria for the guidance of forest development

Figure 1-4: Guidance for forest (G2.1)

Figure 1-5: Decision criteria for the guidance of agricultural development
definiert.

Fehler! Textmarke nicht

Figure 1-6: Guidance for agriculture (G2.2)

Figure 1-7: Decision criteria for the guidance of water and sanitation

Figure 1-8: Guidance for water and sanitation (G3)

Figure 2-3: Decision criteria for functional structure

Figure 2-4: Guidance for the functional structure (IG1)

Volume V:

Table of content volume V

1. Data for Volume II: Baseline
 - 1.1. Data stored in Excel-files
 - 1.2. Map B3: Geology
 - 1.3. Map B4: Soils
 - 1.4. Map B5: Climate
 - 1.5. Map B7: Land Use
 - 1.6. Map B8: Biodiversity Flora and Vegetation
 - 1.6.1. Species Lists of Sample Points
 - 1.6.2. Overall List of Plant Species (alphabetical order)
 - 1.6.3. List of Plant Communities
 - 1.7. Map B9: Biodiversity Fauna
 - 1.7.1. Mammals known in Sharr/Šar National Park
 - 1.7.2. List of Vertebrates (except Birds) observed Sharr/Šar National Park
 - 1.7.3. Birds known in Sharr/Šar National Park
 - 1.7.4. Butterflies known in Sharr/Šar National Park
2. Data for Volume III: Assessment
 - 2.1. Excerpts from "Forest Stewardship Standard for the Republic of Kosovo"
3. Annexes
 - 3.1. List of Laws, Rules, Regulations
 - 3.2. Habitat Types

List of Tables volume V

Table 1-1: List of Excel Files relevant for Base Maps

Table 1-4: Map B3: Classes of Rocks

Table 1-5: Map B4: Classes of Soils

Table 1-6: Map B5: Climate Data for Sharr/Šar National Park/Dragash/Dragaš)

Table 1-7: CORINE Land Use Codes

Table 1-8: Plant Samples AM01 - AM15 Dr. A. Milbradt

Table 1-9: Plant Samples AM16 – AM30 Dr. A. Milbradt

Table 1-10: Plant Samples AM31 – AM44 Dr. A. Milbradt

Table 1-11: Plant Samples AM46 – AM60 Dr. A. Milbradt



Table 1-12: Plant Samples AM61 – AM75 Dr. A. Milbradt
Table 1-13: Plant Samples AM76 – AM90 Dr. A. Milbradt
Table 1-14: Plant Samples SAM01 – SAM38 Dr. A. Milbradt
Table 1-15: Plant Samples SAM42 – SAM66 Dr. A. Milbradt
Table 1-16: Plant Samples SAM67 – SAM86 Dr. A. Milbradt
Table 1-17: Plant Samples BX01 – BX15 Prof. Dr. M. Behxhet
Table 1-18: Plant Samples BX16 – BX30 Prof. Dr. M. Behxhet
Table 1-19: Plant Samples BX31 – BX45 Prof. Dr. M. Behxhet
Table 1-20: Plant Samples BX46 – BX60 Prof. Dr. M. Behxhet
Table 1-21: Plant Samples BX61 – BX75 Prof. Dr. M. Behxhet
Table 1-22: Plant Samples BX76 – BX90 Prof. Dr. M. Behxhet
Table 1-23: Plant Samples BX91 – BX100 Prof. Dr. M. Behxhet
Table 1-24: Plant Samples SBX88 – SBX122 Prof. Dr. M. Behxhet
Table 1-25: Plant Samples SBX123 – SBX199 Prof. Dr. M. Behxhet
Table 1-26: Plant Samples SBX200 – SBX206 Prof. Dr. M. Behxhet / Plant Samples SFN1 – SFN113 Sharr national Park Directorate
Table 1-27: Plant Samples FM01 – FM16 Prof. Dr. F. Millaku
Table 1-28: Plant Samples FM17 – FM32 Prof. Dr. F. Millaku
Table 1-29: Overall List of Plant Species
Table 1-30: List of Plant Communities
Table 1-31: List of Mammals known in Sharr/Šar National Park)
Table 1-32: List of Vertebrates (except Birds) observed in Sharr/Šar National Park)
Table 1-33: List of Birds observed in Sharr/Šar National Park)
Table 1-34: List of Butterflies observed in Sharr/Šar National Park)



Acronyms

BOD	Biological Oxygen Demand
CBD	Biodiversity Convention International Treaty signed in 1992
CORINE	Coordination of Information on the Environment
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora.
CLC	CORINE Land Cover
DEP	Department of Environment Protection
EC	European Commission
ECNC	European Centre for Nature Conservation
ECT	Energy Community Treaty
EIA	Environmental Impact Assessment
EPAP	European Partnership Action Plan
ESK	Energy Strategy for Kosovo 2009 - 2018
EU	European Union
FFH-Directive	EU-Flora-Fauna-Habitat Directive (Council Directive 1996/105/EC)
FMSN	Faculty of Mathematic and Nature Sciences
FSC	Forestry Stewardship Council (Council Standards for Administration of Forest)
GDP	General Domestic Production
GIS	Geographic Information System
GMO	Genetically Modifying Organisms
HC	Hydro-central plant
HMIK	Hydrometeorological Institute of Kosovo
HCV	High Conservation Value Forests - Forests managed under Forestry Stewardship Council standards
IUCN	International Union for Conservation of Nature
KEAP	Kosovo Environmental Action Plan
KEK	Kosovo Energy Corporation
KEPA	Kosovo Agency for Environment Protection
KFA	Kosovo Forest Agency
KINP	Kosovo Institute for Nature Protection
kW	Kilowatt
MAFRD	Ministry of Agriculture, Forestry and Rural Development
MDP	Municipal Development Plan
MEF	Ministry of Economy and Finance
MEM	Ministry of Energy and Mining
MESP	Ministry of Environment and Spatial Planning
MEST	Ministry of Education, Science and Technology
MTI	Ministry of Trade and Industry



MTPT	Ministry of Transport and Post Telecommunication
NGO	Non Governmental Organization
NPA	Nature Protected Area
PSFM	Project for Sustainable Forest Management
SAPB	Strategy and Action Plan for Biodiversity
SD	Sustainable Development
SDA	Sustainable Development Atlas
SEA	Strategic Environmental Assessment
SHPP	Small Hydropower Plant
SoE	Socially Owned Enterprise (formerly Sharr Prodhimi/Šarproizvod) Socially-Owned enterprises were created by the Law on Enterprises and the Law on Associated Labour of Yugoslavia. The Kosovo Trust Agency has the authority to administer all socially-owned enterprises that were registered in Kosovo as of 31st December 1988 and any subsequent date. The Agency has the mandate to privatise such enterprises through specific procedures.
USAID	US Agency for International Development
WB	World Bank
WFD	Water Framework Directive 2000/60/EC



1. Guiding words

Land use has a spatial impact. It takes place at a certain location, utilises the properties of this location and influences the properties of this as well as surrounding locations. Depending on the type of land use, this influence may have a significant and long-lasting effect. Often, (for example, in the case of erosion) these adverse effects render this type of land use impossible and it may mean that this certain location loses its usability for many other types of land use too.

Development measures have a spatial component too: investments take place at specific locations. The suitability of the location has a great influence on the costs of the development measure. There is also a great influence on the costs generated through negative effects of choosing an unsuitable location for the development measure. Future generations often have to pay the price for development errors.

The Sustainable Development Atlas (SDA) for Sharr/Šar National Park, Kosovo, follows the path and method used to produce the Dragash SDA.

In 2010 a process was initiated in Dragash, under the UNDP Finnish funded project for Dragash, to adapt the methodology previously used in other countries - China and Chile - based on German expertise and practice of ecological planning.

After reviewing the existing data base, the purpose and demands of the planning exercise, the results of the application of the SDA method in Dragash Municipality, a project decision was made to replicate the SDA experience in the Sharr Mountain region. The level of information and data collected, as well as the proposals embedded in this SDA have contributed to the production of the following instruments, which were produced in parallel: The “Management Plan for Sharr National Park, Kosovo” and the “The Economic Contribution of Ecosystems in and Around Sharr National Park to the Economy in Kosovo”. Thus the tool and exercise has been critical to other regional instruments

required for regional planning and management in Kosovo.

The atlas has been prepared for policy-makers, planners and decision makers in Kosovo, more specifically in the MOESP, Kosovo protection Agency-National Park directorate. It summarises the scientific knowledge of relevant influencing factors that have a tangible impact on the sustainability of development in the planning area.

The atlas analyses the existing development status, identifies further development potentials, shows development objectives and identifies suitable development tools. This is carried out for clearly delineated areas or locations (“zones”). Therefore, the results are published as a sustainable development-guiding atlas.

The results should not be used as strict instructions of what to do and where to do it. Rather they indicate development problems but also development potentials, and appropriate directions for sustainable development.

The authors offer the best available knowledge that may support policy formulation, planning and decision making on a sound, rational and ultimately sustainable platform.

The final choice - what a society is heading towards - is a political choice and must be decided by politicians and by concerned citizens. Scientists can simply provide the necessary information and expertise to help make such choices.

This atlas provides the necessary information for sustainable planning and decision-making. It shows sustainability its place.

Maria Elena Zuñiga Barrientos

Halil Ibrahim

Conservation of Biodiversity and Sustainable Land Use Management in Dragash-Project Managers

Ilir Morina – Chief executive of Kosovo Environmental Protection Agency



2. Introduction

National Park “Sharr/Šar” is a mountainous area covering 534,7 square kilometres, located in the southern region of Kosovo - Prizren, characterised today by its high level of poverty and great landscape beauty amongst many other elements.

The first development challenge is providing the National Park “Sharr/Šar” and Municipalities surrounding it with adequate instruments to promote development based on conservation of biodiversity, adequate land use management and an enabling development conditions for its communities. Within this framework the National Park “Sharr/Šar” management and development Plan will fill an important institutional gap, and will provide a framework for the development of related development strategies, namely economic development, the integration of waste / water & energy strategies, and the definition of protected areas.

One ultimate goal / target of the project is to achieve protection of the Sharr/Šar Mountain that lies within the territory of five municipalities (Dragash, Prizren, Shterpce, Kaqanik). In order to ensure and guarantee the sustainable management of National Park “Sharr/Šar”, a feasibility study needs to be undertaken. This feasibility study requires expert input and specific studies, some of which relate to biodiversity, water resources, forests, social and economic sectors, geology and geomorphology, cultural background, and an analysis of the state of the environment. All together these studies will inform decisions on protection categories and future management.

Development has a spatial dimension

Based on the fact that the spatial dimension is a crucial aspect when planning sustainable development, the Sustainable Development Atlas (SDA) procedure is introduced. Its properties include practicality, transparency, and arbitration between the conflicting interests of economy and ecology. The method employs GIS-technology to produce rapid support for the sustainable management of resources.

The rationale behind this approach is that development has a spatial dimension and that any development measure creates costs, not only through its implementation but also if negative effects require repair, e.g. if the measure was carried out at an unsuitable location. In order to minimise costs and negative effects, and to ensure sustainability, it is necessary to identify the most suitable locations for development measures.

The approach divides the multi-faceted and complex task of rural sustainable development into a number of “key fields” of development, including biosphere, cultivation, water, health etc.

Geospatial assessment data is collected for each of these key fields. Assessment includes the land resources as well as its suitability for and sensitivities towards the various types of land use.

Using techniques of geographical information system, those **geospatial assessment zones** are run through a hierarchical system of decisions and thereby transformed into **guidance zones**. Those guidance zones are either zones which – with regards to the key field - need protection, zones which need rehabilitation or zones which have potential for development.

In a further step the guidance zones of the various key fields need to be harmonised, as conflicts may occur between them.

The sustainable atlas is comprised of **baseline maps** – the B-maps (geomorphology, land potential, etc.), **maps for assessment** – the A maps, and **guidance zones for the key fields** – the G-maps, including integrated guidance. It provides the necessary information for

sustainable planning and decision-making.

“Where best to do what?” - Key question in the development of the National Park

The SD Atlas concept has proved to be a rapid though concise and transparent method to produce guidance for sustainable development. It comprises the assessment of all important resources, their evaluation according to criteria of sustainable development, the definition of development guidance and the proposal of suitable management tools in order to follow the guidance and reach the sustainable development objectives. Integration of the various guidance maps mediates conflicting objectives and results in an integrated development zone map. The general development structure of the planning area is proposed by the map for development centres and corridors.

The atlas summarises the scientific knowledge of the relevant influencing factors that have a tangible impact on the sustainability of development in the planning region. To render it a useful tool, it provides objectives for an economically effective, socially fair and environmentally compatible development that will not only raise the living standards of present generations but also preserve and ensure development opportunities for future generations. More specifically, the atlas analyses the existing development status, identifies further development potentials, shows development objectives and identifies suitable development tools.

The key question in the development of the municipality is therefore not “What to do?” but rather “Where best to do what?” (i.e. what are the optimal locations and sites for urban expansion, where do schools need upgrading, where are the sensitive ecosystems located that require protection, where should ecological agricultural management be supported? etc).

This atlas addresses the spatial dimension of sustainable development and provides answers to the most pressing development issues.

The SD-Atlas – the basis for a Strategic Environmental Assessment

The Strategic Environmental Assessment (SEA) is a continuous and adaptive process providing a structured approach to integrating environmental considerations into decision-making processes, at the municipal, sub-regional or regional planning level as well for National Park “Sharr/Šar” spatial plan and management plan.

The SEA is a formal process that systematically assesses the environmental effects of development policies, plans, programmes and other proposed strategic plans. SEA is effectively a proactive approach to integrating environmental considerations into more strategic levels of decision-making, which are consistent with National Park “Sharr/Šar”. In so doing, it is intended to help prevent environmental damage caused by policies and plans. An SEA requires a broader and less detailed assessment, of course, in comparison to a project Environmental Impact Assessment (EIA). Consequently, it takes place at an earlier stage of plan preparation and decision-making.

In summary, an SEA seeks to achieve the following aims and functions:

- identify environmental implications and issues of sustainable development;
- consider a broad range of possible strategic alternatives, including the best practical environmental option, and to specify appropriate mitigation measures;
- provide an early warning of both significant impacts and cumulative effects, and thereby reinforce the preparation of any project-based EIA;
- place an emphasis on meeting environmental objectives and maintaining natural conditions;
- provide a broad perspective, a lower level of detail, a vision and an overall framework;

- account for a multi-stage process, overlapping subject matter and an iterative decision-making process; and,
- focus on sustainability and the source of environmental degradation.

Kosovo's Law on Strategic Environmental Assessment (Law No.03/L-230) states in Article 2 that an SEA report is "*obligatory for plans and programs from spatial planning..., which give a frame for future development projects...*" where it is likely that there are significant environmental effects. Consequently SEAs are required for all management plans and activities which are meant to be applied in national park. Furthermore it is advisable that the SEA is carried out in conformity with EC legislation.

As a result the process for establishing a coherent SEA will be significantly facilitated through the SDA (see also Figure 2-1).

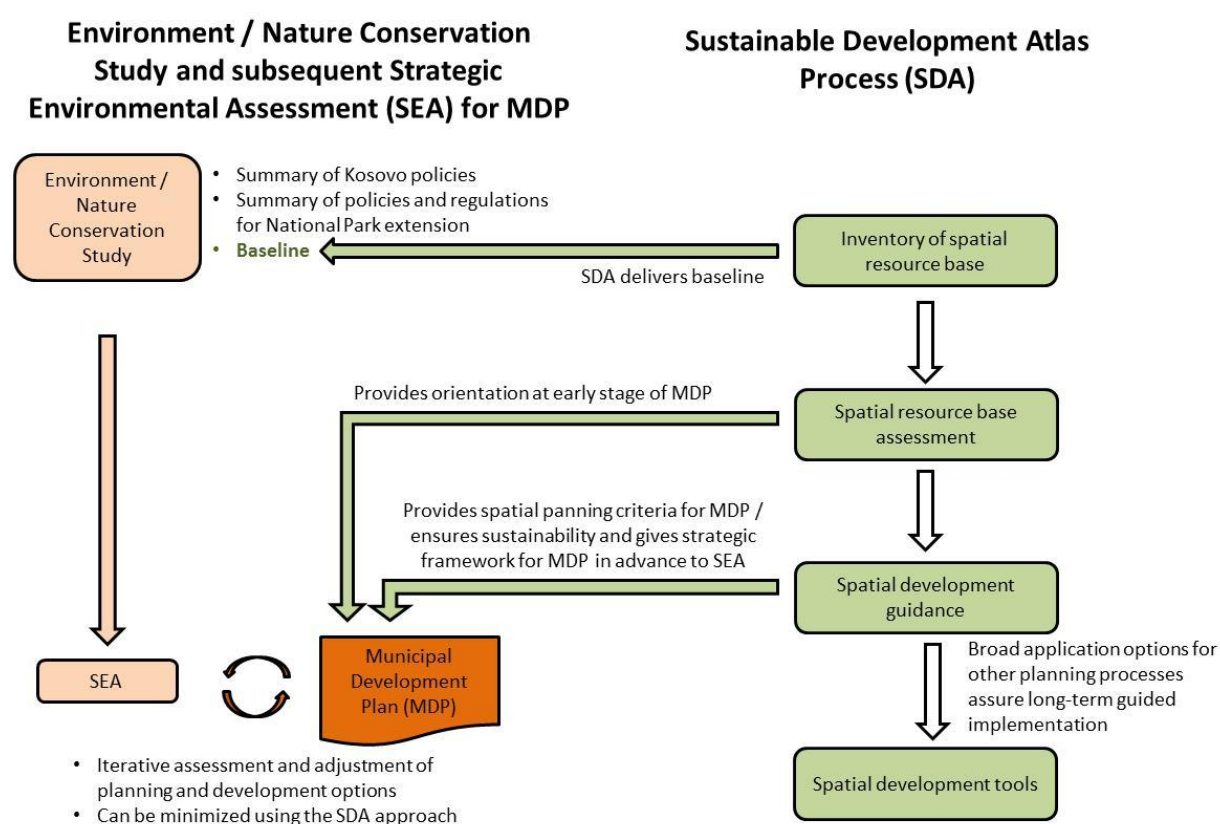


Figure 2-1: Relationship between the MDP, related Strategic Environmental Assessment and the guidance provided by the Sustainable Development Atlas



3. Concept and methodology

3.1. Concept²

The concept design is based on the information needs of policy-makers, planners and decision makers involved.

1. They first need information on the present status of the resource base.
2. Based on the main features of such resource status evaluation, they can formulate and co-ordinate spatial development objectives.
3. To finally implement such development objectives they need to identify appropriate tools and demonstrate the most suitable location.

Consequently, the concept comprises four steps:

Step 1: Compilation of basic information like topography, terrain model, land-use, geology, climate, natural resources, biodiversity and infrastructure.

Step 2: Spatial resource base assessment in the various sectors and fields of sustainable development. Such assessments provide information including:

- What are the present conditions of a resource?
- What problems and constraints exist and at which sites or locations are they most pressing?
- How sensitive are resources against adverse impacts or when they are utilised?
- What are the development opportunities still available and where?

Step 3: Spatial development guidance as to which actions could lead most efficiently and most appropriately to increased sustainability. Such objectives provide information such as:

- Which issues must be addressed and solved as soon as possible and where?
- In which sectors and where are problems, deficits, and over-exploitation?
- Which resources must be rehabilitated and at which sites?
- Which resources need protection and where?
- What are the most suitable sites for further development?
- How best to solve development conflicts?
- How best to coordinate between the various sectors and demands of development?

Thus the spatial development objectives do not only provide guidance for individual sectors but also indicate how to coordinate interaction between them.

Step 4: Spatial development integrated guidance and tools summarises the different fields in order to give clear and integrated guidance for the spatial planning of the region of focus to implement measures which lead to increased sustainability. It can include sites where the application of certain tools will lead to the best results. Such tools may include programmes and plans (for example water management plans, agricultural development plans, ecological compensation schemes or reforestation programmes and legal settings and guidelines).

Figure 1 indicates the connection between spatial resource base assessment, spatial development objectives, and implementation of those objectives through spatial development tools.

² Based on: Bemmerlein-Lux F.A. et al.

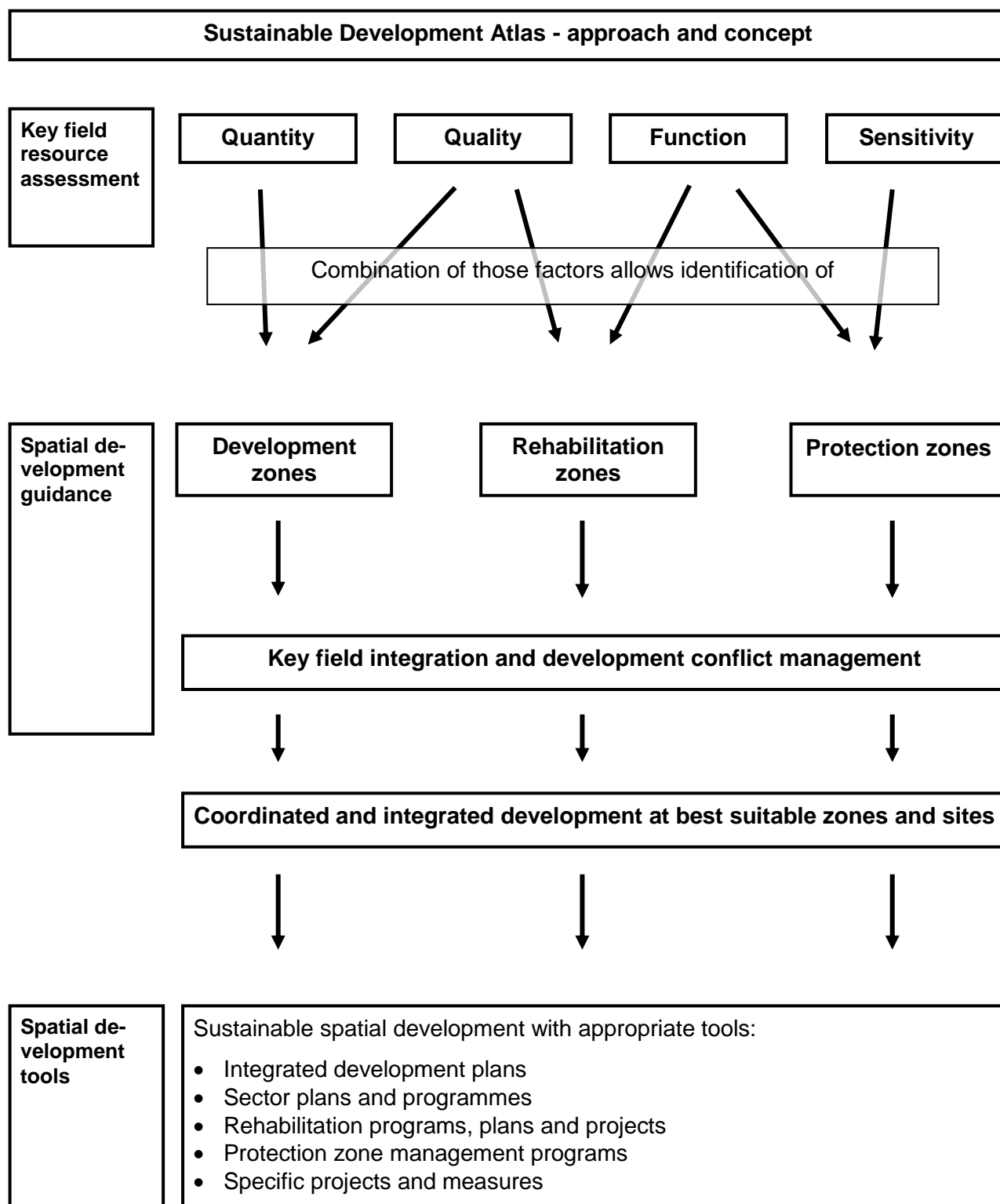


Figure 3-1: Approach of the Sustainability Atlas

3.2. Step 1 and 2 - Resource base and assessment

According to the most relevant development problems and priorities, we apply assessment to four SDA dimensions, namely the natural, the human, the economic and the institutional resources. We further subdivide those SDA dimensions into SDA key fields, on which base the assessment is being carried out.

<i>SDA Dimension</i>	Natural resources	Economic resources	Human resources	Institutional resources
SDA Key Field	Ecosystems Water Soil	Economic structure Agriculture (food and cash crop, animal husbandry) Forest Tourism	Infrastructure	Administration Environmental management

Assessment considers four factors of influence:

- The **availability** or **quantity** of the resource base – how much or little, how easy or difficult to access?
- The **quality** of the resource base – how good or bad?
- The **functions** or **services** that the resource has for society, nature or the economy - how much is needed, what for, and where?
- The **sensitivity** or **vulnerability** of a resource against stress, impacts or inadequate utilisation, which may negatively affect its functions, quantity, quality, availability: how sensitive or how robust?

For each resource, extent and spatial (geographical) distribution/location of these four factors are considered and evaluated. Only where any of the four factors is highly relevant for development are such sites or areas finally designated as zones. This evaluation of planning and management relevance is the basis to formulate appropriate sustainable development objectives.

In short, this first step provides the relevant information for each SDA key field, highlighting the problems and showing development opportunities and their location of relevance.

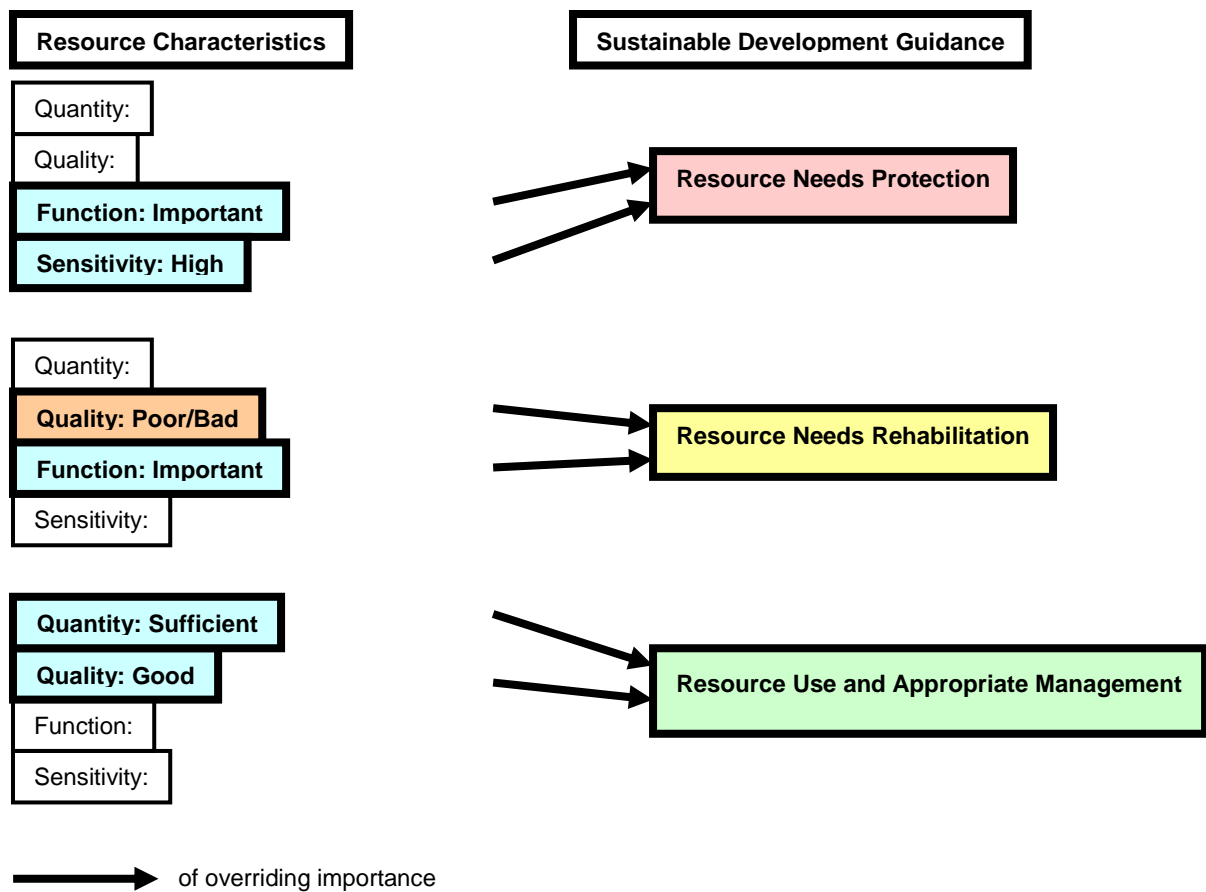


Figure 3-2: *Spatial Development Objectives: from SDA Resource Assessment to SDA Guidance*

3.3. Step 3 - Spatial development objectives

The most appropriate development objective depends on combinations of these four factors in a given situation and at a specific site. Generally, there are three different sustainable development objectives:

1. Resources with **important functions but presently of poor/bad quality** (polluted, degraded, insufficient etc.) are in need of **rehabilitation**/upgrading/enhancement. This may be the case for eroded lands, polluted waters, bad road connections, or poorly equipped schools. The development thrust is to restore the resource so that it optimally serves society, nature and/or the economy.
2. Resources that are **highly sensitive and of high importance** for nature or society need **protection**. This must be done with the view to ensure their availability for present and future generations;
3. Resources **abundantly available and which have good quality** should be **developed** for sustainable utilisation. Overuse must be avoided, sensitivity threshold must not be exceeded and the use must be for the best benefit of the society. Sustainable utilisation also includes the coordination of conflicts. Such conflicts may arise if different demands for a single resource are in conflict with each other. In such case, a rational and fair compromise needs to be found.

It is obvious that assessment and development guidelines require evaluation; they require judgemental or normative statements in terms of good or bad, relevant or less relevant and the like. For any resource a sufficient quantity, a good quality, an important function, or certain sensitivity must be defined. This is accomplished through comparison with benchmarks, quantitative development objectives, standards etc. For each of the SDA key fields an evaluation approach has been developed in the form of a **decision tree**. These evaluation procedures reflect the underlying SD policies and objectives, national, regional and/or National Park administration targets as well as scientific knowledge.

3.4. Step 4 – Integration of the spatial development objectives

Taking into consideration the results from step 3, efficient recommendations are defined through step 4. Integrating the spatial development objectives of the different development fields needs decisions as to priorities. Among these priorities are overarching national or regional planning ambitions and/or strategies, development goals of the National Park Administration and political decisions by the responsible administrations and communities. However, technical restrictions play an important role. Two examples can explain this point: 1) Erosion-prone areas are not suitable for erosion-favouring land uses, even if there is political will for these land uses to occur; 2) Soils with excellent properties for agriculture are also excellent for forests, but the agricultural sector may be given priority.

The integrated maps are an important part of the Strategic Environmental Assessment that guides the National Park Management Plan as they suggest the Spatial Resistance of different zones and support the setting of priorities for a sustainable development.

3.5. The zoning concept

The presentation of results in this atlas is based on a zoning concept, an approach that has been developed for land use management purposes. It refers to the subdivision of a planning area into discrete sub-areas of a certain function ("zones"). Typical zones are protection zones (for example natural reserves or water protection zones) or development zones (for example zones for urban expansion or industrial development, or reforestation zones).

The purpose of zoning is to regulate land use in a zone in such a way that the function of the zone is ensured. Land use regulations normally include:

- provisions that certain uses must take place (for example to plant trees in areas zoned as forest lands),
- permits for certain uses that may take place (a road may be constructed in areas zoned as forest lands); and
- prohibition of other uses not allowed to take place (industrial development is normally not allowed in areas zoned as forest lands).

The delineation of the zone boundaries may be based on administrative boundaries, on spatial natural features (for example watersheds), or on a combination of both. For example the reforestation potential may be defined by a specific climatic regime and certain soil properties within an administrative unit, for example a province or a municipality. To become effective, land use regulations should be enforced irrespective of land ownership.

The atlas results are presented as a series of thematic zone maps:

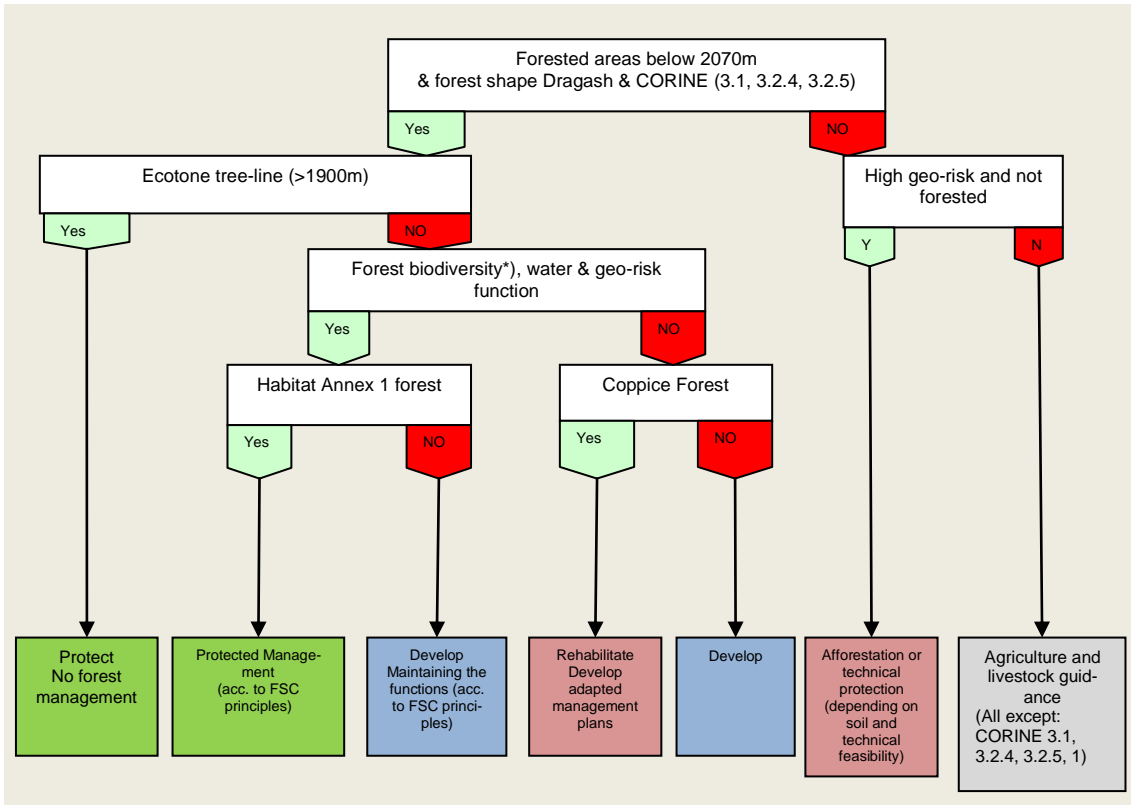
B-Maps for Step 1 (compiling baseline data): All required basic information is put on thematic maps. This basic topographic and thematic information is used for the resource assessment in Step 2.

A-Maps for Step 2 (resource assessment): Zones of development deficits and potentials, including problem zones (pollution, degradation), resource potential zones or zones with highly sensitive resources. These are summarised as **resource assessment zones**. They are mapped individually for each SDA key field.

G-Maps for Step 3 (development objectives): Zones indicating the most appropriate development objectives. Logically structured and transparent decision criteria are used to conclude the development objectives. (**Figure 3-3** gives one example of a "decision tree" to derive the different zones). The **development objectives zones** comprise of:

- **Rehabilitation zones:** indicating areas in need of immediate improvement / uplifting / enhancement. This might be the case because its present status hinders the development process. In these zones rehabilitation is the overriding development issue.
- **Protection zones:** indicating areas, which require preservation or protection in order to ensure its function for present and future generations. In these zones protection is the overriding development issue and other uses in such zones must be harmonised with this objective. It is important note that "protection" is not meant in a legal sense, but as a planning category.
- **Development zones:** indicating areas which have the potential for appropriate sustainable development. Following a careful balance between possible conflicts of the requirements of the various SDA key fields, the best kind of development is identified.

Figure 3-3: Decision tree for the key resource 'Forest'

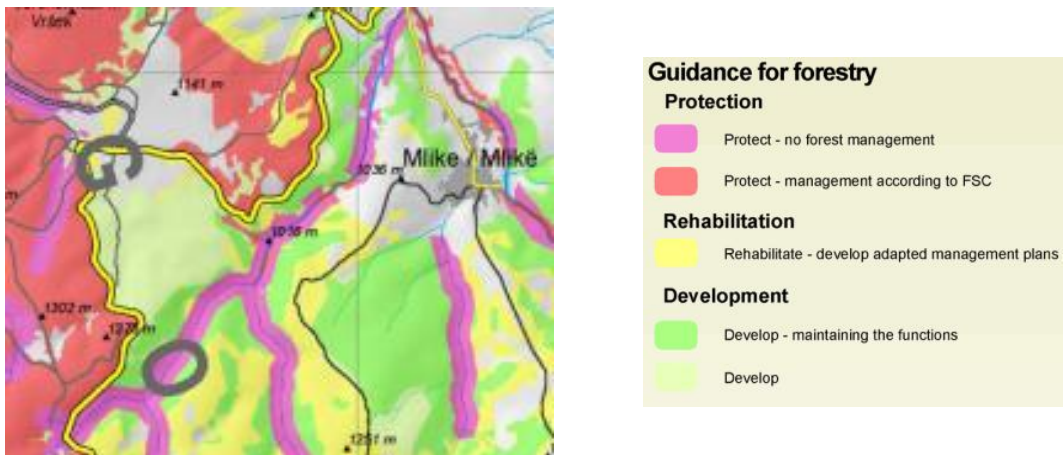


(*) - only considering Habitat Directive-Annex 1 stands without coppice forest

Explanation - CORINE

- 1 Artificial surface
- 3.1 Forests
- 3.2.4 Transitional woodland/shrub
- 3.2.5 Transitional woodland/shrub

Figure 3-4: Fragment of SDA Guidance Map for the key resource "Forest"



IG-Maps for Step 4 (Integrated Guidance Maps)

After balancing conflict these results are integrated into **Integrated Guidance Maps**. The latter include:

- a) The **Functional Structure** in the form of development centres and corridors.

Development corridors in connection with development centres are major tools to ensure the well-structured and concentrated development of a planning region in a balanced way. It avoids urban sprawl and takes advantage of agglomeration effects.

Development **centres** are the centres where urban development (industrial and commercial development; social and administrative infrastructure) should concentrate. They provide services to the surrounding rural areas and villages including administrative services, market facilities, health, and educational social and cultural services. They therefore should be within easy reach of their rural surroundings. Development centres have a distinct hierarchy from national and provincial centres to district centres and finally the rural development centres.

Figure 3-5: Fragment of Spatial Resistance Map

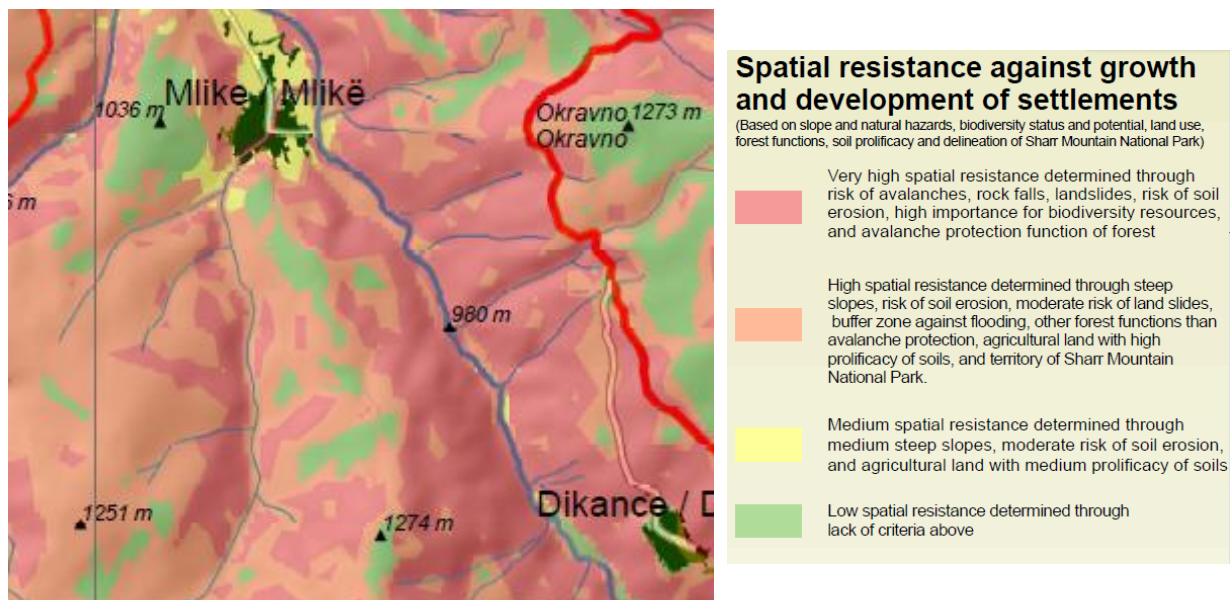
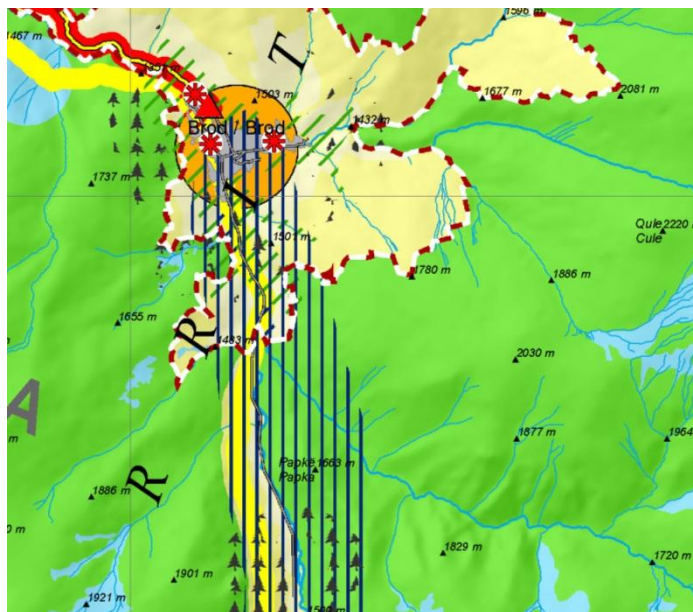


Figure 3-6: Fragment of Functional Structure Map



3.6. Summary

The SD Atlas results are a series of thematic zone maps, including:

Base Maps: For orientation and reference the atlas additionally contains important base maps providing information on lands, geology, climate etc.

- **Assessment Maps** display zones of problems (pollution, degradation), resource potential zones, or zones of highly sensitive resources. We summarise them as resource assessment zones.
- **Guidance Maps** display zones which indicate the most appropriate development objectives such as protection, rehabilitation, and development. We summarise them as guidance zones.
- **Integrated Guidance Maps:** It is very likely that superimposing the various Guidance Maps will unveil areas where the different zones give conflicting guidance. The **Spatial Resistance Map** provides information for the National Park “Sharr/Sar” management plan regarding in which zones conflicts between different land uses are to be expected.



4. The National Park “Sharr/Šar”

“Sharr/Šar” National Park is located in the southern part of Kosovo, sharing borders with the neighbouring countries of FYR Macedonia to the east-south, and Albania to the west. It is distributed in five municipalities, in eastern part with Kaçanik municipality, in the central part with Shtërpce, Suhareka and Prizren municipality and in the Western part in Dragash and Prizren municipality.

The National Park “Sharr/Šar” covers an area of 534,7 km², approximately 5% of the entire territory of Kosovo. Dragash/Dragaš municipality comprises 68 settlements with three nearest towns of Prizren, Shtërpce and Dragash. A special characteristic of “Sharr/Šar” National Park are the extended areas of pastureland and forests that have made the area suitable for livestock farming products and high value of biodiversity.

The Sharr/Šar range in Kosovo is divided into three regions comprising the Ljuboten/Brezovica winter sports and tourism area, the central Prizren zone, and the Dragash/Dragaš section comprising Gora/Gorë and Opojë/Opolje. 18.5% of this mountain range is over 2000m above sea level. The highest mountain of the entire Sharr/Šar area is Mount Korab (2764m), while the highest summit is Titov Vrv at 2747m. The most important peaks are Koritnik in the NW (2262m), Kodra e Karanikolles in the NE (2409m), Maje in the E (2493m) Kryet e Kagit north of Brod (2207m), Vraca e Madhe in the SE (2536m, highest peak), Kesula e Priftit in the SW (2075m), Guri i zi (1779m), Maja e zez (2075m), Maja e arnenit (1946m), Maja e oshlakut (1995m), Ostrovica (2092m), Luboteni (2498m), and Bistra in EN (2651m).

Most territory of National park “Sharr/Šar” is located in high montane region between 1.500 and 2.100 m above sea level.

Territory of national park is characterised by the high chains of the Sharr/Šar Mountains. The average altitude of the Sharr national park is around 1.700m above sea level. Prizren, Suhareka and Kaçanik region, at the foot of the Sharr/Šar Mountains, is at an altitude between 600 and 1050m. The mountain range in the north of the Municipality of Dragash, Prizren and Shtërpce reaches altitudes between 1.500 and 2.600m.

The altitude profile of National park “Sharr/Šar”, only 2% of its territory is below 1.000m (1.094 ha), and located in the west of the territory in the valley of the Pllava river and in valley of Lumbardhi river and Jezerci river, approximately 31% (16.256ha) belong to the montane region, again situated around Pllava valley and the lower parts of the valleys of the Brod and Restelica Rivers, approximately 57% (30.448 ha) are in the high montane region and features major parts of the Gora/Gorë region and upper part of area in Shtërpce and Prevala; finally approximately 10% (5.471 ha) are in the sub-alpine and alpine region above the timberline along the border to FYR Macedonia and around Mount Koritnik

5. Maps of the Sustainable Development Atlas 1:60 000 (Table 5-1: List of SDA Maps)

B	Baseline maps
	Overview of the municipality of National park “Sharr/Šarr
B1	<ul style="list-style-type: none"> • B1.1 Overview of the National park “Sharr/Šarr • B1.2 Topographic map of the National park “Sharr/Šarr
B2	Geology and mineral resources
B3	Soil
B4	Water Resources
	Real land-use
B5	<ul style="list-style-type: none"> • B7.1 Real land-use • B7.2 Special land-uses
B6	Biosphere resources – vegetation
B7	Biosphere resources – fauna
A	Assessment maps
A1	Assessment of biodiversity <ul style="list-style-type: none"> • A1.1 Assessment of biodiversity – vegetation and flora • A1.2 Assessment of biodiversity - fauna
A2	Location and ownership structure of Sharr/Šar Mountain National Park <ul style="list-style-type: none"> • A2.1 Sharr/Šar National Park - ownership structure • A2.2 Sharr/Šar National Park - topographic map
A3	Assessment of water resources – regeneration and quality
A4	Assessment of natural hazards <ul style="list-style-type: none"> • A4.1 Assessment of natural hazards - erosion risk • A4.2 Assessment of natural hazards - avalanche risk • A4.3 Assessment of natural hazards - landslide risk and flood-prone areas
A5	Assessment of agriculture and forest <ul style="list-style-type: none"> • A5.1 Assessment of forest and agriculture - condition of forest • A5.2 Assessment of agriculture and forest - forest functions • A5.3 Assessment of agriculture and forest - productive capacity of soils • A5.4 Assessment of agriculture and forest - livestock and suitability for crops
A6	Assessment of cultural heritage and tourist potential
G	Guidance maps
<i>Guidance maps referring to natural resources – preconditions for the management plan</i>	
G1-1	Nature conservation
G1-2	Zoning of Sharr/Šar National Park
G2-1	Forest
G2-2	Agriculture
G3	Water Resources
IG1	Functional structure and Tourism

6. Glossary

Biodiversity	Variety of living organisms that includes diversity within species and between different species, genetic diversity, and ecosystem diversity.
CORINE Land Cover Project (CLC)	CORINE stands for “Coordination of Information on the Environment” - CLC. It is a pan-European project to provide comparable data set of land cover for Europe.
Development zones	Zones of coordinated development: identification of development and best use after careful balancing between demands from and possible conflicts between the various sectors and key fields.
NATURA 2000	Network of important ecological areas of European Union founded with Habitat Directive (1992) and Bird Directive(1979)
Habitat Directive (and Annex of)	An abbreviated expression for the EU-Flora-Fauna-Habitat Directive (Council Directive 1996/105/EC) (also called FFH directive)
Ecological corridor	Ecological component or connection of some components which allow free movement of organisms from one site to another and constitute part of the ecological network.
Protection zones	Zones where the SD key fields (resources) are in need of preservation or protection in order to ensure their availability and function for present and future generations. In these zones protection is the overriding development issue and other uses in such zones must be harmonised with this objective.
Rehabilitation zones	Zones where SD key fields (resources) are in need of immediate improvement / uplifting / enhancement. This might be the case because their present status disturbs the development process. In those zones rehabilitation is the overriding development issue.
SPA	Special Protected Area (declared area in accordance with EU Directive for wild birds, the most suitable territories in number and size for the conservation of species listed in Annex I and for regularly occurring migratory species)
SAC	Special Area of Conservation (a site of community importance declared through legal administrative measures and/or contract act where measures of necessary conservation are implemented, in order to maintain or restore nature habitat conservation and/or population of the species for which the area has been declared to have favourable status.).

7. Literature

Agricultural Master Plan for Kosovo 2007 – 2013, www.ampkosovo.com/ - 4k

Albanian Association of Energy and Environment for Sustainable Development (AAEESD) (2006): Prefeasibility study for identification of water resources and their utilisation through small hydro power plant on Kosovo – Danida

Antonijevic, D., M. Radivojevic (Editors) (1995): Šarr Mountain Župas, Gora, Opolje and Sredska. Volume II - Anthropogeographical-Ethnologic, Demographic, Sociological and Cultural Characteristics. Serbian Academy of Science and Arts Geographical Institute "Jovan Cvijić", Belgrade

Arneni, N.SH.T (2011): Final Report of Forest and Non Forest Inventory Areas in Dragash Municipality. UNDP Report, 14 pages and annexes – incl. Dr. J. Milbradt Report on Forest and Non Forest Inventory Areas in Dragash Municipality. UNDP project report

Arneni, N.SH.T (2012): Final Report of Forest and Non Forest Inventory Areas in Šarr Mountain National Park. UNDP Report, 25 pages.

Bank P., F. Bemmerlein-Lux, E. Hajredini (2011): Methodology for Determination of the NP-Border. UNDP Working Paper; 5p

Bemmerlein-Lux F. A., Ch. Dreiser, G. Werner (2008): Showing Sustainability its Place - Atlas to Guide its Sustainable Development for a Chinese District. Journal of Spatio-Economic Development Record (SDR) Vol.15 No.3, p 13-19

Dragash Municipality (2010): Local plan of action on biodiversity in Dragash municipality 2011-2015, 16 p

Drini, B. (2009): Dragash/Dragaš Baseline Desk Study - Final Draft Report (UNDP)

ECNC, REC (2010): Biodiversity Local Action Plan of Dragash Municipality - Municipality of Dragash, Kosovo

Elektroprojekt Consulting Engineers, Zagreb, (2009): Review of HPP Zhur Feasibility study including preparation of preliminary environmental impact assessment and preliminary social assessment

Elezi Xhevdet (2011): Classification of soil properties in agricultural areas of Dragash-suitability map for agriculture. UNDP Report 14 p. and annexes

Esat Hoxha, M. Behxhet (2004a): Biodiversity and Protected Zones. Wus Austria

Esat Hoxha; M. Behxhet (2004b): Plant Ecology: University of Pristine, Kosovo

EU (1985): CORINE land cover - Coordination of Information on the Environment (Official Journal L 176, 6.7.1985). <http://www.eea.europa.eu/publications/COR0>

EU (2003): Directive 92/43/EEC Treaty of Accession - ANNEX I: Natural Habitat Types of Community Interest whose Conservation Requires the Designation of Special Areas of Conservation

EU (2007): The Habitats Directive - Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora - Consolidated version 2007 (http://ec.europa.eu/environment/nature/legislation/habitatsdirective/index_en.htm)

EU (2009): Directive of 30 November 2009 on the conservation of wild birds (2009/147/EC)

EU (2010): Habitats Directive Article 17 report - LIFE improving the conservation status of species and habitats

EULUP (2011): Presentation by R. Palmer and N. Nordin: Soil erosion sensitivity and risk models. Project "Further Support to Land Use" (EULUP) (see also <http://www.eulup-ks.org/>, the model: http://www.eulup-ks.org/index.php?option=com_content&view=article&id=51%3Apresentations&catid=42%3Aspatial-planning-and-environment&Itemid=70&lang=en) – access August 2012.



- European Commission (DG ENV B2) (2008a): MANAGEMENT of Natura 2000 habitats - * Species-rich Nardus grasslands 6230. Technical Report 2008 14/24 - Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora
- European Commission (DG ENV B2) (2008b): MANAGEMENT of Natura 2000 habitats - Alpine and subalpine calcareous grasslands 6170. Technical Report 2008 11/24 - Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora
- European Union Sustainable Forest Management (2008): Zonat Potenciale per Natura 2000 ne Kosove. Raport.PM Project No: 300089 - Prishtine
- FAO (1984): Land Utilization Type
- FAO (1990): Guidelines for soil description,
- FAO (2004): Ucesce u razvoju nacina koristenja zemljista na opcinskom nivou u Bosni I Hercegovini, Tip Iskristavanja zemljista (LUT)
- FBRrZH, (2006): Fizibiliti studim për theme limin e Parkut Kombëtar nga ana Maqedonase në Malin Sharë
- FINCHES (NGO) (2011): Birds species list and bird location in Dragash Municipality. UNDP Report 6 pages and annexes
- FSC (2010): Forest Stewardship Standard for the Republic of Kosovo. Version 3.0 - Pre-approval draft: Pristine, September 2010
- Hajriz M. (2009): Opoja. Prishtine, 188 pages
- Heath M. F., M. J. Endrus (2000): Important bird areas in Europe, Volume 2: Southern Europe Birdlife Conservation Series No 8
- Ibrahimi H. (2011a): Prime Butterfly Fauna of Dragash Municipality. UNDP Report 8 pages and annexes
- Ibrahimi H. (2011b): Rapid Water Quality Assessment in Streams and Rivers of Dragash Municipality. UNDP Report, 39 p and annexes
- Ibrahimi H. (2012): Rapid Water Quality Assessment in Streams and Rivers of Dragash Municipality – dry season. UNDP Report, 15 p and annexes
- Independent Commission for Mines and Minerals (2006a): Geology map of Kosovo. Governing Board Prishtinë, Kosovo
- Institute for Nature Protection of Kosovo (2003): Biodiversity of Sharr Municipality Dragash.
- Institute for Nature Protection of Kosovo, MESP (2005): Values of Kosovo Natural Heritage.
- Institute for Spatial Planning, MESP (2006): Dragash Spatial Planning Analysis.
- Institute for Spatial Planning, MESP (2008): State of Environment Report, 2006-2007 Kosovo
- Institute for Spatial Planning, MESP (2009): Draft Spatial Planning, National Park “Sharr Mountain”. Prishtinë
- Institute of Nature Protection MESP (2006): Biodiversity of Dragash Municipality Kosovo
- KEK (2012): Data from KEK Regional District in Prizren 2012, data verified and filled with more information by KEK Office in Dragash
- Kosovo Environmental Protection Agency KEPA (2006): Biodiversiteti i territoritë Komunës së Sharrit (Biodiversity of Sharr Municipality); February
- Kosovo Environmental Protection Agency KEPA (2008): State of Environment Report, 2006-2007
- Kosovo Environmental Protection Agency KEPA (2008): State of Nature Report, 2006-2007
- Kosovo Environmental Protection Agency KEPA (2010): State of Nature Report, 2007-2009
- Kosovo Hydro-meteorological Institute (2012): Waste Water Analysis in Dragash Municipality. UNDP

- Report Albanian, 20 p. (Instituti Hidrometeorologjik I Kosvoes)
- Kosovo Institute for Nature Protection (February 2007): Biodiversity of Dragash (Biodiversiteti i Komunës së Dragashit/Instituti i Kosovës për Mbrojtjen e Natyrës)
- Kuvendi i Kosoves (2004): Ligji per Mbrojtjen e Natyres
- Lazarević, R. (1994): Šarr Mountain Župas, Gora, Opoja and Sredska, Volume I - Trait of Natural Environment, Serbian Academy of Science and Arts, Geographical Institute "Jovan Cvijić", Belgrade. Map form V. Antanacković, V. Tatić, Z. Krivošej page 241-241
- MAFRD-KFA (2009): Forest Management Plan, Management Unit Koritnik, compiled by Natural Resource Solution (Book 1, 101 p; Book 2, 185 p), (Ministry of Agriculture, Forestry and Rural Development and Kosovo Forest Agency: official forest management document)
- MAFRD-KFA (2010a): Forest Management Plan, Management Unit Bredhiku, compiled by Natural Resource Solution (Book 1, 94 p; Book 2, 194 p), (Ministry of Agriculture, Forestry and Rural Development and Kosovo Forest Agency: official forest management document)
- MAFRD-KFA (2010b): Forest Management Plan, Management Unit Opoja, compiled by Natural Resource Solution (Book 1, 125 p; Book 2, 249 p), (Ministry of Agriculture, Forestry and Rural Development and Kosovo Forest Agency: official forest management document)
- MESP/UNMIK (2006): Dragash Spatial Plan
- Milbradt, J. (2011): New highlights of our Expert for Biodiversity and Zoning of the proposed National Park Dragash. "Armeni.P – consulting", UNDP Report, 4 p and annexes
- Millaku F. (2010): Inventory of Medicinal and Aromatic plants and Wild Berries in Kosovo. SAD Kosovo
- Millaku F., F. Rexhepi, Q. Pajazitaj, E. Krasniqi, Xh. Malaj (2011): II. Important Contribution with (203 plant species) on Inventory of Plants for the National Park "Mountain Sharr"; Preliminary report for the Red List of species in Kosovo
- Ministry of Environment and Spatial Planning (2006): Kosovo Environmental Action Plan 2006-2010, Prishtinë
- Muhedin Nushi & Fatmir Selimi (FEBRUARY 2009): An Assessment of the Competitiveness of the Dairy Food Chain in KOSOVO. AgriPolicy Enlargement Network for Agripolicy Analysis- Coordinator: Siemen van Berkum (LEI)
- Municipality Dragash, Art Gold UNDP (2010): Dragash Municipal Guideline for International Cooperation 2011-2013
- Mustafa B. (1998): Basic Characteristics of Flora and Vegetation in Kosovo and the Danger of their Disappearance. Albanian Journal of Natural and Technical Sciences, Academy of Sciences of Arts of Albania, Tirane
- Mustafa B. (2011): Ecological Profiles of Plant Species / Associations and Distribution Maps of Specific Plant Communities and Habitat Types of Interest in Dragash Municipality, UNDP Project Report, 23 pp and annexes
- Mustafa B. (2012): Biodiversity conservation status in the Republic of Kosovo with focus on biodiversity centres. J. Environ. Biology 33 307-310
- Mustafa B., Esat. H. (2004): Biodiversitetidhe Zonat e Mbrojtura. WUS-Austria-Universiteti i Prishtines
- Mustafa B., H. Ibrahim (2009): The Assessment of Biodiversity Conditions in Dragash Municipality and Recommendations for Legal Protection – UNDP report, December 48 p
- Mustafa B., K. Georgev, A. Hajdari, E.Hajredini (2009): European Union Sustainable Forest Management - EuropeAid/122672/D/SER/KOS Contract: CRIS 2008/162-109 - Preliminary identification of Natura 2000 Sites in Kosovo - (Biodiversity Hotspots). 103 p
- Nëntor (2006): Analizahapësinore, Komuna e Dragashit (Spatial Planning Analysis of Dragash)
- Pedologic Map of Kosovo (1974)



- Pierre Galland, Tomasz Pezold, Ljudmila Dimtrova (2010): The assessment of Biodiversity conditions in Dragash Municipality and recommendations for legal protection; IUCN Belgrade (Vlerësimi i situatës së biodiversitetit në Komunën e Dragashit dhe rekomandime për mbrojtje ligjore)
- Pireci M. (2010 and 2012): Energy Assessment Report of the Municipality of Dragash, March
- Pravilnik o mjerilima za utvrđivanje osobito vrijednog obradivog (P1) I vrijednog obradivog (P2) poljoprivrednog zemljišta (2010): Ministarstvo poljoprivrede, Ribarstva I Ruralnog Razvoja, Republika Hrvatska
- Republic of Kosovo - Department of Environment Protection (2010): Strategy and Action Plan for Biodiversity 2011 – 2020. Ministry of Environment and Spatial Planning Republic of Kosovo, 70 p incl. annexes
- Republic of Kosovo (2003): Law No. 2003/3 on Forests in Kosovo. Official Gazette of the Republic of Kosovo / Pristina
- Republic of Kosovo (2006): The Law on Agricultural Land No. 02/L-26
- Republic of Kosovo (2008): Law Nr. 03/L-040 on Local Self-Government
- Republic of Kosovo (2010): Law on Amendments to the Law No. 2003/3 on the Forests of Kosovo (March 2010): Year V / No. 67/29 Official Gazette of the Republic of Kosovo / Pristina
- Republic of Kosovo (2010): The Law of Nature Protection No.03/L–233
- Republic of Kosovo (2011): Law on Pre-University Education No.04/L–032
- Republic of Kosovo (2012): The draft Law on the National Park “Sharri”. Assembly of the Republic of Kosovo, 18 p
- Rexhepi F. (1994): Vegetation of Kosova. Faculty of Natural Sciences Pristine, Kosovo
- Rexhepi F. (2003): Medical plants. USAID
- Rugova, Ibrahim H., et al (2008): “Rëndësia e hulumtimit të krozoobento sitë monitoringun biologji të ekosistemeve ujore në Kosovë”, Tryezëshkencore – Akademia e Shkencave dhe e Arteve e Kosovës. Buletini i Akademisë,
- Rugova, Ibrahim H., et al (2008): “Rëndësia e hulumtimit të krozoobento sitë monitoringun biologji të ekosistemeve ujore në Kosovë”, Tryezëshkencore – Akademia e Shkencave dhe e Arteve e Kosovës. Buletini i Akademisë
- Strauss A. and Pezold, T. (compilers) (2009): *All Along the Watchtowers: Field guide for the South Eastern European Green Belt*. Belgrade, Serbia: IUCN Programme Office for South-Eastern Europe. viii + 78 p
- Tush Markaj (2010): Assessment of water sector in Dragash municipality - Report (Raport: Vlerësimi i sektorit të ujit në Komunën e Dragashit/Tush Markaj, Mars, 2010)
- UNDP (2010): Dragash Municipal Guidelines for Decentralised Cooperation 2011-2012
- UNDP (2011): Dragash Project: Village questionnaire – internal data collection
- UNDP (2012a): Dragash Project: Cultural and Heritage Assets in Dragash/Dragaš Municipality. Report by Crystal Whitaker, August 2012 – 72 p
- UNDP (2012b): Dragash Project: Report on the Drinking Water Quality on 35 villages and Dragash municipality – Data analysis done by the Kosovo National Institute for Public Health
- UNDP (2012c): Cultural and Heritage Assets in Dragash/Dragaš Municipality. Report by Crystal Whitaker, August 2012 – 72 p
- UNDP (2012d): Draft Report: LED Assessment mission report, Agostinucci, A., January 2012
- UNDP (2012e): Results of SME Survey, March 2012
- UNEP Vienna ISCC (2006): Enhancing Trans-boundary Biodiversity Management in South Eastern Europe



UNEP Vienna ISCC (2006): Enhancing Trans-boundary Biodiversity Management in South Eastern Europe

UNEP Vienna ISCC (2009): Feasibility Study on establishing a trans-boundary protected area Sharr/Šar Planina – Korab – Dešat/Deshat, 62 p

USAID Kosovo (2003): Kosovo Biodiversity Assessment. ARD-BIOFOR IQC Consortium Kosovo - Final Report submitted to the United States Agency for International Development, 29 pp and annex

Visar Morina (2010): Land Ownership Conflicts that are either taking place or will disclose in the coming future in Dragash;

Vlaire Hajaj (2011): Human Development Report

Wassel, T. (2011): The Mountains of Dragash/Dragaš, Kosovo: Hiking and Nature Tourism Guide. UNDP – 100 p (Versions in English, Albanian and Serbian)



United Nations Development Programme

Conservation of Biodiversity and Sustainable Land Use
Management in Dragash/Dragaš



*Empowered lives.
Resilient nations.*

Sustainable Development Atlas

Framework for a comprehensive and balanced management plan of “Sharr” National Park Kosovo

Volume II: Baseline

Ergin Hajredini

Peter Bank

Florian Bemmerlein-Lux

Ismail Gagic

Halil Ibrahim

With contributions from Prof. Dr. Behxhet Mustafa – Ecologist, Prof. Dr. Fadil Millaku - Biologist, Dr. Achim Milbradt – Biologist, Michael Voit - Rural Development Planner, Prof. Xhevdet Elezi - Soil scientist – agronomist, Arneni - National Forest Consultancy Company, NGO Finches – Ornithologists, Todd Wasel – Tourism Specialist, Kaltrina Salihu – Community Officer, Bashkim Susuri – Journalist and Project Associate, Bardh Xerxa – Ecologist, Ajhan Hadzija – Tourism Coordinator, Sharr National Park Directorate, the Municipal Working Group of Dragash/Dragaš Municipality and Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH, Rural Economic Development Programme.

Project Manager:

Maria Elena Zuniga Barrientos

Output supervisor and officer in charge:

Halil Ibrahim

Dragash / Dragaš, Kosovo

December 2013



Table of content

1.	Baseline Maps	5
1.1.	Overview of the Sharr/Šar National Park	5
1.2.	Geology and mineral resources	10
1.3.	Soil	13
1.4.	Water resources	16
1.5.	Real land use.....	24
1.6.	Biosphere resources - vegetation	31
1.7.	Biosphere resources - fauna.....	34
1.8.	Climate	37
2.	Annex to Volume II Baseline Maps	40
2.1.	Data sources water resources Dragash / Dragaš Municipality	40
2.2.	Plant communities of Sharr/Šar National Park listed in Annex I of EU-Habitat-Directive	41
2.3.	List of most important and endangered plant species of the Sharr/Šar National Park 45	
2.4.	Bird species of Sharr/Šar National Park listed on the Annexes of EU Bird Directive48	
2.5.	Butterflies species observed in Sharr/Šar National Park with endangered or vulnerable IUCN-Status or listed in Annexes II or IV of the EU Habitat Directive.....	49
2.6.	Amphibian and reptile species observed in the Sharr/Šar National Park.....	51

List of Tables

Table 1-1: List of baseline maps.....	4
Table 1-2: Average seasonal temperature in Sharr/Šar National Park.....	37
Table 1-3: Precipitation and average temperature during Vegetation Period	37
Table 1-4: Yearly rainfall in m ³ per watershed	17
Table 1-5: Area for water resources regeneration per watershed	19
Table 1-6: Water courses per watershed	20
Table 1-7: Average monthly flow rates of major rivers	21
Table 1-8: Land Use types in Sharr/Šar National Park in ha and %.....	24
Table 2-2: Data sources water resources	40
Table 2-3: Plant communities of Sharr/Šar National Park listed in Annex I of EU-Habitat-Directive	41
Table 2-4: List of most important and endangered plant species	45
Table 2-5: Bird species of Sharr/Šar National Park listed on the Annexes of EU Bird Directive.....	48
Table 2-6: Butterflies species observed in Sharr/Šar National Park with endangered or vulnerable IUCN-Status or listed in Annexes II or IV of the EU Habitat Directive	49
Table 2-7: Amphibian and reptile species observed in Sharr/Šar National Park with endangered or vulnerable IUCN-Status or listed in Annexes II or IV of the EU Habitat Directive	51



List of Figures

Figure 1-1: Slope classes in National park “Sharr/Šarr**Fehler! Textmarke nicht definiert.**

Figure 1-2: Altitude Profile of the territory of Dragash / Dragaš Municipality**Fehler! Textmarke nicht definiert.**

Figure 1-3: Slope profile of the territory of Sharr/Šar National Park ..**Fehler! Textmarke nicht definiert.**

Figure 1-4: Overview of the Sharr/Šar National Park (B1) **Fehler! Textmarke nicht definiert.**

Figure 1-5: Classes of rocks in Sharr/Šar National Park ...**Fehler! Textmarke nicht definiert.**

Figure 1-6: Geology and mineral resources (B3)**Fehler! Textmarke nicht definiert.**

Figure 1-7: Soil classes in Sharr/Šar National Park**Fehler! Textmarke nicht definiert.**

Figure 1-8: Soil (B4)**Fehler! Textmarke nicht definiert.**

Figure 1-9: Climate diagram for Sharr/Šar National Park..**Fehler! Textmarke nicht definiert.**

Figure 1-10: Climate (B5)**Fehler! Textmarke nicht definiert.**

Figure 1-11: Water resources in Sharr/Šar National Park (B6)**Fehler! Textmarke nicht definiert.**

Figure 1-12: Comparison of land uses in the sub-basins of Sharr/Šar National Park**Fehler! Textmarke nicht definiert.**

Figure 1-13: Comparison of land uses in the basins of Sharr/Šar National Park**Fehler! Textmarke nicht definiert.**

Figure 1-19: Consolidated land uses in Sharr/Šar National Park (B7.2)..... **Fehler! Textmarke nicht definiert.**

Figure 1-20: Real land use in Sharr/Šar National Park (B7.1).....**Fehler! Textmarke nicht definiert.**

Figure 1-21: Biosphere resources – vegetation (B8).....**Fehler! Textmarke nicht definiert.**

Figure 1-22: Biosphere resources - fauna (B9)**Fehler! Textmarke nicht definiert.**



Table 1-1: List of baseline maps

B1	Overview of the Sharr/Šar National Park <ul style="list-style-type: none"> B 1 Overview of the National Park Figure 1-5 Fehler! Verweisquelle konnte nicht gefunden werden. Fehler! Verweisquelle konnte nicht gefunden werden. Fehler! Verweisquelle konnte nicht gefunden werden. Fehler! Verweisquelle konnte nicht gefunden werden. 	1:60.000
B2	Geology map of Sharr/Šar National Park Fehler! Verweisquelle konnte nicht gefunden werden. Fehler! Verweisquelle konnte nicht gefunden werden. Fehler! Verweisquelle konnte nicht gefunden werden.	1:60.000
B3	Soil map of Sharr/Šar National Park Figure 1-	1:60.000
B4	Water Resources of Sharr/Šar National Park Figure 1-	1:60.000
B5	Land use of Sharr/Šar National Park <ul style="list-style-type: none"> B5.1 Real land use of National Park B5.2 Special land use of National Park Figure 1-	1:60.000
B6	Biodiversity in Sharr/Šar National Park <ul style="list-style-type: none"> B6.1 Biosphere resources-vegetation B6.2 Biosphere resources-fauna Figure 1-12 Fehler! Verweisquelle konnte nicht gefunden werden. Fehler! Verweisquelle konnte nicht gefunden werden.	1:60.000
B7	Climate of Sharr/Šar National Park Figure 1-16 Figure 1-12 Consolidated land uses in	1:60.000

1. Baseline Maps

1.1. Overview of the Sharr/Šar National Park

Contents:

- Topography
- Settlements and their administrative boundaries
- Road connections
- Main watercourses

The main messages:

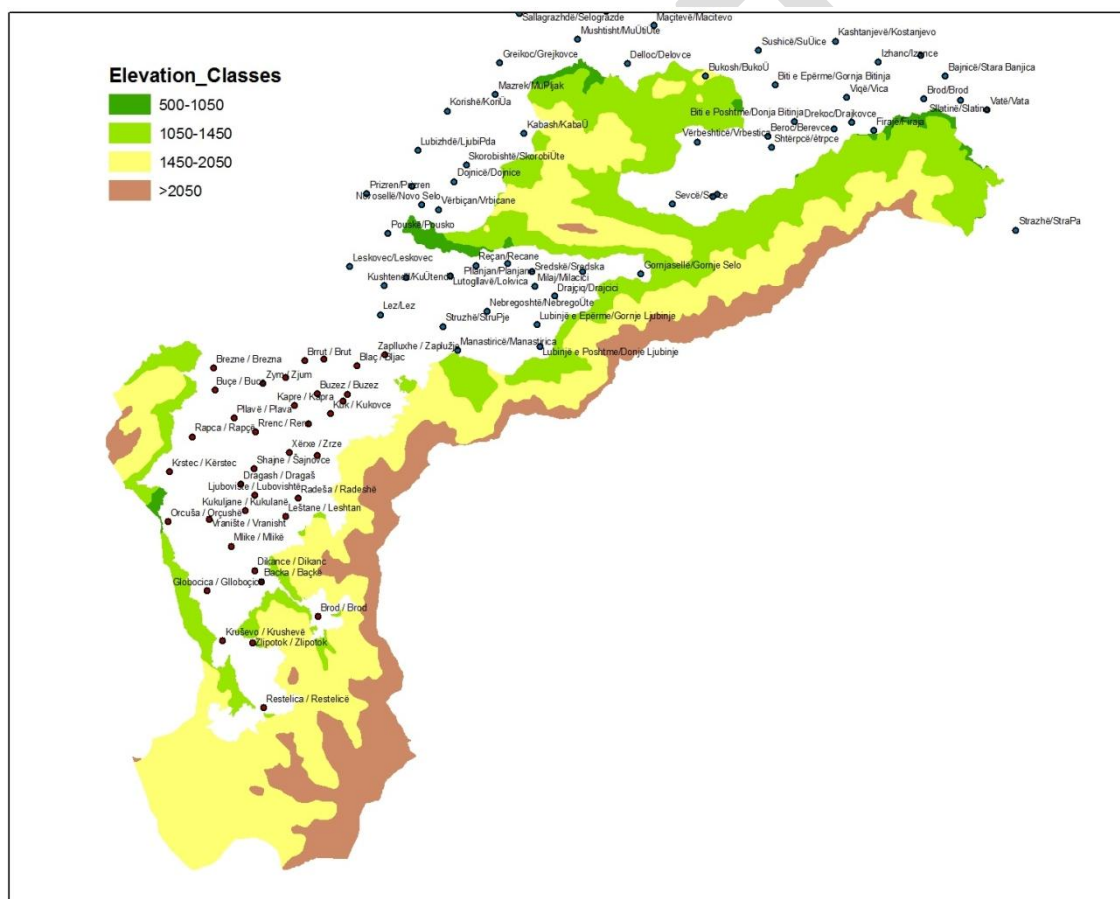


Figure 1-1: Slope classes in National park “Sharr/Šar”

National Park “Sharr/Šar” is distributed in five municipalities (Dragash, Prizren, Shterpce, Suharek and Kaqanik). Territory of national park is a rather isolated and wild area at the southern tip of Kosovo with borders to Albania and Macedonia. Total area of “Sharr/Šar” mountain national park is 534,7 km².

Territory of national park is characterised by the high chains of the Sharr/Šar Mountains. The average altitude of the Sharr national park is around 1.700m above sea level. Prizren, Suhareka and Kaqanik region, at the foot of the Sharr/Šar Mountains, is at an altitude between 600 and 1050m. The mountain range in the north of the Municipality of Dragash, Prizren and Shterpce reaches altitudes between 1.500 and 2.600m.

The most important peaks are Koritink in the NW (2262m), Kodra e Karanikolles in the NE (2409m), Maje in the E (2493m) Kryet e Kagit north of Brod (2207m), Vraca e Madhe in the SE (2536m, highest peak), Kesula e Priftit in the SW (2075m), Guri i zi (1779m), Maja e zez (2075m), Maja e arnenit (1946m), Maja e oshlakut (1995m), Os-

trovica (2092m), Luboteni (2498m), and Bistra in EN (2651m).

Most territory of National park “Sharr/Šarr is located in high montane/montane region between 1.500 and 2.100 m above sea level.

The altitude profile of National park “Sharr/Šarr shows that only 2% of its territory is below 1.000m (1.094 ha), and located in the west of the territory in the valley of the Pllava river and in valley of Lumbardhi river and Jezerci river (bright green areas in the map in Figure 1-1); approximately 31% (16.256ha) belong to the montane region, again situated around Pllava valley and the lower parts of the valleys of the Brod and Restelica Rivers (light green areas in the map in Figure 1-1); approximately 57% (30.448 ha) are in the high montane region and features major parts of the Gora/Gorë region and upper part of area in Shterpce and Prevala (yellow areas in the map in Figure 1-1); finally approximately 10% (5.471 ha) are in the sub-alpine and alpine region above the timberline along the border to FYR Macedonia and around Mount Koritnik (brown areas in the map in Figure 1-1).

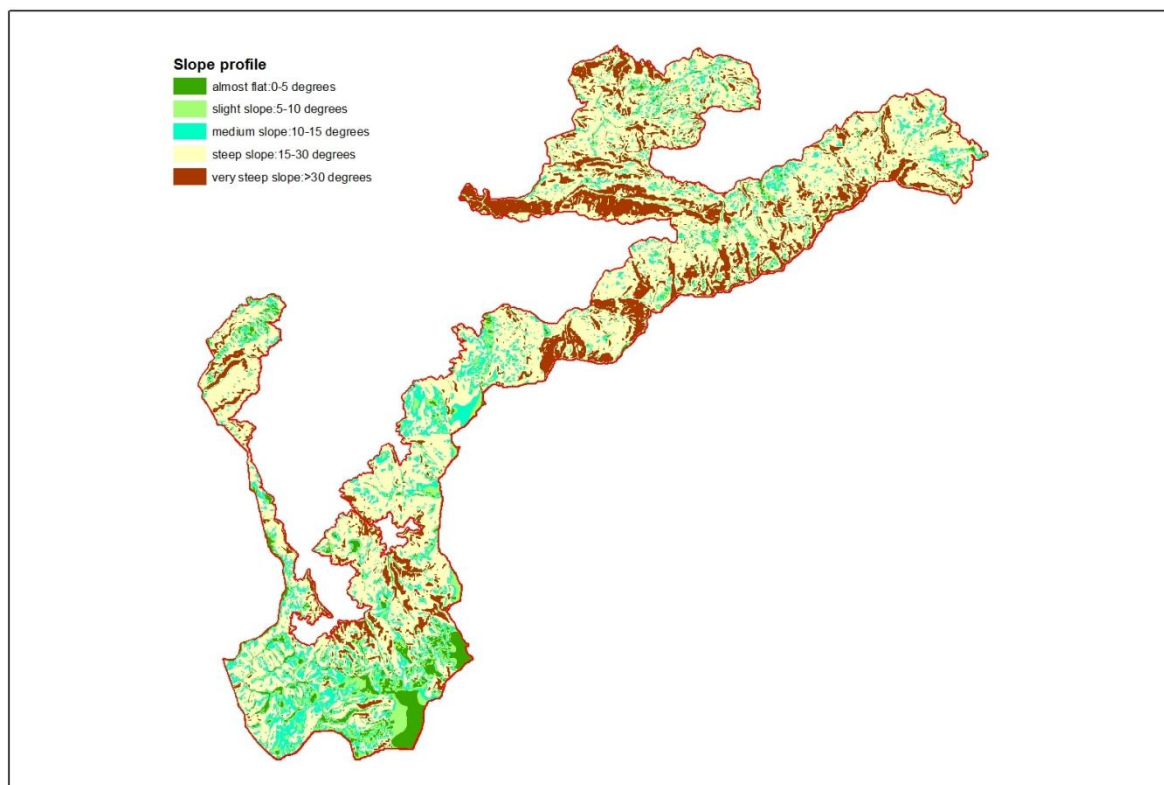


Figure 1-2: Slope classes in National park “Sharr/Šarr

The slope profile of the National park “Sharr/Šarr (Figure 1-2) shows that almost 75% of the territory is steep or very steep (brown and yellow areas in the map); almost flat and easy access areas account for approximately 5% and are mostly located in valleys rivers (dark green areas in the map). Slight and medium sloped areas account for approximately 21% and are closely related to the flat areas (light green areas in the map).

There are several roads entering the National Park, the main one is the road which goes from Prizren over passing to Prevala and goes to Shterpce and Brezovica, second road is the road which goes from Ferizaj through Shterpce and it accesses the national park in its Western part, third road comes from Prizren to Dragash from where access can start from Dragash to Koritnik (in the northern part of Dragash town), Restelica village, Brod village or Zapluxhe village. There is only one dirt road from Restelica / Restelicë to the border of Albania and FYR Macedonia in the south and several footpaths to Albania and FYR Macedonia through subalpine and alpine terrain which enables access to the National Park from neighbouring countries.

The main water courses are:

- River of Manastirica, Bistrica e prizrenit which flows into White Drin water basin's and flows to Albania Jezerci river, Dubrava river, Lepenc River Basin which flows to FYR Macedonia, Restelica river and River of Brod which flows to Albania.

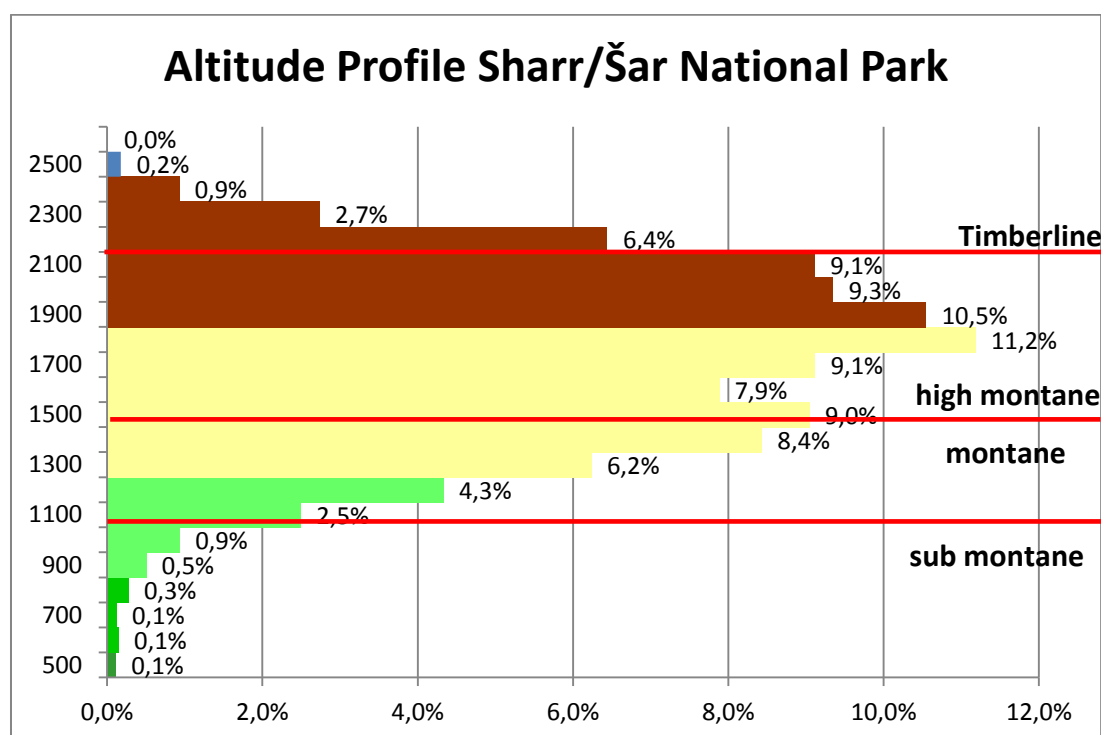


Figure 1-3: Altitude Profile of the territory of Sharr/Šar National Park

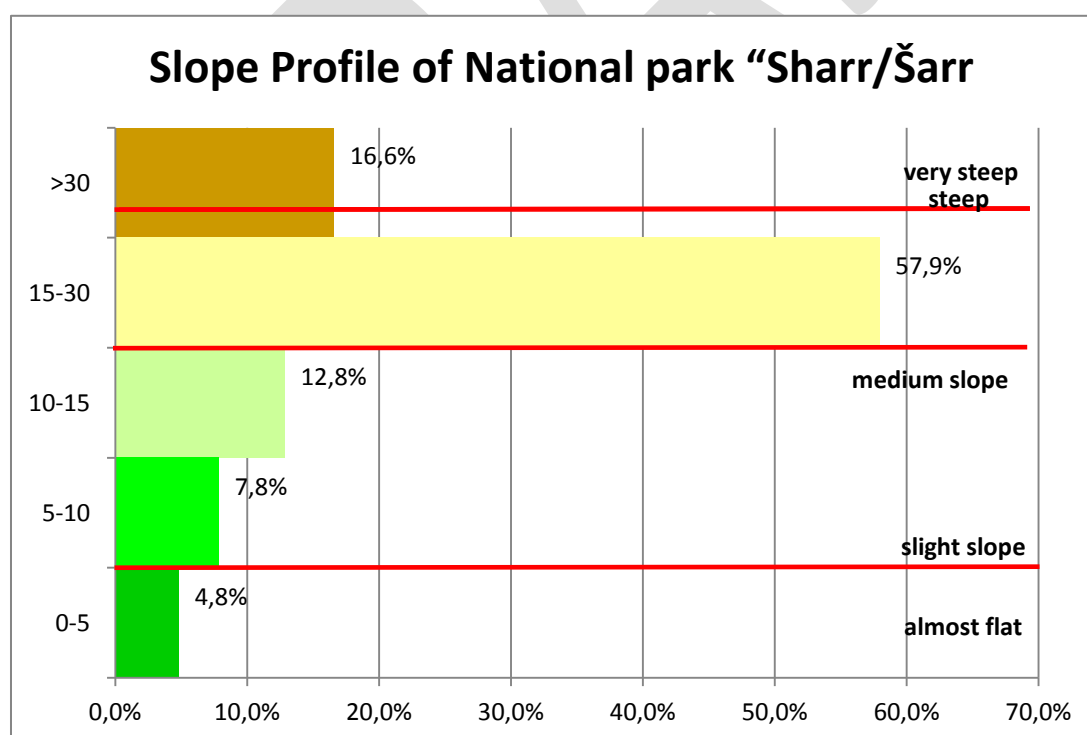


Figure 1-4: Slope profile of the territory of Sharr/Šar National Park



Empowered lives.
Resilient nations.

Relevance of the information for other assessments:

Selected spatial information will be used for all assessment and guidance maps.

Data sources, material and reliability:

Topographic Map 1959

DTM: Cadastral Agency of Kosovo, 20m Grid; small areas near the borders substituted through digitization of isolines from the Topographic Map

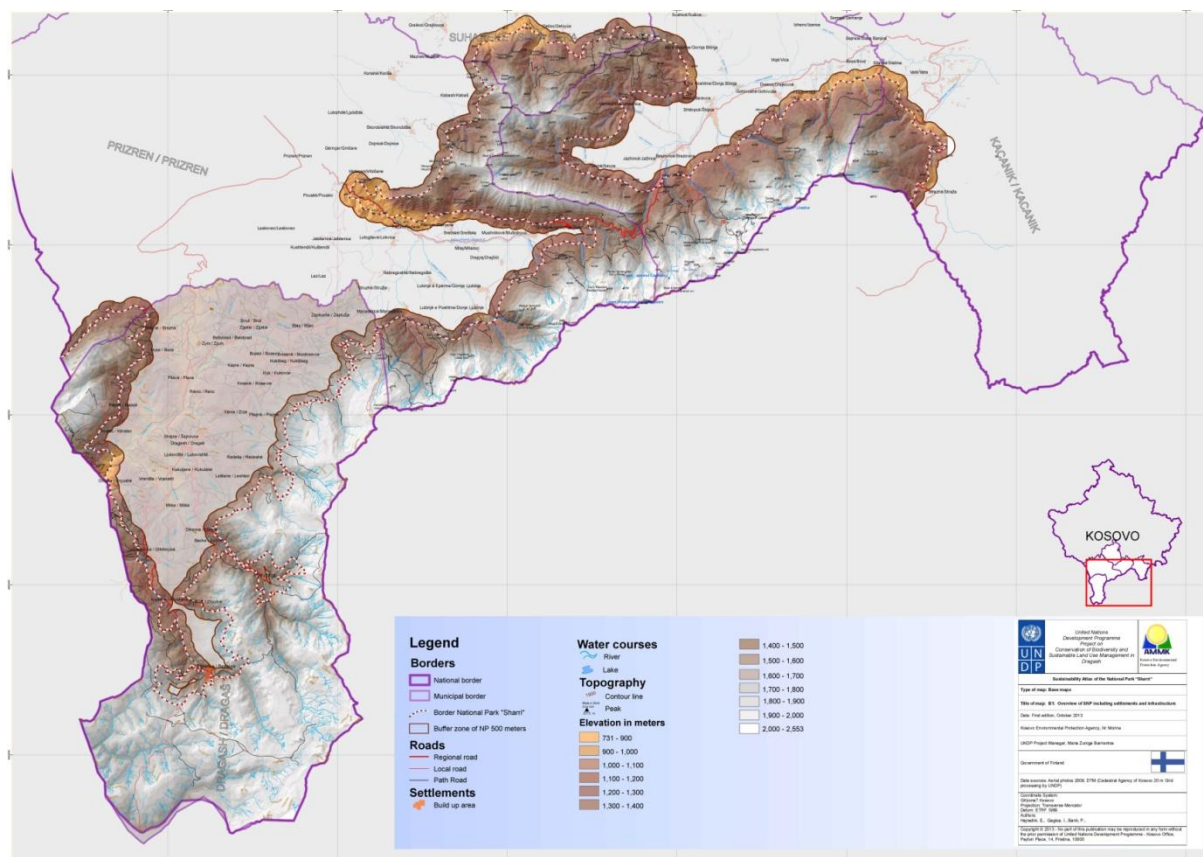
Aerial Photos: 2009

Roads, settlements and rivers were digitised using the aerial photos and GPS data (selected points of water courses, forest roads)

Further suggestions for monitoring and/or improvement of data:

DRAFT

Figure 1-5: Overview of the Sharr/Šar National Park (B1)



1.2. Geology and mineral resources

Contents of the map:

Geological Map of Sharr/Šar National Park with mineral resources – extracted from the “GEOLOGICAL MAP OF KOSOVO” 1:200,000

The main messages:

The Sharr/Šar National Park is part of the Sharr/Šar Mountains forming the border between Kosovo and FYR Macedonia. The Sharr/Šar Mountains were formed in the same geological phase as the Alps and the Dinarides.

Almost half of the territory of Sharr/Šar National Park is formed from various types of metamorphic rocks (**Figure 1-6**). Two areas are dominated by various types of limestone which have undergone metamorphic processes. These areas are the Mount Koritnik and parts of the mountains along the border with Macedonia. Intrusions of Magmatites are mainly found between Krstec, Plajnik / Plajnik, Brod / Brod, Prevala, Kabash and near Skorobisht. Larger areas of sandstone can be found in the far southwest of the mountains (Kesula e Priftit/ Popova Šapka), while smaller areas are scattered across the whole area. Approximately 15% of the National Park is formed from quaternary sediments of fluvial or glacial origin. Major areas are distributed in Southwest of Restelica and near villages Mushnikove and Gornjasele.

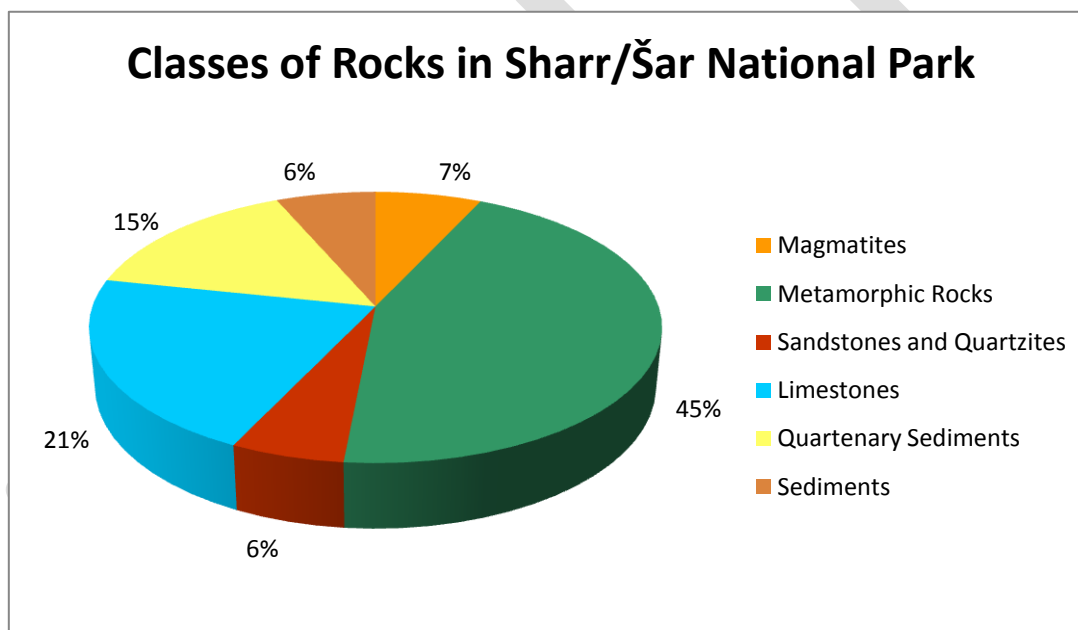


Figure 1-6: Classes of rocks in Sharr/Šar National Park

Within the borders of the Sharr National Park the Geological Map shows 8 sites of mineral deposits:

- 2 deposits of iron ore can be found around Zlipotok / Zlipotok
- 1 deposit with copper and mercury is located near Mlike / Mlikë
- 1 deposit with copper, lead, tin, molybdenum, wolfram and arsenic near Bačka / Backë
- 1 area for quarries near Restelica / Restelicë, located in Paraschists.

Caves can be found in the limestone areas.



Empowered lives.
Resilient nations.

Relevance of the information for other assessments:

The geologic information is used for the assessment of the biodiversity.

Data sources, material and reliability:

Independent Commission for Mines and Minerals / Komisioni i Pavarur për Miniera dhe Minerale - Nezavisna Komisija za Rudnike i Minerale 2006

Geology / Lithology: Based on Osnovna Geološko Karta SFRJ 1:100,000 – Geološki Institut, Beograd (1970-1984).

Reference System: Ellipsoid: Bessel 1841, Datum: MGI Austria

Topography: Vector data based on Topographical maps of former Yugoslavia 1:50,000 - edition 4-NIMA, series M709 - Copyright 1998 by the United States Government. No copyright claimed under title 17 U.S.C.

Magnetic Declination: 3.3° E

Map projection: Transverse Mercator

References

Geološka Karta Sr Srbije, 1 : 200,000 Beograd 1968, Zavod za Geološka i Geofizička Istraživanja, Languages: Serbo-Croatian and French).

Geological Map of Yugoslavia, 1 : 500,000 (printed 1971, 6 map sheets).

Geološko-Tektonska Karta Sap Kosovo, 1 : 100,000, Zagreb 1974, Geozavod Zagreb, Language: Serbo-Croatian.

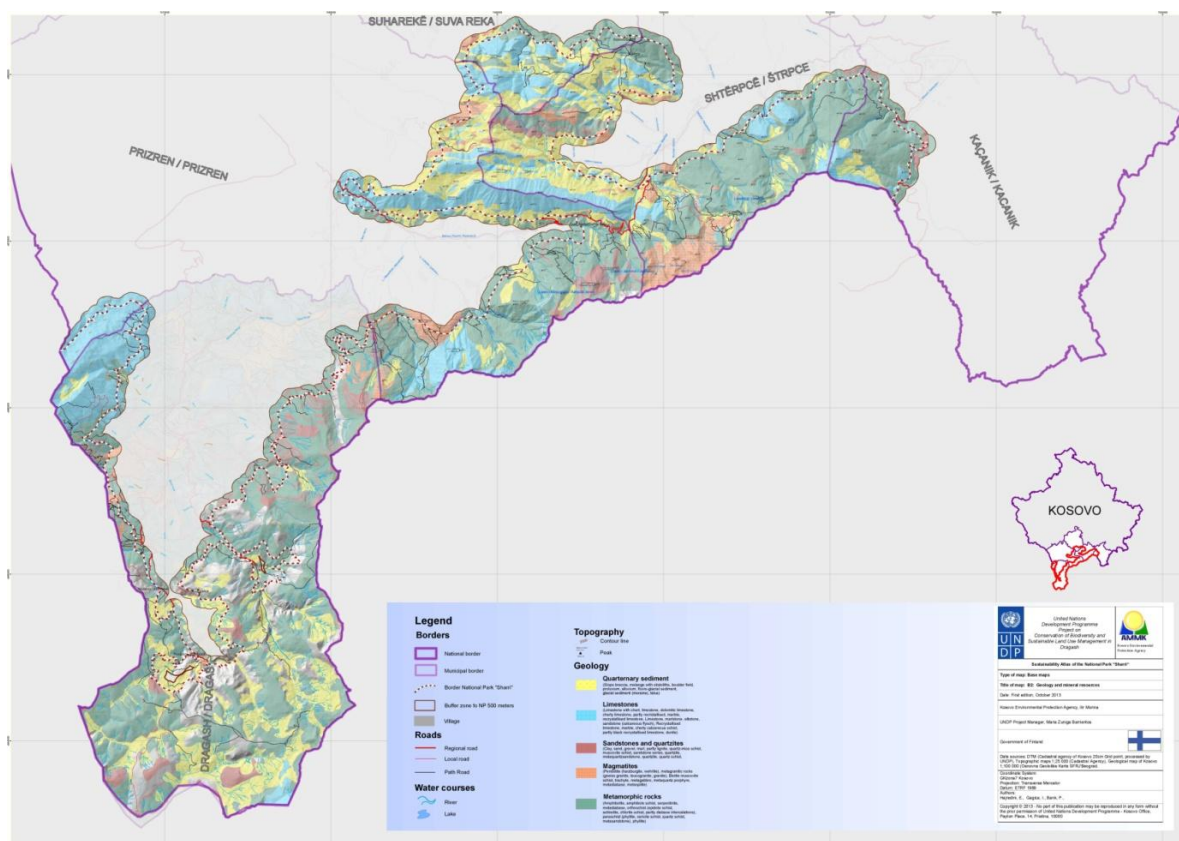
Osnovna Geološka Karta Sfrj, 1 : 100,000, Beograd/Titograd/Skopje 1970-1984, Geozavod Beograd/Geološki Institut Beograd, Zavod za geološka istraživanja SR Crna Gora, Geološki zavod Skopje, Language: Serbo-Croatian).

Geološki Atlas Srbije (Geological Atlas of Serbia), 1 : 2,000,000, published by Ministry for Mining and Energetics Republic of Serbia and Geomagnetism Institute, ed. DIMITRIJEVIĆ M. D. et al., Beograd, 1994-2004, 16 map sheets themes

Kosovo: Land of Opportunity for European Mining and Energy; Mining Journal Special Publication, London, 2005

The Compilation of the Geoscientific Maps of Kosovo – Geological Map 1 : 100,000 – Description of the Map Compilation – Beak Consultants GmbH, Prishtinë, March 2006, 175 p.

Figure 1-7: Geology and mineral resources (B2)



1.3. Soil

Contents of the map:

Soil map of Sharr/Šar National Park – extracted from the “SOIL MAP OF KOSOVO” (1974/2006) - 1:200,000

The main messages:

“The presented soil map is a comprehensive overview presentation of the soils in Kosovo based on the available soil map sheets at a scale 1:50,000 from 1974.

The soil classification used for the map corresponds to the common regional soil classification. The distinction of the soils is partly based on the internationally known soil types (e.g. regosol, rendzina, gley) according to the systematic from FAO-UNESCO; partly based on the granulometric soil species (e.g. sandy soil, loamy soil, clayey soil); and partly on the soil substrata and the stage of soil development (e.g. degree of weathering of ferrous minerals: brownisation). As a result, different classifications like “regosol on flysch”, “brownised deluvium” or “shallow brown soil on schists” are represented on the map side by side. Nevertheless, the classification applied on the map is very useful, since the map shows the most important soil characteristics. Based on the presented information, the user is able to derive possibilities for different specific land use, environmental aspects, necessary soil conservation, pedogenesis and other pedologic facts” (Independent Commission for Mines and Minerals 2006b).

The great variety of soils in Sharr/Šar National Park can be summarised to 7 classes (**Figure 1-8**):

- Bare rocks with hardly any development of soil cover approximately 3% of the surface, particularly in the steep, high mountains along the Macedonian border;
- Young, sparsely developed Lithosols on all types of rocks are prevalent in steep areas along valleys and mountains and cover approximately 9% of the territory;

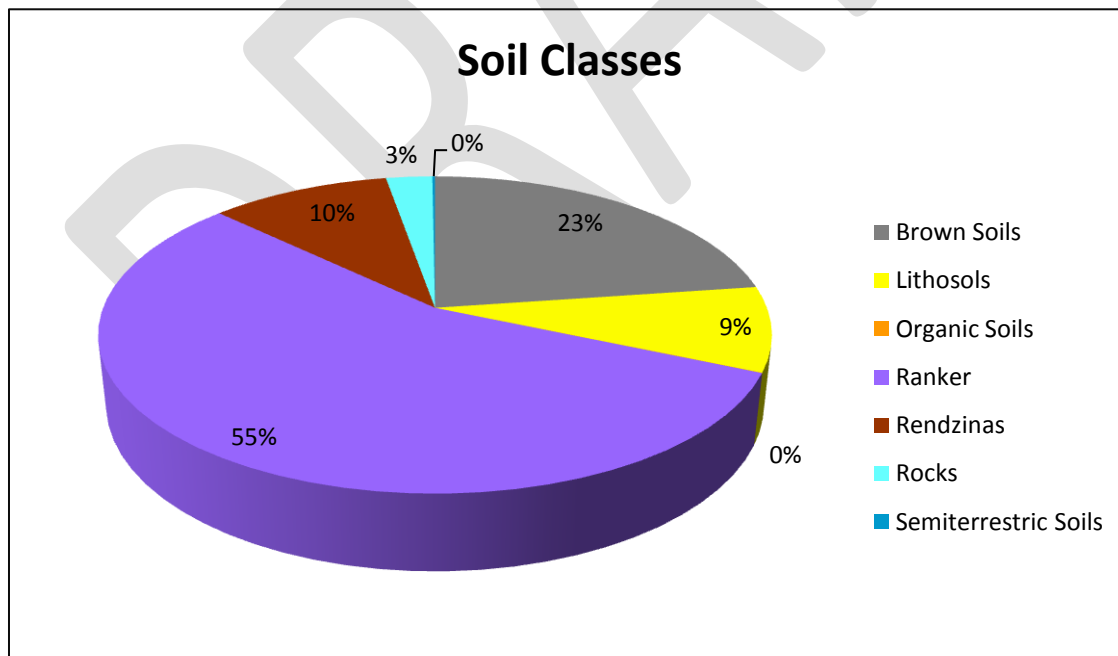


Figure 1-8: Soil classes in Sharr/Šar National Park

- The next stage of soil development is represented by Rankers on acidic or neutral rocks and Rendzinas on limestone. These soils are usually only superficially developed and cover around 65% of Sharr/Šar National Park – Rankers (55%) on the mountains along the eastern and southern border, and Rendzinas (10%) on the Mount Koritnik Massif in the north as well in area of Koxha Balkan.
- Brown Soils, characteristic in approximately 23% of the area are deeper developed and can be found along a



Empowered lives.
Resilient nations.

belt from Krushevo and Gllloboqica along the border with Albania in Dragash side and villages of Kabash, Mazrek, Delloc in Suhareka municipality followed in Shterpce in villages of Sevce, Jazhnice and Brezovice.

- Gleys under groundwater influence and organic soils are of minor importance, covering less than 1% in total. These types can be found in the area around lake Shutman, and Lake Brezne.

Relevance of the information for other assessments:

The soil information is used for the assessment of soil bonity (together with local expert knowledge) and for the erosion risk model used in the assessment map for natural hazards.

Data sources, material and reliability:

Independent Commission for Mines and Minerals / Komisioni i Pavarur për Miniera dhe Minerale - Nezavisna Komisija za Rudnike i Minerale 2006

Pedology: Digitised and compiled from: Pedološke Karta Socijalistické Autonomne Pokrajine - Kosovo - 1 : 50,000, Beograd 1974, Institut za vodoprivredu "Jaroslav Černi"

Topography: Vector data based on Topographical maps of former Yugoslavia 1:50,000 - edition 4-NIMA, series M709 - Copyright 1998 by the United States Government. No copyright claimed under title 17 U.S.C.

Map projection: Transverse Mercator

Reference system: Ellipsoid: Bessel 1841, Datum: MGI Austria

Reliability:

The soil types are very broad and can only give a first impression for the more detailed work necessary for the assessment of soil bonity and biodiversity.

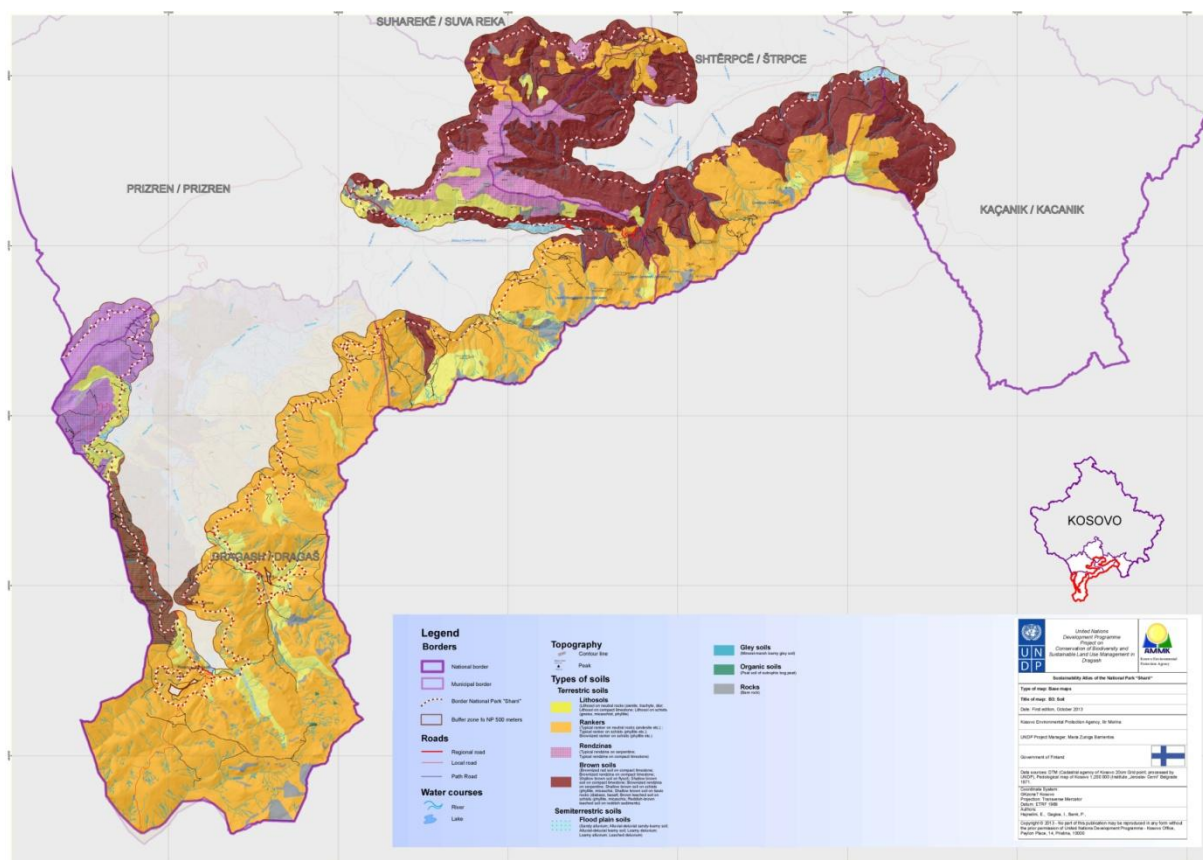
Further suggestions for monitoring and/or improvement of data:

Especially for the areas for agricultural use, detailed soil maps may be required.

References

- Pawićević, N., Grujić, L., Ljubomir, M., Petar, K. And Gradimik, V.: Pedološke Karta Socijalističke Autonomne Pokrajine Kosovo – S.R. Srbija, scale: 1:50,000, Institut za vodoprivredu "Jaroslav Černi", Beograd, 1974.
- IUSS Working Group WRB 2006: World reference base for soil resources. 2nd edition. World Soil Resources Reports No. 103. FAO, Rome, 2006

Figure 1-9: Soil (B3)



1.4. Water resources

Contents of the map:

Natural Resources

- Watersheds and important sub-watersheds
- Rivers, creeks, lakes and springs
- Wetlands and forests

Hydropower

- Planned hydropower project Zhur/Žur (Water transfer system from the south to the reservoirs, two reservoirs, transfer to Zhur/Žur powerhouse)
- No data representing the planned small hydropower plants (SHPP) at Brod, Restelica River could be made available through the competent authorities.

The main messages:

DRAFT

Natural Resources

Due to the high average annual rainfall of 1.130mm/m², Sharr/Šar National Park is a region of Kosovo with abundant water resources.

The area belongs to four major watersheds (**Figure 1-10**):

The central part of National Park territory belongs to the basin of the White Drin draining to the Adriatic Sea (32.740ha = 61% of the territory), comprising the sub-basins of Brod River, Bukorava river, Dupnica river, Korisha river, Lubizhda river, Maciteva river, Manastreci river, Petroshnica river, Plava River, Pobenica river, Prizren Bistrica, Prizren River, Restelica River, Shar river, Sllap river, Sotke River and White river.

- The most south-western part of the Sharr/Šar National Park territory belongs to the Basin of Black Drin River also draining to the Adriatic Sea (6.334ha = 12% of the territory).
- In east-north part of National Park territory belongs to the Basin of Lepenci river which is drained into Vardar river which draining into Aegean Sea (13.105ha = 25% of the territory).
- Two small areas in the south-east of the territory drain via the Vardar River to the Aegean Sea (494ha = 1% of the territory).

Table 1-1 gives an overview on surface and annual rainfall received by the watersheds.

Table 1-1: Yearly rainfall in m³ per watershed

Watershed	Sub-Watershed	Surface in Ha	Annual Rainfall in m ³
Black Drin		6,333.93	76,399,303.88
	Black Stone River	3,559.08	44,488,483.94
	Sherupa River	2,774.85	31,910,819.94
Lepenc		13,104.71	145,961,953.63
	Berevaci creek	556.33	6,119,671.46
	Big creek	628.67	5,972,373.72
	Bllateshtica river	921.22	10,594,038.51
	Bolovan river	1,031.39	11,345,312.63
	Cerenc river	1,094.09	12,581,980.80
	Dry creek	382.11	3,821,058.52
	Dry river	1,847.62	21,247,568.20
	Dubrava river	833.61	8,752,881.39
	Kalluxher river	1,309.41	15,058,260.77
	Klisura river	367.88	3,678,752.74
	Lepenc river	542.30	5,965,301.36
	Murzica river	1,231.41	14,161,244.00
	Ropot creek	922.42	10,146,673.03
	Sotka creek	248.93	2,862,642.22
	Strazha river	1,187.32	13,654,194.28
Vardar		494.46	6,428,028.96
	Rrasangult River	161.36	2,097,718.95
	Silent Waters River	333.10	4,330,310.01
White Drin		32,739.79	381,964,981.31
	Brod River	5,779.82	69,357,813.12
	Bukorava river	466.57	5,365,571.01
	Dupnica river	852.16	9,799,822.68
	Korisha river	1,948.50	22,367,801.78
	Lubizhda river	127.49	1,402,387.97
	Maciteva river	3,740.67	41,237,382.63
	Manastreci river	1,844.30	21,209,439.27
	Petroshnica river	1,077.14	12,387,151.20
	Plava River	6,112.80	73,353,605.15
	Pobenica river	513.86	5,652,510.64
	Prizren Bistrica	2,785.92	32,038,103.10
	Prizren River	451.41	4,965,541.28
	Restelica River	4,708.68	56,504,171.52
	Shar river	853.22	9,812,071.33
	Sllap river	780.74	8,978,510.51
	Sotke River	128.49	1,284,888.71
	White river	568.02	6,248,209.41
Overall in Sharr/Šar National Park		52,672.89	610,754,267.78

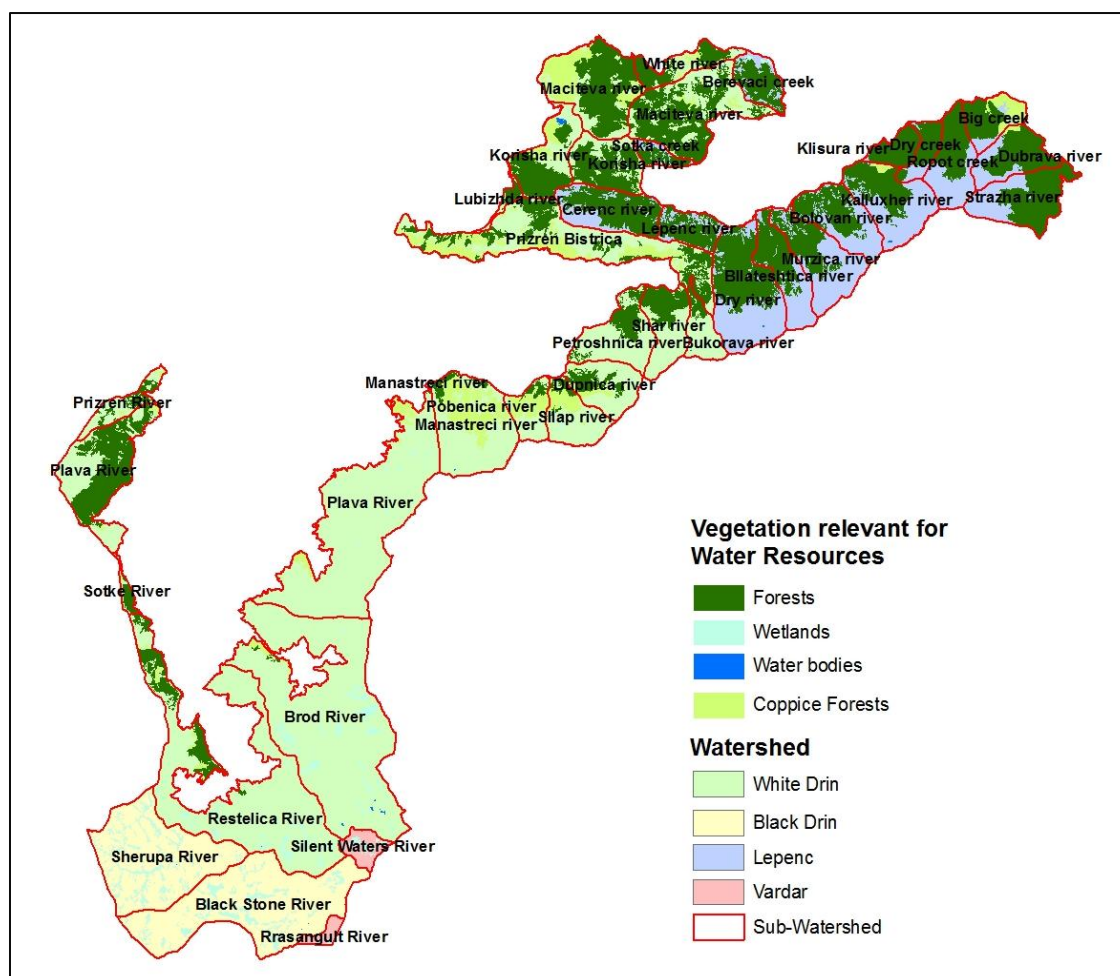


Figure 1-10: Watersheds, Sub-Watershed in National park “Sharr/Šarr

Ecosystems providing for the regeneration of water resources and therefore buffering fast discharge of heavy rainfalls or snow melt (i.e. all types of forests and wetlands) are unequally distributed to the basins and sub-basins of **the national park** particularly in western part Dragash municipality. **Table 1-2** gives an overview on the situation:

The highest water regenerative areas are located under Lepenc watershed in eastern part of national park with 59% of surface of the respective Sub-Basins, followed by White Drin watershed with 32% surface. The rest two basins are all below 20% of the surface of the respective sub-basin. This is particularly caused by the lower forest cover, but partly balanced by the high abundance of wetlands in the higher mountain areas. Both facts advocate for efficient protection of these ecosystem types in Gora region northern part of national park.

In the North-west and North-east sub-basins the comparatively high covers of forests and coppice forests account for the higher proportion of water regenerative areas. Most prominent are the large forest areas at Mount Koritnik, Mushtisht, Koxha-Balkan, Prevala, and forest near Shterpce and Brezovica.

In total, the share of water regeneration areas in Sharr/Šar National Park accounts for slightly above 36%.

Information on groundwater resources as an important element of the water regime is not available. A rough assessment of potential ground water occurrence in Sharr/Šar National Park will be provided in Vol. 3 Assessment of the Sustainable Development Atlas.



Empowered lives.
Resilient nations.

Table 1-2: Area for water resources regeneration per watershed

Area for water resources regeneration in Ha							
Basin/Sub-Basin	Forests	Coppice Forests	Wetlands	Total	In % of total	Total Surface in Ha	
Black Drin		0.72	772.53	773.25	12	%	6,333.93
Black Stone River		0.72	404.63	405.35	11	%	3,559.08
Sherupa River			367.90	367.90	13	%	2,774.85
Lepenc	7,475.97	261.08	19.61	7,756.66	59	%	13,104.71
Berevaci creek	388.74	0.41	15.99	405.14	73	%	556.33
Big creek	338.81	200.09		538.90	86	%	628.67
Bllateshtica river	498.18	0.73		498.91	54	%	921.22
Bolovan river	526.43			526.43	51	%	1,031.39
Cerenc river	752.60	0.23		752.83	69	%	1,094.09
Dry creek	295.32			295.32	77	%	382.11
Dry river	930.61		1.03	931.64	50	%	1,847.62
Dubrava river	573.30	25.09		598.39	72	%	833.61
Kalluxher river	537.49	32.36		569.85	44	%	1,309.41
Klisura river	359.61	0.30		359.91	98	%	367.88
Lepenc river	409.22	1.50		410.72	76	%	542.30
Murzica river	468.31		1.16	469.47	38	%	1,231.41
Ropot creek	469.31			469.31	51	%	922.42
Sotka creek	151.51	0.37	1.43	153.31	62	%	248.93
Strazha river	776.53			776.53	65	%	1,187.32
Vardar			59.78	59.78	12	%	494.46
Rrasangult River			9.37	9.37	6	%	161.36
Silent Waters River			50.41	50.41	15	%	333.10
White Drin	7,250.04	2,727.42	578.12	10,555.58	32	%	32,739.79
Brod River	23.93	47.98	286.15	358.06	6	%	5,779.82
Bukorava river	88.68		6.23	94.91	20	%	466.57
Dupnica river	190.22	64.57		254.79	30	%	852.16
Korisha river	1,113.14	147.08	13.51	1,273.73	65	%	1,948.50
Lubizhda river	81.44	1.17		82.61	65	%	127.49
Maciteva river	2,132.04	545.69	21.73	2,699.46	72	%	3,740.67
Manastreci river	94.41	547.47	0.70	642.58	35	%	1,844.30
Petroshnica river	289.21	1.59		290.80	27	%	1,077.14
Plava River	994.64	197.32	48.24	1,240.20	20	%	6,112.80
Pobenica river	58.18	195.52		253.70	49	%	513.86
Prizren Bistrica	754.37	665.49		1,419.86	51	%	2,785.92
Prizren River	152.11	25.40		177.51	39	%	451.41
Restelica River	457.83	75.93	181.99	715.75	15	%	4,708.68
Shar river	325.12			325.12	38	%	853.22
Sllap river	74.36	143.51	12.02	229.89	29	%	780.74
Sotke River	80.49	18.66		99.15	77	%	128.49
White river	339.87	50.04	7.55	397.46	70	%	568.02
Grand Total National Park	14,726.01	2,989.22	1,430.04	19,145.27	36	%	52,672.89

Table 1-3 gives an overview of the density of water courses in the sub-basins in Sharr/Šar National Park. The average density for the national park is 1,8 km of water courses per km² of surface area, with 0,03km of large permanent water courses and 1,78 km of smaller, often temporary water courses.

The highest overall density (4,3km/km²) is to be found in the in the sub-basins of Silent Waters River. Due to its location in the high montane and alpine zone, more than 80% of water courses in this sub-basin are small or temporary.

The lowest water course densities are to be found in the eastern part of national park, in the Sotka creek, Prizreni river in Dragash territory and white river sub-basins, respectively with only 0,2 and 0,45 and 0,43 km/km².

Table 1-3: Water courses per watershed

Basin/Sub-Basin	Length of Water Courses in km			Total surface in Ha	Density of Water Courses in km/km ²		
	Large	small or temporary	Total		Large	small or temporary	Total
Black Drin		187.86	187.86	6,334.00	0.00	2.97	2.97
Black Stone River		101.79	101.79	3,559.00	0.00	2.86	2.86
Sherupa River		86.07	86.07	2,775.00	0.00	3.10	3.10
Lepenc		168.75	168.75	13,103.00	0.00	1.29	1.29
Berevac creek		1.11	1.11	556.00	0.00	0.20	0.20
Big creek		4.93	4.93	629.00	0.00	0.78	0.78
Blateshtica river		13.42	13.42	921.00	0.00	1.46	1.46
Bolovan river		16.92	16.92	1,031.00	0.00	1.64	1.64
Cerenc river		11.11	11.11	1,094.00	0.00	1.02	1.02
Dry creek		4.68	4.68	382.00	0.00	1.23	1.23
Dry river		27.76	27.76	1,848.00	0.00	1.50	1.50
Dubrava river		10.09	10.09	834.00	0.00	1.21	1.21
Kalluxher river		20.82	20.82	1,309.00	0.00	1.59	1.59
Klisura river		2.00	2.00	368.00	0.00	0.54	0.54
Lepenc river		2.67	2.67	542.00	0.00	0.49	0.49
Murzica river		18.93	18.93	1,231.00	0.00	1.54	1.54
Ropot creek		17.30	17.30	922.00	0.00	1.88	1.88
Sotka creek		0.50	0.50	249.00	0.00	0.20	0.20
Strazha river		16.51	16.51	1,187.00	0.00	1.39	1.39
Vardar		17.39	17.39	494.00	0.00	3.52	3.52
Rrasangult River		2.77	2.77	161.00	0.00	1.72	1.72
Silent Waters River		14.62	14.62	333.00	0.00	4.39	4.39
White Drin	15.68	564.87	580.55	32,738.00	0.05	1.73	1.77
Brod River	7.7	175.29	182.99	5,780.00	0.13	3.03	3.17
Bukorava river		7.09	7.09	467.00	0.00	1.52	1.52
Dupnica river		34.10	34.10	852.00	0.00	4.00	4.00
Korisha river		18.62	18.62	1,948.00	0.00	0.96	0.96
Lubizhda river		0.10	0.10	127.00	0.00	0.08	0.08
Maciteva river		34.85	34.85	3,740.00	0.00	0.93	0.93
Manastreci river		39.87	39.87	1,844.00	0.00	2.16	2.16
Petroshnica river		13.93	13.93	1,077.00	0.00	1.29	1.29
Plava River	1.36	101.49	102.85	6,113.00	0.02	1.66	1.68
Pobenica river		13.66	13.66	514.00	0.00	2.66	2.66
Prizren Bistrica	3.37	9.04	12.41	2,786.00	0.12	0.32	0.45
Restelica River	3.25	80.61	83.86	451.00	0.72	17.87	18.59

Shar river	9.60	9.60	853.00	0.00	1.13	1.13	
Sllap river	23.59	23.59	781.00	0.00	3.02	3.02	
Sotke River	0.58	0.58	128.00	0.00	0.45	0.45	
White river	2.45	2.45	568.00	0.00	0.43	0.43	
Total in National Park	15.68	938.87	954.55	52,669.00	0.03	1.78	1.81

Figure 1-11 and **Table 1-4** in follow show the average monthly flow rates of major rivers in Sharr/Šar National Park during the period from 1954-1985. The points of measurement are not known, but it can be assumed these are located close to the outlet of River Brod, and close to the border with Albania in the case of the Rivers Pllava and Restelica and two measurements on Lepenc river in eastern part of national park.

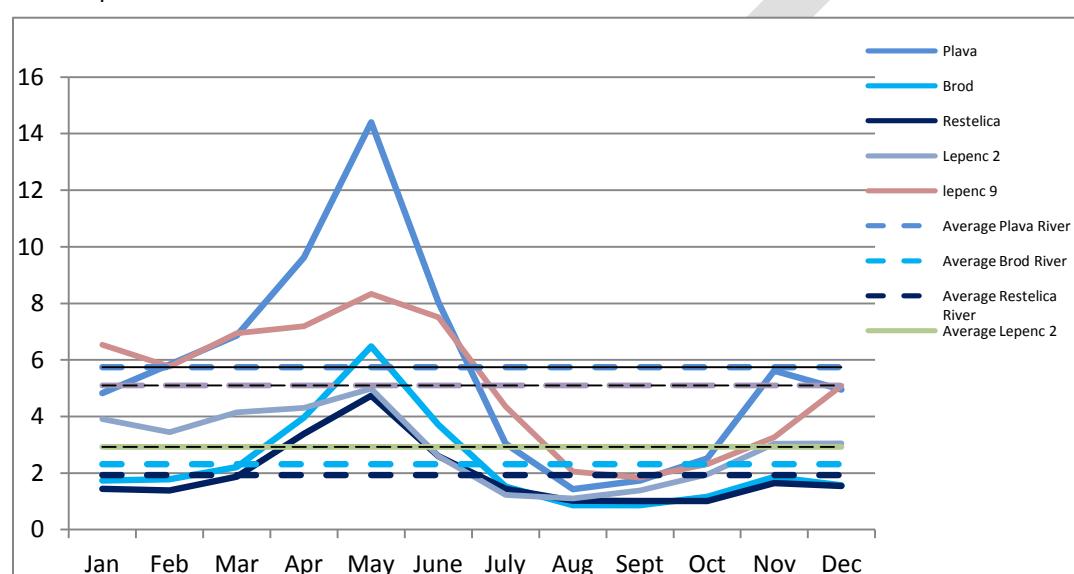


Figure 1-11: Flow rate of main rivers in National park “Sharr/Šar”

River	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Average
Plava	4.82	5.83	6.86	9.63	14.4	8.04	3.04	1.43	1.74	2.52	5.62	4.95	5.74
Brod	1.73	1.78	2.21	3.97	6.48	3.71	1.52	0.86	0.86	1.16	1.86	1.57	2.31
Restelica	1.44	1.39	1.87	3.39	4.73	2.59	1.44	1.02	1.01	1.01	1.65	1.54	1.92
Lepenc 2	3.91	3.45	4.15	4.3	4.98	2.6	1.23	1.1	1.38	1.95	3.04	3.05	2.93
Lepenc 9	6.54	5.77	6.94	7.19	8.33	7.51	4.35	2.05	1.84	2.31	3.26	5.09	5.10

Table 1-4: Average monthly flow rates of major rivers

Colour code: Blue = month of maximum flow; Green = months with flow above average; Orange = months with flow below average; Red = month with minimum flow rate.

High flow season is dependent on snow melt and starts first in the Pllava River sub-basin, lasting from February to June; high flow season in the tributaries of the River Lepenc, Brod and Restelica starts only in April due to the higher altitude of the catchments, with a maximum in May for all four rivers. The end of the high flow season in June coincides with the monthly precipitation maximum. Later in the year, low rainfall influences minimum flow rates in August. Higher rainfall rates from September to December induce higher flow rates.

Hydropower

The ample water resources of Sharr/Šar National Park provide a huge potential for the generation of hydro power. One small hydropower plant (SHPP) is located on the River Brod. Two schemes are currently underway to exploit the local hydropower potential:

- The **Zhur/Žur Hydropower Scheme**: This is a peaking hydropower scheme with a total installed capacity of 305MW. The two plants will be located outside Dragash / Dragaš Municipality near the village of Zhur/Žur. Via a system of tunnels and canals, water will be transferred from the Black Stone River sub-basin and from the Restelica and Brod Rivers to a small, first reservoir in the River Pllava Valley, and from there to a bigger, second reservoir close to the village of Brezne / Brezna. The water will be led down to the two power plants via a tunnel with an altitude difference of 683,5m to 643m. Water flows of the rivers Caljane, Restelica, Brod and Pllave will be affected, as well as the karstic water flow from near Lake Brezna to “Gurra”. The Legal Decision for the construction of Zhur/Žur Hydropower Plant was taken by the Kosovo Assembly on July 24th, 2009.
- Along the Brod and Restelica Rivers the construction of six SHPPs is planned by an international consortium. Neither the exact location of outtakes and intakes nor exact data on the planned amount of abstraction have been available during compilation of the Sustainable Development Atlas. Based on the data available, a preliminary, short environmental assessment of the planned SHPP has been delivered by UNDP.

Relevance of the information for other assessments:

Water resources and their management are a major factor for local sustainable development and will be used for assessment and discussion of development options for the municipality.

Data sources, material and reliability:

Ibrahimi, Halil: Rapid Water Quality Assessment in Streams and Rivers of Dragash/Dragaš Municipality, UNDP Contract No. 2011-IC-025, Pristina 2011, and Rapid Water Quality Assessment in Streams in National Park outside Dragash, Pristina 2012.

Ministry of Environment and Spatial Planning: Kosovo Environmental Action Plan 2006-2010, Pristina, 2006

Ministry of Environment and Spatial Planning – Kosovo Environmental Protection Agency: The State of Water in Kosovo, Pristina, 2010

Ministry of Environment and Spatial Planning: Revising and updating the Kosovo Environmental Strategy (KES) and National Environmental Action Plan (NEAP) 2011-2013, Pristina, 2011

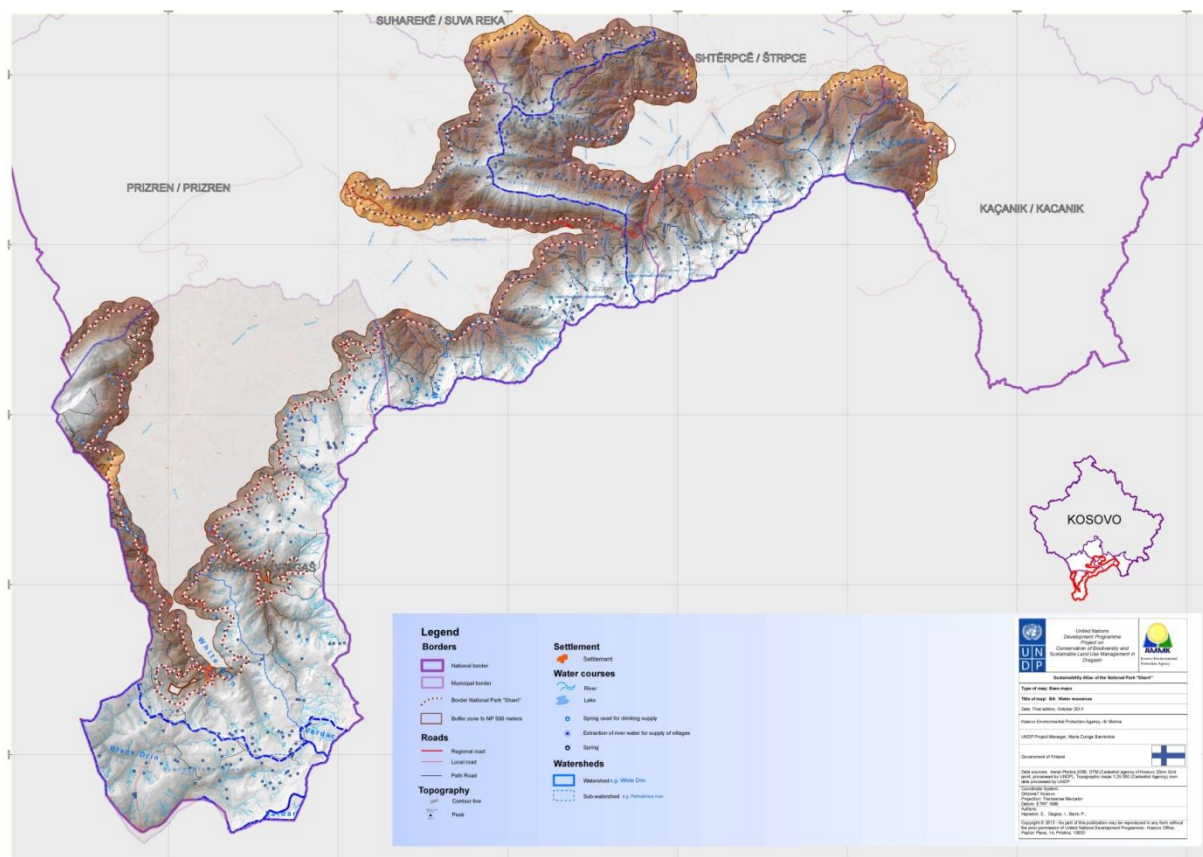
Official Gazette Republic of Kosovo: Decision GSH 03/2009 on Zhur Hydropower Plant

See also in Annex Baseline Maps 2.1.

Further suggestions for monitoring and/or improvement of data:

- Repeat water sampling during low flow season in 2014 (July / August)
- Keep contact with Municipalities and Hidroregionji Jugor
- Amend information displayed with data from Water Master Plan
- Keep track of planning for utilisation of hydropower and regularly update data

Figure 1-12: Water resources in Sharr/Šar National Park (B4)



1.5. Real land use

Contents of the map:

Interpretation of the latest aerial photos of the territory of Sharr/Šar National Park (2009) based on the land use types defined under the pan-European CORINE Land Use Cover project. The CLC types have been amended with some specific types relevant for Sharr/Šar National Park.

The main messages:

The territory of Sharr/Šar National Park is characterised by natural grass- and shrubland interspersed by rocky or sparsely vegetated areas and forests. These main types of land uses account for over 87% of the Sharr/Šar National Park surface.

Forests covers 34 %, pasture meadows and natural grassland covers 53 %, bare rocks sparsely vegetated areas covers 3 % and wetlands 3% of total Sharr/Šar National Park surface.

Table 1-5: Land Use types in Sharr/Šar National Park in ha and %

Sub-Basin	Settlements	Agricultural areas	Pastures & meadows	Forests	Natural grass & shrublands	sparsely vegetated areas	bare rocks	Wetlands	Water bodies	Grand Total
Berevaci creek			150	389	0	1		16		556
	0%	0%	27%	70%	0%	0%	0%	3%	0%	
Big creek				539	90					629
	0%	0%	0%	86%	14%	0%	0%	0%	0%	
Black Stone River		2	894	1	1775	277	189	405		3542
	0%	0%	25%	0%	50%	8%	5%	11%	0%	
Billateshtica river			29	499	241	15	137			921
	0%	0%	3%	54%	26%	2%	15%	0%	0%	
Bolovan river			65	526	407	31	3			1031
	0%	0%	6%	51%	39%	3%	0%	0%	0%	
Brod River	1.3	1.12	1573.8	71.91	2774.82	789.7	281.02	286.15		5779.83
	0%	0%	27%	1%	48%	14%	5%	5%	0%	
Bukorava river			3.56	88.68	235.29	132.58	0.21	6.23		466.55
	0%	0%	1%	19%	50%	28%	0%	1%	0%	
Cerenc river			103.28	752.83	236.06	0.5	1.42			1094.09
	0%	0%	9%	69%	22%	0%	0%	0%	0%	
Dry creek			42.48	295.32	30.03	14.28				382.11
	0%	0%	11%	77%	8%	4%	0%	0%	0%	
Dry river	3.79		79.11	930.61	487.34	189.05	156.65	1.03		1847.58
	0%	0%	4%	50%	26%	10%	8%	0%	0%	
Dubrava river	0.46		8.3	598.39	200.26	20.47	5.72			833.6
	0%	0%	1%	72%	24%	2%	1%	0%	0%	



Empowered lives.
Resilient nations.

Dupnica river	0.38	36.79	254.79	515.95	37.34	6.9			852.15
	0%	0%	4%	30%	61%	4%	1%	0%	0%
Kalluxher river		55.96	569.85	620.03	55.35	6.27		1.9	1309.42
	0%	0%	4%	44%	47%	4%	0%	0%	0%
Klisura river		7.96	359.91						367.87
	0%	0%	2%	98%	0%	0%	0%	0%	0%
Korisha river	1.21	647.87	1260.22	25.68	0.01		13.51		1948.5
	0%	0%	33%	65%	1%	0%	0%	1%	0%
Lepenc river		124.65	410.72	6.93					542.3
	0%	0%	23%	76%	1%	0%	0%	0%	0%
Lubizhda river		41	82.61	3.85		0.02			127.48
	0%	0%	32%	65%	3%	0%	0%	0%	0%
Maciteva river	0.15	797.59	2677.73	182.89	54.57	6.04	21.74		3740.71
	0%	0%	21%	72%	5%	1%	0%	1%	0%
Manastreci river	0.31	1.06	176.11	641.88	928.99	71.11	24.11	0.7	1844.27
	0%	0%	10%	35%	50%	4%	1%	0%	0%
Murzica river	13.75		51.31	468.31	590.07	53.42	53.39	1.16	1231.41
	1%	0%	4%	38%	48%	4%	4%	0%	0%
Petroshnica river		101.93	290.8	612.11	69.8	2.48			1077.12
	0%	0%	9%	27%	57%	6%	0%	0%	0%
Plava River	6.27	1123	1191.96	2791.97	850.66	101.08	48.24		6113.18
	0%	0%	18%	19%	46%	14%	2%	1%	0%
Pobenica river		48.4	253.7	175.53	32.78	3.47			513.88
	0%	0%	9%	49%	34%	6%	1%	0%	0%
Prizren Bistrica	3.48	1.24	499.43	1419.86	532.01	307.93	21.98		2785.93
	0%	0%	18%	51%	19%	11%	1%	0%	0%
Prizren River		190.88	177.51	61.05	21.96	0.01			451.41
	0%	0%	42%	39%	14%	5%	0%	0%	0%
Restelica River	0.12	83.41	4	533.76	2053.72	415.9	172.06	181.99	4708.6
	0%	2%	27%	11%	44%	9%	4%	4%	0%
Ropot creek		1.89	469.31	386.79	11.91	52.54			922.44
	0%	0%	0%	51%	42%	1%	6%	0%	0%
Rrasangult River				80.88	59.38	10.81	9.37		160.44
	0%	0%	0%	0%	50%	37%	7%	6%	0%
Shar river		12.77	325.12	354.07	133.57	27.66			853.19
	0%	0%	1%	38%	41%	16%	3%	0%	0%
Sherupa River	5.68	1067.8		1106.7	216.04	10.75	367.9		2774.87
	0%	0%	38%	0%	40%	8%	0%	13%	0%
Silent Waters River				215.5	56.95	10.24	50.41		333.1
	0%	0%	0%	0%	65%	17%	3%	15%	0%
Sllap river		20.93	217.87	423.28	50.57	56.09	12.02		780.76
	0%	0%	3%	28%	54%	6%	7%	2%	0%
Sotka creek		54.97	151.88	13.94	26.01	0.72	1.43		248.95
	0%	0%	22%	61%	6%	10%	0%	1%	0%

Sotke River			4.68	99.15	24.65					128.48
	0%	0%	4%	77%	19%	0%	0%	0%	0%	
Strazha river			3.32	776.53	305.59	88.33	13.52			1187.29
	0%	0%	0%	65%	26%	7%	1%	0%	0%	
White river			146.45	389.91	22.56	1.36	0.19	7.55		568.02
	0%	0%	26%	69%	4%	0%	0%	1%	0%	
Total in National Park	23.21	102.09	9431.22	17715.23	18511.15	4085.37	1354.85	1430.05	1.96	52655.13
	0%	0%	18%	34%	35%	8%	3%	3%	0%	

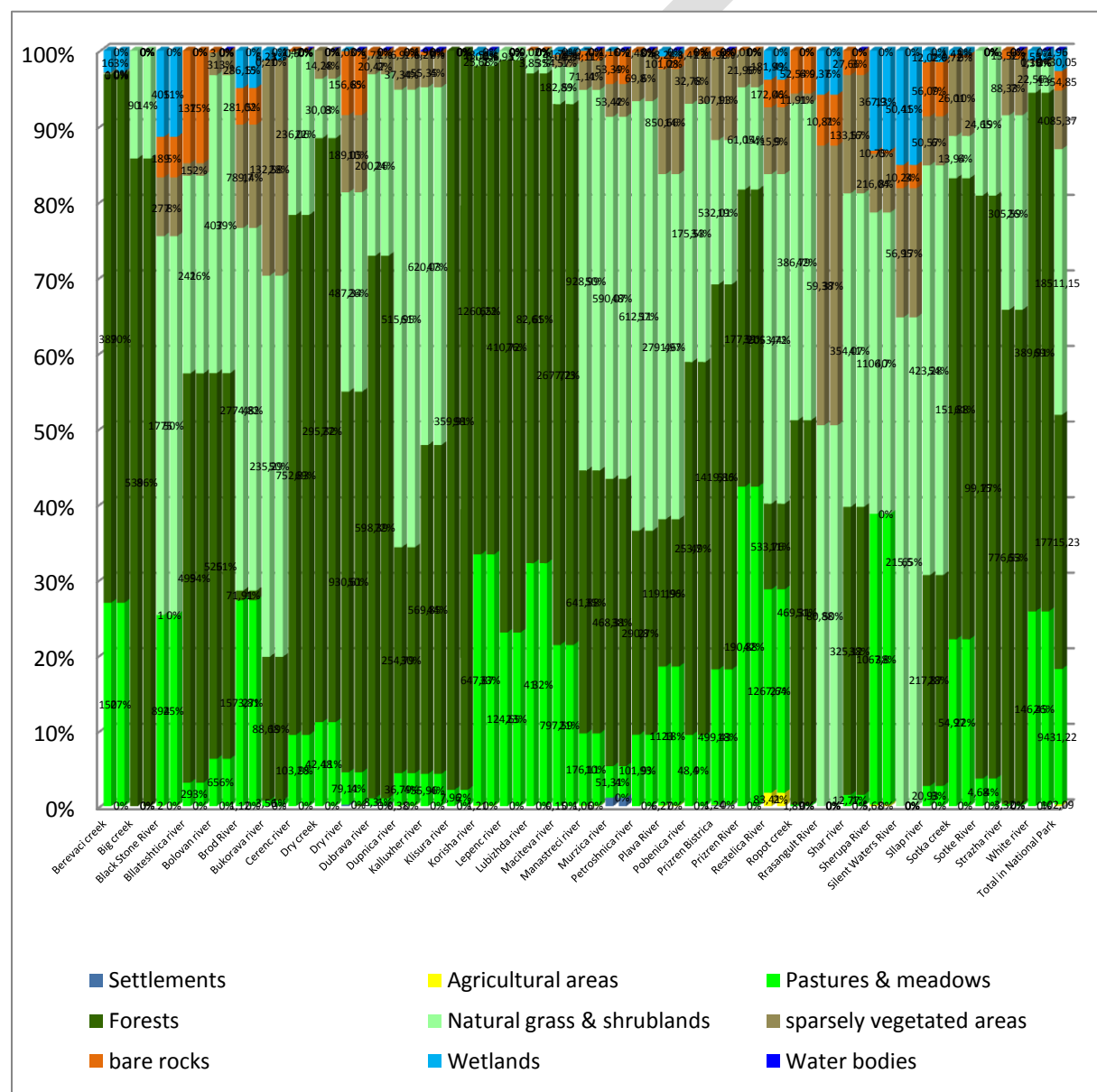


Figure 1-13: Comparison of land uses in the sub-basins of Sharr/Sar National Park

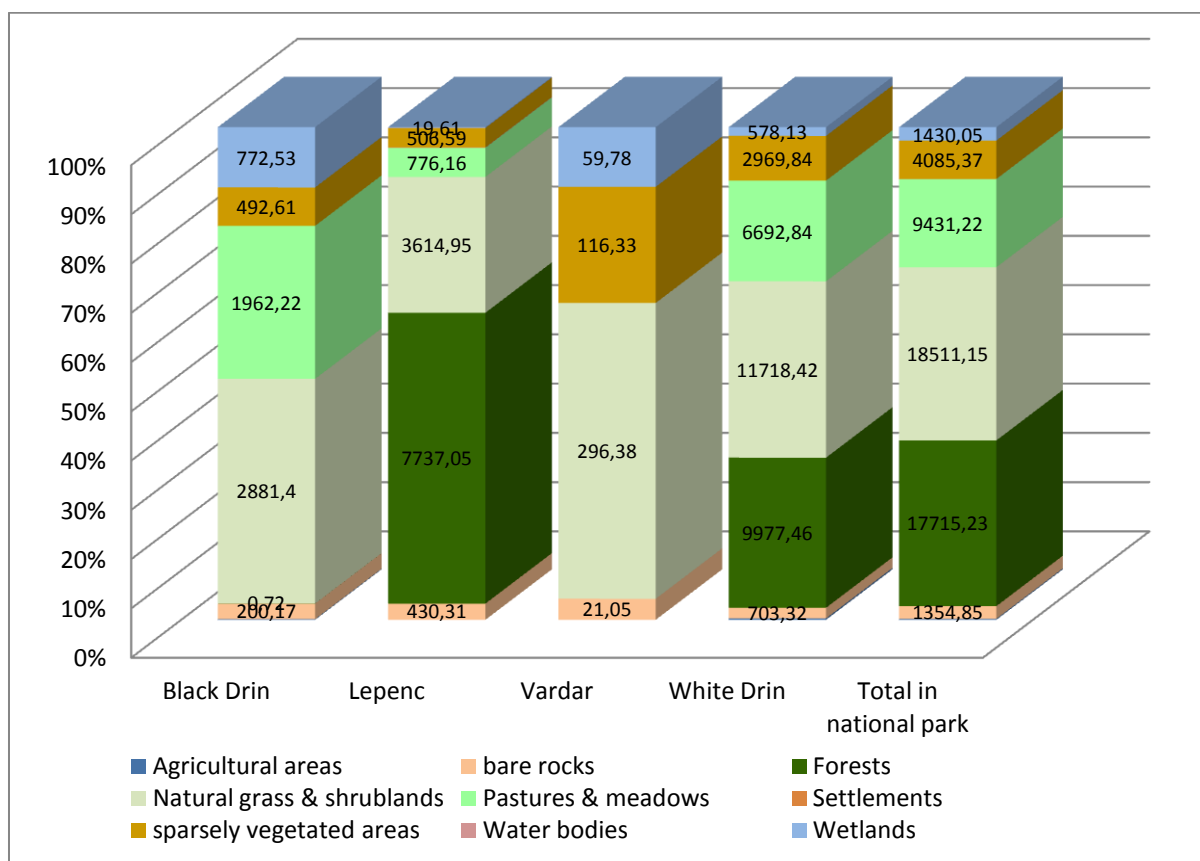


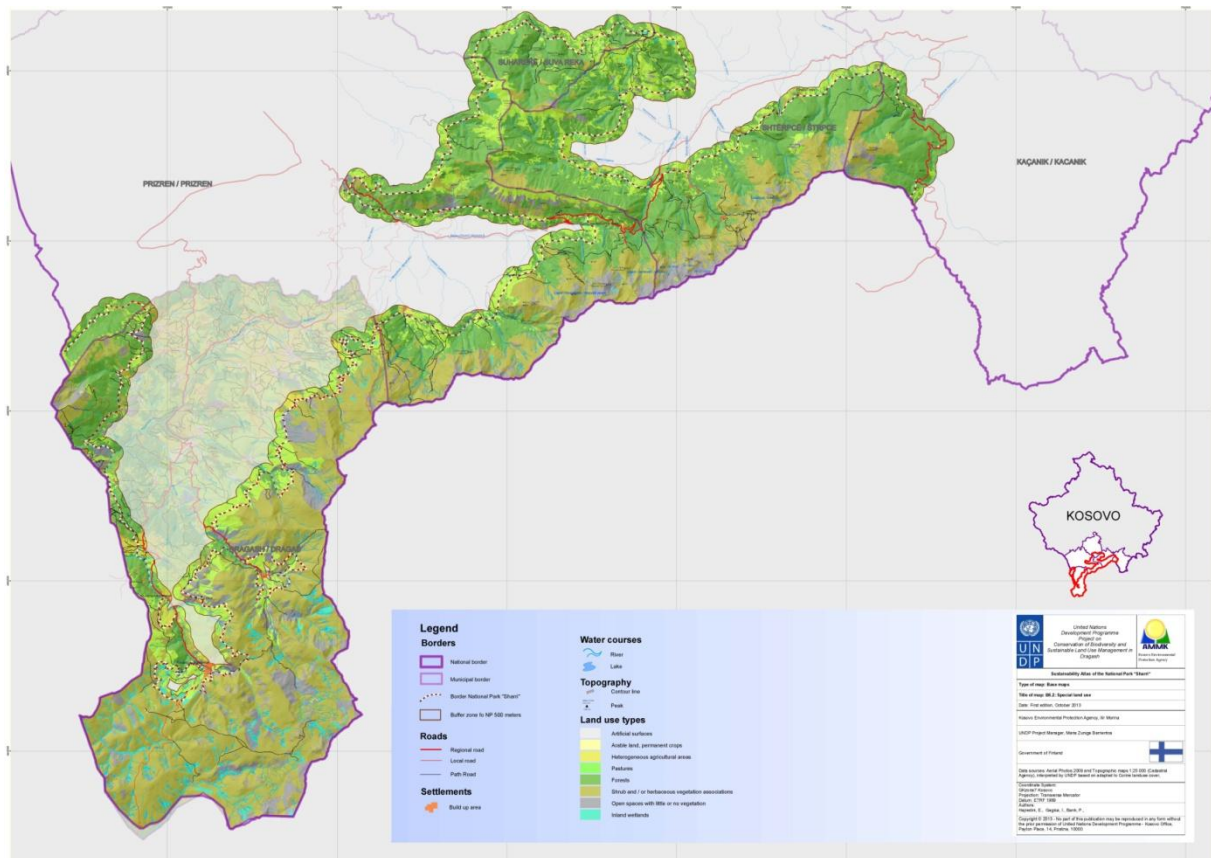
Figure 1-14: Comparison of land uses in the basins of Sharr/Šar National Park

Agricultural areas with arable land, settlements accounts for less than 1 % in area of national park (see also **Figure 1-12** and **Figure 1-16** and **table 1.5**).

The forests of Sharr/Šar National Park account for 34% of the territory and are concentrated in mount Koritnik in western part of the **National Park**, in **Prevala** Mountain, Koxha-Ballkan, Mushtisht mount and in territory of Brezovica and Shterpce. Major stock can be found along the Pllava, Restelica and Brod Rivers, area of Mount Koritnik and in sub-basins in **rivers Manastirica, Pobenica, Slap, Prizren Bistrica and Maqiteva** with a high share of coppice forests, high forest in river basins of **Dry River, Bilastestica River, Bolovan River, Kalluxher River, Strazha River, Dubrava River, Lepenc River, CERENC River, Korisha River, Sotka Creek White River and Maciteva River** (see also **Table 1-15**).

The Sharr/Šar Mountains are characterised by natural and semi-natural grass- and shrubland, associated with wetlands along the water courses and in depressions, sparsely vegetated and rocky areas. These lands use types account for 53% of the national park territory.

Figure 1-12: Consolidated land uses in Sharr/Šar National Park (B7.2)





Empowered lives.
Resilient nations.

Relevance of the information for other assessments:

The actual land use will be used for the assessment of agriculture/livestock, forest and nature protection and forms the basic information about environmental characterisation in the national park.

Data sources, material and reliability:

Most of the classification was undertaken through a combination of automatic interpretation and reworking by manual interpretation with some ground truthing exercises.

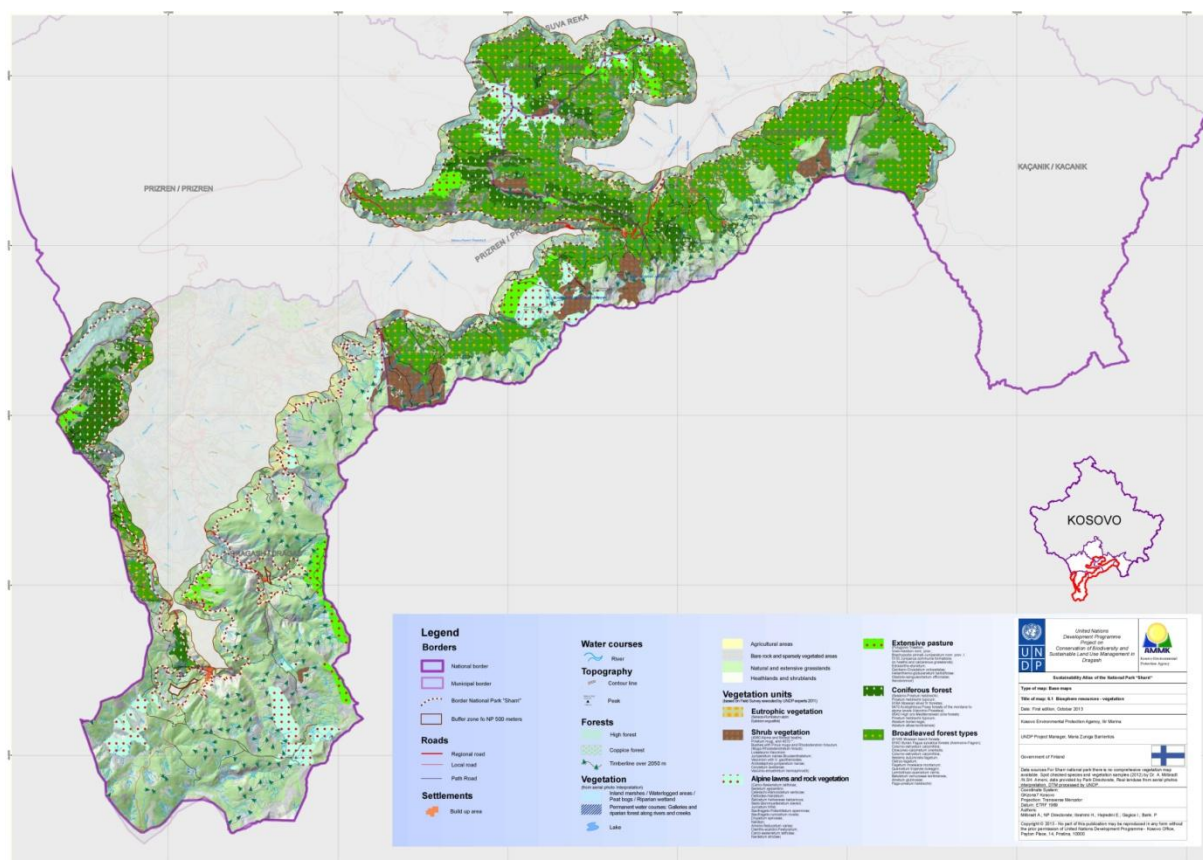
List of land use types is provided in the annex of Volume 4, Guidance for Development

Further suggestions for monitoring and/or improvement of data:

Correction according to field checks

DRAFT

Figure 1-16: Real land use in Sharr/Šar National Park (B7.1)



1.6. Biosphere resources - vegetation

Contents of the map:

- Areas and points where a vegetation mapping was undertaken by UNDP experts in 2011-2012 (partly field mapping, partly desktop analysis); a total of 68 plant associations have been identified.
- Points of inventories of plants (from 2011)
- Assumed timber line (2050 m)
- Main types of land uses as background

The main messages:

General situation

The extended range of altitudes between 730 and 2.650 m above sea level, the huge variety of bedrocks and soils, and influences from Mediterranean and Continental climates support a significant diversity of plant species and communities in the Sharr/Šar National Park. The Sharr/Šar Mountains are assumed to provide habitats for about 2000 vascular plant species. The overview research for the Sharr/Šar National Park located approximately 650 plant species. It is important to note **that only some points were analysed and total plant lists were not recorded.**

Without human influence most of the areas below the timberline should be covered by forest. Through centuries of deforestation, grazing and frequent burning of trees and shrubs, the forest has vanished almost completely in the eastern and southern part of **the Sharr/Šar National Park at altitudes above 1.700 m** (Sharr/Šar Mountains).

The timber line is at about 2000 – 2100 m and best visible at Mount Koritnik in the northwest of Sharr/Šar National Park and in Prevala east of Sharr/Šar National Park. It can be assumed that above the timber line one can find conditions closest to nature in the Sharr/Šar National Park. These are areas covered by natural rock, alpine grass- and shrub-lands with natural wetlands such as peat-bogs and fens in depressions, containing a wide variety of typical and often important plant communities and species.

Forests in Sharr/Šar National Park are a mixture of coniferous forests dominated by pines or firs, and broadleaved forests with beeches, oaks, birches, and hornbeams or a mixture of both. Approximately 84% of the forests in the Sharr/Šar National Park are managed as high forest with high quality of growing stock and regenerated by seeds, while 15% more or less are managed as coppice forests. Along the water courses, narrow strips of riparian forests dominated by alders are mostly abundant. The forests of Sharr/Šar National Park host a wide variety of plant communities and species of importance. In particular, coppice forests are home to a great number of plant and animal species.

Pastures and meadows replacing natural forests are often managed extensively and are home to a considerable variety of plant species.

Arable lands and areas with a complex cultivation mix of tillage, permanent cultures, pastures, and often hedges were not in the focus of the field work undertaken. In particular, the areas with a high diversity of structures (Land use type: 'Complex Cultivation with or without Hedges and Trees', see **Figure 1-16**) are of high importance to local fauna.

Plant communities

During field and desk top work a total of 37 plant communities were identified in the focal areas (see Mustafa B., 2011) and **Table 2-2** in Annex Baseline Maps 2.2). A complete list and description can be found in Vol. 5 Data of the Sustainable Development Atlas. The table below presents plant communities which were identified in the field and could be aligned with the provisions of Annex I of the EU Flora-Fauna-Habitat Directive, and are therefore of particular relevance for biodiversity issues (description taken partly from Mustafa B., 2011).

Species

During field work conducted by UNDP experts and a group of national scientists (Prof. Dr. F. Millaku et al.) elaborating a *Red List for Kosovo*, 650 species of plants could be located in territory of the municipality. A preliminary set of 37 species has been considered as the most important and endangered in the municipality by Mustafa B. (2011). This list is given in **Table 2-3** in Annex Baseline Maps 4.1:



Relevance of the information for other assessments:

The information from this map is input for suggesting appropriate land management measures. Predominant factors of influence are the climatic factors of rainfall, temperature and humidity and the soil properties. Furthermore it provides good orientation for the demarcation and zonation of the National Park.

For considerations of sustainability, this map shows the ecological potential of the National Park and takes up the challenges formulated by the Sharr/Šar National Park to collect adequate data about its biodiversity to achieve a more complete list of habitats and species (Sharr/Šar National Park (2012).

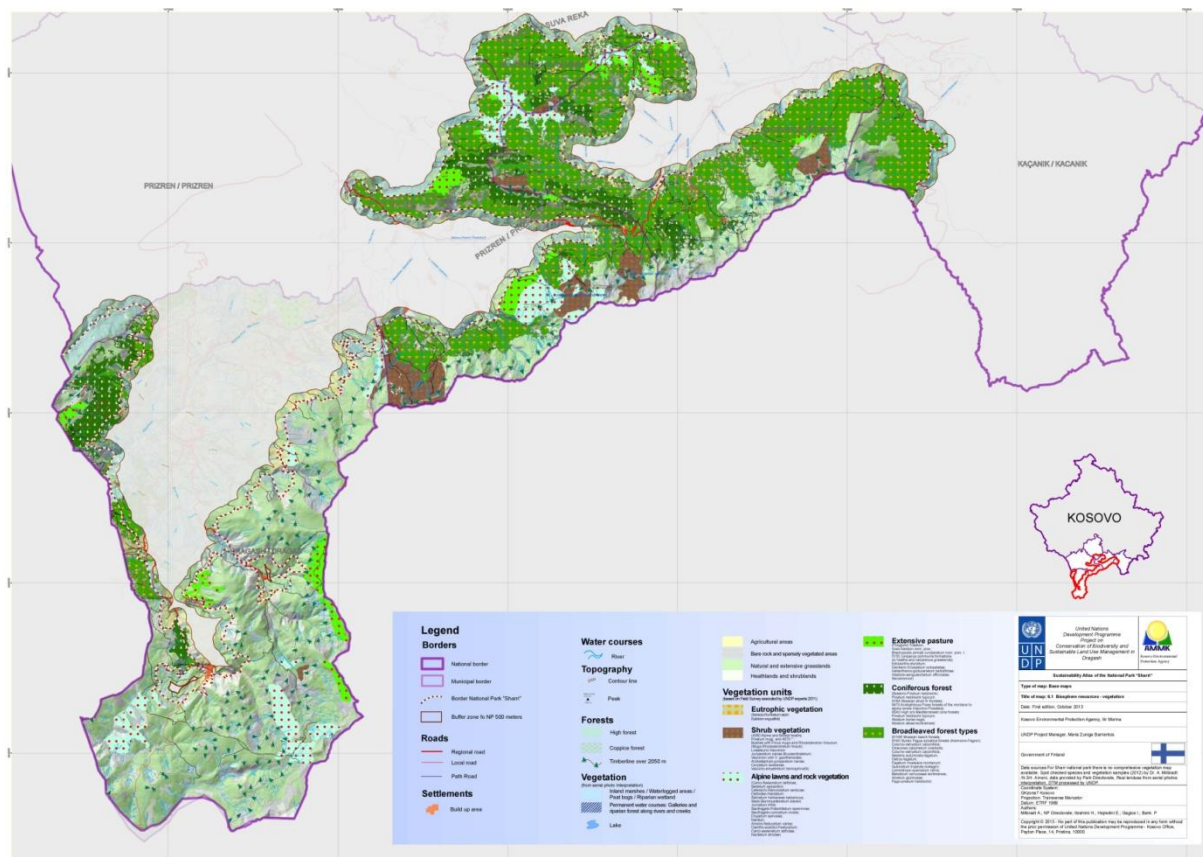
Data sources, material and reliability:

- Vegetation map in Lazarević, R. (1994): The vegetation types in use (associations) do not accord with the newest phytosociological norms. The precision of the map does not match the precision required for the Sustainable Development Atlas. Therefore this vegetation map is not included in Map B8.
- Vegetation units and species displayed as point information: results from field work undertaken by UNDP national and international experts. The field work was focused on areas above the timber line and on areas covered by forest (see also: Mustafa B. 2011/2012, Milbradt 2011/2012).
- Vegetation units displayed as area information results from desk top analysis undertaken by UNDP national experts as well the data provided by national consultancy company on forest vegetation EU habitat directive 2012.
- Preliminary results of field work of the Kosovo Red List Project undertaken by a group of national scientists; (Millaku et al. 2011).

Further suggestions for monitoring and/or improvement of data:

For an environmental protection concept of the whole National park, and especially for a management plan for the National Park, a detailed vegetation map meeting international standards is prepared (scale 1:25.000); this also includes a description of the plant communities including formative and important species. A detailed floristic inventory is required for future.

Figure 1-17: Biosphere resources – vegetation (B8)



1.7. Biosphere resources - fauna

Contents of the map:

- Distribution of large mammals
- Important bird areas
- Hot spots of butterflies
- Aquatic insects and some other observed animals
- Rivers, creeks and wetlands

The main messages:

General Situation

Due to the high diversity of land uses and landscape structures, the territory of Sharr/Šar National Park provides for a high diversity of habitats for numerous groups and species of animals. Besides the open grasslands, areas of high forests, coppice forests, all types of wetlands and rocky and gravel areas are of high importance.

There are no systematic scientific studies available on the fauna of Sharr/Šar National Park. However, data from NGOs, village residents in Dragash, data provided by national park directorate, scattered information from literature and observations made by UNDP experts provide a good basis for an overview of the local fauna.

Mammals:

- Brown Bears (*Ursus arctos*): One of the highlights of the Sharr/Šar Mountains. Bears breed in forest sites (like the forest east of Bresanë/Brodosavce and Blač/Blać, in Mount Koritnik or in the Hellenic Beech/fir forest between Restelica/Restelicë and Kruševë/Krushevë), between villages **Manastrica** and Lubinje, near Prevala in Gornjasell and **Mushinova** villages forest, **Shterpce** forest, in koxha-ballkan mount ending up in eastern part of national park near villages Sllatine and vat in Kaqaniku territory. They cross the border in the remotest parts in the southeast and in the continuation of the Sharr/Šar National Park in the north. Bears are rarely observed in the high mountain grasslands.
- Lynx (*Lynx lynx*): The lynx has a similar distribution pattern to the bear in the forested areas and forest borders at higher elevations, and in the borders with Albania in Dragash site of national park, and based on observations of national park directorate it is located as well in forest of Manastrica village and near mount Zhar.
- Wild cat (*Felis Sylvestris*): Is located near Prevala mount at Zhar.
- Wolves (*Canis lupus*): found all across the Sharr/Šar Mountains territory
- Chamois (*Rupicapra rupicapra*): found in higher level ranges and rocky outcrops, and in the scree of subalpine and alpine areas
- Roe Deer (*Capreolus capreolus*): more or less found across the territory at lower altitudes (complementary with Chamois)
- Wild Pigs (*Sus scrofa*): share the same area as Roe Deer going in lower elevation closer to agricultural areas

Birds:

NGO Finches provided data on Birds for the years 2004 to 2010, relating to 11 locations in the Sharr/Šar Mountains in Dragash part, while for rest part of national park territory 68 scattered locations of birds has been provided by National Park directorate through their observations and knowledge. A total of 580 bird species have been listed from NGO Finches observations and National park administration data. The individual locations count between 27 and 85 different species. Approximately half of these species are listed in the various Annexes of the EU Birds Directive (see **Table 2-4** in Annex Baseline Maps 4.2). The findings show a high diversity of bird species in the Sharr/Šar Mountains. The areas observed represent the different types of landscapes and habitats present in the national park territory.

Butterflies:

144 species of butterflies have been observed so far in high mountain pastures and coppice forests. A pronounced diversity in high mountain pastures and in coppice forests is to notable, out of which 156 species are named either in Annexes II or IV of EU Habitat Directive, or are assessed as “endangered” or “vulnerable” by IUCN (see **Table 2-5** in Annex Baseline Maps 4.3).

Aquatic Insects (based on sampling undertaken by UNDP in spring 2011-2012):



Empowered lives.
Resilient nations.

Besides very commonly found species, one very rare species could be identified in the rivers of Sharr/Šar National Park:

- ***Limnephilus petri*** found in the Brod River is an endemic species of the Balkan Peninsula being present only in Kosovo (and within Kosovo only in upper reaches of the Brod River) and in Bulgaria.

These relatively few and scarce results of adult aquatic insects in Sharr/Šar National Park reveal the rich and specific fauna of this area. There is a need to collect data on this group of insects more extensively in order to correlate with management and conservation issues.

Amphibians and reptiles

10 amphibian (eight in Annex IV species and one in Annex V) and 14 reptile species (11 Annex IV species) have been located. Since there is no systematic inventory for the area, these numbers are only random information. Considerable recordings can be expected from systematic investigation (see Table 2-6 in Annex Baseline Maps 4.4).

Relevance of the information for other assessments:

The information from this map is input for suggesting appropriate land management measures. Furthermore it provides a good orientation for demarcation and zonation of the National Park.

For sustainability considerations this map shows the ecological potential of the Sharr/Šar National Park

Data sources, material and reliability:

Village questionnaire in Dragash (UNDP 2011)

Project studies (Ibrahimi, 2011/2012, FINCHES 2011, Mustafa B. 2011, Milbradt 2011 and Bemmerlein-Lux pers. com.)

See Annex for list of species in Vol. 5 of the Sustainable Development Atlas.

National park directorate data and records.

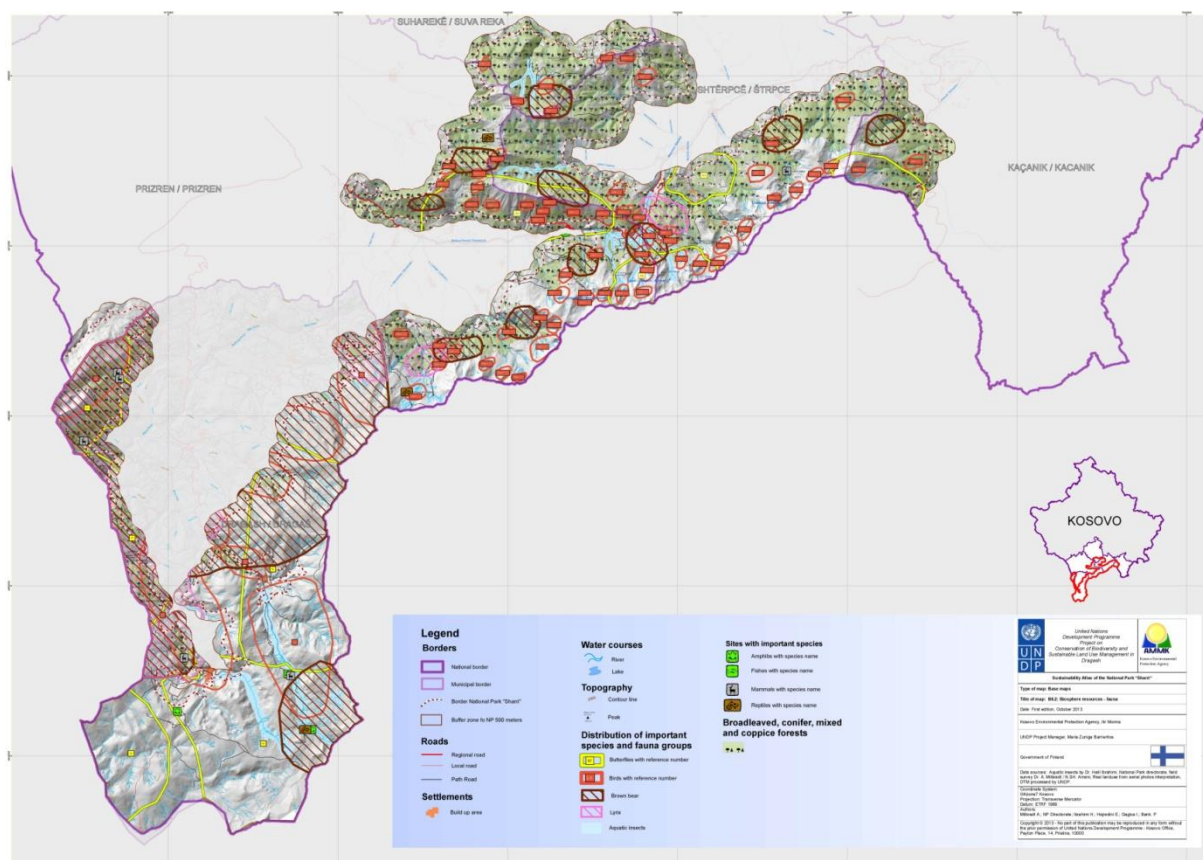
Reliability:

The distribution data was collected in the field and through surveys among local people and hunters. This data is in principal reliable – but for concrete management plans there is a lack of quantitative data.

Further suggestions for monitoring and/or improvement of data:

Although highly relevant for nature protection, amphibians and reptiles are not systematically inventoried. More systematic studies also for aquatic insects, butterflies, birds, and mammals are necessary for future better management and nature protection in the National Park and conservation strategies of biodiversity hotspots outside of the park area.

Figure 1-18: Biosphere resources - fauna (B9)



1.8. Climate

Contents of the map:

- Rainfall pattern based on a regional Model
- Average temperatures – modelled based on the average temperature in Sharr/Šar National Park

The main messages:

The Sharr/Šar National Park has a subalpine climate with an average yearly temperature of 8,6° Celsius.

The rainfall peak is in July, with subordinate peaks in September and November. The driest months are January to March and August. Approximately 50% of rainfall occurs during the vegetation period.

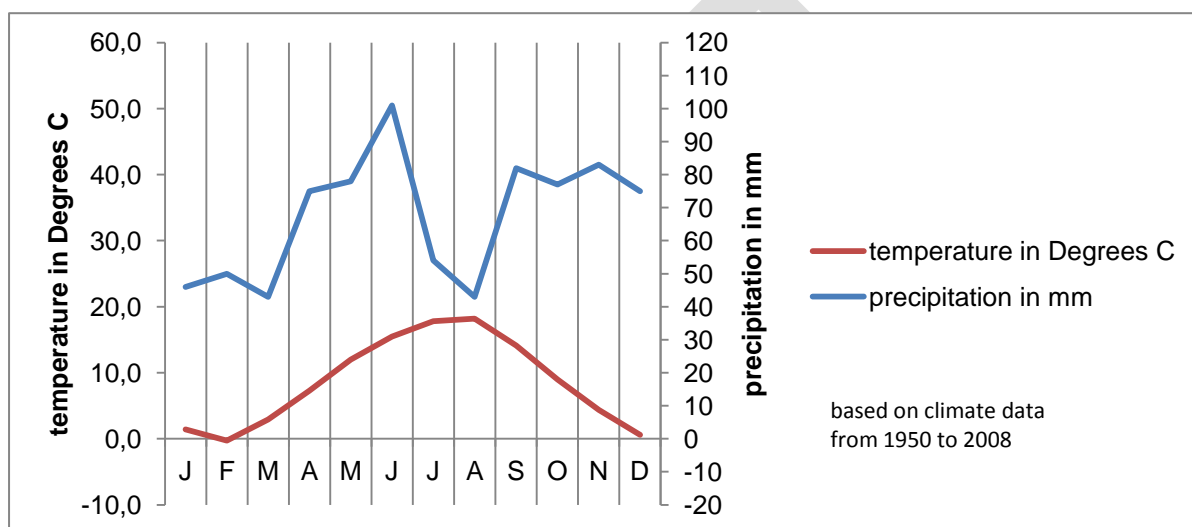


Figure 1-19: Climate diagram for Sharr/Šar National Park

Table 1-6: Average seasonal temperature in Sharr/Šar National Park

Average temperature in	Winter	Spring	Summer	Autumn	Vegetation period
Sharr/Šar National Park °C	-0.4	7.9	18.1	10.2	15.0

Table 1-7: Precipitation and average temperature during Vegetation Period

Precipitation and average Temp. during the vegetation period	April to September			October to March			Annual		
	mm	%	Temp. °C	mm	%	Temp. °C	mm	%	Temp. °C
Sharr/Šar National Park	413	51.1	15.0	394	48.9	3.3	807	100	8.3

Relevance of the information for other assessments:

The climate data is used for the assessment of agriculture and forest activities and plays a role as one factor in the assessment of the erosion risk model.



Empowered lives.
Resilient nations.

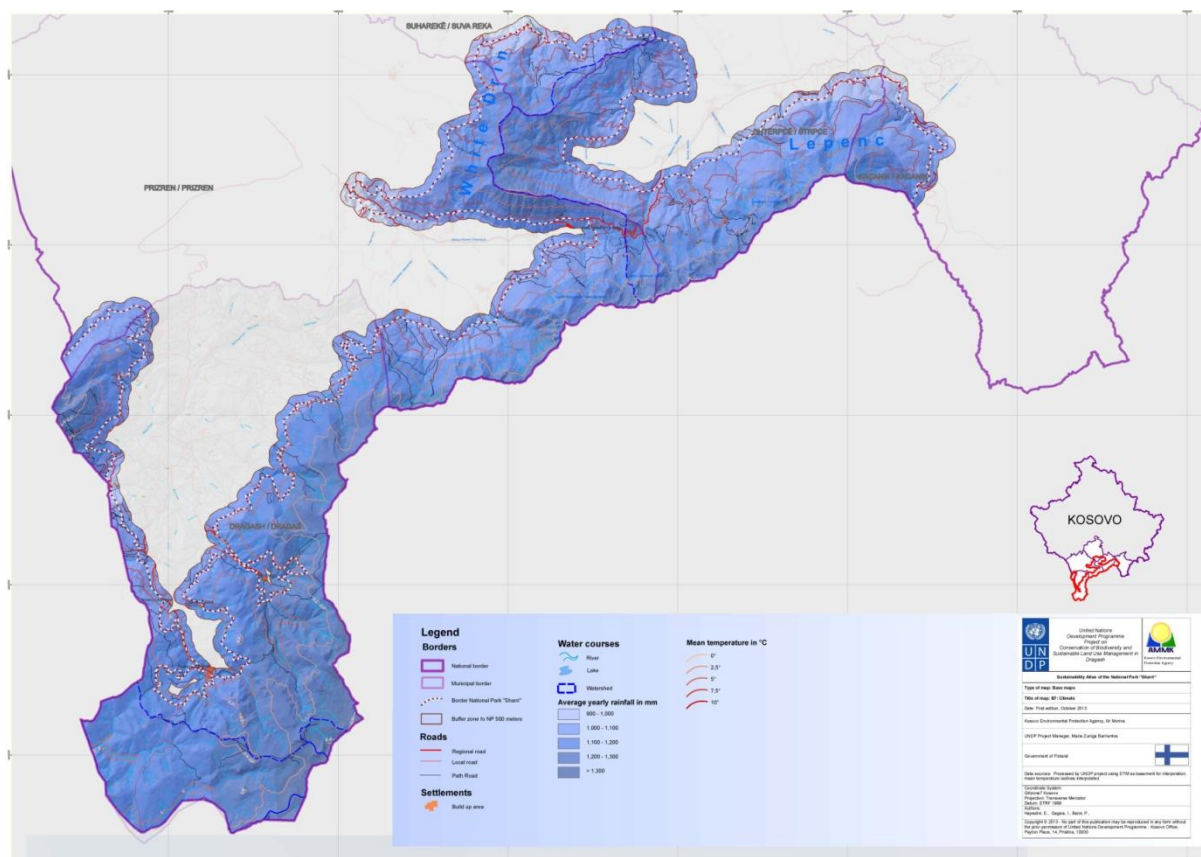
Data sources, material and reliability:

Climate data for Dragash/Dragaš Prof.Dr.Sci. Sylë Tahirsylaj MMPH-IHMK, Pristina (2011) - There is only one weather station in the municipality in Dragash / Dragaš, and data from this station has been used to extrapolate temperatures for rest part of national park using international standards. From 2008 onward no further data was collected.

For the temperature gradient it was assumed that for each 100m the gradient is 0,6 °C. The calculations for the temperature isolines used the average yearly temperature.

DRAFT

Figure 1-20: Climate (B5)



2. Annex to Volume II Baseline Maps

2.1. Data sources water resources Sharr/Šar National Park

Table 2-1: Data sources water resources

Information on map	Origin / Source	Reliability
<i>Natural Resources</i>		
Watersheds and important sub-watersheds	Digitised by UNDP from DTM	Best data available According to reliability of DTM which is sufficiently matching with the Topographic Maps (1:25.000)
Rivers, creeks, lakes and springs	Digitised by UNDP from aerial photos and topographic maps; Springs from aerial photos, topographic maps and village survey	Best data available; Locations derived from village survey should be checked during field work.
Wetlands	Digitised by UNDP from aerial photos	Best data available
<i>Hydropower</i>		
Planned hydropower project Zhur/Žur	Institute of Spatial Planning	According to official plan
Planned small hydropower plants (SHPP) on Brod, Restelica, Iepenc 2, and Iepenc 9 Rivers		

2.2. Plant communities of Sharr/Šar National Park listed in Annex I of EU-Habitat-Directive

Table 2-2: Plant communities of Sharr/Šar National Park listed in Annex I of EU-Habitat-Directive

Plant community (scientific name)	Description	Habitat-Directive Annex I Type
Wetland vegetation		
Caricetum – different varieties	Caricetum nigrae, Caricetum rostratae salicetosum, Caricetum rostratae-vesicariae: Peat-forming communities developed at the surface of oligotrophic to mesotrophic waters, with characteristics intermediate between soligenous and ombrogenous types.	7140 Transition mires and quaking bogs
Carici-narthecietum scardici	Wetlands mostly or largely occupied by peat- or tufa-producing small sedge and brown moss communities developed on soils permanently waterlogged, with a soligenous or topogenous base-rich, often calcareous water supply, and with the water table at, or slightly above or below, the substratum.	7230 Alkaline fens
Eutrophic vegetation		
Senecio-Rumicetum alpini	Nitrophilous tall herb communities at places in the montane to alpine areas where cattle is resting	Not in Annex I
Shrub vegetation		
Arctostaphylo-Juniperetum nanae	Alpine zone above the last zone of forest. Characteristic species of association are Juniperus nana, Vaccinium uliginosum, Thymus albanus, Nigritella nigra etc.	4060 Alpine and Boreal heaths
Vaccinio-Empetretum hermaphroditum	High mountain dwarf bilberry heaths Vaccinium-dominated dwarf heaths of the sub-alpine belt of southern mountains. With Vaccinium myrtillus, Vaccinium uliginosum s.l. Vaccinium vitis-idaea and, locally, Empetrum nigrum. They are rich in grassland species and often take the appearance of alpine grassland with dwarf shrubs.	4060 Alpine and Boreal heaths - High mountain dwarf bilberry heaths
Vaccinion with V. gaultherioides	Dwarf heaths dominated by Empetrum hermaphroditum, Vaccinium uliginosum, with Arctostaphylos alpina, Vaccinium myrtillus, Vaccinium vitis-idaea and lycopodes	4060 Alpine and Boreal heaths - High mountain Empetrum-Vaccinium heaths
Corylletum avellanae	Species diversity is greater than in the Central European beech woods and the Aremonio-Fagion constitutes an important centre of species diversity	91K0 Illyrian Fagus sylvatica forests (Aremonio-Fagion)
Brachypodio Pinnati-Juniperetum nom.prov	High mountain greenweed heaths Low Genista spp. or Chamaecytisus spp. heaths of the sub-alpine, low alpine or montane belts of high southern nemoral mountains, in particular of the southern Alps, the Apennines, the Dinarides, the southern Carpathians, the Balkan Range, the Moeso-Macedonian mountains, the Pelagonides, the northern Pinus, the Rhodopides, the Thessalian mountains.	4060 Alpine and Boreal heaths-
Alpine lawns and rock vegetation		
Drypetum spinosae	The association lies at an altitude over 2000m. Developed in rocky places. This association is poor in species. Most important species Drypis spinosa, Linaria alpina, Festuca picta etc.	8140 Eastern Mediterranean screes
Saxifrageto-Potentilletum apenninae	The association lies in the Sharr/Šar Mountains and Koritnik in limestone rocks. Components of this association are tertiary and relict species. Prominent species are Potentilla speciosa, Potentilla apennina, Saxifraga scardica, Aubrietia gracilis, Minuartia graminifolia	6110* Rupicolous calcareous or basophilic grasslands of the Alysso-Sedion albi
Saxifrageto-Rumicetum	Wind edge naked-rush swards	6170 Alpine and

Plant community (scientific name)	Description	Habitat-Directive Annex I Type
nivalis	Meso-xerophile, relatively closed and unsculptured swards of <i>Kobresia myosuroides</i> (<i>Elyna myosuroides</i>) forming on deep, fine soils of protruding ridges and edges exposed to strong winds in the alpine and nival levels	subalpine calcareous grasslands
Juncetum trifidi	Boreo-alpine formations of the higher summits of mountains, with <i>Juncus trifidus</i> , <i>Carex bigelowii</i> , mosses, and lichens. Also included are associated snowbed communities.	6150 Siliceous alpine and boreal grasslands
Loiseleurio-Vaccinion	Alpine dwarf ericoid wind heaths. <i>Loiseleurio-Vaccinion</i> . Very low, single-stratum, carpets of trailing azalea, <i>Loiseleuria procumbens</i> , prostrate <i>Vaccinium</i> spp. or other prostrate ericoid shrublets, accompanied by lichen, of high windswept, mostly snow free, localities in the alpine belt of the high mountains of the Alpine system.	Alpine and Boreal heaths
Natural grasslands		
Different variants the Nardion	Deltoideo-Nardetum, Nardion, (Lino-)Nardetum strictae: <i>Nardus stricta</i> is edificator of the association. Either Hygrophilous perennial tall herb communities of montane to alpine levels of the Betulo-Adenostyletea class or Closed, dry or mesophil, perennial <i>Nardus</i> grasslands occupying siliceous soils in Atlantic or sub-Atlantic or boreal lowland, hill and montane regions. Vegetation highly varied, but the variation is characterised by continuity.	6230* Species-rich <i>Nardus</i> grasslands, on siliceous substrates in montane and sub-montane areas
Armerio-Festucetum variaie	Above Pinetum heldreichii typicum	6170 Alpine and subalpine calcareous grasslands
Carici-Seslerietum latifoliae	Calciphilous stepped and garland grasslands Xerothermophile, open, sculptured, stepped or garland grasslands	6170 Alpine and subalpine calcareous grasslands
Diantho-scardici-Festucetum	Calciphilous stepped and garland grasslands	6170 Alpine and subalpine calcareous grasslands
Polygono-Trisetion	Species-rich mesophile hay meadows of the montane and sub-alpine levels (mostly above 600 metres)	6520 Mountain hay meadows
Nardion	Hygrophilous perennial tall herb communities of montane to alpine levels of the Betulo-Adenostyletea class.	6230 Species-rich <i>Nardus</i> grasslands, on siliceous substrates in mountain areas (and submountain areas, in Continental Europe)
Extensive pastures		
Gentiano-Dryadetum octopetalae	Calciphilous stepped and garland grasslands in the highest peaks of Mount Koritnik. Characteristic species are <i>Dryas octopetala</i> , <i>Gentiana verna</i> , <i>Carex leavis</i> , <i>Helianthemum canum</i> . Other important species are <i>Thymus albanus</i> , <i>Edrianthus graminifolius</i> , <i>Scabiosa columbaria</i> , <i>Gentiana kochiana</i> etc.	6170 Alpine and subalpine calcareous grasslands
Helianthemo-Globularietum bellidifoliae and Edraiantho-Elynetum	Wind edge naked-rush swards - Meso-xerophile, relatively closed and unsculptured swards of <i>Kobresia myosuroides</i> (<i>Elyna myosuroides</i>) forming on deep, fine soils of protruding ridges and edges exposed to strong winds in the alpine and nival levels	6170 Alpine and subalpine calcareous grasslands
Gladiolo-Sanguisorbetum officinalae	Species-rich hay meadows on lightly to moderately fertilised soils of the plain to sub-montane levels, belonging to the Arrhenatherion and the Brachypodio-Centaureion nemoralis alliances. These extensive grasslands are rich in flowers and are not cut before the grasses flower and then only one or	6510 Lowland hay meadows (<i>Alopecurus pratensis</i> , <i>Sanguisorba officinalis</i>)

Plant community (scientific name)	Description	Habitat-Directive Annex I Type
Xerobromion	two times per year. Dry, frequently open grasslands on more or less calciferous sand	6120* Xeric sand calcareous grasslands
Juniperetum nanae-Bruckenthalietum	Alpine and Boreal heaths	Bruckenthalia heaths
Salicetum herbaceae balcanicum	Boreo-alpine formations of the higher summits of mountains in the Alps and Scandinavia with outliers elsewhere such as the Carpathians, with <i>Juncus trifidus</i> , <i>Carex bigelowii</i> , mosses and lichens. Also included are associated snowbed communities.	3. 6150 Siliceous alpine and boreal grasslands
Sedo-Bornmuellerietum dieckii	Open xerothermophile pioneer communities on superficial calcareous or base-rich soils (basic volcanic substrates), dominated by annuals and succulents of the <i>Alyso alysoidis</i> - <i>Sedion albi</i> Oberdorfer & Muller in Muller 61.	4. 6110 Rupicolous calcareous or basophilic grasslands of the <i>Alyso-Sedion albi</i>
Coniferous forest		
Abietum borisii-regis	Endemic to the Balkans and in Kosovo is found only in the Sharr/Šar Mountains (in Restelica/Restelicë), lies at an altitude of 1500-1580m. In the eastern exposition. High endemism, characterised by the presence of <i>Abies borisii-regis</i> , <i>Doronicum caucasicum</i> , <i>Galium laconicum</i> , <i>Lathyrus venetus</i> , <i>Helleborus cyclophyllus</i> .	9270 Hellenic beech forests with <i>Abies borisii-regis</i>
Abietum albae koritniensis	Forests of <i>Abies alba</i> or of <i>Abies alba</i> mixed with <i>Fagus sylvatica</i> , <i>Picea abies</i> , <i>Pinus sylvestris</i> or <i>Pinus nigra</i> within the geographical range of <i>Fagion moesiicum</i> forests.	91BA Moesian silver fir forests
Pinetum heldreichii typicum	White-barked pine forests: Local treeline formations of <i>Pinus heldreichii</i> restricted to the southern Balkans, northern Greece and southern Italy, usually open and with undergrowth formed by stripped grasslands on dry, often stony or rocky soils.	95A0 High oro-Mediterranean pine forests
Pinetum mugii	<i>Pinus mugo</i> formations usually with <i>Rhododendron</i> spp of the dry eastern inner Alps, the northern and south-eastern outer Alps, the south-western Alps and the Swiss Jura, the eastern greater Hercynian ranges, the Carpathians, the Apennines, the Dinarides and the neighbouring Pelagonides, the Pirin, the Rila and the Balkan Range;	4070 Bushes with <i>Pinus mugo</i> and <i>Rhododendron hirsutum</i> (<i>Mugo-Rhododendretum hirsuti</i>)
Mixed forest		
Fago-Pinetum heldreichii	White-barked pine forests: Local treeline formations of <i>Pinus heldreichii</i> restricted to the southern Balkans, northern Greece and southern Italy, usually open and with undergrowth formed by stripped grasslands on dry, often stony or rocky soils.	95A0 High oro-Mediterranean pine forests
Riparian forest		
Alnetum glutinosae	Typical for river valleys in terrain which is often flooded and has high humidity. On the tree layer dominates <i>Alnus glutinosa</i> and in shrubs layer are found <i>Euonymus europea</i> , <i>Prunus padus</i> , <i>Viburnum opulus</i> . Herbaceous species are <i>Viola sylvestris</i> , <i>Euphorbia palustris</i> , <i>Teucrium chamaedrys</i> , etc.	91E0 Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (<i>Alno-Pandion</i> , <i>Alnion incanae</i> , <i>Salicion albae</i>)
Birch forest		

Plant community (scientific name)	Description	Habitat-Directive Annex I Type
Betuletum verrucosae koritniensis	Fagus sylvatica forests. Species diversity is greater than in the Central European beech woods and the Aremonio-Fagion constitutes an important centre of species diversity.	91K0 Illyrian Fagus sylvatica forests (Aremonio-Fagion)
Oak forest		
Lembotropo- Quercetum cerris		Locally defined
Quercetum trojanae dukagjini	Developed in Koritnik in an altitude from 300-900m. Geological composition is limestone and pedological cover is red. This association is under the influence of Mediterranean climate that comes from the river valleys of the Drini i Bardh/Beli Drim. Very much influenced by human factor, so in a significant area instead of Quercus trojana species is developed Carpinus orientalis and Crataegus monogyna. Species characteristic of the association are Quercus trojana dukagjini, Pyrus amygdaliformis, Ruta graveolens, Acanthus balcanicus etc.	9250 Quercus trojana woods
Beech forest		
Fagetum moesiaca montanum	Fagus sylvatica or Fagus moesiaca forests. Fagus sylvatica is accompanied, at the higher altitudes and latitudes, by Abies alba and Picea abies. The forests have, even in the south of their range, a pronounced medio-European character, marked by the frequency of species such as Acer pseudoplatanus, Quercus petraea, Fragaria vesca, & Oxalis acetosella.	91W0 Moesian beech forests
Colurno-Ostryetum carpinifolia	Fagus sylvatica forests with species diversity greater than in the Central European beech woods and the Aremonio-Fagion constitutes an important centre of species diversity.	91K0 Illyrian Fagus sylvatica forests (Aremonio-Fagion)
Hornbeam forest		
Dioscoreo-Carpinetum orientalis	Moesian white oak woods, Thermophilous, sub-Mediterranean Quercus pubescens and Quercus virgiliana woods.	91AA *Eastern white oak woods

4.1. List of most important and endangered plant species of the Sharr/Šar National Park

Table 2-3: List of most important and endangered plant species

Species	Albanian name	Serbian name	English name
<i>Abies alba</i> subsp. <i>borisii-regis</i>	Bredhi i maqedonisë	Makedonska Jela	Bulgarian Fir
<i>Acer heldreichii</i>	Panja malore	Planinski Javor	Heldreich's Maple
<i>Achillea canescens</i>	Barpezmi i bardhë		
<i>Achillea chrysocoma</i>	Barpezmi balukeartë		Golden Yarrow
<i>Achillea holosericea</i>	Barpezmi i gjithëmëndafshtë		
<i>Amphoricarpus autariatus</i>	Amforikarpi	Krčagovina ilirska	
<i>Anthyllis aurea</i>	Antili i pruar		
<i>Anthyllis vitelina</i>			
<i>Arabis bryoides</i>	Arabësi brioid		
<i>Armeria canescens</i>	Armeria e zbardhur		
<i>Artemisia lobelia</i>	Pelini eriant		
<i>Asperula doerfleri</i>	Njëgjira e Dorflerit		Doerfler woodruff
<i>Aster alpinus</i>	Asteri alpin	Zvezdan	Alpine aster Balkna Winter cress
<i>Barbarea balcana</i>	Barbarea ballkanase		
<i>Barbarea longirostris</i>	Barbarea sqëpgjatë		
<i>Bornmuellera dieckii</i>	Bornmilera e Dieckit		
<i>Bunium alpinum</i>	Buni alpin		
<i>Bupleurum karglii</i>	Brinjëkau i Karglit		
<i>Campanula albanica</i>	Lulekambana shqiptare		Albanian Bellflower
<i>Campanula alpina</i>	Lulekambana alpine		Alpine Bellflower
<i>Campanula foliosa</i>	Lulekambana gjetheshumë		
<i>Cerastium decalvans</i>	Cerasti qimerënë		
<i>Cerastium dinaricum</i>	Cerasti dinarik	Dinarski rožac	Mouse-ear chick-weed
<i>Cicerbita pancicii</i>	Cicerbita e Pançicit		
<i>Colchicum macedonicum</i>	Xhërrokulli maqedon	Makedonski Balučak-Mrazovac	Macedonian saffron
<i>Coronilla vaginalis</i>	Milëza me myll		
<i>Crepis baldaci</i> subsp. <i>albanica</i>	Shmanga shqiptare	Baldaci Čekinjaša	Baldaci hawksbeard
<i>Crepis macedonica</i>	Shmanga maqedonase	Makedonska Čekinjaša	Macedonian hawksbeard
<i>Crocus scardicus</i>	Krokusi i Sharrit	Šarplaninski šafran	Scardus crocus
<i>Daphne cneorum</i>	Xerxela kneore	Jeremičak crveni	Red Daphne
<i>Dianthus integer</i>	Karafili shkëmbinjësh	Čjeloviti karanfil Šarplaninski karanfil	Whole Pink Sharr pink
<i>Dianthus scardicus</i>	Karafili i Sharrit		
<i>Dianthus superbus</i>	Karafili vjollcë	Ibrišim karanfil	Purple Pink
<i>Dioscorea balcanica</i>	Dioskorea ballkanase		Balkan Dioscore
<i>Draba korabensis</i>	Draba e Korabit		Korab's whitlow
<i>Draba scardica</i>	Draba e Sharrit		Scardica whitlow
<i>Erysimum pectinatum</i>			

<i>Festuca koritnicensis</i>	Bishtëpelëza e Koritnikut	Vlasulja Koritnika	Koritnik fescue
<i>Gentiana dinarica</i>	Gentiana dinarike	Dinarska sirištara	Dinaric Gentian
<i>Gentiana lutea</i>	Sanëza e verdhë	Srčanik	Yellow Gentian
<i>Gentiana punctata</i>	Gentiana pika pika		Spotted Gentian
<i>Gentianella bulgarica</i>	Gencianëza bullgare		Dwarf bulgarian gentian
<i>Gentianella bulgarica</i> var. <i>albanica</i>	Gentianca bullgarike		Dwarf bulgarian gentian
<i>Geranium reflexum</i>	Kamaroshja e përthyer		Cranesbill
<i>Geranium subcaulescens</i>			Dwarf Cranesbill
<i>Geum bulgaricum</i>	Mëlaka bullgare		Bulgarian Avens
<i>Hieracium gymnocephalum</i>	Këmashna kokëlakuriqe		
<i>Hieracium waldsteinii</i>	Këmashnae Valdshtajnit		Waldstein hawk-weed
<i>Juncus triglumis</i>	Kulmaku	Sit	Yosemite dwarf rush
<i>Lilium albanicum</i>	Zambaku shqiptar		Albanian lily
<i>Linaria alpina</i>	Linaria alpina		Alpine toadflax
<i>Malva sylvestris</i>	Mëllaga e egër	Divlji sljez	Mallow
<i>Matricaria caucasica</i>			
<i>Micromeria albanica</i>	Bishtmiu shqiptar		
<i>Minuartia baldaccii</i>	Minuarcia e Baldaçit		
<i>Myosotis alpestris</i>	Lulemiza alpine	Alpska potočnica	Alpine Forget-me-not
<i>Narthecium scardicum</i>	Narteci i Sharrit	Šarplaninski kostolom	
<i>Onobrychis scardica</i>	Esparseta e Sharrit		
<i>Oxytropis halleri</i>	Oksitropi i Halerit		Yellow oxytropis
<i>Pedicularis brachyodonta</i>	Pedikularia dhëmbëshkurtër	Kratkozubičasti ušljivac	Fern-leaf
<i>Pinguicula balcanica</i>	Pinguikula ballkanase		Butterworts
<i>Pinus heldreichii</i>	Rrobulli	Munika	Bosnian Pine
<i>Pinus peuce</i>	Arneni	Molika	Macedonian Pine
<i>Polygonum alpinum</i>	Nejca alpine		Alpine knotweed
<i>Potentilla aurea</i>	Zorrëca e pruar		
<i>Potentilla calabra</i>	Zorrëca Kalabreze		Calabrese cinquefoil
<i>Potentilla doerfleri</i>	Zorrëca e Dorflerit		Doerfler Cinquefoils
<i>Potentilla montenegrina</i>	Zorrëca malazeze		Montenegro Cinquefoils
<i>Potentilla speciosa</i>	Zorrëca e bukur		
<i>Primula halleri</i>	Agulçe e Hallerit	Hallerov jaglac	Haller's Primrose
<i>Ptilotrichum rupestre</i>	Ptilotriku		
<i>Quercus trojana</i>	Dushku trojan i dukagjinit	Dukađinski hrast	Trojana oak
<i>Ranunculus crenatus</i>	Zhabina ura-ura		Crenate Buttercup
<i>Ranunculus incomparabilis</i>	Zhabinorja e pakrahasueshme		
<i>Ranunculus thora</i>	Zhabina tora		Thora buttercup
<i>Rhamnus orbiculatus</i>	Pjerrëza rrethore		Buckthorn
<i>Rhododendron ferrugineum</i>	Rododendroni i ndryshkur	Rđasti rododendron	Rusty-leaved alpenrose
<i>Salix reticulata</i>	Shelgu i rrjetëzuar		Netted willow
<i>Satureja montana</i>	Shtërmëni		Winter savory

Saussurea alpina	Sausarea alpine		Common Saw-wort
Saxifraga sempervivum	Iriqëza përherëblertë		Liveforever saxi-frage
Saxifraga taygetea	Iriqëza e Tajgetit		Tayget saxifrage
Scrophularia bosniaca	Sarushta boshnjake		Bosnian figwort
Sempervivum macedonicum	Burgulli maqedon		
Senecio glaberrima	Pulithi		
Senecio subalpinus	Pulithi aubalpin		
Senecio wagneri	Pulithi i Wagnerit		
Silene lerchenfeldiana	Klokëza		
Silene multicaulis	Klokëza		
Silene parnassica subsp. parnassica	Klokëza parnasiake		
Silene pusilla	Klokëza e vockël	Mala pušina	
		Mala pušina	
Silene pusilla subsp. candavica	Klokëza e vockël kandavike	candavica	
Silene sendtneri	Klokëza e Sendtnerit		Catchfly Sendtneri
			Limestone Wound-wort
Stachys alpina	Sarushta alpine		
Thalictrum alpinum	Taliktri alpin		Alpine Meadow-rue
Thlaspi bellidifolium	Tlaspi gjethebukur	Čestika	Penny-cress
Thlaspi microphyllum	Tlaspi gjethevogël	Mala Čestika	Little leave Penny-cress
Thymus albanus	Listra shqiptare		Albanian thyme
Thymus balcanus	Krasta ballkanase		Balkan thyme
Thymus doerfleri	Listra e Dorflerit		Dorfler thyme
Tozzia alpina	Tocia alpine		Alpine tozzia
Tozzia alpina subsp. carpatica	Tocia karpatike		Alpine tozzia
Trifolium velenovskyi	Tërfili i Velenovskit	Velenovski detelina	Velenovsky clover
Trifolium wettsteinii	Tërfili i Vetshtajnit	Vetstajn detelina	Wetstein clover
Triglochin palustris	Triglohini kënetor	Močvarna brula	Marsh Arrowgrass
Valeriana bertisceae	Haraqina e Bertiskut		Bertisce Valerian
Valeriana pancicii	Haraqina e Pancicit	Pančićev odoljen	Pancici Valerian
			Savory Leafed Speedwell
Veronica satorejoides	Veronika si shtërmën		
Viola aetolica	Manushaqja e Etolisë	Etolska ljubičica	Etolic violet
Viola gracilis	Manushaqja e hajthme		Gracious violet
Viola grisebachina	Vjollca e Grisebakut	Grisebah ljubičica	Grisebach violet
Viola orphanidis	Manushaqja e Orfanidhit		

4.2. Bird species of Sharr/Šar National Park listed on the Annexes of EU Bird Directive

Table 2-4: Bird species of Sharr/Šar National Park listed on the Annexes of EU Bird Directive

Species (ordered according to families)	Species (ordered according to families)
Accipitriformes – Raptorial Birds	Gruiformes – Flufftails and Crakes
Accipiter brevipes	Crex crex
Accipiter gentiles	Rallus aquaticus
Aquila chrysaetos	Passeriformes - Passerines
Aquila heliaca	Anthus campestris
Circus cyaneus	Corvus corone cornix
Anseriformes - Waterfowls	Corvus frugilegus
Anas platyrhynchos	Corvus monedula
Caprimulgiformes - Nightbirds	Ficedula albicollis
Caprimulgus europaeus	Ficedula parva
Charadriiformes – Waders and Gulls	Ficedula semitorqua
Tringa totanus	Lanius collurio
Ciconiiformes – Storklike Birds	Lanius minor
Nycticorax nycticorax	Lullula arborea
Columbiformes – Doves and Pigeons	Luscinia svecica
Columba livia	Melanocorypha calandra
Columba oenas	Parus ater
Columba palumbus	Pica pica
Sreptopelia decaocto	Pyrhcorax pyrrhcorax
Streptopelia turtur	Pyrrhula pyrrhula
Falconiformes - Falcons	Sylvia nisoria
Falco columbarius	Troglodytes troglodytes
Falco naumanni	Turdus merula
Falco peregrinus	Turdus philomelos
Galliformes - Gamefowl	Turdus pilaris
Bonasa bonasia	Turdus viscivorus
Coturnix coturnix	Piciformes - Woodpeckers
Perdix perdix	Dendrocopos leucotos
Tetrao tetrix	Dendrocopos major
Galliformes	Dryocapus martious
Alectoris graeca	Strigiformes - Owls
	Asio flammeus
	Bubo bubo

4.3. Butterflies species observed in Sharr/Šar National Park with endangered or vulnerable IUCN-Status or listed in Annexes II or IV of the EU Habitat Directive

Table 2-5: Butterflies species observed in Sharr/Šar National Park with endangered or vulnerable IUCN-Status or listed in Annexes II or IV of the EU Habitat Directive

Species (sorted according to Families)	English Name	Albanian Name	Serbian Name	EU- Habitat Directive	IUCN Status
<i>Hesperiidae - Skippers</i>					
Pyrgus andromedae	Alpine Grizzled Skipper	Hesperida alpine	Alpijska hesperida		Endangered
Pyrgus sidae	Yellow-banded Skipper		Lipicina hesperida		Vulnerable
<i>Lycaenidae – Gossamer-winged butterflies</i>					
Aricia anteros	Blue Argus		Alpijski plavac		Endangered
Cupido minimus	Little Blue		Maleni plavac		Vulnerable
Iolana iolas	Iolas Blue		Pucavac		Endangered
Lycaena dispar	Large Copper	Flutura ngjyrëbakër	Veliki dukat	Annex II, IV	Vulnerable
Maculinea alcon	Alcon Blue		Mali pegavac		Vulnerable
Maculinea arion	Large Blue		Veliki pegavac	Annex II, IV	Vulnerable
Plebeius argyrognomon	Reverdin's Blue		Blistavi plavac		Vulnerable
Polyommatus eroides	False Eros Blue		Planinski plavac	Annex II, IV	
Pseudophilotes baton	Baton blue				Endangered
Pseudophilotes bavius	Bavius Blue		Zagasiti plavac	Annex IV	Endangered
Satyrrium acacie	Sloe Hairstreak	Flutura e sallgamit	Mali repkar		Vulnerable
Satyrrium w-album	White-letter Hair-streak		Šumski repkar		Endangered
Thecla betulae	Brown Hairstreak		Brezov dukat		Vulnerable
<i>Nymphalidae – Brush-footed butterflies</i>					
Apatura ilia	Lesser Purple Emperor		Mali prelivac		Vulnerable
Apatura iris	Purple Emperor		Modri prelivac		Endangered
Argynnis pandora	Cardinal		Pandorina sedefica		Endangered
Brenthis ino	Lesser Marbled Fritillary		Inova sedefica		Endangered
Erebia gorge	Silky Ringlet		Zagasita erebija		Endangered
Erebia rhodopensis	Nicholl's Ringlet	Flutura rodopense	Rodopska erebija		Endangered
Euphydryas aurinia	Marsh Fritillary		Mocvarna sedefica	Annex II	Vulnerable
Limenitis populi	Poplar Admiral		Veliki topolnjak		Endangered
Nymphalis antiopa	Camberwell Beaty		Kraljev plašt		Endangered
Satyrus ferula	Great Sooty Satyr		Veliki satir		Vulnerable
<i>Papilionidae – Swallow-tail butterflies</i>					
Papilio machaon	Swallowtail	Flutura bajrake	Lastin repak		Endangered
Parnassius apollo	Apolon	Apollo flutura	Apollo	Annex IV	Vulnerable
Zerynthia polyxena	Southern Fes-toon	Flutura me ilikë	Uskršnji leptir	Annex IV	Vulnerable

Species (sorted according to Families)	English Name	Albanian Name	Serbian Name	EU- Habitat Directive	IUCN Status
<i>Pieridae – Pierid Butterflies</i>					
<i>Euchloe ausonia</i>	Eastern Dappled White		Cipkasti belac		Endangered
<i>Pieris brassicae</i>	Large White	Flutura e lakrës	Veliki kupusar		Vulnerable

4.4. Amphibian and reptile species observed in the Sharr/Šar National Park

Table 2-6: Amphibian and reptile species observed in Sharr/Šar National Park with endangered or vulnerable IUCN-Status or listed in Annexes II or IV of the EU Habitat Directive

Species	English name	Albanian name	Serbian name	Habitat Directive	IUCN Status
Amphibians					
Bombina variegata	Yellow-bellied toad	Bretkoca barkverdhë	Žutotrbi mukac	Annex IV	LC-Least concern
Bufo bufo	Common toad	Thithelopa	Velika krastaća		LC-Least concern
Bufo viridis	Green toad	Bretkoca e gjelbër	Žaba krastaća	Annex IV	LC-Least concern
Hyla arborea	Tree frog	Bretkoca e drunjve-gargaliqi	Gatalinka	Annex IV	LC-Least concern
Rana dalmatina	Agile frog	Bretkoca e pyllit	Šumska žaba	Annex IV	LC-Least concern
Rana graeca	Greek frog	Bretkoca greke	Grcka žaba	Annex IV	None
Rana temporaria	Common frog	Bretkoca e murme	Žaba travnjaća	Annex V	LC-Least concern
Salamandra atra	Golden Salamander	Picerraku i zi	Crni daždevnjak	Annex II, IV	LC-Least concern
Salamandra salamandra	Common Fire Salamander	Salamandri zi e verdhë	Šareni daždevnjak	Annex IV	LC-Least concern
Triturus vulgaris	Common newt		Mali mrmoljak	Annex II, IV	LC-Least concern
Reptiles					
Algyroides nigropunctatus	Blue throated lizard	Hardhuca e shkëmbinjve	Mediterranski gušter	Annex IV	LC-Least concern
Anguis fragilis	Slow-worm	Kokëzogëza Breshka e moçaleve	Slepić	Annex II, IV	NT-Near threatened
Emys orbicularis	Pond turtle		Barska kornjaća		
Lacerta agilis	Sand lizard	Hardhuca e shpejt	Siva gušterica	Annex IV	
Lacerta muralis	Wall lizard	Hardhuca e mureve	Zidni gušter	Annex IV	LC-Least concern
Lacerta viridis	Green lizard	Hardhuca e gjelbër	Zelembac	Annex IV	
Natrix natrix	Water snake	Gjarpri i barit, bollujca, bollujësa	Belouška	Annex IV	CR-Critically endangered
Natrix tessellata	Dice snake	Gjarpri i ujit	Ribarica	Annex IV	
Podarcis muralis	Wall lizard	Hardhuca e mureve	Zidni gušter	Annex IV	LC-Least concern
Testudo hermanni	Hermann's tortoise	Breshka e pyllit	Šumska kornjaca	Annex II, IV	NT-Near threatened
Vipera ammodytes	Viper snake	Neperka	Poskok	Annex II, IV	LC-Least concern
Vipera berus	Adder	Neperk mali	Šarka		LC-Least concern
Vipera spec.	Vipera snake	Nepërka	Zmija poskok		
Vipera ursinii	Orsini's Viper	Neperka e Ursinit	Šargan	Annex II, IV	EN-Endangered



United Nations Development Programme

**Conservation of Biodiversity and Sustainable Land Use
Management in Dragash/Dragaš**



*Empowered lives.
Resilient nations.*

Sustainable Development Atlas

Framework for a comprehensive and balanced management plan of “Sharr” National Park Kosovo Volume III: Assessment

Ergin Hajredini

Peter Bank

Florian Bemmerlein-Lux

Ismail Gagica

Halil Ibrahim

With contributions from Prof. Dr. Behxhet Mustafa – Ecologist, Prof. Dr. Fadil Millaku - Biologist, Dr. Achim Milbradt – Biologist, Michael Voit - Rural Development Planner, Prof. Xhevdet Elezi - Soil scientist – agronomist, Arneni - National Forest Consultancy Company, NGO Finches – Ornithologists, Todd Wasel – Tourism Specialist, Kaltrina Salihu – Community Officer, Bashkim Susuri – Journalist and Project Associate, Bardh Xerxa – Ecologist, Ajhan Hadzija – Tourism Coordinator, Sharr National Park Directorate, the Municipal Working Group of Dragash/Dragaš Municipality and Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH, Rural Economic Development Programme.

Project Manager:

Maria Elena Zuniga Barrientos

Output supervisor and officer in charge:

Halil Ibrahim

Dragash / Dragaš, Kosovo

December 2013



Table of content

1.	Assessment maps	4
1.1.	Assessment of biodiversity (A1)	5
1.1.1.	Assessment of vegetation and flora (A1.1).....	5
1.1.2.	Assessment of biodiversity - fauna.....	8
1.2.	Location and ownership structure of Sharr/Šar National Park (A2)	11
1.3.	Assessment of water resources	16
1.3.1.	Water regeneration, threats and quality (A3.1)	16
1.4.	Assessment of natural hazards (A4)	18
1.4.1.	Erosion risk (A4.1)	18
1.4.1.	Avalanche risk (A4.2).....	21
1.4.2.	Landslide, rockfall areas risk (A4.3)	24
1.5.	Assessment of forest and agriculture (A5)	25
1.5.1.	Conditions of forests (A5.1)	25
1.5.2.	Forest functions (A5.2)	28
1.5.3.	Productive capacity of soils (A5.3)	32
1.5.4.	Livestock and suitability for crops (A5.4)	34
1.6.	Assessment of tourist potential (A7)	36
2.	Annex.....	39
2.1.	Assessment for water quality.....	39
2.2.	Model for erosion risk	40
2.3.	Model for avalanche risk analysis.....	43
2.4.	Model for landslide risk.....	44
2.5.	Assessment criteria for the forest functions	45
2.6.	Suitability of soils and recommendations for agricultural use	46



List of Tables

Table 1-1: List of assessment maps.....	4
Table 1-2: Area and percentage of habitat types mapped, which are protected according to EU Flora-Fauna-Habitat Directive	5
Table 1-3: Area and percentage of vegetation types / land uses with high potential for plant biodiversity	6
Table 1-4: Numbers of important plant species.....	6
Table 1-5: Number of animal species recorded within the Sharr/Šar National Park during the studies 2011/12	8
Table 1-6: Important areas for water regeneration.....	16
Table 1-11: Classification of forest functions.....	28
Table 2-1: Water quality based on family biotic index values	39
Table 2-2: The physical habitat assessment explanation table.....	39
Table 2-6: Pedological types of soil in the Sharr/Šar National Park based on the classes of prolificacy and groups of suitability for plant production	47
Table 2-7: Classes of suitability and the level of utilisation for determined cultures, based on the cultivation manner and the level of machinery	48

List of Figures

Figure 1-1: Vegetation and flora (A1.1)	7
Figure 1-2: Fauna (A1.2)	10
Figure 1-3: Sharr/Šar National Park border (Republic of Kosovo 2012)	11
Figure 1-4: Area inside and outside the planned Sharr/Šar Mountain National Park in Dragash / Dragaš Municipality	12
Figure 1-5: Ownership structure inside and outside Sharr/Šar National Park in Dragash / Dragaš Municipality	13
Figure 1-6: Ownership structure within Sharr/Šar Mountain National Park in Dragash / Dragaš Municipality (A2.1)	14
Figure 1-7: Topographic map – Sharr/Šar National Park (A2.2)	15
Figure 1-8: Assessment of water resources - regeneration, threats, and quality (A3.1)	17
Figure 1-10: Soil erosion risk in the different altitude classes of Sharr/Šar National Park	19
Figure 1-11: Soil erosion risk within the sub-watershed of Sharr/Šar National Park	19
Figure 1-12: Assessment of erosion risk (A4.1)	20
Figure 1-13: Avalanche risk areas within the Sharr/Šar National Park	22
Figure 1-14: Avalanche risk areas within 300m distance from settlements	22
Figure 1-15: Assessment of avalanche risk (A4.2).....	23
Figure 1-17: Property situation of forest area of Sharr/Šar National Park in Dragash / Dragaš territory (in ha).....	26
Figure 1-18: Age classes in Sharr/Šar National Park forests (in ha).....	26
Figure 1-19: Specific management requirements in Sharr/Šar National Park forests (in ha)	26
Figure 1-20: Assessment of the conditions of forests (A5.1)	27
Figure 1-21: Forest area dedicated to the various forest functions (in ha)	29
Figure 1-22: Assessment of the forest functions (A5.2)	30
Figure 1-23: Suitability of soils (in ha)	32
Figure 1-24: Assessment of productive capacity of soils (A5.3)	33
Figure 1-25: Assessment of livestock and suitability for crops (A5.4).....	35
Figure 1-27: Assessment of cultural heritage and tourist potential (A7)	38
Figure 2-1: Correlation between steepness and avalanche risk	43



1. Assessment maps

The maps of step 2 show the results of an assessment process for the key fields. They depict the zones with resource potential or those with highly sensitive resources. Specifically, they are concerned with the following questions:

- What are the present conditions of the resources?
- What problems and constraints exist and at which sites or locations are they most pressing?
- How sensitive are the resources against adverse impacts or when they are utilised?
- What are the development opportunities still available and where?

The mapped challenges, potentials and development problems are the input for the next steps, the guidance maps and the strategic basis for the Sharr/Šar National Park.

Table 1-1: List of assessment maps

A1	Assessment of biodiversity <ul style="list-style-type: none"> • A1.1 Assessment of biodiversity – vegetation and flora • A1.2 Assessment of biodiversity - fauna
A2	Location and ownership structure of Sharr/Šar Mountain National Park <ul style="list-style-type: none"> • A2.1 Sharr/Šar National Park - ownership structure • A2.2 Sharr/Šar National Park - topographic map
A3	Assessment of water resources – regeneration and quality
A4	Assessment of natural hazards <ul style="list-style-type: none"> • A4.1 Assessment of natural hazards - erosion risk • A4.2 Assessment of natural hazards - avalanche risk • A4.3 Assessment of natural hazards - landslide risk and flood-prone areas
A5	Assessment of agriculture and forest <ul style="list-style-type: none"> • A5.1 Assessment of forest and agriculture - condition of forest • A5.2 Assessment of agriculture and forest - forest functions • A5.3 Assessment of agriculture and forest - productive capacity of soils • A5.4 Assessment of agriculture and forest - livestock and suitability for crops
A6	Assessment of cultural heritage and tourist potential



1.1. Assessment of biodiversity (A1)

1.1.1. Assessment of vegetation and flora (A1.1)

Contents of the map:

Ecologically important habitats and plant species (as background the land use is used). In detail:

- The mapped vegetation that is mentioned in Annex 1 of the European Habitat (see volume II of the SDA, section 2.8, Table 12: Plant Communities of Sharr/Šar National Park listed in Annex I of EU-Habitat-Directive (EU 2007))
- Specific area with high potential for plant biodiversity (coppice forest, other old forests with natural regeneration, sparsely vegetated areas and high mountain rocks and wetlands)
- Habitat points with an evaluation of the observed plants with their protection categories according to recent studies in Sharr/Šar National Park and in terms of international settings. Points of species include those that are:
 - In one of the EU annexes
 - IUCN categories
 - In some Kosovo text with protection category
 - Endemic (Kosovo, Balkan, SE Europe)

The main messages:

The map highlights the existing status (rareness) of mainly forests, rangelands, and wetlands. It allows the definition of potential protected areas requiring protection in order to preserve their ecological functions and services according to the Law of Nature Protection (i.e. strict nature reserve, special areas – SPAs and SAC, nature monuments and protected landscapes) and the zoning of the National Park as part of the National Park Management Plan.

The pattern of the map clearly shows that most of the territory of the **National Park** has high valuable ecological areas. It confirms the findings of (and adds considerable detail to) the Preliminary identification of Natura 2000 Sites in Kosovo (Mustafa et al. 2009).

As additional 8 high value areas shown in the map with red bigger symbols consist more than 10 high important species which belongs either in EU habitat directives or Bern convention or in red list Kosovo species.

The coppice forests and extensive pastures and dry grasslands also have a very high value for biodiversity. However, these vegetation types are dependent on (traditional) land use management.

The vegetation and floristic resources are part of the information for an overall conservation strategy and will be combined with the faunistic assessment and ecological functions of forests to provide overall guidance for nature conservation which can be used for special plan and management plan of Sharr/Šar National Park.

The definition of different kinds of protected areas according to the Law of Nature Protection and the zoning of the Sharr/Šar Mountain National Park and can be based on this assessment.

Table 1-2: Area and percentage of habitat types mapped, which are protected according to EU Flora-Fauna-Habitat Directive

Vegetation	Habitat types protected acc. to EU Flora-Fauna-Habitat Directive		Total in Ha
	Annex I	Annex I* (Priority habitats)	
Forests	2052.1	26.3	2078.4
In % of the National Park	3.9%	0.0%	3.9%
Grasslands	1427.5	27.1	1454.6
In % of the National Park	2.7%	0.1%	2.7%
Pastures	2449.5	1739.0	4188.5
In % of the National Park	4.6%	3.3%	7.9%
Rocky areas	753.5	9.6	763.0
In % of the National Park	1.41%	0.02%	1.43%

Shrub and/or herbaceous vegetation	9158.0%	9158.0%	
In % of the National Park	0.17%	0.00%	0.17%
Wetland, Water Bodies	294.2	294.2	
In % of the National Park	0.6%	0.0%	0.6%
Total area mapped	7068.4	1801.9	8870.3
In % of the National park	13.3%	3.4%	16.7%

Table 1-3: Area and percentage of vegetation types / land uses with high potential for plant biodiversity

Specific areas with high potential for plant biodiversity	Surface outside habitat types listed in Annex I EU Flora-Fauna-Habitat Directive (in ha)	In % of Sharr/Šar National Park Territory
Forests with natural regeneration	15.183,7	28,5%
Coppice forests and shrubland	4.425,1	8,3%
Semi-natural open vegetation	17.170,9	32,2%
Characterised by rocks and gravel	5.443,8	10,2%
Total area with high potential	42.223,4	79,3%

Table 1-4: Numbers of important plant species

Reference list	No. of plant species found in Sharr/Šar National Park territory listed
IUCN Red List (categories near threatened or vulnerable)	54
EU Flora-Fauna-Habitat Directive – Annex II	174
EU Flora-Fauna-Habitat Directive – Annex V	136
Recommended for upcoming Kosovo Red List	990

Data sources, material and reliability:

Mustafa B. 2011-2012, Arneni 2011-2012, Millaku F. et al. 2011, Mustafa B. and H. Ibrahim 2009, Pierre Galland et al. 2010, EU 2007, Mustafa B. et al. 2009

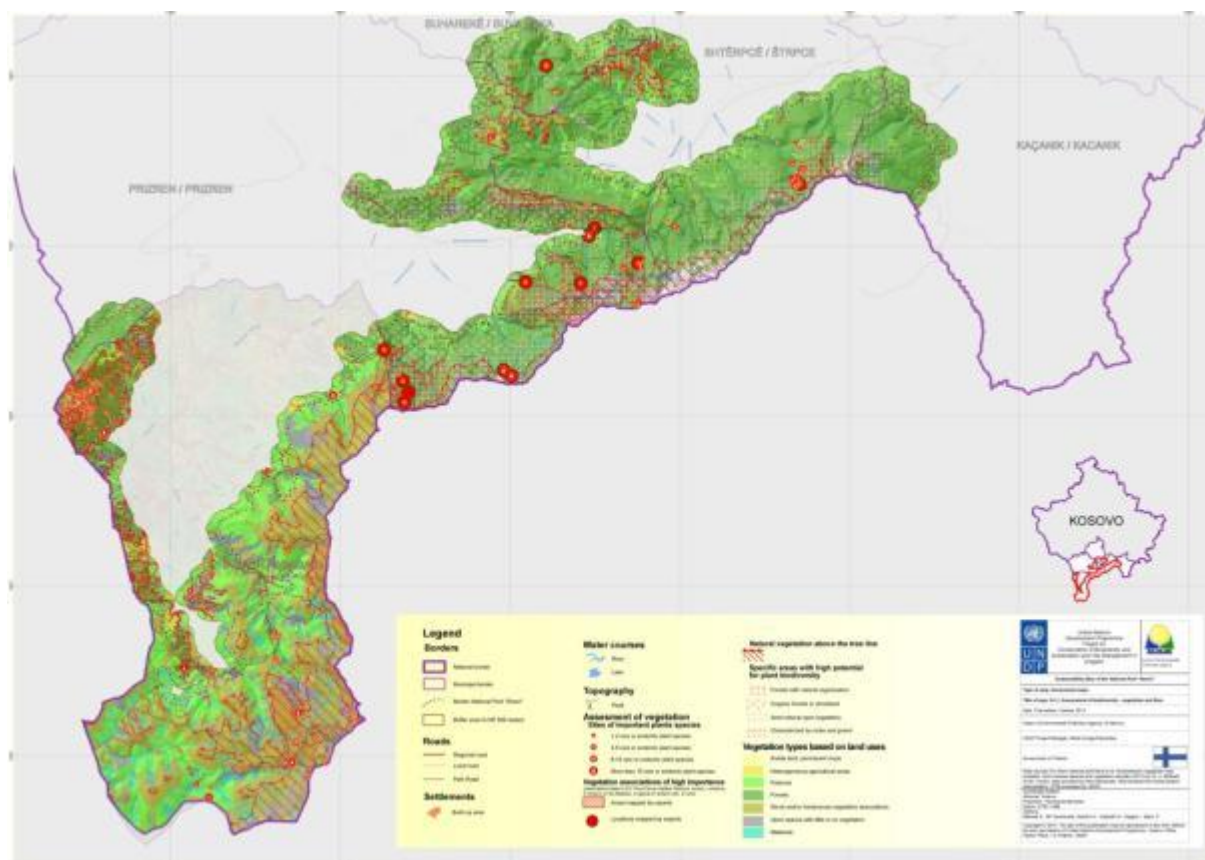
Further suggestions for monitoring and/or improvement of data:

Restrictions:

The systematic investigation covered only some parts of the Sharr/Šar National Park with a focus on the sub-alpine and alpine region. The spatial information about vegetation types (Rexhepi 1994) was lost during the conflict. Despite of the need for scientific investigation of the whole Sharr/Šar National Park, the findings are sufficient to underline the extraordinary biodiversity of this part of the Sharr/Šar mountain chain.

For an environmental protection concept of the whole Sharr/Šar National Park territory, especially for a management plan for the National Park, a detailed and complete vegetation map (scale 1:25.000) will be available to contribute additional relevant details of populations and their distribution.

Figure 1-1: Vegetation and flora (A1.1)





1.1.2. Assessment of biodiversity - fauna

Contents of the map:

The map considers the distribution of animals with an evaluation of their protection categories (endemism, rareness) according to recent studies in Sharr/Šar National Park and in terms of international settings.

- Bear, Lynx and chamois habitats
- Birds, aquatic insects, butterflies
- Other species (no systematic inventories)
- Areas with a structural diversity relevant for a high faunistic biodiversity such as extensive grassland in the subalpine and alpine level for butterflies and other insects, areas for highly specialised species like scree and rock formations, and high structural diversity like multi layered forests and/or open land with hedges, single trees and terraces.

The main messages:

About 86% of the Sharr/Šar National Park provides habitats for mammals, birds and butterflies according to the European Habitat Directive (including the Birds Directive – EU 2007 and 2009). Apart from the alpine habitats for Chamois, the subalpine, high mountain forests, and the ecotone of the forest-grassland transition are ecological corridors for lynx, bear, and wolf connecting the mountain ranges of the Sharr/Šar National Park with the mountains of FYR Macedonia and Albania. It confirms the findings of (and adds considerable detail to) the preliminary identification of Natura 2000 Sites in Kosovo (Mustafa et al. 2009).

The faunistic resources are part of the information that forms the basis of the special plan preparation for Sharr/Šar National Park, as well it can be used as guidance for zonation and future definition of different kinds of protected areas and species according to the Law of Nature Protection (strict nature reserve, special areas – SPAs and SAC, nature monuments and protected landscapes). Ecological corridors play an important role in allowing free movement of species from one site to another and constitute part of the existing ecological network.

Table 1-5: Number of animal species recorded within the Sharr/Šar National Park during the studies 2011/12

Reference list	Big mammals	Birds	Reptiles	Amphibians	Butterflies	Aquatic invertebrates
IUCN Red List (categories near threatened or vulnerable)	2	8	6 ¹		65	
EU Flora-Fauna-Habitat Directive – Annex II	15		6	1	7	
EU Flora-Fauna-Habitat Directive – Annex IV	3		20	14	14	
EU Birds Directive (Annex I)		49				
Rareness in Kosovo (Rare, threatened or endangered)	6	56 ²	3	2 ²	137	3 ³
Protected by Kosovo Laws	12					

¹ Critically endangered

² rare

³ Very rare species, 2 of them most probably new for Kosovo



Data sources, material and reliability:

Mustafa B. and H. Ibrahim 2009, Pierre Galland et al. 2010, FINCHES (NGO) 2011, Ibrahim H. 2011a/2012, Ibrahim H. 2011b, EU 2007 and 2009, Strauss, A. and Pezold, T. (compilers) (2009), Mustafa B. et al. 2009

Further suggestions for monitoring and/or improvement of data:

Restrictions:

The faunistic data is incomplete because no systematic inventories exist. While acceptable data exists for large mammals according to village surveys and information from the National Park Directorate (and from NGO Finches for birds), hardly any locatable information (nor species' lists) exist for reptiles, amphibians, small mammals, fish and insects. It is expected that the area contains considerable potential for the discovery of further endangered species.



1.2. Location and ownership structure of Sharr/Šar National Park (A2)

Contents of the map:

- Ownership structure
- Topographic map of Municipalities with the border of the Sharr/Šar National Park

The main messages:

The Sharr/Šar National Park is distributed in 5 municipalities (Dragash, Prizren, Suhareka, Shterpce and Kaçanik). Part of National Park in Dragash/Dragaš covers 24.206 ha (55,5% of the Municipality's territory), Prizren 18.3 % of its territory, Suhareka 7 % of territory and Shterpce 52 % of its territory is inside National Park. There is no arable land within the park (see Figure 1-4).

- 31.724 ha of the National Park are high mountain and alpine areas (higher than 1.650 m) and by nature only suitable for extensive grazing, forest and non-wood product collection and tourism.
- 13.500 ha are between 1.350 and 1.650 m of altitude suitable for extensive pasture management and
- 8.044 ha below 1.350 m are near watercourses, forest or land that is not suitable for agriculture.

All possible uses and restrictions inside the park and its buffer zone have to be defined in a separate management plan.

The Law on the National Park "Sharri", is declared on December 2012 by Assembly of the Republic of Kosovo).

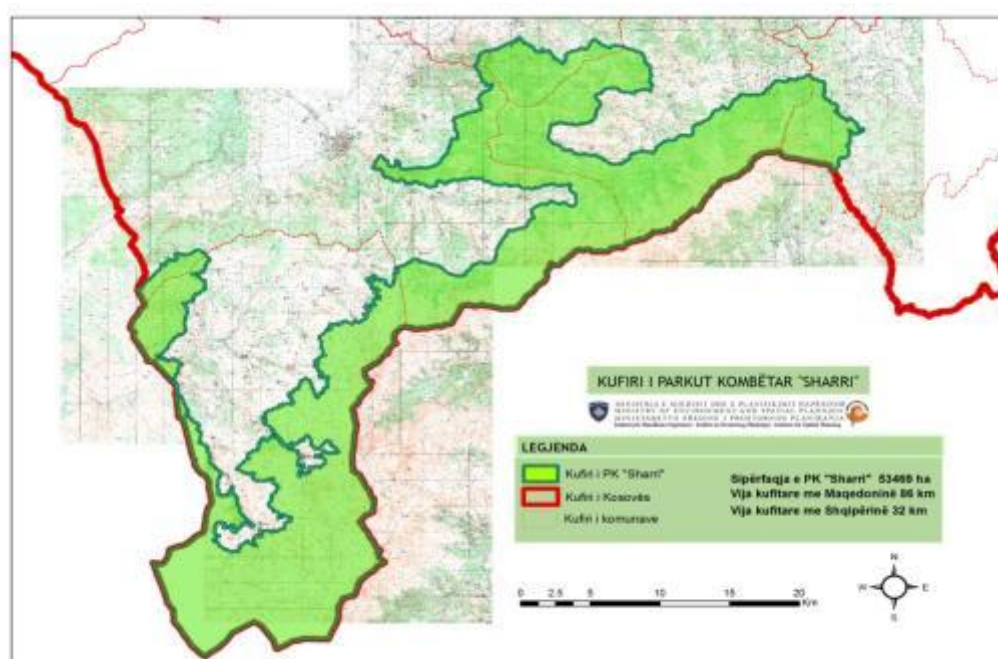


Figure 1-3: Sharr/Šar National Park border (Republic of Kosovo 2012)

The border is used in all assessment maps to provide the spatial information for assessing the influence of the National Park.

The ownership structure of the park for Dragash part is clear since the data has been provided by Municipality Cadastral office. While for rest part of national park property data were not provided by Ministry of Environment and Spatial Planning nor by municipalities. Property information is crucial for sustainable management of national park and planning.

The ownership structure of the National park, part in Dragash municipality is 82,8% (= 20.033 ha) former Socially Owned Enterprise (SoE) owned land, 11,5% (=2.794 ha) public land, 3,5% (=841ha) private land, and for 2,2% (=539 ha) of the parks territory are no cadastral data available.

Data sources, material and reliability:

Criteria for definition of the National Park Borders (Bank et al. 2011):

The border of national park in Dragash municipality part has been drawing as follow. The core area was identified according to its natural and landscape values and features, in addition to cadastral and property information and the latest aerial photos. In order to establish a clear and unambiguous border, determination has been undertaken at a scale of 1:5.000 applying the following criteria:

- (1) Core area of the National Park is formed by the SoE owned land (Sharr Prodhimi/Šarproizvod) and connected public forest areas / public land. These areas also have high biodiversity and nature protection value.
- (2) Additional areas are included in the National Park when one or more of the following pre-conditions are fulfilled:
 - a) Known or probable hot-spots of biodiversity or high natural and landscape values outside the areas mentioned under (1)
 - b) Private properties surrounded by areas under (1) are included.

Further suggestions for monitoring and/or improvement of data:

Restrictions:

Figure 1-4: Area inside and outside the planned Sharr/Šar Mountain National Park in Dragash / Dragaš Municipality

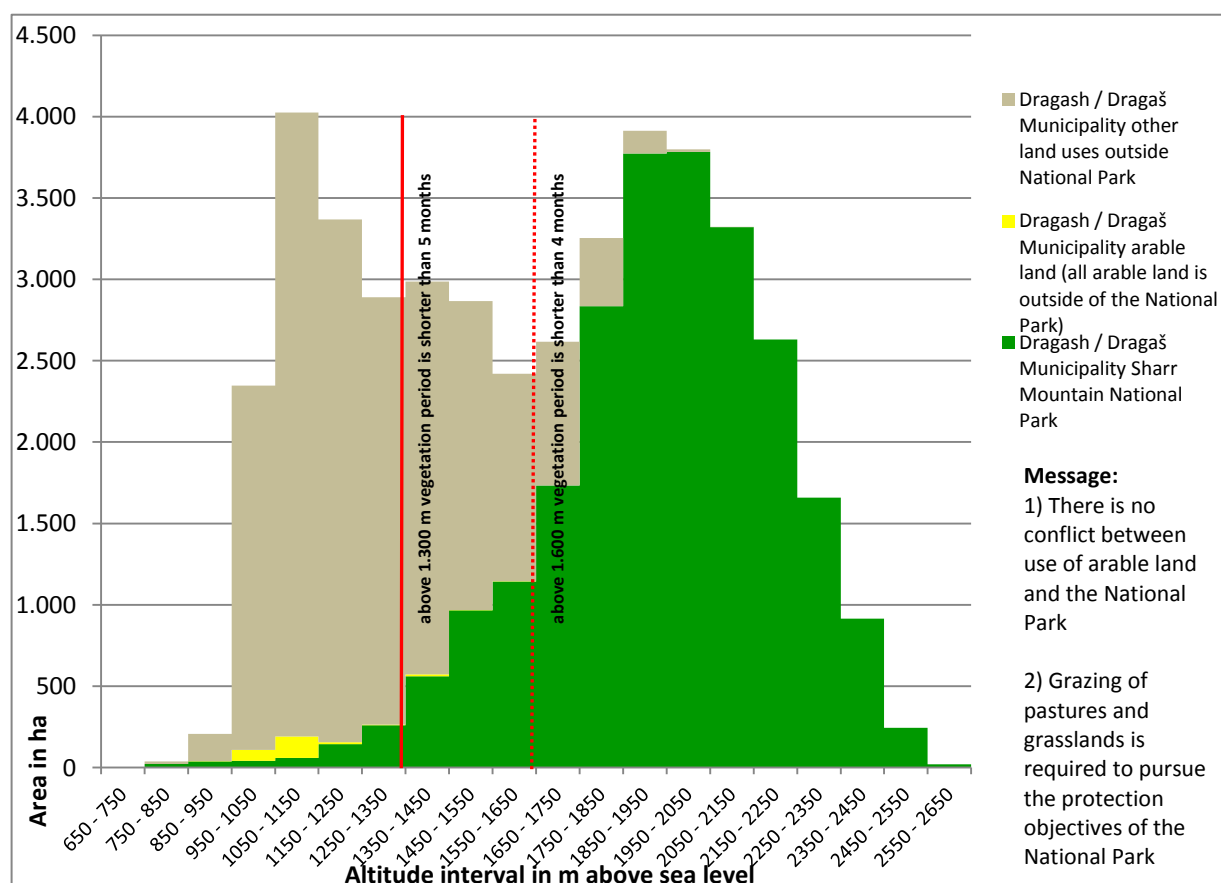




Figure 1-5: Ownership structure inside and outside Sharr/Šar National Park in Dragash / Dragaš Municipality

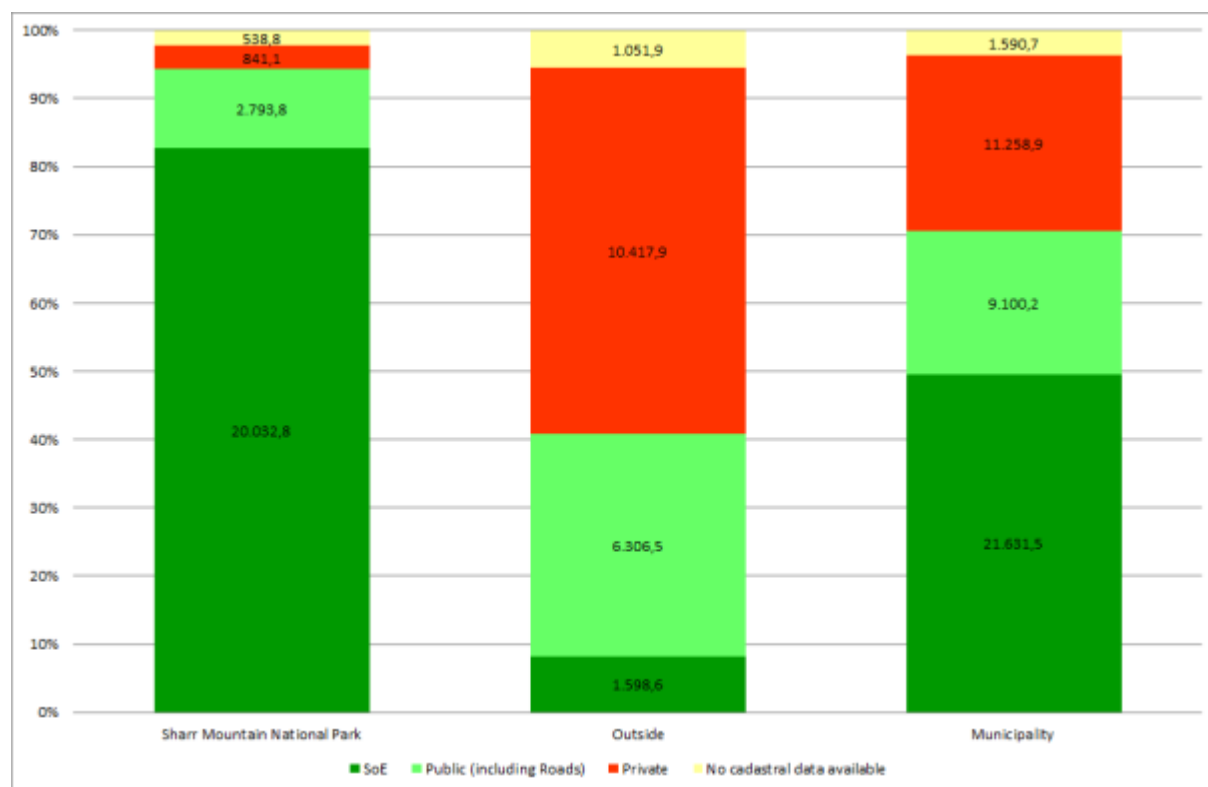


Figure 1-6: Ownership structure within Sharr/Šar Mountain National Park in Dragash / Dragaš Municipality (A2.1)

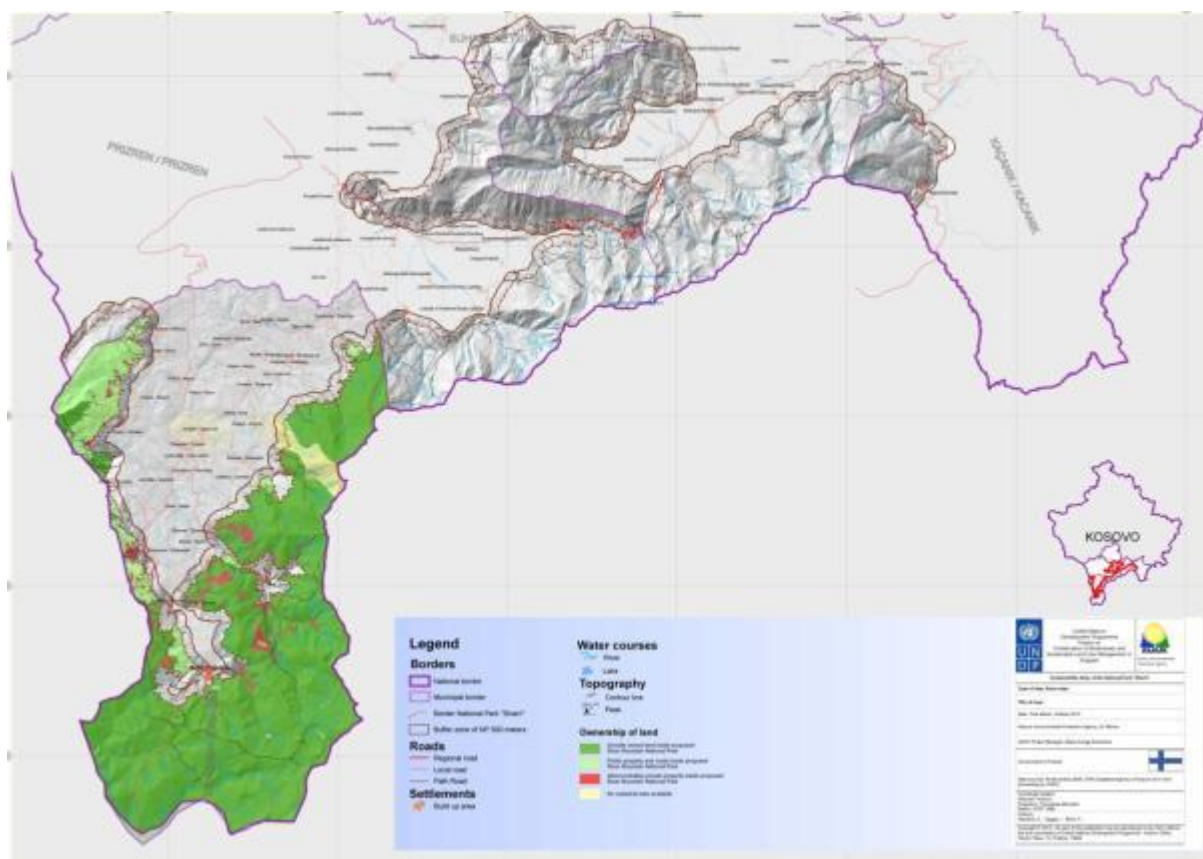
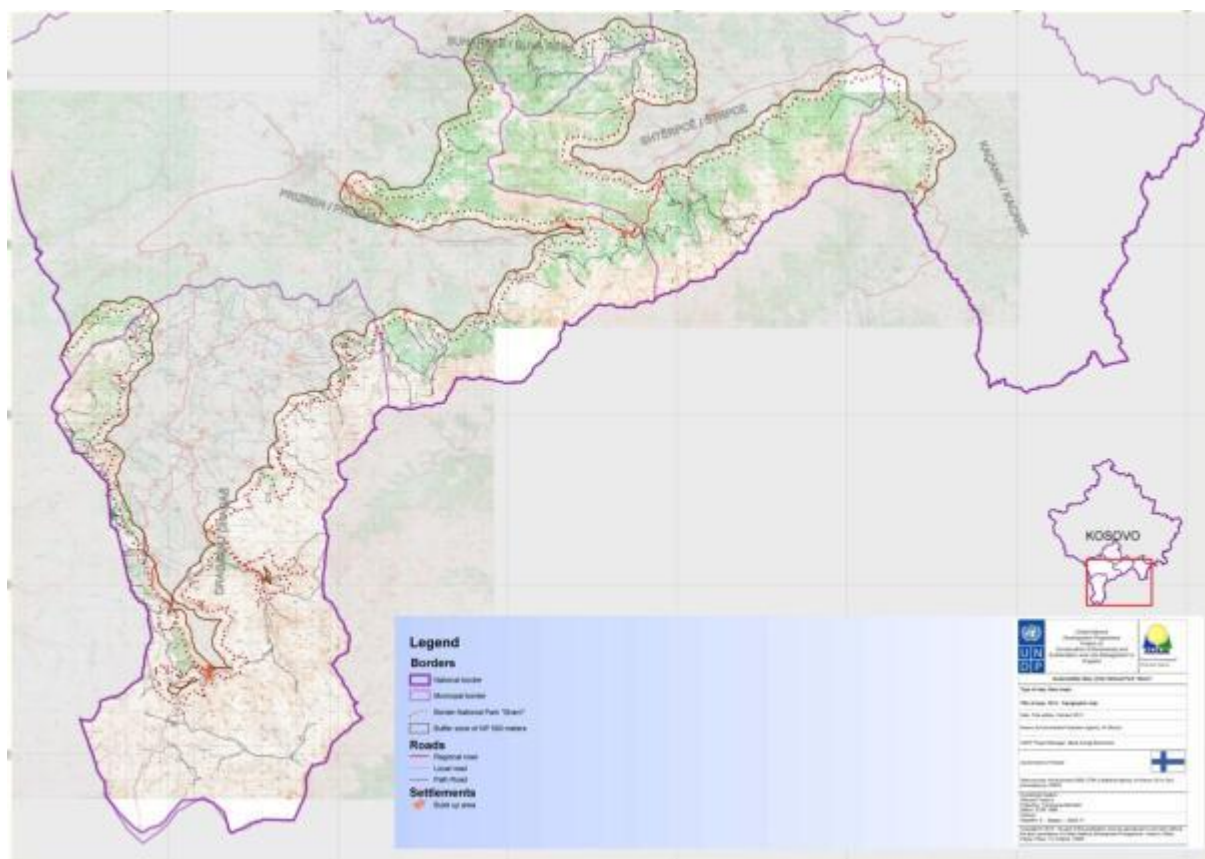


Figure 1-7: Topographic map – Sharr/Šar National Park (A2.2)





1.3. Assessment of water resources

1.3.1. Water regeneration, threats and quality (A3.1)

Contents of the map:

The status of water resources, their quality and threats

- Watershed and sub-watershed boundaries, rivers and creeks, lakes
- Areas relevant for protection, regeneration and storage of water resources (wetlands, forests, buffer zones)
- Quality of surface water (biological quality, water analysis (BOD) UNDP Survey 2011/2012)

The main messages:

This map contains those features of the Sharr/Šar National Park surface water resources that are relevant for sustainable development.

“Ecologically important areas” related to wetlands/open water cover 1.432 ha (2,7%) of the Sharr/Šar National Park area. According to Article 55 of the Law of Nature Conservation the protection of wetlands is stated as:

1. The wetlands including waters, in the meaning of this Law represents the nature values and for this they should be conserved in a natural or in a near nature state.
2. For the case of wetlands protection, including waters which are not regulated by this Law, shall apply the provisions of special acts.
3. Any natural lake and pond, nearby the embankments larger than 0, 01 ha, natural and artificial marsh measuring more than 0,25 ha, spring and ravines in riparian of two (2) meters, in the meaning of this Law represent the ecologically important area.

The map includes areas that are geologically suitable for regeneration and storage of water resources, all forests as well surface waters with a buffer of 20 m (see Table 1-6). The alpine region of the National Park are especially important for clean water supply.

Data sources, material and reliability:

- Locations of water quality assessments for biological and chemical parameters: Fehler! Verweisquelle konnte nicht gefunden werden., Fehler! Verweisquelle konnte nicht gefunden werden. and Fehler! Verweisquelle konnte nicht gefunden werden., in Annex 2.1
- Ibrahim, 2011b and 2012
- UNDP, 2012b
- Kosovo Hydro-meteorological Institute, 2012

Further suggestions for monitoring and/or improvement of data:

Since the competent authorities have not provided any spatial data (and environmental impact assessments) of the planned small hydropower projects, this planning data is not included. Any divergence of water may reduce the legally required biologically minimum flow in the dry seasons. This data, as well as average water flow / month, should be added to the information base.

Table 1-6: Important areas for water regeneration

	Area in ha	In % of Sharr/Šar National Park
Rocks with potential for ground water	12.853 ha	24,1%
Wetlands	1.432 ha	2,7%
Forests with water regulation function	14.344 ha	26,9%





1.4. Assessment of natural hazards (A4)

1.4.1. Erosion risk (A4.1)

Contents of the map:

The map depicts the erosion risks based on the sensitivity of soils. Included are potentially unstable soils along roads (using the width of the road). The zones of soil erosion risk are a function of:

- soil types and texture,
- precipitation,
- slope properties,
- current land use management, and
- vegetation cover.

The main messages:

The map allows identification of zones in need of soil stabilisation measures and appropriate land management/land use forms. Taking erosion risk into consideration is especially relevant for agriculture and pasture management and for any construction activity. The assessment should have consequences for the prevention measures of road repair and construction, and for the planning of reforestation activities.

Majority of Sharr/Šar National Park is exhibited to High Risk, followed with moderate and low risk in southern part of National Park in Dragash municipality mountains near Brod and Restelica. In high steep slopes erosion risk is increased to very high risk. Careful management of forests, pastures as well any construction of roads or other types should be done in strict control ensuring maintenance and keeping vegetation cover.

Figure 1-9 shows that soil erosion risk does not depend significantly on the altitude of the terrain. However agriculture activities should be strictly controlled same as grassing due to high potential for erosion. This doesn't show that there is erosion but it can be present if uncontrolled activities are undertaken.

Figure 1-10 shows, that within the sub-basins of Bukovaka River and Rrasa ngult risk for erosion is higher, for rest of watershed the risk is somehow equally distributed or more or less in same level. The total for the Sharr/Šar National Park is 72,8% of very high and high risk areas.

Data sources, material and reliability:

The model is outlined in the "Model for erosion risk" (Annex 2.2) (EULUP 2011)

Further suggestions for monitoring and/or improvement of data:

The quality of the risk analysis is highly dependent on the reliability of the input data. In particular, the soil map available is of limited reliability due to its small scale.

Analysis could be significantly improved using more detailed soil data.

Figure 1-9: Soil erosion risk in the different altitude classes of Sharr/Šar National Park

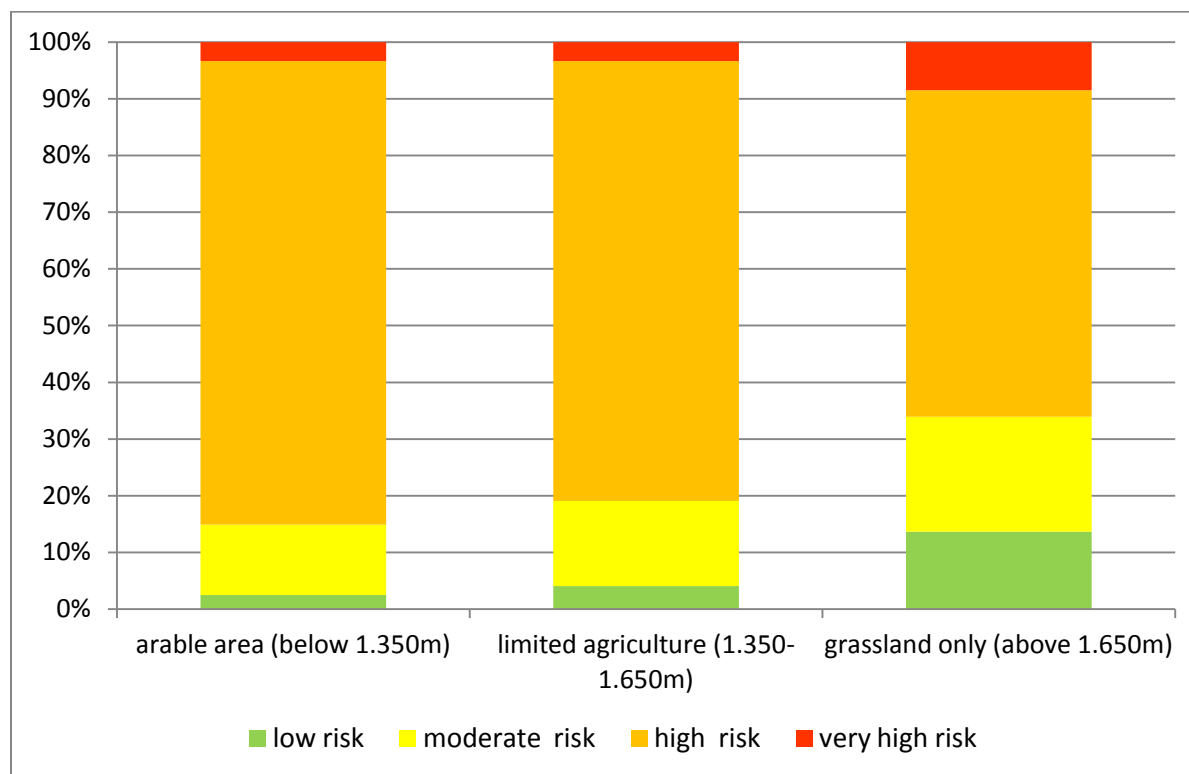


Figure 1-10: Soil erosion risk within the sub-watershed of Sharr/Šar National Park

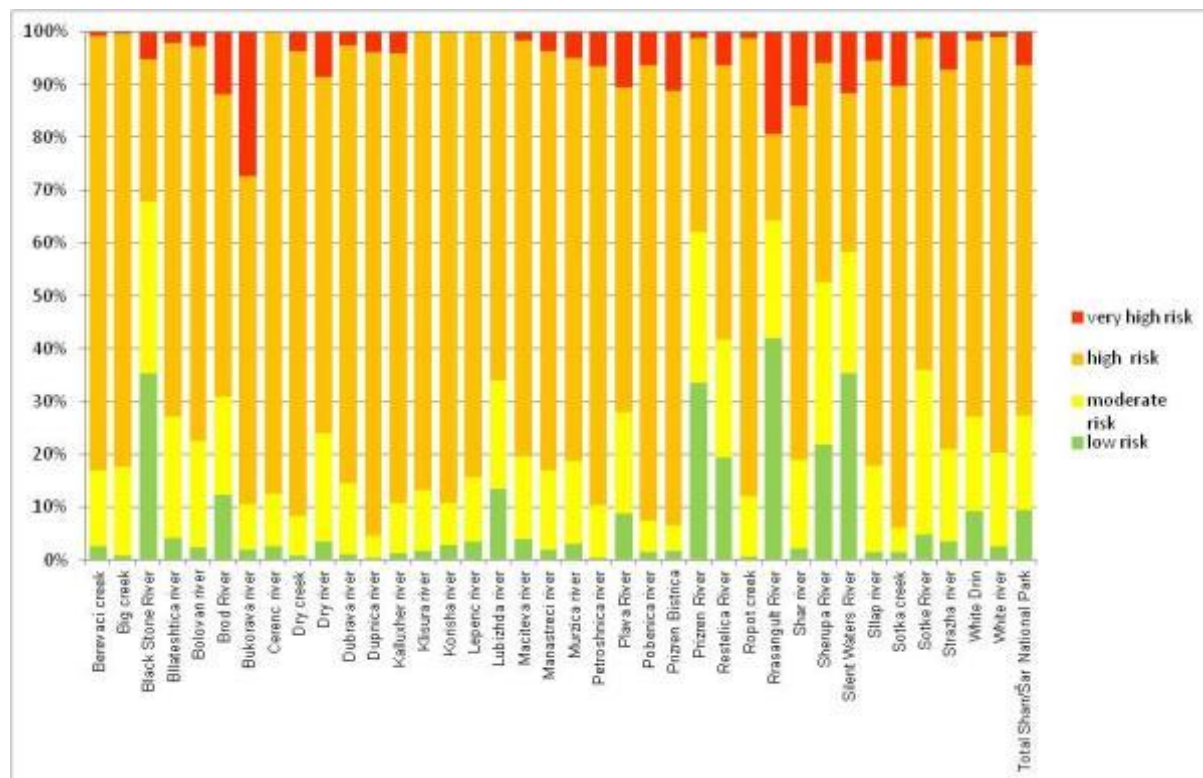
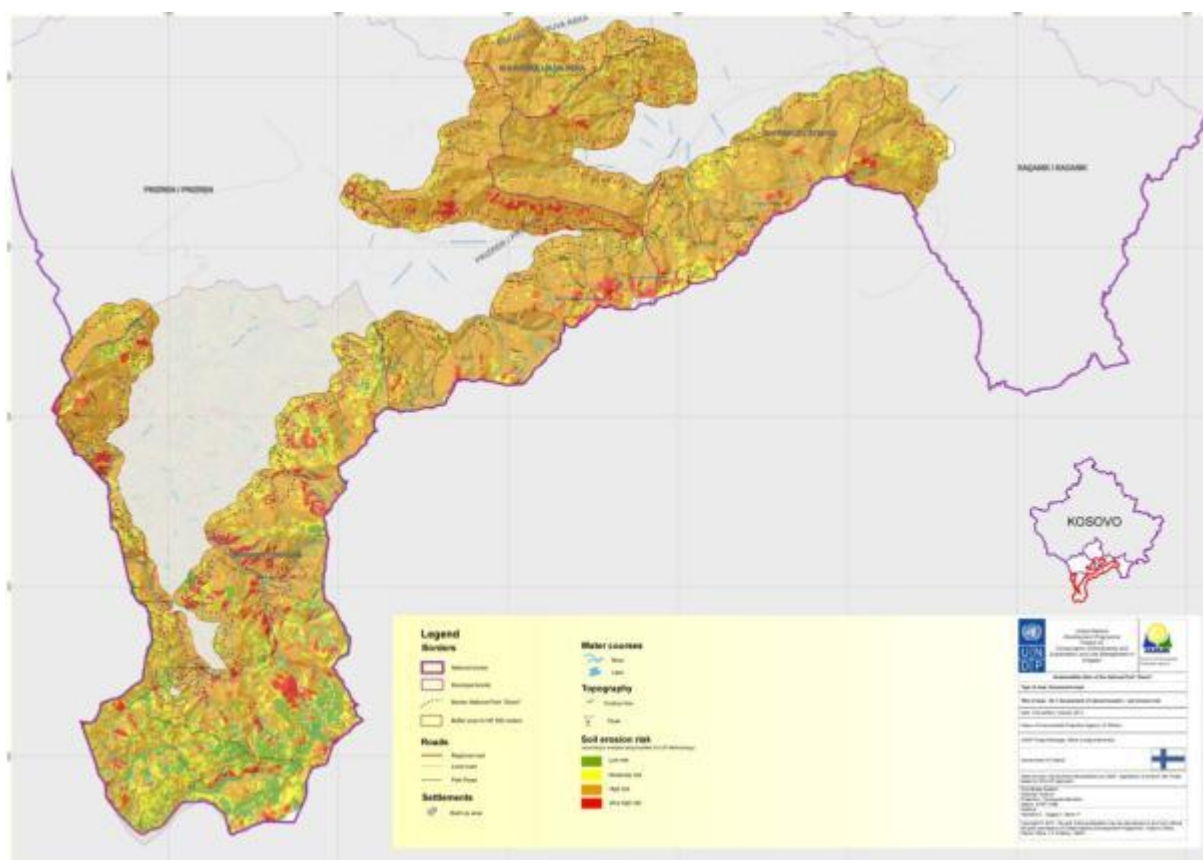


Figure 1-11: Assessment of erosion risk (A4.1)





1.4.1. Avalanche risk (A4.2)

Contents of the map:

The map depicts the avalanche risk based on a model using:

- Steepness
- Wind direction in combination with ridges and depressions
- Exposition
- Length of the slope and diversity of landforms
- Vegetation, particularly forest / non forest

The main messages:

Avalanche risk is highest in the mountain areas and needs to be taken into consideration if winter sport installations are planned. If forest harvesting operation will be allowed always should be kept in consideration forest function on nature hazard protection which means that proper methods of harvesting should be applied.

Figure 1-12 shows the amount of avalanche risk within the territory of the Sharr/Šar National Park:

- A total of 9.541 ha shows an increased high risk of avalanches due to NW to NE-exposition and slopes steeper than 30 degrees; this area is covered with forest which show a good protection.
- An additional 1.383 ha show a high risk of avalanches, out of which 820 ha are not protected by forest.
- 11.617 ha show an increased potential risk due to NW to NE-exposition and slopes between 20 and 30 degrees, of which 395 ha are not protected by forest.
- 5.226 ha show a potential risk; of this, 425 ha are not protected by forest.

Data sources, material and reliability:

The model is outlined in “Model for avalanche risk analysis” (Annex 2.3),
<http://www.powderguide.com/de/mountain-knowledge/basics/article/mountain-knowledge/>

The model applied only identifies the regions where avalanches can be triggered. **The areas where avalanches can pass or hit are not identified** by the model.

Further suggestions for monitoring and/or improvement of data:

In case of Restelica/Restelicë detailed analysis has been executed by an Austrian team. Similar analysis should be executed for other high risk areas (villages and important roads).



Figure 1-12: Avalanche risk areas within the Sharr/Šar National Park

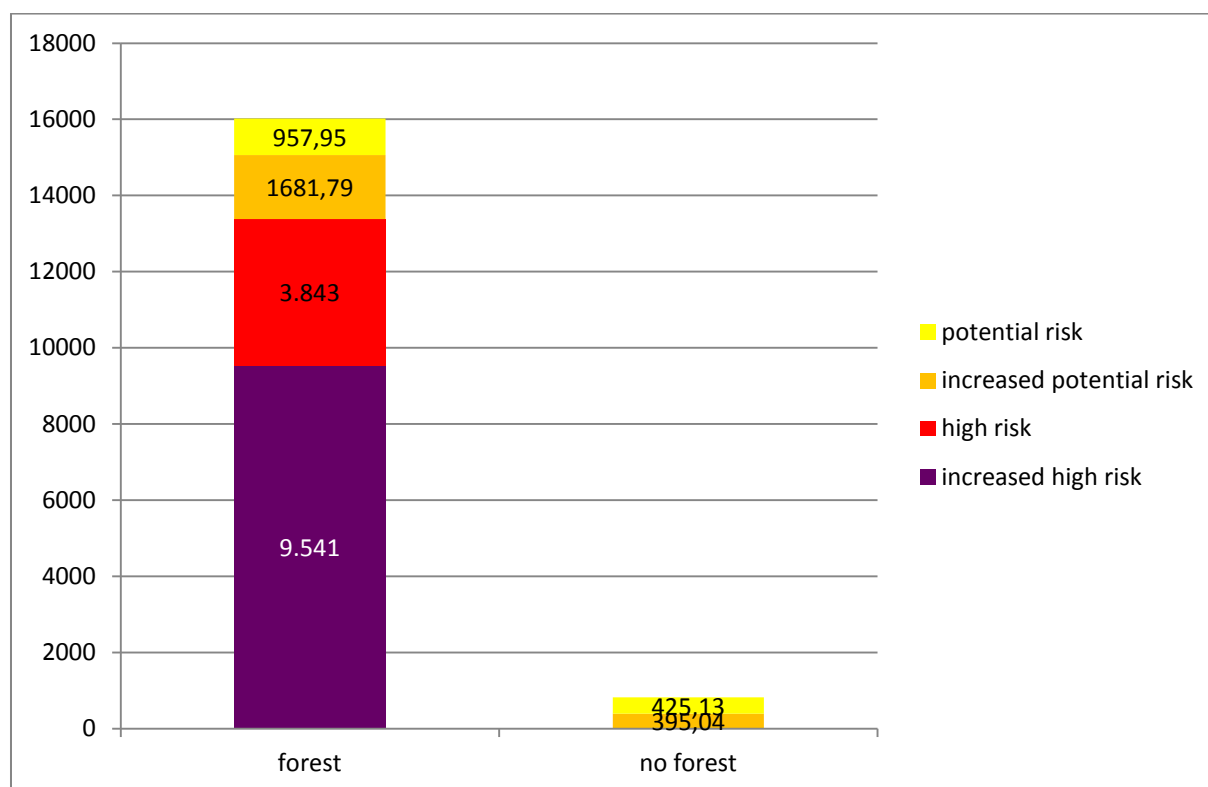
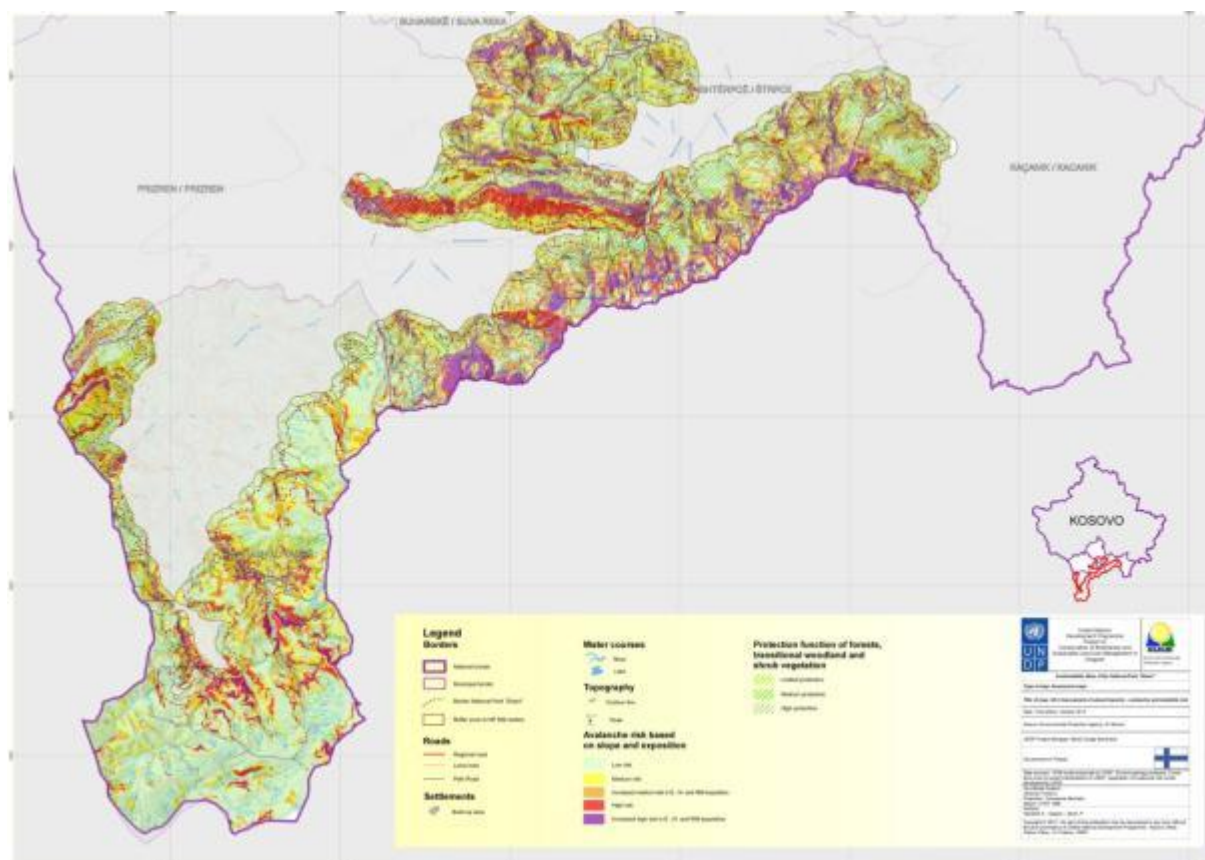


Figure 1-13: Avalanche risk areas within 300m distance from settlements

Figure 1-14: Assessment of avalanche risk (A4.2)





1.4.2. Landslide, rockfall areas risk (A4.3)

Contents of the map:

The map depicts the landslide, rockfall risks based on models using:

- Slope
- Quaternary sediments
- Sparsely vegetated areas / rock
- Rock type
- Sparsely vegetated areas

Results of analyses are shown on map A.2.2 together with avalanche risk map.

The main messages:

Landslide and rockfall risks occur mostly in the higher mountain areas, in the unpopulated subalpine and alpine areas, and can be relevant for hikers and shepherds.

In map A 4.2 together with avalanche risk areas are shown as well landslides risks.

Data sources, material and reliability:

The model is outlined in “Model for landslide risk” (Annex 2.3)

The model applied only identifies the regions where landslides or rockfall can originate. **The areas where landslides or rockfall can pass or hit are not identified** by the model.

Further suggestions for monitoring and/or improvement of data:

A systematic inventory of road segments exposed to rock fall is required, since GIS-based analysis does not sufficiently reflect the risk.



1.5. Assessment of forest and agriculture (A5)

1.5.1. Conditions of forests (A5.1)

Contents of the map:

The map shows the age structure of forest inside Sharr/Šar National Park and gives basic information about the management classes, including areas with a high density of degraded forests as well forest areas in rocky areas.

The main messages:

Area of Sharr/Šar National Park is reach with forest resources all regenerated naturally. Forest area covers about 36 % of entire territory of Sharr/Šar National Park (18.936,3 ha). Majority of forest area is located in territory of National Park in Suhareka, Prizren and Shterpca municipality. In terms of quality and origin, 82 % of forests are generated from seeds and has high quality and increment.

Ownership data for entire territory of national park is lacking (High cost but available at Cadastral Agency of Kosovo), so only area of forest based on ownership structure is known for Dragash where 72% belongs to Public and only 9% is privately owned. For rest part of national park the ownership information should be collected.

In terms of age, the forests are dominated by uneven aged, this is due to forest management practices in Kosovo applying selective cutting. Diversification of age increases the biodiversity values of forest as potential sites for animals, plants and vegetation types. Based on analyses and assessment of forest function for biodiversity as potential sites 37 % of forest has this values, hence this area should be maintained and escaped for harvesting where only maintenance activities should be allowed.

The mixed forests, forests over 70 years old, and the alpine forest-grassland transition at the treeline are habitats for Bear and Lynx and form part of their regional ecological corridors.

Data sources, material and reliability:

Arneni, N.SH.T (2011/2012), MAFRD-KFA (2009, 2010a and b)

Further suggestions for monitoring and/or improvement of data:

Property of forest area should be generated out of Cadastral Data. Potential sites for priority reforestation should be derived from the risk assessment maps (Figure 1-11,



Figure 1-14 and Fehler! Verweisquelle konnte nicht gefunden werden.)

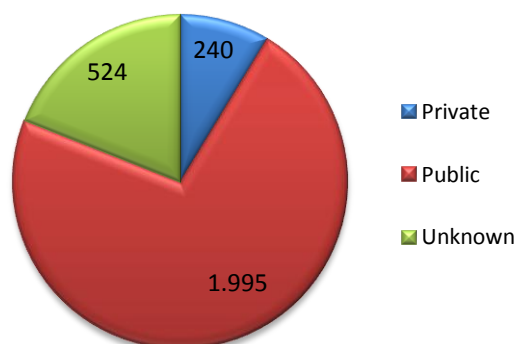


Figure 1-15: Property situation of forest area of Sharr/Šar National Park in Dragash / Dragaš territory (in ha)

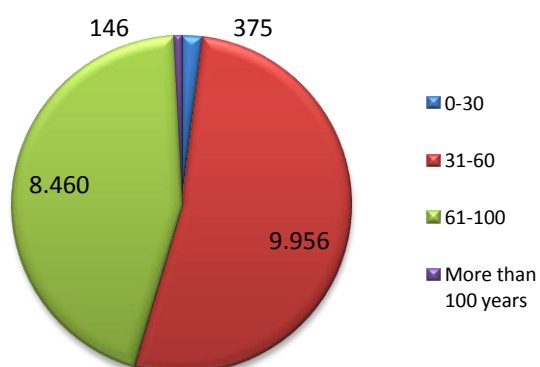


Figure 1-16: Age classes in Sharr/Šar National Park forests (in ha)

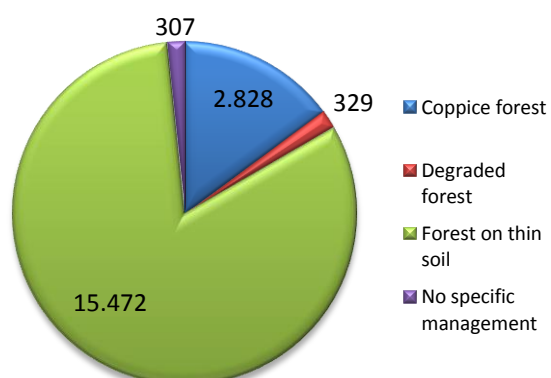
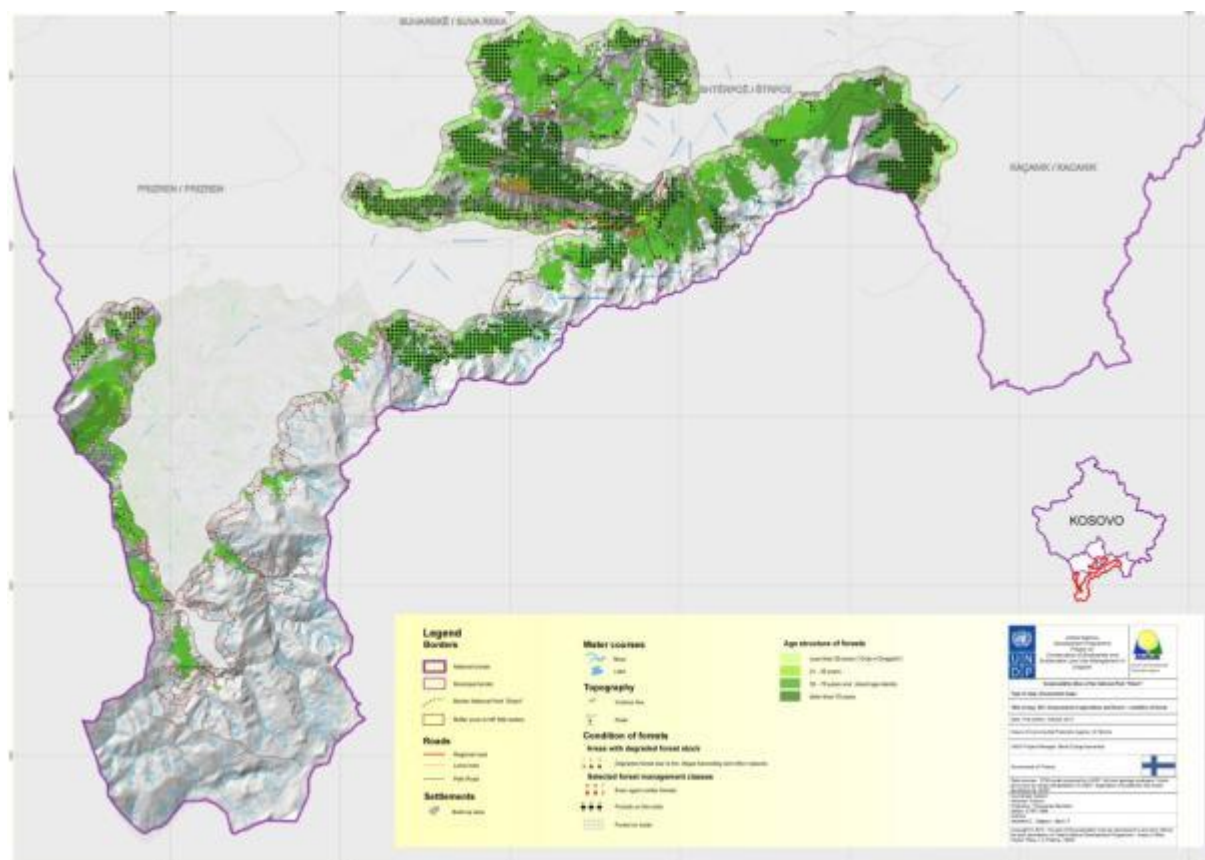


Figure 1-17: Specific management requirements in Sharr/Šar National Park forests (in ha)



Figure 1-18: Assessment of the conditions of forests (A5.1)



1.5.2. Forest functions (A5.2)

Contents of the maps:

The forest functions covering:

- Wood production (firewood, valuable timber, collection of non-wood products)
- Protection function (soil erosion, avalanches, rockfall and landslides)
- Biodiversity
- Water regulation and water supply

The main messages:

The forest functions are tools to identify and better address specific roles and values of forests in order to maintain or enhance their effectiveness and capacity. The forest functions are comparable with the principle of High Conservation Value Forests (HCV) under FSC.

Of the 18.936 ha of forest, only 1.025 ha have no dedicated function (5%) (refer to Figure 1-19)

Forest management practices have to consider not only the productive functions, but also the protection, biodiversity, and water regulation functions.

The information is used for the guidance for forest development and spatial resistance, including natural risk prevention, which is relevant for settlement, tourism and traffic planning and for the National Park Management Plan.

Data sources, material and reliability:

The criteria for assessment are listed in Annex 2.3; Forest functions are set into relation to the HCV types in Table 1-7.

Arneni, N.SH.T (2011/2012), MAFRD-KFA (2009, 2010a and b)

Further suggestions for monitoring and/or improvement of data:

The data for public forest is of a high quality (see Arneni, N.SH.T, 2011/2012, MAFRD-KFA, 2009, 2010a and b) and allows a reliable assessment of the functions. The areas with a biodiversity function may increase if more intense research finds further floristic and faunistic specialities.

Table 1-7: Classification of forest functions

Function	Ecosystem service / Specification	Example	Related HCV Type
Wood production	That portion of gross production extractable as raw material	Production of lumber, or fuel / fire wood	HCV 5 (fire wood)
Production of non-wood products	That portion of gross primary production extractable as raw materials or primary products.	Production of fish, game, crops, nuts, fruits by hunting, gathering, subsistence farming or fishing	HCV 5
Erosion control and sediment retention	Retention of soil within an ecosystem	Prevention of loss of soil by wind, runoff, or other removal processes, storage of silt in lakes and wetlands	HCV4
Hazard protection	Protection against avalanches, landslides and rock fall	Forest on slopes of 20 degrees and more provide good protection against avalanches	HCV4, HCV5
Biodiversity	Habitats for globally, regionally and locally important plant and animal species, species-rich habitats (or habitat complexes)	Nurseries, habitat for migratory species, regional habitats for locally harvested species, or over wintering grounds.	HCV1, HCV2, HCV3
Water regulation and water supply	Regulation of hydrological flows, Storage and retention of water	Provision of water for human consumption in good quality and quantity	HCV4



Function	Ecosystem service / Specification	Example	Related HCV Type
Cultural (not assessed in SDA)	Providing opportunities for non-commercial uses.	Aesthetic, artistic, educational, spiritual and scientific activities.	HCV6

Figure 1-19: Forest area dedicated to the various forest functions (in ha)

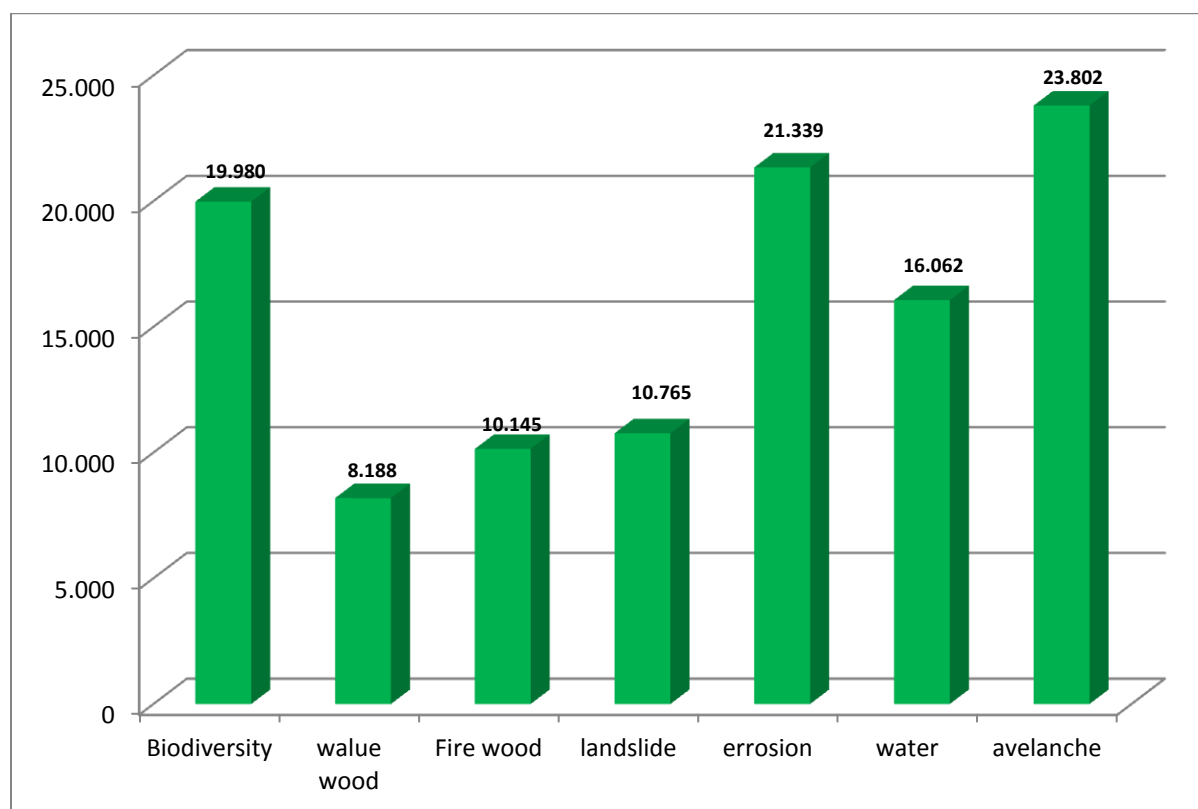
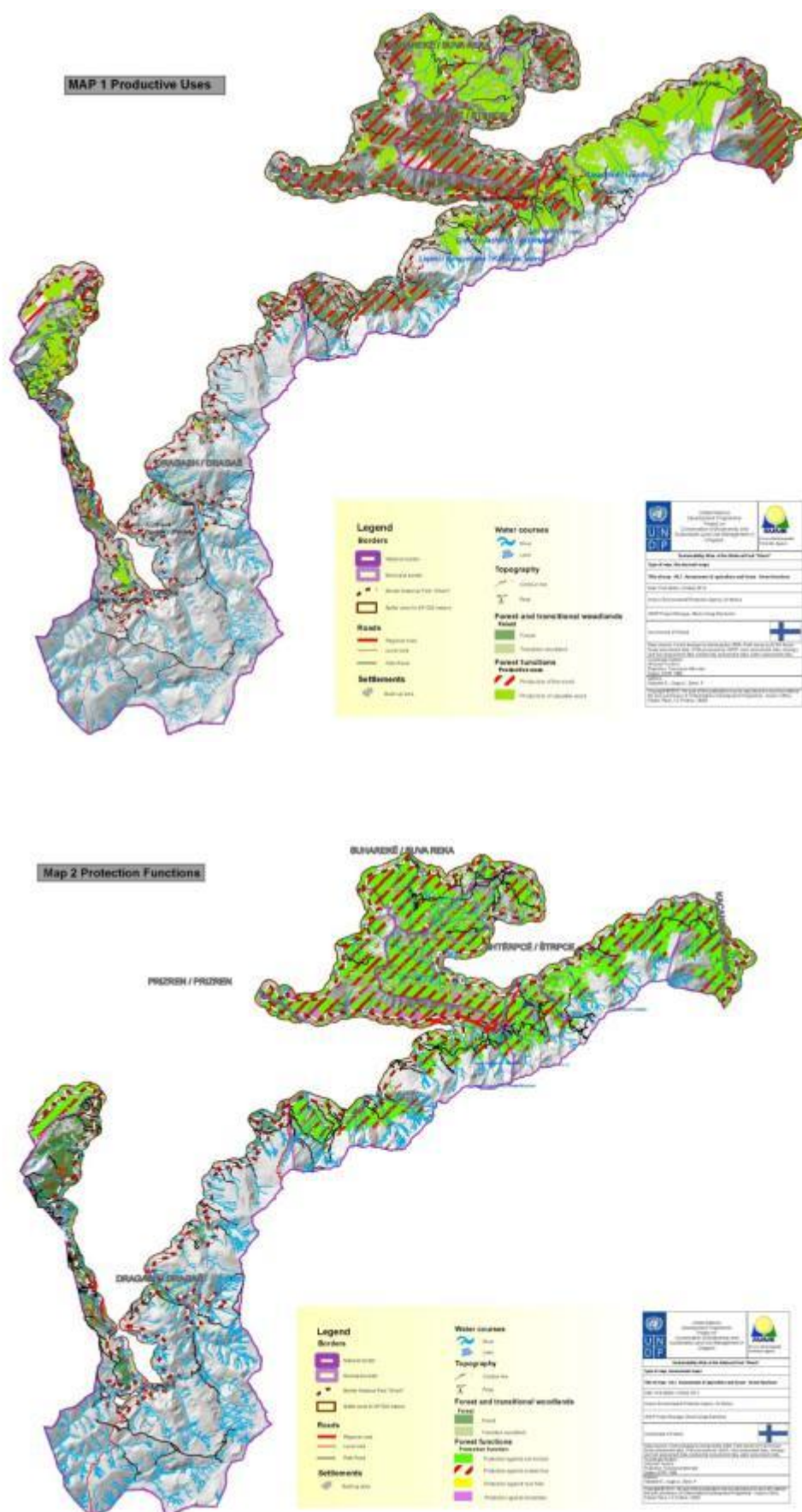
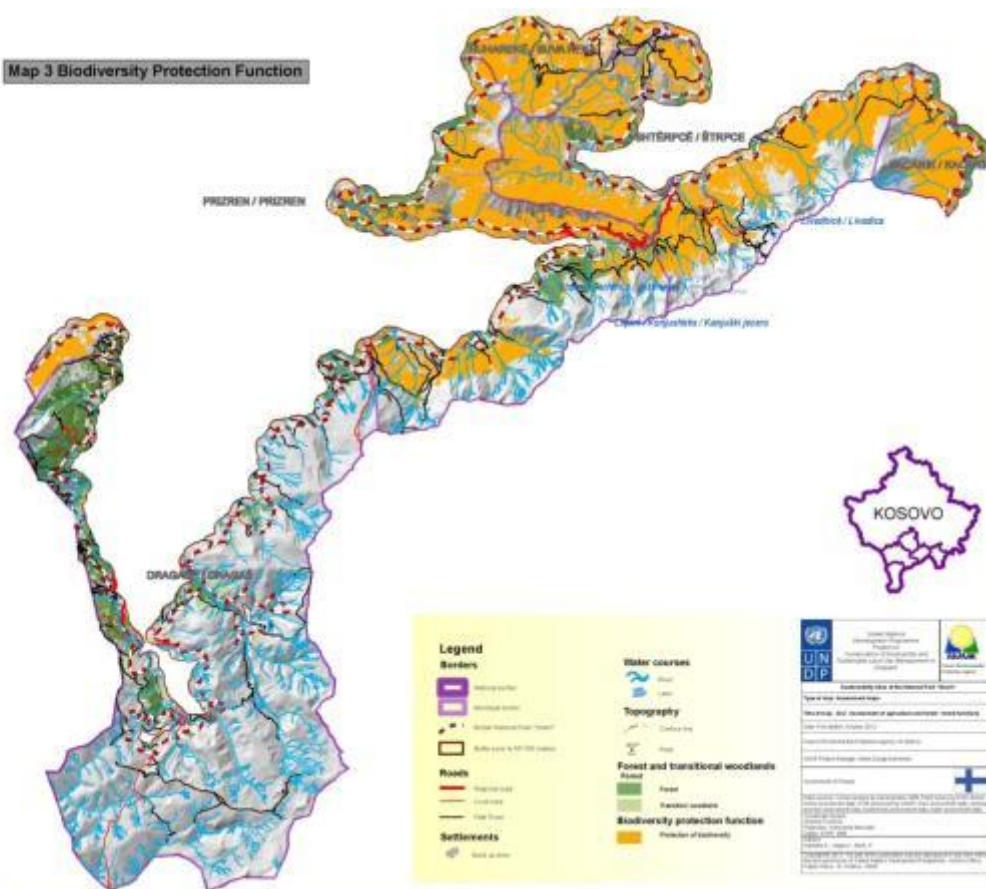


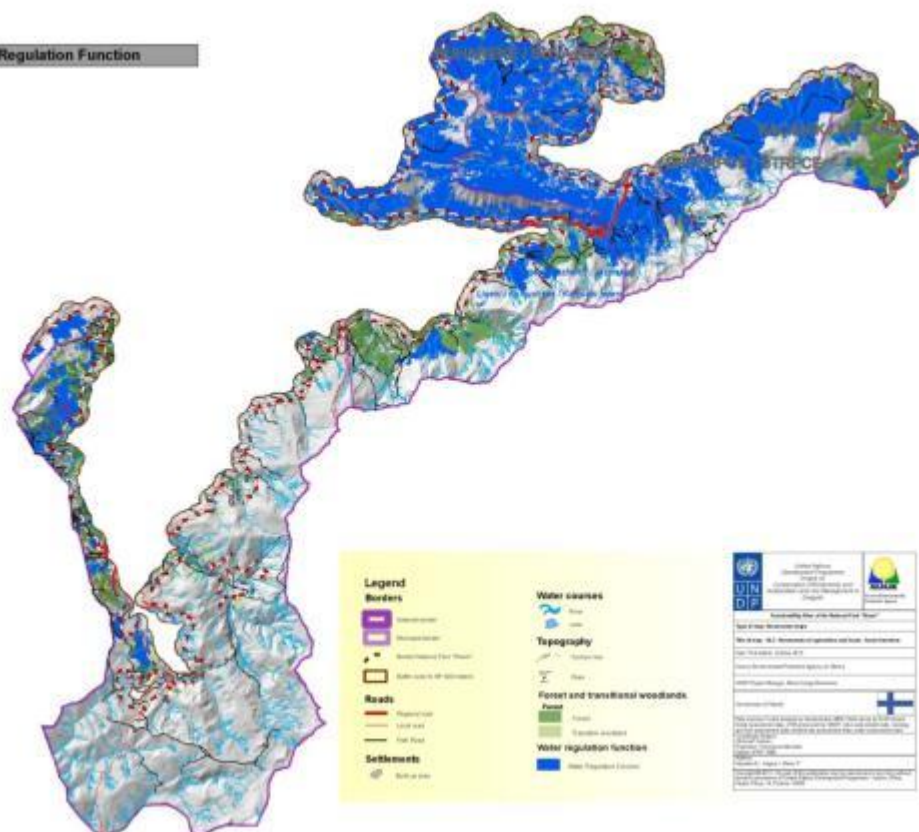
Figure 1-20: Assessment of the forest functions (A5.2)



Map 3 Biodiversity Protection Function



Map 4 Water Regulation Function



1.5.3. Productive capacity of soils (A5.3)

Contents:

Suitability of soils according to:

- Prolificacy II2 – III1 (best) to VII1 - VIII2 (major restrictions)
- Intensive pasture
- Extensive pasture
- Altitude class
- Soil type

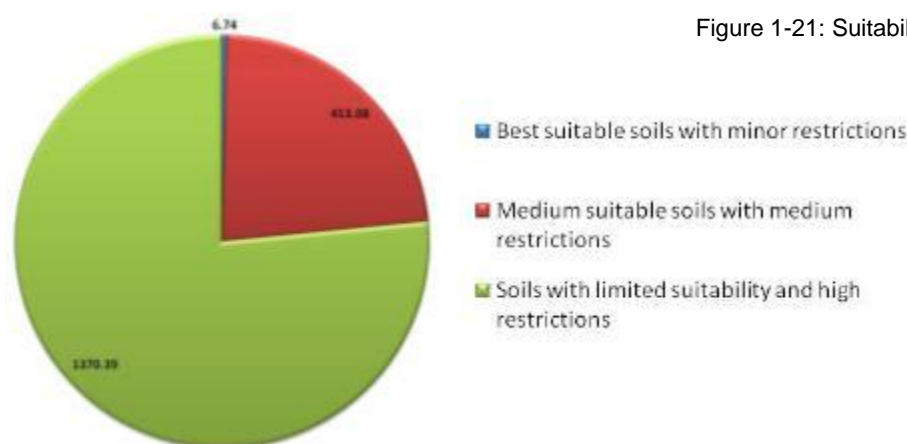
The main messages:

From 8 classes of prolificacy there is no class I, but class II, class III, class V, class VI, class VII, and class VIII (Elezi 2011 and "Suitability of soils and recommendations for agricultural use" Annex 2.6).

- Suitability with minor restriction: Prolificacy classes II and III. All the planned agricultural cultures can be cultivated in these soils, with little or high potential of mechanisation.
- Suitability with more expressed restrictions: Prolificacy class V (class IV is absent). All the planned agricultural cultures can be cultivated in these soils, but only little possibility of mechanisation.
- Suitability with many restrictions: Prolificacy class VI. Although these lands have extensive restrictions, they are traditionally used for production of cattle food (hay) and/or as extensive pastures.
- Suitability with extensive restrictions: Prolificacy classes VII and VIII. No cultivation is feasible and they are usually used as green grazing pastures.

Generally the crop productivity in the territory of Sharr/Šar National Park is very limited and extensive in almost all types/classes of soil. This is due to the limited fertility (productive capacity) and topography which puts considerable restrictions on agricultural productivity/mechanisation. Additionally there is a low level of investment, low level of machinery, and non-market orientation (production mainly for the local needs).

Figure 1-21: Suitability of soils (in ha)



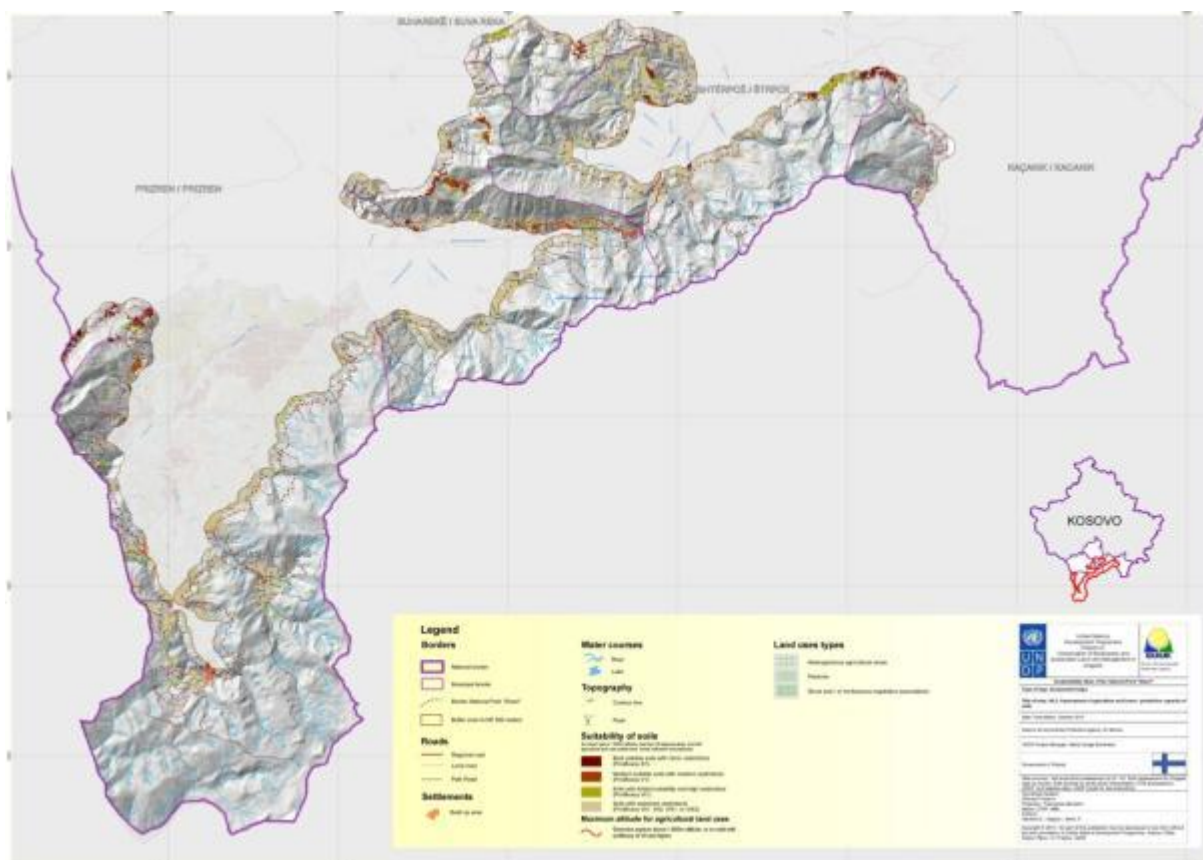
Data sources, material and reliability:

Municipality of Dragash/Dragaš-Agriculture Department, 2011, Elezi 2011, UNDP analyses

Further suggestions for monitoring and/or improvement of data:

Incomplete community-based information.

Figure 1-22: Assessment of productive capacity of soils (A5.3)





1.5.4. Livestock and suitability for crops (A5.4)

Contents:

The map highlights the areas

- suitable for crops and intensive pasture (below 1600 m and less than 30° slope in two categories)
- suitable for extensive pasture above 1600 m (In four categories)

The main messages:

The areas suitable for agriculture are all below 1600 m, with a vegetation period of longer than 5 months. The main cultivatable crops are corn, potatoes/seed potatoes, summer and winter cereals and berries/fruit trees. In annex 2.6, "Table 2-4: Classes of suitability and the level of utilisation for determined cultures, based on the cultivation manner and the level of machinery", more details about recommended crops are listed.

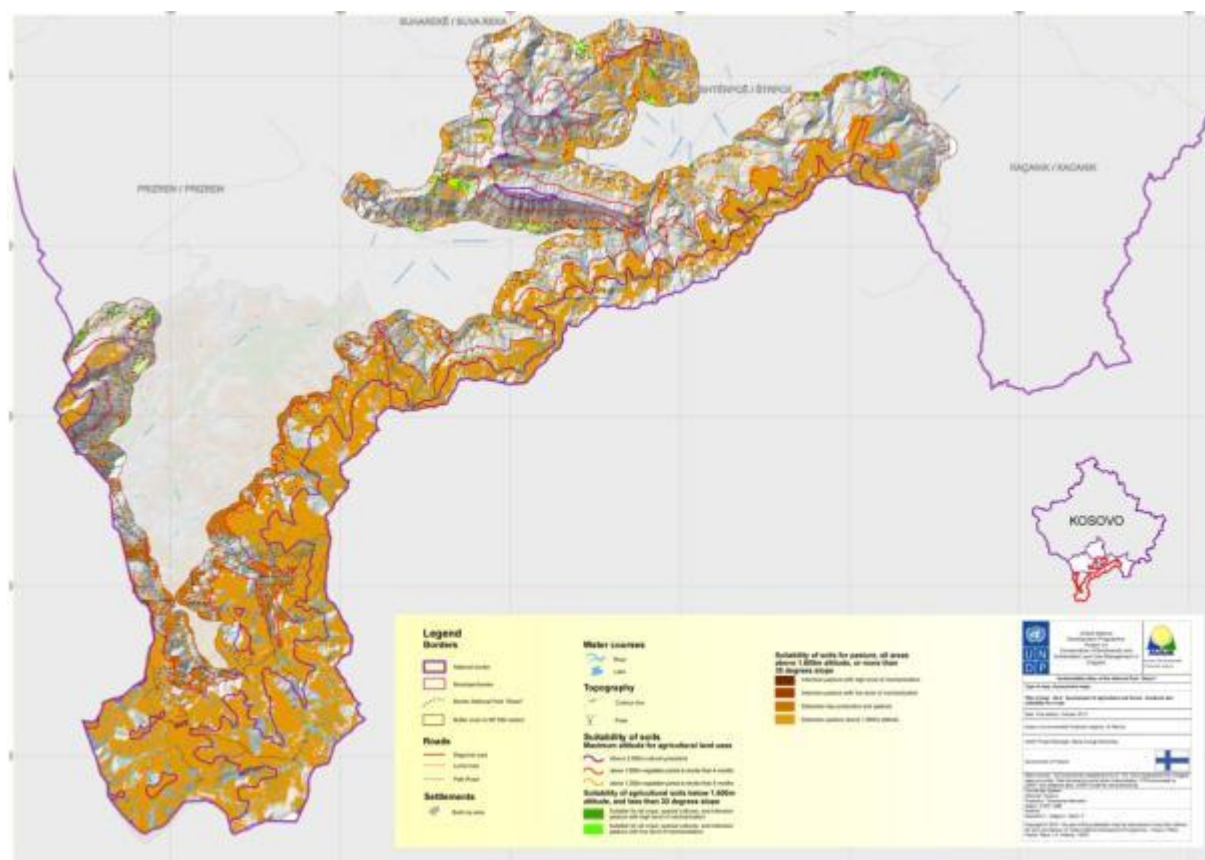
Grassland higher than 1600 m is generally only suitable for extensive grazing in the late spring and summer months. Above 2.000 m the grasslands are natural.

For the grazing of the subalpine and alpine areas (Nardion grasslands and calcareous grasslands) the EU recommends a carrying capacity of 1.3 - 4.0 sheep (1.2 to 0,6 livestock units) for a 100-day grazing period (European Commission 2008a and b). The actual number of cattle and sheep are available only for Dragash municipality (Cattle 6450 and sheep 9506) which indicates that (overall) the numbers do not surpass the carrying capacity of the grasslands. However, no exact data for the used grazing grounds are available for the SDA because the herds/flocks use not only the pastures of their own village but also graze in villages outside of Dragash/Dragaš. For rest part of national park outside Dragash in future the data should be collected and include them in analyses.

Data sources, material and reliability:

Municipality of Dragash/Dragaš-Agriculture Department, 2011, Elezi 2011, European Commission 2008a and b

Figure 1-23: Assessment of livestock and suitability for crops (A5.4)





1.6. Assessment of tourist potential (A7)

Contents of the map:

Existing and potential tourist attractions

- Natural sites (such as caverns, springs, waterfalls etc.)
- Tourism infrastructure (such as hotels, restaurants)
- Hiking and mountain biking trails and camping facilities

The main messages:

The map shows relevant information on tourism which is required for the integrated development of a sustainable tourism concept. With the hiking trail concept (Wassel 2011 and Mutineers association Prizren) a first step has been made to support tourism development (mountain bike trails, hiking trails and camping).

Apart from the hiking possibilities, three focal areas for potential tourism development based on existing infrastructure are indicated: one as a corridor from Brod to Restelica / Restelicë, one in the upper mountains of Zapl-luxhe / Zaplužje (planned skiing area), one from Lubinje village to upper site of mountains in the border with Macedonia, and one from Skorobisht to Bulec.

Inside national park there are two locations which provides hostel possibilities for tourists. One area is at Brezovica and in Prevala. There is new project for Brezovica as skiing resort, but the data were not available for analyses. In stead of detailed project has been used the existing skiing installations.

Following there are the tourism paths identified by UNDP project and the paths from mountaineers association in cooperation with GIZ.

Path direction	Length meters	Length in Kilometers
Blackstone Mountain Eyes	10,243.82	1.00
Restelica To Upper Plains	12,121.93	1.20
Restelica to Brod	9,449.55	9.40
MT Koritnik	13,029.71	1.30
Golema Vraca	3,529.89	3.50
Cule	5,760.01	5.80
Brod to lake shutman	8,816.11	8.80
Brod to Old MacPass	15,748.31	1.50
Brod Gorge	1,807.47	1.80
Backa to Brod	7,339.88	7.30
Three peaks hike	10,037.40	1.00
Radesha	4,981.30	5.00
RB Restelica	19,120.87	1.90
MT Koritnik	13,029.71	1.30
Prevala-Oshlak 1	5,932.33	5.93
Planjane-Kopane Voda	5,847.02	5.85
Kopane Voda-Ushi	2,217.32	2.22
Kopane Voda-Oshlak-Koxha Ballkan-1	5,849.98	5.85
Kopane Voda-Bulec	478.66	0.48
Koxha Ballkan-2	2,951.72	2.95
Skorobisht-Kopane Voda	10,099.85	10.10
Novo Sele-Kopane Voda	5,100.83	5.10
Novo Sele-Planjane-Kopane Voda	447.75	0.45



Kopane Voda-Oshlak-Bulec-Ushi-Koxha Ballkan-1/2	250.74	0.25
Koxha Ballkan-1	1,177.12	1.18
Kopane Voda-Oshlak-Bulec-Ushi	123.65	0.12
Lubinje-Kopilic	6,187.45	10.28
Total in National Park	181,680.38	101.56

The paths are not marked in the field and would required marking with international recognised symbols for future used by potential tourists.

Data sources, material and reliability:

Wassel (2011): Hiking and Nature Tourism Guide

GIZ (2012) in cooperation with Mountaineers association of Prizren: Hiking and Nature Tourism (Hiking paths).

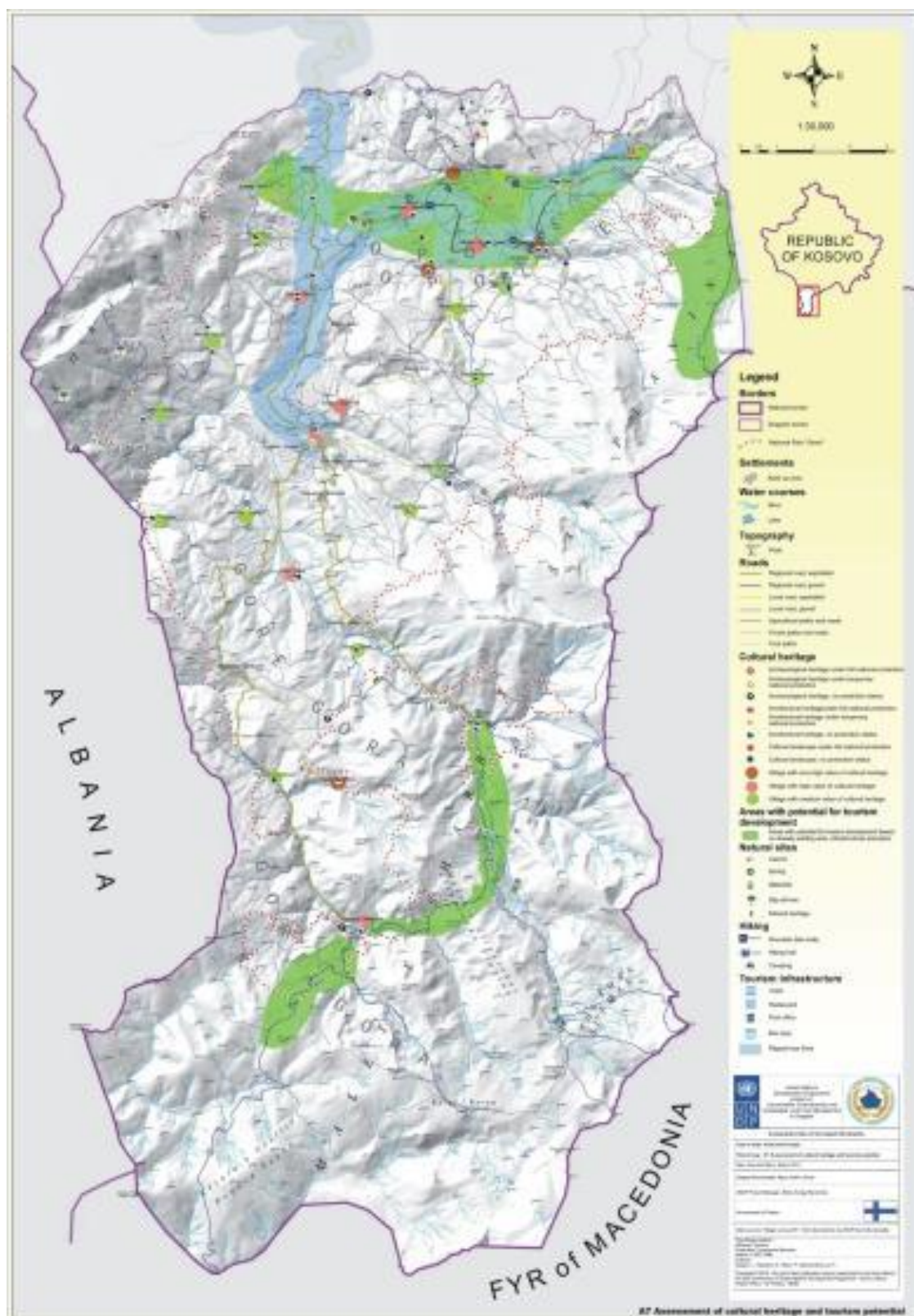
MoESP, ISP: Existing ski installations in Brezovica.

UNDP (2011): Dragash/Dragaš Project: Village questionnaire and Visioning Workshop for the Municipal Development Plan September 2011

Further suggestions for monitoring and/or improvement of data:

The new project of extension of ski resort in Brezovica should be included on analyses and information's. Few paths are recorded in national Park territory outside Dragash and further recording is required to find potential paths for tourists.

Figure 1-24: Assessment of cultural heritage and tourist potential (A7)



2. Annex

2.1. Assessment for water quality

Table 2-1: Water quality based on family biotic index values

(Hilsenhoff, 1988)

Family biotic index	Water quality	Degree of organic pollution
0.00-3.75	Excellent	Organic pollution unlikely
3.76-4.25	Very good	Possible slight organic pollution
4.26-5.00	Good	Some organic pollution probable
5.01-5.75	Fair	Fairly substantial pollution likely
5.76-6.50	Fairly poor	Substantial pollution likely
6.51-7.25	Poor	Very substantial pollution likely
7.26-10.00	Very poor	Severe organic pollution likely

Table 2-2: The physical habitat assessment explanation table

Habitat parameter	Optimal	Suboptimal	Marginal	Poor
Bottom substrate	More than 60% of bottom is gravel, cobble, and boulders, Even mix of size classes	30 – 60 % of bottom is cobble or boulder. Substrate may be dominated by one size class.	10 – 30 % of substrata are large materials. Silt or sand accounts for 70 – 90 of bottom.	Substrate dominated by silt and sand. Gravel cobble and larger size < 10 %.
Habitat complexity	A variety of types (logs, branches, boulder, aquatic vegetation, undercut banks) and size of material form a diverse habitat.	Structural types or size of material is less than optimum but adequate cover still provided	Habitat dominated by only one or two structural components. Amount of cover is limited.	Monotonous habitat with little diversity. Silt and sand dominate and reduce habitat diversity and complexity
Pool quality	25% of the pools are as wide as or wider than the mean stream width and are > 1 m deep.	< 5 % of the pools are >1m deep and wider than mean stream width. Majority of pools are < mean width and < 1m deep.	< 1% of the pools are > 1 m deep and wider than stream width. Pools present may be very deep or very shallow. Variety of pools or quality is fair	Majority of pools are small and shallow. Pools may be absent.
Bank stability	Little evidence of past bank failure and little potential for future mass wasting into channel.	Infrequent or very small slides - mostly healed over. Low future potential.	Mass wasting moderate in frequency and size. Raw spots eroded during high flows.	Frequent or large slides. Banks unstable and contributing sediment to stream.

Habitat parameter	Optimal	Suboptimal	Marginal	Poor
Bank protection	Over 80 % of stream banks surface are covered by vegetation, boulders, bedrock, or other stable materials.	50 – 80 % of the stream-banks covered with vegetation, cobble, or large material.	25 – 50 % of the stream-bank is covered by vegetation.	< 25 % of the stream-bank is covered by vegetation or stable materials.
Canopy	Vegetation of various heights provides a mix of shade and filtered light to water surface.	Discontinuous vegetation provides areas of shade alternating with areas of full exposure. Or filtered shade occurs < 6 h / day.	Shading is complete and dense. Or filtered shade occurs < 3 h / day.	Water surface is exposed to full sun nearly all day long.

(Based on Barbour and Stribling, 1991)

2.2. Model for erosion risk

Model applied soil erosion risk model

The Soil Erosion Risk Model (SER) applied for the assessment of erosion risk was used in EULUP 2011. Single items have been adapted to Šarar National Park conditions.

$$SER = SES * 0,6 + CLC * 0,4$$

The following components are included in this model:

Soil erosion sensitivity (SES) model

$$SES = SC * 0,85 + RFC * 0,15$$

1. Importance (weighting) of factors

Factor	Importance
Soil and slope properties (SC)	0.85
Average rainfall (RFC)	0.15

2. Soil -slope relation: Soil erosion potential as dependant on soil properties and based on bear ground assumption. Calculate score for soil properties.

Soil texture	Slope classes in degrees				
	<3	3.1 - 7.0	7.1 - 11.0	11.1 -15.0	>15
Gravel (s)	0	10	20	50	100
Clay (g)	0	20	35	60	100
Loam (i)	0	25	45	70	100
Sandy loam (pi)	5	30	50	80	100
Sand (p)	10	35	60	100	100

Relation of soil texture and soil type

Gravel (s)	
Clay (g)	CL-Clay Loam SiC-Silty Clay SiCL-Silty Clay Loam C-Clay
Loam (i)	Si-Silt SiL-Silt Loam L-Loam SL-Sandy Loam SCL-Sandy Clay Loam
Sandy loam (pi)	SL-Sandy Loam SC-Sandy Clay LS-Loamy Sand
Sand (p)	S-Sand

Look-up table of soil types and texture

LEG_NR	NAME	TEXTURE
27	Alluvial-deluvial loamy soil	pi
150	Bare rock	s
122	Brown leached soil on schists (phyllite, micaschist etc.)	pi
62	Brownized ranker on schists (phyllite etc.)	pi
45	Brownized rendzina on compact limestone	i
25	Leached deluvium	pi
10	Lithosol on compact limestone	i
9	Lithosol on neutral rocks (sienite, trachyte, diorite, andesite etc.)	i
12	Lithosol on schists (gneiss, micaschist, phyllite, agriloschists etc.)	i
17	Loamy alluvium	i
23	Loamy deluvium	i
33	Mineral-marsh loamy gley soil	i
38	Peat soil of eutrophic bog peat	g
94	Reddish-brown leached soil on reddish sediments	pi
15	Sandy alluvium	p
120	Shallow brown soil on schists (phyllite, micaschist etc.)	i
121	Shallow brown soil on schists (phyllite, micaschist etc.)	i
59	Typical ranker on neutral rocks (andesite etc.)	pi
61	Typical ranker on schists (phyllite etc.)	pi
44	Typical rendzina on compact limestone	i

3. Rainfall table.

RFC	Rainfall class (mm)	Factor Score (RFC)
	500-700	20
	701-1000	60
	1001-1500	80
	>1500	100

Inclusion of land use covers (Corine)

For soil erosion risk assessment, the land cover, as an indicator of anthropogenic activity, is added. Each CLC class is assessed for its ability to stabilise or increase erosion. Assumption is made at hypothetical 6-7 degrees

slope for Kosovo conditions.

100 = high risk	
0 = no risk	

Importance weighting (W)

Soil Erosion Sensitivity (SES)	0,6
CORINE Land Cover (CLC)	0,4
Total	1

Sharr National Park	CLC Grid Code	Score for CLC
Continuous urban fabric	1.1.1.	0
Discontinuous urban fabric	1.1.2.	60
Industrial or commercial units	1.2.1.	60
Road and rail networks and associated land	1.2.2.	90
Mineral extraction sites	1.3.1.	100
Dump sites	1.3.2.	90
Illegal dump sites	1.3.3.	90
Sport and leisure facilities	1.4.2.	40
Cultural Heritage	1.5.	0
Non-irrigated arable land	2.1.1.	80
Permanently irrigated land	2.1.2.	70
Fruit trees and berry plantations	2.2.2.	40
Pastures intensive without hedges	2.3.1.	20
Pastures intensive with hedges	2.3.2.	10
Pastures extensive without shrubs	2.3.3.	10
Pastures extensive with shrubs/trees	2.3.4.	10
Annual crops associated with permanent crops	2.4.1.	50
Complex cultivation – no hedges	2.4.2.	50
Complex cultivation – with hedges/trees	2.4.5.	40
Agriculture / natural vegetation Mix	2.4.3.	30
Broad-leaved forest	3.1.1.	20
Coniferous forest	3.1.2.	20
Mixed forest	3.1.3.	20
Coniferous forest - Planted	3.1.4.	40
Woodland patches	3.1.5.	20
Natural grassland (>1700m)	3.2.1.	10
Heathland Vegetation (incl. Moors)	3.2.2.	10
Transitional woodland/shrub	3.2.4.	20
Coppice Forest	3.2.5.	40
Bare rock, scree, cliffs, rocks, and outcrops.	3.3.2.	0
Sparsely vegetated areas	3.3.3.	70
Inland marshes/waterlogged areas	4.1.1.	10
Peatland	4.1.2.	0
Riparian woodland	4.1.3.	40
Water courses	5.1.1.	0
Water bodies	5.1.2.	0
Springs	5.1.3.	0

2.3. Model for avalanche risk analysis

There are several factors determining grade of risk for avalanches at a specific location; these are:

1. Steepness
2. Wind direction in combination with ridges and depressions
3. Exposition
4. Length of the slope and diversity of landforms
5. Vegetation, particularly Forest / non Forest

Steepness

Figure 2-1: Correlation between steepness and avalanche risk⁴

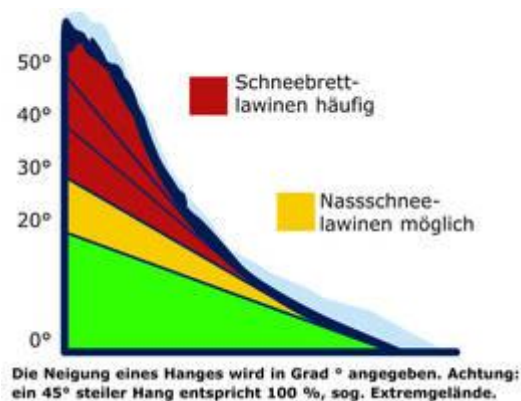


Figure 2-1 shows the correlation between steepness of slope and avalanche risk:

- Red colour indicates high risk of snow slab avalanches on slopes with more than 30 degrees
- Yellow colour indicates medium risk of wet snow avalanches on slopes between 20 – 30 degrees
- Green colour indicates no risk on slopes with less than 20 degrees; however these can be affected by avalanches originating from steep slopes above.

Steepness of terrain in Sharr/Šar National Park was derived from the Digital Terrain Model (DTM).

Wind direction in combination with ridges and depressions

Wind is sometimes called “the architect of avalanches”. This is because wind

- Accumulates masses of snow leeward of ridges or in depressions
- Can build cornices at top of ridges

These accumulations cause an increased risk of avalanches.

Based on the DTM ridges can be identified.

Wind data is not available for Sharr/Šar National Park.

Exposition

According to statistical data, the frequency of avalanche is significantly higher on E to WNW exposed slopes.

Respective analysis was undertaken on basis of the DTM.

Slope length

Uniformly steep slopes with a length of more than 50m increase the avalanche risk. Conversely, short slopes reduce risk. Avalanche risk is also reduced if the terrain has a high diversity of landforms and structures which stabilise the snow cover.

⁴ Source: <http://www.powderguide.com/de/mountain-knowledge/basics/article/mountain-knowledge/>

2.4. Model for landslide risk

Driving factors

The following driving factors are relevant for landslide risk:

1. Slope:
 - slopes with more than 20 degrees are sensitive to landslide (mud, debris, earth)
 - slopes with loose material are only stable below a gradient of 35 degrees
 - rockfall etc. occurs on slopes greater than 45 degrees
 - slope can be analysed in Sharr/Šar National Park
2. Rainfall: Landslides are frequently induced by heavy rainfall
 - No data on single rainfall events are available for Sharr/Šar National Park
3. Soil: colluvial soils tend to increase landslide sensitivity
4. Bedrock with clay layers or sensitive to temperature-induced erosion is sensitive to landslide
5. Closed Vegetation cover stabilises the slope against landslide

Analysis

Step	Data	Analysis
1	Slope	Class 1: 20 degree <= slope < 35 degree Class 2: 35 degree <= slope < 45 degree Class 3: 45 <= slope
2	Geology (replaces soil)	Risk: Quaternary sediments
	Landuse	Risk: debris and gravel along temporary creeks Risk: sparsely vegetated areas Risk: Rock
	Landuse	Vegetation cover reducing risk

	Quaternary sediments		Sparsely vegetated areas / rock	Rock	Sparsely vegetated areas
Slope	Sparsely vegetated areas	Closed vegetation	creek		
20 – 35 degree	high	low	very high	moderate	moderate
35 – 45 degree	very high	moderate	very high	high	high
> 45 degree	very high	moderate	very high	very high	very high

Rockfall risk

Driving factors

The following driving factors are relevant for landslide risk:

- Slopes with more than 45 degrees are sensitive for rock fall
- Rock type: rockfall risk depends on rock type; geological bedrock types existing in Sharr/Šar National Park have been classified according to their stability; rockfall risk has been classified into 3 categories: unlikely, likely and very likely

2.5. Assessment criteria for the forest functions

Function	Specification
Wood production	High value wood = all forests on thick soils, and coppice forests with stands Firewood = all coppice forests including transitional woodland being classified as forest plus information of firewood collection from Village Questionnaire
Production of non wood products	Information from Village Survey
Erosion control and sediment retention	Soil erosion risk (including transitional woodland): Score for soil properties Soil-Slope Properties ≥ 70 Avalanche Risk (including transitional woodland): Slope ≥ 20 degrees Landslide risk (including transitional woodland): Quaternary sediments and slope > 20 degrees Rockfall risk (including transitional woodland): Rockfall risk of geology (likely or very likely) and slope > 45 degrees
Biodiversity	All coppice forests, Vegetation units assessed as having high protection value (EU Habitat directive, endemic or rare species or ecosystems) For fauna: forest having more the 1 layer, Originating from Seedlings, and being older than 50 a
Water Regulation and Water Supply	Forest management classes: Units on thick soils Geology units classified as likely or very likely to provide for groundwater resources Plus Riparian wetlands (= Riparian Forests)

2.6. Suitability of soils and recommendations for agricultural use

(Adapted from Elezi Xhevdet (2011): Classification of soil properties in agricultural areas of Dragash-suitability map for agriculture - UNDP Report)

The methodology for classification of agricultural land in Dragash/Dragaš Municipality into the classes of prolificacy is based on an assessment of the following factors: soil texture, geological origin of the soil, the 7 (seven) levels of its development, as well as an assessment of the landscape and the climate (Pedological Map of Kosovo, 1974). The classification of agricultural land into classes of prolificacy in the Republic of Kosovo is regulated through the Law on Agricultural Land No. 02/L-26. Such classification, due to a lack of methodology pursuant to FAO criteria, was based on classification of lands into cadastral classes based on the Law on Cadastre.

The Pedological Map of Kosovo was prepared according to the same methodology of classification/systematics of agricultural land as the one used in Croatia and Bosnia and Herzegovina. **These two countries have since** developed methodologies for classification into classes of prolificacy (Croatia, 2010) and land utilisation type (Bosnia and Herzegovina, 2004) based on criteria determined by FAO (Guidelines for soil description, 1990 and Land Utilization Type, 1984).

1. Map with the soil classification

Pedological classes/types of soil in the municipality of Dragash/Dragaš were classified into 8 classes of prolificacy (I-VIII). These classes were then grouped into 4 categories according to their suitability for agricultural productivity: Suitability with minor restrictions =II and III; Suitability with more expressed restrictions =V; Suitability with many restrictions VI and Suitability with extensive restrictions = VII and VIII.

2. Recommended types of agricultural use

Based on FAO methodology, on the experiences from Bosnia and Herzegovina regarding determination of land utilisation types (LUT), as well as through using the Orthophoto map to identify current land use in the Sharr/Šar National Park, some basic criteria for the classification of land has been determined according to classes of suitability and the level (%) of its restriction for agricultural productivity.

The basic criteria that were used for classification of land and determination of the level of its suitability for agricultural productivity are as following:

- topography, respectively the level of terrain inclination (%),
- characteristics/features of soil:
 - depth of soil profile,
 - physical features: content of texture elements,
 - characteristics of soil fertility: value of pH and the content of humus.

The classes of suitability of land for these groups of agricultural cultures have been determined according to the following criteria:

AR = arable land (cereals-winter and summer)
SC = special crops (fruits-berries, potatoes for seed and consume)
IP = intensive pasture
EP = extensive pasture

The following classes of suitability have been determined as a result of classification:

- Suitability with minor restrictions (10-40%): Prolificacy classes II and III. All the planned agricultural cultures can be cultivated in these soils, with little or high potential of mechanisation.
- Suitability with more expressed restrictions (40-60%): Prolificacy class V (class IV is absent). All the planned agricultural cultures can be cultivated in these soils, but only with little possibility of mechanisation.
- Suitability with many restrictions (60-80%): Prolificacy class VI. Although these lands have extensive restrictions, they are traditionally used for production of cattle food (hay) and/or as extensive pastures.
- Suitability with extensive restrictions (> 80%): Prolificacy classes VII and VIII. No cultivation is feasible and they are usually used as green grassing pastures.

The classification results have been presented in separate tables (Annex 2) for each culture based on the utilisation manner (intensive, extensive) and the level of machinery that may be used.

The following table presents the soil classes and suitability for cultures:

Suitability classes	High level of machinery	Low level of machinery
II	AR, SC, IP	AR, SC, IP
III	AR, SC, IP	AR, SC, IP
V	-	AR, SC, IP
VI	-	EP

AR = arable land (cereals-winter and summer)

SC = special crops (fruits-berries, potatoes for seed and consumption)

IP = intensive pasture

EP = extensive pasture

References:

FAO (1984): Land Utilization Type

FAO (1990): Guidelines for soil description,

FAO (2004): Ucesce u razvoju nacina koristenja zemljista na opcinском nivou u Bosni I Hercegovini, Tip Iskristavanja zemljista (LUT)

Pedologic Map of Kosovo (1974)

Pravilnik o mjerilima za utvrdivanje osobito vrijednog obradivog (P1) I vrijednog obradivog (P2) poljoprivrednog zemljista (2010): Ministarstvo poljoprivrede, Ribarstva I Ruralnog Razvoja, Republika Hrvatska.

The Law on Agricultural Land No. 02/L-26 (2006): Assembly of Kosovo

Table 2-3: Pedological types of soil in the Sharr/Šar National Park based on the classes of prolificacy and groups of suitability for plant production

Sharr/Šar National Park	Type of soil	Prolificacy class	Class based on UNDP research
Sharr/Šar National Park	Mineral-marsh clayish soil	III1	Suitability with minor restrictions
Sharr/Šar National Park	Peat soil of eutrophic bog peat	III1	
Sharr/Šar National Park	Alluvial-diluvial loamy soil	III1	
Sharr/Šar National Park	Leached diluvium	III1	
Sharr/Šar National Park	Loamy diluvium	III1	
Sharr/Šar National Park	Loamy alluvium	II2	
Sharr/Šar National Park	Sandy alluvium	III1	
Sharr/Šar National Park	Brownized rendzina on compact limestone	V1	Suitability with more expressed restrictions
Sharr/Šar National Park	Typical rendzina on compact limestone	V1	
Sharr/Šar National Park	Reddish-brown leached soil on reddish sediments	VI1	Suitability with many restrictions
Sharr/Šar National Park	Brown leached soil on schists	VI1	
Sharr/Šar National Park	Lithosol on neutral rocks (sienit, trachyte, etc.)	VI2	
Sharr/Šar National Park	Brownized ranker on schists	VII2	Suitability with extensive restrictions
Sharr/Šar National Park	Typical ranker on schists	VII2	
Sharr/Šar National Park	Typical ranker on neutral rocks	VII1	

Sharr/Šar National Park	Type of soil	Prolificacy class	Class based on UNDP research
Sharr/Šar National Park	Bare rock	VIII2	
Sharr/Šar National Park	Shallow brown soil on schists	VII1	
Sharr/Šar National Park	Shallow brown soil on compact rock	VII1	
Sharr/Šar National Park	Lithosol on schists	VIII1	
Sharr/Šar National Park	Lithosol on compact limestone	VIII2	

Table 2-4: Classes of suitability and the level of utilisation for determined cultures, based on the cultivation manner and the level of machinery

Agricultural crops: Winter grains - Level of machinery: High

Characteristics/ attributes of soil	Suitability class and utilization level (%)			
	Suitability with minor restrictions	Suitability with more expressed restrictions	Suitability with many restrictions	Suitability with extensive restrictions
	90-60%	60-40%	40-20%	>20%
Topography, inclination (%)	0-15	15-30	35-45	>45
Physical traits, texture class	L, SCL, SiL, SiCL, CL, SL, LS	-	-	-
Depth of the profile (cm)	>100; 100-80; 80-60	60-30	30-20	<20
Soil reaction (pH)	5.5-6.5; 6.5-7.0; 7.0-7.2; 7.2-7.5	5.5-4.5	4.5-3.0	<3
Humus content (%)	>4; 4-3	3-2	2-1	<1

Agricultural crops: Winter grains - Level of machinery: Low

Characteristics/ attributes of soil	Suitability class and utilization level (%)			
	Suitability with minor restrictions	Suitability with more expressed restrictions	Suitability with many restrictions	Suitability with extensive restrictions
	90-60%	60-40%	40-20%	>20%
Topography, inclination (%)	0-15	15-30	30-45	>45
Physical traits, texture class	L, SCL, SiL, SiCL, CL, SL, LS	Si, CL, C, S	-	-
Depth of the profile (cm)	>100; 100-80; 80-60	60-30	30-20	<20
Soil reaction (pH)	5.5-6.5; 6.5-7.0; 7.0-7.2; 7.2-7.5	5.5-4.5	4.5-3.0	<3
Humus content (%)	>4; 4-3	3-2	2-1	<1

Agricultural crops: Summer grains - Level of machinery: High

Characteristics/ attributes of soil	Suitability class and utilization level (%)			
	Suitability with minor restrictions	Suitability with more expressed restrictions	Suitability with many restrictions	Suitability with extensive restrictions
	90-60%	60-40%	40-20%	>20%
Topography, inclination (%)	0-15	15-30	35-45	>45
Physical traits, texture class	L, SCL, SiL, SiCL, CL, SL, LS	-	-	-
Depth of the profile (cm)	>100; 100-80; 80-60	60-30	30-20	<20
Soil reaction (pH)	5.5-6.5; 6.5-7.0; 7.0-7.2; 7.2-7.5	5.5-4.5	4.5-3.0	<3
Humus content (%)	>4; 4-3	3-2	2-1	<1

Agricultural crops: Summer grains - Level of machinery: Low

Characteristics/ attributes of soil	Suitability class and utilization level (%)			
	Suitability with minor restrictions	Suitability with more expressed restrictions	Suitability with many restrictions	Suitability with extensive restrictions
	90-60%	60-40%	40-20%	>20%
Topography, inclination (%)	0-15	15-30	30-45	>45
Physical traits, texture class	L, SCL, SiL, SiCL, CL, SL, LS	Si, CL, C, S	-	-
Depth of the profile (cm)	>100; 100-80; 80-60	60-30	30-20	<20
Soil reaction (pH)	5.5-6.5; 6.5-7.0; 7.0-7.2; 7.2-7.5	5.5-4.5	4.5-3.0	<3
Humus content (%)	>4; 4-3	3-2	2-1	<1

Agricultural crops: Potato seeds - Level of machinery: high

Characteristics/ attributes of soil	Suitability class and utilization level (%)			
	Suitability with minor restrictions	Suitability with more expressed restrictions	Suitability with many restrictions	Suitability with extensive restrictions
	90-60%	60-40%	40-20%	>20%
Topography, inclination (%)	0-15	15-30	35-45	>45
Physical traits, texture class	L, SCL, SiL, Si, SiC, SL, LS	-	-	-
Depth of the profile (cm)	>100; 100-80; 80-60	60-30	30-20	<20
Soil reaction (pH)	5.5-6.5; 6.5-7.0; 7.0-7.2; 7.2-7.5	5.5-4.5	4.5-3.0	<3
Humus content (%)	>4; 4-3	3-2	2-1	<1

Agricultural crops: Potato for consumption - Level of machinery: high

Characteristics/ attributes of soil	Suitability class and utilization level (%)			
	Suitability with minor restrictions	Suitability with more expressed restrictions	Suitability with many restrictions	Suitability with extensive restrictions
	90-60%	60-40%	40-20%	>20%
Topography, inclination (%)	0-15	15-30	35-45	>45
Physical traits, texture class	L, SCL, SiL, Si, SiC, SL, LS	-	-	-
Depth of the profile (cm)	>100; 100-80; 80-60	60-30	30-20	<20
Soil reaction (pH)	5.5-6.5; 6.5-7.0; 7.0-7.2; 7.2-7.5	5.5-4.5	4.5-3.0	<3
Humus content (%)	>4; 4-3	3-2	2-1	<1

Agricultural crops: Potato for consumption - Level of machinery: low

Characteristics/ attributes of soil	Suitability class and utilization level (%)			
	Suitability with minor restrictions	Suitability with more expressed restrictions	Suitability with many restrictions	Suitability with extensive restrictions
	90-60%	60-40%	40-20%	>20%
Topography, inclination (%)	0-15	15-30	30-45	>45
Physical traits, texture class	L, SCL, SiL, SiCL, CL, SL, LS	Si, SiC, CL, C, S	-	-
Depth of the profile (cm)	>100; 100-80; 80-60	60-30	30-20	<20
Soil reaction (pH)	5.5-6.5; 6.5-7.0; 7.0-7.2; 7.2-7.5	5.5-4.5	4.5-3.0	<3
Humus content (%)	>4; 4-3	3-2	2-1	<1

Agricultural crops: Berry fruits - Level of machinery: high

Characteristics/ attributes of soil	Suitability class and utilization level (%)			
	Suitability with minor restrictions	Suitability with more expressed restrictions	Suitability with many restrictions	Suitability with extensive restrictions
	90-60%	60-40%	40-20%	>20%

Topography, inclination (%)	0-15	15-30	35-45	>45
Physical traits, texture class	L, SCL, SiL, Si, SiC, SiCL, SL, LS	-	-	-
Depth of the profile (cm)	>100; 100-80; 80-60	60-30	30-20	<20
Soil reaction (pH)	5.5-6.5; 6.5-7.0; 7.0-7.2; 7.2-7.5	5.5-4.5	4.5-3.0	<3
Humus content (%)	>4; 4-3	3-2	2-1	<1

Agricultural crops: Berry fruits - Level of machinery: low

Characteristics/ attributes of soil	Suitability class and utilization level (%)			
	Suitability with minor restrictions	Suitability with more expressed restrictions	Suitability with many restrictions	Suitability with extensive restrictions
	90-60%	60-40%	40-20%	>20%
Topography, inclination (%)	0-15	15-30	30-45	>45
Physical traits, texture class	L, SCL, SiL, SiCL, CL, SL, LS	Si, SiC, CL, C, S	-	-
Depth of the profile (cm)	>100; 100-80; 80-60	60-30	30-20	<20
Soil reaction (pH)	5.5-6.5; 6.5-7.0; 7.0-7.2; 7.2-7.5	5.5-4.5	4.5-3.0	<3
Humus content (%)	>4; 4-3	3-2	2-1	<1

Agricultural crops: Meadows and pastures - Production level: intensive

Characteristics/ attributes of soil	Suitability class and utilization level (%)			
	Suitability with minor restrictions	Suitability with more expressed restrictions	Suitability with many restrictions	Suitability with extensive restrictions
	90-60%	60-40%	40-20%	>20%
Topography, inclination (%)	0-15	15-30	35-45	>45
Physical traits, texture class	L, SCL, SiL, Si, SiC SiCL, SL, LS	Si, SiC, CL, C, S	-	-
Depth of the profile (cm)	>100; 100-80; 80-60	60-30	30-20	<20
Soil reaction (pH)	5.5-6.5; 6.5-7.0; 7.0-7.2; 7.2-7.5	5.5-4.5	4.5-3.0	<3
Humus content (%)	>4; 4-3	3-2	2-1	<1

Agricultural crops: Meadows and pastures - Production level: extensive

Characteristics/ attributes of soil	Suitability class and utilization level (%)			
	Suitability with minor restrictions	Suitability with more expressed restrictions	Suitability with many restrictions	Suitability with extensive restrictions
	90-60%	60-40%	40-20%	>20%
Topography, inclination (%)	0-15	15-30	30-45	>45
Physical traits, texture class	L, SCL, SiL, SiCL, CL, SL, LS	Si, SiC, CL, C, S	S, C, SC, SL, CL	-
Depth of the profile (cm)	>100; 100-80; 80-60	60-30	30-20	<20
Soil reaction (pH)	5.5-6.5; 6.5-7.0; 7.0-7.2; 7.2-7.5	5.5-4.5	4.5-3.0	<3
Humus content (%)	>4; 4-3	3-2	2-1	<1

Legend:

Si-Silt	II2, III1, III2	SL-Sandy Loam
SiL-Silt Loam	V1, V2	SCL-Sandy Clay Loam
SiCL-Silty Clay Loam	VI1, VI2	SL-Sandy Loam
SiC-Silty Clay	VII1, VII2, VIII1, VIII2	SC-Sandy Clay
L-Loam		LS-Loamy Sand
CL-Clay Loam		S-Sand
C-Clay		



United Nations Development Programme

Conservation of Biodiversity and Sustainable Land Use Management
in Dragash/Dragaš



*Empowered lives.
Resilient nations.*

Sustainable Development Atlas

Framework for a comprehensive and balanced management plan of “Sharr” National Park Kosovo

Volume IV: Guidance for Development

Ergin Hajredini

Peter Bank

Florian Bemmerlein-Lux

Ismail Gagica

Halil Ibrahim

With contributions from Prof. Dr. Behxhet Mustafa – Ecologist, Prof. Dr. Fadil Millaku - Biologist, Dr. Achim Milbradt – Biologist, Michael Voit - Rural Development Planner, Prof. Xhevdet Elezi - Soil scientist – agronomist, Arneni - National Forest Consultancy Company, NGO Finches – Ornithologists, Todd Wasel – Tourism Specialist, Kaltrina Salihu – Community Officer, Bashkim Susuri – Journalist and Project Associate, Bardh Xerxa – Ecologist, Ajhan Hadzija – Tourism Coordinator, Sharr National Park Directorate, the Municipal Working Group of Dragash/Dragaš Municipality and Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH, Rural Economic Development Programme.

Project Manager:

Maria Elena Zuniga Barrientos

Output supervisor and officer in charge:

Halil Ibrahim

Dragash / Dragaš, Kosovo

December 2013



Table of Content

1. Guidance Maps	4
1.1. Objectives and principles for sustainable development of Sharr/Šar National Park .	4
1.2. Guiding development principles for Sharr/Šar National Park	5
1.3. Nature conservation (G1.1)	6
1.4. Zoning of Sharr/Šar National Park (G1.2).....	10
1.5. Forest (G2.1).....	13
1.6. Agriculture (G2.2).....	16
1.7. Water (G3)	19
1.8. Functional structure and tourism (IG1)	22
2. Annex.....	25
2.1. CORINE land use types	25
2.2. Remarks for preferential habitats (a)	28
2.3. Remarks for non-preferential habitats (b)	29
2.4. Protection categories of the Law	30



List of Tables

Table 1-1: List of Guidance Maps	4
Table 1-2: % and size of the different guidance areas of nature conservation	6
Table 1-3: % and size of the different guidance areas of nature rehabilitation and development.....	6
Table 1-4: Decision criteria for the guidance of nature conservation.....	7
Table 1-5: % and size of the different guidance areas for forest	13
Table 1-6: Percentage and size of the different guidance areas for agriculture.....	16

List of Figures

Figure 1-1: Guidance for nature conservation (G1.1).....	9
Figure 1-2: Decision criteria for the zoning of the National Park (G1.2)	12
Figure 1-3: Decision criteria for the guidance of forest development.....	14
Figure 1-4: Guidance for forest (G2.1).....	15
Figure 1-5: Decision criteria for the guidance of agricultural development	17
Figure 1-6: Guidance for agriculture (G2.2)	18
Figure 1-7: Decision criteria for the guidance of water and sanitation	19
Figure 1-8: Guidance for water and sanitation (G3)	21
Figure 2-3: Decision criteria for functional structure	23
Figure 2-4: Guidance for the functional structure (IG1)	24



1. Guidance Maps

Maps for Step 3: Zones indicating the most appropriate development objectives; this may be expressed in terms of rehabilitation zones; protection zones; specific development zones; conflict zones. They are summarised as **development objectives zones**

Table 1-1: List of Guidance Maps

G	Guidance maps
<i>Guidance maps referring to natural resources – preconditions for the national park management plan</i>	
G1-1	Nature conservation
G1-2	Zoning of Sharr/Šar National Park
G2-1	Forest
G2-2	Agriculture
G3	Water Resources
IG1	Functional structure and Tourism

1.1. Objectives and principles for sustainable development of Sharr/Šar National Park

The Sustainability Atlas is the basis for guidance and a comprehensive framework for sustainable development of the Sharr/Šar National Park management plan and special plan. It has the principle objective to harmonise the various demands from society, the regional economy and the administration with the environmental and ecological spatial conditions. This is presented as a well-organised spatial development concept. The **guiding development objectives** of sustainable regional development of the Sharr/Šar National Park outlined in this atlas are:

1. Contribute towards balanced and fair improvement of living conditions for the population of the Municipalities surrounding national park as a whole and for the more vulnerable sections of the population in particular;
2. Protect, develop and – where necessary – rehabilitate the natural basis for existence, in particular water, air, soil, flora and fauna, in an integrated and comprehensive manner
3. Contribute towards balanced economic and social development of the whole Sharr/Šar National Park
4. Reserve necessary areas and sites for further development, including for agriculture, livestock, touristic resources and cultural heritage, in a balanced way
5. Preserve and develop distinct parts of the Sharr/Šar National Park that is outstanding in terms of its natural beauty and social heritage, such as unique landscapes and biodiversity



1.2. Guiding development principles for Sharr/Šar National Park

- a) Ecologically fragile or sensitive areas should be preserved and developed in such a manner that they are not adversely affected by any development activity or inappropriate uses: Their development should also be guided by their recreational and tourist functions to adjoining settlements, or for the region as a whole. This includes areas subject to natural risks, such as flooding, erosion etc, which are to be kept free from uses eventually adversely affected by such risks.
- b) The principle structure of the zone of Sharr/Šar National Park, important for biodiversity where specific flora and fauna species are located which are protected by national laws or international conventions, should be preserved or managed in sustainable way when its allowed by legislation and concepts of national park zonation.
- c) The functions of designated development centres have to be strengthened by provision of necessary services and utilities. This also includes the provision of sufficient sites required for their development.
- d) Infrastructure has to be developed in accordance with existing and envisioned socio-economic development, and with the settlement structure. Infrastructural development needs of the surrounding municipalities are to be considered. Road connections and border stations to Albania and FYR Macedonia are essential to overcome Dragash / Dragas's "dead-end" location, or extension of new ski resort in Brezovica which should be developed in sustainable manner.
- e) Forest management and livestock should be managed in sustainable manner to supply the need of surrounding communities in zones where there is no negative impact and doesn't reflect on threatening the values of biodiversity. This should be done applying international standards as guarantee for sustainable management.



1.3. Nature conservation (G1.1)

Contents of the guidance map:

Areas that are classified according to the Law of Nature Protection may be:

- Strict reserve *
- Special Area of Conservation and Special Protected Areas (SAC-SPA)
- Nature Monuments
- Protected Landscape

Zones that require rehabilitation (or a mix of development and rehabilitation)

Zones that are available for further development

The main messages:

The existing status (rarity) of forests, rangelands and wetlands is recorded to an extent that allows a first definition of areas requiring protection in order to preserve their ecological functions and services according to the Law of Nature Protection (i.e. strict nature reserve, special areas – SPAs and SAC, nature monuments and protected landscapes). In addition, the faunistic resources form part of the information which supports the preparation of management plan of Sharr/Šar National Park as well the preparation of special plan according to the Law of Nature Protection. Ecological corridors play an important role to allow free movement of species from one site to another and constitute part of the existing ecological network.

Table 1-2: % and size of the different guidance areas of nature conservation

Protection categories: The area meets the requirements of the to the Law of Nature Conservation for:	% of the Sharr/Šar National Park and size in ha		Comment
Strict reserve	34,46 %	18.358,88 ha	Needs scientific investigation and management plan before a formal declaration as protected area "strict reserve" according
Special protected area / special area of conservation	0,06 %	29,77 ha	Focus of these areas in Sharr/Šar National Park" (Zone 1 and Zone 2) and the riparian forests.
Nature Monument	2,34 %	1.247,59 ha	Mainly wetlands and special objects
Protected landscape	53,87 %	28.699,18 ha	Large parts of the mountainous areas with pastures and forests (incl. coppice forests)
Protected landscape and requirement of rehabilitation	5,59 %	2.978,85 ha	Mainly areas of coppice forests/eroded areas

Table 1-3: % and size of the different guidance areas of nature rehabilitation and development

Development and regeneration	% of the Sharr/Šar National Park and size in ha		Comment
Development and rehabilitation	0,08 %	40,94 ha	Mainly areas of planted forests/eroded areas
Development	3,41 %	1.816,32 ha	Mainly areas of present agricultural use and pasture

It is important to note that most of Sharr/Šar National Park's landscape is a result of a centuries-old land-use practices that are also the origin of a lot of the existing biodiversity and the attractive landscapes. Changing the land-



use pattern interferes with biodiversity.

The distribution pattern of biodiversity hotspots clearly shows that most of the outstanding ecological areas belong on strict protection as well in protected landscape.

Criteria used for guidance map:

The evaluated area includes all land use types (CORINE units), industrial and business areas (unit no. 1). The decision criteria are as shown in Table 1-4. These criteria do not include faunistic data such as for chamois, bear and lynx, because their habitats are already included in the classified protected vegetation zones.

Table 1-4: Decision criteria for the guidance of nature conservation

Criteria (for CORINE units see Annex 2.1)	Strict reserve #)	SAC-SPA #)	Nature monu- ment #)	Protected landscape #)	Rehabilitation	Development
Habitat directive (HD) - Annex 1* no management and HD-Annex II & Kosovo Red Species List with 50 m buffer						
HD-Annex 1* management required (a)						
HD-Annex 1 no management						
HD-Annex 1 management (b) and Natural grassland CORINE: 2.3.1 – 2.3.4 and 3.2.1 (above 2050 m)						
Waterfall, natural springs (not developed springs), natural lake (20m buffer)						
Wetlands (CORINE: 4.1.1, 4.1.2, 4.1.3) Inland marshes, peat bogs, Riparian wetland						
Geological-, paleontological-, mineralogical structure (like – cave (only one available), chasm, cliff walls)						
Natural water courses (20 m Buffer) includes Aquatic insect hot spot						
3.3.3 Sparsely vegetated areas 3.3.2 Bare rock						
Pastures Highland/Mountain/ alpine 2.3.1 - 2.3.4 and 3.2.1 above 1600 m						
Moors and heathland Vegetation CORINE: 3.2.2 and transitional woodland/shrub CORINE: 3.2.4						
Forest has a biodiversity function (more than 1 layer and natural seedlings, no coppice forest)						
Forest older than 35 years (incl. mixed forests)						
Woodland patches CORINE: 3.1.5						
Agriculture / natural vegetation Mix, Complex cultivation – with hedges/trees, Complex cultivation – with hedges (CORINE: 2.4.3, 2.4.4, 2.4.5)						
Coppice forest (CORINE: 3.2.5) depending on its condition – Development of adequate and professional management practices)						
Mineral extraction sites, Dump sites CORINE:1.3.1, 1.3.2						
Other forests (CORINE: 3.1.1, 3.1.3, 3.1.2) and Coniferous forest – Planted (CORINE: 3.1.4)						
Pastures Highland/Mountain/ 2.3.1 to 2.3.4 below 1600m						
Other Agricultural/pasture land (CORINE: 2.1.1, 2.1.2, 2.2.2, 2.4.1, 2.4.2)						
#) = according to The Law of Nature Protection No.03/L-233						



Due to the high diversity of land uses and landscape structures, the territory of Sharr/Šar National Park provides for a high diversity of habitats for numerous groups and species of animal. Besides the open grasslands, high forests, coppice forests, all types of wetlands, and rocky and gravel areas are of high importance.

Data sources and material:

The following Assessment Maps provided the basic data for the Development Guidance:

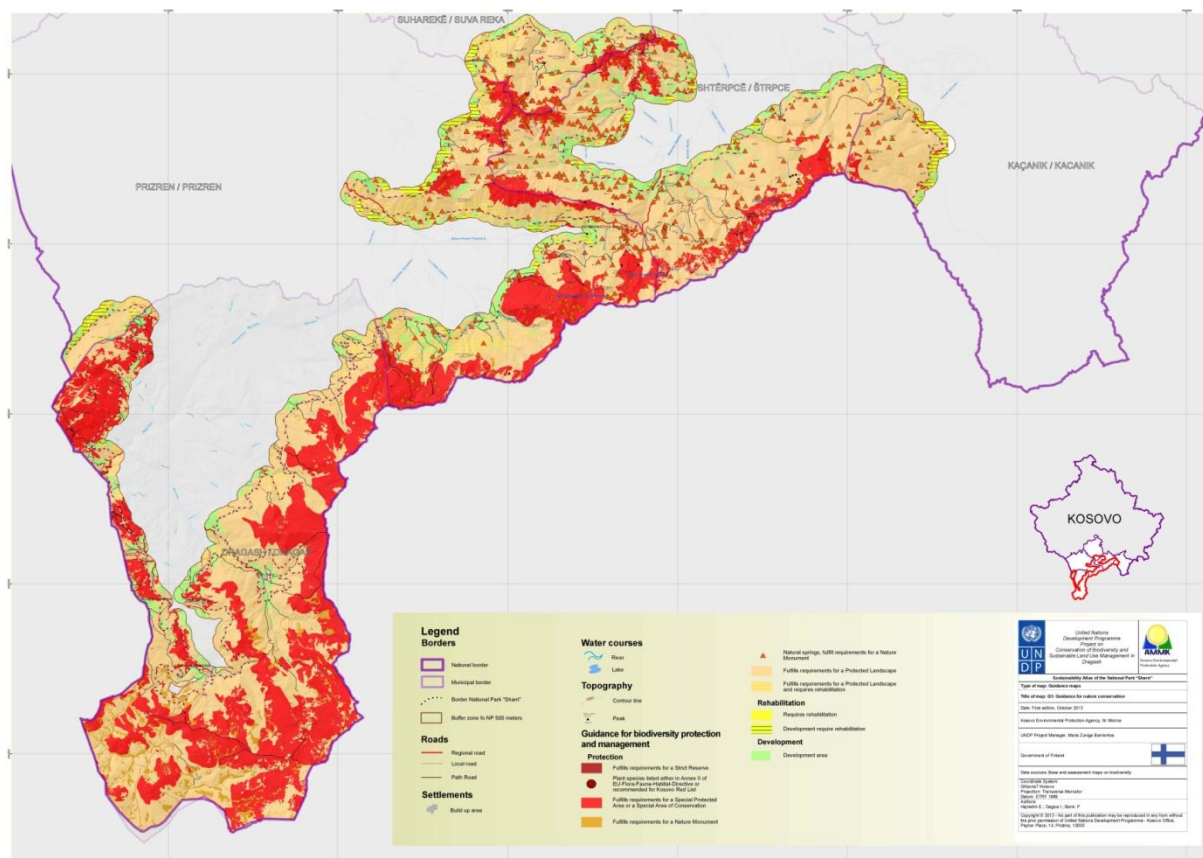
- *A1.1 and A1.2 Assessment of biodiversity*
- *A3 Assessment of water resources – regeneration and quality*
- *A4.1 - A4.3 Assessment of natural hazards*
- *A5.1 and A5.2 Assessment of forest and agriculture - condition of forest and forest functions*
- *A6 Assessment of cultural heritage and tourist potential*

The findings of the preliminary identification of Natura 2000 Sites in Kosovo have been confirmed and considerable details are added (Mustafa et al. 2009).

Further suggestions for improvement of data:

There are no systematic scientific studies available on the fauna, flora and vegetation of Sharr/Šar National Park. However, data from NGOs, village residents, scattered information from literature and random inspections by various national and international specialists provide a good basis for an overview on the local fauna. A lot more research is needed to obtain a more precise picture of the biodiversity of the area.

Figure 1-1: Guidance for nature conservation (G1.1)



1.4. Zoning of Sharr/Šar National Park (G1.2)

Contents of the guidance map:

- Suggestion for the Zoning of Sharr/Šar National Park – in Dragash/Dragaš Municipality¹
- Zonation of Sharr/Šar National Park outside Dragash
- Possible conflicts affecting zonation of Sharr/Šar National Park with findings from UNDP research and studies

The main messages:

Zone 1: Protected Zone – “Corezone”: Extraordinary natural characteristics and areas of habitat types which are endangered in global, European and national level with:

- High density of rare, typical, endemic (Kosovo and Balkan) vegetation types (high density of *Strict Nature Reserves* acc. to “Article 10 - Law No.03/L –233 – of Nature Protection”)
- High density of rare and protected plants (acc. to Natura 2000 – Annexes; IUCN-Red list of threatened species; and experts assessments)
- High density of wetlands (water courses and lakes, bogs and peat-land, marshes/waterlogged areas and springs)
- Exceptional rocks, cliffs and gorges
- High importance for migratory routes for wild goats, bears and lynx
- Part of the network of protected areas/national parks in Albania and FYR Macedonia

Zone 1 enjoys the character of strict protection and covers with 9.363,51 ha (17,52 %) of Sharr/Šar National Park.

Zone 2: Active Management Zone - “Traditional Use Zone”: Areas with ecosystems, landscape values and other natural values with the possibility of an active ecosystem and landscape management with:

- Existence of wetlands (water courses and lakes, bogs and peat-land, marshes/waterlogged areas and springs)
- Areas of exceptional biological diversity or well-conserved areas of international importance and areas that significantly contribute to the conservation of biological and landscape diversity in Kosovo
- Occurrence of rare, typical, endemic (Kosovo and Balkan) vegetation
- Occurrence of rare and protected plants (acc. to Natura 2000 – Annexes; IUCN-Red list of threatened species; and experts assessments)

Zone 2 enjoys the character of a “Special area of conservation” according to Art. 12 Law of Nature Protection. Permitted interventions, works and activities which sustain and improve conditions that are important for conservation of its features, and because of which it has been declared a special area, may be undertaken. Any restrictions have to be clearly specified in a management plan.

Zone 2 covers an area of 40.311,90 ha (75,43 %) of Sharr/Šar National Park.

Zone 3: Sustainable Use Zone - “Recreation Area”: is declared in the parts of the National Park territory foreseen for restricted construction of leisure, recreational, and tourism sites, and for the needs of the inhabitants of the National Park. It includes 1) proximity to settlements and more intensive, existing interaction of human activities and 2) existing installations with relevance for tourism.

Restrictions should be clearly specified in a management plan. The restrictions should include prohibition to remove soil cover (for example for outdoor recreational areas) prohibition to discharge untreated waste waters directly to rivers, and prohibition to burn waste, amongst other restrictions. Existing infrastructure shall be upgraded to meet standards established in this law and management plans.

It covers with 3.769,80 ha (7,05 %) of Sharr/Šar National Park

¹ Based on a discussion with the National Park Directorate the 10th October 2012, Prizren

Buffer zone - surface area of 500 metres from the boundary of National Park serving to prevent negative effects on the park.

Criteria used for guidance map:

According to its regulations, IUCN would accept up to 25% of the NP to be dedicated as Zone 3 for development (i.e. 75% has to be zones 1 or 2). Traditional land use (animal husbandry), which is essential for the sustainable management of grasslands, would not fall under this category.

The suggested areas for Zone 1 to 3 are based on the following criteria:

1. Zone 1 with preferential habitats according to EU habitat directive classification (see Annex 2.2) and/or high density of rare habitats and plants (according to EU habitat directive and draft Kosovo Plant Red Species list)
2. Traditional land use (grazing) areas
3. Existing or planned infrastructure within the suggested border of the National Park
4. Road plans as suggested in the Municipal Development Plan (see also section Fehler! Verweisquelle konnte nicht gefunden werden.) are shown in the guidance map, but not considered in the Zonation Concept. These projects have to be discussed, assessed and considered during the final formulations of the Spatial Plan and the Management Plan for the National Park.

The zonation for territory of National park in Dragash is a results of UNDP results of studies and research, while for rest part of national park outside Dragash, the zonation was given by MoESP-Institute of Special Planning.

The zones are a compromise between the existing, traditional land uses of the local population and strict protection of areas that are negatively influenced by the traditional uses. A park and its management have to consider traditional land uses, especially if those land uses are constitutive of biodiversity.

Economic (and touristic) development requires international road connection to Albania and FYR Macedonia, a connection between Brod and Restelica/Restelice (scenic road), as well as a bypass for Restelica/Restelice. The same would be applied at recent project on new ski resort in Brezovica as well touristic village in Prevala.

These future plans are to be considered in the Management and Spatial plan of the National Park.

The roads will be located as planned and the NP Management and Spatial Plan will consider these and decide on the spatial zoning category required by law for such road projects. A buffer of 10-20 m on both sides of the road are considered to be influenced by the road and its construction.

Data sources, material and reliability:

- Republic of Kosovo (December 2012): Law on the National Park "Sharri"
- Republic of Kosovo (2010): The Law of Nature Protection No.03/L-233
- Zonation by MoESP, Institute of Special Planning

Further suggestions for improvement of data:

The zonation of Sharr/Šar National Park in part of territory outside Dragash has been done before results of SDA UNDP project, and it should be checked whether new information will be considered on Special plan of Sharr/Šar National Park, either on management plan preparation. On map G1.2 are show conflicts with management as well conflicts with protection on area of Sharr/Šar National Park outside Dragash.

Legend

Borders

- Municipal border
- Municipal border
- Border National Park "Sharr"
- Buffer zone to NP 500 meters

Roads

- Regional road
- Local road
- Path Road
- Build up area

Settlements

- Build up area

Water courses

- River
- Lake
- Stream

Topography

- Contour line

Guidance for zonation of Sharr Mountain National Park in Dragash/Dragaš Municipality

- Zone 1 (in red line): Partly biomass for construction of biomass, renewable, and biomass objects and for the needs in the municipality of the territory of National Park, limited and selective use of natural goods.
- Zone 2 (in orange line): Partly biomass for construction of biomass, renewable, and biomass objects and for the needs in the municipality of the territory of National Park, limited and selective use of natural goods.
- Zone 3 (in red line): Partly biomass for construction of biomass, renewable, and biomass objects and for the needs in the municipality of the territory of National Park, limited and selective use of natural goods.
- Zone 4 (in green line): Partly biomass for construction of biomass, renewable, and biomass objects and for the needs in the municipality of the territory of National Park, limited and selective use of natural goods.
- Zone 5 (in purple line): Partly biomass for construction of biomass, renewable, and biomass objects and for the needs in the municipality of the territory of National Park, limited and selective use of natural goods.

Possible conflicts for zonation of Sharr Mountain National Park by MoESP and Results of findings of UNDP

- Conflict with protection goals
- Conflict with management needs
- Conflict with protection goals
- Conflict with rehabilitation needs

UNDP

United Nations Development Programme

Sharr Mountain National Park

Dragash/Dragaš Municipality

KOSOVO

Legend

Borders

- Municipal border
- Municipal border
- Border National Park "Sharr"
- Buffer zone to NP 500 meters

Roads

- Regional road
- Local road
- Path Road
- Build up area

Settlements

- Build up area

Water courses

- River
- Lake
- Stream

Topography

- Contour line

Guidance for zonation of Sharr Mountain National Park in Dragash/Dragaš Municipality

- Zone 1 (in red line): Partly biomass for construction of biomass, renewable, and biomass objects and for the needs in the municipality of the territory of National Park, limited and selective use of natural goods.
- Zone 2 (in orange line): Partly biomass for construction of biomass, renewable, and biomass objects and for the needs in the municipality of the territory of National Park, limited and selective use of natural goods.
- Zone 3 (in red line): Partly biomass for construction of biomass, renewable, and biomass objects and for the needs in the municipality of the territory of National Park, limited and selective use of natural goods.
- Zone 4 (in green line): Partly biomass for construction of biomass, renewable, and biomass objects and for the needs in the municipality of the territory of National Park, limited and selective use of natural goods.
- Zone 5 (in purple line): Partly biomass for construction of biomass, renewable, and biomass objects and for the needs in the municipality of the territory of National Park, limited and selective use of natural goods.

Possible conflicts for zonation of Sharr Mountain National Park by MoESP and Results of findings of UNDP

- Conflict with protection goals
- Conflict with management needs
- Conflict with protection goals
- Conflict with rehabilitation needs

UNDP

United Nations Development Programme

Sharr Mountain National Park

Dragash/Dragaš Municipality

KOSOVO



1.5. Forest (G2.1)

Contents of the guidance map:

- Zones that should not have any forest use and should be protected forests (mainly forests with very difficult access and the ecotone at treeline and Riverine forests required for water course protection and stability)
- Zones that could undertake forest management according to *Forest Stewardship Council Criteria*
- Zones which need rehabilitation and management plans to increase productivity and simultaneously maintain and improve their ecological stewardship functions (water retention and geo-risk reduction)
- Zones that can be developed with special consideration of the ecological stewardship functions (water retention and geo-risk reduction)
- Zones that can be developed without restriction

The main messages:

Maintain and extend the existing forest area and improve their management to increase the production and supply of firewood, particularly through more productive and more sustainable use of existing coppice forest resources.

Table 1-5: % and size of the different guidance areas for forest

Categories:	% of forest in the municipal territory and size in ha		Comment
Forest area of the municipality	%	ha	
Protected *) – no management	4,46 %	880,8 ha	No management – the area should have biodiversity and/or riverbank protection function
Protect *) - management according to Forest Stewardship Council Criteria	89,92 %	17,741,1 ha	The management is economically and also ecologically required but has to follow the FSC standards of Kosovo.
Rehabilitate with management plans	0,82 %	161,18 ha	The management plans have to be adapted to objectives that focus on conservation (especially water retention and geo-risk reduction) and wood production
Develop maintaining the forest functions	3,92 %	774,02 ha	Any development should focus especially on the maintenance of ecological stewardship functions (see Assessment Map A 5.2)
Developed without restriction	0,88 %	172,79 ha	
% of the municipal territory and size in ha			
Areas with high geo-risk close to settlements	1,13 %	222,41 ha	In these areas afforestation should be considered with priority – feasibility studies are required
Areas with high geo-risk more than 500m from settlements	34,06 %	6.719,12 ha	In these areas afforestation should be considered – feasibility studies are required

*) The term “protected” zone does not mean that the areas are protected by law, but that they fulfil the criteria to be protected. It is a political decision and the result of a balancing of the further planning process as to which

areas will be protected through the application of a formal legal process.

In the medium term, afforestation is a realistic option to increase the forest area with native broadleaved trees (conifers cannot be used for firewood with common heating techniques because of resin content). There is a considerable potential for afforestation of suitable abandoned land with low agricultural productivity or abandoned lands.

New forests in steeper areas would contribute to protection against avalanches, erosion and landslides.

In general, newly established forests will expand the productive resources for non-wood forest products such as mushrooms.

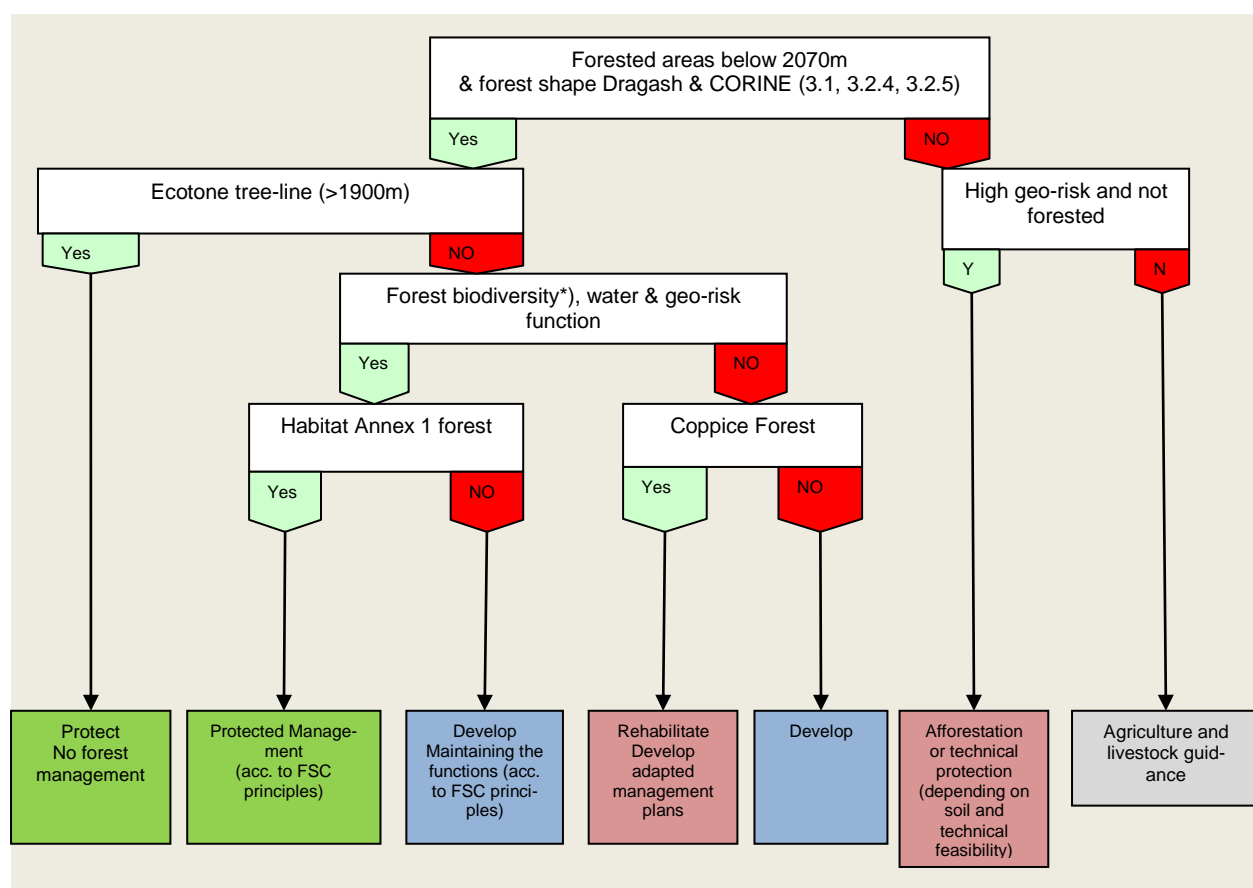
The risk from the burning of forests has to be taken seriously and there is a need to improve the early warning, fire control and fire fighting procedures and measures. Bad management practices of burning pasture areas and the remnants of harvests on farmland increases the risk of wild fires especially during drier periods of the year.

Decision guidelines:

The following Assessment Maps provide the basic data for the Development Guidance:

- A4.1 to A4.3 Assessment of natural hazards
- A5.1 and A5.2 Assessment of agriculture and forest- condition of forest and forest functions

Figure 1-3: Decision criteria for the guidance of forest development

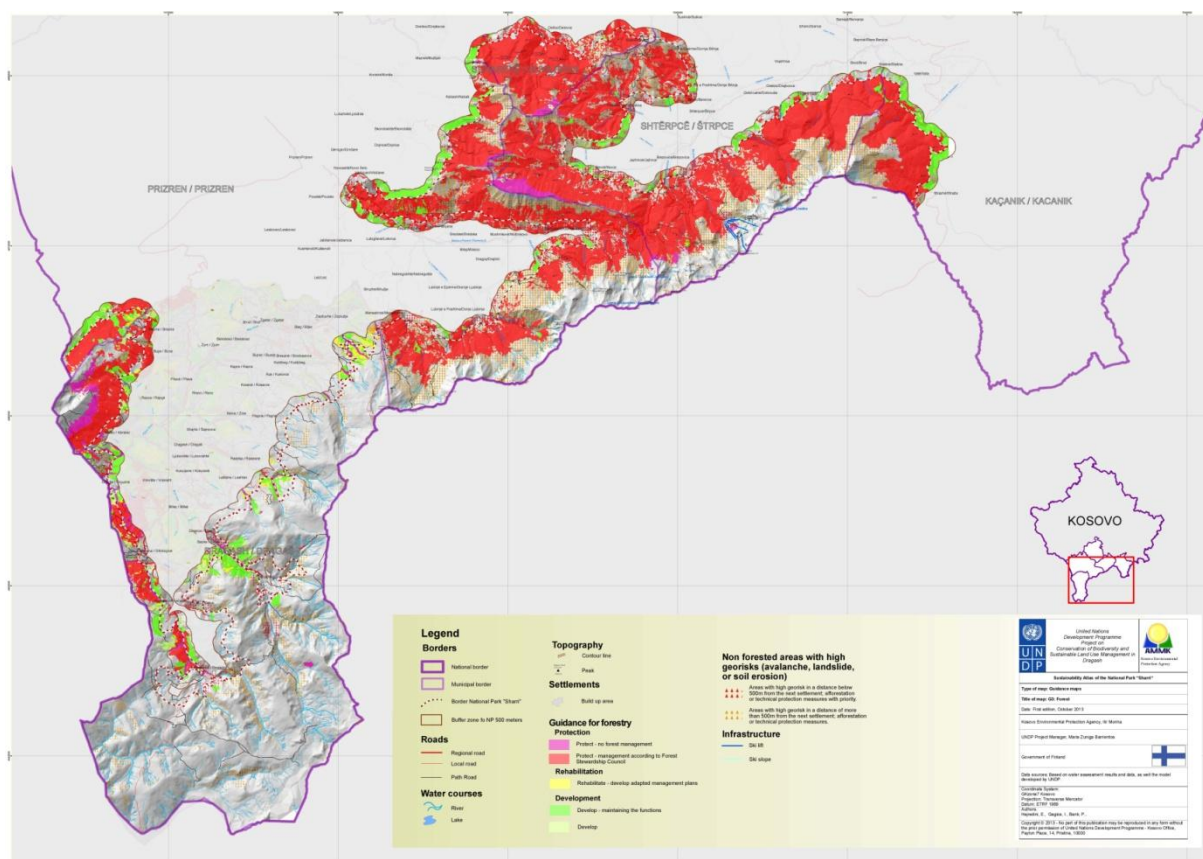


(*) - only considering EU Habitat-Directive Annex 1 stands without coppice forest

Explanation - CORINE

- 1 Artificial surface
- 3.1 Forests
- 3.2.4 Transitional woodland/shrub
- 3.2.5 Transitional woodland/shrub

Figure 1-4: Guidance for forest (G2.1)





1.6. Agriculture (G2.2)

Contents of the guidance map:

Areas without forest, which are

- suitable for agriculture, special cultures and intensive pastures – development possible (better soils and below 1600m)
- suitable for intensive pasture, including hay production – development possible (between 1300 and 1600m)
- suitable for extensive pasture, including hay production – development possible (between 1300 and 1600m)
- suitable for extensive management of pastures – protected for pasture (above 1600m)
- not fit for any pasture and pasture management (only sparse vegetation or cliffs)

The main messages:

Most of the Sharr/Šar National Park's landscape is the result of centuries' old land-use practices that are also the origin of the existing biodiversity and the attractive landscape. Changing the land-use pattern will interfere with biodiversity. In general (and while some exceptions may occur due to specific local climatic conditions), agriculture is only competitive up to an altitude of 1300m. Intensive pasture and fruit trees are suitable up to 1600m; generally, areas above this are only optimal for extensive pasture when the climatic conditions are suitable (vegetation period).

It is necessary to improve the performance of the agriculture and livestock systems of the Sharr/Šar National Park's, mainly in terms of employment and income for the population, through the improvement and environmentally-compatible use of local resources, their organisation into value chains, and the upgrading of capacities of competitiveness whilst maintaining a sustainable environment, and social and gender equity in the long term.

In order to foster the **development of agricultural productivity** in Sharr/Šar National Park's it is important to closely consider the potentials and limitations of the environmental conditions and their opportunities.

Table 1-6: Percentage and size of the different guidance areas for agriculture

Categories:	% and size of the municipal area		Comment
Agricultural area of the municipality	%	ha	
Develop of agriculture below 1300m	58,58 %	14.246,69 ha	These areas have normally better soils and are suitable for agriculture, special cultures and intensive pastures
Develop of pasture systems between 1300 and 1600m	3,64 %	886,15 ha	Suitable for extensive or intensive pasture, including hay production, intensive agriculture is economically not competitive
Develop of extensive pastures management	12,21 %	3.213,41 ha	Large areas above 1600m with different soil characterisations but restricted vegetation period only suitable for pasture (and in some favourable cases for hay production – summer pasture area including hay production – development possible (between 1300 and 1600m)
Protect through management of extensive pasture,	11,99 %	2.916,00 ha	Wetlands and moor areas along highland creeks and rivulets only for extensive (and controlled) pasture
Protect area – no pasture	12,57 %	3.058,17 ha	Not fit for any pasture and pasture management (only sparse vegetation or cliffs) – erosion risk through pasture

Categories:	% and size of the municipal area		Comment
% of the municipal territory and size in ha			
Areas with high geo-risk close to settlements	1,13 %	222,41 ha	In these areas afforestation should be considered with priority – feasibility studies are required
Areas with high geo-risk more than 500m from settlements	34,06 %	6.719,12 ha	In these areas afforestation should be considered – feasibility studies are required

*) The term “protected” does not mean that the areas are or should be protected by law, but that they fulfil the criteria to continue with the same management to conserve their functionality.

Decision guidelines:

Figure 1-5: Decision criteria for the guidance of agricultural development

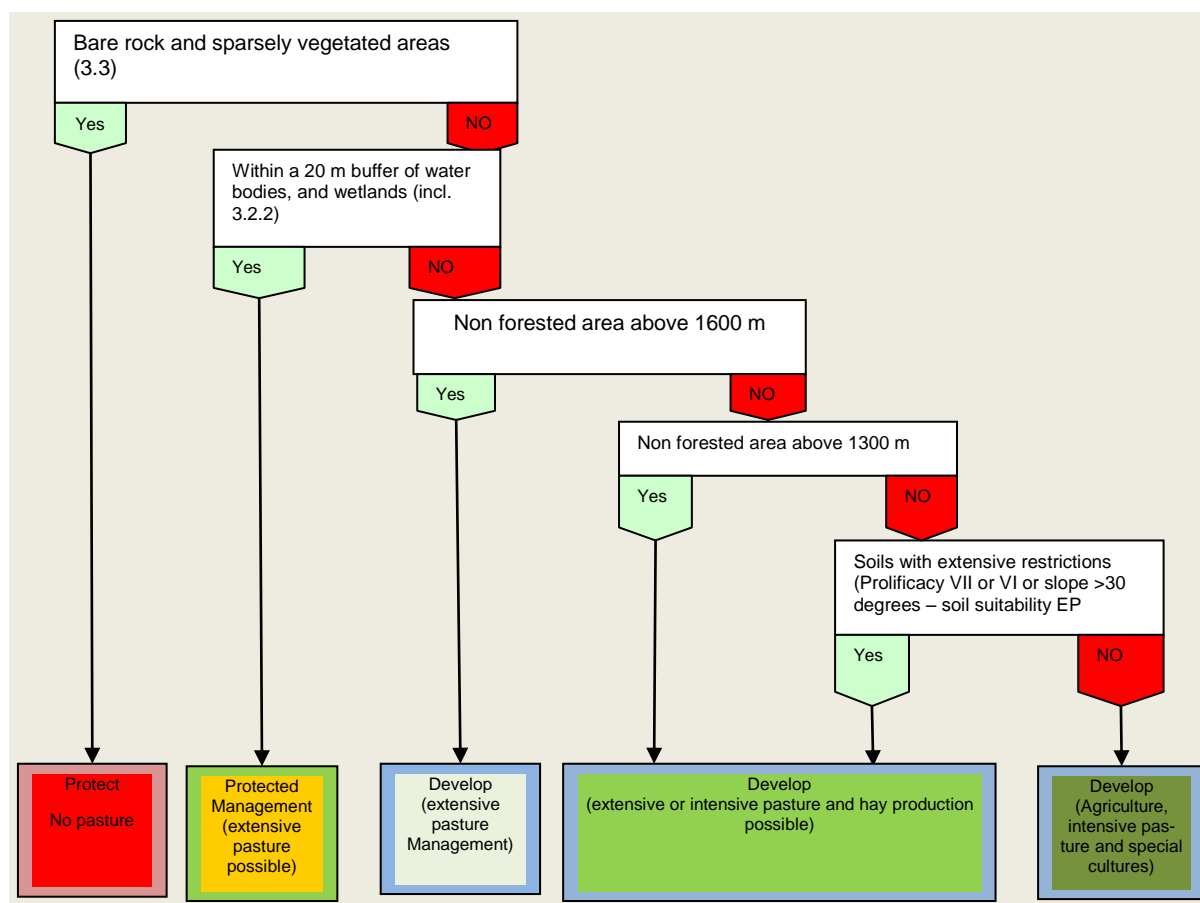
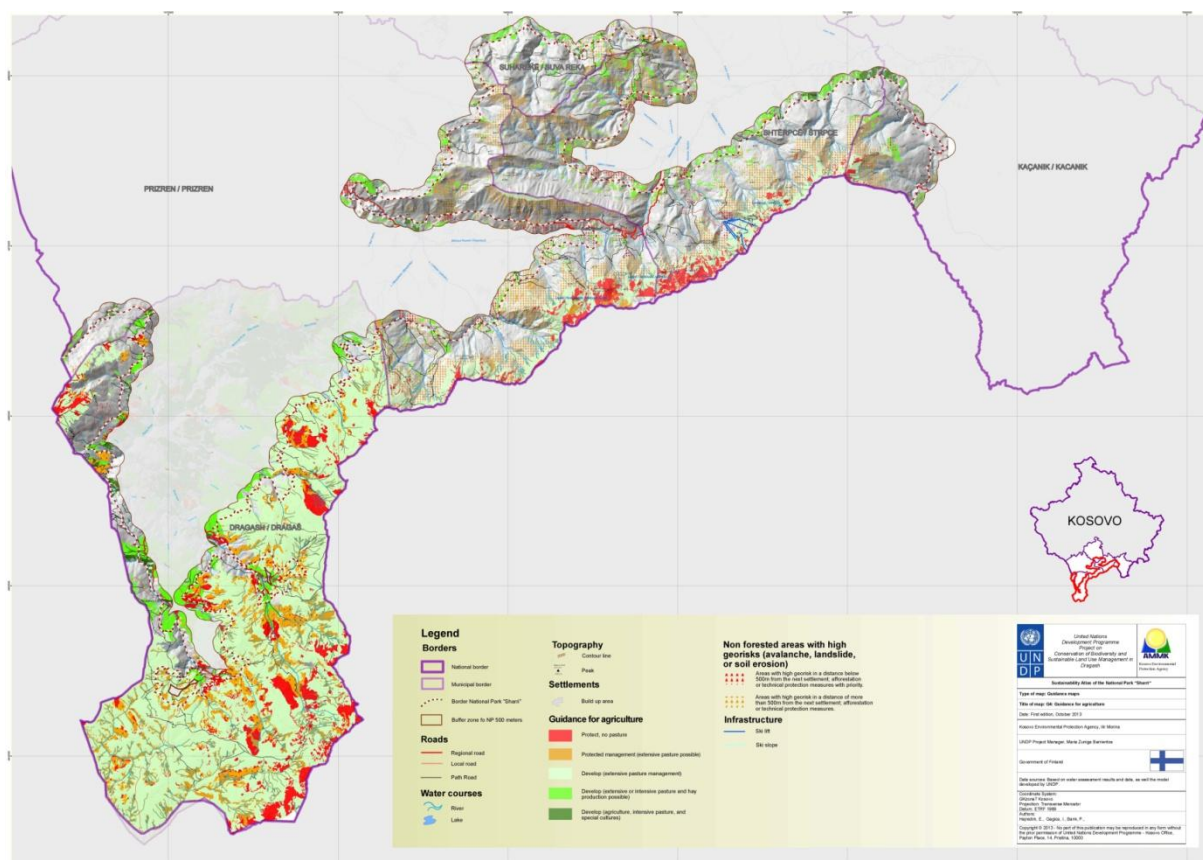


Figure 1-6: Guidance for agriculture (G2.2)





1.7. Water (G3)

Contents of the guidance map:

- Land uses and spatial protection of water resources
- Priorities for water protection, upstream and catchment of drinking water from soil erosion

The main messages:

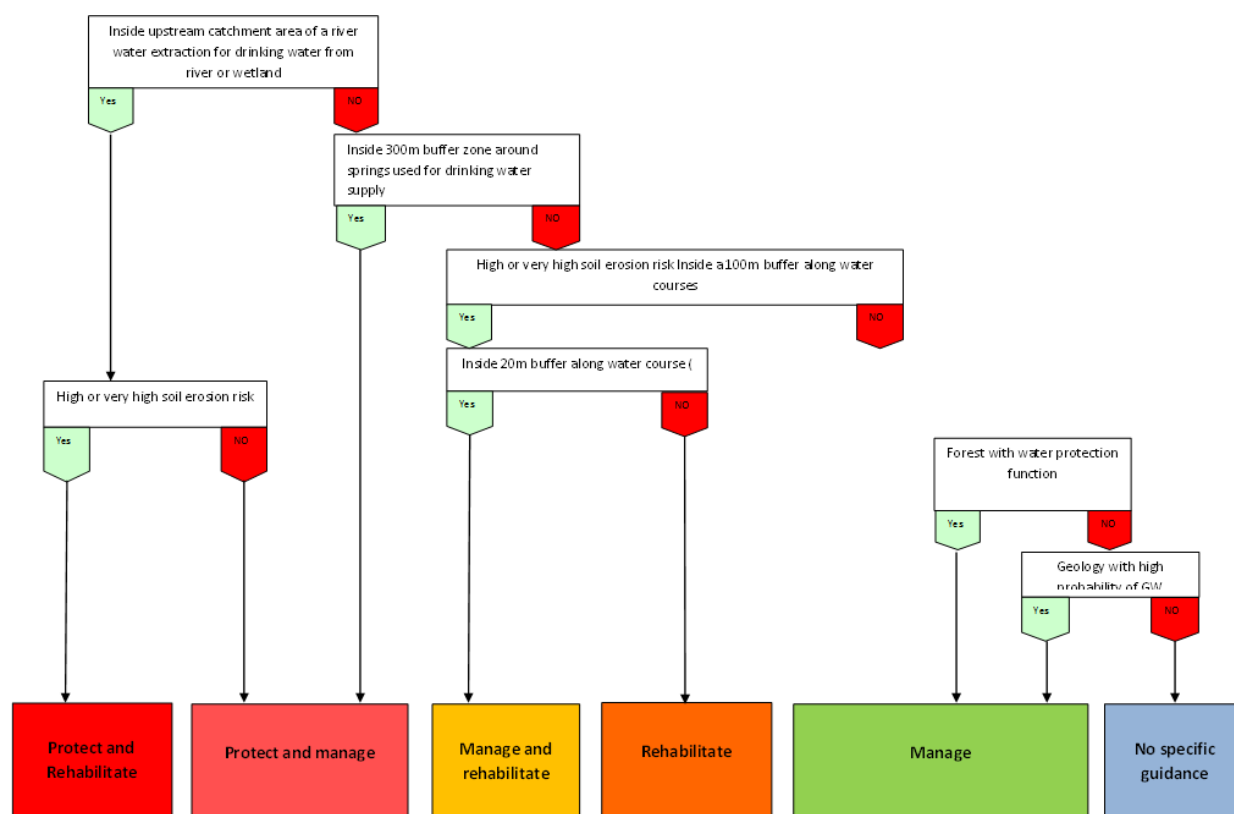
The protection of water sources depends not only on prevention of pollution, which is caused mainly by untreated waste water discharge, but also on the proper management of the water sources and water sources (Springs) and catchment.

For the availability of good quality water in sufficient quantity that will satisfy the demand of each community (quality and yield of water sources) it is necessary to:

- Protect, rehabilitate and manage the main catchment areas with respect to water resources. These are in the mountains east of Radeša / Radeshë, Bresanë / Brodosavce, Blač / Bljač, Lubinje, in mountains of Deloc and Kabash. The risk of erosion in these areas has to be controlled because extraction points for river water or from wetlands are influenced by the conditions in these catchment areas.
- Manage and rehabilitate those buffer zones along water courses that are in areas susceptible to erosion (erosion control measures, proper waste management, prevention of pollution)

Decision guidelines:

Figure 1-7: Decision criteria for the guidance of water





1.8. Functional structure and tourism (IG1)

Contents of the guidance map:

- Protect – National Park Zone 1 Strict Nature Reserve
- Regulate and manage land uses to ensure protection of water bodies
- Manage extensively guided by protection goals
- Manage considering sectorial protection goals
- Develop according to sectorial guidance
- Tourism development - tourist development focal areas
- Hiking trails

The main messages:

The maps give an orientation regarding the main structural and planning units which can be defined within the Sharr/Šar National Park borders:

1. Area of strict protection = Zone 1 of Sharr/Šar National Park
The area of strict protection is divided into two sub areas:
 - The area is located based on zonation of Sharr/Šar National Park and biodiversity guidance which are characterised by alpine and sub-alpine natural grasslands and forests protected under the EU Habitat Directive. Additionally a significant number of important species could be identified there.

This area is sensitive to human influences. They cover a total of 18.358,88 ha, or 34,46 % of the Sharr/Šar National Park territory.
2. A significant part of the Sharr/Šar National Park territory is guided by requirements to safeguard and secure the supply of drinking water, as well as protect natural water courses. This includes:
 - Areas within a 300m buffer around drinking water sources, or in upstream catchments of river water extractions for drinking water supply, which should be regulated and managed accordingly. In these areas specific restrictions for land uses or similar measures may be required. Details should be discussed through additional studies and plans.
 - All natural water courses and wetlands,
 - Areas with high erosion risk within a 100m buffer along water courses

In total this category covers 29.746,69 ha or 55,66 % of Sharr/Šar National Park territory.
3. The area of extensive management guided by protection goals = Zone 2 of the Sharr/Šar National Park
The area of extensive management is defined by zone 2 of the Sharr/Šar National Park. These areas are characterised in their most part by large natural and semi-natural grasslands.

This area covers a total of 40.311,90 ha or 75,43 % of the municipal territory.
4. The area of intensive land use as defined in the spatial development framework has to be subdivided into two sub-types:
 - The first sub-type includes areas where development and guidance should strongly consider sectoral protection goals. These areas comprise of:
 - Zone 3 of the Sharr/Šar National Park (except areas relevant for water supply purposes). These areas are defined through the proposals under touristic development meaning that touristic installations and land use will be allowed. However, all activities will be guided by the spatial plan and management plan of Sharr/Šar National Park which will be geared to minimising negative environmental impacts in these areas. Possible impacts may be created through accommodation (land consumption, generation of waste and waste water, access infrastructures like roads etc.), summer and winter tourism facilities (traffic, waste generation, noise and disturbance of winter habitats of wild animals, emissions).
 - Zones where development should consider specific environmental restrictions, e.g. forest management according to FSC and considering high value forest objectives, nature protection values, e.g. landscape forms, or valuable habitats etc. Not considering these requirements might result in negative environmental impacts.

This category covers 3.769,80 ha or 7,05% of the Sharr/Šar National Park territory.

In addition to these general criteria the map includes important guidance on specific items:

1. Geo-risk
 - Areas closer than 500m to the next settlement requiring either afforestation or technical measures to control avalanche risk or landslide risk
2. Economic development
 - Areas recommended for touristic development
 - Touristic centres

Decision guidelines:

Figure 1-9: Decision criteria for functional structure

(SNP = Sharr/Šar Mountain National Park)

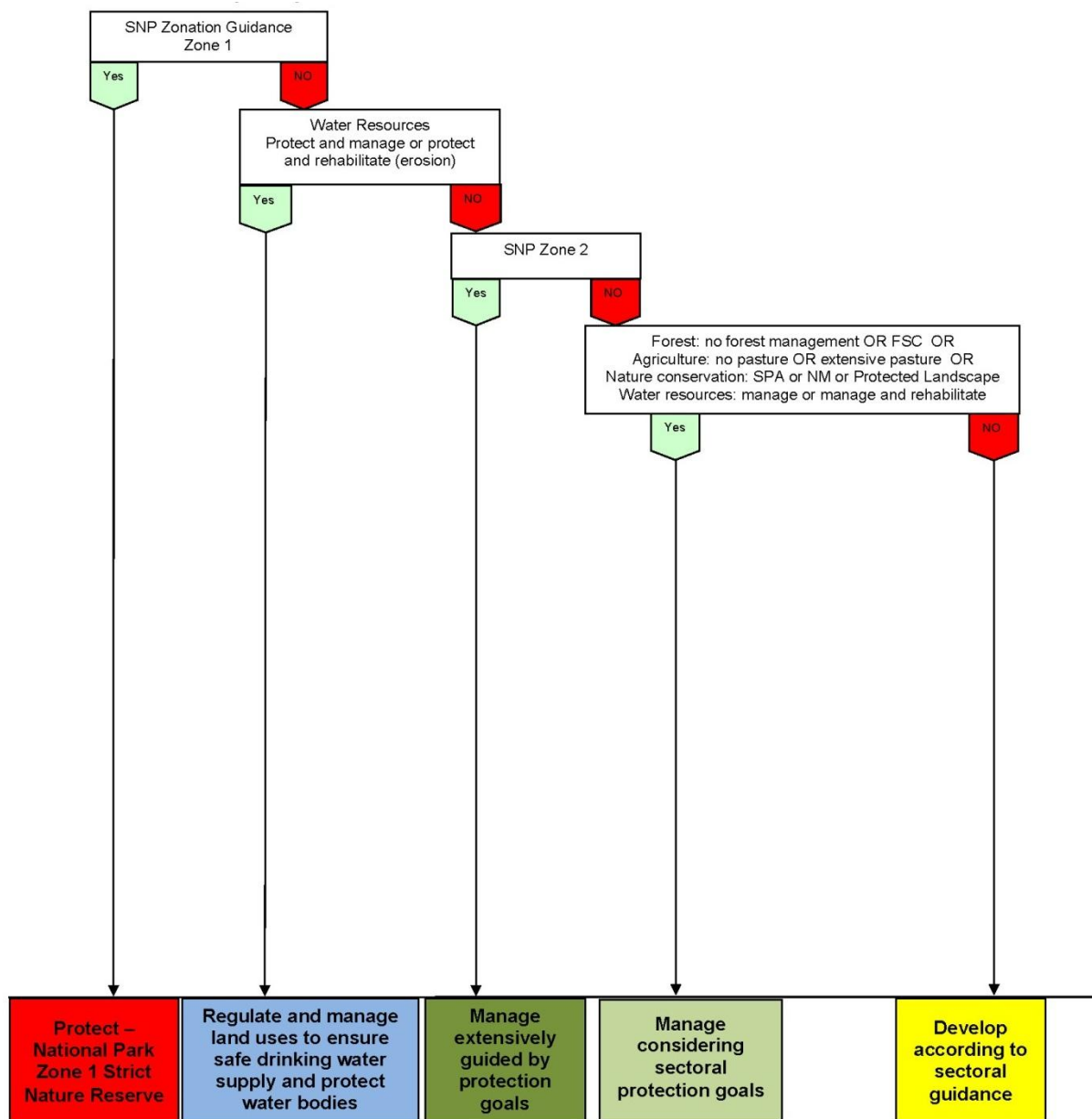
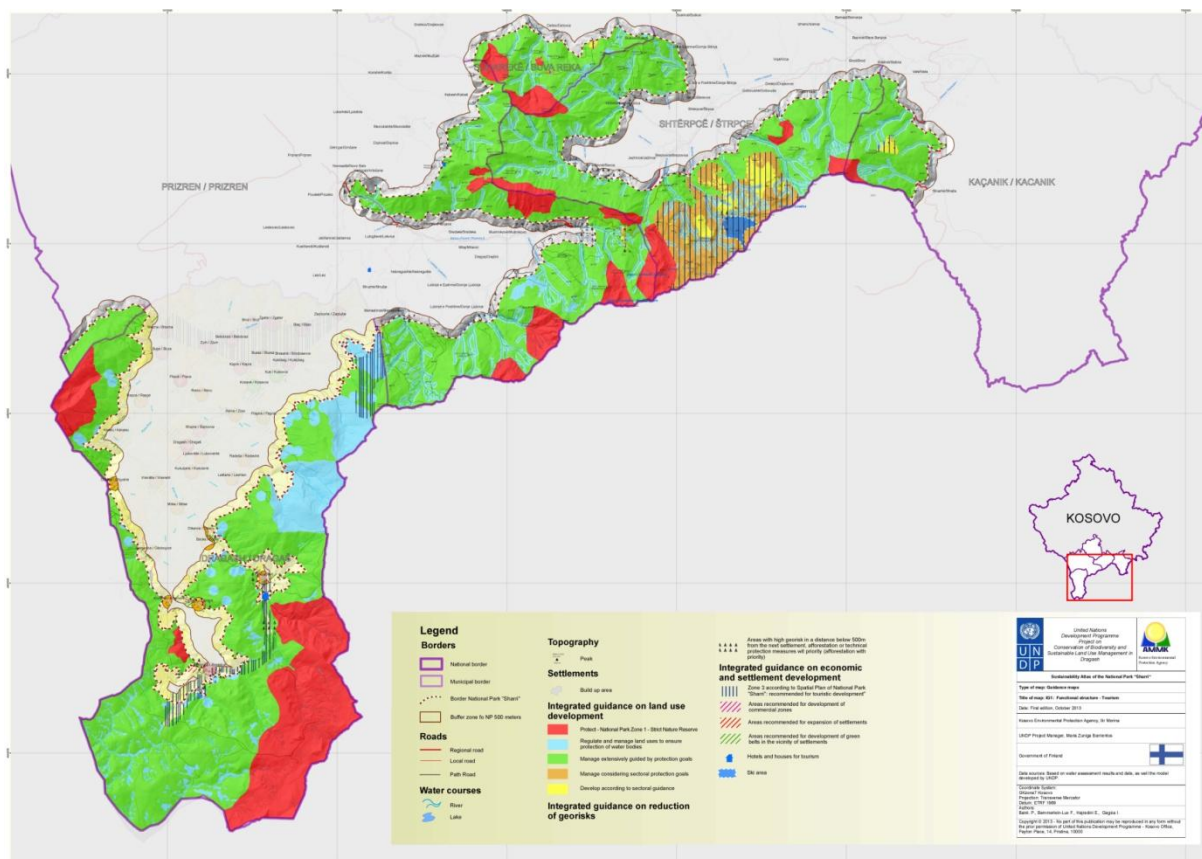


Figure 1-10: Guidance for the functional structure (IG1)



2. Annex

2.1. CORINE land use types

Note: Numbers are the official CORINE numbers, any additional unit was given the next free number in the CORINE system (new additions of the UNDP project).

1	Settlements and artificial surfaces	
1.1	Urban fabric	
1.1.1	Continuous urban fabric	Most of the land is covered by. Buildings, roads and artificially surfaced area cover almost all the ground. Non-linear areas of vegetation and bare soil are exceptional.
1.1.2.	Discontinuous urban fabric	Most of the land is covered by structures. Buildings, roads and artificially surfaced areas associated with vegetated areas and bare soil, which occupy discontinuous but significant surfaces.
1.2.	Industrial, commercial and transport	
1.2.1.	Industrial or commercial units	Artificially surfaced areas (with concrete, asphalt, tarmac, or stabilised, e.g. beaten earth) devoid of vegetation, occupy most of the area in question, which also contains buildings and/or vegetated areas.
1.2.2.	Road and rail networks and associated land	Motorways, railways, including associated installations (stations, platforms, embankments). Minimum width to include: 100m.
1.3.	Mine, dump and construction sites	
1.3.1.	Mineral extraction sites	Areas with open-pit extraction of industrial minerals (sandpits, quarries) or other minerals (opencast mines). Includes flooded gravel pits, except for river-bed extraction.
1.3.2.	Dump sites	Landfill or mine dump sites, industrial or public.
1.4.	Artificial, non-agricultural vegetated areas	
1.4.2.	Sport and leisure facilities	Camping grounds, sports grounds, leisure parks, golf courses, racecourses, etc. Includes formal parks not surrounded by urban zones
1.5	Cultural Heritage	Single buildings/complexes of cultural importance (Mosques, Churches, cemeteries, monuments, castles etc.) Mark exceptional "View Points" (landscape) with symbol (incl. direction of view) ▲
2.	Agricultural areas	
2.1.	Arable land - Cultivated areas regularly ploughed and generally under a rotation system.	
2.1.1.	Non-irrigated arable land	Cereals, legumes, fodder crops, root crops and fallow land. Includes flower and tree (nurseries) cultivation and vegetables, whether open field, under plastic or glass (includes market gardening). Includes aromatic, medicinal and culinary plants. Excludes permanent pastures
2.1.2.	Permanently irrigated land	Crops irrigated permanently and periodically, using a permanent infrastructure (irrigation channels, drainage network). Most of these crops could not be cultivated without an artificial water supply. Does not include sporadically irrigated land
2.2.	Permanent crops - Crops not under rotation system - which provides repeated harvests and occupy the land for a long period before it is ploughed and replanted: mainly plantations of woody crops. Excludes pastures, grazing lands and forests	

2.2.2.	Fruit trees and berry plantations	Parcels planted with fruit trees or shrubs: single or mixed fruit species, fruit trees associated with permanently grassed surfaces. Includes chestnut and walnut groves
2.3.	Pastures	
2.3.1.	Pastures intensive without trees and shrubs	Dense, predominantly graminoid grass cover, of floral composition, mainly used for grazing and harvesting, often manured - hedges <10%
2.3.2.	Pastures intensive with trees and shrubs	Dense, predominantly graminoid grass cover, of floral composition, mainly used for grazing and harvesting, often manured - areas with hedges (>10%)(countryside with small pastures and many hedges)
2.3.3	Pastures extensive without trees and shrubs	Predominantly graminoid grass cover, extensive grazing , no harvest and fertilisation, <10% woody species
2.3.4	Pastures extensive with trees and shrubs	Predominantly graminoid grass cover, extensive grazing , no harvest and fertilisation, >10% woody species (esp. Juniper)
2.4.	Heterogeneous agricultural areas	
2.4.1.	Annual crops associated with permanent crops	Non-permanent crops (arable lands or pasture) associated with permanent crops on the same parcel
2.4.2.	Complex cultivation – no hedges	Juxtaposition of small parcels of diverse annual crops, pasture and/or permanent crops, hedges (< 10% cover)
2.4.3.	Agriculture / natural vegetation Mix	Land principally occupied by agriculture, with significant areas of natural vegetation Areas principally occupied by agriculture, interspersed with significant natural areas
2.4.4	Complex cultivation – with hedges/trees	Juxtaposition of small parcels of diverse annual crops, pasture and/or permanent crops with hedges (> 10% cover)
2.4.5.	Complex cultivation – with hedges	Juxtaposition of small parcels of diverse annual crops, pasture and/or permanent crops with hedges (> 10% cover)
3.	Forests and (semi)-natural areas	
3.1.	Forests - Assumed tree level is 1700m	
3.1.1.	Broad-leaved forest	Vegetation formation composed principally of trees, including shrub and bush understory, where broad-leaved species predominate
3.1.2.	Coniferous forest	Vegetation formation composed principally of trees, including shrub and bush understory, where coniferous species predominate
3.1.3.	Mixed forest	Vegetation formation composed principally of trees, including shrub and bush understory, where broad-leaved and coniferous species co-dominate
3.1.4.	Coniferous forest - Planted	
3.1.5	Woodland patches	Small patches of forest in open land, limited size so that non forest climate inside
3.2.	Shrub and/or herbaceous vegetation associations	
3.2.1.	Natural grassland (>2000m)	Normally grassland above tree line (1700) - Low productivity grassland. Often situated in areas of rough uneven ground. Frequently includes rocky areas, briars, and heathland
3.2.2.	Heathland Vegetation (incl. Moors)	Heathland (and Moors) vegetation with low and closed cover, dominated by bushes, shrubs and herbaceous plants (heath, briars, broom, gorse, laburnum, etc.)



3.2.4.	Transitional woodland/shrub	Bushy or herbaceous vegetation with scattered trees. Can represent either woodland degradation or forest regeneration/colonisation Includes old pastoral land with more than 70% of bushes/trees (often Junipers)
3.2.5.	Coppice Forest	Different types (incl. coppice-with-standards)
3.3.	Open spaces with little or no vegetation	
3.3.2.	Bare rock, scree, cliffs, rocks and outcrops.	Areas with more than 50% bare rocks and scree material
3.3.3.	Sparsely vegetated areas	Includes steppes, tundra and badlands. Scattered high-attitude vegetation – non-vegetated area 80-95%
4.	Wetlands	
4.1.	Inland wetlands - Non-forested areas either partially seasonally or permanently waterlogged. The water may be stagnant or circulating	
4.1. 1.	Inland marshes/waterlogged areas	Low-lying land usually flooded or waterlogged in winter, and more or less saturated by water all year round (including complexes with more than 50% waterlogged areas – areas around springs)
4.1.2.	Peatland	Peatland consisting mainly of decomposed moss and vegetable matter. May or may not be exploited
4.1.3.	Riparian woodland	Joining rivers, creeks and waterlogged forest/bushland
5.	Water bodies	
5.1.	Inland waters	
5.1. 1.	Water courses	Natural or artificial water-courses serving as water drainage channels. Includes canals. Minimum width to include: 10 m (polygon), otherwise line
5.1.2.	Water bodies	Natural or artificial stretches of water (lakes etc.)
5.1.3.	Springs	Point objects

EU (1985): CORINE land cover - Coordination of Information on the Environment (Official Journal L 176, 6.7.1985). <http://www.eea.europa.eu/publications/COR0>



2.2. Remarks for preferential habitats (a)

Preferential Habitats (EU 2007)	(a) – Management required for sustenance	Restrictions/conditions for management
6230 * Species-rich <i>Nardus</i> grasslands, on siliceous substrates in mountain areas (and sub-mountain areas, in Continental Europe)	Controlled, extensive pasture required	
6120 * Xeric sand calcareous grasslands	Controlled, extensive pasture required	
91E0* Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (Alno-Padion, Alnion incanae, Salicion albae)	Professional management – forest management and maintenance of the waterside required	
6210 * important orchid sites of semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia)	Controlled, extensive pasture required	
6110 * Rupicolous calcareous or basophilic grasslands of the Alysso-Sedion albi		Controlled, extensive pasture possible
91AA *Eastern white oak woods		FSC based forest management possible
4070 * Bushes with <i>Pinus mugo</i> and <i>Rhododendron hirsutum</i> (Mugo-Rhododendretum hirsuti)		Controlled collection of non.-forest products can be allowed
9180 * Tilio-Acerion forests of slopes, screes and ravines		FSC based forest management possible

2.3. Remarks for non-preferential habitats (b)

Non-preferential habitats (EU 2007)	(b) – Management required for sustenance No wildfires/ fire control	Restrictions/conditions for management
5130 Juniperus communis formations on heaths or calcareous grasslands	Controlled, extensive pasture required	Controlled collection of non.-forest products can be allowed
6150 Siliceous alpine and boreal grasslands	Controlled, extensive pasture required	Controlled collection of non.-forest products can be allowed
6210 Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites)	Controlled, extensive pasture required	
62D0 Oro-Moesian acidophilous grasslands	Controlled, extensive pasture required	
6510 Lowland hay meadows (Alopecurus pratensis, Sanguisorba officinalis)	Pasture / harvesting required	
6520 Mountain hay meadows	Pasture / harvesting required	
4060 Alpine and Boreal heaths		Controlled, extensive pasture possible Controlled collection of non.-forest products can be allowed
5110 Stable xerothermophilous formations with Buxus sempervirens on rock slopes (Berberidion p.p.)		Controlled collection of non.-forest products can be allowed
6170 Alpine and subalpine calcareous grasslands		Controlled, extensive pasture possible Extensive pasture possible
6430 Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels		Controlled collection of non.-forest products can be allowed
7140 Transition mires and quaking bogs		
7230 Alkaline fens		
8210 Calcareous rocky slopes with chasmo-phytic vegetation		
8230 Siliceous rock with pioneer vegetation of the Sedo-Scleranthion or of the Sedo albi-Veronicion dillenii		
91BA Moesian silver fir forests		FSC based forest management possible
91K0 Illyrian Fagus sylvatica forests (Aremonio-Fagion)		FSC based forest management possible
91W0 Moesian beech forests		FSC based forest management possible

Non-preferential habitats (EU 2007)	(b) – Management required for sustenance No wildfires/ fire control	Restrictions/conditions for management
9250 Quercus trojana woods		FSC based forest management possible
9270 Hellenic beech forests with Abies borisii-regis		FSC based forest management possible
9280 Quercus frainetto woods		FSC based forest management possible
9410 Acidophilous Picea forests of the montane to alpine levels (Vaccinio-Piceetea)		FSC based forest management possible
95A0 High oro-Mediterranean pine forests	No wildfires/ fire control	FSC based forest management possible

2.4. Protection categories of the Law

Citation from: Republic of Kosovo (2010): The Law of Nature Protection No.03/L–233

Strict nature reserve (Article 10)	Strict nature reserve is an area of the land and/or water, which is unchanged or least-varied and it's dedicated exclusively for conservation of nature resource, scientific investigation of biological diversity, monitoring of nature state, as well education if does not inflict any dangerousness of freely development of nature processes.	In the strict nature reserve its prohibited performance of economic and other activities.
National Park (Article 11)	National park is a large area of the land and/or water, with extraordinary and diversified natural values, including one or more of natural ecosystems conserved or least-changed and especially dedicated for conservation of nature authentic values.	In the national park shall be permitted operations and activities with which it's not risked the original nature. 4. In the national park are prohibited economical uses of nature goods. 5. In the national park shall be permitted tourist - hotelier and recreation activities which are with assignment of visits, education, health needs - touristy and recreation, extensive traditional agriculture, fishery , if they don't present any dangerousness of the species existence and natural - balance in accordance with this Law and management plan
Special area of conservation (SAC) and Special Protected Areas– (SPAs) (Article 12)	Special area of conservation is a wide area of the land and/or water, with special importance because it's unique, rare or representative or is a habitat of wild species and especially is important for science. Special area could be: floristic, mycological, forestall and of other vegetation, zoological, - ornithological, ichtiological, geological, pale-	In the special area are prohibited interventions, works and activities, which could destroy characteristics because of which it is declared as special area: collecting and destroying plants, disturbance, catching and killing animals, introducing of new biological species, melioration interventions, different forms of economic or and other uses. In the special area shall be permitted interventions, works and activities,

	ontological, hydrogeological, hydrological etc.	<p>which ones sustain and improve conditions that are important for conservation of the features, because of which it's declared as a special area.</p> <p>Visiting and touring of a special area could be prohibited or limited by protection measures.</p>
Nature Park (Article 13)	Nature park presents large natural area or partly artificial of the land and/or water, with ecological features of national and international importance with emphasized values of landscapes diversity, - educational, cultural - historical and tourist – recreational value.	In the nature park shall be permitted economic and other activities that do not risk the role and important characteristics of the nature park.
Nature monument (Article 14)	<p>A nature monument is the individual unchanged segment or a group of segments of living or non-living nature distinguished by ecological, scientific, aesthetic or educational value.</p> <p>Nature monument may be: geological - paleontological, mineralogical, hydrologic, geologic structure, sediment, geomorphologic - cave, chasm, cliff walls, hydrologic – water sources, water flow, waterfall, lake, botanic - rare exemplars or important for vegetative world of one locality, small botanic or zoological locality, important for its scientific values.</p>	In the nature monument or in his locality which is component part of protected area, shall not be permitted activities that endanger characteristics and its values.
Protected landscape (Article 15)	Protected landscape is natural or factitious nature area with high landscape and biological diversity values, or cultural - historical, or landscape with unique conservation characteristics for certain region that is dedicated for relaxing and recreation.	In the protected landscape are forbidden interventions and activities that destroy characteristics for which ones it is declared protected.



Sustainable Development Atlas

Framework for a comprehensive and balanced management plan of “Sharr” National Park Kosovo Kosovo

Volume V: Data

Ergin Hajredini

Peter Bank

Florian Bemmerlein-Lux

Ismail Gagic

Halil Ibrahim

With contributions from Prof. Dr. Behxhet Mustafa – Ecologist, Prof. Dr. Fadil Millaku - Biologist, Dr. Achim Milbradt – Biologist, Michael Voit - Rural Development Planner, Prof. Xhevdet Elezi - Soil scientist – agronomist, Arneni - National Forest Consultancy Company, NGO Finches – Ornithologists, Todd Wassel – Tourism Specialist, Kaltrina Salihu – Community Officer, Bashkim Susuri – Journalist and Project Associate, Bardh Xerxa – Ecologist, Ajhan Hadzija – Tourism Coordinator, Sharr National Park Directorate, the Municipal Working Group of Dragash/Dragaš Municipality and Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH, Rural Economic Development Programme.

Project Manager:

Maria Elena Zuniga Barrientos

Output supervisor and officer in charge:

Halil Ibrahim

Dragash / Dragaš, Kosovo

December 2013



Table of Content

1. Data for Volume II: Baseline	4
1.1. Data stored in Excel-files	4
1.2. Map B3: Geology	5
1.3. Map B4: Soils	5
1.4. Map B5: Climate	5
1.5. Map B7: Land Use	6
1.6. Map B8: Biodiversity Flora and Vegetation	9
1.6.1. Species Lists of Sample Points	9
1.6.2. Overall List of Plant Species (alphabetical order)	39
1.6.3. List of Plant Communities	66
1.7. Map B9: Biodiversity Fauna	68
1.7.1. Mammals known in Sharr/Šar National Park	68
1.7.2. List of Vertebrates (except Birds) observed Sharr/Šar National Park	69
1.7.3. Birds known in Sharr/Šar National Park	70
1.7.4. Butterflies known in Sharr/Šar National Park	78
2. Data for Volume III: Assessment	80
2.1. Excerpts from “Forest Stewardship Standard for the Republic of Kosovo	80
3. Annexes	93
3.1. List of Laws, Rules, Regulations	93
3.2. Habitat Types	95

List of Tables

Table 1-1: List of Excel Files relevant for Base Maps	4
Table 1-4: Map B3: Classes of Rocks	5
Table 1-5: Map B4: Classes of Soils	5
Table 1-6: Map B5: Climate Data for Sharr/Šar National Park/Dragash/Dragaš)	5
Table 1-7: CORINE Land Use Codes	6
Table 1-8: Plant Samples AM01 - AM15 Dr. A. Milbradt	9
Table 1-9: Plant Samples AM16 – AM30 Dr. A. Milbradt	10
Table 1-10: Plant Samples AM31 – AM44 Dr. A. Milbradt	12
Table 1-11: Plant Samples AM46 – AM60 Dr. A. Milbradt	14
Table 1-12: Plant Samples AM61 – AM75 Dr. A. Milbradt	15
Table 1-13: Plant Samples AM76 – AM90 Dr. A. Milbradt	16
Table 1-14: Plant Samples SAM01 – SAM38 Dr. A. Milbradt	18
Table 1-15: Plant Samples SAM42 – SAM66 Dr. A. Milbradt	20
Table 1-16: Plant Samples SAM67 – SAM86 Dr. A. Milbradt	22
Table 1-17: Plant Samples BX01 – BX15 Prof. Dr. M. Behxhet	23
Table 1-18: Plant Samples BX16 – BX30 Prof. Dr. M. Behxhet	23
Table 1-19: Plant Samples BX31 – BX45 Prof. Dr. M. Behxhet	24
Table 1-20: Plant Samples BX46 – BX60 Prof. Dr. M. Behxhet	24
Table 1-21: Plant Samples BX61 – BX75 Prof. Dr. M. Behxhet	25
Table 1-22: Plant Samples BX76 – BX90 Prof. Dr. M. Behxhet	25
Table 1-23: Plant Samples BX91 – BX100 Prof. Dr. M. Behxhet	26



Table 1-24: Plant Samples SBX88 – SBX122 Prof. Dr. M. Behxhet.....	26
Table 1-25: Plant Samples SBX123 – SBX199 Prof. Dr. M. Behxhet.....	27
Table 1-26: Plant Samples SBX200 – SBX206 Prof. Dr. M. Behxhet / Plant Samples SFN1 – SFN113 Sharr national Park Directorate.....	27
Table 1-27: Plant Samples FM01 – FM16 Prof. Dr. F. Millaku	30
Table 1-28: Plant Samples FM17 – FM32 Prof. Dr. F. Millaku	34
Table 1-29: Overall List of Plant Species	39
Table 1-30: List of Plant Communities	66
Table 1-31: List of Mammals known in Sharr/Šar National Park)	68
Table 1-32: List of Vertebrates (except Birds) observed in Sharr/Šar National Park)	69
Table 1-33: List of Birds observed in Sharr/Šar National Park)	70
Table 1-34: List of Butterflies observed in Sharr/Šar National Park)	78



1. Data for Volume II: Baseline

1.1. Data stored in Excel-files

Table 1-1: List of Excel Files relevant for Base Maps

Map	Excel Files	Content
B1: Overview of the Sharr/Šar National Park	01 Topography_SNP.xlsc	Data and Figures for SDA, additional figures for selected villages
B3: Geology and Minerals	03 Geology_Dragash.xlsc	Data and Figures for SDA
B4: Soils	04 Soils_Dragash.xlsc	Data and Figures for SDA
B5: Climate	05 Climate_Dragash.xlsc	Data and Figures for SDA
B6: Water Resources	06 Water_Assessment_Dragash.xlsc Water_Assessment_SNP.xlsc	Data and Figures for SDA GIS output for production of figures and tables for SDA Collection of all information related to Water Resources (GIS Database)
B7: Land Use	07 Land_Use_SNP.xlsc Analysis 07 Land_Use_SNP.xlsc Corine_LUT.xls Landusebalance.xlsc	Data and Figures for SDA GIS output for production of figures and tables for SDA List of relevant Corine types and details for building of GIS Legends Balances of land use related to various topics, e.g. river basins, National Park
B8: Biodiversity – Flora and Vegetation	Biodiversity_List_V28.xls	Collection of all information related to Biodiversity issues (GIS Database)
B9: Biodiversity - Fauna	Biodiversity_List_V28.xls	Collection of all information related to Biodiversity issues (GIS Database)



1.2. Map B3: Geology

Table 1-2: Map B3: Classes of Rocks¹

Classes of Rocks	Area in ha
Magmatites	3.703
Metamorphic Rocks	23.679
Sandstones and Quartzites	2.967
Limestones	11.254
Quaternary Sediments	8.075
Sediments	3.593
Total	53.272

1.3. Map B4: Soils

Table 1-3: Map B4: Classes of Soils²

Soil Class	Area in ha
Bare Rocks	1.396
Lithosols	4.607
Rankers	29.609
Rendzinas	5.425
Brown Soils	12.142
Organic Soils	14
Semiterrestrial Soils	79
Total	53.272

1.4. Map B5: Climate

Table 1-4: Map B5: Climate Data for Sharr/Šar National Park/Dragash/Dragaš³

	J	F	M	A	M	J	J	A	S	O	N	D	annually
precipitation in mm	46	50	43	75	78	101	54	43	82	77	83	75	807
temperature in Degrees C	1,4	-0,3	2,9	7,3	12,0	15,5	17,8	18,2	14,1	9,0	4,4	0,6	8,6

Average precipitation in mm 1950-2008 / Temperature 1960-1984

¹ Source of Data: Osnovna Geološko Karta SFRJ 1:100,000 – Geološki Institut, Beograd (1970-1984)

² Source of Data: Pedološke Karta Socijalističke Autonomne Pokrajine - Kosovo - 1 : 50,000, Beograd 1974, Institut za vodoprivredu "Jaroslav Černi"

³ Source of Data: Prof.Dr.Sci. Sylë Tahirsylaj MMPH-IHMK, Prishtina (2011)



1.5. Map B7: Land Use

Note: Numbers are the official CORINE numbers, any additional unit has the next free number in the Corine system and is marked **Sharr/Šar National Park**

Table 1-5: CORINE Land Use Codes

1	Settlements and artificial surfaces	
1.1	Urban fabric	
1.1.1	Continuous urban fabric	Most of the land is covered by. Buildings, roads and artificially surfaced area cover almost all the ground. Non-linear areas of vegetation and bare soil are exceptional.
1.1.2.	Discontinuous urban fabric	Most of the land is covered by structures. Buildings, roads and artificially surfaced areas associated with vegetated areas and bare soil, which occupy discontinuous but significant surfaces.
1.2.	Industrial, commercial and transport	
1.2.1.	Industrial or commercial units	Artificially surfaced areas (with concrete, asphalt, tamacadam, or stabilised, e.g. beaten earth) devoid of vegetation, occupy most of the area in question, which also contains buildings and/or vegetated areas.
1.2.2.	Road and rail networks and associated land	Motorways, railways, including associated installations (stations, platforms, embankments). Minimum width to include: 100m.
1.3.	Mine, dump and construction sites	
1.3.1.	Mineral extraction sites	Areas with open-pit extraction of industrial minerals (sandpits, quarries) or other minerals (opencast mines). Includes flooded gravel pits, except for river-bed extraction.
1.3.2.	Dump sites	Landfill or mine dump sites, industrial or public.
1.4.	Artificial, non-agricultural vegetated areas	
1.4.2.	Sport and leisure facilities	Camping grounds, sports grounds, leisure parks, golf courses, race-courses, etc. Includes formal parks not surrounded by urban zones
1.5	Cultural Heritage	Single buildings/complexes of cultural importance (Mosques, Churches, cemeteries, monuments, castles etc.) Mark exceptional "View Points" (landscape) with symbol (incl. direction of view) ▲
2.	Agricultural areas	
2.1.	Arable land - Cultivated areas regularly ploughed and generally under a rotation system.	
2.1.1.	Non-irrigated arable land	Cereals, legumes, fodder crops, root crops and fallow land. Includes flower and tree (nurseries) cultivation and vegetables, whether open field, under plastic or glass (includes market gardening). Includes aromatic, medicinal and culinary plants. Excludes permanent pastures
2.1.2.	Permanently irrigated land	Crops irrigated permanently and periodically, using a permanent infrastructure (irrigation channels, drainage network). Most of these crops could not be cultivated without an artificial water supply. Does not include sporadically irrigated land
2.2.	Permanent crops - Crops not under rotation system - which provides repeated harvests and occupy the land for a long period before it is ploughed and replanted: mainly plantations of woody crops. Excludes pastures, grazing lands and forests	
2.2.2.	Fruit trees and berry plantations	Parcels planted with fruit trees or shrubs: single or mixed fruit species, fruit trees associated with permanently grassed surfaces. Includes

		chestnut and walnut groves
2.3.	Pastures	
2.3.1.	Pastures intensive without trees and shrubs	Dense, predominantly graminoid grass cover, of floral composition, mainly used for grazing and harvesting, often manured - hedges <10%
2.3.2.	Pastures intensive with trees and shrubs	Dense, predominantly graminoid grass cover, of floral composition, mainly used for grazing and harvesting, often manured - areas with hedges (>10%)(countryside with small pastures and many hedges)
2.3.3.	Pastures extensive without trees and shrubs	Predominantly graminoid grass cover, extensive grazing , no harvest and fertilisation, <10% woody species
2.3.4.	Pastures extensive with trees and shrubs	Predominantly graminoid grass cover, extensive grazing , no harvest and fertilisation, >10% woody species (esp. Juniper)
2.4.	Heterogeneous agricultural areas	
2.4.1.	Annual crops associated with permanent crops	Non-permanent crops (arable lands or pasture) associated with permanent crops on the same parcel
2.4.2.	Complex cultivation – no hedges	Juxtaposition of small parcels of diverse annual crops, pasture and/or permanent crops, hedges (< 10% cover)
2.4.3.	Agriculture / natural vegetation Mix	Land principally occupied by agriculture, with significant areas of natural vegetation Areas principally occupied by agriculture, interspersed with significant natural areas
2.4.4.	Complex cultivation – with hedges/trees	Juxtaposition of small parcels of diverse annual crops, pasture and/or permanent crops with hedges (> 10% cover)
2.4.5.	Complex cultivation – with hedges	Juxtaposition of small parcels of diverse annual crops, pasture and/or permanent crops with hedges (> 10% cover)
3.	Forests and (semi)-natural areas	
3.1.	Forests - Assumed tree level is 1700m	
3.1.1.	Broad-leaved forest	Vegetation formation composed principally of trees, including shrub and bush understories, where broad-leaved species predominate
3.1.2.	Coniferous forest	Vegetation formation composed principally of trees, including shrub and bush understories, where coniferous species predominate
3.1.3.	Mixed forest	Vegetation formation composed principally of trees, including shrub and bush understories, where broad-leaved and coniferous species co-dominate
3.1.4.	Coniferous forest - Planted	
3.1.5.	Woodland patches	Small patches of forest in open land, limited size so that non forest climate inside
3.2.	Shrub and/or herbaceous vegetation associations	
3.2.1.	Natural grassland (>2000m)	Normally grassland above tree line (1700) - Low productivity grassland. Often situated in areas of rough uneven ground. Frequently includes rocky areas, briars, and heathland
3.2.2.	Heathland Vegetation (incl. Moors)	Heathland (and Moors) vegetation with low and closed cover, dominated by bushes, shrubs and herbaceous plants (heath, briars, broom, gorse, laburnum, etc.)
3.2.4.	Transitional woodland/shrub	Bushy or herbaceous vegetation with scattered trees. Can represent either woodland degradation or forest regeneration/colonisation Includes old pastoral land with more than 70% of bushes/trees (often



		Junipers)
3.2.5.	Coppice Forest	Different types (incl. coppice-with-standards)
3.3.	Open spaces with little or no vegetation	
3.3.2.	Bare rock, scree, cliffs, rocks and outcrops.	Areas with more than 50% bare rocks and scree material
3.3.3.	Sparsely vegetated areas	Includes steppes, tundra and badlands. Scattered high-attitude vegetation – non-vegetated area 80-95%
4.	Wetlands	
4.1.	Inland wetlands - Non-forested areas either partially seasonally or permanently waterlogged. The water may be stagnant or circulating	
4.1. 1.	Inland marshes/waterlogged areas	Low-lying land usually flooded or waterlogged in winter, and more or less saturated by water all year round (including complexes with more than 50% waterlogged areas – areas around springs)
4.1.2.	Peatland	Peatland consisting mainly of decomposed moss and vegetable matter. May or may not be exploited
4.1.3.	Riparian woodland	Joining rivers, creeks and waterlogged forest/bushland
5.	Water bodies	
5.1.	Inland waters	
5.1. 1.	Water courses	Natural or artificial water-courses serving as water drainage channels. Includes canals. Minimum width to include: 10 m (polygon), otherwise line
5.1.2.	Water bodies	Natural or artificial stretches of water (lakes etc.)
5.1.3.	Springs	Point objects



1.6. Map B8: Biodiversity Flora and Vegetation

1.6.1. Species Lists of Sample Points

Table 1-6: Plant Samples AM01 - AM15 Dr. A. Milbradt

Species	AM01	AM02	AM03	AM04	AM05	AM06	AM07	AM08	AM09	AM10	AM11	AM12	AM13	AM14	AM15
Acer pseudo-platanus		X	X												
Anthoxanthum odoratum				X	X	X	X								
Carduus acanthoides				X	X	X	X								
Chenopodium bonus-henricus				X	X	X	X								
Cirsium palustre		X	X	X	X	X	X								
Cynosurus cristatus				X	X	X	X								
Daphne mezereum								X	X						
Deschampsia caespitosa				X	X	X	X								
Epilobium dodonaei				X	X	X	X								
Epilobium hirsutum				X	X	X	X								
Gentiana asclepiadea	X	X	X												
Heracleum sphondylium agg.	X	X	X												
Juniperus nana								X	X						
Linum catharticum	X	X	X												
Lonicera spec.	X	X	X												
Luzula cf albida								X	X						
Mentha longifolia				X	X	X	X								
Nardus stricta				X	X	X	X	X	X					X	X
Orchidaceae	X	X	X												
Parnassia palustris	X	X	X												
Polystichum lonchitis				X	X	X	X								
Rhamnus fallax	X	X	X												
Rosa agrestis	X	X	X												
Rosa canina agg.	X	X	X												
Rosa cf montana	X	X	X												
Rosa corymbifera	X	X	X												
Rosa glauca	X	X	X												
Rubus idaeus	X	X	X												
Rumex scutatus		X	X												
Salix caprea	X	X	X												
Sambucus racemosa	X	X	X												
Satureja acinos				X	X	X	X								
Selaginella selaginoides	X	X	X												
Stellaria graminea								X	X						
Trifolium spadiceum				X	X	X	X								

Species	AM01	AM02	AM03	AM04	AM05	AM06	AM07	AM08	AM09	AM10	AM11	AM12	AM13	AM14	AM15
Urtica dioica				X	X	X	X								
Vaccinium gaultherioides										X	X	X	X	X	X
Vaccinium myrtilloides								X	X						
Veratrum album		X	X												
Total No of Species per Sample	16	20	20	14	14	14	14	6	6	1	1	1	1	2	2

Table 1-7: Plant Samples AM16 – AM30 Dr. A. Milbradt

Species	AM16	AM17	AM18	AM19	AM20	AM21	AM22	AM23	AM24	AM25	AM26	AM27	AM28	AM29	AM30
Acer heldreichii													X		
Achillea millefolium											X				
Aconitum napellus	X														
Agrimonia eupatoria											X				
Amelanchier ovalis			X											X	X
Anthoxanthum odoratum														X	X
Anthyllis vulneraria															X
Asperula cf glauca											X				
Avenella flexuosa															X
Bellis perennis			X												
Betula pendula											X				
Briza media															X
Calamintha clinopodium															X
Campanula cf rotundifolia	X														
Carex flava							X	X							
Carex rostrata							X	X	X						
Carlina acanthifolia											X				
Cirsium arvense					X										
Cirsium eriophorum						X									
Cirsium palustre						X									
Comarum palustre									X						
Corylus avellana											X	X			
Cotoneaster integerrimus															X
Cotoneaster tomentosus												X			
Crataegus monogyna											X				
Daucus carota											X	X			
Deschampsia caespitosa							X	X							X
Dianthus spec.															X
Dryopteris filix-mas										X					



Species	AM16	AM17	AM18	AM19	AM20	AM21	AM22	AM23	AM24	AM25	AM26	AM27	AM28	AM29	AM30
Telekia speciosa													X		
Urtica dioica											X				
Vaccinium gaultherioides	X	X													
Verbena officinalis											X				
Veronica officinalis													X		
Viola cf hirta											X				
Total No of Species per Sample	5	1	3	1	5	4	7	7	4	2	20	4	11	6	23

Table 1-8: Plant Samples AM31 – AM44 Dr. A. Milbradt

Species	AM31	AM32	AM33	AM34	AM35	AM36	AM37	AM38	AM39	AM40	AM41	AM42	AM43	AM44
Abies alba subsp. borisii-regis											X			
Achillea millefolium	X	X	X											
Agrimonia eupatoria	X	X	X											
Anthoxanthum odoratum					X	X								
Asperula cf glauca	X	X	X											
Betula pendula	X	X	X								X			
Briza media					X	X								
Carex flava					X	X								
Carex rostrata					X	X	X							
Carex vesicaria					X	X								
Carlina acanthifolia	X	X	X											
Carpinus betulus			X											
Cerinth minor			X											
Comarum palustre							X							
Corylus avellana	X	X	X											
Crataegus monogyna	X	X	X											
Cynosurus cristatus					X	X								
Daucus carota	X	X	X											
Deschampsia caespitosa					X	X								
Echium vulgare			X											
Eriophorum latifolium					X	X	X							
Eryngium amethystinum											X			
Fagus sylvatica			X											
Filipendula ulmaria					X	X								
Fumana procumbens	X	X	X											
Galium verum	2	X	X											
Genista spec.								X						



Species	AM31	AM32	AM33	AM34	AM35	AM36	AM37	AM38	AM39	AM40	AM41	AM42	AM43	AM44
Helleborus cf odorus	X	X	X											
Hieracium pilosella	X	X	X											
Juniperus communis	X	X	X								X			
Lathyrus pratensis					X	X								
Lemna minor							X							
Linaria vulgaris										X				
Linum catharticum					X	X								
Medicago falcata									X					
Nardus stricta					X	X		X						
Orchis cf mascula						X								
Parnassia palustris					X	X								
Poa trivialis					2	2								
Potentilla erecta					X	X								
Prunus spinosa	X	X	X											
Pteridium aquilinum									X					
Rosa agrestis	X	X	X											
Rosa canina agg.												X		
Rosa mollis	X	X	X						X	X				
Rosa pendulina				X										
Rosa subcanina									X					
Sanguisorba officinalis					X	X								
Sorbus aria														X
Sorbus cf graeca														X
Triglochin palustris													X	
Urtica dioica	X	X	X											
Verbena officinalis	X	X	X											
Viburnum lantana			X											
Viola cf hirta	X	X	X											
Total No of Species per Sample	20	19	24	1	17	18	4	2	4	2	4	1	1	2



Table 1-9: Plant Samples AM46 – AM60 Dr. A. Milbradt

Species	AM46	AM47	AM48	AM49	AM51	AM52	AM53	AM54	AM55	AM56	AM57	AM59	AM60
Antennaria dioica										X			
Artemisia spec.					X								
Asplenium trichomanes										X			
Avenella flexuosa											X		
Briza media	X												
Carex flava	X												
Carex rostrata												X	
Carex vesicaria												X	
Chlorophyceae													X
Cnidium silaifolium									X				
Comarum palustre												X	
Dryas octopetala											X		
Equisetum cf palustre	X												
Eriophorum latifolium	X	X											
Filipendula ulmaria		X											
Gentiana asclepiadea		X											
Gentiana ciliata					X								
Geum montanum											X		
Juncus inflexus		X											
Juncus trifidus											X		
Mentha longifolia	X												
Nardus stricta				X		X	X	X			X		
Parnassia palustris	X	X		X									
Rosa glauca					X								
Rosa pendulina			X										
Sempervivum spec.										X			
Vaccinium gaultherioides									X				
Vaccinium myrtillus				X									
Total No of Species per Sample	6	5	1	3	4	1	1	1	2	3	5	3	1

Table 1-10: Plant Samples AM61 – AM75 Dr. A. Milbradt



Species	AM61	AM62	AM63	AM64	AM65	AM66	AM67	AM68	AM69	AM70	AM71	AM72	AM73	AM74	AM75
Salix spec.	X	X		X											
Saxifraga spec								X	X	X					
Sedum spec								X	X	X					
Selaginella selaginoides				X											
Senecio fuchsii							X								
Thymus vulgaris					X										
Trifolium spadiceum			X												
Urtica dioica							X								
Vaccinium gaultherioides													X	X	
Vaccinium myrtillus													X		
Total No of Species per Sample	3	2	3	6	12	2	8	7	8	8	7	5	4	3	1

Table 1-11: Plant Samples AM76 – AM90 Dr. A. Milbradt

Species	AM76	AM77	AM78	AM79	AM80	AM81	AM82	AM83	AM84	AM85	AM86	AM87	AM88	AM89	AM90
Alchemilla spec					X										
Alnus glutinosa								X							
Asplenium septentrionale												X			
Astrantia major								X							
Avenella flexuosa							X								
Briza media					X										
Caltha palustris					X										
Campanula glomerata						X									
Carex hirta					X										
Carex rostrata					X										
Cirsium palustre					X										
Crepis cf paludosa								X							
Cynosurus cristatus					X			X							
Deschampsia caespitosa					X										
Dryopteris filix-mas				X				X							
Epilobium hirsutum								X							
Eriophorum latifolium					X			X							
Eupatorium cannabinum		X													
Euphorbia cyparissias									X						
Fagus sylvatica									X						
Filipendula ulmaria						X		X							
Fragaria vesca									X						
Galium odoratum								X							



Species	AM76	AM77	AM78	AM79	AM80	AM81	AM82	AM83	AM84	AM85	AM86	AM87	AM88	AM89	AM90
Galium palustre								X							
Geum montanum						X									
Holcus lanatus					X										
Hypericum maculatum						X									
Juncus effusus					X										
Juncus trifidus										X					
Luzula cf albida							X								
Mentha longifolia								X							
Myosotis cf palustris					X			X							
Nardus stricta							X				X				
Parnassia palustris					X										
Plantago holosteum													X		
Polypodium vulgare											X				
Polystichum lonchitis										X					
Potentilla erecta					X										
Prenanthes purpurea									X						
Prunella vulgaris								X							
Pulicaria cf dysenterica														X	
Rosa corymbifera								X							
Rosa mollis			X												
Rosa pendulina	X											X			
Salix spec.						X									
Sambucus ebulus									X						
Sanguisorba officinalis						X									
Schoenoplectus lacustris															X
Scirpus sylvaticus								X							
Sempervivum spec.										X					
Silene vulgaris						X									
Solanum nigrum agg.									X						
Thalictrum cf aquilegifolium						X									
Vaccinium gaultherioides											X	X			
Vaccinium myrtillus									X		X	X			
Total No of Species per Sample	1	1	1	1	14	8	3	15	7	3	4	4	1	1	1



Table 1-12: Plant Samples SAM01 – SAM38 Dr. A. Milbradt

Species	SAM01	SAM02	SAM04	SAM05	SAM06	SAM08	SAM09	SAM10	SAM11	SAM12	SAM17	SAM28	SAM29	SAM30	SAM31	SAM32	SAM33	SAM36	SAM37	SAM38
<i>Abies alba</i>	X																			
<i>Acer heldreichii</i>	X																			
<i>Acer pseudo-platanus</i>	X																			
<i>Achillea ageratifolia</i>	X								X											
<i>Achillea alexandri-regis</i>	X																			
<i>Achillea distans</i>	X																			
<i>Achillea holosericea</i>	X							X												
<i>Achillea millefolium</i>	X								X											
<i>Achillea multifida</i>	X																			
<i>Acinos arvensis</i>	X																			
<i>Anemone nemorosa</i>									X											
<i>Anthoxanthum odoratum</i>																		X		
<i>Asperula doerfleri</i>		X																	X	
<i>Astrantia major</i>									X											
<i>Atropa belladonna</i>									X											
<i>Bommuellera dieckii</i>																X				
<i>Campanula foliosa</i>									X											
<i>Carum carvi</i>																			x	
<i>Centaurea kotschyana</i>									x											
<i>Cephalanthera longifolia</i>																			x	
<i>Cerastium neo-scardicum</i>																			x	
<i>Cirsium appendiculatum</i>									x											
<i>Corylus avellana</i>									x											
<i>Cryptogramma crispa</i>																		x		
<i>Daphne laureola</i>									x											
<i>Daphne oleoides</i>						x														
<i>Dianthus superbus</i>																		x		
<i>Draba korabensis</i>					x	x														
<i>Epilobium hirsutum</i>		x																		
<i>Euphorbia amygdaloides</i>														x						

Table 1-13: Plant Samples SAM42 – SAM66 Dr. A. Milbradt

Species	SAM42	SAM43	SAM45	SAM48	SAM49	SAM50	SAM51	SAM52	SAM53	SAM54	SAM55	SAM56	SAM58	SAM60	SAM61	SAM62	SAM63	SAM64	SAM65	SAM66
<i>Acer heldreichii</i>	x			x																
<i>Achillea millefolium</i>														x						x
<i>Aegopodium podagraria</i>			x																	
<i>Agrimonia agrimonoides</i>									x					x						
<i>Alchemilla plicatula</i>									x											
<i>Anemone nemorosa</i>														x						
<i>Anthemis montana</i>														x						
<i>Arenaria alpina</i>	x																			
<i>Asplenium viride</i>			x																	
<i>Astrantia major</i>														x						x
<i>Bormuelleria dieckii</i>					x															
<i>Bupleurum spec.</i>			x																	
<i>Campanula patula</i>				x																
<i>Campanula spathulata</i>											x						x			
<i>Carum carvi</i>							x													
<i>Centaurea montana</i>			x																	
<i>Cerastium decalvans</i>			x																	
<i>Cicerbita pancicii</i>											x									
<i>Crepis biennis</i>				x																
<i>Cytisus austriacus</i>													x							
<i>Cytisus hirsutus</i>	x																			
<i>Dianthus microlepis</i>			x																	
<i>Doronicum columnae</i>			x																	
<i>Draba korabensis</i>														x					x	
<i>Draba scardica</i>	x																			
<i>Dryas octopetala</i>			x																	
<i>Eriophorum angustifolium</i>				x										x						
<i>Festuca ovina</i> agg.						x														
<i>Filipendula ulmaria</i>													x							
<i>Fontinalis antipyretica</i>			x				x													
<i>Fumana bonapartei</i>												x								
<i>Galium lucidum</i>	x																			
<i>Genista tinctoria</i>			x																	
<i>Gentiana asclepiadea</i>								x												
<i>Gentiana verna</i>	x																			
<i>Geranium sylvaticum</i>				x																
<i>Geum coccineum</i>			x																	
<i>Geum rivale</i>			x																	
<i>Halacsya sendtneri</i>																				
<i>Helianthemum canum</i>			x																	
<i>Helleborus odoratus</i>			x																	
<i>Heracleum orphanidis</i>																				
<i>Heracleum sphondylium</i> agg.							x													
<i>Hesperis dinarica</i>			x																	
<i>Hypochoeris radicata</i>														x						
<i>Leucanthemum vulgare</i>				x																
<i>Lilium albanicum</i>							x													
<i>Linaria peloponesiaca</i>																			x	
<i>Lychnis viscaria</i>															x	x				

Minuartia baldaccii			x										x					
Minuartia verna				x									x					
Onobrychis scardica	x																	
Ophioglossum vulgatum	x																	
Orchis cf mascula										x				x			x	x
Oxalis acetosa						x												
Pancicia serbica																		
Pedicularis brachyodonta	x																	
Pedicularis leucodon												x						
Pinus heldreichii										x								
Pinus mugo																		
Pinus peuce						x				x					x			
Plantago gentianoides	x																	
Plantago lanceolata			x															
Plantago reniformis															x			
Poa alpina vivipara										x								
Polygonatum verticillatum																	x	
Potentilla doerfleri			x										x					
Potentilla montenegrina			x															
Potentilla speciosa			x															
Ramonda nathaliae			x															
Ramonda serbica												x						
Ranunculus incomparabilis												x						
Ranunculus repens	x																	
Rhododendron ferrugineum			x															
Rubus idaeus																x		
Rumex acetosa			x															x
Rumex alpinus			x										x					x
Rumex scutatus																		
Salix caprea			x			x							x					x
Salix herbacea																		
Salix reticulata												x						
Saxifraga sempervivum	x																	
Saxifraga taygetea																x		
Sedum flexuosum	x																	
Sedum serpentini	x																	
Sempervivum kosaninii			x															
Senecio sulphureus																		x
Stachys alopecuroides																		x
Stachys tymphaea	x																	
Symphytum tuberosum												x						
Taraxacum officinale												x						
Taxus baccata																x		
Thymus albanus			x															
Trollius europaeus															x	x		
Vaccinium myrtillus			x								x	x						
Valeriana tripteris			x															
Veratrum album																		x
Verbascum lychnites	x																	
Veronica chamaedrys																		x
Viola aetolica			x															
Viola speciosa		x	x															

Table 1-14: Plant Samples SAM67 – SAM86 Dr. A. Milbradt

[illegible]



Table 1-15: Plant Samples BX01 – BX15 Prof. Dr. M. Behxhet

Species	BX01	BX02	BX03	BX04	BX05	BX06	BX07	BX08	BX09	BX10	BX11	BX12	BX13	BX14	BX15
Achillea atrata														X	
Achillea holosericea														X	
Arabis bryoides												X			
Dryas octopetala		X												X	
Gentiana lutea										X					
Gentianella bulgarica														X	
Linaria peloponesiaca				X	X				X						
Narthecium scardicum	X														
Potentilla speciosa								X							
Rhamnus orbiculatus											X				
Saxifraga scardica			X			X							X	X	
Viola grisebachina							X								X

Table 1-16: Plant Samples BX16 – BX30 Prof. Dr. M. Behxhet

Species	BX16	BX17	BX18	BX19	BX20	BX21	BX22	BX23	BX24	BX25	BX26	BX27	BX28	BX29	BX30
Achillea chrysocoma										X					
Achillea holosericea										X					
Bupleurum karglii												X			
Draba korabensis									X						
Drypis spinosa				X											X
Gentiana lutea			X												
Hieracium waldsteinii										X					
Linaria peloponesiaca						X									
Pinus heldreichii		X													
Potentilla montenegrina										X					
Rhamnus orbiculatus								X							
Saxifraga scardica					X										
Spergularia vellesia subspecies graminea														X	
Thymus balcanus											X				
Valeriana bertisceae													X		
Valeriana pancicii	X														
Veronica saturejoides							X								
Total No of Species per Sample	1	1	1	1	1	1	1	1	1	4	1	1	1	1	1

[illegible]

Table 1-19: Plant Samples BX61 – BX75 Prof. Dr. M. Behxhet

[illegible]

Sustainable Development Atlas for Sharr/Šar National Park – Kosovo

[illegible]

Sustainable Development Atlas for Sharr/Šar National Park – Kosovo

joides																			
Castanea sativa																x			
Cynosurus cristatus																		x	
Daphne mezereum	x																		
Daphne oleoides				x															
Deschampsia caespitosa							x												
Erophila verna						x													
Euphorbia glabriflora													x						
Genista hassertiana								x											
Melissa officinalis																	x		
Phyteuma confusum																			x
Plantago lanceolata																		x	
Plantago reniformis																	x		
Potentilla temata				x															
Rosa pendulina									x										
Rubus idaeus														x					
Salvia glutinosa									x										
Sempervivum spec.																x			
Viola dukadjinica			x																
Viola grisebachina											x								

[illegible]

[illegible]

[illegible]

[illegible]

Species	FM01	FM02	FM03	FM04	FM05	FM06	FM07	FM08	FM09	FM10	FM11	FM12	FM13	FM14	FM15	FM16
<i>Solidago virgaurea</i>	X															
<i>Sorbus aucuparia</i>	X															
<i>Stachys alpina</i>		X	X			X		X					X			X
<i>Stachys recta</i>														X		
<i>Telekia speciosa</i>	X															
<i>Teucrium chamaedrys</i>														X		
<i>Thlaspi bellidifolium</i>					X											
<i>Thymus albanus</i>										X						
<i>Thymus doerfleri</i>										X						
<i>Thymus sp</i>														X		
<i>Trifolium alpestre</i>								X					X			
<i>Trifolium badium</i>				X							X					X
<i>Trifolium velenovskyi</i>	X															X
<i>Urtica dioica</i>									X							
<i>Veratrum album</i>						X					X					
<i>Verbascum sp.</i>															X	
<i>Veronica beccabunga</i>						X										
<i>Viola aetolica</i>									X						X	
<i>Viola gracilis</i>									X							
<i>Viola orphanidis</i>									X							
Total No of Species per Sample	26	14	18	29	15	13	17	12	8	20	9	7	16	14	7	23

Table 1-26: Plant Samples FM17 – FM32 Prof. Dr. F. Millaku

Species	FM17	FM18	FM19	FM20	FM21	FM22	FM23	FM24	FM25	FM26	FM27	FM28	FM29	FM30	FM31	FM32
<i>Achillea atrata</i>													X			
<i>Achillea chrysocoma</i>			X													
<i>Achillea lingulata</i>											X					
<i>Achillea millefolium</i>		X												X		
<i>Aconitum napellus</i>									X		X					
<i>Aconitum vulparia</i>									X							
<i>Ajuga pyramidalis</i>											X					
<i>Alchemilla hybrida</i>											X					
<i>Allium ursinum</i>												X				
<i>Androsace villosa</i>													X			
<i>Anemone nemorosa</i>											X					
<i>Anemone ranunculoides</i>											X					
<i>Angelica archangelica</i>									X							

[illegible]

Species	FM17	FM18	FM19	FM20	FM21	FM22	FM23	FM24	FM25	FM26	FM27	FM28	FM29	FM30	FM31	FM32
<i>Meum athamanticum</i>													X			
<i>Minuartia baldaccii</i>	X		X													
<i>Minuartia verna</i>													X			
<i>Myosotis sylvatica</i>											X					
<i>Narthecium scardicum</i>												X				
<i>Onobrychis scardica</i>	X															
<i>Ononis spinosa</i>		X														
<i>Oxytropis halleri</i>							X									
<i>Parnassia palustris</i>													X			
<i>Petasites albus</i>									X							
<i>Pimpinella alpina</i>													X			
<i>Pimpinella saxifraga</i>													X			
<i>Pinguicula balcanica</i>															X	
<i>Plantago atrata</i>											X					
<i>Polygonum alpinum</i>						X							X			
<i>Polygonum bistorta</i>											X					
<i>Polygonum viviparum</i>					X	X										
<i>Potentilla alba</i>						X										
<i>Potentilla apenina</i>	X															
<i>Potentilla argentea</i>											X					
<i>Potentilla aurea</i>						X							X			
<i>Potentilla caulescens</i>													X			
<i>Potentilla crantzii</i>						X										
<i>Potentilla speciosa</i>	X															
<i>Potentilla ternata</i>													X			
<i>Primula elatior</i>											X			X		
<i>Primula veris</i>										X	X			X		
<i>Ptilotrichum rupestre</i>	X															
<i>Ranunculus crenatus</i>													X			
<i>Ranunculus thora</i>	X															
<i>Rhamnus frangula</i>									X							
<i>Rosa canina</i>		X														
<i>Rubus caesius</i>														X		
<i>Rubus idaeus</i>										X	X					
<i>Salix caprea</i>											X					
<i>Salix reticulata</i>	X															
<i>Satureja montana</i>		X														
<i>Saxifraga aizoides</i>												X	X			
<i>Saxifraga paniculata</i>												X	X			
<i>Saxifraga rotundifolia</i>												X				



Species	FM17	FM18	FM19	FM20	FM21	FM22	FM23	FM24	FM25	FM26	FM27	FM28	FM29	FM30	FM31	FM32
<i>Saxifraga scardica</i>	X		X													
<i>Saxifraga sempervivum</i>	X															
<i>Saxifraga trichocalycina</i>				X												
<i>Scabiosa columbaria</i>											X					
<i>Scleranthus annuus</i>											X					
<i>Sedum acre</i>		X														
<i>Sempervivum macedonicum</i>						X							X			
<i>Senecio bosniaca</i>			X													
<i>Senecio carpathicus</i>						X					X					
<i>Senecio fuchsii</i>											X					
<i>Senecio subalpinus</i>					X											
<i>Sesleria nitida</i>			X													
<i>Sorbus aria</i>									X							
<i>Stachys alopecurus</i>											X					
<i>Stachys alpina</i>											X					
<i>Teucrium chamaedrys</i>		X												X		
<i>Teucrium montanum</i>														X		
<i>Thlaspi bellidifolium</i>	X															
<i>Thlaspi microphyllum</i>	X															
<i>Thymus albanus</i>													X			
<i>Thymus doerfleri</i>	X															
<i>Thymus sp</i>										X						
<i>Thymus vulgaris</i>		X														
<i>Trifolium badium</i>													X			
<i>Trifolium velenovskyi</i>											X					
<i>Trifolium wettsteinii</i>							X									
<i>Tussilago farfara</i>									X		X					
<i>Urtica dioica</i>										X						
<i>Vaccinium myrtillus</i>						X				X	X					
<i>Vaccinium uliginosum</i>													X			
<i>Valeriana pancicii</i>	X															
<i>Veratrum album</i>					X					X						
<i>Verbascum thapsus</i>					X											
<i>Veronica aphylla</i>				X												
<i>Veronica satyroides</i>				X												
<i>Viola aetolica</i>												X				
<i>Viola orphanidis</i>											X	X				
<i>Viola sylvestris</i>												X				
<i>Viscum album</i>														X		
Total No of Species per Sample	16	15	15	4	8	14	5	2	14	9	49	16	38	10	4	1



1.6.2. Overall List of Plant Species (alphabetical order)

Table 1-27: Overall List of Plant Species⁴

Species	Family	Albanian name	Serbian name	English name	Distribution in Kosovo	Endemism	Rareness (incl. Local Red Lists)	Habitat Directive	Bern Convention	IUCN Red Plant List
<i>Abies alba</i>	Pinaceae	Bredhi i bardhë		Silver Fir	Dragash					LC-Least concern
<i>Abies alba</i> subsp. <i>borisii-regis</i>	Pinaceae	Bredhi i magedonisë	Makedonska Jela	Bulgarian Fir	Sharr Mountain (Restelica)	Tertiary relic	Suggested Kosovo's Red Plant List			
<i>Abies balsamea</i>	Pinaceae	Bredhi balsam		Balsam Fir	Dragash					LC-Least concern
<i>Acer heldreichii</i>	Sapindaceae	Panja malore	Planinski Javor	Heldreich's Maple	Dragash	Balkan endemic	Suggested Kosovo's Red Plant List			
<i>Acer pseudo-platanus</i>	Sapindaceae	Panja e malit	Javor mlečak	Sycamore maple	Dragash					
<i>Achillea ageratifolia</i>	Asteraceae			Sweet Yarrow	Dragash					
<i>Achillea alexandri-regis</i>	Asteraceae	Barpezmi i mbretit Aleksandër	Hajdučica Kralja Aleksandra	King's Alexander Yarrow	Sharr Mountains (Oshlak)	Kosovo endemic				
<i>Achillea atrata</i>	Asteraceae	Barpezmi		Black yarrow	Koritnik					
<i>Achillea canescens</i>	Asteraceae	Barpezmi i bardhë			Koritnik	Balkan endemic	Suggested Kosovo's Red Plant List			
<i>Achillea chrysocoma</i>	Asteraceae	Barpezmi balukeartë		Golden Yarrow	Koritnik	Balkan endemic	Suggested Kosovo's Red Plant List			
<i>Achillea crithmifolia</i>	Asteraceae				Dragash					
<i>Achillea holosericea</i>	Asteraceae	Barpezmi i gjithëmëndafshhtë			Dragash, Koritnik	Balkan endemic	Suggested Kosovo's Red Plant List			
<i>Achillea korabensis</i>	Asteraceae	Barpezmi i Korabit		Korab yarrow	Dragash (Brod)					
<i>Achillea linguata</i>	Asteraceae	Barpezmi gjuhëzore			Dragash					
<i>Achillea millefolium</i>	Asteraceae	Barpezmi mijëfletësh	Stolisnik-hajducka trava	Yarrow	Dragash					
<i>Achillea tenuifolia</i>	Asteraceae				Dragash					

⁴ Data from literature and field surveys



Species	Family	Albanian name	Serbian name	English name	Distribution in Kosovo	Endemism	Rareness (incl. Local Red Lists)	Habitat Directive	Bern Convention	IUCN Red Plant List
<i>Aconitum divergens</i>	Ranunculaceae				Dragash					
<i>Aconitum napellus</i>	Ranunculaceae	Akoniti		Monkshood	Dragash		No information			
<i>Aconitum vulparia</i>	Ranunculaceae	Akoniti i dhelprës		Wolfsbane	Dragash					
<i>Adenostyles alliariae</i>	Asteraceae	Bar hudhra			Dragash					
<i>Agrimonia eupatoria</i>	Rosaceae	Rodhëza		Common agrimony	Dragash					
<i>Ajuga pyramidalis</i>	Lamiaceae	Ajuga piramidale			Dragash					
<i>Alchemilla hybrida</i>	Rosaceae	Alkemila hibride			Dragash					
<i>Alchemilla spec</i>	Rosaceae		Virak	Lady's mantle	Dragash					
<i>Allium ursinum</i>	Aliaceae	Hudhra e ariut	Sremuš	Wild garlic	Dragash					
<i>Alnus glutinosa</i>	Betulaceae	Verri i zi	Crna jova	Black alder	From Brezna to Dragash along Plava River					LC-Least concern
<i>Althaea moschata</i>	Malvaceae	Mullanjadhja erëmyshku			Dragash					
<i>Amelanchier ovalis</i>	Rosaceae	Sqapthi		Snowy Mespilus	Dragash					
<i>Amphoricarpus autariatus</i>	Asteraceae	Amforikarpi	Krčagovina ilirska		Sharr Mountains	Balkan endemic	Endangered			
<i>Androsace villosa</i>	Primulaceae	Pratishi			Dragash					
<i>Anemone nemorosa</i>	Ranunculaceae	Fillikatja e pyllit	Šumska breberina	Thimbleweed	Dragash					
<i>Anemone ranunculoides</i>	Ranunculaceae	Fillikatja zhabinore			Dragash					
<i>Angelica archangelica</i>	Apiaceae	Angelika angelika		Norwegian angelica	Dragash					
<i>Antennaria dioica</i>	Asteraceae	Antenaria dioike	Smilje	Mountain Everlasting	Dragash					
<i>Anthemis montana</i>	Asteraceae	Syvicja malore			Dragash					
<i>Anthoxanthum odoratum</i>	Poaceae	Antoksanti erëmirë		Sweet vernal grass	Dragash		No information			
<i>Anthyllis aurea</i>	Fabaceae	Antili i pruar			Dragash	Balkan endemic	Suggested Kosovo's Red Plant List			

United Nations Development Programme

Sustainable Development Atlas for Sharr/Šar National Park – Kosovo



Species	Family	Albanian name	Serbian name	English name	Distribution in Kosovo	Endemism	Rareness (incl. Local Red Lists)	Habitat Directive	Bern Convention	IUCN Red Plant List
<i>Anthyllis vitelina</i>	Fabaceae				Sharr Mountains	Balkan endemic	Suggested Kosovo's Red Plant List			
<i>Anthyllis vulneraria</i>	Fabaceae	Antili shërues		Kidney vetch	Dragash		No information			
<i>Arabis alpina</i>	Brassicaceae	Arabësi alpin			Dragash	Glacial relic				
<i>Arabis bryoides</i>	Brassicaceae	Arabësi brioid			Koritnik		Suggested Kosovo's Red Plant List			
<i>Arceuthobium oxycedri</i>	Loranthaceae	Velli		Dwarf mistletoe	Koritnik		Rare			
<i>Arctium lappa</i>	Asteraceae	Rrodhja	Repuh	Lappa Burdock	Dragash					
<i>Arctostaphylos uva-ursi</i>	Ericaceae	Rrush i alpeve	Medvjетка	Pinemat manzanita	Dragash					
<i>Armeria alpina</i>	Plumbaginaceae	Armeria alpine			Dragash					
<i>Armeria canescens</i>	Plumbaginaceae	Armeria e zbardhur			Dragash		Suggested Kosovo's Red Plant List			
<i>Artemisia absinthium</i>	Asteraceae	Pelini		Green ginger - Wormwood	Dragash					LC-Least concern
<i>Artemisia lobelia</i>	Asteraceae	Pelini eriant			Dragash		Suggested Kosovo's Red Plant List			
<i>Artemisia spec. eriantha</i>	Asteraceae	Pelini	Pelin	Wormwood	Dragash			Annex V		
<i>Artemisia vulgaris</i>	Asteraceae	Pelini i zakonshëm	Obični pelin	Mugwort	Sharr Mountains					
<i>Asperula aristata</i>	Rubiaceae	Njëgjira e halëzuar			Dragash					
<i>Asperula cf. glauca</i>	Rubiaceae	Njëgjira			Dragash					
<i>Asperula doerfleri</i>	Rubiaceae	Njëgjira e Dorflerit		Doerfler woodruff	Dragash	Balkan endemic	Endangered			
<i>Asphodelus albus</i>	Xanthorhoeaceae	Badhra e bardhë		Asphodelus albus	Dragash					
<i>Asplenium septentrionale</i>	Aspleniaceae	Fierguri veror		Forked spleenwort	Dragash					
<i>Asplenium trichomanes</i>	Aspleniaceae	Fierguri me qime			Dragash					
<i>Aster alpinus</i>	Asteraceae	Asteri alpin	Zvezdan	Alpine aster	Dragash	Glacial relic	Suggested Kosovo's Red Plant List			
<i>Astragalus spec.</i>	Fabaceae	Arithja		Goat's-thorn	Dragash		No information			
<i>Astrantia major</i>	Apiaceae	Astrancia e madhe		Great Masterwort	Dragash					

United Nations Development Programme

Sustainable Development Atlas for Sharr/Šar National Park – Kosovo



Species	Family	Albanian name	Serbian name	English name	Distribution in Kosovo	Endemism	Rareness (incl. Local Red Lists)	Habitat Directive	Bern Convention	IUCN Red Plant List
<i>Athyrium filix-femina</i>	Athyriaceae	Atiri fier femër		Lady Fern	Dragash					
<i>Atropa belladonna</i>	Solanaceae	Helmarina	Velebilje	Belladonna	Dragash					
<i>Aubretia croatica</i>	Brassicaceae	Aubretia kroate	Hrvatska Tarčuka	Aubretia	Dragash					
<i>Avenella flexuosa</i>	Poaceae	Avenella e ephshme		Wavy Hair-grass	Dragash		No information			
<i>Barbarea balcana</i>	Brassicaceae	Barbarea ballkanase		Balkna Winter cress	Dragash	Balkan endemic	Suggested Kosovo's Red Plant List	None		LC-Least concern
<i>Barbarea bracteosa</i>	Brassicaceae	Barbarea me brakte		Winter cress	Dragash					
<i>Barbarea longirostris</i>	Brassicaceae	Barbarea sqepgjatë			Sharr Mountains	Balkan endemic	Suggested Kosovo's Red Plant List			
<i>Bellis perennis</i>	Asteraceae	Luleshqerra shumëvjeçare	Krasuljka, Bela rada	Common Daisy	Dragash		No information			
<i>Betula pendula</i>	Betulaceae	Mështekna	Breza	Birch	Sharr Mountains-Coppice forest					
<i>Betula verrucosa</i>	Betulaceae	Mështekna e bardhë		Silver birch	Dragash					
<i>Blysmus compressus</i>	Cyperaceae	Blismi i përmbledhur		Flat-sedge	Dragash					
<i>Bormuelleria dieckii</i>	Brassicaceae	Bormilera e Dieckit			Sharr Mountains	Balkan endemic	Suggested Kosovo's Red Plant List			
<i>Botrychium lunaria</i>	Botrychiaceae	Fieri si Hënë		Common moonwort	Dragash					
<i>Briza media</i>	Poaceae	Briza e mesme		Cow-quake grass	Dragash		No information			
<i>Bruckenthalia spiculifolia</i>	Ericaceae	Brkentali gjethekallizë		Spike Heath	Dragash		Rare			
<i>Bryonia dioica</i>	Cucurbitaceae	Briona dioike		White bryony	Dragash	South East Europe				
<i>Bunium alpinum</i>	Apiaceae	Buni alpin			Dragash		Suggested Kosovo's Red Plant List			
<i>Bupleurum falcatum</i>	Apiaceae			Chinese Thoroughwax	Sharr Mountains					
<i>Bupleurum karglii</i>	Apiaceae	Brinjëkau i Karglit			Dragash	Balkan endemic	Suggested Kosovo's Red Plant List			
<i>Bupleurum veronense</i>	Apiaceae				Dragash					

United Nations Development Programme

Sustainable Development Atlas for Sharr/Šar National Park – Kosovo



Species	Family	Albanian name	Serbian name	English name	Distribution in Kosovo	Endemism	Rareness (incl. Local Red Lists)	Habitat Directive	Bern Convention	IUCN Red Plant List
<i>Calamagrostis varia</i>	Poaceae	Kallmi i egër i ndryshëm			Dragash					
<i>Calamintha acinos</i>	Lamiaceae	Kalaminta acin		Basil Thyme	Dragash		No information			
<i>Calamintha alpina</i>	Lamiaceae			Alpine calamint	Dragash					
<i>Calamintha clinopodium</i>	Lamiaceae	Kalaminta		Hedge Basil	Dragash		No information			
<i>Calamintha grandiflora</i>	Lamiaceae	Lulekambana gjethemadhe			Dragash		No information			
<i>Calamintha nepeta</i>	Lamiaceae	Kalaminta nepetë		Lesser Calamint	Dragash					
<i>Caltha palustris</i>	Ranunculaceae	Lëpushtra e kënetës		Kingcup	Dragash		Rare			
<i>Campanula albanica</i>	Campanulaceae	Lulekambana shqiptare		Albanian Bellflower	Dragash	Balkan endemic	Suggested Kosovo's Red Plant List			
<i>Campanula alpina</i>	Campanulaceae	Lulekambana alpine		Alpine Bellflower	Dragash	Balkan endemic	Suggested Kosovo's Red Plant List			
<i>Campanula cf rotundifolia</i>	Campanulaceae	Lulekambana gjetherrumbullake		Harebell	Dragash					
<i>Campanula foliosa</i>	Campanulaceae	Lulekambana gjetheshumë			Dragash	Balkan endemic	Suggested Kosovo's Red Plant List			
<i>Campanula glomerata</i>	Campanulaceae	Lulekambana lëmshore		Clustered Bellflower	Dragash					
<i>Campanula persicifolia</i>	Campanulaceae	Lulekambana gjethepjeshke		Peach-leaved Bellflower	Dragash					
<i>Campanula rapunculus</i>	Campanulaceae	Lulekambana si fitemë			Dragash					
<i>Campanula scheuchzeri</i>	Campanulaceae	Lulekambana skeukzeri		Scheuchyeri Bellflower	Dragash					
<i>Capsella bursa pastoris</i>	Brassicaceae	Strajca e bariut	Rusomača	Shepherd purse	Sharr Mountains					
<i>Cardamine bulbifera</i>	Brassicaceae	Kardamini me qepujkë			Dragash		No information			
<i>Carduus acanthoides</i>	Asteraceae	Freshkulli si gjemb		Wetted thistle	Dragash					
<i>Carduus acanthoides</i>	Asteraceae	Freshkulli si gjemb		Wetted thistle	Dragash					

United Nations Development Programme

Sustainable Development Atlas for Sharr/Šar National Park – Kosovo



Species	Family	Albanian name	Serbian name	English name	Distribution in Kosovo	Endemism	Rareness (incl. Local Red Lists)	Habitat Directive	Bern Convention	IUCN Red Plant List
<i>Carex atrata</i>	Cyperaceae	Presja alpine	Alpski šaš	Black alpine sedge	Dragash					
<i>Carex caryophylla</i>	Cyperaceae	Presja karafilore			Dragash					
<i>Carex cf flacca</i>	Cyperaceae	Presja e rimtë	Plavi šaš	Blue sedge	Dragash					
<i>Carex flava</i>	Cyperaceae	Presja e verdhë	Žuti šaš	Yellow sedge	Dragash	Tertiary relic				
<i>Carex hirta</i>	Cyperaceae	Presja kreshtake	Srebrena šaš	Silver sedge	Dragash					
<i>Carex laevis</i>	Cyperaceae	Presja e lëpirë		Sedge	Dragash					
<i>Carex nigra</i>	Cyperaceae	Presja e zezë	Crni šaš	Black sedge	Dragash (Shutman)		Rare			
<i>Carex rostrata</i>	Cyperaceae	Presja sqepore		Bottle sedge	Dragash (Restelica)					
<i>Carlina acanthifolia</i>	Asteraceae	Ushonjëza gjethedashtër		Thistle	Dragash					
<i>Carlina acaulis</i>	Asteraceae	Ushojza pa kërcell	Vilino sito	Silver thistle	Dragash					
<i>Carpinus betulus</i>	Betulaceae	Shkoza e bardhë	Grab	European Hornbeam	Dragash					
<i>Carpinus orientalis</i>	Betulaceae	Shkoza e zezë	Beligrab	Oriental hornbeam	Dragash					
<i>Centarium erythraea</i>	Gentianaceae	Bari i ethesë	Kantarion crveni	Centaury	Sharr Mountains					
<i>Centaurea jacea jacea</i>	Asteraceae	Kokoçeli i rënë		Brown Knapweed	Dragash					
<i>Centaurea montana</i>	Asteraceae	Kokoçeli malor	Šumska zečina	Mountain Cornflower	Dragash					
<i>Centaurea nervosa</i>	Asteraceae	Kokoçeli		Knapweed	Dragash					
<i>Centaurea splendens</i>	Asteraceae	Kokoçeli			Dragash					
<i>Centaurea triumfettii</i>	Asteraceae	Kokoçeli i Triumfetit	Pustenasta zečina	Squarrose Knapweed	Dragash					
<i>Cerastium alpinum</i>	Caryophyllaceae	Cerasti alpin	Alpski rožac	Alpine chickweed	Dragash	Glacial relic				
<i>Cerastium decalvans</i>	Caryophyllaceae	Cerasti qimerënë			Dragash		Suggested Kosovo's Red Plant List			
<i>Cerastium dinaricum</i>	Caryophyllaceae	Cerasti dinarik	Dinarski rožac	Mouse-ear chickweed	Dragash	Balkan endemic	Suggested Kosovo's Red Plant List	Annex II		VU-Vulnerable
<i>Cerastium grandiflorum</i>	Caryophyllaceae	Cerasti lulemadh	Rožac		Dragash		No information			



Species	Family	Albanian name	Serbian name	English name	Distribution in Kosovo	Endemism	Rareness (incl. Local Red Lists)	Habitat Directive	Bern Convention	IUCN Red Plant List
<i>Cerastium neoscardicum</i>	Caryophyllaceae	Cerasti i sharrit	Šarski rožac	Sar Mouse Ear	Sharr Mountains	Kosovo endemic				
<i>Cerinth minor</i>	Boraginaceae	Cerinthi vogëlush		Little honeywort	Dragash		Rare			
<i>Ceterach officinarum</i>	Aspleniaceae	Fierguri i rëndomtë		Rustyback	Dragash		No information			
<i>Chenopodium bonus-henricus</i>	Chenopodiaceae	Minuari pjerrëza	Brašnjava loboda	Good King Henry	Dragash					
<i>Cicerbita pancicii</i>	Asteraceae	Cicerbita e Pançicit			Dragash		Suggested Kosovo's Red Plant List			
<i>Cichorium intybus</i>	Asteraceae	Cikore	Vodopija	Chicory	Sharr Mountains					
<i>Cirsium appendiculatum</i>	Asteraceae	Grivori me shtojcë			Dragash	Balkan endemic				
<i>Cirsium arvense</i>	Asteraceae	Grivori i arave		Creeping thistle	Dragash					
<i>Cirsium eriophorum</i>	Asteraceae	Grivori leshatak		Woolly thistle	Dragash area widespread					
<i>Cirsium orphanidis</i>	Asteraceae	Grivori jetim			Dragash					
<i>Cirsium palustre</i>	Asteraceae	Grivori kënetor		Marsh thistle	Dragash					
<i>Cirsium vulgare</i>	Asteraceae	Grivori i rëndomtë		Common thistle	Dragash					
<i>Clematis vitalba</i>	Ranunculacea	Kulpra		Traveller's Joy	Dragash					
<i>Cnidium silaifolium</i>	Apiaceae	Vratiku gjethesilaj			Dragash		Rare			
<i>Colchicum autumnale</i>	Liliaceae	Xhërrolloku vjeshtor	Baluçak-Mrazovac	Meadow saffron	Sharr Mountains					
<i>Colchicum macedonicum</i>	Liliaceae	Xhërrokulli maqedon	Makedonski Baluçak-Mrazovac	Macedonian saffron	Sharr Mountains (Vrace, Mramor)	Balkan endemic	Endangered			
<i>Comarum palustre</i>	Rosaceae	Komari i kënetave		Swamp cinquefoil	Dragash					
<i>Cornus mas</i>	Cornaceae	Thana	Dren	European Cornel	Sharr Mountains					
<i>Cornus sanguinea</i>	Cornaceae	Thanukla		Common Dogwood	Dragash					
<i>Coronilla</i>	Fabaceae	Milëza		Coronilla spider	Dragash		No information			
<i>Coronilla sp</i>	Fabaceae	Milëza			Dragash					
<i>Coronilla vaginalis</i>	Fabaceae	Milëza me myll			Dragash		Suggested Kosovo's Red Plant List			

United Nations Development Programme

Sustainable Development Atlas for Sharr/Šar National Park – Kosovo



Species	Family	Albanian name	Serbian name	English name	Distribution in Kosovo	Endemism	Rareness (incl. Local Red Lists)	Habitat Directive	Bern Convention	IUCN Red Plant List
<i>Coronilla varia</i>	Fabaceae	Milëza e ndryshme		Crown Vetch	Dragash		No information			
<i>Corylus avellana</i>	Betulaceae	Lajthia	Lešnik	Common Hazel	Dragash					LC-Least concern
<i>Cotoneaster integerrimus</i>	Rosaceae	Borbulli i padhëmbëz		Common Cotoneaster	Dragash		Rare			
<i>Cotoneaster tomentosus</i>	Rosaceae	Borbulli		Hairy Cotoneaster	Dragash (Xerxe)		Rare			
<i>Crataegus monogyna</i>	Rosaceae	Murrizi njëbërthamësh	Bjeli glog	Hawthorn	Dragash area-woodland patches					
<i>Crepis baldaci</i> subsp. <i>albanica</i>	Asteraceae	Shmanga shqiptare	Baldaci Čekinjaša	Baldaci hawksbeard	Dragash	Balkan endemic	Suggested Kosovo's Red Plant List			
<i>Crepis cf paludosa</i>	Asteraceae	Shmanga e moçaleve	Čekinjaša mocvare	Marsh hawksbeard	Dragash					
<i>Crepis macedonica</i>	Asteraceae	Shmanga maqedonase	Makedonska Čekinjaša	Macedonian hawksbeard	Sharr (Brod, Lugina e Levrekes, Gradski kamen)	Balkan endemic	Suggested Kosovo's Red Plant List			
<i>Crocus scardicus</i>	Iridaceae	Krokusi i Sharrit	Šarplaninski šafran	Scardus crocus	Dragash (Sutman)	Kosovo endemic	Suggested Kosovo's Red Plant List			
<i>Crocus veluchensis</i>	Iridaceae	Krokusi i Velukentit			Dragash					
<i>Cynosurus cristatus</i>	Poaceae	Bishtqeni kreshtak		Crested Dog's-tail	Dragash		No information			
<i>Dactylis glomerata</i>	Poaceae	Telishi		Cock's-foot	Dragash		No information			
<i>Daphne cneorum</i>	Thymelaeaceae	Xerxolja kneore	Jeremičak crveni	Red Daphne	Dragash		Suggested Kosovo's Red Plant List			
<i>Daphne mezereum</i>	Thymelaeaceae	Jargavan/xerxolja e malit	Obični likovac	February Daphne	Dragash					
<i>Datura stramonium</i>	Solanaceae			Devil's trumpet	Dragash					
<i>Daucus carota</i>	Apiaceae	Karrota	Mrkva	Wild carrot	Dragash					
<i>Deschampsia caespitosa</i>	Poaceae	Deshampsia tufore	Travnjačka busika	Tussock grass	Dragash		No information			
<i>Deschampsia flexuosa</i>	Poaceae	Deshampsia e epshme		Wavy Hair-grass	Dragash					
<i>Dianthus deltoides</i>	Caryophyllaceae	Karafili deltoid		Maiden Pink	Dragash		No information			



Species	Family	Albanian name	Serbian name	English name	Distribution in Kosovo	Endemism	Rareness (incl. Local Red Lists)	Habitat Directive	Bern Convention	IUCN Red Plant List
<i>Dianthus integer</i>	Caryophyllaceae	Karafili shkëmbinjësh	Cjeloviti karanfil	Whole Pink	Dragash	Balkan endemic	Suggested Kosovo's Red Plant List			
<i>Dianthus scardicus</i>	Caryophyllaceae	Karafili i Sharrit	Šarplaninski karanfil	Sharr pink	Sharr Mountains	Balkan endemic	Suggested Kosovo's Red Plant List			
<i>Dianthus spec.</i>	Caryophyllaceae	Karafil		Pink	Dragash					
<i>Dianthus superbus</i>	Caryophyllaceae	Karafili vjollcë	Ibrišim karanfil	Purple Pink	Dragash		Suggested Kosovo's Red Plant List			
<i>Dianthus sylvestris</i>	Caryophyllaceae	Karafili pyjor	Šumski karanfil	Mountain Pink	Sharr Mountains					
<i>Digitalis ambigua</i>	Scrophulariaceae			Yellow Foxglove	Dragash					
<i>Digitalis grandiflora</i>	Plantaginaceae	Karafili lulemadh		Big-flowered Foxglove	Dragash					
<i>Digitalis lanata</i>	Plantaginaceae	Luletogëza leshatake	Besniçe	Wolly foxglove	Sharr Mountains	Balkan endemic				
<i>Dioscorea balcanica</i>	Dioscoreaceae	Dioskorea ballkanase		Balkan Dioscore	Koritnik	Balkan endemic	Suggested Kosovo's Red Plant List			
<i>Draba korabensis</i>	Brassicaceae	Draba e Korabit		Korab's whitlow	Dragash, Koritnik	Balkan endemic	Suggested Kosovo's Red Plant List			
<i>Draba scardica</i>	Brassicaceae	Draba e Sharrit		Scardica whitlow	Dragash, Koritnik	Balkan endemic	Suggested Kosovo's Red Plant List			
<i>Dryas octopetala</i>	Rosaceae	Driada tetëpalash	Osmerolatični drijas	White dryas	Sharr Mountains	Glacial relic	Rare			
<i>Dryopteris filix-mas</i>	Aspidiaceae	Fier mashkull	Šumski paprat	Male fern	Dragash					
<i>Drypis spinosa</i>	Caryophyllaceae	Dripis			Sharr mountains	Balkan endemic				
<i>Echium vulgare</i>	Boraginaceae	Ushqerëza e rëndomtë		Viper's Bugloss	Dragash					
<i>Edreianthus graminifolia</i>	Campanulaceae	Edrianti gjethebari		Bellflower	Dragash		No information			
<i>Eleocharis acicularis</i>	Cyperaceae			Needle spikerush	Dragash					
<i>Empetrum nigrum</i>	Empetraceae	Empetri i zi		Black crowberry	Dragash		Rare			
<i>Epilobium angustifolium</i>	Onagraceae	Epilobi gjethengushtë		Fireweed, willowherb	Dragash					
<i>Epilobium dodonaei</i>	Onagraceae	Epilobi i Dodonës		Marsh Willowherb	Dragash		Rare			

United Nations Development Programme

Sustainable Development Atlas for Sharr/Šar National Park – Kosovo



Species	Family	Albanian name	Serbian name	English name	Distribution in Kosovo	Endemism	Rareness (incl. Local Red Lists)	Habitat Directive	Bern Convention	IUCN Red Plant List
<i>Epilobium hirsutum</i>	Onagraceae	Epilobi qimeashpër		Hairy willowherb	Dragash					
<i>Equisetum arvense</i>	Equisataceae	Rrushqyqja e epshme	Rastavić	Common Horsetail	Dragash					
<i>Erigeron alpinus</i>	Asteraceae	Erigeroni alpin		Alpine Fleabane	Dragash					
<i>Eriophorum angustifolium</i>	Cyperaceae	Eriofori ghetengushtë		Common Cotton-grass	Dragash		No information			
<i>Eriophorum latifolium</i>	Cyperaceae	Eriofori ghetegjerë	Širokolisnka suhoperka	Cotton Grass	Dragash					
<i>Erophila verna</i>	Brassicaceae	Erofila pranverore			Dragash					
<i>Eryngium amethystinum</i>	Apiaceae	Gjembardhi		Amethyst Sea Holly	Dragash (Zlipotok)					
<i>Erysimum pectinatum</i>	Brassicaceae				Dragash, Koritnik	Balkan endemic	Suggested Kosovo's Red Plant List			
<i>Euonymus europaea</i>	Celastraceae	Fshikakuqi Evropian		European spindle	Sharr Mountains					
<i>Eupatorium cannabinum</i>	Asteraceae	Eupatori kërpor		Hemp-agrimony	Dragash					
<i>Euphorbia amygdaloides</i>	Euphorbiaceae	Qumështorja si bajame	Mlečika šumska	Wood spurge	Dragash					
<i>Euphorbia cyparissias</i>	Euphorbiaceae	Qumështorja si selvi	Mlečika obična	Cypress Spurge	Dragash					
<i>Euphorbia myrsinites</i>	Euphorbiaceae	Qumështorja mërsinë		Creeping Spurge	Dragash, Koritnik		Rare			
<i>Euphrasia rostkoviana</i>	Orobanchaceae	Eufrazia e Rostkovit		Eyebright	Dragash		No information			
<i>Fagus sylvatica</i>	Fagaceae	Ahu	Evropska bukva	Beech	Dragash		No information			
<i>Fagus sylvatica subsp. moesiaca</i>	Fagaceae	Ahu	Mejziska bukva	Beech	Dragash		No information			
<i>Festuca koritnicensis</i>	Poaceae	Bishtëpelëza e Koritnikut	Vlasulja Koritnika	Koritnik fescue	Dragash, Koritnik	Balkan endemic	Suggested Kosovo's Red Plant List			
<i>Festuca ovina agg.</i>	Poaceae	Bishtëpelëza delesh	Vlasulja ovce	Sheep fescue	Dragash		No information			
<i>Festuca paniculata</i>	Poaceae	Bishtëpelëza e melthuar	Metličasta vlasulja	Golden fescue	Dragash					
<i>Festuca pratensis</i>	Poaceae	Bishtëpelëza e livadheve	Vlasulja livade	Meadow fescue	Dragash		No information			

United Nations Development Programme

Sustainable Development Atlas for Sharr/Šar National Park – Kosovo



Species	Family	Albanian name	Serbian name	English name	Distribution in Kosovo	Endemism	Rareness (incl. Local Red Lists)	Habitat Directive	Bern Convention	IUCN Red Plant List
Filipendula ulmaria	Rosaceae	Shtalbës i egër		Meadowsweet	Dragash					
Fragaria vesca	Rosaceae	Luleshtrydhe	Divlja Jagoda	Wild strawberries	Dragash					
Fraxinus ornus	Oleaceae	Frashëri	Crni jasen	Ash	Dragash					
Fumana procumbens	Cistaceae	Fumana e përkulur		Fumana	Dragash					
Galium constrictum	Rubiaceae	Ngjitësja e ngushtë		Bedstraw	Dragash					
Galium odoratum	Rubiaceae	Ngjitësja erëmirë		Sweet woodruff	Dragash					
Galium palustre	Rubiaceae	Ngjitësja e kënetës		Marshbedstraw	Dragash					
Galium verum	Rubiaceae	Ngjitësja e vërtetë	Ivanjsko cveçe	Yellow bedstraw	Dragash					
Genista sagittalis	Fabaceae	Gjineshtra shigjetake		Winged broom	Dragash		No information			
Genista spec.	Fabaceae	Gjineshtra		Broom	Dragash		No information			
Gentiana asclepiadea	Gentianaceae	Gentiana e Asklepit	Asklepov lincura	Willow Gentian	Dragash		No information			
Gentiana ciliata	Gentianaceae	Gentiana qerpikore		Fringed gentian	Dragash		No information			
Gentiana cruciata	Gentianaceae	Gentiana e kryqëzuar		Cross gentian	Dragash		No information			
Gentiana dinarica	Gentianaceae	Gentiana dinarike	Dinarska sirištara	Dinaric Gentian	Dragash		Suggested Kosovo's Red Plant List			
Gentiana lutea	Gentianacea	Sanëza e verdhë	Srčanik	Yellow Gentian	Dragash, Koritnik		Suggested Kosovo's Red Plant List	Annex V		
Gentiana punctata	Gentianacea	Gentiana pika pika		Spotted Gentian	Dragash		Suggested Kosovo's Red Plant List			
Gentiana utriculosa	Gentianaceae	Gentiana si kacekth			Sharr Mountains					
Gentiana verna	Gentianaceae	Gentiani pranveror		Spring Gentian	Dragash					
Gentianella bulgarica	Gentianaceae	Gencianëza bullgare		Dwarf bulgarian gentian	Dragash	Balkan endemic	Suggested Kosovo's Red Plant List			
Gentianella bulgarica var. albanica	Gentianaceae	Gentianca bullgarike		Dwarf bulgarian gentian	Dragash	Balkan endemic	Suggested Kosovo's Red Plant List			
Geranium macrorrhizum	Geraniaceae	Kamaroshja rrënjëmadhe		Bigroot cranesbill	Sharr Mountains					



Species	Family	Albanian name	Serbian name	English name	Distribution in Kosovo	Endemism	Rareness (incl. Local Red Lists)	Habitat Directive	Bern Convention	IUCN Red Plant List
Geranium reflexum	Geraniaceae	Kamaroshja e përthyer		Cranesbill	Sharr Mounains		Suggested Kosovo's Red Plant List			
Geranium robertianum	Geraniaceae	Kamaroshja e Robertit		Herb Robert	Dragash					
Geranium sub-caulescens	Geraniaceae			Dwarf Cranesbill	Sharr Mountain (Guri i Zi, Vraca)	Balkan endemic	Suggested Kosovo's Red Plant List			
Geum bulgaricum	Rosaceae	Mëlaka bullgare		Bulgarian Avens	Sharr Mountains	Balkan endemic	Suggested Kosovo's Red Plant List		Annex I strictly protected	LC-Least concern
Geum coccineum	Rosaceae	Mëlaka e kuqe		Scarlet Avens	Dragash					
Geum montanum	Rosaceae	Mëlaka malore		Alpine Avens	Dragash					
Geum montanum	Rosaceae	Mëlaka malore		Alpine Avens	Dragash		No information			
Geum reptans	Rosaceae	Mëlaka zvarranike		Creeping Avens	Dragash	Balkan endemic				
Geum rivale	Rosaceae	Mëlaka shemër		Water Avens	Dragash					
Geum urbanum	Rosaceae	Mëlaka e qytetit	Zečja stopa	Wood Avens	Dragash		No information			
Gladiolus palustris	Iridaceae	Gladiola kënetore	Močvarna gladiola	Marsh gladiolus	Dragash			Annex II		DD-Data Deficient
Globularia cordifolia	Globulariaceae	Turëza gjethezemër		Leather Leaf Powder Puff	Dragash		No information			
Gymnocarpium cf	Polypodiaceae				Dragash		No information			
Helianthemum alpestre	Asteraceae	Heliantemi alpin		Alpine Rock rose	Dragash					
Helianthemum canum	Asteraceae	Heliantemi thinjak		Hoary rockrose	Dragash					
Helianthemum canum	Asteraceae	Heliantemi thinjak		Hoary rockrose	Sharr Mountains					
Helleborus cf odorus	Ranunculaceae	Shpendra		Hellebore sweet	Dragash					
Heracleum sphondylium agg.	Apiaceae			Common Hogweed	Dragash					
Hieracium gymnocephalum	Asteraceae	Këmashna kokëlakuriqe			Dragash		Suggested Kosovo's Red Plant List			
Hieracium pilosella	Asteraceae	Këmashna ma pak lesh		Mouse-ear Hawkweed	Dragash					
Hieracium scardicolum	Asteraceae	Këmashna e Sharrit		Sarr hawkweed	Sharr Mountains	Kosovo endemic				

United Nations Development Programme

Sustainable Development Atlas for Sharr/Šar National Park – Kosovo



Species	Family	Albanian name	Serbian name	English name	Distribution in Kosovo	Endemism	Rareness (incl. Local Red Lists)	Habitat Directive	Bern Convention	IUCN Red Plant List
Hieracium sp	Asteraceae	Këmashna		Hawkweed	Dragash					
Hieracium villosum	Asteraceae	Këmashna leshtore		Shaggy hawkweed	Dragash					
Hieracium waldsteinii	Asteraceae	Këmashnae Valdshtajnit		Waldstein hawkweed	Koritnik		Suggested Kosovo's Red Plant List			
Hieracium wettsteini	Asteraceae	Këmashna e Vetshtajnit			Dragash					
Holcus lanatus	Poaceae	Belisha leshatake		Velvet Grass	Dragash		No information			
Homogyne alpina	Asteraceae	Homogjini alpin		Alpine coltsfoot	Dragash					
Huperzia selago	Huperziaceae			Northern firmoss	Dragash			Annex V		
Hyoscyamus niger	Solanaceae			Stinking nightshade	Dragash					
Hypericum alpigenum	Hypericaceae	Lulja e balsamit alpine			Sharr Mountains					
Hypericum alpinum	Hypericaceae	Lulja e balsamit alpine		Alpine St John's wort	Dragash					
Hypericum maculatum	Hypericaceae	Lulja e balsamit e njollosur		Imperforate St John's-wort	Dragash		No information			
Hypericum perforatum	Hypericaceae	Koko		St John's wort	Dragash					
Hypericum perforatum	Hypericaceae	Lule balsami	Kantaria	St.Johns wort	Sharr Mountains					
Hypericum richeri	Hypericaceae	Lulja e balsamit e Rikerit			Dragash					
Jasione orbiculata	Campanulaceae	Jasioni rethor			Dragash					
Jasione spec.	Campanulaceae	Jasioni		Sheep's-bit	Dragash			Annex II	Annex I strictly protected	
Jovibarba heuffelii	Crassulaceae			Hen and chicks	Dragash					
Juncus articulatus	Juncaceae	Kulmaku i nyjtuar		Jointleaf Rush	Dragash		No information			
Juncus effusus	Juncaceae	Kulmaku i përhapur		Soft Rush	Dragash		No information			LC-Least concern
Juncus inflexus	Juncaceae	Kulmaku infleks		Hard rush	Dragash		No information			LC-Least concern
Juncus trifidus	Juncaceae	Kulmaku i çarë tresh		Highland rush	Dragash		No information			

United Nations Development Programme

Sustainable Development Atlas for Sharr/Šar National Park – Kosovo



Species	Family	Albanian name	Serbian name	English name	Distribution in Kosovo	Endemism	Rareness (incl. Local Red Lists)	Habitat Directive	Bern Convention	IUCN Red Plant List
<i>Juncus triglumis</i>	Juncaceae	Kulmaku	Sit	Yosemite dwarf rush	Sharr Mountains (Djinibeg, Vraca, Shutman)		Suggested Kosovo's Red Plant List			
<i>Juniperus communis</i>	Cupressaceae	Dëllinja e zezë	Smreka, Kleka	Juniper	Dragash					LC-Least concern
<i>Juniperus nana</i>	Cupressaceae	Dëllinja e rrëguar	Kleka	Small juniper	Dragash					
<i>Juniperus oxycedrus</i>	Cupressaceae	Dëllinja e kuqe		Pryckly Juniper	Dragash					LC-Least concern
<i>Kobresia myosuroides</i> (Vill.) Fiori	Cyperaceae				Dragash					
<i>Lamium galeobdolon</i>	Lamiaceae	Hithëbutëza Galeobdolon		Yellow archangel	Dragash					
<i>Laserpitium zernyi</i>	Apiaceae	Lazerpici		Bastard Lovage	Dragash (Brod)					
<i>Lathyrus pratensis</i>	Fabaceae	Vingjra e livadhit		Meadow vetchling	Dragash		No information			
<i>Lembotropis nigricans</i>	Fabaceae	Lembotropi ziosh			Dragash					
<i>Lemna minor</i>	Lemnaceae	Lemna vogëlushe		Common Duckweed	Dragash		No information			LC-Least concern
<i>Leucanthemum vulgare</i>	Asteraceae	Lulebardha e rëndomtë		Oxeye daisy	Dragash					
<i>Lilium albanicum</i>	Liliaceae	Zambaku shqiptar		Albanian lily	Koritnik, Restelice	Balkan endemic	Suggested Kosovo's Red Plant List			
<i>Lilium cf chalcidonicum</i>	Liliaceae	Zambaku i Kalkedonisë		Chalcedonian Lily	Koritnik	Balkan endemic				
<i>Lilium martagon</i>	Liliaceae	Zambaku martagon	šumski ljiljan	Turk's cap lily	Restelice					
<i>Linaria alpina</i>	Plantaginacea	Linaria alpina		Alpine toadflax	Sharr Mountains		Suggested Kosovo's Red Plant List			
<i>Linaria peloponesiaca</i>	Scrophylariaceae	Linaria peloponeze		Peloponesiac Toadflax	Dragash, Koritnik	Balkan endemic	Threatened			
<i>Linum capitatum</i>	Linaceae	Liri kaptinor			Dragash					
<i>Linum catharticum</i>	Linaceae	Liri dliues		Fairy Flax	Dragash widespread					
<i>Lonicera xylosteum</i>	Caprifoliaceae	Lulja e majit drufortë		Fly honeysuckle	Dragash		No information			
<i>Lotus corniculatus</i>	Fabaceae	Thuapula	Zvezdan	Bird's-foot Trefoil	Dragash		No information			

United Nations Development Programme

Sustainable Development Atlas for Sharr/Šar National Park – Kosovo



Species	Family	Albanian name	Serbian name	English name	Distribution in Kosovo	Endemism	Rareness (incl. Local Red Lists)	Habitat Directive	Bern Convention	IUCN Red Plant List
Luzula cf albida	Juncaceae	Luzula		Wood rush	Dragash		No information			
Luzula forsteri	Juncaceae	Luzula e Forsterit		Southern woodrush	Dragash		No information			
Malus sylvestris	Rosaceae	Molla e egër	Divlja jabuka	Wild apple	Dragash					
Malva sylvestris	Rosaceae	Mëllaga e egër	Divlji sljez	Mallow	Dragash		Suggested Kosovo's Red Plant List			
Matricaria caucasica	Asteraceae				Dragash		Suggested Kosovo's Red Plant List			
Matricaria chamomilla	Asteraceae	Kamomili	Kamomil	German chamomile	Sharr Mountains					
Matricaria recutita	Asteraceae	Kamomili lëkundës		German chamomile	Dragash					
Medicago falcata	Fabaceae	Jonxha kosore		Yellow-flowered alfalfa	Dragash		No information			
Medicago prostrata	Fabaceae	Jonxha e shtrirë			Dragash					
Medicago sativa	Fabaceae	Jonxha	Lucerka	Alfalfa	Sharr Mountains					
Melampyrum pratense	Scrophylariaceae	Grurëziu i livadheve		Common Cow-wheat	Dragash		No information			
Melica cf nutans	Poaceae	Bjelisha a arës		Mountain melic	Dragash		No information			
Melica ciliata	Poaceae	Bjelisha qerpikore		Hairy melic	Dragash		No information			
Melica uniflora	Poaceae	Bjelisha njëlulëshe			Dragash		No information			
Melilotus officinalis	Fabaceae	Meliloti mjekësor	Ždraljika	Yellow melilot	Dragash					
Mentha longifolia	Lamiaceae	Mendra gjethegjatë		Horse mint	Dragash		No information			
Mentha piperita	Lamiaceae	Nëngjiku	Metvica	Peppermint	Dragash					
Meum athamanticum	Apiaceae	Vratiku		Spignel	Dragash					
Micromeria albanica	Lamiaceae	Bishtmiu shqiptar			Gorge of Prizren river	Kosovo endemic	Suggested Kosovo's Red Plant List			
Minuartia baldacii	Caryophyllaceae	Minuarcia e Baldaçit			Dragash, Koritnik	Balkan endemic	Suggested Kosovo's Red Plant List			
Minuartia verna	Caryophyllaceae	Minuarcia pranverore		Spring sandwort	Dragash					
Mycelis muralis	Asteraceae	Miceli i murit		Wall letuce	Dragash					
Myosotis alpestris	Boraginaceae	Lulemiza alpine	Alpska potočnica	Alpine Forget-me-not	Dragash		Suggested Kosovo's Red Plant List			

United Nations Development Programme

Sustainable Development Atlas for Sharr/Šar National Park – Kosovo



Species	Family	Albanian name	Serbian name	English name	Distribution in Kosovo	Endemism	Rareness (incl. Local Red Lists)	Habitat Directive	Bern Convention	IUCN Red Plant List
Myosotis cf palustris	Boraginaceae	Lulemiza	Potočnica	Common Forget-me-not	Dragash					
Myosotis sylvatica	Boraginaceae	Lulemiza pyjore	Šumska potočnica	Forest forget-me-not	Dragash					
Nardus stricta	Poaceae	Xhufka	Trava tvrdače	Matgrass	Dragash		No information			
Narthecium scardicum	Liliaceae	Narteci i Sharrit	Šarplaninski kostolom		Vraca, Gjinibeg	Balkan endemic	Suggested Kosovo's Red Plant List			
Nigritella nigra	Orchidaceae	Nigritela e zezë	Crni vranjak	Black Vanilla Orchid	Dragash					
Onobrychis scardica	Fabaceae	Esparseta e Sharrit			Dragash	Balkan endemic	Suggested Kosovo's Red Plant List			
Ononis spinosa	Fabaceae	Kalmuthi gjembor	Zecji trn	Spiny restharrow	Dragash					
Orchis cf mascula	Orchidaceae	Salepi vjollcë	Muški Kačun	Early purple orchid	Dragash					
Orchis laxiflora	Orchidaceae	Salepi luleçirët	Kaçunak veliki	Loose-Flowered Orchid	Dragash					
Orchis militaris	Orchidaceae	Salepi	Kaçun	Military orchid	Dragash					
Orchis morio	Orchidaceae	Salepi morio	Mali Kačun	Green-winged Orchid	Dragash					
Orchis purpurea	Orchidaceae	Salepi ngjyre vjollcë	Kaçunak purpurni	Purple orchid	Dragash					
Origanum vulgare	Lamiaceae	Rigoni	Vranilova trava	Oregano	Sharr Mountains					
Ostrya carpinifolia	Corylaceae	Mëllëza	Crni grab	Hop Hornbeam	Dragash					
Oxytropis halleri	Fabaceae	Oksitropi i Halerit		Yellow oxytropis	Dragash		Suggested Kosovo's Red Plant List			
Parnassia palustris	Saxifragaceae	Parnasia		Marsh Grass-of-Parnassus	Dragash					
Pedicularis brachyodonta	Orobanchaceae	Pedikularia dhëmbëshkurtër	Kratkozubičasti ušljivac	Fern-leaf	Dragash		Suggested Kosovo's Red Plant List			
Pedicularis verticillata	Orobanchaceae	Pedikularia qerthullake	Ušljivac	Whorled lousewort	Dragash					
Petasites albus	Asteraceae	Llapoi i bardhë		White Butterbur	Dragash					
Petasites hybridus	Asteraceae	Llapoi hibrid		Common Butterbur	Sharr Mountains					
Phleum alpestre	Poaceae	Fleumi	Planinski lisičji rep	Alpine Catstail	Dragash		No information			
Pimpinella alpina	Apiaceae	Pimpinela alpine		Alpine burnet	Dragash					

United Nations Development Programme

Sustainable Development Atlas for Sharr/Šar National Park – Kosovo



Species	Family	Albanian name	Serbian name	English name	Distribution in Kosovo	Endemism	Rareness (incl. Local Red Lists)	Habitat Directive	Bern Convention	IUCN Red Plant List
<i>Pimpinella saxifraga</i>	Apiaceae	Pimpinela iriqëz		Burnet Saxifrage	Dragash					
<i>Pinguicula balcanica</i>	Lentibulariaceae	Pinguikula ballkanase		Butterworts	Dragash	Balkan endemic	Suggested Kosovo's Red Plant List			
<i>Pinus heldreichii</i>	Pinaceae	Rrobulli	Munika	Bosnian Pine	Dragash Koritnik	Balkan endemic	Suggested Kosovo's Red Plant List			
<i>Pinus mugo</i>	Pinaceae	Dredhaku	Bor krivulj	Mountain pine	Dragash		Rare			
<i>Pinus nigra</i>	Pinaceae	Pisha e zeze	Crni bor	European Black Pine	Dragash					
<i>Pinus peuce</i>	Pinaceae	Armeni	Molika	Macedonian Pine	Sharr Mountains	Balkan endemic	Suggested Kosovo's Red Plant List			NT-Near threatened
<i>Pirola secunda</i>	Ericaceae	Pirola dytësore		One-sided Pyrola	Dragash		No information			
<i>Plantago atrata</i>	Plantaginaceae	Gjethe i nxirrë			Dragash					
<i>Plantago holostemum</i>	Plantaginaceae	Gjethe ranor		Plantain	Dragash (Zlipotok)		Rare			
<i>Plantago lanceolata</i>	Plantaginaceae	Gjethe heshtore	Bokvica muška	Ribwort plantain	Sharr Mountains					
<i>Plantago media</i>	Plantaginaceae	Gjethe e ndërmjemë		Hoary plantain	Dragash		No information			
<i>Poa alpina</i>	Poaceae	Flokësa alpine	Alpska vlasnjača	Alpine Meadow-grass	Dragash		No information			
<i>Poa trivialis</i>	Poaceae	Flokësa e rëndomtë	Vlasnjača	Rough bluegrass	Dragash		No information			
<i>Poa violacea</i>	Poaceae	Flokësa purpere	Ružica vlnasta vlasnjača	Purple meadow-grass	Dragash					
<i>Polygonum alpinum</i>	Polygonaceae	Nejca alpine		Alpine knotweed	Dragash		Suggested Kosovo's Red Plant List			
<i>Polygonum bistorta</i>	Polygonaceae	Nejca dylëfytshë		Common Bistort	Dragash					
<i>Polygonum viviparum</i>	Polygonaceae			Alpine bistort	Dragash					
<i>Polypodium vulgare</i>	Polypodiaceae	Fieri i murit i rëndomtë		Common polypody	Dragash		No information			
<i>Polystichum lonchitis</i>	Aspidiaceae	Polistiku heshtak		Northern holly fern	Dragash		Rare			
<i>Populus tremula</i>	Salicaceae	Plepi		Common Aspen	Dragash					
<i>Potentilla alba</i>	Rosaceae	Zorrëca e bardhë		White Cinquefoil	Dragash					

United Nations Development Programme

Sustainable Development Atlas for Sharr/Šar National Park – Kosovo



Species	Family	Albanian name	Serbian name	English name	Distribution in Kosovo	Endemism	Rareness (incl. Local Red Lists)	Habitat Directive	Bern Convention	IUCN Red Plant List
Potentilla apenina	Rosaceae	Zorrëca e Apenineve		Apenine cinquefoils	Dragash					
Potentilla arenaria	Rosaceae				Dragash		No information			
Potentilla argentea	Rosaceae	Zorrëca e argjentë		Hoary Cinquefoil	Dragash					
Potentilla aurea	Rosaceae	Zorrëca e praruar			Dragash		Suggested Kosovo's Red Plant List			
Potentilla calabra	Rosaceae	Zorrëca Kalabreze		Calabrese cinquefoil	Sharr Mountains (Restelica-Guri i Zi)	Balkan endemic	Suggested Kosovo's Red Plant List			
Potentilla caulescens	Rosaceae				Dragash					
Potentilla crantzii	Rosaceae	Zorrëca e Krantzit		Alpine Cinquefoil	Dragash					
Potentilla doerfleri	Rosaceae	Zorrëca e Dorflerit		Doerfler Cinquefoils	Sharr mountains	Kosovo endemic	Suggested Kosovo's Red Plant List			
Potentilla erecta	Rosaceae	Zorrëca e ngritur		Common Tormantil	Dragash					
Potentilla montenegrina	Rosaceae	Zorrëca malazeze		Montenegro Cinquefoils	Dragash	Balkan endemic	Suggested Kosovo's Red Plant List			
Potentilla recta	Rosaceae	Zorrëca e drejt		Rough-fruited Cinquefoil	Dragash		No information			
Potentilla speciosa	Rosaceae	Zorrëca e bukur			Dragash	Balkan endemic	Suggested Kosovo's Red Plant List			
Potentilla ternata	Rosaceae			Cinquefoil	Dragash					
Prenanthes purpurea	Asteraceae	Prebnanti purpur		Granite pink	Dragash					
Primula elatior	Primulaceae	Agulçe Elatior			Dragash					
Primula halleri	Primulaceae	Agulçe e Hallerit	Hallerov jaglac	Haller's Primrose	Sharr Mountains (Shutman, Vraca)		Suggested Kosovo's Red Plant List			
Primula minima	Primulaceae	Agulçe e vogël	Mali jaglac	Little primrose	Sharr Mountains	Glacial relic				
Primula officinalis	Primulaceae	Agulçe		Cowslip	Sharr Mountains					
Primula veris	Primulaceae	Agulçe e vërtetë	Jaglac	Cowslip	Dragash		No information			
Prunella vulgaris	Lamiaceae	Prunella e rëndomtë		Heart-of-the-earth	Dragash		No information			
Prunus spinosa	Rosaceae	Kulumbria	Crni trn	Blackthorn	Dragash					
Pteridium aquilinum	Dennstaedtiaceae	Fier shqiponja		Common bracken	Sharr Mountains					

United Nations Development Programme

Sustainable Development Atlas for Sharr/Šar National Park – Kosovo



Species	Family	Albanian name	Serbian name	English name	Distribution in Kosovo	Endemism	Rareness (incl. Local Red Lists)	Habitat Directive	Bern Convention	IUCN Red Plant List
<i>Ptilotrichum rupestre</i>	Brassicaceae	Ptilotriku			Dragash	Tertiary relic	Suggested Kosovo's Red Plant List			
<i>Pulicaria cf dysenterica</i>	Asteraceae	Plenëra dizanterike		Common Fleabane	Dragash					
<i>Pulsatilla narcissiflora</i>	Ranunculaceae				Dragash		No information			
<i>Pyrus pyraeaster</i>	Rosaceae	Dardhukëla		European Wild Pear	Dragash					
<i>Quercus cerris</i>	Fagaceae	Qarri	Cer	Turkey Oak	Dragash		No information			
<i>Quercus frainetto</i>	Fagaceae	Shpardhi	Sladun	Italian oak	Dragash					
<i>Quercus montana</i>	Fagaceae	Dushku malor	Šumski Hrast	Mountain oak	Dragash					
<i>Quercus trojana</i>	Fagaceae	Dushku trojan i dukagjinit	Dukađinski hrast	Trojana oak	Koritnik	Tertiary relic	Suggested Kosovo's Red Plant List			
<i>Ramonda nathaliae</i>	Gesneriaceae	Ramonda e Mbretëreshës Natali	Ramonda Kraljice Natalije	Ramonda of Queen Nataly	Sharr Mountains	Balkan endemic	Rare			
<i>Ramonda serbica</i>	Gesneriaceae	Ramonda e serbisë	Srbska ramonda	Serbian phoenix flower	Sharr Mountains	Balkan endemic	Rare	Annex IV	Annex I strictly protected	
<i>Ranunculus crenatus</i>	Ranunculaceae	Zhabina ura-ura		Crenate Buttercup	Dragash		Suggested Kosovo's Red Plant List			
<i>Ranunculus demissus</i> var. <i>Graecus</i> Boiss	Ranunculaceae	Zhabina e ulët			Sharr Mountains (Vraca e vogel)		Rare			
<i>Ranunculus incomparabilis</i>	Ranunculaceae	Zhabinorja e pakrahasueshme			Sharr Mountains	Balkan endemic	Suggested Kosovo's Red Plant List			
<i>Ranunculus montenegrinus</i>	Ranunculaceae	Zhabinorja malazeze		Montenegro's buttercup	Sharr Mountains (Rudoke)	South East Europe				
<i>Ranunculus oreophyllus</i>	Ranunculaceae	Zhabina maledashëse			Dragash		No information			
<i>Ranunculus psilostachys</i>	Ranunculaceae			Boterbloem	Dragash		No information			
<i>Ranunculus thora</i>	Ranunculaceae	Zhabina tora		Thora buttercup	Dragash		Suggested Kosovo's Red Plant List			
<i>Rhamnus fallax</i>	Rhamnaceae	Pjerrëza		Buckthorn	Dragash (Brod Gorge)					
<i>Rhamnus frangula</i>	Rhamnaceae	Pjerrëza zogëlore	Frangula	Alder Buckthorn	Dragash					
<i>Rhamnus orbiculatus</i>	Rhamnaceae	Pjerrëza rrethore		Buckthorn	Koritnik	Balkan endemic	Endangered			

United Nations Development Programme

Sustainable Development Atlas for Sharr/Šar National Park – Kosovo



Species	Family	Albanian name	Serbian name	English name	Distribution in Kosovo	Endemism	Rareness (incl. Local Red Lists)	Habitat Directive	Bern Convention	IUCN Red Plant List
Rhododendron ferrugineum	Ericaceae	Rododendroni i ndryshkur	Rđasti rododendron	Rusty-leaved alpen-rose	Sharr Mountains	Balkan endemic	Suggested Kosovo's Red Plant List			
Robinia pseudo-acacia	Fabaceae	Sallgëmi	Bagrem	Black Locust	Sharr Mountains					
Rosa agrestis	Rosaceae	Trëndafili fusharak	Ruža	Small-leaved Sweet-briar	Dragash		Rare			
Rosa arvensis	Rosaceae	Trëndafili i arës	Ruža	Field rose	Dragash		Rare			
Rosa canina agg.	Rosaceae	Trëndafili i egër	Šipurak	Dog rose	Dragash					
Rosa cf montana	Rosaceae	Trëndafili i malit	Šumska Ruža	Mountain rose	Dragash		Rare			
Rosa cf villosa	Rosaceae	Trëndafili leshetak	Jabukova Ruža	Apple rose	Dragash					
Rosa dumetorum	Rosaceae	Trëndafili	Ruža	Corymb rose	Dragash					
Rosa glauca	Rosaceae	Trëndafili i rimtë	Ruža	Redleaf rose	Dragash					
Rosa micrantha	Rosaceae	Trëndafili lulevogël	Ruža	Smalleaf rose	Dragash					
Rosa mollis	Rosaceae	Trëndafili butlosh	Ruža	Soft Downy-rose	Dragash					
Rosa pendulina	Rosaceae	Trëndafili varës	Alpska Ruža	Alpine rose	Dragash		Rare			
Rosa subcanina	Rosaceae	Trëndafili	Ruža		Dragash					
Rosa subcollina	Rosaceae	Trëndafili	Ruža		Dragash		Rare			
Rosa vosagiaca	Rosaceae	Trëndafili vosagiak	Ruža	Vogesens-Rose	Dragash					
Rubus caesius	Rosaceae	Mjedra e kaltër		European dewberry	Dragash					
Rubus corylifolii	Rosaceae				Dragash					
Rubus fruticosus	Rosaceae		Obična kapina	Blackberry	Dragash					
Rubus idaeus	Rosaceae	Mjedra	Malina	Wild Raspberry	Dragash					
Rubus saxatilis	Rosaceae	Mjedra e shkëmbit	Kupina kamenjarka	Stone Bramble	Dragash					
Rumex acetosella	Polygonaceae	Lëpjeta	Mala kiselica	Sheep's sorrel	Dragash					
Rumex alpinus	Polygonaceae	Lëpjeta alpine	Planinsko zelje	Alpine Dock	Dragash		No information			
Rumex scutatus	Polygonaceae	Lëpjeta thartushë	Kiselica	Buckler sorrel	Dragash		No information			
Salix alba	Salicaceae	Shelgu i bardhë	Bela Vrba	White willow	Dragash					
Salix caprea	Betulaceae	Shelgu i egër		Goat Willow	Dragash					
Salix cf repens	Salicaceae	Shelgu zvarranik		Creeping willow	Dragash		Rare			
Salix cinerea	Salicaceae			Gray willow	Dragash					

United Nations Development Programme

Sustainable Development Atlas for Sharr/Šar National Park – Kosovo



Species	Family	Albanian name	Serbian name	English name	Distribution in Kosovo	Endemism	Rareness (incl. Local Red Lists)	Habitat Directive	Bern Convention	IUCN Red Plant List
<i>Salix eleagnos</i>	Salicaceae	Shelgu		Rosemary willow	Dragash					
<i>Salix fragilis</i>	Salicaceae	Shelgu i thyeshëm		Crack Willow	Dragash					
<i>Salix reticulata</i>	Salicaceae	Shelgu i rrjetëzuar		Netted willow	Dragash	Glacial relic	Suggested Kosovo's Red Plant List			
<i>Salix spec.</i>	Salicaceae	Shelgu		Willow Gentian	Dragash					
<i>Salvia officinalis</i>	Lamiaceae	Sherbela	Kadulja	Common sage	Sharr Mountains					
<i>Sambucus ebulus</i>	Caprifoliaceae	Qingla	Zova	Elderberry	Dragash					
<i>Sambucus nigra</i>	Caprifoliaceae	Shtogu i zi	Bazga	Black Elder	Sharr Mountains	Balkan endemic				
<i>Sambucus racemosa</i>	Caprifoliaceae	Shtogu i kuq	Crvena zova	Red Elderberry	Dragash					
<i>Sanguisorba minor</i>	Rosaceae	Lulekomishti i vogël	Mala krvara	Salad burnet	Dragash					
<i>Sanguisorba officinalis</i>	Rosaceae	Lulekomishti mjekësor	Ljekovita krvara	Great Burnet	Dragash					
<i>Satureja acinos</i>	Lamiaceae	Trumza		Savorie	Dragash		No information			
<i>Satureja montana</i>	Lamiaceae	Shtërmëni		Winter savory	Dragash		Suggested Kosovo's Red Plant List			
<i>Saussurea alpina</i>	Lamiaceae	Sausarea alpine		Common Saw-wort	Dragash (Vraca)	Glacial relic	Suggested Kosovo's Red Plant List			
<i>Saxifraga aizoides</i>	Lamiaceae	Iriqëza si thonjës		Yellow Saxifrage	Dragash					
<i>Saxifraga bryoides</i>	Saxifragaceae	Iriqëza brioide		Briod saxifrage	Dragash	Glacial relic				
<i>Saxifraga grisebachii</i>	Saxifragaceae	Iriqëza e Grisebakut		Grisebach saxifrage	Dragash	Balkan endemic				
<i>Saxifraga marginata</i>	Saxifragaceae	Iriqëza anëtore			Dragash					
<i>Saxifraga paniculata</i>	Saxifragaceae	Iriqëza melthore		White Mountain saxifrage	Dragash					
<i>Saxifraga rotundifolia</i>	Saxifragaceae	Iriqëza gjetherrumbullake			Dragash					
<i>Saxifraga scardica</i>	Saxifragaceae	Iriqëza e Sharrit	Šarplaninska kamenika	Scardica saxifrage	Dragash, Koritnik	Kosovo endemic	Threatened			
<i>Saxifraga sempervivum</i>	Saxifragaceae	Iriqëza përherëblertë		Liveforever saxifrage	Dragash	Balkan endemic	Suggested Kosovo's Red Plant List			

United Nations Development Programme

Sustainable Development Atlas for Sharr/Šar National Park – Kosovo



Species	Family	Albanian name	Serbian name	English name	Distribution in Kosovo	Endemism	Rareness (incl. Local Red Lists)	Habitat Directive	Bern Convention	IUCN Red Plant List
<i>Saxifraga spec</i>	Saxifragaceae	Iriqëza	Kamenika	Saxifrage	Dragash					
<i>Saxifraga taygetea</i>	Saxifragaceae	Iriqëza e Tajgetit		Tayget saxifrage	Dragash	Balkan endemic	Suggested Kosovo's Red Plant List			
<i>Saxifraga trichocalycina</i>	Saxifragaceae				Dragash					
<i>Saxifraga tridactylides</i>	Saxifragaceae	Iriqëza tregishtëshe			Dragash					
<i>Scabiosa columbaria</i>	Dipsacaceae	Barzgjebi pëllumbor			Dragash					
<i>Scabiosa crenata</i>	Dipsacaceae	Barzgjebes ura-ura			Gorge of Prizren river	Balkan endemic				
<i>Scabiosa leucophylla</i>	Dipsacaceae	Bari i zgjebës			Dragash		No information			
<i>Schoenoplectus lacustris</i>	Cyperaceae	Kryekuqi		Bulrush	Dragash					
<i>Scirpus sylvaticus</i>	Cyperaceae	Shqirra pyjore		Wood Club-rush	Dragash					
<i>Scleranthus annuus</i>	Caryophyllaceae			German knotweed	Dragash					
<i>Scrophularia aestivalis</i>	Scrophylariaceae	Skrofularja e verës		Autumn figwort	Dragash, Koritnik	Balkan endemic				
<i>Scrophularia bosniaca</i>	Scrophylariaceae	Sarushta boshnjake		Bosnian figwort	Dragash		Suggested Kosovo's Red Plant List			
<i>Sedum acre</i>	Crassulaceae	Rrushqyqja e athët			Dragash					
<i>Sedum flexuosum</i>	Crassulaceae	Rrushqyqja e epshme			Sharr Mountains (Luboten)	Balkan endemic	Rare			
<i>Sedum spec</i>	Crassulaceae	Rrushqyqja		Stonecrops	Dragash					
<i>Selaginella selaginoides</i>	Selaginellaceae	Selaginela si selginela		Club spikemoss	Dragash	Glacial relic				
<i>Sempervivum macedonicum</i>	Crassulaceae	Burgulli maqedon			Dragash	Balkan endemic	Suggested Kosovo's Red Plant List			
<i>Sempervivum spec.</i>	Crassulaceae	Burgulli		Houseleeks	Dragash					
<i>Senecio bosniaca</i>	Asteraceae	Pulithi i Bosnës			Dragash					
<i>Senecio carpathicus</i>	Asteraceae	Pulithi karpalik			Dragash					



Species	Family	Albanian name	Serbian name	English name	Distribution in Kosovo	Endemism	Rareness (incl. Local Red Lists)	Habitat Directive	Bern Convention	IUCN Red Plant List
Senecio fuchsii	Asteraceae	Pulithi			Dragash					
Senecio glaberrima	Asteraceae	Pulithi			Dragash		Suggested Kosovo's Red Plant List			
Senecio rupestris	Asteraceae	Pulithi			Dragash		No information			
Senecio scopoli	Asteraceae	Pulithi i Skopolit			Dragash, Koritnik					
Senecio subalpinus	Asteraceae	Pulithi aubalpin			Dragash		Suggested Kosovo's Red Plant List			
Senecio wagneri	Asteraceae	Pulithi i Wagnerit			Sharr Mountains	Balkan endemic	Endangered			
Sesleria autumnalis	Poaceae	Pirrëgjakësja pranverore		Autumn moor grass	Dragash, Koritnik					
Sesleria nitida	Poaceae	Pirrëgjakësja		Gray Moor Grass	Dragash					
Sideritis montana	Lamiaceae	Sideriti malor		Shepherd's tea	Sharr Mountains					
Sideritis scardica	Lamiaceae	Sideriti i Sharrit		Scardicum Mountain tea	Sharr Mountains	Balkan endemic				
Silene larchfeldiana	Caryophyllaceae	Klokëza			Guri i zi	Tertiary relic	Suggested Kosovo's Red Plant List			
Silene multicaulis	Caryophyllaceae	Klokëza			Brod		Suggested Kosovo's Red Plant List			
Silene parnassica subsp. parnassica	Caryophyllaceae	Klokëza parnasiake			Brod		Suggested Kosovo's Red Plant List			
Silene pusilla	Caryophyllaceae	Klokëza e vockël	Mala pušina		Sharr Mountains (Brod, Dushkaj)		Suggested Kosovo's Red Plant List			
Silene pusilla ssp. candavica	Caryophyllaceae	Klokëza e vockël kandavike	Mala pušina candavica		Dragash		Suggested Kosovo's Red Plant List			
Silene sendtneri	Caryophyllaceae	Klokëza e Sendtnerit		Catchfly Sendtneri	Guri i zi		Suggested Kosovo's Red Plant List			
Silene vulgaris	Caryophyllaceae	Klokëza e rëndomtë	Pušina	Bladder Campion	Dragash					
Silene waldsteinii	Caryophyllaceae	Klokëza e Valdshajnit	Valdstajn pušina	Catchfly Waldsteine	Restelicë	Tertiary relic				
Solanum nigrum agg.	Solanaceae	Patatja/idhnakthi i zi		European Black Nightshade	Dragash					
Soldanella dimonie	Primulaceae	Pratishi			Sharr Mountains	Tertiary relic				

United Nations Development Programme

Sustainable Development Atlas for Sharr/Šar National Park – Kosovo



Species	Family	Albanian name	Serbian name	English name	Distribution in Kosovo	Endemism	Rareness (incl. Local Red Lists)	Habitat Directive	Bern Convention	IUCN Red Plant List
<i>Solidago virgaurea</i>	Asteraceae	Solidago shufërtartë		European goldenrod	Dragash					
<i>Sorbus aria</i>	Rosaceae	Vodhviçe	Mukinja	Common Whitebeam	Dragash					
<i>Sorbus aucuparia</i>	Rosaceae	Vodha e egër	Jarebika	European mountain ash	Dragash					
<i>Sorbus cf. graeca</i>	Rosaceae	Vodha greke	Pusina	Pannonian Mountain Ash	Dragash		Rare			
<i>Spergularia vellesia</i> subspecies <i>graminea</i>	Caryophyllaceae	Spergularia			Dragash, Koritnik	Balkan endemic	Rare			
<i>Stachys alopecu-rus</i>	Lamiaceae	Sarusha si pungacë			Dragash					
<i>Stachys alpina</i>	Lamiaceae	Sarusha alpine		Limestone Woundwort	Dragash		Suggested Kosovo's Red Plant List			
<i>Stachys recta</i>	Lamiaceae	Sarusha e drejtë			Dragash					
<i>Stachys scardica</i>	Lamiaceae	Sarusha e Sharrit		Sharr Woundwort	Sharr Mountains					
<i>Tanacetum vulgare</i>	Asteraceae	Karajpeli		Common tansy	Dragash					
<i>Taraxacum officinale</i>	Asteraceae	Luleshurdha	Maslačak	Dandelion	Sharr Mountains					
<i>Taxus baccata</i>	Pinaceae	Tisi	Tisa	European Yew	Dragash	Tertiary relic	Threatened			
<i>Telekia speciosa</i>	Asteraceae	Telekia	Telekia	Telekia	Dragash	Balkan endemic				
<i>Teucrium chamaedrys</i>	Lamiaceae	Arrësi dushkëvogël	Vrednik	Common germander	Dragash					
<i>Teucrium montanum</i>	Lamiaceae	Arrësi malor	Trava iva	Mountain Germander	Dragash		No information			
<i>Thalictrum alpinum</i>	Ranunculaceae	Taliktri alpin		Alpine Meadow-rue	Sharr Mountains (Dzinibeg , Rudoka)	Kosovo endemic	Suggested Kosovo's Red Plant List			
<i>Thalictrum cf. aquilegifolium</i>	Ranunculaceae	Taliktri uxor		Greater Meadow Rue	Dragash					
<i>Thalictrum minus</i>	Ranunculaceae			Meadow rue	Dragash					
<i>Thesium cf. pyrenaicum</i>	Santalaceae	Armira e Pirinejeve		Pyrenean Bastard-toadflax	Dragash					

United Nations Development Programme

Sustainable Development Atlas for Sharr/Šar National Park – Kosovo



Species	Family	Albanian name	Serbian name	English name	Distribution in Kosovo	Endemism	Rareness (incl. Local Red Lists)	Habitat Directive	Bern Convention	IUCN Red Plant List
<i>Thlaspi bellidifolium</i>	Brassicaceae	Tlaspi gjethebukur	Čestika	Penny-cress	Dragash, Koritnik	Balkan endemic	Suggested Kosovo's Red Plant List			
<i>Thlaspi microphyllum</i>	Brassicaceae	Tlaspi gjethevogël	Mala Čestika	Little leave Penny-cress	Dragash, Koritnik	Balkan endemic	Suggested Kosovo's Red Plant List			
<i>Thuja occidentalis</i>	Cupressaceae	Tuja perendimore		Northern Whitecedar	Dragash					LC-Least concern
<i>Thymus albanus</i>	Lamiaceae	Listra shqiptare		Albanian thyme	Dragash, Koritnik	Balkan endemic	Suggested Kosovo's Red Plant List			
<i>Thymus balcanus</i>	Lamiaceae	Krasta ballkanase		Balkan thyme	Dragash		Suggested Kosovo's Red Plant List			
<i>Thymus doerfleri</i>	Lamiaceae	Listra e Dorflerit		Dorfler thyme	Dragash, Koritnik	Kosovo endemic	Suggested Kosovo's Red Plant List			
<i>Thymus rochlenae</i>	Lamiaceae	Listra e Rohlenes			Sharr Mountains	Kosovo endemic	Rare threatened			
<i>Thymus serpyllum</i>	Lamiaceae	Krasta	Majčina dušica	Wild Thyme	Dragash					
<i>Thymus sp</i>	Lamiaceae	Listra e zakonshme		Thyme	Dragash					
<i>Thymus vulgaris</i>	Lamiaceae	Krasta e zakonshme	Čubra	Mother of thyme	Dragash		No information			
<i>Tilia cordata</i>	Malvaceae	Biliri gjethëvogël	Lipa	Lime, Linden	Dragash					
<i>Tozzia alpina</i>	Scrophylariaceae	Tocia alpine		Alpine tozia	Dragash		Suggested Kosovo's Red Plant List			
<i>Tozzia alpina subsp. carpatica</i>	Orobanchaceae	Tocia karpatike		Alpine tozzia	Gjinibeg		Suggested Kosovo's Red Plant List	Annex II		
<i>Trifolium alpestre</i>	Fabaceae	Tërfili i malit	Sumska detelina	Mountain clover	Dragash		No information			
<i>Trifolium badium</i>	Fabaceae	Tërfili i murrme	Podbel	Badium clover	Dragash					
<i>Trifolium spadiceum</i>	Fabaceae	Tërfili i kaftë	Kafena detelina	Brown clover	Dragash		No information			
<i>Trifolium velenovskyi</i>	Fabaceae	Tërfili i Velenovksit	Velenovski detelina	Velenovsky clover	Dragash	Balkan endemic	Suggested Kosovo's Red Plant List			
<i>Trifolium wettsteinii</i>	Fabaceae	Tërfili i Vetshtajnit	Vetstajn detelina	Wetstein clover	Dragash	Balkan endemic	Suggested Kosovo's Red Plant List			
<i>Triglochin palustris</i>	Juncaginaceae	Triglohini kënetor	Močvarna brula	Marsh Arrowgrass	Dragash (Brod, Ludasa, L. Kuca)		Suggested Kosovo's Red Plant List			
<i>Tussilago farfara</i>	Asteraceae	Thundër mushka	Konjski lopuh	Coltsfoot	Dragash					

United Nations Development Programme

Sustainable Development Atlas for Sharr/Šar National Park – Kosovo



Species	Family	Albanian name	Serbian name	English name	Distribution in Kosovo	Endemism	Rareness (incl. Local Red Lists)	Habitat Directive	Bern Convention	IUCN Red Plant List
<i>Urtica dioica</i>	Urticaceae	Hithra	Kopriva	Common nettle	Dragash					
<i>Vaccinium gaultherioides</i>	Ericaceae	Boronica	Borovnica	Northern Bilberry	Dragash					
<i>Vaccinium myrtilloides</i>	Ericaceae	Boronica e zakonshme	Borovnica	Common bilberry	Dragash					
<i>Vaccinium myrtillus</i>	Ericaceae	Boronica e zezë	Crna borovnica	Wild bilberry	Dragash					
<i>Vaccinium uliginosum</i>	Ericaceae	Boronica e ligatinave	Močvarna borovnica	Bog bilberry	Dragash					
<i>Vaccinium vitis-idea</i>	Ericaceae	Rrush-Mjedër	Brusnica	Cowberry	Restelicë					
<i>Valeriana bertis-ceae</i>	Valerianaceae	Haraqina e Bertiskut		Bertisce Valerian	Dragash, Koritnik	Kosovo endemic	Suggested Kosovo's Red Plant List			
<i>Valeriana officinalis</i>	Valerianaceae	Haraqina mjekësore	Valerijan	Valerian	Dragash					
<i>Valeriana pancicii</i>	Valerianaceae	Haraqina e Pancicit	Pančičev odoljen	Pancici Valerian	Dragash, Koritnik	Balkan endemic	Suggested Kosovo's Red Plant List			
<i>Veratrum album</i>	Melanthiaceae	Shtara	Bela Ćemerika	White hellebore	Dragash					
<i>Veratrum nigrum</i>	Melanthiaceae	Shtara e zezë	Crna Ćemerika	Black False Hellebore	Dragash					
<i>Verbascum scardicolum</i>	Scrophulariaceae	Bari i peshkut i Sharrit		Scardicum mullein	Dragash	Kosovo endemic	Threatened			
<i>Verbascum sp.</i>	Scrophulariaceae	Bari i peshkut		Mullein	Dragash					
<i>Verbascum thapsus</i>	Scrophulariaceae	Bari i peshkut tapsus	Lopuh	Common mullein	Dragash					
<i>Veronica aphylla</i>	Scrophylariaceae	Veronika pagjethe			Dragash	Glacial relic				
<i>Veronica beccabunga</i>	Scrophylariaceae	Veronika becabungë		European speedwell	Dragash					
<i>Veronica officinalis</i>	Scrophylariaceae	Veronika becabungë		Common Speedwell	Dragash					
<i>Veronica saturo-joides</i>	Scrophylariaceae	Veronika si shtërmen		Savory Leafed Speedwell	Dragash, Koritnik	Balkan endemic	Suggested Kosovo's Red Plant List			
<i>Viburnum lantana</i>	Caprifoliaceae	Butina e butë	Udika	Wayfaring Tree	Dragash		Rare			
<i>Viburnum opulus</i>	Caprifoliaceae			Gelder Rose	Dragash					



Species	Family	Albanian name	Serbian name	English name	Distribution in Kosovo	Endemism	Rareness (incl. Local Red Lists)	Habitat Directive	Bern Convention	IUCN Red Plant List
<i>Viola aetolica</i>	Violaceae	Manushaqja e Etolisë	Etolska ljubičica	Etolic violet	Dragash		Suggested Kosovo's Red Plant List			
<i>Viola cf hirta</i>	Violaceae	Vjollca kreshtake		Hairy violet	Dragash					
<i>Viola gracilis</i>	Violaceae	Manushaqja e hajthme		Gracious violet	Dragash	Kosovo endemic	Suggested Kosovo's Red Plant List			
<i>Viola grisebachiana</i>	Violaceae	Vjollca e Grisebakut	Grisebah ljubičica	Grisebach violet	Dragash, Koritnik	Balkan endemic	Suggested Kosovo's Red Plant List			
<i>Viola orphanidis</i>	Violaceae	Manushaqja e Orfanidhit			Dragash		Suggested Kosovo's Red Plant List			
<i>Viola sylvestris</i>	Violaceae	Manushaqja e argjendë	Šumska ljubičica		Dragash					
<i>Viola tricolor</i>	Violaceae	Manushaqe trengjyrëshe	Divlja mačuhica	Wild pansy	Sharr Mountains	Balkan endemic				
<i>Viscum album</i>	Santalaceae	Veshtulla	Imela	Common Mistletoe	Dragash					

1.6.3. List of Plant Communities

Table 1-28: List of Plant Communities

Plant Community	Geobotanical Distribution	Rareness	EU Habitat Directive
Wetland Vegetation			
Caricetum rostratae salicetosum			
Caricetum rostratae-vesicariae			
Caricetum nigrae		Rare	
Carici-Narthecietum scardici	Tertiary relic		
Vaccinion with V.gaultherioides			Annex I
Eutrophic Vegetation			
Senecio-Rumicetum alpini			
Shrubland			
Arctostaphylo-Juniperetum nanae			Annex I
Vaccinio-Empetretum hermaphroditi		Rare	
Coryletum avellanae	Euroasia		
Alpine lawns and rock vegetation			
Juncetum trifidi			
Drypetum spinosae	Balkan endemic	Rare	Annex I
Saxifrageto-Potentilletum apenninae	Tertiary relic		Annex I
Saxifrageto-Rumicetum nivalis			
Natural grasslands			
Carici-Seslerietum latifoliae			
Deltoideo-Nardetum			
Nardetum strictae	Euroasia		Annex I
Diantho-scardici-Festucetum			
Amerio-Festucetum variaae	Europe		
Extensive pastures			
Xerobromion			Annex I
Echinario-Convovuletum althaeoides	Mediterranean		
Edraiantho-Elynetum	Mediterranean		
Gentiano-Dryadetum octopetalae			Annex I
Gladiolo-Sanguisorbetum officinalae			
Helianthemo-Globularietum bellidifoliae			
Coniferous forest			
Abietum albae koritniensis	Europe	Rare	Annex I
Abietum borisii-regis	South East Europe	Rare	Annex I
Pinetum heldrechii typicum	Balkan endemic	Rare	
Mixed forest			
Fago-Pinetum heldrechii			
Riparian forest			
Alnetum glutinosae	Europe		Annex I
Birch forest			

United Nations Development Programme

Sustainable Development Atlas for Sharr/Šar National Park – Kosovo

Plant Community	Geobotanical Distribution	Rareness	EU Habitat Directive
Betuletum verrucosae koritniensis		Rare	
Oak forest			
Lembotropo-Quercetum cerris			
Quercetum trojanae dukagjini	South East Europe	Rare	Annex I
Beech forest			
Fagetum moesiaca montanum			
Ostryo-Fagetum			
Seslerio autumnalis-Fagetum			
Hornbeam forest			
Colurno-Ostryetum carpinifolia			
Dioscoreo-Carpinetum orientalis	Balkan endemic	Rare	

1.7. Map B9: Biodiversity Fauna

1.7.1. Mammals known in Sharr/Šar National Park

Table 1-29: List of Mammals known in Sharr/Šar National Park)

Species	Albanian name	Serbian name	English name	Status in Kosovo
Lynx lynx	Rrëqebulli	Ris	Lynx	Rare threatened
Ursus arctos	Ariu i murmë	Medved	Brown bear	Protected by law
Capreolus capreolus	Kaprolli	Srna	Roe deer	Protected by Hunting law
Rupicapra rupicapra	Dhia e egër	Divokoza	Chamois	Protected by Hunting law

1.7.2. List of Vertebrates (except Birds) observed Sharr/Šar National Park

Table 1-30: List of Vertebrates (except Birds) observed in Sharr/Šar National Park)

[illegible]



1.7.3. Birds known in Sharr/Šar National Park

Table 1-31: List of Birds observed in Sharr/Šar National Park)

Species	Alb Name	Serb Name	Engl. Name	Bird Directive	IUCN Red List	Status in Kosovo	L1-Brezna	L2-Kroi i hajduti	L3-Dikance	L3-Dikance	L4-Koritnik	L5-Brod	L6-Shutman	L7-Restelica	L8-Limth	L9-Plajnik	L10-Radesha	L11-Bresanë	AM02	AM10	AM21	AM50	AM60
Accipiter brevipes	Gjeraqina kembshkurter	Kratkoprsti kobac	Levant Sparrowhawk	Annex I			X	X	X		X	X	X	X	X	X	X	X					
Accipiter gentiles	Gjeraqina	Jastreba	Goshawk	Annex I			X	X			X	X	X	X	X	X	X	X					
Accipiter nisus	Gjeraqina e shkurtës	Kobac	Sparrowhawk				X								X	X							
Acrocephalus arundinaceus	Qafkëlori i madh i moqalit	Veliki trstenjak	Great Reed Warbler				X	X								X		X					
Acrocephalus palustris	Qafkëlori i moqalit	Trstenjak mlakar	Marsh Warbler				X																
Acrocephalus scirpaceus	Qafkëlori i kallamit	Trstenjak crvrkutić	Reed Warbler					X				X						X					
Aegithalos caudatus	Trishtili bishtgjatë	Dugorepa Senica	Long -tailed tit				X											X					
Alauda arvensis	Lauresha	Poljska ševa	Skylark				X								X			X					
Alcedo atthis	Bilbili i ujit	Vodomar	Kingfisher		LC-Least concern		X																
Alectoris graeca		Kamenjarka	Rock partridge	Annex II	LC-Least concern																	X	
Anas platyrhynchos	Rosë e egër	Gluvara	Mallard	Annex II, III			X																
Anthus campestris	Pipiti i kuqërremë	Stepska trepteljka	Tawny Pipit	Annex I			X					X											
Anthus pratensis	Pipiti i livadhit	Livadska trepteljka	Meadow Pipit				X							X									
Anthus spinoletta	Pipiti i ujit	Planinska trepteljka	Water Pipit				X					X											
Anthus trivialis	Pipiti i lisit	Šumska trepteljka	Tree Pipit				X							X									
Apus apus	Dejka	Crna čiova	Swift			Rare											X						
Aquila chrysaetos	Shqiponja e artë	Suri Orao	Golden Eagle	Annex I	LC-Least concern	Rare					X	X	X		X	X							
Aquila heliaca	Shqiponja perandorake	Krstaš	Imperial Eagle	Annex I	VU-Vulnerable	Rare					X		X		X	X							

United Nations Development Programme

Sustainable Development Atlas for Sharr/Šar National Park – Kosovo



Species	Alb Name	Serb Name	Engl. Name	Bird Directive	IUCN Red List	Status in Kosovo	L1-Brezna	L2-Kroi i hajdutit	L3-Dikance	L3-Dikance	L4-Koritnik	L5-Brod	L6-Shutman	L7-Restelica	L8-Limth	L9-Pilajnik	L10-Radesha	L11-Bresanë	AM02	AM10	AM21	AM50	AM60
Ardea cinerea	Çapka e përhim	Siva çaplja	Grey Heron				X																
Asio flammeus	Huti vesh shkurtër	Ritska sova	Short-eared Owl	Annex I										X									
Asio otus	Huti vesh gjatë	Utina	Long-eared owl									X	X										
Athene noctua	Huti i vogël	Kukumavka	Little Owl									X	X										
Bonasa bonasia	Pula me çafkë	Leštarka	Hazel Grouse	Annex I, II				X															
Bubo bubo	Huti shqiponjë	Buljina	Eagle Owl	Annex I	LC-Least concern										X								
Buteo buteo	Huta	Mišar	Common Buzzard		LC-Least concern		X								X								
Buteo rufinus	Huta bisht bardh	Ridi mišar	Long-legged Buzzard			Rare	X								X								
Calandrella brachydactyla	Lauresha këmbshkurtër	Mala ševa	Short-toed Lark															X					
Caprimulgus europaeus	Cingërrimi i natës	Leganj	Nightjar	Annex I		Rare									X			X					
Carduelis cannabina	Kërpngrënësi	Konopljarka	Linnet			Rare	X						X	X				X					
Carduelis carduelis	Gardalina	Češljugar	Goldfinch				X	X	X		X	X	X	X	X	X	X	X					
Carduelis chloris	Verduni	Zelentarka	Greenfinch				X	X	X		X	X	X		X	X	X	X					
Carduelis spinus	Cerla dimërake	Čizak	Siskin										X	X		X							
Cercotrichas galactotes	Bishtkuqi i shkurrës	Dugorepa grmuša	Rufous Bush Robin											X				X					
Certhia brachydactyla	Rrotullues gishtshkurtër	Dugokljuni puzić	Short-toed Treecreeper										X	X	X								
Certhia familiaris	Piku rrotullues	Kratkokljuni puzić	Treecreeper										X	X	2								
Cinclus cinclus	Zhytësi	Vodenkos	Dipper			Rare			X			X						X	X				
Circus cyaneus	Shqipja e fushes	Poljska eja	Hen Harrier	Annex I			X									X		X					
Coccothraustes coccothraustes	Sqeptrash	Batokljun	Hawfinch			Rare								X			X	X					
Columba livia	Kumria e shkëmbit	Divji golub	Rock Dove	Annex II				X				X											
Columba oenas	Kumri e shtyllës	Golub dupljaš	Stock Dove	Annex II									X			X							



Species	Alb Name	Serb Name	Engl. Name	Bird Directive	IUCN Red List	Status in Kosovo	L1-Brezna	L2-Kroi i hajduti	L3-Dikance	L3-Dikance	L4-Koritnik	L5-Brod	L6-Shutman	L7-Restelica	L8-Limth	L9-Pilajnik	L10-Radesha	L11-Bresanë	AM02	AM10	AM21	AM50	AM60
Columba palumbus	Pëllumbi i pyllit	Golub grivnaš	Wood Pigeon	Annex I, II, III			X								X								
Corvus corax	Korbi i zi	Gavran	Raven				X	X	X		X	X	X	X		X	X	X		X			
Corvus corone cornix	Korbi	Vrana	Crow	Annex II			X	X	X		X	X	X	X	X	X	X	X					
Corvus frugilegus	Korbi sqepbardhë	Gaçac	Rook	Annex II														X					
Corvus monedula	Gala	Čavka	Jackdaw	Annex II			X	X	X		X		X	X	X	X	X	X					
Coturnix coturnix	Shkurtë	Prepelica	Quail	Annex II		Rare	X											X					
Crex crex	Mbreti i shkurtës	Prdovac	Common Cuckoo	Annex I	LC-Least concern	Rare	X											X					
Cuculus canorus	Qyqja	Obična kukavica	Cuckoo				X		X		X	X	X	X	X	X		X					
Delichon urbica	Babili shtëpiak	Gradska lasta	House Martin				X	X	X		X	X	X	X	X	X	X	X					
Dendrocopos leucotos	Qukapiku shpinë bardhë	Planinski detlić	White Backed Woodpecker	Annex I			X					X					X						
Dendrocopos major	Qukapiku pika pika	Veliki detlić	Great Spotted Woodpecker	Annex I			X					X					X						
Dendrocopos minor	Qukapiku pika laserik	Mali detlić	Lesser Spotted Woodpecker				X					X					X						
Dryocopus martius	Qukapiku i zi	Crna žuna	Black Woodpecker	Annex I		Rare	X					X					X						
Emberiza cia	Cerla e malit	Strnadica kamenjarka	Rock Bunting			Rare						X				X							
Emberiza cirrus	Cerla gushëgjelbër	Crnogrla strdanica	Cirl Bunting				3								X	X							
Emberiza citrinella	Cerla verdhashe	Strnadica žutovoljka	Yellowhammer				X								X			X					
Eremophila alpestris	Lauresha e brigeve	Planinska ušata ševa	Horned Lark						X					X									
Erithacus rubecula	Gushëkuqi	Crvendač	Robin						2		X	X	X	X	X	X	X	X					
Falco columbarius	Skifteri i vogël	Mali soko	Merlin	Annex I	LC-Least concern		X	X	X		X	X	X	X	X	X	X	X					
Falco naumanni	Skifteri kthetra verdh	Belonokta vetruška	Lesser Kestrel	Annex I	VU-Vulnerable						X			X	2								
Falco peregrinus	Fajkoi krahethat	Sivi soko	Peregrin Falcon	Annex I	LC-Least concern		X									X	X						



Species	Alb Name	Serb Name	Engl. Name	Bird Directive	IUCN Red List	Status in Kosovo	L1-Brezna	L2-Kroi i hajduti	L3-Dikance	L3-Dikance	L4-Koritnik	L5-Brod	L6-Shutman	L7-Restelica	L8-Limth	L9-Pilajnik	L10-Radesha	L11-Bresanë	AM02	AM10	AM21	AM50	AM60
Falco tinnunculus	Skifteri kthetra zi	Vetruška	Common kestrel		LC-Least concern		X	X	X		X	X		X	X	X	X	X		X			
Ficedula albicollis	Mizakapësi qafëbardhë	Belovrata muharica	Collared flycatcher	Annex I											X		X	X					
Ficedula hypoleuca	Mizakapësi i zi	Crnovrata muharica	Pied flycatcher				X							X									
Ficedula parva	Mizakapësi gjinjuqë	Mala muharica	Red breasted flycatcher	Annex I			X											X					
Ficedula semitorqua	Mizakapësi krahëvizuar	Muharica	Semi-collard flycatcher	Annex I											X		X	X					
Fringilla coelebs	Zboraksi	Zeba	Chaffinch				X	X	X		X	X	X	X	X	X	X	X					
Fringilla montfringilla	Zboraksi i malit	Severna zeba	Brambling												X	X		X					
Galerida cristata	Lauresha me napkë	Ćubasta ševa	Crested Lark											X	X								
Galinula chloropus	Pulëza e ujit	Barska kokica	Moorhen			Rare	X																
Hirunda rustica	Dallëndyshja koqekut	Seoska lasta	Barn Swallow				X							X									
Hirundo daurica	Dallëndyshja shpinë kuqe	Daurka lasta	Red-rumped Swallow														X	X					
Jynx torquilla	Qukapiku sqepshkurtër	Vijoglava	Eurasian Wryneck		LC-Least concern	Rare	X							X		X							
Lanius collurio	Larashi kurrizkuq	Rusi svrač	Red backed Shrike	Annex I			X	X	X		X	X	X	X	X	X	X	X					
Lanius excubitor	Larashi i madh i përhimtë	Veliki svračak	Great grey Shrike				X								X								
Lanius minor	Larashi i vogël ballzi	Sivi svračak	Lesser Grey Shrike	Annex I	LC-Least concern		X							X				X					
Lanius senator	Larashi kokëkuq	Crvenoglavi svrač	Woodchat Shrike			Rare								X									
Loxia curvirostra	Sqepkryqi	Krstokljun	Common Crossbill			Rare					X												
Lullula arborea	Lauresha e pyllit	Šumska ševa	Woodlark	Annex I											X	X							
Luscinia luscinia	Bilbili mëllenjë	Veliki slavuj	Thrush nightingale				X								X			X					
Luscinia megarhynchos	Bilbili	Mali slavuj	Nightingale				X							X	X			X					
Luscinia svecica	Gushëkaltëri	Modrovoljka	Bluethroat	Annex I	LC-Least concern										X	X							



Species	Alb Name	Serb Name	Engl. Name	Bird Directive	IUCN Red List	Status in Kosovo	L1-Brezna	L2-Kroi i hajduti	L3-Dikance	L3-Dikance	L4-Koritnik	L5-Brod	L6-Shutman	L7-Restelica	L8-Limth	L9-Pilajnik	L10-Radesha	L11-Bresanë	AM02	AM10	AM21	AM50	AM60
Melanocorypha calandra	Lauresha melankolike	Velika ševa	Calandra Lark	Annex I														X					
Merops apiaster	Bletë ngrënësi	Pčelarica	Bee-eater												X			X					
Miliaria calandra	Cerla e zakonshme	Velika strnadica	Corn Bunting				X								X	X		X					
Monticola saxatilis	Möllënja e gurit	Kos kamenjar	Rock Thrush									X		X	X								
Montfringilla nivalis	Parosi i dëborës	Planinski vrbac	Snowfinch		LC-Least concern	Rare								X	X		X						
Monticola solitarius	Tusha blu	Modrokos	Blue Rock Thrush									X				X							
Motacilla alba	Bisht lëkundësi laraman	Bela pliska	White/Pied Wagtail		LC-Least concern		X																
Motacilla cinerea	Bisht lëkundësi i përhimtë	Potočna pliska	Grey Wagtail				X																
Motacilla flava	Bisht lëkundësi verdhë	Žuta pliska	Yellow Wagtail				X																
Muscicapa striata	Mizakapësi i përhimtë	Siva muharica	Spotted flucatcher				X							X	X								
Nucifraga	Boçëthyesi		Nutcracker			Rare					X				X								
Nucifraga caryocatactes	Grifsha	Lešnjikara	Jay				X	X	X		X	X	X	X	X	X	X	X					
Nycticorax nycticorax	Çapka natës	Gak	Night Heron	Annex I	LC-Least concern	Rare	X																
Oenanthe hispanica	Murgëza vesh zi	Sredozemna beloguza	Blackbeard Wheatear				X																
Oenanthe oenanthe	Murgëz	Obična beloguza	Wheatear		LC-Least concern		X							X							X		
Oriolus oriolus	Bengu	Vuga	Golden Oriol									X		X				X					
Otus scops	Huti i fushës	Čuk	Scops Owl				X																
Panurus biarmicus	Trishtili me mustaqe	Brkata senica	Bearded reedling tit				X	X															
Parus ater	Trishtili i zi	Jelova senica	Coal tit	Annex I			X			X	X	X	X	X	X	X	X	X					
Parus caeruleus	Trishtili i kaltër	Plava senica	Blue tit				X	X			X	X		X	X	X	X	X					
Parus cristatus	Trishtili me çafkë	Čubasta senica	Crested tit				X											X					



Species	Alb Name	Serb Name	Engl. Name	Bird Directive	IUCN Red List	Status in Kosovo	L1-Brezna	L2-Kroi i hajduti	L3-Dikance	L3-Dikance	L4-Koritnik	L5-Brod	L6-Shutman	L7-Restelica	L8-Limth	L9-Plajnik	L10-Radesha	L11-Bresanë	AM02	AM10	AM21	AM50	AM60
Parus lugubris	Trishtili i madh i murmë	Senica šljivarka	Sombre tit				X										X						
Parus major	Trishtili i madh	Velika senica	Great tit				X	X	X		X	X	X	X	X	X	X	X					
Parus montanus	Trishtili i maleve (shelgut)	Planinska siva senica	Willow Tit												X	X							
Parus palustris	Trishtili i vogël i murmë	Močvarna senica	Marsh tit												2								
Passer domesticus	Harabeli i shtëpisë	Vrabac pokučar	Passer domesticus					X	X		X	X	X	X	X	X	X	X					
Passer montanus	Harabeli i maleve	Polski vrbac	Tree Sparrow					X	X		X	X	X	X	X	X	X	X					
Perdix perdix	Thëllëza e fushës	Jarebica	Grey Partridge	Annex II, III	LC-Least concern	Rare	X											X					
Phasianus colchicus	Fazan	Fazan	Pheasant			Rare	X											X					
Philoscopus collybita	Çikë	Obični zviždak	Chiffchaff					X							X			X					
Philoscopus sibilatrix	Qafkëlori i zabelit	Šumski zviždak	Wood Warbler				X								X			X					
Philoscopus trochilus	Qafkëlori i shelgut	Brezov zviždak	Willow Warbler						X			X											
Phoenicurus ochrorus	Gjokskuq i zi	Crna crvenrepka	Black redstart											X				X					
Phoenicurus phoenicurus	Gjoks kuqi	Obična crvenrepka	Redstart												X								
Pica pica	Laraska bishtgjatë	Svraka	Magpie	Annex II			X	X	X		X	X	X	X	X	X	X	X					
Picus viridis	Qukapiku i gjelbër	Zelena žuna	Green Woodpecker		LC-Least concern							X					X						
Prunella collaris	Harabeli i Alpeve	Planinski popiç	Alpine Accentor									X			X								
Prunella modularis	Harabeli-Dunok	Obični popiç	Dunnock															X					
Pyrrhonorax graculus	Stergoka e malit	Žutokljuna galica	Alpine Cough									X			X								
Pyrrhonorax pyrrhonorax	Stergoka sqepkuqe	Crvenokljuna galica	Chough	Annex I								X											
Pyrrhula pyrrhula	Kuqalashi çafkëzi	Zimovka	Bullfinch	Annex I	LC-Least concern			X							X								
Rallus aquaticus	Gjeli i ujit	Bārski petlovan	Water Rail	Annex II		Rare	X																
Regulus ignicapillus	Kurorë zjarri	Vatroglavi kraljiç	Firecrest				X	X				X						X					



Species	Alb Name	Serb Name	Engl. Name	Bird Directive	IUCN Red List	Status in Kosovo	L1-Brezna	L2-Kroi i hajduti	L3-Dikance	L3-Dikance	L4-Koritnik	L5-Brod	L6-Shutman	L7-Restelica	L8-Limth	L9-Pilajnik	L10-Radesha	L11-Bresanë	AM02	AM10	AM21	AM50	AM60
Regulus regulus	Mbretëthi	Kraljić	Goldcrest				X	X										X					
Riparia riparia	Babili i rërës	Bregunica	Sand Martin				X											X					
Saxicola rubetra	Gjineshtra ulëruese	Obična travarka	Whinchat					X															
Saxicola torquata	Llafazani i gurit	Črnoglava travarka	Stonechat													X		X					
Serinus serinus	Zog bari sqepshkurtë	Žutarica	Serin											X	X			X					
Sitta europaea	Zvarritësi i zakonshëm	Brgllez	Nuthach			Rare								X			X	X					
Sitta neumayer	Zvarritësi i shkrepeve	Brgllez lončar	Rock nuthatch			Rare						X			X	X							
Sreptopelia decaocto	Kumri me qafore	Gugutka	Collard Dove	Annex II			X									X	X	X					
Streptopelia turtur	Turtullesha	Grica	Turtle Dove	Annex II			X								X			X					
Strix aluco	Huti i kuqremtë	Šumska sova	Tawny Owl												X								
Sturnus vulgaris	Cerloi i zi pikalosh	Čvorak	Starling				X								X			X					
Sylvia atricapilla	Rradak ziu	Črnokapa grmuša	Black cap				X	X	X		X	X	X	X	X	X	X	X					
Sylvia borin	Qafkëlori i kopshtit	Siva grmuša	Garden Warbler									X					X	X					
Sylvia communis	Gushëbardhi	Obična grmuša	Whitethroat				X																
Sylvia curruca	Gushëbardhi i vogël	Grmuša čavrljanke	Lesser Whitethroat				X											X					
Sylvia nisoria	Qafkëlori i mbylltë	Pirgasta grmuša	Barred Warbler	Annex I											X	X							
Sylvia ortensis	Qafkëlori i orfeut	Velika grmuša	Orphean Warbler				X							X	X								
Tachybaptus ruficollis	Kredharaku i vogël	Mali gnjurac	Little Grebe				X																
Tetrao tetrix	Pule e egër	Ruševac	Black Grouse	Annex I, III		Rare					X					X							
Tichodroma muraria	Zvarritësi krahëkuq	Puzgavac	Wallcreeper		LC-Least concern	Rare					X	X		X		X							
Tringa totanus	Qurylyku sqepkuq	Črvenonogi sprudnik	Common Redshank	Annex II		Rare																	X
Troglodytes troglodytes	Trumcaku	Čarić	Wren	Annex I	LC-Least concern								X	X	X								



Species	Alb Name	Serb Name	Engl. Name	Bird Directive	IUCN Red List	Status in Kosovo	L1-Brezna	L2-Kroi i hajduti	L3-Dikance	L3-Dikance	L4-Koritnik	L5-Brod	L6-Shutman	L7-Restelica	L8-Limth	L9-Pilajnik	L10-Radesha	L11-Bresanë	AM02	AM10	AM21	AM50	AM60
Turdus merula	Mëllënja	Obični kos	Blackbird	Annex II			X	X	X		X	X	X	X	X	X	X	X					
Turdus philomelos	Mëllënja këngëtare	Drozd pevač	Song Thrush	Annex II			X	X	X		X	X	X	X	X	X	X	X					
Turdus pilaris	Turtulla	Drozd borovnjak	Fieldfare	Annex II											X								
Turdus torquatus	Mëllënja qafore	Kos ogrliçar	Ring Ouzel			Rare					X			X	X								
Turdus viscivorus		Drozd imelaš	Mistle Thrush	Annex II				X	X		X	X	X	X	X	X	X	X					
Tyto alba	Huti koqekut	Kukuvija	Barn Owl		LC-Least concern													X					
Upupa epops	Papëza	Pupavac	Hoopoe		LC-Least concern	Rare	X											X					
Total No of Species per Sample							85	32	26	1	33	49	33	54	73	49	40	72	1	2	1	1	1

1.7.4. Butterflies known in Sharr/Šar National Park

Table 1-32: List of Butterflies observed in Sharr/Šar National Park)

Species	Alb Name	Serb Name	Engl. Name	Habitat Directive	IUCN Red List	Status in Kosovo	B1	B2	B3	B4	B5	B6	B7	B8
Apatura ilia		Mali prelivac	Lesser Purple Emperor		VU-Vulnerable					X				
Apatura iris		Modri prelivac	Purple Emperor		EN-Endangered					X				
Argynnis pandora		Pandorina sedefica	Cardinal		EN-Endangered					X				
Aricia anteros		Alpijski plavac	Blue Argus		EN-Endangered		X				X	X		
Brenthis ino		Inova sedefica	Lesser Marbled Fritillary		EN-Endangered						X			
Brintesia circe		Šumski vratar	Great Banded Grayling											X
Cupido minimus		Maleni plavac	Little Blue		VU-Vulnerable		X				X	X		
Erebia gorge		Zagasita erebija	Silky Ringlet		EN-Endangered						X	X		
Erebia ottomana	Flutura otomane	Turska erebija	Ottoman Brassy Ringlet							X	X			
Erebia rhodopensis	Flutura rodopense	Rodopska erebija	Nicholl's Ringlet		EN-Endangered						X			
Euchloe ausonia		Cipkasti belac	Eastern Dappled White		EN-Endangered				X					
Euphydryas aurinia		Mocvarna sedefnica	Marsh Fritillary	Annex II	VU-Vulnerable				X					
Herse convolvuli			Convolvulus Hawk-moth							X				
Iolana iolas		Pucavac	Iolas Blue		EN-Endangered				X					
Limenitis populi		Veliki topolnjak	Poplar Admiral		EN-Endangered						X	X		
Lycaena dispar	Flutura ngjyrëbakër	Veliki dukat	Large Copper	Annex II, IV	VU-Vulnerable				X					
Macroglossum stellatarum			Hummingbird Hawk-moth								X			
Macrothylacia rubi			Fox moth									X		
Maculinea alcon		Mali pegavac	Alcon Blue		VU-Vulnerable								X	
Maculinea arion		Veliki pegavac	Large Blue	Annex II, IV	VU-Vulnerable						X			
Nymphalis antiopa		Kraljev plašt	Camberwell Beaty		EN-Endangered				X	X				
Papilio machaon	Flutura bajrake	Lastin repak	Swallowtail		EN-Endangered				X		X			
Parnassius apollo	Apollo flutura	Apollo	Apolon	Annex IV	VU-Vulnerable					X				



Species	Alb Name	Serb Name	Engl. Name	Habitat Directive	IUCN Red List	Status in Kosovo	B1	B2	B3	B4	B5	B6	B7	B8
Parnassius mnemosyne											X			
Phalera bucephala			Buff-tip							X	X			
Pieris brassicae	Flutura e lakrës	Veliki kupusar	Large White		VU-Vulnerable					X				
Plebeius argyrognomon		Blistavi plavac	Reverdin's Blue		VU-Vulnerable		X		X					
Polyommatus eroides		Planinski plavac	False Eros Blue	Annex II, IV		Rare	X							
Pseudophilotes baton			Baton blue		EN-Endangered				X					
Pseudophilotes bavius		Zagasi plavac	Bavius Blue	Annex IV	EN-Endangered					X				
Pyrgus andromedae	Hesperida alpine	Alpijska hesperida	Alpine Grizzled Skipper		EN-Endangered					X				
Pyrgus sidae		Lipicina hesperida	Yellow-banded Skipper		VU-Vulnerable				X					
Satyrus acacie	Flutura e sallgamit	Mali repkar	Sloe Hairstreak		VU-Vulnerable		X							
Satyrus w-album		Šumski repkar	White-letter Hairstreak		EN-Endangered					X				
Satyrus ferula		Veliki satir	Great Sooty Satyr		VU-Vulnerable						X	X		
Spialia phlomis		Srebrna hesperida	Persian Skipper			Rare			X					
Thecla betulae		Brezov dukat	Brown Hairstreak		VU-Vulnerable						X			
Vacciniina optilete	Flutura e boronicës	Borovnicar	Cranberry Blue			Rare				X	X			
Vanessa atalanta	Flutura provokuese	Admiral	Red Admiral								X			
Zerynthia polyxena	Flutura me ilikë	Uskršnji leptir	Southern Festoon	Annex IV	VU-Vulnerable			X						
Total No of Species per Sample							5	1	10	13	16	6	1	1



2. Data for Volume III: Assessment

2.1. Excerpts from “Forest Stewardship Standard for the Republic of Kosovo

Definition of High Conservation Value Forest (HCVF) in Kosovo and additional explanation of Principle 9:

Every forest has some environmental and social value. The values it contains may include rare species, recreational sites or resources harvested by local residents. Where these values are considered to be of outstanding significance or critical importance, the forest can be defined as a High Conservation Value Forest (HCVF).

Although the Forest Stewardship Council provides the generic definition of HCVs, it is not easy to interpret this global definition in different forest types, locations and in different social circumstances and therefore, each country defines their own types of forests having some exceptional values that need special protection.

The HCV concept was originally developed by the Forest Stewardship Council (FSC) to help define forest areas of outstanding and critical importance - High Conservation Value Forests (HCVF). HCVF guidelines appeared in 1999 in Principle 9 of the FSC's Principles and Criteria of Forest Stewardship, which form the basis for all FSC forest management standards and certification. Under Principle 9, forest managers are required to identify any High Conservation Values that occur within their individual forest management units, to manage them in order to maintain or enhance the values identified, and to monitor the success of this management.

The key to using the HCV approach is the identification of the High Conservation Values (HCVs), which cover the range of conservation priorities shared by a wide range of stakeholder groups, and include social values as well as ecological values. It is these values that are important and need to be protected. A High Conservation Value area is simply the area where these values are found, or, more precisely, the area that needs to be appropriately managed in order to maintain or enhance the identified values. Identifying the areas where these values occur is therefore the essential first step in developing appropriate management for them.

Based on the definition originally developed by the Forest Stewardship Council for certification of forest ecosystems, there six main types of HCV areas:

- HCV1. Areas containing globally, regionally or nationally significant concentrations of biodiversity values (e.g. endemism, endangered species, refugia);
- HCV2. Globally, regionally or nationally significant large landscape-level areas where viable populations of most if not all naturally occurring species exist in natural patterns of distribution and abundance;
- HCV3. Areas that are in or contain rare, threatened or endangered ecosystems;
- HCV4. Areas that provide basic ecosystem services in critical situations (e.g. watershed protection, erosion control);
- HCV5. Areas fundamental to meeting basic needs of local communities (e.g. subsistence, health).
- HCV6. Areas critical to local communities' traditional cultural identity (areas of cultural, ecological, economic or religious significance identified in cooperation with such local communities);

The HCV process usually comprises three key steps:

- **Identification** of the HCVs based on an analysis of existing information and the collection of additional information where necessary to fill gaps.
- **Management** of the HCV area in order to maintain or enhance the identified values; Identify-



ing an HCV area and its management regime involves:

- **Establishment of an appropriate monitoring regime** to ensure that the management practices are effective in their aim of maintaining or enhancing the HCVs.

The assessment process should be knowledge-based, using all relevant scientific data and local knowledge. It must ensure that relevant stakeholders are consulted and their views or the information they provide is incorporated into the process and it should be open and transparent including peer reviews of findings and public reporting of outcomes.

The usual way of undertaking these tasks is to develop the set of national criteria in document called HCVF Toolkit. This document is used as a basis for actual identification and other steps in HCVF process.

It is usually a lengthy process and, unfortunately, the project scope does not allow the time and expertise needed for all the steps necessary for this process. Therefore, SDG recommends that in further development HCV forests this initial definitions and methodology should be consulted. SDG for Kosovo will support any future initiative to assess HCVF and will promote this idea with different stakeholders.

FSC Principle 6: Environmental Impact

Forest management shall conserve biological diversity and its associated values, water resources, soils, and unique and fragile ecosystems and landscapes, and, by so doing, maintain the ecological functions and the integrity of the forest.

C6.1 Assessment of environmental impacts shall be completed -- appropriate to the scale, intensity of forest management and the uniqueness of the affected resources -- and adequately integrated into management systems. Assessments shall include landscape level considerations as well as the impacts of on-site processing facilities. Environmental impacts shall be assessed prior to commencement of site-disturbing operations.

Indicator 6.1.1

The forest manager shall complete environmental impact assessment of its management activities appropriate to the scale of operations and with regards to landscape, fragility of ecosystems.

Verifiers:

1. Assessment of environmental impacts
2. Forest management plan

SDG Notes:

SLIMF (small or low intensity managed forest): The forest manager shall complete overall environmental impact assessment of its management activities once in a five year period.

Indicator 6.1.2

The enterprise shall complete and document an assessment of the environmental impacts of any processing facilities within the FMU under assessment

Verifiers:

1. Assessment of environmental impacts of on-site facilities



2. Forest management plan

SDG Notes:

SLIMF: The forest manager shall complete overall environmental impact assessment of its management activities once in a five year period.

Indicator 6.1.3

The forest manager shall complete environmental impact assessment prior to commencement of site-disturbing operations.

Verifiers:

1. Discussion with the forest manager
2. Internal instructions
3. Written evidence (environmental impact assessment, tendering documentation)

SDG Notes:

SLIMF: Forest manager shall ensure that any forest operation is compared to the overall environmental impact assessment from 6.1.1.

Indicator 6.1.4

The results of the environmental impact assessment, also at a landscape level, shall be incorporated into management plans and tendering documentation before conducting the operations.

Verifiers:

1. Discussion with the forest manager
2. Internal instructions
3. Written evidence (environmental impact assessment, tendering documentation)

SDG Notes:

SLIMF: Forest manager shall ensure that any forest operation is compared to the overall environmental impact assessment from 6.1.1.

C6.2 Safeguards shall exist which protect rare, threatened and endangered species and their habitats (e.g., nesting and feeding areas). Conservation zones and protection areas shall be established, appropriate to the scale and intensity of forest management and the uniqueness of the affected resources. Inappropriate hunting, fishing, trapping and collecting shall be controlled.

Indicator 6.2.1

The forest manager shall have up to date list and maps on the presence of rare, threatened and endangered species and their habitats in the area of the management.

Verifiers:

1. Discussion with the forest manager



2. Consultation with biology experts
3. Written evidence (inventories, maps, scientific studies)
4. Field visit

SDG Notes:

SLIMF: Forest manager should have overall knowledge on rare, threatened and endangered species using the best available expertise and information.

Indicator 6.2.2

The management plans and other relevant policies and procedures of the organisation shall clearly identify actions that are taken to maintain or enhance the presence of rare, threatened or endangered species within area of management

Verifiers:

1. Discussion with the forest manager
2. Forest management plan, game management plan
3. Field visit
4. Protection programmes

SDG Notes

SLIMF: No guard service necessary

Indicator 6.2.3

Areas of special regional importance for biodiversity are identified on maps, and protected from harvesting and other site disturbance.

Verifiers:

1. Maps
2. Consultation with local biologists
3. Field visit

Indicator 6.2.4

At least 10% of the forest area is designated as a conservation zone, identified on maps, and managed with biodiversity as a major objective. At least 5% of the area of the FMU under assessment shall be managed so as to retain it as or restore it to the condition of natural forest appropriate to the locale of the FMU. This area shall be included in the identified conservation zone

Verifiers:

1. Maps
2. Field visit

SDG Notes:

SLIMF: Not applicable

Indicator 6.2.5



The forest manager shall prevent and monitor unauthorised hunting or gathering of non-timber forest products in accordance with the legal regulations.

Verifiers:

1. Discussion with the forest manager
2. Written evidence (documented procedure, official books of forest guards, contacts with police, other data on unauthorised activities)

C6.3 Ecological functions and values shall be maintained intact, enhanced, or restored, including:

- a) Forest regeneration and succession.
- b) Genetic, species, and ecosystem diversity.
- c) Natural cycles that affect the productivity of the forest ecosystem.

Indicator 6.3.1

The forest manager shall apply a forest management and silviculture system that is based on natural composition of tree species to encourage and take advantage of natural regeneration.

Verifiers:

1. Discussion with the forest manager
2. Forest management plan
3. Records on forest regeneration
4. Field visit

Indicator 6.3.2

Old, non-commercial trees; trees with special ecological value; standing dead trees; and dead fallen wood shall be systematically retained within the area of the FMU.

Verifiers:

1. Discussion with the forest manager
2. Written evidence (forest management plan, policies)
3. Field visit



Indicator 6.3.3

Small scale sites of high ecological value (e.g. nesting sites, small wetlands, ponds, small open areas, etc) shall be systematically retained and protected (e.g. through appropriate buffer zones) throughout the production area of the FMU.

Verifiers:

1. Discussion with the forest manager
2. Forest management plans,
3. Field visit

C6.4 Representative samples of existing ecosystems within the landscape shall be protected in their natural state and recorded on maps, appropriate to the scale and intensity of operations and the uniqueness of the affected resources.

Indicator 6.4.1

The FMU shall have been surveyed to identify any areas representative of ecosystems in their natural state, and all such areas shall be identified on maps.

Verifiers:

1. Forest management plans and maps
2. Field visit

Indicator 6.4.2

The conservation zones designated by the forest enterprise (see Criterion 6.2) shall include representative areas of any examples of ecosystems in their natural state as identified in 6.4.1.

Verifiers:

1. Forest management plans and maps
2. Field visit

Indicator 6.4.3

Management prescriptions shall be specified in the enterprise's forest management plan and other documents in order to protect the representative examples of ecosystems within conservation zones in their natural state and in the long term

Verifiers:

1. Forest management plans and maps
2. Field visit

Indicator 6.4.4

Reference sites of the representative ecosystems within conservation zones, shall be identified and clearly marked on maps, and are monitored at least once a decade to identify and evaluate long term changes. The enterprise analyses and utilizes the results of the monitoring to evaluate management of the conservation zones.



Verifiers:

1. Forest management plans and maps
2. Field visit
3. Monitoring results

C6.5 Written guidelines shall be prepared and implemented to: control erosion; minimize forest damage during harvesting, road construction, and all other mechanical disturbances; and protect water resources.

Indicator 6.5.1

The organisation shall have written guidelines sufficient to: control erosion; minimise forest damage during harvesting, road construction, and other mechanic disturbances; Protect water resources both within and outside the FMU.

Verifiers:

1. Discussion with the forest manager
2. Discussion with private contractors
3. Written guidelines

Indicator 6.5.2

The guidelines shall include, at a minimum, specific provisions to prevent erosion by identifying areas which are susceptible to erosion

Verifiers:

1. Discussion with the forest manager
2. Written guidelines

Indicator 6.5.3

Forest manager shall use forest machinery, technology and operations that minimize adverse impact on the soil, water and standing trees

Verifiers:

1. Discussion with the forest manager
2. Written evidence (tendering documentation)
3. Field visit

Indicator 6.5.4

The forest manager shall build, maintain and use the forest transportation infrastructure to avoid erosion and disturbance to natural drainage patterns.

Verifiers:

1. Discussion with the forest manager
2. Written evidence (forest management plan, written guidelines, road construction plans, maps)
3. Field visit



Indicator 6.5.5

The guidelines shall include, at a minimum specific provisions to protect water courses by specifying wetland, water source and streamside protection zones

Verifiers:

1. Discussion with the forest manager
2. Written evidence (forest management plan, written guidelines, maps)
3. Discussion with other stakeholders
4. Field visit

C6.6 Management systems shall promote the development and adoption of environmentally friendly non-chemical methods of pest management and strive to avoid the use of chemical pesticides. World Health Organization Type 1A and 1B and chlorinated hydrocarbon pesticides; pesticides that are persistent, toxic or whose derivatives remain biologically active and accumulate in the food chain beyond their intended use; as well as any pesticides banned by international agreement, shall be prohibited. If chemicals are used, proper equipment and training shall be provided to minimize health and environmental risks.

Indicator 6.6.1

The forest manager shall control pests, diseases and weeds primarily by using silvicultural measures and mechanical or other non-chemical methods. Chemical agents can be employed only when there are no alternative methods or the efficiency of non-chemical methods is low.

Verifiers:

1. Discussion with the forest manager
2. Guidelines for pest, disease and weed control
3. Written evidence (Reports on pests and diseases, marking data on trees to be cut for sanitary reasons, sanitary felling carried out)
4. Field visit

Indicator 6.6.2

If pesticides are used, the organisation shall make sure that it is not included into up-to-date copy of FSC's list of 'highly hazardous' pesticides and on the list of World Health Organization (pesticides Type 1A and 1B).

Verifiers:

1. Discussion with the forest manager
2. Written evidence (records, reports)
3. Field visit

Indicator 6.6.3

There shall be no storage or use of any pesticide included on FSC's list of 'highly hazardous' pesticides within the FMU, unless the enterprise is subject to a current FSC pesticide derogation for the pesticide concerned.

Verifiers:



1. Discussion with the forest manager
2. Written evidence (records, reports)
3. Field visit

Indicator 6.6.4

If pesticides are used, all staff and contractors involved with their use shall have up to date training in handling, application and storage procedures, and all workers shall have been provided with and use proper safety equipment.

Verifiers:

1. Written evidence (certificates of equipment, training programme, records on actions taken)
2. Discussion with the employees
3. Field visit

C6.7 Chemicals, containers, liquid and solid non-organic wastes including fuel and oil shall be disposed of in an environmentally appropriate manner at off-site locations.

Indicator 6.7.1

The forest manager shall ensure that non-organic waste, containers, garbage, chemicals and other polluting substances are not disposed of in the forest or on forest land.

Verifiers:

1. Discussion with the forest manager
2. Written instructions
3. Field visit

Indicator 6.7.2

There shall be a documented procedure, supported by appropriate training and materials, for controlling and cleaning up chemicals, fuel and oil in the case of accidental spillage.

Verifiers:

1. Discussion with the forest manager
2. Written evidence (records on removals)
3. Field visit
3. Contracts with private contractors

C6.8 Use of biological control agents shall be documented, minimized, monitored and strictly controlled in accordance with national laws and internationally accepted scientific protocols. Use of genetically modified organisms shall be prohibited.

Indicator 6.8.1

The forest manager shall avoid the employment of biological control agents. If biological control agents are used, the organisation shall demonstrate that such use is in strict compliance with national laws and internationally accepted scientific protocols and the impacts of such use shall be closely monitored

Verifiers:



1. Discussion with the forest manager
2. Written procedures and instructions
3. Field visit

Indicator 6.8.2

The forest manager shall not use genetically modified organisms.

Verifiers:

1. Discussion with the forest manager
2. Written procedures and instructions

C6.9 The use of exotic species shall be carefully controlled and actively monitored to avoid adverse ecological impacts.

Indicator 6.9.1

The forest manager shall avoid introducing exotic species (plants and animals) to forest ecosystems,

Verifiers:

1. Discussion with the forest manager
2. Records on seedling/planting material used
3. Field visit

Indicator 6.9.2

If (s)he introduces exotic species (plants and animals) to forest ecosystems, the forest manager shall comply with the following indicators for the use of exotic species

Verifiers:

1. See indicators 6.9.3, 6.9.4, 6.9.5 and 6.9.6

Indicator 6.9.3

Exotic species shall not be newly introduced into the FMU or onto new sites within the FMU unless there is convincing evidence available that the species will not become invasive or have other adverse ecological impacts at the local level.

Verifiers:

1. Scientific studies
2. Discussion with the forest manager

Indicator 6.9.4

Prior to introduction of exotic species, the forest manager shall undertake the environmental impact assessment to ensure that introduced species will not become invasive species in Kosovo forests.

Verifiers:



1. Environmental impact assessment

Indicator 6.9.5

The forest manager shall carefully control and monitor already introduced exotic species to avoid negative environmental impacts. If negative impacts occur, forest manager shall take measures to minimise the negative impact.

Verifiers:

1. Monitoring results
2. Records on monitoring results and elimination activities carried out
3. Field visit

Indicator 6.9.6

In all cases, if an exotic species is newly introduced within the FMU, the enterprise shall document and implement regular monitoring within and outside the FMU to identify any evidence of invasiveness or other adverse ecological impacts.

Verifiers:

1. Written instructions and procedures

C6.10 Forest conversion to plantations or non-forest land uses shall not occur, except in circumstances where conversion:

- a) entails a very limited portion of the forest management unit; and
- b) does not occur on high conservation value forest areas; and
- c) will enable clear, substantial, additional, secure, long term conservation benefits across the forest management unit.

Indicator 6.10.1

The organisation shall clearly identify any parts of the FMU that are scheduled for conversion from natural or semi-natural forest to plantation or non-forest use.

Verifiers:

1. Official public interest decision

Indicator 6.10.2

The forest manager is allowed to convert forests to plantations only if the area entails a very limited portion of the forest management unit and enables long term conservation benefits across the forest management unit (e.g. regeneration of degraded forest stands)

Verifiers:

1. Discussion with the forest manager
2. Written evidence (forest management plan, conversion plans, maps)
3. Field visit



Indicator 6.10.3

The forest manager is not allowed to convert high conservation value forests to plantations or non-forest land

Verifiers:

1. Discussion with the forest manager
2. Field visit

FSC Principle 9: Maintenance of high conservation value forests

Management activities in high conservation value forests shall maintain or enhance the attributes, which define such forests. Decisions regarding high conservation value forests shall always be considered in the context of a precautionary approach.

C9.1 Assessment to determine the presence of the attributes consistent with High Conservation Value Forests will be completed, appropriate to scale and intensity of forest management.

Indicator 9.1.1

The forest manager shall, identify and map forests and forest land with attributes of High Conservation Value Forests (HCVF).

These forest have the following attributes:

- HCV1. Areas containing globally, regionally or nationally significant concentrations of biodiversity values (e.g. endemism, endangered species, refugia) .
- HCV2. Globally, regionally or nationally significant large landscape-level areas where viable populations of most if not all naturally occurring species exist in natural patterns of distribution and abundance.
- HCV3. Areas that are in or contain rare, threatened or endangered ecosystems.
- HCV4. Areas that provide basic ecosystem services in critical situations (e.g. watershed protection, erosion control).
- HCV5. Areas fundamental to meeting basic needs of local communities (e.g. subsistence, health).
- HCV6. Areas critical to local communities' traditional cultural identity (areas of cultural, ecological, economic or religious significance identified in cooperation with such local communities).

Verifiers:

1. Discussion with the forest manager
2. Written evidence (maps, identification data)
3. Consultation with stakeholders
4. Field visit

C9.2 The consultative portion of the certification process must place emphasis on the identified conservation attributes, and options for the maintenance thereof.

Indicator 9.2.1

The forest manager shall consult stakeholders during the identification of HCVFs and on the decision on the appropriate management of HCVF. Results from the consultative process shall be documented.



Verifiers:

1. Discussion with the forest manager
2. Consultation with stakeholders
3. Written evidence

C9.3 The management plan shall include and implement specific measures that ensure the maintenance and/or enhancement of the applicable conservation attributes consistent with the precautionary approach. These measures shall be specifically included in the publicly available management plan summary.

Indicator 9.3.1.

The forest manager shall develop appropriate management measures for HCVF, which respect the precautionary approach and ensure maintenance and/or enhancement of the applicable conservation attributes. These measures shall be a part of the forest management plan.

Verifiers:

1. Discussion with the forest manager
2. Written evidence (the list of management measures in HCVF)
3. The forest management plan
4. Field visit

Indicator 9.3.2.

The forest manager incorporates management measures for HCVF into the summary of the forest management plan that is publicly available.

Verifiers:

1. Summary of the forest management plan

C9.4 Annual monitoring shall be conducted to assess the effectiveness of the measures employed to maintain or enhance the applicable conservation attributes.

Indicator 9.4.1.

The forest manager shall have and implement an annual monitoring programme including assessment of effectiveness of the measures employed in HCVF.

Verifiers:

1. Discussion with the forest manager
2. The monitoring programme and assessment of the management measures in HCVF
3. Field visit

3. Annexes

3.1. List of Laws, Rules, Regulations

Source: Official website of Kosovo's Assembly <http://www.assembly-kosova.org/>

Subject/Area	Title	No
01 Agriculture and rural development	The Law on Agriculture and Rural Development	2009/03-L-98
01 Agriculture and rural development	Law on Agriculture Land	2005/02/L-26
01 Agriculture and rural development	Law on Animal Welfare	2005/02-L10
01 Agriculture and rural development	Law on Apiculture	2007/02/L-111
01 Agriculture and rural development	Law on Fishery and Aquaculture	2006/02-L85
01 Agriculture and rural development	Law on Food	03/L-016
01 Agriculture and rural development	Law on Hunting	2005/02/L-53
01 Agriculture and rural development	Law on Pesticides	2003/20
01 Agriculture and rural development	The Law on Plant Protection	2006/02-L95
01 Agriculture and Rural development	Law on Farmers Cooperatives	
01 Agriculture and Rural development	Law on Livestock	
01 Agriculture and Rural development	Law on Organic Farming	
02 Environment, Nature Protection, Heritage	Law on Chemicals	02/L-116
02 Environment, Nature Protection, Heritage	Law on Cultural Heritage	02/L88
02 Environment, Nature Protection, Heritage	The Law on Environmental Protection	2009/ 03/L-025
02 Environment, Nature Protection, Heritage	The Law on Nature Conservation	2005/02-L18
02 Environment, Nature Protection, Heritage	The Law on Nature Protection	2010/03-L-233
02 Environment, Nature Protection, Heritage	Law on National Park "Mountain Sharri" 28 March 1986	
02 Environment, Nature Protection, Heritage	Draft Law Sharr National Park 290411ENG	
03 Forest	The Law on Kosovo Forest	2003/003
04 Infrastructure and Services	The Law on Energy	2010/03-L-184
04 Infrastructure and Services	Draft Law on Energy Efficiency	2010/03/206
04 Infrastructure and Services	Law on Tourism and touristic services	2010/03/L-168
04 Infrastructure and Services	The waste Law	2005/02-L30
04 Infrastructure and Services	The Law on Waters	2004/24
04 Infrastructure and Services	Law on Mines and Minerals	
05 SMEs	Law on Support to SMEs	
07 Spatial Planning	Law on Environmental strategic assessment	03/L-015
07 Spatial Planning	The Law on Environ. Impact Assessment	2010/03-L-214



Subject/Area	Title	No
07 Spatial Planning	The Law on Spatial Planning	2003/14
Air protection	Law on Air Protection from Pollution	2010/L-160

Final draft - to be endorsed



3.2. Habitat Types

3. FRESHWATER HABITATS

31. Standing water

- 3110 Oligotrophic waters containing very few minerals of sandy plains (*Littorelletalia uniflorae*)
- 3130 Oligotrophic to mesotrophic standing waters with vegetation of the *Littorelletea uniflorae* and/or of the *Isoeto-Nanojuncetea*
- 3140 Hard oligo-mesotrophic waters with benthic vegetation of *Chara* spp.
- 3150 Natural eutrophic lakes with *Magnopota mionor Hydrocharition*- type vegetation
- 3160 Natural dystrophic lakes and ponds
- 3170 * Mediterranean temporary ponds
- 3180 * Turloughs
- 3190 Lakes of gypsum karst
- 31A0 * Transylvanian hot-spring lotus beds

32. Running water - sections of water courses with natural or semi-natural dynamics (minor, average and major beds) where the water quality shows no significant deterioration

- 3220 Alpine rivers and the herbaceous vegetation along their banks
- 3230 Alpine rivers and their ligneous vegetation with *Myricaria germanica*
- 3240 Alpine rivers and their ligneous vegetation with *Salix elaeagnos*



- 3250 Constantly flowing Mediterranean rivers with *Glaucium flavum*
- 3260 Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation
- 3270 Rivers with muddy banks with *Chenopodion rubric* p.p. and *Bidention* p. p. vegetation
- 3280 Constantly flowing Mediterranean rivers with *Paspalo-Agrostidion* species and hanging curtains of *Salix* and *Populus alba*
- 3290 Intermittently flowing Mediterranean rivers of the *Paspalo-Agrostidion*

4. TEMPERATE HEATH AND SCRUB

- 4020 * Temperate Atlantic wet heaths with *Erica ciliaris* and *Erica tetralix*
- 4030 European dry heaths
- 4040 * Dry Atlantic coastal heaths with *Erica vagans*
- 4060 Alpine and Boreal heaths
- 4070 * Bushes with *Pinus mugo* and *Rhododendron hirsutum* (*Mugo-Rhododendretum hirsuti*)
- 4080 Sub-Arctic *Salix* spp. Scrub
- 4090 Endemic oro-Mediterranean heaths with gorse
- 40A0 * Subcontinentalperi-Pannonic scrub

5. SCLEROPHYLLOUS SCRUB (MATORRAL)

51. Sub-Mediterranean and temperate scrub

- 5110 Stable xerothermophilous formations with *Buxus sempervirens* on rock slopes (*Berberidion* p.p.)



- 5120 Mountain *Cytisus purgans* formations
- 5130 *Juniperus communis* formations on heaths or calcareous grasslands
- 5140 * *Cistus palhinhae* formations on maritime wet heaths

6. NATURAL AND SEMI-NATURAL GRASSLAND FORMATIONS

61. Natural grasslands

- 6110 * Rupicolous calcareous or basophilic grasslands of the *Alyso-Sedionalbi*
- 6120 * Xeric sand calcareous grasslands
- 6130 Calaminarian grasslands of the *Violetalia calaminariae*
- 6150 Siliceous alpine and boreal grasslands
- 6170 Alpine and subalpine calcareous grasslands

62. Semi-natural dry grasslands and scrubland facies

- 6210 Semi-natural dry grasslands and scrubland facies on calcareous substrates (*Festuco-Brometalia*) (* important orchid sites)
- 6220 * Pseudo-steppe with grasses and annuals of the *Thero-Brachypodietea*
- 6230 * Species-rich *Nardus* grasslands, on siliceous substrates in mountain areas (and sub-mountain areas in Continental Europe)
- 6240 * Sub-Pannonic steppic grasslands
- 62A0 Eastern sub-Mediterranean dry grasslands (*Scorzoneratalia villosae*)
- ### 63. Sclerophyllous grazed forests (dehesas)
- 6310 Dehesas with evergreen *Quercus* spp.



64. Semi-natural tall-herb humid meadows

- 6410 *Molinia* meadows on calcareous, peaty or clayey-silt-laden soils (*Molinia caerulea*)
- 6420 Mediterranean tall humid grasslands of the *Molinio-Holoschoenion*
- 6430 Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels
- 6440 Alluvial meadows of river valleys of the *Cnidion dubii*
- 6460 Peat grasslands of Troodos

65. Mesophile grasslands

- 6510 Lowland hay meadows (*Alopecurus pratensis*, *Sanguisorba officinalis*)
- 6520 Mountain hay meadows
- 6530 * Fennoscandian wooded meadows

7. RAISED BOGS AND MIRES AND FENS

71. Sphagnum acid bogs

- 7110 * Active raised bogs
- 7120 Degraded raised bogs still capable of natural regeneration
- 7130 Blanket bogs (* if active bog)
- 7140 Transition mires and quaking bogs
- 7150 Depressions on peat substrates of the *Rhynchosporion*

72. Calcareous fens

- 7210 * Calcareous fens with *Cladium mariscus* and species of the *Caricionda vallianae*
- 7220 * Petrifying springs with tufa formation (*Cratoneurion*)
- 7230 Alkaline fens
- 7240 * Alpine pioneer formations of the *Caricion bicoloris-atrofuscae*

8. ROCKY HABITATS AND CAVES

81. Scree

- 8110 Siliceous scree of the mountain to snow levels (*Androsacetalia alpinae* and *Galeopsietalia ladani*)
- 8120 Calcareous and calc-shist screes of the mountain to alpine levels (*Thlaspiete a rotundifolii*)
- 8140 Eastern Mediterranean screes – (*Drypetum spinosa* in Sharr/Šar National Park)
- 8150 Medio-European upland siliceous screes
- 8160 * Medio-European calcareous scree of hill and mountain levels

82. Rocky slopes with chasmophytic vegetation

- 8210 Calcareous rocky slopes with chasmophytic vegetation (in Sharr/Šar National Park *Saxifrageto-Potentilletum apennina*)
- 8220 Siliceous rocky slopes with chasmophytic vegetation
- 8230 Siliceous rock with pioneer vegetation of the *Sedo-Scleranthion* or of the *Sedoalbi-Veronicion dillenii*
- 8240 * Limestone pavements

83. Other rocky habitats

- 8310 Caves not open to the public



8320 Fields of lava and natural excavations

9. FORESTS

(Sub)natural woodland vegetation comprising native species forming forests of tall trees, with typical undergrowth, and meeting the following criteria: rare or residual, and/or hosting species of Community interest

90. Forests of Boreal Europe

9020 * Fennoscandian hemiboreal natural old broad-leaved deciduous forests (*Quercus*, *Tilia*, *Acer*, *Fraxinus* or *Ulmus*) rich in epiphytes

9030 * Natural forests of primary succession stages of land upheaval coast

9050 Fennoscandian herb-rich forests with *Picea abies*

9060 Coniferous forests on, or connected to, glacio-fluvial eskers

9070 Fennoscandian wooded pastures

9080 * Fennoscandian deciduous swamp woods

91. Forests of Temperate Europe

9110 *Luzulo-Fagetum* beech forests (Kosovo not in Sharr/Šar National Park)

9120 Atlantic acidophilous beech forests with *Ilex* and sometimes also *Taxus* in the shrub layer (*Quercion roburi-petraeae* or *Illici-Fagenion*)

9130 *Asperulo-Fagetum* beech forests

9140 Medio-European subalpine beech woods with *Acer* and *Rumex arifolius*

9150 Medio-European limestone beech forests of the *Cephalanthero-Fagion*

9160 Sub-Atlantic and medio-European oak or oak-hornbeam forests of the *Carpinion betuli*



9170	<i>Galio-Carpinetum</i> oak-hornbeam forests
9180	* <i>Tilio-Acerion</i> forests of slopes, screes and ravines
9190	Old acidophilous oak woods with <i>Quercus robur</i> on sandy plains
91B0	Thermophilous <i>Fraxinus angustifolia</i> woods
91C0	* Caledonian forest
91D0	* Bog woodland
91E0	* Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (<i>Alno-Padion</i> , <i>Alnion incanae</i> , <i>Salicionalbae</i>) (<i>Alnetum glutinosae</i> in Sharr/Šar National Park)
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>Ulmenion minoris</i>)
91G0	* Pannonic woods with <i>Quercus petraea</i> and <i>Carpinus betulus</i>
91H0	* Pannonian woods with <i>Quercus pubescens</i>
91I0	* Euro-Siberian steppic woods with <i>Quercus</i> spp.
91K0	Illyrian <i>Fagus sylvatica</i> forests (<i>Aremonio-Fagion</i>)
91L0	Illyrian oak-hornbeam forests (<i>Erythronio-carpinion</i>)
91M0	Pannonian-Balkan turkey oak -sessile oak forests
91N0	* Pannonic inland sand dune thicket (<i>Junipero-Populetum albae</i>)
91P0	Holy Cross fir forest (<i>Abietetum polonicum</i>)
91Q0	Western Carpathian calcicolous <i>Pinus sylvestris</i> forests
91R0	Dinaric dolomite Scots pine forests (<i>Genisto januensis-Pinetum</i>)



91U0	Sarmatic steppe pine forest
91V0	Dacian Beech forests (<i>Symphyto-Fagion</i>)
91W0	Moesian beech forests (<i>Fagus sylvatica</i> and <i>Fagus moesiaca</i>)
91Y0	Dacian oak & hornbeam forests (<i>Carpinus betulus</i>)
91AA	*Eastern white oak woods (<i>Quercion frainetto</i>)
91BA	Moesian silver fir forests (<i>Fagion moesiaca</i>)
92.	Mediterranean deciduous forests
9210	* Apennine beech forests with <i>Taxus</i> and <i>Ilex</i>
9220	* Apennine beech forests with <i>Abies alba</i> and beech forests with <i>Abies nebrodensis</i>
9250	<i>Quercus trojana</i> woods
9260	<i>Castanea sativa</i> woods (in Kosovo not in Sharr/Šar National Park)
9270	Hellenic beech forests with <i>Abies borisii-regis</i>
9290	<i>Cupressus</i> forests (<i>Acero-Cupression</i>)
92A0	<i>Salix alba</i> and <i>Populus alba</i> galleries
92B0	Riparian formations on intermittent Mediterranean water courses with <i>Rhododendron ponticum</i> , <i>Salix</i> and others
92C0	<i>Platanus orientalis</i> and <i>Liquidambar orientalis</i> woods (<i>Platanion orientalis</i>)
92D0	Southern riparian galleries and thickets (<i>Nerio-Tamaricetea</i> and <i>Securinegion tinctoriae</i>)
93.	Mediterranean sclerophyllous forests
9340	<i>Quercus ilex</i> and <i>Quercus rotundifolia</i> forests



9350	<i>Quercus macrolepis</i> forests
9390	* Scrub and low forest vegetation with <i>Quercus alnifolia</i>
93A0	Woodlands with <i>Quercus infectoria</i> (<i>Anagyro foetidae-Quercetum infectoriae</i>)
94.	Temperate mountainous coniferous forests
9410	Acidophilous <i>Picea</i> forests of the mountain to alpine levels (<i>Vaccinio-Piceetea</i>)
9420	Alpine <i>Larix decidua</i> and/or <i>Pinus cembra</i> forests
9430	Subalpine and montane <i>Pinus uncinata</i> forests (* if on gypsum or limestone)
95.	Mediterranean and Macaronesian mountainous coniferous forests
9520	<i>Abies pinsapo</i> forests
9530	* (Sub-) Mediterranean pine forests with endemic black pines (with <i>Abies borisii regis</i>)
9540	Mediterranean pine forests with endemic Mesogean pines
9560	* Endemic forests with <i>Juniperus</i> spp.
9570	* <i>Tetraclinis articulata</i> forests
9580	* Mediterranean <i>Taxus baccata</i> woods
9590	* <i>Cedrus brevifolia</i> forests (<i>Cedrosetum brevifoliae</i>)