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**FAA 119 – Country Biodiversity Analysis Report Facesheet**

Region/Country: Macedonia

Document Title: USAID/ Macedonia Biodiversity Analysis

Type of document:  Original  
 Update

Date of Original: 2001

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FAA 119 Analysis Preparation Date: 11/1/10

**Brief Description:**

The USAID/ Macedonia submits the attached FAA 119 analysis for E&E Bureau Environmental Officer approval in preparation for the development of our new strategy.

This analysis addresses: (1) the actions necessary in that country to conserve biological diversity; and (2) the extent to which the actions proposed for support by the Agency meet the needs thus identified (FAA. Sec. 119(d))."

The Mission requests the BEO approval for the report.

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USAID/MACEDONIA  
BIODIVERSITY ANALYSIS (FAA 119)

NOVEMBER 2010

Submitted by BIOECO, updated and revised by Karen Menczer (October-November 2010)

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## ACRONYMS

AO	Assistance Objective
BSAP	Biodiversity Strategy and Action Plan for Macedonia
CBO	community-based organization
CS	civil society
CSO	civil society organization
CSP	Country Strategic Plan (USAID)
EIA	Environmental Impact Assessment
EU	European Union
FAA	Foreign Assistance Act (USA)
FAO	Food and Agriculture Organization of the UN
GEF	Global Environment Facility
GEF SGP	GEF Small Grants Programme
GTZ	Gezellschaft fur Technische Zusammenarbeit - German Technical Cooperation
IPA	Community Instrument for Pre-Accession of the EU
IR	intermediate result
IUCN	International Union for the Conservation of Nature
KFW	Kreditanshalt fur Weideraufbau (German Development Bank)
LOCP	Lake Ohrid Conservation Project (GEF/WB)
MAFWE	Ministry of Agriculture, Forestry and Water Economy
masl	meters above sea level
MEPP	Ministry of Environment and Physical Planning
MES	Macedonian Ecological Society
NCSA	National Capacity Self-Assessment (UNDP/GEF)
NEAP	National Environmental Action Plan
NTFP	Non-Timber Forest Products
NGO	non-governmental organization
NP	national park
OE	Office of Environment
PA	protected area
PE	Public Enterprise
PEMF	Public Enterprise Makedonski Sumi
REC	Regional Environment Center
REC	Regional Environmental Centre for South-Eastern Europe
SDC	Swiss Development Cooperation
SEA	Strategic Environmental Assessment
SP	Strategic Plan
UNCBD	United Nations Convention on Biodiversity
UNCCD	United Nations Convention to Combat Desertification
UNDP	United Nations Development Program
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNFCCC	United Nations Framework Convention on Climate Change
USAID	United States Agency for International Development
VC	value chain
WWTP	Wastewater Treatment Plant

## Executive Summary

The primary purpose of this USAID/Macedonia Biodiversity Analysis is to address the U.S. Foreign Assistance Act (FAA) 119 requirements for all USAID mission country strategies. The operational description of the Act is given below and the full text of the Act is presented in Annex 1:

*Each country development strategy statement or other country plan prepared by the Agency for International Development shall include an analysis of-*

*(1) the actions necessary in that country to conserve biological diversity, and*

*(2) the extent to which the actions proposed for support by the Agency meet the needs thus identified.*

In accordance with this requirement, Section 5 of this Biodiversity Analysis addresses (1) above; and Section 6 addresses (2). Within the framework of FAA 119, this report also provides recommendations for USAID to further address biodiversity conservation needs of Macedonia. Although USAID/Macedonia has no Biodiversity Assistance Objective or Intermediate Result, there is ample opportunity to support cross-sector linkages that would address threats to biodiversity conservation.

As this report illustrates, given the country's small size (Macedonia covers an area of 25,713 sq. km., only 0.26% of the continent of Europe), it holds a large proportion of European biodiversity. As such, Macedonia has the opportunity to be a model of sustainable development and biodiversity conservation. Concentrated within this small country are: 33.64% of vascular plants, 14% of the freshwater fish species, 20.3% of amphibians, 25.2% of reptiles, 64% of birds, and 29% of the mammal species present in Europe. The biodiversity of Macedonia includes several important rare and endangered species, a high concentration of endemics, and some keystone species—the Balkan lynx, wolves, and brown bears.

This update to previous USAID/Macedonia Biodiversity Analyses found that Macedonia is making progress in the biodiversity policy and legal frameworks, but that implementation of the legislation is lagging. Of particular importance, on 9 November 2010, the EU assessment on integration for all sectors will be available. In the environment sector the assessment is expected to note that the main legislation is not fully harmonized with EU legislation; secondary legislation (regulations) are not fully transposed; implementation is limited (among the reasons are the insufficient staffing levels at the Central level and at national parks, limited equipment, and unclear organizational framework); at the municipal level there is inadequate capacity; and many protected areas (PAs) lack management plans. These shortcomings, as well as other direct threats and their root causes, are noted in this Biodiversity Analysis. When the EU findings are made public, some in the biodiversity community hope for a new emphasis on biodiversity; an emphasis, it is hoped, that will go deeper than simply writing policy and transposing secondary legislation; that will focus on implementation and enforcement, incentives to conserve, and measures for local people to benefit from Macedonia's biodiversity.

In accordance with FAA 119(d)(1), this Biodiversity Analysis provides a list of the actions necessary in Macedonia to conserve biodiversity. The list has been updated from the "actions necessary" submitted in the previous 2010 report, and is based on the updated threats (direct and indirect) identified for this exercise. Briefly (see Section 5 for details), the following are the direct threats, root causes, and the actions necessary to conserve Macedonia's biodiversity (the table has been edited; see Table 2 for full contents of the "actions needed"):

Actions Needed to Conserve Macedonia's Biodiversity

Direct Threats to Biodiversity	Root Causes of Direct Threats to Biodiversity	Actions Needed to Conserve Biodiversity (address the root causes)
<p>Inappropriate land use/ unplanned development Inappropriate use of biological resources Over-extraction of water Industrial and agricultural pollution, lack of waste management</p>	<p>1) Funding of the biodiversity sector by government is inadequate</p>	<p>a) Raise awareness among politicians b) Improve capacity of the MEPP c) Establish a body to assess environmental performance of Members of Parliament.</p>
<p>Inappropriate land use/ unplanned development Inappropriate use of biological resources Over-extraction of water Industrial and agricultural pollution, lack of waste management</p>	<p>2) The capacity needed to oversee, implement/enforce, and advocate for biodiversity conservation is weak.</p>	<p>a) Increase support for MEPP b) Strengthen interest and capacity of environmental NGOs, CS, and MEPP to work together to advocate for biodiversity conservation. c) Strengthen local capacity d) Increase support for transboundary biodiversity conservation</p>
<p>Inappropriate land use/ unplanned development Inappropriate use of biological resources</p>	<p>3) Many natural resources decisions that affect local people are made at central government level</p>	<p>a) Prepare PA management plans in a participatory manner b) Provide local people with concrete examples of the potential benefits that can be gained from PAs and biodiversity conservation. c) Promote participatory decision making d) Strengthen local capacity</p>
<p>Inappropriate land use/ unplanned development Inappropriate use of biological resources Over-extraction of water Industrial and agricultural pollution, lack of waste management Climate change</p>	<p>4) Biodiversity stakeholders often fail to work as a team to produce a positive outcome for biodiversity.</p>	<p>a) Provide a platform for NGOs, CBOs, other CSOs, MEPP, municipalities, students and other interested parties b) Support the media to improve reporting on, including follow-through of, biodiversity issues.</p>
<p>Inappropriate land use/ unplanned development Inappropriate use of biological resources Over-extraction of water Industrial and agricultural pollution, lack of waste management Genetic biodiversity</p>	<p>5) At local levels, short-term economic gain is seen by the public as more important than conservation of biodiversity. Local people need practical models of how biodiversity conservation can pay for itself. (This is closely linked to poverty and uncertainty about future opportunities).</p>	<p>a) In and outside of PAs, help communities/companies establish enterprises to sustainably collect and commercialize NTFPs; this must be done in combination with strengthening management entities (MEPP and public enterprises) to survey populations and monitor collection. b) Support alternative energy development to cut down on the use of fuel wood. This should focus on rural areas, where the use of wood for fuel poses the greatest threat. c) At municipal levels, raise awareness, not just of the importance of biodiversity but of the possible economic benefits and fundraising mechanisms. d) Provide financial incentives for landholders to engage in ecosystem conservation, in preference to other profitable but environmentally destructive land and resource uses. e) Implementation of clean production programs at</p>

		producers/processors and other commercial/industrial facilities. f) Increase the current plastics recycling program to cover additional parts of the country and to include other commodities.
Inappropriate land use/ unplanned development Inappropriate use of biological resources Over-extraction of water Industrial and agricultural pollution, lack of waste management Genetic biodiversity	6) There is a lack of accurate, current information available to the public and to biodiversity professionals.	a) Support the update of the Biodiversity Strategy and Action Plan and a strategy on nature protection. b) Support the formulation and implementation of National Action Plans to Combat Illegal Logging and c) Support the ongoing creation and implementation of the country-wide biodiversity monitoring program (UNDP). d) Support the collection of data and the preparation of Red Data Books for. e) Produce a strategy on conservation of Macedonia's genetic biodiversity. f) Ensure that biodiversity information is publicly available.
Inappropriate land use/ unplanned development Inappropriate use of biological resources Over-extraction of water Industrial and agricultural pollution, lack of waste management Genetic biodiversity Climate change	7) Political favoritism affects decisions on biodiversity.	a) Establish a body to assess environmental performance of Members of Parliament.
Inappropriate land use/ unplanned development Inappropriate use of biological resources Over-extraction of water Industrial and agricultural pollution, lack of waste management Genetic biodiversity Climate change	8) The policy/legal framework is not yet harmonized with EU directives.	a) Continue the EU integration process. b) Support the ongoing re-valorization, proclamation, and management plan preparation.

## 1.0 INTRODUCTION

The primary purpose of this USAID/Macedonia Biodiversity Analysis is to address the U.S. Foreign Assistance Act (FAA) 119 requirements for all USAID mission country strategies. The operational description of the Act is given below and the full text of the Act is presented in Annex 1:

*Each country development strategy statement or other country plan prepared by the Agency for International Development shall include an analysis of-*

*(1) the actions necessary in that country to conserve biological diversity, and*

*(2) the extent to which the actions proposed for support by the Agency meet the needs thus identified.*

This Biodiversity Analysis is required as part of the process for preparing the new USAID/Macedonia Country Strategic Plan—CSP (2011-2015). This report updates the previous Biodiversity Analyses, one

completed in 2001 and its update of 2006, and does not attempt to resubmit the basic information on the ecology and biodiversity of Macedonia. This report also addresses USAID comments on the draft 2010 Biodiversity Analysis.

This update of the Biodiversity Analysis presents a brief overview of Macedonian biodiversity including ecozones (the main ecosystems) and species diversity in Macedonia. The institutional and legal/policy frameworks for biodiversity are described. This is followed by an update (from the 2006 assessment) of the major threats to biodiversity, both direct and indirect. Support for conservation efforts by donors, including the USAID program, is discussed.

In accordance with the FAA requirement and based on the analyses in preceding sections, “actions needed” to conserve biodiversity are described (Section 5); and the extent to which USAID’s proposed strategy meets the needs identified is presented in Section 6. Finally, the report provides recommendations to USAID that are within the mission’s manageable interest and strategic areas of focus. The recommendations emphasize cross-sector linkages between biodiversity conservation and USAID’s program areas (mainly Economic Growth and Democracy and Governance). Effective biodiversity conservation is cross-sectoral and this report is in part, meant to describe the potential linkages and areas of convergence between USAID/Macedonia’s strategic plan and biodiversity needs in Macedonia.

Even though USAID/Macedonia has no Biodiversity Assistance Objective or Intermediate Result, biodiversity conservation will impact the Mission’s program. The quality of a country’s natural environment and more specifically, of its biodiversity resources, underpins human and economic development. The links between biodiversity and human and economic development often are not clear until it is too late--when important biodiversity is irretrievably lost. In Macedonia there are many links (a few are presented below); some are widely known and understood, some are less well understood and are largely unappreciated:

- Local people depend on biodiversity: they collect wild plants for food, medicine, for other traditional uses, and for income generation. If collection is not sustainable, this source may not be available to future generations.
- Local people depend on biodiversity as an energy source: many people still rely on wood for fuel. The conservation of biodiversity, including sustainable use, will help provide a source of energy into the future (with the assumption that alternative sources of energy will gradually replace wood fuel).
- Tourism revenue is dependent on the quality of Macedonia’s environment: tourists (local and international) travel in Macedonia to see the country’s lakes, waterfalls, forests, wetlands, and birds—Macedonia has been described as a microcosm of the natural beauty of the European continent. Haphazard development and pollution threaten Macedonia’s natural beauty.
- Macedonia’s ground and surface water resources provide irrigation water for agriculture, water for drinking and for energy, commercial, and industrial development. Unsustainable extraction could mean that water resources will become scarce and unsafe; this could threaten future economic development and adversely affect human health.
- The previously rich fisheries resources (specifically in Lakes Ohrid and Prespa) provided a source of inexpensive, valuable protein to the population—this source is now threatened due to decreasing fish populations. This has happened as a direct result of over-fishing, pollution, and inappropriate development and water extraction.
- Multi-lateral consensus on the management of shared natural resources provides a model for regional conflict resolution in areas other than natural resources.

- Macedonia is renowned for its agro-biodiversity. Many of the crops, especially fruit crops and herbs, may have untapped commercial value. For example, the Ohrid cherry is reportedly a sweet, fleshy cherry that is highly valued locally—it is largely unknown outside the region.

These are just a few of the links between biodiversity conservation and socio-economic development. By way of this Biodiversity Analysis, USAID is not only responding to the FAA requirements, the analysis can also help the Mission ensure that its future investments in the country are guided by sound analysis of both direct and indirect indicators of economic development—the conservation of biodiversity (or lack thereof) being one of the indirect indicators. The status of and threats to Macedonia’s biodiversity could affect the sustainability of USAID investments; on the other hand, investments in biodiversity can also enhance USAID’s impacts from a socio-economic standpoint.

## **2.0 OVERVIEW OF MACEDONIAN BIODIVERSITY**

### **2.1 General**

The following information on Macedonia’s biodiversity is from the *Assessment and Evaluation of Biodiversity on National Level* (Ministry of Environment and Physical Planning--MEPP, May 2010; most of the information previously appeared in the BSAP, 2003 and in the 2006 USAID/Macedonia Biodiversity Analysis. Very few citations are provided in the BSAP, so original sources are unknown).

Macedonia is considered one of the leading European biodiversity hotspots. A unique set of geologic, morphological, and climatic factors have combined to make it one of the most valuable areas of European biodiversity. Given the relatively small area of Macedonia, the composition of flora and fauna is remarkably heterogeneous. This is due to altitudinal variations, the presence of numerous water bodies, and Mediterranean and Euro-Siberian ecological zones that converge in Macedonia—Macedonia is a “meeting point” for the biodiversity of three continents.

Macedonia’s mountainous relief with many valleys, gorges, plateaus, riparian areas, marshes, and lakes results in the presence of a variety of habitat types. Hence, Macedonia is a pool of biodiversity, including numerous relic and endemic species. Tectonic lakes, especially Lake Ohrid, account for the majority of endemic species and for some of the most significant biodiversity of the country. Levels of endemism in Lake Ohrid, comparable only to other ancient lakes, are often attributed to the lake’s long-term environmental stability.

The origin of this apparent biodiversity has yet to be definitely identified. Some authors emphasize the “karstic elements” and the “Paratethyan relictualism” especially in the case of freshwater invertebrates. Many of these species have roots in an ancient and more diverse fauna, and survived and diverged because of the special conditions that have prevailed in the country. Absence of classical extinction patterns in and between the major phases of Pleistocene glaciations allowed certain ecosystems (predominantly aquatic) and their associated species to survive for extended periods. Ancient groups and species in Macedonia have further diversified, unaffected by typical extinction patterns.

Many aspects of biodiversity are believed to be strongly affected by Macedonia’s place as a “meeting point” for the biodiversity of three continents. The country has acted as a land bridge between the Balkans and Anatolia during isostatic sea level changes in Pleistocene glaciation cycles. Also contributing to the significant biodiversity is the regional environmental stability for evolution and for maintenance of biodiversity during Quaternary glacial fluctuations.

Macedonia is notable for the degree to which forest ecosystems have survived in certain regions, even if in a modified state. Furthermore, some of the largest remaining threatened mammals (brown bear, Balkan lynx, wolf, wildcat, otter, marbled polecat, lesser mole rat, souslik, chamois, and bats) among European populations, as well as birds of prey, survive in the mountains and gorges of the protected areas (PAs). This is a reflection of the quality of ecosystem composition and the area remaining intact. Macedonia thus offers great potential at a European scale for conserving the “untouched” wilderness of the continent.

On the other hand, the MEPP report (May 2010) notes that human influence in the form of **agricultural intensification and poor resource planning and management** pose immediate threats to the future existence of numerous globally threatened species and small-range endemics. The MEPP report also notes that what is needed to address these threats is “a **concerted attempt at establishing formal, top-down conservation policies based on integrated sustainable ecosystem management.**” While in part this Biodiversity Assessment concurs with the need to establish top-down policies, it also stresses the need for a participatory approach in their formulation, especially at local (municipal) levels; this would help strengthen local support for implementation.

Biodiversity plays a significant role in everyday life in rural areas where the majority of the population uses firewood for heating, and where non-timber forest products (NTFPs), such as mushrooms, berries, chestnuts, medicinal plants and herbal teas, and fish are widely used, and in some cases, provide a significant source of revenue.

## 2.2 Ecozones in Macedonia

Two realms/ecozones are present in Macedonia, the **Terrestrial** and the **Freshwater**. Within the **Terrestrial Ecozone** there are the following biochores:

a) **The Arboreal Biochore** comprises terrestrial areas with sufficiently wet climate to support development of shrub forests and shrub vegetation, comprising: (1) Boreal (Taiga)- the biome of Siberian Coniferous Forests of taiga type, barren of leaf forms and with low species richness due to unfavorable climatic conditions. Present on higher elevations; and (2) Broadleaved Arboreal – the biome of Mediterranean-European Broadleaved Woodlands, further divided into Mediterranean Evergreen Forests and Balkan-Mid-European Broadleaved Woodland. Both types have abundant and diverse faunal populations.

b) **The Eremial Biochore** encompasses a zone of dry areas, including steppes, semi-deserts, and deserts, characterized by conspicuous daily temperature oscillations, cold winters, low-level of precipitation and frequent strong winds. Within the *Eremial Biochore* the following biomes are found: (1) Steppes – with floral and faunal elements originating from Ponto-Caspian Steppes. Steppic faunal and floral elements are found in lowland grassland areas up to high mountain grassland; (2) Irano-Turanian Deserts—these have fewer numbers of species than Steppes; and (3) Irano-Anatolian Semi-Deserts sub complex of species whose origin is from the Aegean-Anatolian semi-deserts.

c) **The Oreo-Tundral Biochore** (Arcto-Mountain or Arcto-Alpine) encompasses cold areas without trees in the high mountain belt, and is a result of mass migrations in and between glaciation periods. The Oreo-Tundral complex is represented by a small number of species, especially vertebrates, mainly restricted to the higher altitudes of the high mountains. This biochore includes two sub-complexes, (1) Arctic (Tundra) and (2) Relict Palaeo-Mountain.

The **Freshwater Ecozone** consists of the following biochores:

a) **Permanent Waters: lakes and rivers.** The territory of Macedonia is divided into three watersheds: Aegean (Vardar River catchment, covering 80% of the territory and of the total outflow, Lake Dojran and Strumica River catchment) and Adriatic (Crni Drim Catchment, including two natural lakes, Ohrid and Prespa). A very small part of the country belongs to Danube catchment (Black Sea watershed). The hydrographic network of Macedonia is well developed due to its geomorphology. The Vardar River is the longest river at 388 km, of which 300 km flow within Macedonia. The Crni Drim River flows only 48 km within the territory of Macedonia.

Macedonia's tectonic lakes are Ohrid, Prespa, and Dojran. Ohrid is the largest, at 348.8 sq. km., of which 229.9 are in Macedonia, the remainder in Albania. Prespa Lake is the second largest, with an area of 274 sq. km, 176.8 in Macedonia, the rest divided between Greece and Albania. Because the lake has no major tributaries and because a portion of the water migrates downward through the soil into Lake Ohrid, the level of the water fluctuates considerably. Dojran Lake, unlike the other two lakes which are located in

western Macedonia, is in the south of the country, and 42.74 sq. km. of the lake are located in Macedonia. The natural lakes (especially Ohrid and Prespa, and to a lesser extent, Dojran) have been nationally protected as monuments of nature due to exceptional biodiversity values and the high number of endemic species (see below).

b) **Temporary Waters** include ponds, marshes, temporary pools and glacial lakes. These are discussed below.

### 2.3 Key Ecosystems of Macedonia

A brief description of the most important ecosystems is presented below (the information is from MEPP, May 2010 and the BSAP, 2003):

a) **Forest ecosystems** cover a large portion of the land area at elevations 150-2,200 m. Forest is the land cover that is most predominant in Macedonia, and the majority of forests are broadleaf forests with hornbeam, chestnut, beech, hop-hornbeam and several oak species. Evergreen spruce and pine forest and mixed forests (Beech-Fir) occur in smaller patches. Forest ecosystems are divided into the following regions:

(1) The Oak Region is distributed within lowlands and highlands to 1200 masl and covers 73% of the total forested area. Typical inhabitants of this region are fire salamander (*Salamandra salamandra*), spur-thighed tortoise (*Testudo graeca*), Hermann's tortoise (*Testudo hermanni*), snake-eyed skink (*Ablepharus kitaibelii*), Balkan green lizard (*Lacerta trilineata*), several species of snakes, green woodpecker (*Picus viridis*), eastern hedgehog (*Erinaceus roumanicus*), several bat species, western polecat (*Mustela putorius*), fallow deer (*Dama dama*), and wildcat (*Felis silvestris*).

(2) The Beech Region covers mountainous areas between 1200-1700 masl and while encompassing only 22% of Macedonia's total forested area, it contains the largest timber mass in the country.

(3) The Pre-Mountain (Sub-Alpine) Region is the highest forest belt, located between 1700 and 2100 masl. This belt is comprised of Norway spruce (*Picea abies*), dwarf mountain pine (*Pinus mugo*), and Macedonian pine (*Pinus peuce*).

Typical fauna for Beech and the Sub-Alpine Regions are: Common Wall Lizard (*Podarcis muralis*), waxwing (*Bombycilla garrulous*), European nightjar (*Caprimulgus europaeus*), blind mole (*Talpa caeca*), roe deer (*Capreolus capreolus*), red deer (*Cervus elaphus*), wild boar (*Sus scrofa*), Balkan lynx (*Lynx lynx martinovi*), wolf (*Canis lupus*), red fox (*Vulpes vulpes*), and brown bear (*Ursus arctos*).

The area classified as forestland (according to the Law on Forests, forest land is land covered with forest tree and shrub species as well as forest bare lands and meadows, forest roads, forest nurseries, and other areas that are closely connected to forests), is approximately 1.6 million hectares, 45% of the total Macedonian territory. Forests (v. forest land) cover approximately 947,653 hectares (37.2%); 82% of which is deciduous, 12% coniferous, and 6% mixed. According to their origin, 29% are categorized as high altitude forest, and 71% as low forest. The state owns 90.14% of the total forest area; this is 92.2% of total wood mass. Privately owned forests are 9.86% (94,146 hectares) of the total forest area, and their portion of the total wood mass is 7.8%. The total wood mass is 74,343,000 cubic meters and the total annual growth is 1,830,000 cubic meters with average annual increase per hectare of 2.02 cubic meters. The annual planned wood cutting mass is about 1,300,000 cubic meters.

b) **Aquatic/Wetland ecosystems** – Macedonia's varied relief and geomorphology have produced a variety of aquatic ecosystems -- lakes, rivers and wetlands. There are three natural lakes (Prespa, Ohrid, and Dojran). Lake Ohrid, with its relict and endemic species, represents the most significant lake ecosystem in Europe, and is a United Nations Educational, Scientific and Cultural Organization (UNESCO) World Cultural and Natural Heritage Site. Due to its confirmed age of more than 2.5 million years, Ohrid is a hotspot of endemism—216 relict endemic taxa have been recorded, most of which are invertebrates, many of which are threatened by the declining water quality (discussed below). Seven

species of endemic fish have been recorded in Ohrid, six of which are on the International Union for Conservation of Nature's (IUCN) list of vulnerable species, and one is now extinct. Ohrid trout is highly valued and protected by current regulations—taking of Ohrid trout is now prohibited in Macedonia. The numbers, though, continue to decline in spite of regulations and conservation efforts (most of those interviewed attributed this to illegal fishing from the Albanian side of the lake). Lakes Prespa and Dojran are the two proclaimed Ramsar Sites in Macedonia, noted as significant bird migration and breeding habitats, as well as for their biodiversity.

c) **Dry land/Grassland ecosystems** – cover a significant part of the territory of Macedonia. They occur in the lowland and highland belts between 60 and 1200 masl, and often in secondary habitats due to permanent forest degradation and to re-colonization of abandoned farmland by grassland species. The soils on which dry land/grassland ecosystems develop cover the whole soil spectrum present in the country. Dry land/Grassland ecosystems have been expanding in Macedonia. Representative fauna include the Balkan wall lizard (*Podarcis taurica*), sand boa (*Eryx jaculus*), great bustard (*Otis tarda*), black grouse (*Tetrax tetrax*), brown hare (*Lepus europeus*), and marbled polecat (*Vormela peregusna*).

d) **Mountain ecosystems** – are fairly well represented in Macedonia on elevations above 1800 masl; but optimal conditions are only present on mountains with elevations above 2000 m. Mountain ecosystem vegetation is rich and diverse, especially the vegetation that develops above the upper forest boundary (over 1800 masl). Numerous associations are present, depending on the soil and other conditions. Fauna is correspondingly varied with some endemic and rare species. Typical fauna include the adder (*Vipera berus*), Orsini's viper (*Vipera ursinii*), shore lark (*Eremophila alpestris*), rufous-tailed rock thrush (*Monticola saxatilis*), Balkan mole (*Talpa stankovici*), and snow vole (*Chionomys nivalis*).

## 2.4 Species Diversity and Endemism

While Macedonia covers an area of 25,713 sq. km., only 0.26% of the continent of Europe, a large proportion of European biodiversity is concentrated within this small area: 33.64% of vascular plants, 14% of the freshwater fish species, 20.3% of amphibians, 25.2% of reptiles, 64% of birds, and 29% of mammal species present in Europe are found in Macedonia. On a regional scale, the biodiversity of Macedonia covers 70-90% of the entire Balkan biodiversity.

In total, more than 17,000 species have been recorded (The full list can be found in the National Catalogue of Species, CD Annex to MEPP 2010); this includes 1,053 species of fungi, 354 lichens, 2,169 algae (196 are endemic species), 3,674 species of vascular plants (115 are endemic) and 10,354 faunal species (668 are endemic).

The following are some examples of the high level of endemism in Macedonia. Of the 115 known endemic higher plant species, 114 belong to the Angiosperms. Among the vertebrates, the highest degree of endemism appears within the Superclass Pisces (fishes)—37%, which is highly unusual for the European continent. Of the ten species of sponges (*porifera*), six species are endemic. The Class *Insecta* (insects) has a total of 170 endemic species; the order *Lepidoptera* (moths and butterflies) has 62 endemic species. The phylum Chordata (chordates), subphylum Vertebrata (vertebrates) has 30 endemic species, of which the Pisces Superclass has 27. Three endemic mammals are present.

As mentioned, the three relict lakes are especially noteworthy centers of faunal endemism. Lake Ohrid has been described as the most important center for endemism in Europe. Of particular note is the presence of six endemic taxa common to both Ohrid and Prespa lakes, which confirms the common origin of these lakes from the former Pliocene Desaret Lake. The groundwater springs and caves of Macedonia are second in importance as centers of endemism. Simple figures of species richness, however, do not bring out the true value of Macedonia's biodiversity.

## 2.5 Rare and Endangered Species

a) **Higher plants** - The Red Data List of threatened plant species within the Republic of Macedonia has not yet been prepared. Several higher plant species within Macedonia are represented on lists of globally

threatened species— international Red Data Lists, conventions and directives (IUCN Global Red Data List, Bern Convention, European Union CORINE [CO-ordination of INformation on the Environment] Biotopes Programme species), lists of species of national importance (local endemic and relict species), lists of endangered species and, unfortunately, Macedonian higher plant species also make up some of the species on extinction lists.

According to the BSAP (2003), the IUCN Global Red Data List 1997 (Walter and Gillet, 1998) contains 70 taxa from the Republic of Macedonia (of which 19 are local endemics). Of these, one species has the world status “EX” (Extinct) – *Thymus oebmianus* Ronninger & Soska. [The BSAP notes: it is our belief that this information is incorrect since vital populations of this species still exist within the Republic of Macedonia; a more suitable category would be “EN” (Endangered)]; two species have world status “EX/EN” (Extinct/Endangered) – *Astragalus physocalyx* Fisch and *Ranunculus degenii* Kummerle & Jav.; while one species has world status “V” (Vulnerable) – *Ranunculus cacuminis* Strid & Papan. Of the remaining 66 taxa, 61 have world status “R” (Rare) and five have status “I” (Indeterminate).

Probable or extinct plant species (due to drainage activities, hydropower and other activities that impact aquatic ecosystems) include the following:

*Acorus calamus* – Struga: Crni Drim River  
*Allium obtusiflorum* DC (*A. maritimum* Rafin) – Ovche Pole Plain  
*Gentiana pneumonanthe* – Mavrovo Plain  
*Lysimachia thysiflora* – Mavrovo Plain  
*Sagittaria sagittifolia* – Pelagonia Marsh - village of Novaci

b) **Fauna** - The European Red Data List (rare, vulnerable, near extinction, extinct) includes 113 of the vertebrate species present within Macedonia (30 fishes, 66 birds, 16 mammals and one species of reptile). Seventeen of Macedonia’s 20 endemic fish species are included within the category of globally threatened species: seven are restricted to Ohrid Lake, six to Prespa Lake, one to Dojran Lake, and three endemic species occur within other aquatic ecosystems.

According to the BSAP, the most important species to protect at the national level are considered to be the endemic fish species; the remaining endemic vertebrate species; and some other specific vertebrate species whose ranges end in or pass through Macedonia (*Algyroides nigropunctatus*, *Coluber gemonensis*, *Cyrtopodion kotschyi*, *Lacerta agilis*, *Pelobates syriacus*, *Rana balcanica*, *R. graeca*, *R. temporaria*, *Testudo graeca*, *Triturus alpestris*, *Vipera berus* etc.).

## 2.6 Habitats and Species of Economic Importance

a) **Pastures** – According to the BSAP, although pastures are used in livestock production and represent the most important economic non-cultivated plant resource, their total productivity, which is directly influenced by seasonal climatic conditions, has not been calculated to date. At the national level, pastures are managed by the Public Enterprise for Pastures. Most are not utilized because they are located in the high mountains. In some of these high mountain pastures on the larger mountains (Shar Planina Mountain, Bistra, Korab, Yakupitsa, Suva Gora Mountain), an inventory has been undertaken to determine carrying capacities. The lack of significant grazing in these pastures has contributed to a change in the composition of herbaceous vegetation, the invasion of woody shrubs, and the degradation of the humic layer. This contributes to the fire risk. Recently, the Public Enterprise for Pastures tried to attract shepherds to graze their flock on at-risk pastures; there was not enough interest in this program because there are so few shepherds left in Macedonia.

b) **Wild plants and fungi** - The following groups of wild plants are of greatest economic importance in Macedonia (according to the BSAP, 2003):

*Mushrooms* have enormous economic value for the local population; however, there is no published data on the number of collectors or the quantity of fresh wild mushrooms purchased domestically. Of the species collected locally for food, some can also be found in markets across the country, and some are

exported. They represent an important export product (328,693 kg/year; estimated value \$2,000,000) for the companies registered to purchase wild-collected mushrooms, but the real quantity collected per year is unknown. Although a permit for the export of commercial species (i.e., not on the list of endangered species) can be obtained from the MEPP, the 2003 BSAP reported that no regional or local productivity data exist on which to base sustainable use restrictions. However, since the BSAP was prepared, the MEPP has established annual quotas for mushrooms; and the Ministry regulates companies that buy mushrooms from the collectors.

*Herbal teas.* Wild collection of plants for tea is much more significant than the commercial production of tea in Macedonia. Wild collection is mainly by local citizens for personal use and for sale to various companies (e.g., Alkaloid, Bilka, Jaka, Koro etc). The amount of tea exported in 2001 was 1,127,825 kg, with a total value of \$1,453,052. In other years, export of tea earned as much as \$4.5 to 5 million.

*Wild fruits and nuts.* These consist mainly of high mountain fruits, the most important of which is the blueberry (*Vaccinium myrtillus*), a product chiefly for export (in 2001, 83,284 kg worth \$86,196). Blueberries are found in almost all high pastures (over 1,300 masl). In recent years, there has been an increase in the collection of juniper berries (*Juniperus communis*) for the production of essential oils. By intensity of collection, after berries, follow dog rose (*Rosa canina*), raspberry (*Rubus idaeus*), blackberry (*Rubus* spp.), Cornelian cherry (*Cornus mas*), and blackthorn (*Prunus spinosa*). Wild apples, pears, and cherries are used as ingredients in fruit teas very much in demand for export. In addition, the collection of chestnuts (*Castanea sativa*) is very widespread, with approximately 250,000 kg. collected each year, intended mostly for the domestic market.

c) **Timber/fuel wood** - According to the National Agriculture and Rural Development Strategy (2007-2013), the contribution of the forest industry (primary and secondary wood processing) to the GDP is 2.5 to 3%. According to data from Macedonian Forests in 2001, the legal timber harvest in the Republic of Macedonia was 520,915 cubic meters of which 463,840 cubic meters were cut by branches of the local Macedonian Forests, and 57,075 cubic meters by private individuals in public forests. The total quantities of timber harvested included 417,355 cubic meters of fuel wood and 97,837 cubic meters of commercial timber.

The tree species primarily harvested are: beech and oak (fuel wood and commercial timber) and pine (commercial timber). Other species (chestnut, fir, poplar and walnut) are of significantly lesser importance.

The deterioration of the security situation during 2001 and 2002 contributed to a marked increase in illegal timber cutting, especially in the regions of Bitola, Kumanovo, Resen, the Shar Planina Mountain group, Skopje, Struga and others. According to the BSAP (2003), at the present time, it is difficult to make an accurate assessment of the actual magnitude of illegal harvesting, but it is assumed to be ongoing at the same intensity as before. According to several interviewees, this is still the case today (2010).

d) **Horticulture** - Traditionally, wild species of flowers and other decorative plants are grown in home gardens. A small percentage are collected from the wild and sold in local markets. The most popular species are *Buxus sempervirens*, *Colchicum autumnale*, *Crocus* spp., *Cyclamen hederifolium*, *Galanthus nivalis*, *Geranium* spp., *Helleborus odoratus*, *Narcissus poeticus*, *Primula* spp., and *Syringa vulgaris*, *Viola* spp.

e) **Medicinal uses** – According to the BSAP (2003), there are approximately 3,500 vascular plant species in Macedonia, of which 700 have medicinal properties; however, only 120 species are commonly used. Their qualitative and quantitative distributions within the Republic have not been fully determined (i.e., a chorographic atlas of the medicinal plants has yet to be published). Available data do not reflect the current situation with medicinal plants, due to a lack of legal regulations for their collection, use, care, conservation, trade and export. Existing data regarding maximum annual quantities of medicinal plant material exported in the last decade (*Hypericum perforatum* [5,000 tonnes], Lichenes [1,200 tonnes], *Althaea officinalis* [80 tonnes], Chamomilla *recutita* [75 tonnes], *Tilia cordata* [60 tonnes] and *Gentiana lutea* and *G. punctata* [3-4 tonnes]), indicate an alarming situation. A positive development since the BSAP of 2003 is that the situation has been widely acknowledged, and although funding has not been identified, an MEPP

priority is to survey the resources and develop sustainable use plans for medicinal plants. Funding, however, is a constraint.

In 2002, the total amount of exported plant material, with the approval of the MEPP, was 1,035,025 kg.

f) **Wild animals** -

*Hunting* is conducted through hunting associations combined under the Hunting Union of Macedonia. Macedonia is divided into 11 managed hunting areas, with 107 hunting sites for large game (47% of the total area, excluding lakes) and 145 hunting sites for small game (49% of the area). These hunting leases are managed both by the hunting associations themselves and by organizations working in the field forestry. The greatest portion of the land area licensed for hunting consists of forests and forested areas. With the Law on Hunting, 127 species of game (24 fur-bearing animals and 103 birds) have been given "special consideration." Forest management measures may conflict with game management (and vice versa); these sectors need better coordination of management measures. The MAFWE gives concessions to groups to manage hunting areas. Most of those interviewed felt this process was transparent; although there may be a lack of monitoring once the concession is awarded—a lack of enforcement of the rules of the concession.

*Fishing.* Licensed fishing is allowed on all natural lakes, reservoirs and rivers, and encompasses both commercial and sport fishing. Fish species that are commercially important include:

Ohrid Lake: bleak (*Alburnus alburnus*), eel (*Anguilla anguilla*) and Ohrid trout—now prohibited to catch (*Salmo letnica*). The greatest percentage of the total annual catch is—or in the case of Ohrid trout—was from these three species. In the past, the annual catch in Ohrid Lake was 220-240 tonnes, 50% of which was trout.

Prespa Lake: Prespa bleak (*Alburnus belvica*) and carp (*Cyprinus carpio*). The annual catch in Prespa Lake is 100 tonnes.

Dojran Lake: bleak, carp, perch (*Perca fluviatilis*), roach (*Rutilus rutilus*), and rudd (*Scardinius erithrophthalmus*). Traditionally, these species amount to 98% of the total fish catch. While the annual catch in Dojran Lake was formerly over 500 tonnes, in the last few years it has ranged from 70-90 tonnes/year. The annual catch in 2002 was only 25 tonnes and was dominated by Crucian carp (*Carassius carassius*).

As regards the fish catch in reservoirs, there are no valid statistics. There are estimates that over 200 tonnes/year are caught from Tikvesh Lake alone, mostly roach, followed by, in decreasing order, carp, wels (*Silurus glanis*), bleak, perch, and, to a lesser extent, nase (*Chondrostoma nasus*) and Balkan vimba (*Vimba melanops*).

There are no accurate data on the total fish catch by sports anglers. Occurrences of illegal fishing and the use of prohibited fishing gear are a grave concern. Using the basic data on the number of water bodies and their areas, estimates are that the annual fish catch in the Macedonia ranges from 800 to 1,200 tonnes; however, a major portion of the catch is not recorded.

*Collection for medicinal purposes.* In comparison with plants, the collection of animals for medicinal uses is rather insignificant. The Macedonian endemic subspecies of the European souslik (*Spermophilus citellus karamani*) is found on Yakupitsa mountain at the site, Begovo Pole Plain. It was believed to cure 100 aches. Although the collection of European souslik has declined in recent decades, it does still occur, directly threatening the survival of the subspecies.

Other species of commercial importance are mainly used in foreign trade; the following are particularly important:

- The edible (French) snail, *Helix pomatia*, the collection of which is forbidden according to the international Bern Convention. In addition, it belongs to the IUCN category of “vulnerable” species.
- The Roman (Turk) snail (*Helix lucorum*), for which there was no purchase limit until recently, is present throughout Macedonia. Approximately 200 tonnes used to be purchased annually, but its numbers have declined due to uncontrolled collection.
- Permanent protection has—or will be—provided to the common snail (*Helix vulgaris*), a south-Balkan endemic species, the striped snail (*Cepaea vindobonensis*), a southern and eastern European species, and the species *Helix figulina*, a south-Balkan endemic.

A recent development is that the price of the snail on the EU market dropped, investors from France have introduced snails (farm-raised) to Macedonia, and this has decreased pressure on the wild populations of snails.

## 2.7 Genetic Diversity

The importance of plant genetic material (including wild species, as well as the many local varieties and wild relatives of various crops) for the development of plant genetics and selection was emphasized for the first time within the Republic of Macedonia during the 1960s. The number of varieties/species used in agricultural production within Macedonia is evidence of its great biological diversity. There are 129 recognized domestic varieties and 2,205 imported varieties used domestically. The Institute of Agriculture in Skopje, the Institute for Southern Crops in Strumitsa and the Tobacco Institute in Prilep maintain collections of local varieties.

*Crops.* Due to its favorable geographic location and climatic conditions Macedonia possesses significant agrobiological plant diversity. However, the bulk of crops produced consists of commercial varieties, the major portion of which are imported from abroad, with a minor number of locally-developed varieties, mainly created by the Institute of Agriculture in Skopje. A large number of small producers do continue to grow local varieties and indigenous species.

*Wild relatives of crops.* Most of the crops in Macedonia still have local wild relatives (*Avena* spp., *Cannabis sativa*, *Hordeum* spp., *Papaver* spp., *Triticum* spp. etc.). In fruit production, wild relatives are used most often, both for food and as rootstocks. Fodder crops, mainly distributed within ploughed fields and meadows (natural or sown), were created by selection and cultivation of wild species.

*Native breeds of livestock.* During the past 50 years, many new, more productive breeds have been imported to Macedonia. Although the original imported breeds are still present in Macedonia, crosses between indigenous breeds/strains and imported breeds are known in several species:

*Busha.* Local breed of cattle found in highland and mountain areas. During the last 30-40 years, it was crossed with many imported breeds. According to official statistical data, Bushas comprise 50% of the total number of cattle raised.

*Pramenka.* Local breed of sheep represented by three strains: Karakachanska, Ovchepolska, and Sharplaninska. The Karakachanska strain is considered to be endangered, while the other two strains are widely used in sheep production. Measures have been taken for the conservation of the Pramenka sheep-Karakachanska strain. With the assistance provided by the MAFWE, a collection of 100 sheep and 12 rams has been established.

*Domestic (Balkan) goat.* Although its numbers are on the increase, it is difficult to make a clear distinction between this and other breeds.

*Local primitive pig.* Slow growing breed raised on ranges in several regions of Macedonia. Although it is a very primitive breed, more field and laboratory research is needed in order to clearly define its status.

Sheep dog - Sharplaninets. This indigenous breed developed in an independent, natural, and authentic manner without any participation by humans, which is its great advantage. Upon the request of the Kinological Association of Macedonia (KAM), the Federation Cynologique Internationale (FCI) registered this animal under the name Sheep Dog –Sharplaninets. It is listed as having a dual country of origin, the Republic of Macedonia and Serbia and Montenegro.

## 2.8 Protected Areas in Macedonia

Although the primary goal of protected areas (PAs) is “the long-term conservation of nature with associated ecosystem services and cultural values,” they also serve as an engine for growth and development in Macedonia, and typically leave a substantial economic footprint both locally and nationally (Emerton, 2009-a).

Currently, the amount of land in the PA domain is in flux due to the ongoing valuation and revalorization exercises (see below). Most published material states that Macedonia currently has 80 PAs covering an area of approximately 188,081 ha or 7.32% of the land surface. However, in an interview with the MEPP, Department of Natural Heritage Protection, staff stated that 11.5% of the territory is now under PA status (the Spatial Plan of the Republic of Macedonia envisages 11.6% of the country’s territory to be placed under formal protection by 2020—according to MEPP, the country has already reached that goal). Table 1 shows the number and extent of the different categories of PAs (based on the 7.32% figure, since that is all that is formally available). Below the table, the main PAs are briefly described. Figure 1 shows the locations of PAs. There is no up-to-date, accurate map of the PAs. By February 2011, MEPP expects that a map and database, with current information, will be complete and available.

With the enactment of the Law on Nature Protection, all PAs are in a state of legal and institutional transition. The Law on Nature Protection requires that all PAs: are re-validated in terms of their biodiversity significance; the boundaries are properly defined; they are reclassified according to the new protected area classification scheme; and they are formally promulgated in terms of the new law. A number of conflicts about ownership, boundaries and use however need to be resolved during this re-proclamation process; management plans need to be prepared; and the management authority for the PA delegated to a capable and adequately resourced entity (UNDP/GEF, 2008). The valuation exercise is intended to bring Macedonia’s PA system into compliance with IUCN categories.

Management of PAs in Macedonia is variable. The management is designated to *public enterprises* (most under auspices of MAFWE); for many of the PAs, no management authority/public enterprise has yet been identified. For Strict Nature Reserves (Category I under IUCN and Macedonian legislation) a management entity is appointed by the MEPP. This arrangement is currently being re-considered due to problems with sustainability and financing.

Each of the three national parks (IUCN Category II) is managed by a separate special public institution – a ‘*National Park*’ legal entity. Management Plans are being developed with donor support (Pelister- Swiss SDC, completed in 2008, Galicica – German KfW, a draft plan is available, and Mavrovo – Italian Cooperazione Italiana, management plan is under preparation (see Annex 6).

The national parks (NPs) receive no budget from the GoM and must generate their own revenue streams. Currently, income is largely sourced from the exploitation of natural resources, with timber harvest revenue being the primary source. Limited income is also generated from concession fees from hotels and/or ski resorts within the park boundaries. Each National Park public enterprise is expected to raise funds to support national park activities (implementation of the management plan). As some interviewees noted, innovative funding mechanisms have not been developed, and because of this, timber harvest remains the main source or revenue. Galicica NP has fewer opportunities than the other two NPs for generating income from timber/wood production. .

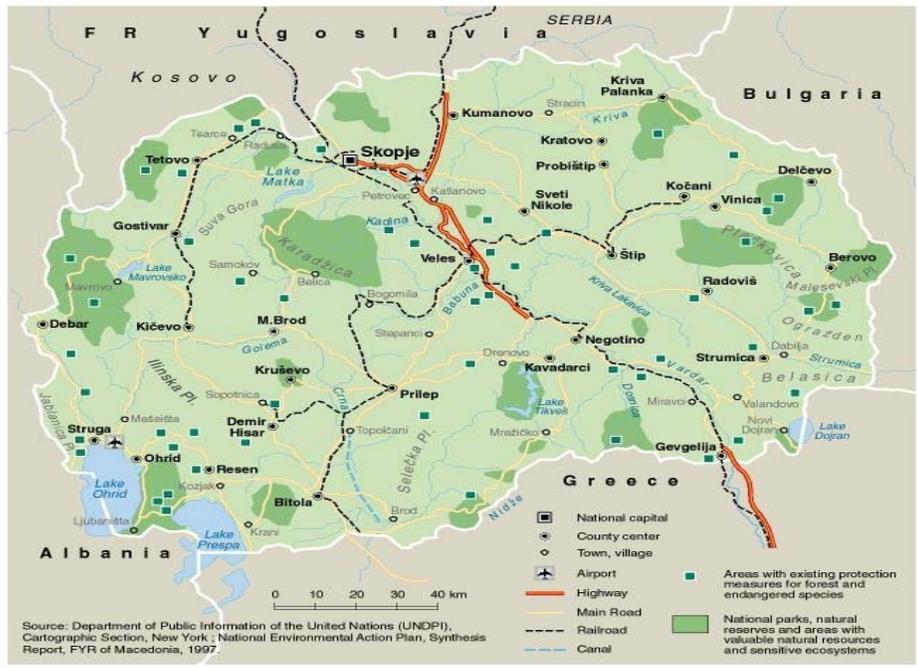
NPs are zoned into areas of: strict protection, active management, and sustainable use. Timber can legally be harvested (in conformance with a management plan—which may be of questionable quality, according

to some) from the sustainable use zone; sanitary cutting and other silvicultural measures can be implemented in the active management zone.

Many PAs encompass privately owned land where development has occurred and is planned, and for which the PA receives no benefits and has no control. Mavrovo has 22 population centers with a total of 10,000 people living within its boundaries. Among the issues that the re-valorization exercises are intended to address are boundaries and land tenure, with the aim of harmonizing the national classification system for PAs with IUCN/international standards. This is a priority task of MEPP.

Revalorization of the strictly protected natural reserve Ezerani at Lake of Prespa (see text box) was already carried out and valorization of the Sites of Alshar and Monospitovsko Blato has been completed.

The NPAA (2009) notes the following “medium-term” priorities: “In order to augment the percentage of protected areas at national level, the Department of Nature will carry out revalorization of: Mavrovo, Ohrid Lake, Koleshino waterfalls, Katlanovsko Blato, Belesnicka Reka, and valorisation of part of the Sar Mountain, Belcisko Blato, Mariovo, part of Osogovo Mountains, and part of Malesevo Mountains. Management Plans will be developed for the National Park Mavrovo, Monument of Nature Ohrid Lake, Monument of Nature Smolare Waterfalls, Monument of Nature Prespa Lake, Monument of Nature Dojran Lake, Monument of Nature Vevcani Springs, and Monument of Nature Alsar.”



**Figure 1: Protected Areas of Macedonia** (Note: Galicica NP is located between Lk Prespa and Lk Ohrid; Pelister NP is located adjacent to the town of Bitola.)

**Table 1** Protected Areas in Macedonia

IUCN Category	Current classification ('natural rarities') <sup>a</sup>	Equivalent new classification ('natural heritage')	# of areas	Total size in hectares	% of surface area
I	(i) Nature Reserve: Common Nature Reserve, <i>Strict Nature Reserve</i> (ii) Nature Reserve: Common Nature Reserve, <i>Scientific Research Reserve</i>	Strict Nature Reserves	4	12,855	0.5
II	(i) Nature Reserve: Common Nature Reserve, <i>National Park</i>	National Park	3	108,338	4.21

III	(i) <i>Natural Monument</i>	Natural Monument	54 <sup>1</sup>	61,680	2.4
III	(i) Nature Reserve: Common Nature Reserve, <i>Sites of Special Natural Character</i>	Natural Monument	4	2,338	0.1
IV	(i) <i>Areas Outside Nature Reserves Containing Certain Plant and Animal Species</i>	Nature Park	15	2,897	0.11
V	(i) Nature Reserve: Common Nature Reserve, <i>Characteristic Landscapes</i>	Protected Landscape	0	0	0
<b>TOTAL</b>			<b>80</b>	<b>188,081</b>	<b>7.32</b>

a. Classification in terms of the Law on Protection of Natural Rarities and the Laws on the Protection of National Parks. These laws have now been superseded by the Law on Nature Protection 67/2004 but the current reserves have not yet been re-classified. Proposed categorization in terms of the Law on Nature Protection currently in the process of implementation.

1. Macedonia has four strict nature reserves: (i) *Ezerani*, on Prespa Lake is an approximately 2,080 ha wetland area and also designated as a Ramsar site; (ii) *Tikvesh*, in the Crna Reka gorge, is a 10,650 ha high altitude forested area; (iii) *Lokvi-Golemo Konjare* is 50 ha; and (iv) *Ploce litotelmi* is 75 ha. Although the management of *Ezerani* and *Tikvesh* has been entrusted to water management companies (Resen and Kavadarci water management companies respectively), and NGOs (*Ezerani*) **it is acknowledged by the conservation NGO community that the management bodies do not have the capacity, skills, or resources to effectively manage these areas for biodiversity conservation.**
2. There are three national parks in Macedonia, all in forested, mountainous areas: (i) *Pelister* National Park is the oldest national park and is 12,500 ha in extent; (ii) *Mavrovo* National Park is the largest PA in the country with a total area of 73,088 ha; and (iii) *Galica* National Park is situated between Lake Ohrid and Lake Prespa and is 22,750 ha. Each public enterprise is headed by a Park Director. The park public enterprise is directly responsible to a cooperative governance structure, the National Park Management Board (see institutional context). **Challenges for these public institutions include acquiring adequate funding (funding has been through donors and as discussed below, many donors are phasing out; and it has been through timber sales and other uses of natural resources), lack of infrastructure at the NPs, and lack of adequate resources to implement the management plans. According to many of those interviewed, the NPs are usually seen as providing little, if any, benefit to local people; however in certain cases, especially where local people can collect fire wood and NTFPs, NPs may have more local support. In Mavrovo, for example, local people gain income from collection of forest fruits.**
3. There are 54 natural monuments and four sites of special natural character in Macedonia. The most important of these, in terms of their biodiversity significance and size, are the three tectonic lakes – Ohrid Lake, Prespa Lake, and Dojran Lake. The lakes are shared with neighboring countries, Albania (Ohrid), Albania and Greece (Prespa), and Greece (Dojran). **The transboundary nature of the lakes presents a challenge—and opportunities, as well** (see text box). The remaining 26 natural monuments and sites of special natural character vary in size from *Matka Canyon* (5,433 ha) to *Konce* (<1 ha) and in type from paleontological to caves, swamps, waterfalls, ornithological sites, and special forest assemblages. Despite the conservation significance of these sites they remain largely unplanned and unmanaged. The management of a few natural monuments has been delegated to NGOs (e.g. Bird Study and Protection Society of Macedonia in *Ezerani* NR, Peoni in the *Caynon Matka*), public enterprises (e.g. Institute of Old Slavic Culture), and local municipalities (e.g. Municipality of Novo Selo); **the capacity varies widely among responsible entities. The remaining PAs have no responsible management institution—which means that they are essentially PAs “on paper” only.**

<sup>1</sup> Nineteen of the IUCN category III protected areas constitute very old, individual trees protected by the state and classified as Natural Monuments

4. There are 15 areas ‘outside nature reserves containing certain plant and animal species’ in Macedonia, ranging in size from 428 ha (*Cam Ciflik*) to <2 ha (*Rucica*). These PAs provide protection to specific individual species including spruce, fir, birch, beech, a variety of pine species (Crimean pine, black pine), wild chestnut, plane and spawning freshwater fish. **There is however little or no active planning and/or management of these PAs.**

In addition to the development of management plans and the re-valorization exercises, the NPAA (2009) notes other areas of recent progress in PA management and in researching and monitoring biodiversity. Of note are the following:

- Monitoring of Prespa trout was carried out within the NP Pelister, and an Action Plan was developed to protect this globally endangered species.
- Monitoring of Balkan lynx has been established in NP Mavrovo.
- An Information Center was opened in the NP Pelister, and instructional and education paths were developed within the NP Pelister, NP Mavrovo, and NP Galicica.
- Through the Project on Emerald Network Development in the Republic of Macedonia, the remained 20% of the areas of special conservation importance were identified, and thus 11 new areas were included in the network, by which it reached an area of 29% of the entire territory of the Republic of Macedonia. This will include most of the potential areas that may become part of the future environmental network Natura 2000.

Another development since the 2006 assessment is MAK-NEN, a network to connect PAs by protection of migration corridors.

The National Environmental Investment Strategy (2009-2013) includes funds to finance three projects in the PA sector considered “large-size”—establishment of Jablanica NP, establishment of Jakupica NP, and Osogovo project for nature conservation and sustainable development. More detail on Macedonia’s PAs is presented in Annex 4.

#### PA REVALORIZATION SUCCESS

Ezerani Strict Nature Reserve never actually functioned as an SNR—it included private land and apple trees were cultivated. The new Law on Nature required a re-valorization, which UNDP undertook. The outcome was a recommendation to adjust the boundaries to avoid private land as much as possible (the area of land under protected status remains about the same, at 2000 hectares); and to change the category from IUCN I to IUCN IV, which would allow zoning and certain economic activities in line with sustainable use. MEPP has approved these measures; the next step is a law proclaiming this and then, appointment of a management body (these are MEPP responsibilities). Once these steps are complete, UNDP will help train the management body on a range of topics, including implementing transparent processes (community participation), budgeting, and management plan implementation. The new Ezerani PA is widely accepted by local people because of the UNDP approach—UNDP not only held community meetings, they also hired local people to help with research; UNDP went into the field and talked to local people (v. calling them to a meeting); UNDP was realistic about the potential opportunities of Ezerani and did not over-state the economic potential, but tried to give a fair picture of the benefits and the risks. Whoever the ultimate management body will be, they will have the support of the UNDP with their extensive experience in the area. Although this story has not ended, it has a strong foundation.

## 2.9 FORESTRY

As stated above, in 2001, the legal timber harvest in the Republic of Macedonia was 520,915 cubic meters of which 463,840 cubic meters were cut by branches of the local Macedonian Forests, and 57,075 cubic

meters by private individuals in public forests. At present, however, it is impossible to accurately estimate the amount of wood harvested, including illegal cutting. Statistical data on the timber harvested from private forests are also unavailable. Biodiversity professionals stated in interviews that Macedonia usually only harvests approximately 60% of the timber harvest allowed on an annual basis.

The following information is primarily from the UNECE/FAO, National Plan (2010). Typically, use of timber from State-owned forests has been economically inefficient. Fuel wood is the predominant use, with a share of more than 75% of the total volume of harvested timber. Wood intended for industrial processing (sawn for lumber) constitutes less than 20%. Inefficient economic utilization is evidenced by the fact that the highest and best usage of logs, for veneer, either does not occur or occurs only in negligible quantities. Construction of forest roads has been increasing, allowing better access to remote areas (and thereby, also increases the potential to harvest wood illegally and from forested areas important for biodiversity values).

According to the National Plan (Forests) UNECE/FAO (2010), the forestry sector is mainly financed through the sale of timber and primary wood processing. Income from these sales is around 90% of the total annual income of the forestry sector. The sector does not get any subsidies from the state, and therefore, there is little incentive to implement sustainable management of forests or to focus on the biodiversity value of forests. **One of the main challenges of the forestry sector is to secure adequate public funding for sustainable forest management and biodiversity conservation.**

According to the Law on Forests, any activities concerning utilization, thinning, etc. must be in line with the Forest Management Plan or Program. The forestry sector's institutional and policy frameworks are discussed below. In general, use of forests during the period of transition has not experienced any dramatic change, although the manner of management has undergone a transformation (a public company for forestry management was established). Although the name has been changed, the same former enterprises have essentially remained in place, controlling the same forest areas and using the same forestry management planning—mainly a focus on production forestry at the expense of forest biodiversity.

### **3.0 OVERVIEW OF THE INSTITUTIONAL AND POLICY FRAMEWORK FOR BIODIVERSITY CONSERVATION**

#### **3.1 Institutional Context**

The institutional framework for biodiversity conservation consists of two lead ministries, the Ministry of Environment and Physical Planning (MEPP) and the Ministry of Agriculture, Forestry and Water Economy (MAFWE); national and local NGOs and civil society organizations (CSO); and less so, local/municipal government.

#### **The MEPP is responsible for:**

- Monitoring of the state of the environment
- Conservation of water, soil, flora and fauna
- Protection of the air and ozone layer from pollution
- Protection from noise and radiation
- Protection of biodiversity, geodiversity, national parks and protected areas

The strategic 'roadmap' of the MEPP was outlined in "Vision 2008" within the EU CMEP Project (2005). The Ministry primarily fulfills a policy, planning, regulatory and monitoring role. The main objectives are: achieving EU standards for environmental quality, by implementing the Environmental law and the laws related to environmental media, as well as related strategies; developing capacity in the environmental sector; prioritizing actions to maximize protection of humans and natural ecosystems; and maintaining an active role in Macedonia for environmental cooperation. The responsibility for biodiversity conservation, and specifically PA management, lies with the MEPP. The MEPP is also the national focal Point for the Convention on Biological Diversity.

The Office of Environment (OE) within MEPP includes a Department of Nature. This Department has three divisions that deal with protected areas: Division for Natural Heritage Protection, Division for

Biodiversity, and Division for Geo-diversity and Physical Planning of protected areas. **The capacity of MEPP for biodiversity protection has not significantly improved since the 2006 Biodiversity Assessment. In particular, staff numbers are still far lower than what is needed to adequately fulfill their responsibilities, and funding is still far below the needs of the Ministry. The resources, staffing and capacity of all the divisions are extremely limited.** The EU's annual report on the progress being made toward integration (released on 9 November 2010) recognizes the limited capacity. The report found that: "Little progress was made in the field of nature protection. Some progress can be reported in the development and implementation of some management plans for protected areas. Staff resources need to be increased."

A *National Council for Nature Protection* has been constituted as an advisory body to the Minister of Environment and Physical Planning. With respect to the PAs, the Council 'issues opinions on': (i) the identification, proclamation, management, measures and activities for protection of the environmentally important areas, ecological network and the system of ecological corridors; and (ii) the acceptability of the proposal for proclamation of a protected area.

**The MAFWE is responsible for activities related to:**

- Agriculture, forestry and water management
- Use of agricultural land, forests, and other natural resources
- Hunting and fishing
- Protection of livestock and plants from diseases and pests
- Other issues determined by law

The Ministry contains the: Department for Forestry and Hunting, State Inspectorate for Forestry and Hunting, and the Forest Police, as well as the Public Enterprise for forest management established by the Government (Public Enterprise Makedonski Sumi or PEMF).

The MAFWE is involved in the regulation of activities in PAs (e.g. harvesting of timber in national parks) and operations in PAs (e.g. water management of Prespa, Dojran, and Ohrid Lakes), **although the technical and professional expertise in biodiversity conservation is extremely limited.**

The MAFWE's Department for Forestry and Hunting is responsible for overall policymaking in the forestry sector. There are four organizational units in the Department of Forestry and Hunting: Hunting, Forest Protection, Silviculture/Afforestation, and Forest Management/Exploitation.

Three public enterprises within the Ministry - "Macedonian Forests", "Water Economy of Macedonia" (in transformation) and "Public Enterprise for Pastures" - also have operational responsibilities (forest management and timber harvesting activities; watershed management; and pasture management, respectively) within the PAs, notably in the NPs.

According to UNECE/FAO (2010), State owned forests are managed by the PEMF, which was established by the Government in 1998. The headquarters is located in Skopje which coordinates the work of 30 Branch Offices. As a public enterprise it reports directly to Government. Currently, the PEMF employs 2,500 permanent staff and 2000 part-time. Revenues are mainly generated from firewood sales which account for 80% of total timber volume sales. Additional income is generated from technical wood sales while a small portion comes from other related businesses like small sawmills, fish ponds (currently with unclear status), and hunting grounds.

The UNECE/FAO report notes the following weaknesses of the PEMF: accumulated and further increasing debt; over-employment; unfavourable expenditure structure; legal status of public enterprise impeding its profitability; management practices; financial management and financial reporting at all levels, and; illegal logging. The strengths noted are: existing experience in state forest management; network of municipal/ regional offices; human resources; possibility to increase the working capital from the standing wood mass, and; awareness among management structures of the necessity for change. **An additional weakness noted by several interviewees is that PEMF staff have expertise in production forestry and not in biodiversity conservation; due to this, they focus on production**

**forestry over biodiversity conservation. This is exacerbated by the lack of incentives to conserve biodiversity—they are required to generate funds and harvesting timber is the traditional and effective method.**

### **Water Sector**

Since the 2006 Biodiversity Assessment, the water sector has made limited progress. The problems noted with water management in the country have been aggravated since then. The Water Management Organization is in disarray, and there is practically no overall water management in the country. The situation is intensified by a power struggle between MEPP and MAFWE over the overall responsibility for water management.

### **Inspections**

Inspections (enforcement of regulations) are performed by various staff. The State Environment Inspectorate, through state inspectors, enforces environmental regulations; the Fisheries Inspectorate implements and enforces fisheries regulations; the State Inspectorate for Forestry and Hunting and Forestry Police (MAFWE) are responsible for supervision of the implementation of hunting and forestry regulations. Currently there are no Biodiversity Inspectors specifically responsible for supervising the implementation of biodiversity conservation legislation.

### **Environmental Impact Assessment**

In September 2008, the Commission for Examination in Environmental Impact Assessment (EIA) and the Commission for Examination in Strategic Environmental Assessment (SEA) were established, as a pre-condition for the establishment of the list of experts in EIA and SEA. Those interviewed about this topic have agreed that the sector has become more professional since the establishment of examination requirements.

### **Local/Municipal Responsibilities**

The new law regarding local communities delegates the authority for environmental conservation to the local community level. However, there are no organizational structures specifically for biodiversity conservation in place in local communities. In January 2011, the decentralization process will give municipalities responsibility for zoning and land use.

### **Civil Society/Private Sector**

The following information on the NGO sector is from the Regional Environmental Center website.

NGOs are still a relatively new component of the Republic of Macedonia's political landscape. Environmental NGOs vary in size: 58% have fewer than 100 members, while 32% have 100 to 500 members. For 70% of Macedonia's NGOs, environmental education and training are their main activities. Lobbying is the main activity of 52%, and 47% are very involved in symbolic actions such as clean-ups and reforestation projects. More than 61% are also involved in disseminating environmental information and raising public awareness. Environmental NGOs are less active in the areas of research and technological design. The majority of these NGOs consider themselves fully successful (23%) or partly successful (44%). Only 1.9% consider themselves unsuccessful. Almost half of the NGOs (40%) have annual budgets of less than USD 500, and almost one-quarter (24%) have annual budgets ranging from USD 5,000 to USD 50,000. REC grants are a significant part of most environmental NGOs' financial resources. Almost half of Macedonia's environmental NGOs (41%) suffer from insufficient financial resources. Other problems facing these NGOs are lack of legal regulations, inadequate access to environmental information, lack of environmental education and training, the general weakness of the environmental movement, and a lack of cooperation between NGOs. Cooperation with local governments is much better than it is with the national government: only 5.4% cooperate closely with the national government, whereas 23% maintain close cooperation with local authorities. Macedonian environmental NGOs have listed the following items as their most pressing needs: financial support for implementing specific local, regional, and national projects; developing institutional capacity; improving environmental networking; and training courses in fundraising, organizing local actions, and project leadership.

NGOs specifically involved in national and local biodiversity conservation issues include (among others): the Macedonian Ecological Society (MES), Society for the Investigation and Conservation of Biodiversity and Sustainable Development of Natural Ecosystems (BIOECO), Bird Study and Protection Society of Macedonia (BSPSM), Peoni, Biosfera, Fokus, Planetum, Macedonian Society for Nature Conservation.

**Many of Macedonia's environmental NGOs have limited capacity for and interest in advocacy—yet several interviewees stated that advocacy is an important role for them to play and a gap they could fill.** Interviewees also noted that in the last decade, civic activism in biodiversity conservation (and in other sectors) has become less popular, yet it is the best way for civil society to achieve their goals.

With limited institutional capacities and resources available in PA agencies, *academic and research institutions* play a critically important role in supporting both the planning, operations and monitoring of PAs and PA institutions. These academic and research institutions include: University “Sv. Kiril I Metodij” (Faculty of Natural Science and Mathematics - Institute of Biology, Institute of Geography; Faculty of Agriculture, Faculty of Forestry, Faculty of Veterinary Medicine and, Faculty of Pharmacology); Hydro-Biological Institute – Ohrid; Macedonian Academy of Science and Art; and Institute of Agriculture.

In the forestry sector, according to the National Report (UNECE/FAO), private forests are scattered all over the country and most of them are less than 100 ha. The creation of the National Association for Private Forests Owners is helping to overcome issues regarding planning, management, and silviculture. The Association is acting as consulting body to its members, and in this function, it has helped in the development and adoption of Forest Management Plans and forestry programs but work still needs to be done in development of the cadastres, advisory entities, among other needs. .

### 3.2 Policy Context

The National Programme for Adoption of the Acquis (NPAA) Communautaire (2009) is a key document for the EU integration process reflecting the harmonization of Macedonia's national legislation with European laws, as well as the adjustment of national institutions to the European administrative structures. It comprises the plans for harmonization of national legislation with EU legislation, the needs for institutional strengthening for implementation of regulations, as well as the resources required.

On 9 November 2010, the EU assessment on integration for all sectors was released. In the environment sector the assessment found that: “An amendment to the Law on nature protection was adopted. A national strategy and action plan for nature protection remains to be developed.”

EU contacts interviewed for this Biodiversity Analysis stated that the main legislation is not fully harmonized with EU legislation; secondary legislation (regulations) is not fully transposed; implementation is limited (among the reasons are the insufficient staffing levels at Central level and at national parks, limited equipment, and unclear organizational framework); at municipal level there is inadequate capacity; and many PAs lack management plans.

The following are the main policies and legislation governing biodiversity conservation (Annex 5 contains a list of relevant laws).

*The Law on Nature Protection* (2004) is the main law in the area of nature protection/biodiversity conservation. It regulates the protection of nature through protection of biological and landscape diversity and protection of natural heritage within and outside PAs. It was amended in 2010 to provide for further harmonization with EU legislation and protection. Re-evaluation of protection categories (including re-valorization of PAs) and re-proclamation of PAs in Macedonia, stipulated with these amendments have already begun, as previously mentioned. Amendments to the 2004 law incorporate all directives from the Birds and Habitats Directives—however, the Macedonian legislation reportedly still falls short of EU compliance.

The Law on Nature specifies a few sources that can be tapped to finance the national parks (such as entry fees); but bylaws are still needed to provide more detail. According to Emerton (2009-b), the Law on Nature Protection allows for a very limited range of financial sources to be earned for nature protection, specifying only central budget subventions, entry and tourism fees, parking fees, hunting and NTFP

collection, and external donations, grants and loans. Payments for ecosystem services provide a way of extending these financing sources and increasing protected area budgets, based on the non-extractive use of biodiversity and ecosystems.

*The New Law on Forestry* was adopted in 2010, incorporating most of the recommendations of relevant studies. However, the traditional approach to production and protection of forests remains the focus of the law, with biodiversity issues marginally mentioned. In accordance with the EU integration process, Macedonia is required to prioritize and focus on the multi-use aspects of forests, integrating much wider protection by placing biodiversity and environmental conservation first.

*The Forestry Strategy for Macedonia* (MAFWE, 2006), supported by the FAO, sets the goals regarding protection of biodiversity as: “Conservation and restoration of the components of biological and landscape diversity of Macedonian forests, through integrating conservation objectives into forestry practices.” This is in line with recommendations of the BSAP and the EU.

Hunting and Species Protection—The management of both forestry and hunting is now under MAFWE, so the coordination of management objectives has recently improved. A number of species are permanently protected, including bear (*Ursus arctos*), lynx (*Lynx lynx*), and Eurasian otter (*Lutra lutra*). Even though they are protected in the EU, wolves have not yet been protected in Macedonia, due to their numbers in Macedonia. There are plans to protect them and other species once Macedonia enters the EU. Poaching is tracked, but the extent and the possible endangerment of certain species is not known.

Law on Fishing – In Macedonia all fishing and breeding in ponds is managed by concessions issued by MAFWE, according to the new Law on Fishing (2009). Lakes Ohrid and Prespa are now under very restrictive fishing prohibitions as a result of declining number of trout and other valuable endemic and rare fish. Enforcement of fishing restrictions has been difficult, even with the participation of the local population.

New framework Water Law –The New framework Water Law, in which most of the EU Water Framework Directive stipulations are incorporated, has been adopted in 2008. Implementation however is postponed for 2011. Without improvements to the capacities in the ministries (mentioned above), implementation may be postponed even longer. The EU report on progress toward integration (9 Nov 2010) found that: “Little progress can be reported in the area of water quality. Some implementing legislation was adopted. The implementation of the Water Law was postponed by one year. The administrative capacity to deal with integrated water management is largely insufficient and a clear division of responsibilities in this field still needs to be established.”

One important policy/legal gap noted by several of those interviewed is that Macedonia has no up-to-date the Red List of endangered species (according to IUCN criteria).

The Republic of Macedonia has ratified the following international conventions and agreements related to biodiversity conservation:

- Convention on Biological Diversity (1997)
- Convention on Wetlands of International Importance Particularly as Waterfowl Habitat (1997)
- Convention on the Conservation of European Wildlife and Natural Habitats (1997)
- Convention on the Conservation of Migratory Species of Wild Animals (1999)
- Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) (1999)
- Agreement on the Conservation of Bats in Europe (1999, Amendment to the Agreement, 2002)
- Agreement on the Conservation of African-Eurasian Migratory Birds (1999)
- Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters (1999)
- Convention on Environmental Impact Assessment in a Transboundary Context (1999)

These conventions constitute part of the national legislation and represent a basis for biodiversity conservation.

While shortcomings are widely noted in MEPP capacity and in the nature protection sector specifically, there are some success stories. Of particular note are UNDP efforts, in collaboration with MEPP, in transboundary nature protection (See text box below).

#### Transboundary Biodiversity Success Stories

The UNDP supports Macedonia, Albania, and Greece to conserve transboundary natural resources in the Prespa Region. As part of this effort, the three countries reached consensus on the three species and three habitats for which to prepare Action Plans and undertake common research and management. This agreement involved working closely with the partner NGOs in each country. The UNDP worked to resolve conflicts and to increase communication among them. In the end, the three countries agreed to focus on the barbell (fish), merganser (bird), and brown bear; and the juniper forest, mountain tea, and cave ecosystems. The next step is to support interventions by NGOs in all countries that can be jointly implemented and that aim to conserve these transboundary resources.

Another transboundary success story is the development of a biodiversity monitoring system. In tri-lateral meetings, 84 indicators were identified through a process of consensus; 24 are now being piloted. This is the first time in the history of the region that responsible institutions for monitoring will join from the three countries to monitor according to the same schedule and using the same protocol. This monitoring system was a significant part of the International Agreement for Prespa, probably the most important result of the transboundary work, it describes how the three countries will manage and together govern Prespa Lake resources.

#### *International Legislation*

Two sets of international legislation are particularly important for biodiversity conservation and are changing the way international trade in plant and animal products is carried out. For these reasons, the two pieces of legislation are of particular importance to USAID. The Lacey Act (16 U.S.C 3371 *et seq.*) as amended makes it unlawful to import, export, transport, sell, receive, acquire, or purchase in interstate or foreign commerce any plant, with some limited exceptions, taken or traded in violation of the laws of the United States, a U.S. State or a foreign country. The Lacey Act as amended also introduces the requirement for a “plant import declaration”. The plant import declaration requires the scientific name of the plant (tree genus and species), quantity and value of the importation, and name of the country where the timber was harvested.

The EU legislation, which covers timber and timber products, states that operators placing timber and timber products for the first time on the internal [EU] market should take the appropriate steps in order to ascertain that illegally harvested timber and timber products derived from such timber are not placed on the internal market. These steps include a due diligence process that provides information about the sources and suppliers of the timber and timber products, including relevant information such as compliance with the applicable legislation, the country of harvest, species, quantity, and where applicable sub-national region and concession of harvest. On the basis of this information, operators must carry out a risk assessment. Where a risk is identified, operators must mitigate such risk in a manner proportionate to the risk identified, with a view to preventing illegally harvested timber and timber products derived from such timber from being placed on the internal market.

## **4.0 MAIN THREATS TO BIODIVERSITY CONSERVATION**

This section contains a discussion of the main direct and indirect threats to Macedonia’s biodiversity, and is based on a review and analysis of documents, including the 2001 and 2006 USAID/Macedonia Biodiversity Analyses, the 2010 draft Biodiversity Analysis, on interviews with Macedonian biodiversity professionals and other stakeholders in the sector, and on field visits. Most of those interviewed about the main threats to biodiversity listed many of the same threats as were documented in the 2001 and 2006 analyses. Almost all included the caveat that since 2006 the legal framework for biodiversity conservation has improved as a result of EU integration efforts, but implementation remains a critical problem; and many also felt that Macedonia may be on the cusp of a period that will see significant improvements in biodiversity conservation mainly because of continuing efforts towards EU integration.

#### 4.1 Overview of Threats

(1) **Threats to aquatic ecosystems** (wetlands, rivers, lakes): Most marshes and other lowland wetlands were drained in the 1950s to control malaria and for agricultural expansion. Existing marshes are highly modified by human influences, often with reduction or even loss of species. Very few are left in a pristine, undisturbed state--Belchishta marsh is the best example of a relatively undisturbed wetland. At Belchishta, the largest population of otters, a globally threatened species, can be found. Remaining lowland wetlands are still at risk from unplanned development and pollution. Capture of spring water for various purposes (irrigation, drinking water, industrial/commercial uses) often causes desiccation of mountain marshes and bogs, and consequently, degradation of wetland communities.

Riverine and wetland ecosystems have been heavily influenced by habitat conversion, pollution, and extraction, and construction of upstream dams and reservoirs. The pollution mostly comes from untreated communal/industrial wastewater and partly (or location specific) by diffuse pollution from agriculture. Benthic communities in rivers are deteriorating, leading to diminishing fish populations.

In spite of protection by MEPP of the biodiversity, and by MAFWE of water extraction from the natural lakes in the country, water levels have declined in recent decades mainly due to extraction for irrigation. Water quality has also suffered. Agricultural pollution (pesticides, fertilizers), hydropower plants, uncontrolled development along lakeshores, and sewage, solid waste discharge into lakes have been noted as major contributors to the declining water quality and quantity.

All sources interviewed about threats agreed that aquatic ecosystems are the most threatened of Macedonia's ecosystems.

(2) **Threats to forest ecosystems:** Documents and interviewees mainly state that the main threats to forest ecosystems are desiccation (climate change and drought), die-back processes, forest fires, and diseases. Most agree that illegal cutting is also a main threat (National Agricultural and Rural Development Strategy 2007-2013). Construction activities, sand excavation, inappropriate reforestation (e.g., introduction of alien species such as Arizona cypress [*Cupressus* sp.], black pine and Douglas-fir [*Pseudotsuga menziesii*]) are considered second in importance.

While as mentioned, estimates of illegal logging are lacking at worst, and inaccurate at best, it is widely acknowledged that illegal logging presents a serious problem. One estimate of loss to illegal logging is around 150,000 m<sup>3</sup> per year (UNECE/FAO, 2009). Some contacts stated that the problem of illegal logging may be decreasing due to an effective cadre of Forestry Police, strengthened over the last few years; however many also disagreed with this statement. Without accurate data, it is impossible to know the true story.

According to an interviewee, the forested area in Macedonia has doubled in the last 50 years, although much of the planted forest is made up of species inappropriate for Macedonia. Forest practices also may present a threat to Macedonia's forest biodiversity because sustainable forestry is not yet practiced; forestry in Macedonia is mainly production forestry without attention to biodiversity conservation.

(3) **Threats to dry land/grassland:** Agricultural expansion is the main threat, and in some areas mining activities also threaten grassland.

(4) **Threats to mountain ecosystems:** Climate change is one of the main threats to mountain pastures; there are reports of the pine tree line reaching to higher altitudes, a trend which will continue as their range expands upward. Inappropriate development in mountain areas, especially of ski lifts, threatens ecosystems. The lack of grazers results in increased brush, which changes the nature of historic mountain pastures, and creates a fire risk. Uncontrolled collection of plant species is also a threat to those high altitude species of economic or cultural importance. Mountain ecosystems are less threatened than other ecosystems by anthropogenic influences due to limited accessibility and harsh climatic conditions.

(5) **Threats to Protected Areas:** Primary threats to PAs are identified in a number of documents, the most recent a UNDP report (2008) prepared for a GEF project. This report identifies the loss, modification and fragmentation of habitat and unsustainable and illegal natural resource use

(UNDP/GEF 2008), as well as weak political and public support, climate change, and introduction of invasive alien species. More specifically, habitat is modified and fragmented due to illegal and unsustainable developments in PAs. As mentioned, some PAs encompass private land and entire communities.

Several of those interviewed mentioned the problem of financing of PAs (this is discussed under “Root Causes”). In PAs, in particular, in Pelister and Mavrovo National Parks, timber is harvested to earn revenue for the park. There is disagreement as to the extent and importance of this threat, especially given that the “strictly protected zone” and the “active management zone” (only silvicultural measures allowed) have no commercial timber harvest. Because timber is harvested in the “sustainable use zone” only, and in accordance with a management plan, some of those interviewed stated that it is not a threat to the PA. Others felt that because management plans do not consider biodiversity, timber is harvested without concern for ensuring the integrity of the ecosystems. (The institutional/financial aspects are discussed under Root Causes, below).

**(6) Threats to Endangered and Threatened Species:** The BSAP (2003) states that the reason for the disappearance of species and/or the reduction of their populations is due primarily to human activity, but there are also global causes [climate change]. Drainage activities and the construction of hydropower reservoirs have resulted in a conspicuous reduction in the populations of certain species and, in some cases, apparent extinction. Illegal and over-fishing was a problem in the past (it is widely held that illegal fishing has decreased). However, in large part due to the transboundary nature of the lake PAs (Ohrid, Prespa, Dojran), some species are still at risk. While Macedonia manages the Ohrid trout with a strict prohibition on catch, Albania’s moratorium is on paper only.

#### **4.2 Direct Threats to Biodiversity Conservation**

The 2001/2006 USAID Biodiversity Analyses noted a number of threats to biodiversity in Macedonia, mainly linked to uncontrolled extraction (water, fish, wood, medicinal plants), land conversion, draining of wetlands, overuse of water in lake catchments and poor agricultural practices. The following are the main threats to biodiversity conservation in Macedonia identified for this 2010 update.

**(1) Inappropriate land use and unplanned development are modifying and fragmenting habitats.**

In PAs, developments (residential, commercial) exist or are planned; outside PAs, unplanned and haphazard development fragments habitats and modifies ecosystems. Along the lakeshores of Macedonia, one can see the new developments sprouting—it is expected that these developments will continue to expand. Urban growth and agricultural expansion have also modified the landscape in Macedonia. Infrastructure development (roads, water supply reservoirs) has also led to land conversion and fragmentation of habitats. While an EIA is required for development projects, and reports are that the EIA process has become more professional, there are also reports that approval for construction projects is often given based on political favoritism.

**(2) The inappropriate use (unsustainable use, illegal use) of biological resources is threatening biodiversity of commercial and/or traditional importance.**

(a) Traditionally, the forest sector has focused on production, and little attention has been paid to biodiversity protection—most of those interviewed stated that this is still the case. However, it is widely reported that the actual annual cut (off-take) does not exceed 60% of the planned, or of the annual growth, and the quality of Macedonian forests seems to be stable. Rather than decreasing the amount of forest area, timber harvesting—without regard for biodiversity conservation—is affecting overall biodiversity and ecosystem functioning.

(b) Collection of NTFPs and other plant material (e.g., medicinal plants, herbal teas) is only minimally controlled. Recently some control has been established in NPs and in a few isolated cases (wild mushrooms). The collection and use of NTFPs can be divided into three categories: personal use, retail/wholesale trade, and other economic purposes. A mechanism for regulation and classification is necessary before the amount of dry plant material an individual should be allowed to collect from an area can be determined and before a permit for this collection can be issued. The large seasonal demand by

foreign buyers for specific plant species is most serious and is facilitated by local trade companies, many of which have no previous experience in this field. Plant species which are used whole (i.e., with root and bark) are most threatened. According to distribution patterns, the most threatened plants are those with limited ranges (i.e., they are present only in certain restricted areas; e.g., *Acorus calamus*, *Salvia officinalis*, and *Sideritis scardica*). In general, information on the abundance of NTFPs (and other plants collected), and on the extent, species, and numbers collected is lacking (except for mushrooms and oak lichen in some locations). Yet this remains an important economic activity especially in rural communities. Further complicating the problem of unsustainable and uncontrolled use of NTFPs and other plant material is that permits are controlled by several ministries.

(c) Collection of fuel wood. In rural Macedonia, most of the population still relies on firewood for heating. Even in urban areas, firewood is still used especially since the economic crisis of 2008. Firewood is collected outside of PAs, but incursions are also made into PAs to gather wood illegally. Legal cutting of trees for firewood is also a threat to biodiversity, since, as mentioned, harvesting of wood is done without biodiversity conservation as a goal.

(d) As mentioned, illegal and over-fishing has declined, especially since the prohibition on Ohrid trout (there is conflicting information about the extent of illegal catch of Ohrid trout, but from reviewing a menu at a restaurant on the shore of Lk. Ohrid, no Ohrid trout was offered). However, Albania's inability or unwillingness to enforce a ban is, of course, affecting Ohrid trout throughout the lake. This is the main biodiversity threat from unsustainable fishing mentioned by interviewees.

(e) Poaching and uncontrolled hunting: Legal hunting is managed in 11 hunting areas with 107 sites for large game and 145 for small game. Several of those interviewed stated that concessions for hunting are given in a transparent manner, however follow up monitoring (to determine if hunting is done in line with the license) is limited. Unsustainable hunting may be affecting biodiversity of game animals, but data are lacking to definitively state this.

### **(3) Over-extraction of water threatens the water quality and quantity of Macedonia's lakes:**

Extraction of water directly from the endangered declining lakes (Prespa and Dojran) is banned. Nonetheless, the use of surface water from watercourses and wells in the catchments of the lakes (both Macedonia and Greece) is excessive and adds to problems caused by regional multi-year drought periods.

Macedonia has constructed a 20 km, 20 M€, 30 Mm<sup>3</sup>/year inter-basin pumping water supply system to supplement water to Lake Dojran from Vardar River catchment, which prevented (with few wet hydrological years) a complete environmental disaster from happening to the lake. Without further interventions in the catchment (changes of irrigation practices, cropping patterns, etc.) the system does not seem sustainable due to high exploitation costs.

In the Prespa region, the existing water supply system on the Macedonian side has not functioned for some years now (WM Prespansko pole has been liquidated and currently re-established). In the past decade, due to bad or non-existing services, the farmers have used surface water from watercourses and dug private wells (est. 8 – 10,000 wells). Besides water extraction, the lake is endangered by pollution from agricultural sources.

### **(4) Industrial and agricultural pollution and sewage and solid waste threaten aquatic ecosystems.**

Reports indicate that the quality of water, soil and air are generally deteriorating. In terms of biodiversity, water pollution from chemical, agriculture, and urban waste run-off are serious threats to aquatic and wetland ecosystems. The copper smelter in Veles and the oil refinery outside of Skopje are just two industrial developments that produced significant pollution and endangered the lives of workers and those who lived nearby. The Vardar River in Veles was ranked as category 5—all activities are forbidden; it is currently 3<sup>rd</sup> or 4<sup>th</sup> (category 2 is for home use, no drinking). Both plants are closed since the economic crisis, but they could open again—and given the dire economic situation, even though people are aware of the health effects, because there are few alternatives, the supply of workers will probably not be short.

Currently, wastewater treatment is rare. A plant on Lk. Ohrid is operating (although it treats waste only along a small portion of the lakeshore). There are plans for the refurbishment or construction of several others during the next decade (NPAA, 2009). However, for now, most waste is discharged without treatment directly into waterways.

One of the main problems for biodiversity is eutrophication of lakes and other water bodies. The BSAP reports that conditions in Lake Ohrid have improved, but Lake Prespa is still highly threatened by eutrophication.

Solid waste also threatens ecosystems. Especially outside of Skopje, plastics and other garbage are not always managed in an environmentally sound manner. Plastics end up in aquatic ecosystems and are hazards to aquatic organisms.

(5) **Macedonia's genetic biodiversity is diminishing.** Many species have been imported from outside, hybridizing with Macedonia's domestic plant and animal species. This is the case with livestock and crops—what has been perceived as hardier varieties are imported, but in reality, they are usually poorly adapted to Macedonia's conditions. There is not a good strategy to preserve indigenous varieties and there is little control of imports, and therefore, it is likely this threat will continue.

(6) **Climate change threatens all ecosystems.** Climate change scenarios for Macedonia (MEPP, 2008) indicate that the overall water availability in the country (Vardar River catchment) will decrease by about 18% by the year 2100 (ranging from 7% in the western part – Treska River to as high as 24% in Bregalnica). Dry spells will occur more often and with higher intensity; on the other hand, flash floods with increased intensity are expected. This, with increased temperature, may force species and ecosystems to shift up toward high grounds and may endanger lowland marshes and ponds in dryer regions. Climate change will also have a detrimental effect on water quality. Reduced water quantities decrease the capacity to dilute pollutants, leading to deterioration of the water quality, and higher temperatures reduce the dissolved oxygen in water bodies.

Two threats (one indirect) that had been mentioned in the past seem to be significantly diminished and are no longer considered major threats. Environmental education is included in the curriculum in primary school, and it is optional in secondary. Public awareness of the need to protect the environment has been a focal point of many NGOs (usually related to environmental pollution and health, but also to conservation), public awareness of conservation has grown in the last decade, and most acknowledge, as stated below, that awareness is high, but practical examples of people actually benefitting from biodiversity are largely absent.

Trade in Wildlife and Plants – The perception that this presents a problem still exists with stakeholders. Most of those interviewed felt that CITES was one piece of legislation that was being implemented. There are farms for amphibian breeding and snail breeding, and these are exported in compliance with CITES. Most agreed that trade in CITES protected species is not threatening biodiversity.

#### **4.3 Root Causes of the Direct Threats**

Direct threats to biodiversity -- or the factors happening on the ground -- are driven by institutional, social and political factors, sometimes referred to as indirect threats or "root causes." Below, the root causes of the threats identified above are described. Root causes were identified by analyzing documents and through interviews.

According to Emerton (2009-a), "Many of the most pervasive threats to protected areas and biodiversity conservation in Macedonia are financial and economic in nature... Economic and financial factors also account for many of the underlying causes, such as through a weak appreciation of the economic value of protected areas among planners and decision-makers, unsupportive economic policies and instruments, lack of economic incentives for the private sector and general public to conserve biodiversity, and insufficient funding for protected area management. The following discussion expands on this finding. The root causes are presented in order of priority importance.

**(1) Public funding of the biodiversity sector by government is inadequate: the political will to support biodiversity conservation is low.** Government provides no funds for biodiversity; biodiversity funds are from donors or from revenue earned by the Public Enterprises that oversee PAs. As Emerton (2009-a) states (Economic Valuation Report), because protected areas are not seen as generating economic benefits, they tend to be allocated very low budgets as compared to those sectors which are considered “productive” in social and development terms. The low budget to the Nature Sector of the Ministry of Environment and Physical Planning, and non-existent budget provided to protected areas are clear examples of the way in which protected areas are undervalued in budget decision-making in Macedonia. Implementation of mining projects, logging, or other extractive projects in ecologically sensitive areas are seen as a more profitable land and resource use option than conserving ecosystems for their broader [ecosystem] services (Emerton, 2009-a). Currently, very few sources of self-generated income are available and are being tapped by the public enterprises that manage PAs. Especially during times of slow (or negative/no) economic growth, politicians think that biodiversity conservation will slow economic growth even further, and so are loathe to support it. High level decision makers are unaware of models in which biodiversity is paying for itself; because of this, they are unlikely to support biodiversity conservation over development projects that are destructive to biodiversity.

**(2) Capacity needed to oversee, implement/enforce, and advocate for biodiversity conservation is weak.** The institutional capacity in MEPP to implement their responsibilities is very low. For example, MEPP is overseeing the re-valorization process, but due to the low staff numbers, the process is moving slowly. In most instances, capable and adequately resourced management entities for PAs do not exist; for PAs where no obvious economic benefits are seen, management entities are and will continue to be difficult to attract. At municipal levels, there are little to no biodiversity expertise. Of the 83 municipalities, there are reportedly no biodiversity specialists employed. Yet in January 2011, municipalities are scheduled to take on management and zoning of land that was under the Ministry of Transport. NGOs have biodiversity expertise, but few of them have the skills to be advocates for the environment, and to work with communities on sustainable development—a gap in the biodiversity community of Macedonia, often mentioned by interviewees. The UNECE/FAO report (2009) notes that unless the Department for Forestry and Hunting within MAFWE is not soon improved with appropriate human and technical resources, it will be practically impossible to stay on top of many aspects. Transboundary conservation has the potential to shape relationships with Macedonia’s neighbors and may be a way to get greater visibility for biodiversity conservation efforts. The biodiversity sector has a growing list of responsibilities and needs, yet the human resources to support these are not growing as quickly.

Implementation and enforcement suffer because of this. As the EU assessment of integration progress notes, and as most of those interviewed stated, the legal framework for biodiversity is becoming stronger (although there are still many gaps), but lack of implementation is a serious problem. This can largely be attributed to inadequate human capacity.

**(3) Many natural resources decisions that affect local people are made at central government level: local people feel they have no input into decisions that will affect them.** Only recently, participatory management planning approaches have been used in PA design and planning (UNDP approach). Previously, PAs were proclaimed, and borders drawn, with no local input. PA authorities saw themselves as policing the resources—their aim was to keep people at bay. This approach has kept the public wary of PAs in their communities, and unconvinced of their benefits. Public enterprises that are contracted to manage PAs usually have no connection to the local population—this may be changing now in the Prespa Region, where the municipality may be contracted as the public enterprise, and it could be a model for other municipalities and PAs. Re-valorization exercises are required to be transparent and participatory, although it is unclear if actual participatory approaches are used or if only once findings are made, they are announced to local people. For the most part, when discussing biodiversity and PAs with local people, it appeared that they did not feel a part of decision making on natural resources use, PAs, and environmental issues, in general. In addition, forest management is not practiced at local/regional level (community forests) i.e, responsibilities are not transmitted to the local government or to communities. Communities and local people—those who live near and are affected by PAs, forest management, and other natural resources legislation are not benefitting from the resource, and feel that

control is out of their hands and in the hands of central government, which is unaware of and may even be disinterested in, local concerns.

**(4) Biodiversity stakeholders often fail to work as a team to produce a positive outcome for biodiversity.** Biodiversity stakeholders include NGOs and CBOs, media, private enterprise, MEPP, MAFWE, municipalities, and donors. Even though the biodiversity community of Macedonia is small, they are often at loggerheads. While this may be healthy in some cases, especially for oversight of government decision making, in other cases, mutual support—a “force to reckon with” is needed to produce results. However, rather than providing a force for positive action in biodiversity conservation, disagreements and lack of communication are common. Biodiversity is seen as having a weak constituency, and government decision makers may feel that bickering among biodiversity stakeholders means less oversight of government decisions—they are free to make decisions without being held accountable. Besides pointing to the typical biodiversity stakeholders as part of this problem, media was also mentioned—by addressing biodiversity conservation in the media, and not only when there is a protest or spill, they could help build a stronger biodiversity constituency.

**(5) Short-term economic gain is seen by the public as more important than conservation of biodiversity: Local people need practical models of how biodiversity conservation can pay for itself.** This root cause is also related to poverty and lack of confidence in future opportunities, and lack of current alternatives for income generation. In Ohrid and Prespa Lakes, fishermen are being educated about the need for rest periods for the fisheries; however, they rarely support such measures (unless there are stiff penalties). Sustainable collection of NTFPs and other wild plants is constrained by lack of information on populations, but there is little public support for controls even when collectors are aware of the pressure on these plants. Although not directly related to biodiversity, this root cause is well illustrated by the copper smelter plant in Veles. Although workers and the local community were well aware of the health effects from the plant, they continued to work there and support the plant because of the jobs it brought. Even when health is an issue, short-term economic gains may win over improved health. The main constraint is that local people have no models of how biodiversity conservation can pay for itself. Therefore, they are unlikely to support biodiversity conservation over short-term economic gain.

**(6) There is a lack of accurate, current information available to the public and to biodiversity professionals.** Some of the gaps are: (a) The Biodiversity Strategy and Action Plan is outdated, although still many parts of it have not been implemented. It needs updating and a prioritization of actions. (b) A strategy specifically for nature protection is also needed. (c) According to UNECE/FAO, the only strategic documents of forestry are the Spatial Plan of the Republic of Macedonia (2004), where the strategic goals for development of forests are formulated until 2020, and the Strategy for sustainable development of forestry (2006). A Forestry Strategy is needed. (d) Macedonia’s Red List of Vulnerable Species is outdated. (e) There is no biodiversity monitoring program for Macedonia (UNDP is addressing this). For the public, these documents are important as well, and synopses in layperson language would help them to understand the direction the country is taking on biodiversity conservation.

**(7) Political favoritism affects decisions on biodiversity conservation.** Political favoritism affects everything from staffing at government ministries to decisions on residential and industrial developments. Instead of decisions based on science and the importance of biodiversity conservation, they may be based on political circumstances.

**8) The policy/legal framework is not yet harmonized with EU directives.** This results in some confusion as far as oversight and management authorities, and a significant effort is spent on harmonization, while enforcement/implementation (also part of EU integration) suffers—mainly because finances are limited.

## **5.0 ACTIONS NEEDED TO CONSERVE MACEDONIA’S BIODIVERSITY**

Table 2 fulfills the requirement of FAA 119(d)(1), the actions necessary in Macedonia to conserve biodiversity. “Actions needed”—listed below--will address the root causes of the threats; this will in turn

minimize the direct threats. Addressing the root causes (versus the direct threats) is seen as a more sustainable way of achieving biodiversity conservation.

**Table 2: Actions Needed to Conserve Macedonia’s Biodiversity**

Direct Threats to Biodiversity	Root Causes of Direct Threats to Biodiversity	Actions Needed to Conserve Biodiversity (address the root causes)
<p>Inappropriate land use and unplanned development</p> <p>Inappropriate use of biological resources (forestry, NTFPs, fuel wood, fishing, poaching)</p> <p>Over-extraction of water</p> <p>Industrial and agricultural pollution, lack of waste management</p>	<p>1) Funding of the biodiversity sector by government is inadequate: the political will to support biodiversity conservation is low.</p>	<p>a) Raise awareness among politicians of the importance of biodiversity by providing them with information on practical “payment for ecological services” models.</p> <p>b) Improve capacity of the MEPP to request funding from the Ministry of Finance—biodiversity has to be “sold” to decision makers.</p> <p>c) So that they are held accountable to CS, establish a body to assess environmental performance of Members of Parliament.</p>
<p>Inappropriate land use and unplanned development</p> <p>Inappropriate use of biological resources</p> <p>Over-extraction of water</p> <p>Industrial and agricultural pollution, lack of waste management</p>	<p>2) The capacity needed to oversee, implement/enforce, and advocate for biodiversity conservation is weak.</p>	<p>a) Increase support for MEPP (human and financial resources)</p> <p>b) Strengthen interest and capacity of environmental NGOs, CS, and MEPP to work together to advocate for biodiversity conservation.</p> <p>c) Strengthen local capacity (municipal government) in land use planning, zoning, and EIA; include local people/CS in decision making land use decision making.</p> <p>d) Increase support for transboundary biodiversity conservation (especially of the lake PAs).</p>
<p>Inappropriate land use and unplanned development</p> <p>Inappropriate use of biological resources</p>	<p>3) Many natural resources decisions that affect local people are made at central government level: local people often feel they have no input into decisions that will affect them.</p>	<p>a) Prepare PA management plans in a participatory manner (UNDP model) with local stakeholders informed and involved.</p> <p>b) Provide local people with concrete examples of the potential benefits that can be gained from PAs and biodiversity conservation.</p> <p>c) Promote participatory decision making for local level natural resources actions (PA re-valorization, NTFP surveys, bylaw preparation, etc).</p> <p>d) Strengthen local capacity (municipal government) in land use planning, zoning, and EIA; include local people/CS in decision making land use decision making.</p>
<p>Inappropriate land use and unplanned development</p> <p>Inappropriate use of biological resources</p> <p>Over-extraction of water</p> <p>Industrial and agricultural pollution, lack of waste management</p>	<p>4) Biodiversity stakeholders often fail to work as a team to produce a positive outcome for biodiversity.</p>	<p>a) Provide a platform for NGOs, CBOs, other CSOs, MEPP, municipalities, students and other interested parties to meet, share information, to track threats to biodiversity, and for other activities that can be jointly supported and implemented.</p> <p>b) Support the media to improve reporting on, including follow-through of, biodiversity issues.</p>

Climate change		
Inappropriate land use and unplanned development Inappropriate use of biological resources Over-extraction of water Industrial and agricultural pollution, lack of waste management Genetic biodiversity	5) At local levels, short-term economic gain is seen by the public as more important than conservation of biodiversity. Local people need practical models of how biodiversity conservation can pay for itself. (This is closely linked to poverty and uncertainty about future opportunities).	a) In and outside of PAs, help communities/companies establish enterprises to sustainably collect and commercialize NTFPs; this must be done in combination with strengthening management entities (MEPP and public enterprises) to survey populations and monitor collection. b) Support alternative energy development to cut down on the use of fuel wood. This should focus on rural areas, where the use of wood for fuel poses the greatest threat. c) At municipal levels, raise awareness, not just of the importance of biodiversity but of the possible economic benefits and fundraising mechanisms. d) Provide financial incentives for landholders to engage in ecosystem conservation, in preference to other profitable but environmentally destructive land and resource uses. e) Implementation of clean production programs at producers/processors and other commercial/industrial facilities. f) Increase the current plastics recycling program to cover additional parts of the country and to include other commodities.
Inappropriate land use and unplanned development Inappropriate use of biological resources Over-extraction of water Industrial and agricultural pollution, lack of waste management Genetic biodiversity	6) There is a lack of accurate, current information available to the public and to biodiversity professionals.	a) Support the update of the Biodiversity Strategy and Action Plan and a strategy on nature protection. b) Support the formulation and implementation of National Action Plans to Combat Illegal Logging and Other Forest Crime as part of the Implementation of the ENA-FLEG. c) Support the ongoing creation and implementation of the country-wide biodiversity monitoring program (UNDP). d) Support the collection of data and the preparation of Red Data Books for Macedonia so these can be used in biodiversity decision making. e) Produce a strategy on conservation of Macedonia's genetic biodiversity. f) Ensure that biodiversity information is publicly available (online and at convenient locations throughout the country).
Inappropriate land use and unplanned development Inappropriate use of biological resources Over-extraction of water Industrial and agricultural pollution, lack of waste management Genetic biodiversity	7) Political favoritism affects decisions on biodiversity.	a) So that they are held accountable to CS, establish a body to assess environmental performance of Members of Parliament.

Climate change		
Inappropriate land use and unplanned development	8) The policy/legal framework is not yet harmonized with EU directives.	a) Continue the EU integration process with support for transposing legislation and implementing/enforcing it. b) Support the ongoing re-valorization, proclamation, and management plan preparation (using a participatory approach) of PAs.
Inappropriate use of biological resources		
Over-extraction of water		
Industrial and agricultural pollution, lack of waste management		
Genetic biodiversity		
Climate change		

## 6.0 THE EXTENT TO WHICH ACTIONS PROPOSED BY USAID MEET THE NEEDS IDENTIFIED

First, USAID's CSP is summarized below; following this, Table 3 addresses FAA 119(d)(2), the extent to which USAID actions meet the needs identified (Table 2 above).

In the new USAID/Macedonia Strategic Plan, during 2011-2015, USAID intends to:

- enhance the capacity of Macedonia's citizens and media to engage with their political leaders and influence their decision-making;
- reduce opportunities for corruption and improve the performance of the judiciary;
- increase the ability of the Macedonian educational system to produce a workforce for today's economy;
- increase business growth, investment, and exports; and,
- support an energy sector where efforts will focus on energy efficiency and alternative energy development.

### Assistance Objective #1: Improved Democratic Processes

The following Intermediate Results will be achieved:

**IR 1.1 *Strengthened Judicial Branch:*** USAID will build on its previous efforts in helping enact legislation to provide for the independence of courts, establishing administrative structures for the courts, and in automating case management and court budgets.

**IR 1.2 *Local Governance Strengthened:*** USAID will continue to assist municipalities to expand their tax bases by rolling out a model for self-assessment of municipal creditworthiness; will work to improve staff technical skills in as many as half of Macedonia's municipalities; will help establish public-private partnerships in select municipalities, promote transparency through e-procurement, and streamline the process for acquisition of business licenses; and will support strengthening technical committees concerned with finance, energy, and land, whose advocacy work is crucial to improving the decentralization legal framework and municipal performance.

**IR 1.3 *Parliamentary Functions Enhanced:*** USAID will provide technical support for regular oversight hearings initiated by parliamentary committees; will provide technical support in the form of expert witnesses or analysts, or legislative drafters depending on the specific need of each committee; and will encourage and support town hall-style meetings to improve constituency relations.

**IR 1.4 *Civil Society Supports Democratic Reform:*** Proposed interventions will strengthen civic institutions, support the ability of NGOs to monitor government, advocate for reform and represent the interest of citizens in the policy process at the national (including Parliament) and local levels, and increase civic activism. Media, too, will be strengthened through provision of institutional development support to a variety of media groups. This support will assist journalists to lobby for better protection of the media against government interference. Assistance through training in ethics, investigative reporting, and coverage of major topics such as corruption and government progress toward EU integration will also result in a more professionalized journalist corps.

## **Assistance Objective #2: Improved Basic Education for Career Development in Youth**

The following intermediate results will be achieved:

**IR 2.1 *Improved Quality of Instruction:*** This IR focuses on creating better learning materials and possibly renovating classrooms. USAID will expand materials and training on ethics, methodologies, test development, and effective use of school-based formative and summative assessment for student and teacher evaluation.

**IR 2.2 *Expanded Workforce Skills in Youth:*** A workforce project, coordinated with the EG Office's planned entrepreneurship program, will establish Career Services Networks with schools, universities, the private sector and the Ministry of Labor and Social Policy's regional offices of the Employment Service Agency.

**IR 2.3 *Enhanced Inclusiveness of the Education Sector:*** USAID will continue its grassroots assistance project with the Roma community. Also, to address the needs of students with disabilities, USAID/Macedonia will continue to train their instructors on methods to integrate students into the learning process through the use of innovative information technologies.

## **Assistance Objective #3: Increased Job-Creating Private Sector Growth in Target Sectors**

The following intermediate results will be achieved:

**IR 3.1: *Improved Business Environment in Critical Areas for Investment:*** USAID will strengthen institutions and processes that facilitate increased economic activity such as foreign and domestic investment, export promotion, efficient public procurement, improved implementation of economic development programs and policies, and **streamlined urban planning and construction** permitting. USAID will work on energy efficiency (EE) interventions in businesses to improve their competitiveness, development of specialized and lower-skilled workforce in the area of EE, support innovation and development of EE and RE new technologies, facilitate investment in EE interventions, and expansion and/or creation of manufacturers/vendors of EE equipment and development of services around these interventions. In the energy sector, USAID will assist in delineating institutional roles and responsibilities, establishing a clear coordination mechanism, and building capacity to develop and implement energy policies.

**IR 3.2: *Key Private Sector Capacities Strengthened:*** To increase Macedonian exports and create more job opportunities, assistance will be provided to facilitate integration into international supply chains or establish presence on regional and global markets. Companies will be helped to improve the quality of their products and services through **introduction of industry standards, quality certifications and investment in new technologies**. USAID assistance will concentrate on labor-intensive industries with potential for job creation and export where Macedonia would have a competitive advantage, such as agribusiness and agriculture, light manufacturing, information and communication technology, renewable and alternative sources of energy, and the service industries. **USAID will give special attention to those generating employment in less developed and rural areas.** USAID will emphasize job creation under this AO by reviving support to micro and small enterprises, and building on the pre-existing network of micro-finance institutions. To increase their numbers and success rates, USAID will work with existing support organizations, such as incubators, to improve the quality and quantity of their services. In addition, USAID will assist the Government's Employment Service Agency to improve the

efficacy of its labor market measures in order to provide marketable skills to the unemployed, increase employment and self-employment, and facilitate new start-ups

Since the USAID/Macedonia CSP does not include a biodiversity conservation (or environment) Assistance Objective or IR, cross-cutting links between AO #1, Democracy & Governance and AO #3, Economic Growth are emphasized in Table 3. As can be seen in the table, and as currently articulated in the CSP, biodiversity conservation needs are not well integrated into the CSP. Only IR 3.1 currently addresses an “action needed” (support for alternative/renewable energy is intended to reduce pressure on use of fuel wood). Other IRs (IR 1.2, 1.3, 1.4, 3.1, and 3.2) could address “actions needed” if the recommendations below (and in greater detail, provided in Section 7) are incorporated.

This Biodiversity Analysis is timely since RFPs are now being prepared. If the recommendations are incorporated into these instruments, USAID/Macedonia’s CSP could address many of the root causes of the threats to biodiversity, and thereby have a positive effect on biodiversity.

Also, as can be seen in Table 3, most of the donors are working toward EU integration goals and in protected areas (Donor activities are described in Annex 6). In addition, UNDP is carrying a significant burden of the biodiversity conservation needs. The UNDP (and other donors) have the flexibility and the desire to coordinate their activities with USAID interventions in biodiversity. This could result in – for USAID—a bigger bang for a relatively small investment.

**Table 3: The extent to which USAID actions meet the needs identified**

Root cause #1: Funding of the biodiversity sector by government is inadequate: the political will to support biodiversity conservation is low.

- a) Raise awareness among politicians of the importance of biodiversity by providing them with information on practical “payment for ecological services” models.
- b) Improve capacity of the MEPP to request funding from the Ministry of Finance—biodiversity has to be “sold” to decision makers.
- c) So that they are held accountable to Civil Society, establish a body to assess environmental performance of Members of Parliament.

USAID actions that meet the needs (or by incorporating recommendations in bold, will meet the needs):

- a) IR 1.3 Parliamentary Functions Enhanced: **include biodiversity as a topic area (ie, in town hall meetings).**
- b) none
- c) IR 1.4 Civil Society Supports Democratic Reform: **include biodiversity as a topic area.**

Other actions that meet the needs:

- a) UNDP GEF, indirectly.
- b) EU IPA, indirectly

Root Cause #2: The capacity needed to oversee, implement/enforce, and advocate for biodiversity conservation is weak.

Biodiversity Needs	USAID actions that meet the needs (or that by incorporating recommendations in bold below, will meet the needs)	Other actions that meet the needs (see Annex 6 for a more detailed descriptions of these actions)
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<i>1. Root cause: Funding of the biodiversity sector by government is inadequate: the political will to support biodiversity conservation is low.</i>		
a) Raise awareness among politicians of	a) IR 1.3 Parliamentary	a) UNDP GEF, indirectly.

the importance of biodiversity by providing them with information on practical “payment for ecological services” models.

- b) Improve capacity of the MEPP to request funding from the Ministry of Finance—biodiversity has to be “sold” to decision makers.
- c) So that they are held accountable to CS, establish a body to assess environmental performance of Members of Parliament.

Functions Enhanced:  
**include biodiversity as a topic area (ie, in town hall meetings).**

- b) none
- c) IR 1.4 Civil Society Supports Democratic Reform: **include biodiversity as a topic area.**

- b) EU IPA, indirectly
- c) none

*2. Root cause: The capacity needed to oversee, implement/enforce, and advocate for biodiversity conservation is weak.*

- a) Increase support for MEPP (human and financial resources)
- b) Strengthen interest and capacity of environmental NGOs, CS, and MEPP to work together to advocate for biodiversity conservation.
- c) Strengthen local capacity (municipal government) in land use planning, zoning, and EIA; include local people/CS in decision making land use decision making.
- d) Increase support for transboundary biodiversity conservation (especially of the lake PAs).

- a) none
- b) IR 1.4 Civil Society Supports Democratic Reform: **work with environmental NGOs and CS**
- c) IR 1.2 Local Governance Strengthened: **include capacity strengthening in environmental areas.**
- d) none

- a) EU IPA (Swedish support)
- b) none
- c) Swedish support through EU IPA
- d) UNDP GEF

*3. Root cause: Many natural resources decisions that affect local people are made at central government level: local people often feel they have no input into decisions that will affect them.*

- a) Prepare PA management plans in a participatory manner (UNDP model) with local stakeholders informed and involved.
- b) Provide local people with concrete examples of the potential benefits that can be gained from PAs and biodiversity conservation.
- c) Promote participatory decision making for local level natural resources actions (PA re-valorization, NTFP surveys, bylaw preparation, etc).
- d) Strengthen local capacity (municipal government) in land use planning, zoning, and EIA; include local people/CS in decision making land use decision making.

- a) none
- b) IR 3.2: Key Private Sector Capacities Strengthened:: **include VCs that will reduce the pressure on PAs and other important biodiversity.**
- c) IR 1.4 Civil Society Supports Democratic Reform: **include oversight of natural-resources/environmental decision making.**
- d) IR 1.2 Local Governance Strengthened: **include capacity strengthening in land use planning, zoning, EIA.**

- a) UNDP GEF, SDC, Italian, KfW
- b) UNDP GEF (Payment for Ecological Services)
- c) UNDP-GEF; and SDC, KfW, Italian in/around the PAs which they are supporting.
- d) none

*4. Root cause: Biodiversity stakeholders often fail to work as a team to produce a positive outcome for biodiversity.*

- a) Provide a platform for NGOs, CBOs, other CSOs, MEPP, municipalities, students and other interested parties to meet, share information, to track threats to biodiversity, and for other activities that can be jointly supported and implemented.
- b) Support the media to improve reporting

- a) IR 1.4 Civil Society Supports Democratic Reform: **include biodiversity stakeholders and**
- b) IR 1.4 Civil Society Supports Democratic

- a) GEF and REC, focus on NGO strengthening.
- b) none

on, including follow-through of, biodiversity issues.

Reform: **strengthen media in biodiversity and environment reporting.**

*5. Root cause: At local levels, short-term economic gain is seen by the public as more important than conservation of biodiversity. Local people need practical models of how biodiversity conservation can pay for itself. (This is closely linked to poverty and uncertainty about future opportunities).*

- a) In and outside of PAs, help communities/companies establish enterprises to sustainably collect and commercialize NTFPs; this must be done in combination with strengthening management entities (MEPP and public enterprises) to survey populations and monitor collection.
- b) Support alternative energy development to cut down on the use of fuel wood. This should focus on rural areas, where the use of wood for fuel poses the greatest threat.
- c) At municipal levels, raise awareness, not just of the importance of biodiversity but of the possible economic benefits and fundraising mechanisms.
- d) Support the provision of financial incentives for landholders to engage in ecosystem conservation, in preference to other profitable but environmentally destructive land and resource uses.
- e) Support implementation of clean production programs at producers/processors and other commercial/industrial facilities.
- f) Increase the current plastics recycling program to cover additional parts of the country and to include other commodities.

- a) IR 3.2: Key Private Sector Capacities Strengthened: **recommendation to include support for NR-based enterprises in rural areas; and to strengthen private sector capacity to meet industry standards and certifications for forest products/NTFPs (legal sourcing, chain of custody, due diligence).**

- a) none
- b) none
- c) UNDP-GEF
- d) UNDP-GEF (Payment for Ecological Services); and SDC, Italian, and KfW in specific PAs that they support
- e) none
- f) none

- b) IR 3.1: Improved Business Environment in Critical Areas for Investment (support for energy efficiency activities)

IR 2.1 Improved Quality of Instruction (if school rehabilitation with improved energy efficiency is included under this IR).

- c) IR 1.2 Local Governance Strengthened: **assist local government in innovative fundraising mechanisms for PAs and biodiversity.**

- d) IR 3.1: Improved Business Environment in Critical Areas for Investment: **support for renewable energy should target landowners to conserve ecosystems v. to invest in destructive practices.**

- e) IR 3.2: Key Private Sector Capacities Strengthened: **include cleaner production training in conjunction with supporting processing facilities within a target VC.**

- f) IR 3.2: Key Private Sector Capacities Strengthened:

**continue and expand the recycling program.**

6. *Root cause: There is a lack of accurate, current information available to the public and to biodiversity professionals.*

a) Support the update of the Biodiversity Strategy and Action Plan and a strategy on nature protection.	a) none	The EU IPA will address some of these needs, especially those that relate to EU integration.  c and f, UNDP
b) Support the formulation and implementation of National Action Plans to Combat Illegal Logging and Other Forest Crime as part of the Implementation of the ENA-FLEG.	b) none	
c) Support the ongoing creation and implementation of the country-wide biodiversity monitoring program.	c) none	
d) Support the collection of data and the preparation of Red Data Books for Macedonia so these can be used in biodiversity decision making.	d) none	
e) Produce a strategy on conservation of Macedonia's genetic biodiversity.	e) none	
f) Ensure that biodiversity information is publicly available (online and at convenient locations throughout the country).	f) none	

7. *Root cause: Political favoritism affects decisions on biodiversity.*

a) So that they are held accountable to CS, establish a body to assess environmental performance of Members of Parliament.	a) IR 1.4 Civil Society Supports Democratic Reform: <b>include biodiversity and environment as a topic area.</b>	a) none
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8. *Root cause: The policy/legal framework is not yet harmonized with EU directives.*

a) Continue the EU integration process with support for transposing legislation and implementing/enforcing it.	a) none	EU IPA
b) Support the ongoing re-valorization, proclamation, and management plan preparation (using a participatory approach) of PAs.	b) none	b) UNDP, SDC, Italian, KfW

**7.0 RECOMMENDATIONS**

**To increase the extent to which AO #1 is addressing biodiversity needs AO #1 should consider incorporating the following items. Most of these can be included in RFPs currently being prepared:**

**IR 1.2 Local Governance Strengthened:** (1) For municipal governments, include environmental capacity strengthening in areas such as land use planning, zoning, and EIA. Given that responsibilities for land use planning and zoning will be transferred to municipalities and there is little or no expertise in these areas, capacity strengthening will contribute to successful decentralization of these responsibilities.

(2) Assist local government (municipalities) in identifying and successfully implementing innovative fundraising mechanisms for protected areas and biodiversity. Municipalities may be well placed to manage certain PAs (as the responsible public enterprise), and this would help decentralization of PA

responsibilities/local management. But for municipalities to successfully bid and manage PAs, they will need to learn about and be able to implement innovative PA fundraising measures.

**IR 1.3 Parliamentary Functions Enhanced:** (1) Include biodiversity as a possible topic area in town hall meetings. This would allow civil society to air their views of biodiversity conservation (including the lack of government funding), and would encourage Members of Parliament to consider funding biodiversity if it is seen as a topic of interest to their constituency.

**IR 1.4 Civil Society Supports Democratic Reform:** (1) In support for NGOs to monitor government, include biodiversity and environment as topic areas to be monitored. This will help ensure that government officials are held accountable for their decisions about biodiversity conservation.

(2) Support environmental NGOs and CS to strengthen their advocacy skills. This support should be provided with the aim of helping NGOs and civil society advocate for reform of environmental/biodiversity legislation and procedures at national and local levels.

(3) IR 4 could strengthen participatory decision making in biodiversity/protected areas, which would help build local support for biodiversity conservation and PAs. As part of IR 4, oversight of government decision making should include decision making on biodiversity/PA issues and the environment; support for participatory processes in the biodiversity sector could be integrated into this IR. In many countries, participatory processes in the biodiversity sector have served as models for participation in other sectors.

(4) Create a platform for biodiversity stakeholders (NGOs, CSOs, CBOs, students, and government—MEPP, MAFWE, and municipalities to share information, concerns, ideas, and track threats to biodiversity. This could help strengthen the often fragmented environmental/biodiversity community.

(5) Strengthen media capacity to report on biodiversity and the environment. Rather than being opportunistic (when there is a spill or a protest, the media will do a story), media could serve a valuable function in raising awareness of economic, aesthetic, and other benefits of biodiversity, and threats to Macedonia's biodiversity and environment.

**Recommendations based on potential negative effects of AO #1 on biodiversity:** AO #1 is not expected to have any negative impacts on biodiversity. No recommendations are warranted at this time.

**Recommendations to increase the extent to which AO #2 can contribute to biodiversity conservation:** AO #2 focuses on basic education and may rehabilitate schools. There is no "action needed" linked to this AO.

**Recommendations based on potential negative effects of AO #2 to biodiversity:** If schools will be renovated, environmentally sound design and operation should be incorporated. This should be further explored and developed, including environmental guidelines, checklist, and the development of an environmental mitigation and monitoring plan, in the context of 22 CFR 216 and an Initial Environmental Examination.

**To increase the extent to which AO #3 can contribute to biodiversity conservation, AO #3 should consider incorporating the following items. Most of these can be included in RFPs currently being prepared:**

(1) **IR 3.1: Improved Business Environment in Critical Areas for Investment:** In promoting a stable and business friendly environment, and in conjunction with support for renewable energy/energy efficiency, IR 3.1 should promote incentives for landowners and the private sector to invest in activities that conserve ecosystems (versus investing in destructive ecosystem practices). Enterprises that conserve rather than destroy ecosystems range from ecotourism to conservation easements to forest regeneration (related to climate change) to creation and operation of woodlots to supply sustainable fuel wood.

(2) **IR 3.2: Key Private Sector Capacities Strengthened:** (1) Provide support (technical assistance, training, etc) for value chains (VCs) that will encourage conservation and/or reduce the pressure on PAs and other important biodiversity. These VCs could be non-timber forest products (in conjunction with sustainable use and monitoring plans); ecotourism facilities and activities; VCs that will provide alternative income sources so that pressure on natural resources is reduced; or VCs that involve processing of natural resources products to increase incomes for those who use natural resources, with the intention of promoting conservation/sustainable use rather than a “mining” of natural resources mentality. Support for natural resources-based VCs must be integrated with a plan for monitoring and sustainable use.

(3) IR 3.2 will be assisting companies to improve the quality of their products and services through **introduction of industry standards, quality certifications and investment in new technologies.** Given the Lacey Act and the EU legislation on timber and timber products, IR 3.2 should consider assisting companies to learn about and comply with these requirements by incorporating traceability and adequate due diligence into their systems to ensure legal sourcing of material. This recommendation aligns well with the IR’s aim, to “concentrate on labor-intensive industries with potential for job creation and export...[and in sectors that] will ...generate employment in less developed and rural areas.”

(4) To minimize waste production (and decrease the threat of pollution to biodiversity) and to promote reuse-recycling (as well as to make enterprises more cost-effective), include cleaner production training in conjunction with supporting processing facilities within a target VC. This would continue and expand cleaner production/pollution prevention activities previously under the AgBiz project, and it would help contribute to improving water quality and rehabilitating aquatic ecosystems—some of the most highly threatened ecosystems of Macedonia. Cleaner production training could also focus on measures to decrease use of coal and other fossil fuels as an energy source at processing facilities with a short-term benefit on forests and a long-term benefit on climate change.

(5) Continue and expand the very successful USAID recycling program. This will help decrease inappropriate waste disposal which threatens Macedonia’s biodiversity, especially aquatic biodiversity. It will also help generate incomes, particularly for disadvantaged/disenfranchised populations.

**Recommendations based on potential negative effects of AO #3 on biodiversity:** (1) IR 3.1 intends to “improve implementation of economic development programs and policies, and streamlined urban planning and construction permitting.” Streamlined urban planning and construction permitting should not overlook the important contributions of EIA, public participation, and other measures to ensure urban planning and construction permits will not adversely affect biodiversity.

(2) Support for all natural resources-based VCs could negatively affect biodiversity. For products collected from the wild, a population census, sustainable use plan, and monitoring should be incorporated. This should be undertaken in conjunction with MEPP. For agriculture VCs, AO #3 should ensure that expansion of agricultural land into natural ecosystems will not result; that assistance for the use of pesticides is done in accordance with an IEE and PERSUAP (and within an integrated pest management approach); that GMO introduction is in line with USAID policies; and that import of plants or livestock from outside of Macedonia will not affect Macedonia’s genetic diversity.

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## Annex 1: Full Text of Section 119 of the Foreign Assistance Act

### Sec. 119 Endangered Species

(a) The Congress finds the survival of many animal and plant species is endangered by overhunting, by the presence of toxic chemicals in water, air and soil, and by the destruction of habitats. The Congress further finds that the extinction of animal and plant species is an irreparable loss with potentially serious environmental and economic consequences for developing and developed countries alike. Accordingly, the preservation of animal and plant species through the regulation of the hunting and trade in endangered species, through limitations on the pollution of natural ecosystems, and through the protection of wildlife habitats should be an important objective of the United States development assistance.

(b) \75\ In order to preserve biological diversity, the President is authorized to furnish assistance under this part, notwithstanding section 660,\76\ to assist countries in protecting and maintaining wildlife habitats and in developing sound wildlife management and plant conservation programs. Special efforts should be made to establish and maintain wildlife sanctuaries, reserves, and parks; to enact and enforce anti-poaching measures; and to identify, study, and catalog animal and plant species, especially in tropical environments.

(c) \77\ Funding Level.--For fiscal year 1987, not less than \$2,500,000 of the funds available to carry out this part (excluding funds made available to carry out section 104(c)(2), relating to the Child Survival Fund) shall be allocated for assistance pursuant to subsection (b) for activities which were not funded prior to fiscal year 1987. In addition, the Agency for International Development shall, to the fullest extent possible, continue and increase assistance pursuant to subsection (b) for activities for which assistance was provided in fiscal years prior to fiscal year 1987.

\77\ Pars. (c) through (h) were added by sec. 302 of Public Law 99- 529 (100 Stat. 3017).

(d) \77\ Country Analysis Requirements.--Each country development strategy statement or other country plan prepared by the Agency for International Development shall include an analysis of-

- (1) the actions necessary in that country to conserve biological diversity, and
- (2) the extent to which the actions proposed for support by the Agency meet the needs thus identified.

(e) \77\ Local Involvement.--To the fullest extent possible, projects supported under this section shall include close consultation with and involvement of local people at all stages of design and implementation.

(f) \77\ PVOs and Other Nongovernmental Organizations.-- Whenever feasible, the objectives of this section shall be accomplished through projects managed by appropriate private and voluntary organizations, or international, regional, or national nongovernmental organizations, which are active in the region or country where the project is located.

(g) \77\ Actions by AID.--The Administrator of the Agency for International Development shall-(1) cooperate with appropriate international organizations, both governmental and nongovernmental;

(2) look to the World Conservation Strategy as an overall guide for actions to conserve biological diversity;

(3) engage in dialogues and exchanges of information with recipient countries which stress the importance of conserving biological diversity for the long-term economic benefit of those countries and which identify and focus on policies of those countries which directly or indirectly contribute to loss of biological diversity;

(4) support training and education efforts which improve the capacity of recipient countries to prevent loss of biological diversity;

(5) whenever possible, enter into long-term agreements in which the recipient country agrees to protect ecosystems or other wildlife habitats recommended for protection by relevant governmental or nongovernmental organizations or as a result of activities undertaken pursuant to paragraph

(6), and the United States agrees to provide, subject to obtaining the necessary appropriations, additional assistance necessary for the establishment and maintenance of such protected areas;

(6) support, as necessary and in cooperation with the appropriate governmental and nongovernmental organizations, efforts to identify and survey ecosystems in recipient countries worthy of protection;

(7) cooperate with and support the relevant efforts of other agencies of the United States Government, including the United States Fish and Wildlife Service, the National Park Service, the Forest Service, and the Peace Corps;

(8) review the Agency's environmental regulations and revise them as necessary to ensure that ongoing and proposed actions by the Agency do not inadvertently endanger wildlife species or their critical habitats, harm protected areas, or have other adverse impacts on biological diversity (and shall report to the Congress within a year after the date of enactment of this paragraph on the actions taken pursuant to this paragraph);

(9) ensure that environmental profiles sponsored by the Agency include information needed for conservation of biological diversity; and

(10) deny any direct or indirect assistance under this chapter for actions which significantly degrade national parks or similar protected areas or introduce exotic plants or animals into such areas.

(h) \77\ Annual Reports.--Each annual report required by section 634(a) of this Act shall include, in a separate volume, a report on the implementation of this section.

## Annex 2 List of Persons/Institutions Interviewed

Group /Institution	Function	Person
<b>Government – National Level</b>		
Ministry of Agriculture Forestry and Water Economy (MAFWE), Skopje	Head, Forestry Dept.	<b>Vojo Gogovski</b>
	Advisor	<b>Jurant Dika</b>
Ministry of Environment and Physical Planning (MoEPP)	Head, Office of Environment – OE (within MoEPP)	<b>Filip Ivanov</b>
	OE, Head, Division of Special Natural Heritage Protection	<b>Vasil Anastasovski</b>
	Head, Division of Biological Diversity	<b>Saso Jordanovski</b>
	Head, Department of Sustainable Development	<b>Kaja Sukova</b>
Public Enterprise “Makedonski Sumi”	Assistant Manager- Sylviculture and Ecology Dept.	<b>Slobodanco Klimoski</b>
<b>Academia</b>		
Macedonian Academy of Arts and Sciences (MANU)	Academician, Prof. Dr.	<b>Vlado Matevski</b>
Faculty of Forestry	Professor	<b>Ivan Blinkov</b>
	Professor	<b>Aleksandar Trendafilov</b>
Faculty of Natural Sciences	Vice-Dean –Head of Biology Institute	<b>Zlatko Levkov</b>
Faculty of Agriculture	Professor	<b>Ordan Cukaliev</b>
	Professor	<b>Sreten Andonov</b>
<b>Protected area management institutions</b>		
National park Galicica	Gen. Manager	<b>Zoran Angeloski</b>
	Team Leader PINPG	
	Fmr. Gen Manager	<b>Andon Bojadzi</b>
	Team Leader KfW	<b>Til Dieterich</b>
National Park Pelister	Gen. Manger	<b>Saso Micevski</b>
National Park Mavrovo	Gen. Manager	<b>Oner Jakuposki</b>
<b>Development Cooperation in Macedonia</b>		
USAID	Program Officer	<b>Yasmeen Thomason</b>
	Project Development Specialist	<b>Ivica Vasic</b>
UNDP	Programme Officer	<b>Anita Kodzoman</b>
	Project manager, Prot. Areas Proj.	<b>Toni Popovski</b>
	Project Manager, Prespa Park Proj.	<b>Dimitrija Sekovski</b>
World Bank	Programme Officer	<b>Bekim Ymeri</b>
EU Commission		
Swiss SDC & SECO	Programme Officer	<b>Stanislava Dodeva</b>
GEF SGP	National Coordinator	<b>Zlatko Samardziev</b>
Regional Environmental Center in SEE, Skopje	National Director	<b>Katarina Stojkovska</b>
Germany (KfW & GTZ)	Projektkoordinatorin (KfW)	<b>Natascha Radovanovic</b>
<b>NGOs &amp; CSOs</b>		
KOCKA		<b>Igor Spirovski</b>
Macedonian Environmental Society –MES		<b>Ljupco Melovski</b>
		<b>Slavco Hristovski</b>
EKONET		<b>Zlatan Mulcin</b>

Group /Institution	Function	Person
Bird Watching Society of Macedonia & Ramsar Committee		Branko Micevski

#### Additional meetings to finalize the Biodiversity Analysis (October-November 2010)

Group/Institution	Function	Person
<b>NGOs &amp; CSOs</b>		
BIOECO	President Vice President Member of the Board	Svetozar Petkovski, Ph.D. Vesna Sidorovska, Ph.D. Vladimir Stavric, M.Sc.
Ecologists' Movement of Macedonia	Vice President	Ruska Miceva
Environmental Association "Vila Zora" Veles	President	D-r Nenad Kocic Kojco Dimovski
Planetum [planetum@t-home.mk]	President (Agricultural Engineer) Project Manager, Biology Project Manager, Mining Engineer Project Manager, Agricultural Engineer	Mitko Sopov Slave Georgiev Mitko Nikolov Aleksandar Lazarov
MOST Citizen's Association	President & Fundraising Executive Director Program & PR Coordinator	Rosana Aleksoska Darko Aleksov Slavica Biyarsua
Macedonia Ecological Society, Ss Cyril and Methodius University-Institute of Biology	Professor	Ljupco Melovski, Ph.D.
The Regional Environmental Center for Central and Eastern Europe	Country Director Project Manager	Katarina Stojkovska Kornelija Radovanovic Ana Petrovicka
<b>US Government</b>		
USAID	Mission Director	Michael Fritz
	Office Director, D & G	Erik Pacific
	Office Director, Economic Growth	Cullin Hughes
	Office Director, Education	LeAnna Marr
	Program Officer	Aleksandar Jovanovic
	Deputy COP, AgriBiz	Goran Damovski
<b>Government of Macedonia</b>		
Ministry of Agriculture, Forestry and Water Economy	Head of Unit for Policy Analysis	Pance Nikolov
Ministry of Environment and Physical Planning	Administration of Environment, director Natural Heritage	Filip Ivanov Sashko Jordanov
Secretariat for European Affairs	Unit for Transport, Energy, Environment, and Regional Policy	Biljana Jadrovska

	EU Integration	Hristo.lovacev
Donors		
UNDP: Integrated Ecosystem Management in the Prespa Lakes Basin of Albania, Macedonia, and Greece	Project Manager Project Specialist Transboundary	Dimitrija Sekovski Nikola Zdraveski Gordana Cvetkosua
European Union, Office of the EU Special Representative	Task Manager	Teodora Andreeva
Swiss Agency for Development and Cooperation	National Programme Officer	Stanislava Dodeva, Ph.D.
UNDP	Programme Officer, Head of Environment Practice	Anita Kdozoman

## Annex 3: Scope of Work for the Biodiversity Analysis

### Statement of Work: FAA 119 Biodiversity Analysis Macedonia, 2010

#### I. Objective and Purpose

The purpose of this contract is to complete a country biodiversity analysis for Macedonia as required by Section 119(d) of the Foreign Assistance Act of 1961 (as amended) (FAA 119) and ADS 201.3.9.2 regarding biodiversity analyses for countries' strategic plans. The analyses are intended to inform the strategic planning process by a) identifying the actions necessary to conserve biodiversity in Macedonia and b) assessing to what extent actions proposed by USAID meet the needs identified (see FAA Section 119 (d)), and offering useful recommendations for USAID to strengthen its strategy with respect to biodiversity as appropriate.

USAID/Macedonia has prepared and submitted to Washington for review a new Country Strategic Plan (CSP) for Macedonia which will cover the period from 2011-2015. As per USAID regulations, the Mission has conducted several assessments in its preparation, including a FAA 119 Biodiversity Analysis, contracted through a local firm. Unfortunately, the deliverable fell short of meeting requirements in Washington and did not provide sufficient detail in its findings that could be easily incorporated into USAID's country plan in light of USAID/Macedonia's Strategic and programmatic emphasis.

As such, USAID seeks the services of a biodiversity expert with previous experience in preparing FAA 119 Analyses for USAID, preferably in the region, to address the deficiencies in the report so that it can be a) approved by the BEO in Washington and b) be a useful tool for strategic planning and programming at the Mission.

#### USAID Policies Governing Environmental Procedures

Section 119 of the U.S. Foreign Assistance Act of 1961 (as amended) requires USAID to assess national needs for biodiversity and potential USAID contributions to these needs in all country strategy documents. Specifically, FAA Section 119(d), Country Analysis Requirements requires that "Each country development strategy statement or other country plan prepared by the Agency for International Development shall include an analysis of: (1) the actions necessary in that country to conserve biological diversity, and (2) the extent to which the actions proposed for support by the Agency meet the needs thus identified, FAA Sec. 119(d)." This requirement is also articulated in USAID's Automated Directives System (ADS), Section 201.3.9.2 on mandatory environmental analysis relating to biodiversity and tropical forests for strategic plans.

#### II. Background

USAID/Macedonia has developed a new five-year USAID-specific Country Strategic Plan (CSP) that will supersede the Strategy Statement approved for the period 2007-2012. A new CSP was considered appropriate at this time because Macedonia's conditions and USAID's funding levels have changed significantly from the previous strategy periods. Furthermore, the Department of State, in consultation with USAID and other USG agencies, decided in 2008 to postpone the closure of USAID Macedonia until 2016. This has provided the opportunity to redefine ways by which USAID can help Macedonia reach its goal of membership in the Euro-Atlantic Community.

USAID's new strategy is consistent with, and supportive of, the USG economic, education, and democracy-related goals as articulated in the MSP/MSRP, and with USG foreign policy goals for Macedonia in general. In particular, the twin pressures of lack of progress toward Euro-Atlantic institutions and concerns about the economy have drawn into even sharper focus the need to maintain efforts to support rule of law and democratic reform, sound economic policy, and regional stability. The CSP directly supports the top four MSP/MSRP foreign policy priorities over the next two to five years:

- Increased Rule of Law and Security;
- Rapid, Sustainable, and broad-based economic growth;
- Good Governance and Strengthened Democratic Systems; and
- Increased capacity to promote regional and world security.

This CSP has been developed within the general framework for a Country Assistance Strategy (CAS), so it can easily fit into a larger USG strategic plan should one be undertaken. The USG's overarching foreign assistance goal for Macedonia is to build and sustain a more democratic country, more fully integrated in European and Euro-Atlantic structures, and responsive to the needs of its citizens. For its part, USAID/Macedonia intends to:

- Enhance the capacity of Macedonia's citizens and media to engage with their political leaders and influence their decision-making;
- Reduce opportunities for corruption and improve the performance of the judiciary;
- Increase the ability of the Macedonian educational system to produce a workforce for today's economy;
- Increase business growth, investment, and exports; and,
- Support an energy sector where efforts will focus on energy efficiency and alternative energy development.

While the Mission does not have any plans for a stand alone Environmental Objective, it is clear that biodiversity and natural resources play an important role in the country's future economic growth and well-being. Unfortunately, the country's environmental state has seen little improvements and the most recent assessment suggested deterioration on some important fronts, including in the conditions

of Lake Ohrid. It is apparent that many of the threats to Macedonia's environment are rooted in governance issues at both the national and local levels. In some cases, issues related to the environment or biodiversity (e.g. related land use decisions, access and rights) has been linked to tension and conflict, threatening peace and security in the region. At the same time, if these threats can be recognized and addressed, there is ample opportunity for Macedonia to take advantage of "green markets," ecotourism, and the health benefits of a clean productive environment. For these reasons, USAID needs the biodiversity analysis to identify the underlying drivers of threats by considering the institutional and policy environment, including participation by citizens and stakeholders in environmental awareness and decision-making.

### Country Context

Macedonia's progress since independence in 1991 has been marked by significant strides, as well as reversals. Having escaped the inter-ethnic conflict that engulfed large areas of the Balkans in the 1990s, Macedonia experienced its own in 2001. Resolution of that conflict resulted in a landmark agreement, the Ohrid Framework Agreement (OFA) that made Macedonia a positive example for the rest of the region vis-à-vis inter-ethnic relations.

Economic reform, privatization, foreign direct investment (FDI), and exports - all have seen improvements over the past two decades. Still, Macedonia's record lags behind many of its neighbors in education, job creation, political and judicial reform<sup>2</sup>, and, most recently, economic performance<sup>3</sup>. Progress on accession to the European Union (EU) and membership in the North Atlantic Treaty Organization (NATO) is stalled due to a protracted dispute over the country's name; resulting in concerns for the country's long-term economic and political stability should Macedonia remain outside these structures. Moreover, backsliding on governance and democratic development may call into question the country's qualifications even if the name issue is resolved.

After 19 years of independence, Macedonia remains an economy in transition. Unemployment has consistently remained over 25 percent since independence, the "gray economy" is estimated at between 15 and 40 percent of Gross Domestic Product (GDP), and an estimated 28.7 percent of the population lived below the poverty line in 2008. Although the country's banking sector was well-positioned to weather the global recession, GDP growth was negative for much of 2009 and FDI slowed to a trickle. The economy is expected to stabilize in 2010, but with only minimal growth. However, the underlying weaknesses will continue, such as import dependence, low institutional capacity, a gap between the skills of graduating students and those needed by the private and public sectors, and weak rule of law, particularly as concerns the business environment.

The judiciary and regulatory bodies increasingly are subject to political influence, bureaucratic inertia, and corruption. Civil society, although visible, remains weak, and the GOM increasingly engages with it through confrontation, not coordination. Political dialogue rarely rises to a constructive level, the influence of political parties has continued to expand, and the media, lacking full independence, has failed to fulfill its role in informing the public.

Implementation of the OFA, a cornerstone of Macedonia's existence as a multi-ethnic democracy, has faltered. Exacerbating the situation is the tendency of ethnic Macedonians and ethnic Albanians to live separate lives, even to the extent that civil servants, up to the ministerial level, communicate and work primarily with colleagues of their own ethnicity, contributing to problems of "stove-piping" and poor coordination.

### Overall Strategic Approach and Priorities

Macedonia is a country in which United States (U.S.) assistance can have lasting results. Over the past several years, the USG has played an important role in supporting implementation of the Ohrid Framework Agreement, contributing to economic growth and stability, and strengthening democratic practices and institutions. The GOM and public generally welcome U.S. assistance and advice aimed at helping resolve the country's challenges, however, political will on the part of the GOM waxes and wanes, and varying levels of competence can also be an obstacle to success. In implementing its programs, USAID will, as appropriate, employ a variety of approaches, including:

- signing of Memoranda of Understanding (MOUs) whereby the USG and GOM clarify objectives and responsibilities in advance of committing U.S. funding;
- setting conditionality for continued funding (meeting benchmarks);
- promoting and supporting Global Development Alliances (GDAs);
- facilitating public - private dialogue and commitment;
- coordinating with EU and other multilateral and bilateral donors, including using a program-based approach where appropriate, as well as linking U.S. and other donor resources and priorities; and,
- supporting Human and Institutional Capacity Development (HICD) activities.

The Assistance Objectives selected for this CSP have been chosen following a careful review of the GOM's economic and development priorities, which include: increasing economic growth and competitiveness; integration in NATO and EU; decreasing crime and corruption; sustaining good inter-ethnic relations and co-habitation guided by the OFA; and investing in education. In addition, the USAID incorporated findings from the Monitoring Country Progress (MCP) report analysis, the EU's benchmarks for

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<sup>2</sup> Monitoring Country Progress: Transition in Macedonia Highlights, October 23, 2009

<sup>3</sup> Economic Intelligence Unit, Country Report December 2009

accession and latest report on Macedonia's compliance, the programs of Macedonia's principal donors external studies and assessments, and the jointly-developed plans by the Embassy for 2011 and 2012.

### III. Scope of Work

The Contractor shall work under the direction of USAID Macedonia's Mission Environmental Officer, in conducting this assessment. The Mission will provide a locally based expert to assist the Contractor on the assignment, given language, cultural and other constraints of a short-term assignment. Ms. Alicia Grimes of USAID / Washington's EGAT bureau will provide back-stop assistance in technical orientation. While the Mission would prefer this assignment to begin as soon as possible, this assignment must begin no later than November 2010 and end no later than December 10, 2010 with the amended, final report due within three (3) calendar days after receipt of USAID/Macedonia's written comments on the draft report.

#### Tasks:

##### 1. Review of Background Documents, Planning and Pre-Travel Meetings in Washington, D.C.

The Contractor shall gather and review existing background information for Macedonia, including the most recent draft of the incomplete FAA 119 Biodiversity Assessment Macedonia done in 2010 and those done previously in 2005 and in 2000 along with comments on these reports provided by the E&E BEO Compliance Unit to the Mission or contractors, as well as the newly proposed Country Strategic Plan 2011-2015. In addition, relevant documents produced by donors, multilateral organizations, regional institutions such as the Regional Environmental Center and WWF/Carpathians as well as by the GOM shall be used. The Contractor should spend one day in Washington meeting with USAID, the World Bank, and other organizations if applicable for the assignment. To the best of its ability, USAID will assist in identifying government and nongovernment stakeholders and contacts for the Contractor to meet and interview during the country visit, and facilitate logistics in setting up and convening these meetings as appropriate.

##### 2. In-country information gathering:

Upon arriving in country, USAID will provide an in-briefing for the Contractor to introduce him/her to staff, discuss scheduling, logistics, country protocols, issues and other relevant matters. This will include introductions to staff who may accompany him/her to key meetings and necessary institutional background and context.

Based on a review of the recently procured biodiversity assessment and concerns by the BEO Compliance Unit, the Contractor will plan his/her work with a focus on addressing deficiencies in the report. This will involve careful thought to the stakeholders to be interviewed and questions to be asked. The Contractor shall conduct interviews with key stakeholders that could likely include: (1) key government agencies responsible for biodiversity and natural resources, including the Ministry of Environmental Protection and Physical Planning; (2) non- governmental organizations including the Regional Environmental Center; (3) bilateral and multilateral donor agencies including the EU Delegation to Macedonia; (4) project implementers as relevant and necessary to complete this assignment and (5) citizens, entrepreneurs or local government officials as opportunities arise.

### IV. Analysis

#### **Part I: Actions Necessary to Conserve Biodiversity in Macedonia:**

The Contractor will review the findings in the recently completed analysis (completed in early 2010) identifying the principal threats to biodiversity in Macedonia and modify and enhance these with more specific details as necessary. Most importantly however, the contractor will identify the underlying drivers or indirect root causes which are causing the threats, in order to zero in on Actions Necessary and where USAID might make a difference, if appropriate and if within its manageable interest, in its new strategy. The Contractor shall determine whether the threats identified in that report are still a factor and re-prioritize or modify the list of priority threats based on findings. The Contractor shall also determine what significant actions have been taken by the Macedonian Government, donors and NGOs since 2005 that are addressing these threats, if any. Finally the Contractor shall determine, based on this information, what actions are needed to conserve biodiversity in Macedonia (FAA 119 (d) part 1), at large (be they by government, donor community, or others).

The Contractor shall take into account the institutional and political environment in the country and how this may be affecting progress toward these needs. It will also be important for the Contractor to become familiar with regional EU frameworks and policies which are applicable to biodiversity, water resources, and forests that might impact Macedonia presently or in the future.

#### **Part II. Extent to Which Actions proposed by USAID meet the Conservation Needs Identified.**

The Contractor shall work with USAID to become familiar with proposed program actions and emphasis areas under the new CSP. USAID will facilitate meetings with USAID program and technical offices and, if appropriate, their current Contractors and/or grantees. This will allow the Contractor to determine any direct or indirect contributions that USAID's strategy and/or programs might be making to the conservation needs. Since USAID is not proposing or implementing programs under a strictly environmental objective, the Contractor most likely will be seeking to identify *cross-sectoral linkages*.

For example, there may be local governance, civil society, or economic growth work with municipalities that may be contributing to conservation needs, or economic policy reform work that may have implications for biodiversity.

While not required by FAA Section 119(d), the Contractor is asked to recommend potential opportunities that could enhance USAID contributions within the context of CSP framework for Macedonia. The contractor shall examine the proposed CSP and results frameworks under its Economic Growth and Democracy Objectives with a view to recommending sound actions that might be incorporated into these in order to enhance USAID's recognition of the role of environment and strengthen its contribution to biodiversity conservation while it meets its stated foreign assistance objectives. Additionally, the Contractor may highlight potential issues to USAID/Macedonia if any arise that are of concern.

## **V. Deliverables:**

1. Executive Summary and Presentation to USAID/Macedonia prior to the Contractor's departure from Skopje, which raises awareness of the relevance of biodiversity and the environment to USAID's strategy and which provides the findings, conclusions and recommendations of this analysis.
2. Amended or revised FAA 119 draft delivered to USAID/Macedonia prior to departure from Macedonia, not to exceed 25 pages excluding annexes.
  - o The final deliverable (report) shall include a brief overview of the current status of biodiversity and key issues such as economic importance, cultural significance, referencing other documents for details if necessary to keep the description brief. Other required sections are listed in Part IV of this document.
  - o The report shall include a summary table of a priority list of threats or conservation actions.
  - o Annexes will include the SOW; a table or summary of the primary key donor/government/NGO actions (projects, policies) currently taking place or having taken place in Macedonia since 2005; and a list of references and contacts and interviews held.
  - o Upon receiving the draft report, USAID/Macedonia will have 14 calendar days to review it and make changes.
3. Final report due to USAID/Macedonia Environmental Officer within three (3) business days after receipt of USAID/Macedonia's written comments on the draft report.

## **VI. Level of Effort:**

The level of effort is established at 19 work-days plus 3 travel days as follows:

- 1 working day in Washington, DC (if the contractor is in US at the time of the award, or a video conference is anticipated if the contractor is not in US).
- 15 working days in Macedonia to include drafting of report, interviews in Skopje and a field trip to key destinations as necessary to complete this assignment. The contractor shall determine needs in consultation with the Mission.
- 3 work-days at home base for finalization and/or revisions to report.

While in Macedonia the Contractor is authorized six-day work weeks.

## **VII. Preparation and Submittal of Final Reports**

The Contractor will develop a draft of all three deliverables, incorporate all USAID comments on draft deliverables, and produce a set of final deliverables. This should include Alicia Grimes, EGAT's Office of Natural Resources Management as a technical resource in Washington.

The report shall include a summary table of a priority list of threats or conservation actions.

The biodiversity analysis report will include sections covering the following topics:

- Title Page, including the date of completion of the analysis report.
- Table of Contents-Chapters
- Introduction, describing the purpose of the analysis and methods used in conducting it, including the timing of the analysis in relation to the timing of the USG Country Assistance Strategy.
- Part I. Actions Necessary to Conserve Biodiversity in Macedonia
  - o Importance of Biodiversity and Actions Necessary for Conservation. Specifically state the status of biodiversity conservation efforts, summarize the major threats to biodiversity and required conservation actions, and discuss potential international donor programming opportunities.
  - o Threats to Biodiversity. An overview of the status of biodiversity in the country, including ecosystem diversity, species diversity, threatened & endangered species, agricultural biodiversity (specifically, agriculture and natural product use of native species), ecological processes and ecosystem services, and values and economics of

biodiversity and forests. This section will also address changes to the status of biodiversity conservation in the country since the original report and update.

- Conservation Actions undertaken by Host Country, Civil Society, Donors
- Conclusion: Actions Necessary to Conserve Biodiversity
- Part II. Extent to which USAID Actions contribute to the needs indentified in Macedonia
  - Current/On Going Programs
  - Future Strategic Objectives and Results Frameworks and known Programming

Part II: Recommendations

## Annex 4 Protected areas in Macedonia

Table 3.1 World Heritage Sites in Macedonia

Id	Site name	Size (ha)	INSCRIBED
99	Ohrid Natural And Cultural Heritage Site	38000	1979 (extended in 1980)
-	Markovi Kuli Natural Monument	3.648	Tentative Site. Proposed as a mixed site (2004)
-	Cave Slatinski Izvor Natural Monument	-	Tentative Site (2004)

Table 3.2 Wetlands of International Importance (Ramsar Sites) in Macedonia

Site Code	Site name	Size (ha)	ESTABLISHED
127887	Lake Prespa	18,920	1995
903090	Dojran Lake (transboundary area shared with Greece)	2,696	2008

Source: [www.ramsar.org](http://www.ramsar.org) 2008

Table 3.4 Emerald Network Sites in Macedonia

AREA NAME	CURRENTLY DESIGNATED AS	IUCN CATEGORY	AREA_HA
Galichica	National Park	II	22,750
Ezerani	Strict Nature Reserve	Ia	2,137
Dojransko Ezero	Natural Monument	III	2,696
Pelister	National Park	II	17,150
Tikvesh	Strict Nature Reserve	Ia	10,650
Klisura Demir Kapija	Natural Monument	III	200
Mavrovo	National Park	II	73,088
Orlovo Brdo	Natural Monument	III	?
Matka Canyon	Natural Monument	III	5,442
Smolarski vodopad	Natural Monument	III	?
Markovi Kuli	Natural Monument	III	2,300
Bogoslovets	Not designated	-	?
Alshar	Not designated	-	?
Bansko-Monositovo	Not designated	-	?
Belchyshko Blato	Not designated	-	?
Shar Planina	Not designated	-	?

Table 3.5 Important Plant Areas in Macedonia

ID	Site name	Size (ha)
IPA001	Alšar-Tribor	10.245
IPA002	Baba Sač-Luben	1.016
IPA003	Babuna gorge	5.034
IPA004	Belasica	5.644
IPA005	Bistra	19.782

IPA006	Bogdanci	1.301
IPA007	Buković-Straža	5.417
IPA008	Crn Drim gorge	4.448
IPA009	Demir Kapija gorge	6.668
IPA010	Dojran Lake	2.574
IPA011	Galičica	16.962
IPA012	Ilinska Planina	647
IPA013	Jablanica	5.985
IPA014	Jakupica	35.621
IPA015	Katlanovo-Badar	7.526
IPA016	Tikveš Lake and Raec gorge	5.087
IPA017	Kožuf-Dudica	26.864
IPA018	Korab-Dešat	14.576
IPA019	Krivolak	8.541
IPA020	Makedonski Brod	3.578
IPA021	Mariovo	22.113
IPA022	Mavrovo	16.295
IPA023	Negorski	649
IPA024	Nidže	16.752
IPA025	Ohrid Lake	24.721
IPA026	Osogovo	23.923
IPA027	Ovče Pole-Bogoslovec	9.326
IPA028	Pehčevo-Judovi Livadi	480
IPA029	Pelister	18.167
IPA030	Plačkovica	11.847
IPA031	Prespa Lake	18.998
IPA032	Pletvar-Kozjak	10.030
IPA033	Raduša-Žeden	5.598
IPA034	Skopska Crna Gora	20.122
IPA035	Stogovo	3.868
IPA036	Monospitovsko Blato (swamp)	445
IPA037	Suva Gora	2.642
IPA038	Taorska Klisura (gorge)	6.171
IPA039	Topolka gorge	2.007
IPA040	Treska gorge	18.001
IPA041	Vodno	3.193
IPA042	Šar Planina	43.835
TOTAL		2685.478

TABLE 3.6 Important Bird Areas in Macedonia

IBA Code	Site name	Size (ha)
MK001	Sara mountains (parts of)	12,000
MK002	Korab mountain and Radika gorge	50,000
MK003	Babuna gorge, Topolka gorge, and Crn Kamen	2,500
MK004	River Bregalnica	10,000
MK005	Lake Ohrid	25,100
MK006	Lake Prespa	18,920
MK007	River Crna gorge	40,000
MK008	Demir Kapia gorge	8,000
MK009	Kozhuf mountain and Boshava river	20,000
MK010	Lake Dojran	4,200
MK011	Bistrentsi fishponds	300
MK012	Rice plantations of Bregalnitsa and Zletovska rivers	4,000
MK013	Tikvesh	20,000
TOTAL		215,020

Source Birdlife International Website 2008. (An updated list of 22 sites is currently under evaluation)

Table 3.7 Prime Butterfly Areas in Macedonia



Code	Site name	Size (ha)
FYRM-01	Struga	580
FYRM-02	Klisura Radike	720
FYRM-03	Klisura Babune	280
FYRM-04	Ograzden	980

FYRM-05	Galicica	22,800
FYRM-06	Kozuf	16,100
FYRM-07	Sar-Planina	51,900
FYRM-08	Baba	12,500
TOTAL		105,860

Source : van Swaay and Warren, M. 2003.

**Relevant Laws**

Law on Changes and Amendments to the Law on Nature Protection (35/2010)  
Law on Environment (53/2005)  
Law on Forestry (64/2009)  
Law on Nature Protection (67/2004)  
Law on Proclamation of Mountain Pelister as a National Park (150/2007)  
Law on Proclamation of Ornithological Site “Ezerani” as Strict Natural Reserve (37/1996)  
Law on Proclamation of Ornithological Site “Tikves” in the Gorge of Crna Rivar as Strict Natural Reserve (37/1996)  
Law on Protection of lakes Ohrid, Prespa and Dojran (45/1977)  
Law on Spatial Plan of the Republic of Macedonia for the 2002-2020 period ( 39/04)  
Law on Waters (4/98, 19/00);  
Law on Waters (78/2008).

**Formal International Agreements Ratified by the Republic of Macedonia**

Convention for the Protection of the World’s Cultural and Natural Heritage - Ratified by SFRY in 1974;  
Convention on Access to Information, Public Participation in Decision-making, and Access to Justice in Environmental Matters - Ratified by RM in 1999;  
Convention on Biological Diversity (Rio) - Ratified by RM in 1997. Date in Force: 1998;  
Convention on Environmental Impact Assessment in a Transboundary Context (Espoo, 1991) - Ratified by RM in 1999;  
Convention on International Trade in Endangered Species of Wild Fauna and Flora, Washington 1973  
Convention on the Conservation of European Wildlife and Natural Habitats - Ratified by RM in 1997. Date in Force: April 1999.  
Convention on the Conservation of Migratory Species of Wild Animals – Bonn. Ratified by RM in 1999. Date in Force: November 1999;  
Convention on Wetlands of International Importance, Especially as Waterfowl Habitat - Adopted a resolution on ratification in 1977 (“The Official Gazette of SFRY” No. 9/77). The Republic of Macedonia became a party to the Convention with an act of succession and with the nomination of Lake Prespa to the Ramsar list in 1995;  
United Nations Convention to Combat Desertification in Countries Experiencing Serious Drought and/or Desertification, Particularly in Africa - Ratified by RM in 2002.

**STRATEGIES**

[Environmental Awareness Strategy](#)

[Environmental Communication Strategy](#)

[Environmental Data Management Strategy](#)

[Environmental Monitoring Strategy](#)

[Second National Environmental Action Plan \(NEAP2\)](#)

[National Environmental Health Action Plan Of The Republic Of Macedonian - NEHAP](#)

[National Environmental Investment Strategy \(2009 - 2013\)](#) 

[National Strategy for Clean Development Mechanism of Macedonia for the first commitment period of the Kyoto Protocol, 2008-2012](#)

[National Strategy for Environmental Approximation](#)

[Vision 2008 - The Roadmap of the Ministry of Environment and Physical Planning](#)

[Waste Management Strategy of the Republic of Macedonia \(2008-2020\)](#) 

### **Other Lists in International Agreements and EU Directives used in Biodiversity Conservation**

Global Red list (IUCN)

EC Directive on the Conservation of Wild Birds (79/409/EEC)

EC Directive on conservation of natural habitats and of wild fauna and flora (92/43/EEC)

BirdLife International,

PlantLife International

Butterfly Conservation.

## ANNEX 6: DONOR ACTIVITIES IN BIODIVERSITY CONSERVATION

Important *donor agencies* involved in biodiversity conservation in Macedonia include EU, KfW, Swiss Agency for Development and Co-operation, Swiss Government, UNDP and UNDP/GEF, SIDA, USAID, ADA, the Austrian Government and the Italian Government. The majority of donor efforts have focused on (1) bringing Macedonian legislation in accordance with EU standards, and (2) funding of management action plans for the best known and important national parks and lakes. These are good steps forward but there is a recognized gap between legislative reform and the ability to implement new policies and structures. It is unclear whether the environmental voice is strong enough to urge the government to fund and implement new environmental legislation in competition with myriad other needs.

On a central level, the EU and the European Agency for Reconstruction have strongly supported the development of action plans and assisted in moving legislative reform forward. Donor coordination is occasional and carried out more on a site-specific level. The MEPP is responsible for organizing donor coordination meetings but has not been active in this regard. Donors have, by in large, worked to complement each other's activities rather than to overlap. Much of the funding is at the site level and has not adequately addressed the institutional needs required to implement the new legislative frameworks.

EU assistance for Macedonia will be provided for institution building, to the improvement of governance and the rule of law through Community Instrument for Pre-Accession (IPA) funds. Crucial is improvement of the so-called 'absorption capacity' of Macedonian institutions for utilization of these funds, regarding that a large portion of previously allocated resources were not used. Having in mind that EU accession is a paramount priority of the Government of Macedonia, in which Environment is a significant chapter, it is to be expected that more attention and national resources be allocated in the future to match the country's obligations.

The Swiss Agency for Development and Cooperation (SDC) has financed environmental protection of Golema Reka catchment in Prespa region, providing thereby pollution prevention and conservation for both the river corridor and the lake. Also, a number of projects in the water sector have been financed (Kumanovo Wastewater Treatment Plant, Bregalnica WW Management Plan) and are planned in the future.

SDC has funded a long-term program for improving the management and planning capacity of Pelister National Park. Pelister is one of the three National Parks and is responsible for funding itself through tourism and use of its natural resources. SDC has funded numerous activities to improve the capacity of park management as well as the monitoring of its resources. The project has been terminated due to bad management, corruption and inappropriate spending of project funds. SDC has therefore diverted its funds in Macedonia to other regions (Bregalnica River catchment) and to environmental education.

The Italian government is supporting the Management Plan Development for Mavrovo National Park. Following stalemates and problems with other projects (Protection of Radika River catchment – with focus on construction of 6 small WWTPs), Italian support for environment is frozen for the time being—although reportedly, the Management Plan for Mavrovo is back on track.

German KfW is supporting elaboration of the Management Plan for Galicica NP. The project is assisting the self-sustaining capabilities of the Park while focusing on conservation of the rich biodiversity. No new projects in environment are planned for the future period.

German Technical Cooperation (GTZ) supported the MEPP in implementation of the new Water Law and the institutional transformation of the water sector. No projects regarding biodiversity are currently planned.

UNDP in Macedonia has played a significant role in the past period. The umbrella Prespa Park Project promotes sustainable development and environmental (and biodiversity) protection through a number of activities and sub projects: Golema Reka Protection Ph. I and II (financed by SDC); re-evaluation of Ezerani Strict Nature Reserve; activities for establishment of a trans-boundary water management coordination body; and by strongly improving environmental awareness in the riparian countries.

Another significant project implemented by UNDP (financed by GEF) is Strengthening of the Macedonia's Protected Areas' System. Within the project, Assessment of Macedonia's Biodiversity Report has been prepared, recommendations for improvement of PA institutional, organizational and legal setup have been presented, as well as support for re-evaluation and re-proclamation of selected protected areas. Well tailored and implemented projects have made significant impact, regarding both awareness and a shift to environmentally sound practices.

UNDP plans further projects in the Biodiversity protection in the country, through collaboration with other donors (IPA, GEF Biodiversity Operational Programmes and bilateral donors).

GEF Small Grants Programme (GEF SGP) co-finances small biodiversity projects and thereby supports environmental NGO capacity building since 2007, and is planning similar future involvement in the country.

Austrian Agency for Development Cooperation (ADA) has financed elaboration of the Environmental Investment Strategy for Macedonia (implemented by REC, 2009). However ADA is phasing out their operations in Macedonia and is not planning future projects.

Regional Environmental Centre for South-Eastern Europe (REC) Office in Macedonia has been active in the environment through implementation of a number of projects in the country and regionally, financed by various donors. REC, based in Budapest, has upgraded its status by becoming a UN and GEF Implementing Agency, and is expected to play a more significant role in the environmental sector in the future.

Regarding Lake Ohrid, the GEF Lake Ohrid Conservation Project (LOCP) enacted cooperation between Albania and Macedonia on joint watershed protection and management. The numerous activities improved understanding and awareness. An Agreement between the two countries was signed in 2008 on joint management, including establishment of a trans-boundary management body. In spite of positive developments, full implementation and lake protection still has a long way to go to become effective.

Prespa Lake and its watershed have also been the stage for a number of development cooperation projects, starting from 2000 when Prime Ministers of the three riparian countries signed the Declaration on Sustainable Development and Environmental Protection of Prespa Lakes Watershed. Since, an umbrella Trans-boundary Prespa Park Project (UNDP GEF) and the national components (AL and MK) have made significant progress in establishing cooperation on nature protection, sustainable development and, the most important, joint watershed management. Other donors have also participated in the region: German KfW with Hydro-geological Study (2005) and Management Plans for Galicica National Parks (Albania 2,5 M€, Macedonia 1,5M€), Norway –Crn Drim Project, Italy and Regional UNDP Bureau with smaller projects.

The National Environmental Investment Strategy (2009-2013) includes funds for the establishment of Jablanica NP and Jakupica NP; and for Osogovo project for nature conservation and sustainable development. The goal is to prepare the

Development of a National Environmental Network (MAK-NEN) commenced in July 2008 with the financial support by BBI Matra Fund from The Netherlands. The Project is coordinated by the European Centre for Nature Conservation (ECNC) and implemented by the Macedonian Ecological Society with support and in cooperation with the MEPP. The project will last three years, is valued at EUR 100,000, and will help establish corridors between PAs for the conservation of migratory species.