Ecosystem Profile

Mediterranean Basin Biodiversity Hotspot

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CONTENTS

EXECUTIVE SUMMARY

The Critical Ecosystem Partnership Fund (CEPF) is designed to safeguard the world's biologically richest and most threatened regions, known as biodiversity hotspots. Thirty-six biodiversity hotspots, defined as regions that have at least 1,500 endemic plants species and have lost more than 70% of their original natural vegetation, have been identified globally. Remaining natural ecosystems within these hotspots cover only 2.3% of the Earth's surface but contain a disproportionately high number of species, many of which are threatened with extinction. Hotspots, therefore, are global priorities for conservation.

CEPF is a joint initiative of l'Agence Française de Développement, Conservation International, the European Union, the Global Environment Facility (GEF), the Government of Japan, the John D. and Catherine T. MacArthur Foundation and the World Bank. It also benefits, at hotspot level, from the support of regional donors. A fundamental purpose of CEPF is to engage civil society, such as community groups, non-governmental organizations (NGOs), academic institutions and private enterprises, in biodiversity conservation in the hotspots. To guarantee their success, these efforts must complement existing strategies and programs of national governments and other conservation funders. To this end, CEPF promotes working alliances among diverse groups, combining unique capacities and reducing duplication of effort for a comprehensive, coordinated approach to conservation. One way in which CEPF does this is through preparation of "ecosystem profiles": shared strategies, developed in consultation with local stakeholders, that articulate a multi-year investment strategy for CEPF, informed by a detailed situational analysis.

The Mediterranean Basin Biodiversity Hotspot is the second largest hotspot in the world and the largest of the world's five Mediterranean-climate regions. The hotspot covers more than two million square kilometers and stretches west to east from Portugal to Jordan and north to south from Italy to Cabo Verde. The Mediterranean Basin is the third richest hotspot in the world in terms of plant diversity. Approximately 25,000 plant species occur here, more than half of which are endemic to the hotspot, meaning that they are found nowhere else.

Rivaling the natural diversity in the hotspot, the cultural, linguistic and socioeconomic diversity of the region is spectacular. The Mediterranean Basin was the cradle of some of the great civilizations of antiquity, the world's oldest sovereign state and its first constitutional republic. Many of the ecosystems long ago reached equilibrium with human activity dominating the landscapes. However, this delicate balance is in a precarious state, as many local communities depend on remaining habitats for fresh water, food and a variety of other ecosystem services.

CEPF's first investment in the Mediterranean Basin Hotspot, from 2012-2017, resulted in the award of 108 grants to 84 different organizations in 12 countries, for a total investment of U$11 million. CEPF-funded actions contributed directly to improved management of sites, conservation of critically endangered species, improved policies for the environment, and greater collaboration and regional networking among civil society organizations (CSOs), as well as between civil society and government and private sector actors.

The Mediterranean region has experienced unprecedented levels of political change in the last five years. Large movements of refugees and economic migrants have taken place, both within countries and across international borders. Many governments across the region are becoming more open to collaboration with civil society, and new opportunities are emerging for NGOs to engage in work on the ground and in influencing planning and policy making.

These trends are not universal, however, and some countries continue to experience war and insecurity, as well as changes in policy that restrict the activities of civil society.

The last five years have also seen major advances in the identification of priority species and sites in the hotspot, with major initiatives on plants and freshwater biodiversity in particular. In parallel, the international conservation community has collaborated to revise and improve the criteria for the identification of Key Biodiversity Areas (KBAs): sites that make significant contributions to the global persistence of biodiversity. The new KBA standard is applicable to all groups of species and all ecosystems. Consequently, this revision of the ecosystem profile has involved extensive updating of knowledge on sites and species. For instance, 5,785 species recorded in the Mediterranean Basin Hotspot have been assessed for the IUCN Red List, which has classified 1,311 (23%) of them as globally threatened. The sites that provide critical habitat for these species, KBAs, are, in many cases, the only sites where they are known to exist. Five hundred and thirty three KBAs have been identified in the 16 countries covered by the ecosystem profile update, an increase from 493 KBAs in the previous ecosystem profile.

This revision of the ecosystem profile for the Mediterranean Basin has been made possible by financial and technical support from CEPF, the MAVA Foundation and the Prince Albert II of Monaco Foundation. The process to update the ecosystem profile was led by the BirdLife International secretariat, working in close partnership with IUCN, Tour du Valat, Conservatoire du Littoral, Sociedad Española de Ornitologia (BirdLife Spain), Društvo za opazovanje in proučevanje ptic Slovenije (BirdLife Slovenia) and Association les Amis des Oiseaux (BirdLife Tunisia). During the course of the revision, over 500 biodiversity experts, field conservationists, government officials and representatives of donors and CSOs participated in a series of national and regional workshops and specialist meetings. The profile also builds on the extensive process of analysis and consultation carried out during the identification of Important Plant Areas and Freshwater KBAs, as well as numerous studies of individual sites and species.

In planning for the next phase of CEPF grant making in the hotspot, it is important to consider the existing strategies and programs of national governments, donors and other stakeholders. The review of conservation investment presented in the profile concludes that, while this is a region with very significant support from development aid, support to biodiversity conservation is limited to a small number of sources, prominent among which are the GEF, le Fonds Français pour l'Environnement Mondial (FFEM) and the MAVA Foundation.

CEPF Niche and Investment Priorities

The ecosystem profile identifies a suite of conservation outcomes at species, site and corridor scales, which constitutes a long-term, overarching agenda for conservation of the Mediterranean's unique and valuable biodiversity. Only a fraction of these priorities can be tackled by CSOs over the next five years with CEPF support. The ecosystem profile, therefore, defines a niche for CEPF investment, which focuses on supporting civil society to implement **integrated projects rooted in ground-level realities that provide local CSOs with the experience and credibility needed to engage effectively at a larger scale**. Building from this niche, the profile identifies geographic and thematic priorities for support that form the basis for a five-year investment strategy.

CEPF support to conservation action in the Mediterranean Basin Hotspot will be delivered through six strategic directions focused on three ecosystems (coastal, freshwater and traditionally managed landscapes), a species group (plants), and a supporting thematic focus (regional networking). Underpinning these strategic directions are three cross-cutting priorities: a focus on site-based conservation action; integration of CSO capacity building into projects; and attention to sustainability and mainstreaming of impacts.

Strategic Direction 1 addresses some of the most threatened sites and ecosystems in the hotspot: those in the coastal strip. Coastal ecosystems are under increasing pressure from human population growth and migration, the growth of tourism, and associated urbanization and pressure on land and water resources. Building on experience from the first phase of CEPF investment in the hotspot, grant-making will focus on site-level action but will also allow grantees to exploit opportunities to engage with planning and policy making processes, where there are clear opportunities to do so. Grants under this strategic direction will focus on 31 priority KBAs.

Strategic Direction 2 addresses the conservation of freshwater biodiversity. Nearly one-third of the critically endangered species found in the hotspot are freshwater animals and plants. They are found in habitats including rivers, lakes, karst cave systems, ephemeral desert water courses and coastal marshes. The need for fresh water for agriculture and human consumption, especially in North Africa and the Middle East but also in Turkey and the Balkans, is one of the most persuasive reasons for the sustainable management of resources. Grants under this strategic direction will focus on 24 priority catchment management zones.

Strategic Direction 3 introduces a new theme from the first phase: the conservation of wild biodiversity that depends on managed ecosystems for its survival. Mediterranean biodiversity has evolved with human land-use practices for several thousands of years, to the extent that many of the most threatened terrestrial species are dependent on habitats that are maintained through continuing intervention for agriculture, seasonal grazing or harvesting of wild products. The species that depend on these anthropogenic systems are threatened when the management system is abandoned and the land reverts to secondary scrub, when traditional sustainable practices change and cause degradation and erosion, and when modern agricultural and land-use practices replace traditional practices. Under this strategic direction, CEPF grantees will work with local resource managers to enhance income and livelihoods at the same time as maintaining important biodiversity. Grants will be made for relevant projects in four priority corridors, all of them upland zones where traditional practices persist: Orontes Valley and Levantine Mountains; the Atlas Mountains; the Dorsal and Telian Atlas; and the Taurus Mountains.

Strategic Direction 4 specifically addresses the conservation of plants, which comprise 462 (23%) of the threatened species in the hotspot, including 158 (44%) of the critically endangered species. The limited range and very specific habitat requirements of some threatened plants means that their conservation can be tackled effectively by local CSOs working on the ground with limited resources, often in partnership with protected areas managers or local land owners. However, capacity to survey for threatened and endemic plants, and to take action for their conservation, is limited. To this end, this strategic direction has a specific focus on strengthening the botanical knowledge and skills of scientists, conservationists and land managers within the hotspot.

While capacity building at the level of individual grantees and projects will be integrated into individual grants, Strategic Direction 5 focuses on creating regional-level interactions, to share the lessons that are being learned and establish connections between the different conservation communities. These will include programs organized by CEPF, as well as support to grantees to participate in existing networking and learning processes.

Finally, Strategic Direction 6 covers the functions of the Regional Implementation Team (RIT) in implementing and managing the program over the next five years, and contributing to the sustainability and wider policy impact of the overall program. The RIT will consist of one or more CSOs active in conservation in the hotspot, and will be responsible for converting the plans in the ecosystem profile into a cohesive portfolio of grants that exceeds in impact the sum of its parts.

CEPF Strategic Direction	CEPF Investment Priorities
1: Support civil society to engage stakeholders in demonstrating integrated approaches for the preservation of biodiversity in coastal areas.	1.1: Engage local stakeholders in conservation actions that address threats to key elements of biodiversity in priority KBAs in the coastal zone.
	1.2: Engage private sector stakeholders to adopt sustainable practices that deliver positive impacts for conservation in priority KBAs in the coastal zone.
	1.3: Support civil society to engage with local or national governments to mainstream biodiversity conservation into integrated coastal zone management, land-use and development planning processes.
2: Support the sustainable management of water catchments through integrated approaches for the conservation of threatened freshwater biodiversity.	2.1: Enhance the knowledge base on freshwater biodiversity and its importance in maintenance of freshwater ecosystem services.
	2.2: Take action to reduce threats and improve management of selected sites in priority freshwater catchments with the participation of local stakeholders.
	2.3: Engage with government, private sector and other stakeholders to support integrated river basin management practices that reduce threats to biodiversity in priority CMZs.
3: Promote the maintenance of traditional land use practices necessary for the conservation of Mediterranean biodiversity in priority corridors of high cultural and biodiversity value.	3.1: Support local communities to increase the benefit they receive from maintaining and enhancing traditional, biodiversity-friendly land-use and agricultural practices.
	3.2: Promote awareness of the value of traditional, biodiversity-friendly land-use practices among local community and government decision makers, to secure their recognition and support.
	3.3: Encourage business actors in the trade chain to support and promote traditional, biodiversity-friendly land-use practices.
4: Strengthen the engagement of civil society to support the conservation of plants that are critically endangered or have highly restricted ranges.	4.1: Increase knowledge and skills to support assessment and planning for the conservation of plants, and foster the emergence of a new generation of young professionals in plant conservation.
	4.2: Support integration of plant conservation into the management of protected areas.
	4.3: Support innovative actions for the conservation of important populations of plants, working with land owners and managers.
5: Strengthen the regional conservation community through the sharing of best practices and knowledge among grantees across the region.	5.1: Support regional and thematically focused learning processes for CSOs and stakeholders.
	5.2: Support grantees to understand and engage with international conventions and processes.
6: Provide strategic leadership and effective coordination of CEPF investment through a Regional Implementation Team.	6.1: Build a constituency of civil society groups working across institutional and political boundaries toward achieving the shared conservation goals described in the ecosystem profile.
	6.2: Act as a liaison unit for relevant networks throughout the Mediterranean to harmonize investments and direct new funding to priority issues and sites.

Acronyms

AAO	Association Les Amis des Oiseaux/BirdLife Tunisia
ACCOBAMS	Agreement on the Conservation of Cetaceans in the Black Sea Mediterranean Sea and Contiguous Atlantic Area
AEWA	African-Eurasian Migratory Waterbird Agreement
AFD	l'Agence Française de Développement
AFED	Arab Forum for Environment and Development
AFOLU	Agriculture, forestry and other land-use
AMU	Arab Maghreb Union
BMU	German Federal Ministry for Environment, Nature Conservation, Building and Nuclear Safety
BMZ	German Federal Ministry of Development Cooperation
CBD	Convention on Biological Diversity
CBO	Community Based Organisation
CEPF	Critical Ecosystem Partnership Fund
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CMS	Convention on Migratory Species
CMZ	Catchment Management Zone
CoE	Council of Europe
COP	Conference of the Parties
CR	Critically Endangered
CSF	Civil Society Facility
CSO	Civil Society Organisation
CSR	Corporate Social Responsibility
CZIP	Centre for Protection and Research of Birds (Centar za zaštitu i proučavanje ptica Crne Gore)
DAC	Development Assistance Committee
DCI	Development Cooperation Instrument
DOPPS	Društvo za opazovanje in proučevanje ptic slovenije/BirdLife, Slovenia
EBSA	Ecologically or Biologically Significant Marine Areas
EDF	European Development Fund
EIA	Environmental Impact Analysis
EITI	Extractive Industries Transparency Initiative
ELAW	Environmental Law Alliance Worldwide
EN	Endangered
ENI	European Neighborhood Instrument
ENP	European Neighbourhood Policy
EPI	Environmental Performance Index
EU	European Union
EUROBATS	Agreement on the Conservation of Populations of European Bats
FAO	Food and Agriculture Organisation of the United Nations
FFEM	Fonds Français pour l'environnement mondial
FoE	Friends of the Earth
FSC	Forestry Stewardship Certification
FYR	Former Yugoslav Republic
GDP	Gross Domestic Product

GEF	Global Environmental Facility
GHG	Greenhouse gases
GREPOM	Groupe de Recherche pour la Protection des Oiseaux au Maroc
ha	hectares
HDI	Human Development Index
ICCAT	International Commission for the Conservation of Atlantic Tuna
ICNL	International Center for Not-for-Profit Law
ICZM	integrated coastal zone management
IKI	International Climate Initiative
INCA	Institute for Nature Conservation of Albania
INDC	Intended Nationally Determined Contribution
IPA	Important Plant Area
IPA	Instrument for Pre-accession Assistance
IPBES	Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services
IPCC	Intergovernmental Panel on Climate Change
IPPC	International Plant Protection Convention
IT PGRFA	International Treaty on Plant Genetic Resources for Food and Agriculture
IUCN	International Union for the Conservation of Nature
IWRM	Integrated Water Resource Management
KBA	Key Biodiversity Area
LAS	League of Arab States
LEF	Lebanese Environment Forum
LS	Land Stewardship
MAB	Man and Biosphere Programme
MAP	Mediterranean Action Plan
MAVA	MAVA Foundation
MDG	Millennium Development Goals
MEA	multilateral environmental agreements
MedPAN	Network of Marine Protected Area Managers in the Mediterranean
MedWet	Mediterranean Wetlands Initiative
MENA	Middle East and North African Arab countries
MoU	Memorandum of Understanding
MPA	Marine Protected Area
NBSAPs	National Biodiversity Strategies and Action Plans
NDC	Nationally Determined Contribution
NGO	Non-governmental Organisation
NTFP	Non-timber Forest Product
ODA	Official Development Assistance
PA	Protected Area
PAME	Protected Area Management Effectiveness index
PPNEA	Protection and Preservation of Natural Environment in Albania
RAC/SPA	Regional Activity Centre for Specially Protected Areas (under Barcelona Convention)
REC	Regional Environment Centre
REDD	Reducing Emissions from Deforestation and Forest Degradation

RIT	Regional Implementation Team
RSCN	The Royal Society for the Conservation of Nature
SAP	Species Action Plan
SEO	Sociedad Española de Ornitología
SIBE	Biological and Ecological Interest Sites
SPA	Specially Protected Areas
SPAMI	Special Protected Area of Mediterranean Importance
SPNL	Society for the Protection of Nature in Lebanon
UAE	United Arab Emirates
UAM	Union of Arab Maghreb
UK	United Kingdom
UNCCD	Convention to Combat Desertification
UNCLOS	United Nations Convention on the Law of the Sea
UNDP	United Nations Development Program
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNFCCC	UN Framework Convention on Climate Change
USA	United States of America
USAID	United States Agency for International Development
USFWS	US Fish and Wildlife service
VU	Vulnerable
WCMC	World Conservation Monitoring Centre
WCPA	World Commission on Protected Areas
WEI	Water Exploitation Index
WHC	World Heritage Convention
WWF	World Wide Fund for Nature

1. INTRODUCTION

There is growing evidence of the many functions and economic benefits of natural ecosystems for human beings. Nevertheless, the fast depletion of natural resources continues worldwide. The current rate of global extinctions of plants and animals due to human activities is more than 1,000 times higher than the average rates observed throughout life's history on Earth (Pimm *et al.* 1995). As a response to this dilemma, a range of tactics have been developed to help sustain the world's critical ecosystems and ecological services, one of the most influential being the "biodiversity hotspots" concept (Myers *et al.* 2000).

There are 34 biodiversity hotspots in the world, each holding at least 1,500 plant species found nowhere else, or endemic, and having lost at least 70% of its original habitat extent (Mittermeier *et al.* 2004). The biodiversity hotspots concept has united much of the world's conservation and sustainable development community, leading to action across the world's most threatened areas.

Founded in 2000, the Critical Ecosystem Partnership Fund (CEPF) has become a global leader in enabling civil society to participate in and influence the conservation of some of the world's hotspots. CEPF is a joint initiative of l'Agence Française de Développement (AFD), Conservation International, the European Union (EU), the Global Environment Facility (GEF), the Government of Japan, the John D. and Catherine T. MacArthur Foundation, and the World Bank. As one of the founders, Conservation International administers the global program through a CEPF Secretariat.

The Mediterranean Basin Hotspot is the second largest hotspot in the world and the largest of the world's five Mediterranean-climate regions. It covers 2,085,292 square kilometers and stretches west to east from Portugal to Jordan and north to south from northern Italy to Tunisia. It also includes parts of Spain, France, the Balkan States, Greece, Turkey, Syria, Lebanon, Israel, Palestine[1], Egypt, Libya, Morocco and Algeria, as well as around 5,000 islands scattered around the Mediterranean Sea. West of the mainland, the hotspot includes a number of Atlantic islands: the Canaries, Madeira, the Selvages (Selvagens), the Azores and Cabo Verde (Figure 1.1).

In 2012, CEPF started a five-year program of investment in the Mediterranean Basin Hotspot which resulted in the award of 108 grants to 84 different organizations in 12 countries, with a total value of US$11 million. The CEPF Donor Council has approved a second phase of this investment. During the course of the first phase, parts of the region experienced dramatic political change, collectively referred to as the Arab spring, which has had profound effects on the role and opportunities for civil society in these countries. At the same time war has continued in Syria, and insecurity is an obstacle to conservation activities in parts of Libya.

The political upheaval and insecurity as well as global economic uncertainty have impacted on one of the region's major drivers of economic activity, tourism. The hotspot is one of the most popular tourism destinations of the world, with 32% of the world's tourists (220 million per year) (Plan Bleu 2006), but some of the countries and regions most dependent on tourist income have experience stagnation, while in others (notably the Balkans and Cabo Verde) the industry has continued to grow.

[1] This designation shall not be construed as recognition of a State of Palestine and is without prejudice to the individual positions of the CEPF donors on this issue.

Tourism and the growing populations on the coastal fringe of the southern Mediterranean are increasing the demand for energy, water and infrastructure. Climate change is worsening the problem, and all the countries of the southern part of the hotspot experience water deficit. The increasing number and magnitude of water investments has caused irreversible damage to the fragile water cycle of small river basins in the hotspot.

Figure 1.1 Location of the Mediterranean Basin Hotspot

CEPF develops ecosystem profiles to identify and articulate an investment strategy for each hotspot that will receive funding. Preparation of the ecosystem profile is not simply a desk study but involves a regional participation process so that the final outcome is owned and used by stakeholders in the region. Each ecosystem profile reflects a rapid assessment of biological priorities and the underlying causes of biodiversity loss within particular ecosystems. The profile couples these two elements with an inventory of conservation related investment taking place within the region and other key information to identify how CEPF funding can provide the greatest incremental value. Finally, each profile provides a clear picture of what the conservation priorities are, and specifically, which ones would be the most appropriate to receive CEPF investment.

Defining the "conservation outcomes" for a given hotspot is the most critical step in the ecosystem profiling process. These outcomes refer to the entire set of conservation targets in a hotspot to be achieved in order to prevent biodiversity loss. The CEPF funding niche and strategy is based upon these outcomes, firstly to ensure that CEPF investments are directed at relevant issues, and secondly to enable measurement of the success of investments, since these targets also represent a baseline for monitoring.

Conservation outcomes are identified at three scales representing (i) the globally threatened species within the region, (ii) the sites that sustain them (key biodiversity areas), and (iii) the landscapes necessary to maintain the ecological and evolutionary processes upon which those sites depend — the corridors. Respectively, these outcomes are: “extinctions avoided,” “areas protected” and “corridors created.” In defining outcomes at the species, site and corridor levels, CEPF aims to identify targets that are quantitative, justifiable and repeatable. CEPF is not trying to achieve all of these targets in every hotspot, but its investment niche and strategy aims to address a priority subset of them.

Each ecosystem profile recommends broad strategic funding directions that can be implemented by the civil society to contribute to the conservation of biodiversity in the hotspot. To this end, CEPF provides civil society with a flexible funding mechanism. An additional purpose is to ensure that those efforts complement existing strategies and frameworks established by local, regional and national governments. CEPF promotes working alliances among community groups, nongovernmental organizations (NGOs), government, academic institutions and the private sector, combining unique capacities and eliminating duplication of efforts for a comprehensive approach to conservation. CEPF targets transboundary cooperation when areas rich in biological value straddle national borders, or in areas where a regional approach will be more effective than a national approach.

2. BACKGROUND

2.1 The ecosystem profile updating process

The first phase of CEPF investment in the Mediterranean Basin Hotspot (2012-2017) was guided by an ecosystem profile prepared in 2010. Given the very significant political changes that have occurred in the region since 2010, the availability of new information on biological priorities, and the rich experience gained from five years of grant making, it was necessary to update the ecosystem profile to guide the next five-years of CEPF investment. The update of the ecosystem profile was financed by CEPF, the Prince Albert II of Monaco Foundation and MAVA Fondation pour la Nature.

The ecosystem profile update was led by a consortium consisting of BirdLife International, IUCN, Tour du Valat, Conservatoire du Littoral, and three BirdLife Partners from Mediterranean-based organizations; Sociedad Española de Ornitología (SEO/BirdLife Spain), Društvo za opazovanje in proučevanje ptic slovenije (DOPPS/BirdLife, Slovenia) and Association Les Amis des Oiseaux (AAO/BirdLife, Tunisia). IUCN participation included staff of the Centre for Mediterranean Cooperation (IUCN-Med), the IUCN Regional Office for Eastern Europe and Central Asia (IUCN ECARO) and IUCN Regional Office for West Asia (ROWA), and experts from IUCN's Global Species Programme (GSP) and from the Species Survival Commission (SSC) Mediterranean Plant Specialist Group. DOPPS, AAO and the BirdLife Middle East Office provided sub-regional support to national partners, with the BirdLife Secretariat providing direct support to Cabo Verde and Turkey.

The team sought the input of local governments, communities, businesses and civil society organizations in the Mediterranean Basin Hotspot. A total of 461 participants attended 14 national workshops between September and November 2016 (Table 2.1).

Table 2.1 Dates and locations of local stakeholder consultation workshops

Date	Location	Country covered	Meeting coordinator	Participants
20/09/2016	Čapljina	Bosnia and Herzegovina	Lijepa nasa	31
23/09/2016	Podgorica	Montenegro	CZIP/BirdLife	24
26/09/2016	Tirana	Albania	PPNEA	50
28/09/2016	Skopje	Macedonia, FYR	MES/BirdLife	35
11/10/2016	Cairo	Egypt	EEAA and NCE/BirdLife	59
12/10/2016	Rui Vaz (Santiago)	Cabo Verde	Biosfera1	24
13/10/2016	Dibbens Reserve	Jordan	RSCN/BirdLife	34
14/10/2016	Rabat	Morocco	GREPOM/BirdLife	24
18/10/2016	Beqa'a Valley	Lebanon	SPNL/BirdLife	43
18/10/2016	Tunis	Libya	AAO/BirdLife	5
18/10/2016	Tunis	Tunisia	AAO/BirdLife	35
20/10/2016	Alger	Algeria	AREA-ED	51
26/10/2016	Jordan	Palestine	PWS/BirdLife	10
02/11/2016	Ankara	Turkey	Proje Evi	36
TOTAL				**461**

No workshops were held in Syria or Kosovo. Instead, data were collected via personal communications with stakeholders in these countries. Overall, therefore, 16 countries were covered by the update of the ecosystem profile. Not all of these countries are eligible for CEPF funding (see Section 11.1) but the purpose of the ecosystem profile is to provide a shared strategy that can be used by other funders to guide their investments in conservation actions led by civil society groups.

Many different sectors were invited to the national consultations, with representations of civil society organizations (CSOs), government agencies, including protected area managers, public companies, private business, research institutions and international donors (Table 2.2).

Table 2.2 Percentage of participants in each national consultation workshop, by sector

Country	Business or media	CSO/ NGO	Donor/UN agency	Government agency	Research institution	Not specified
Albania	4	42	0	32	22	0
Algeria	2	37	4	29	27	0
Bosnia and Herzegovina	6	74	0	16	0	3
Cabo Verde	0	38	4	29	29	0
Egypt	3	8	12	59	10	7
Jordan	6	41	0	29	21	3
Lebanon	14	47	2	9	26	2
Libya	0	60	0	20	20	0
Macedonia, FYR	11	49	6	14	20	0
Montenegro	29	50	4	8	8	0
Morocco	0	33	0	38	25	4
Palestine	10	20	0	30	40	0
Tunisia	0	69	0	26	6	0
Turkey	3	44	17	22	8	6
TOTAL	**6**	**42**	**4**	**28**	**18**	**2**

Each workshop discussed in detail the analysis for a specific part of the Mediterranean Basin Hotspot, cross-checking the team's data on the names and locations of sites, discussing the boundaries identified, and verifying the presence of species of conservation concern. The workshops also provided an opportunity to collect information on stakeholders, threats and conservation actions at each site, and this information forms an important part of the analysis in Chapters 7, 8 and 10. The lists of species and the maps of proposed priority sites were posted on a website that was available between September and November 2016.

In addition to the national meetings, there was a regional meeting organized at the end of November 2016, where 51 participants (some of whom had already participated in the national meetings) contributed to the validation of the new profile, the final definition of corridors and the investment strategy. This process also benefitted from the results of the final assessment of CEPF's first phase of investment in the hotspot. During the different phases, a team of contributors reviewed and provided their knowledge and expertise to improve the contents of the different chapters. Altogether, this document is the result of the participation of some 500 people.

2.2 CEPF grant-making during the first phase

During the first phase, the CEPF Mediterranean grants program made 108 grants to 84 different organizations in 12 countries. Not including the Regional Implementation Team

(RIT) grants, average grants sizes were US$152,000 for large grants and US$15,600 for small grants. Eleven recipient countries are still eligible in the second phase; one, Croatia, ceased to be eligible following accession to the EU. There were no grants in Kosovo, Palestine, Syria, Egypt or Turkey. Table 2.3 summarizes the distribution of the grants by country.

Table 2.3 Grants made during Phase 1 of CEPF investment in the Mediterranean Basin

Country	All grants		Large grants		Small grants	
	No.	Amount (US$)	No.	Amount (US$)	No.	Amount (US$)
Albania	11	1,069,071	7	1,015,194	4	53,877
Bosnia and Herzegovina	12	638,717	5	530,840	7	107,877
Croatia	1	1,683	0	0	1	1,683
Macedonia	8	459,570	4	407,169	4	52,401
Montenegro	10	1,089,084	7	1,051,000	3	38,084
Regional projects in the Balkans	6	661,911	3	605,544	3	56,367
Balkan sub-region	**48**	**3,920,036**	**26**	**3,609,747**	**22**	**310,289**
Jordan	6	317,144	1	242,103	5	75,041
Lebanon	8	813,934	4	770,693	4	43,241
Middle East sub-region	**14**	**1,131,078**	**5**	**1,012,796**	**9**	**118,282**
Algeria	4	225,836	1	168,736	3	57,100
Cabo Verde	6	403,177	3	344,792	3	58,384
Libya	2	35,350	0	0	2	35,350
Morocco	12	925,133	4	773,544	8	151,589
Tunisia	7	619,903	3	560,445	4	59,458
Regional projects in North Africa	8	1,267,342	8	1,267,342	0	0
North Africa sub-region	**39**	**3,476,741**	**19**	**3,114,859**	**20**	**361,881**
Hotspot-wide projects	5	331,549	3	292,209	2	39,340
RIT grants	2	2,152,971	2	2,152,971	0	0
TOTAL	**108**	**11,012,376**	**55**	**10,182,583**	**53**	**829,793**

CEPF grant making was framed around three strategic directions (SDs) focused on coastal zone management (SD1), water catchment management (SD2), and the protection of KBAs (SD3). Total grant numbers and amount were split relatively equally across the three SDs, with 40% going to SD3, 35% to SD1, and 24% to SD3 (Table 2.4).

Table 2.4 Number and value of grants awarded per strategic direction in CEPF Phase 1

Code	Strategic Direction	Geographic focus	No. of grants	Amount (US$million)
SD1	Civil society involvement in Integrated Coastal Zone Management	(Southwest Balkans; Cyrenaic Peninsula; and Mountains, Plateaus and Wetlands of Algerian Tell and Tunisia), and in 20 coastal and marine priority key biodiversity areas in other corridors	37	3.2
SD2	sustainable management of water catchments and the wise use of water resources	(1) Atlas Mountains, (2) Taurus Mountains, (3) Orontes Valley and Levantine Mountains and (4) Southwest Balkans	26	2.1
SD3	Improve the conservation and protection status of 44 priority key biodiversity areas	none specified	43	3.5

Recipients of CEPF grants were primarily local organizations, with 64% of large grants and 87% of small grants going to this category, a total of US$5.3 million.

3. BIOLOGICAL IMPORTANCE OF THE HOTSPOT

3.1 Introduction

Biodiversity Hotspots are terrestrial regions that have at least 1,500 vascular plant species confined to them and which have lost at least 70% of their original natural habitat (Mittermeier *et al.* 2004). The Mediterranean Basin Hotspot is one of 36 areas in the world which meet these criteria. The collision of the African and Eurasian plates in the mid-tertiary has shaped the basin to yield huge topographic, climatic and geographic variability, giving rise to an astounding array of species and habitats. These factors combined make the Mediterranean Basin Hotspot the third richest hotspot in the world in terms of its plant biodiversity (Mittermeier *et al.* 2004), and one of the greatest areas for endemic plants on Earth, including several epicenters of plant diversity. Approximately, half of the 25,000 vascular plant species estimated to occur in the hotspot are endemic (Blondel *et al.* 2010).

This chapter describes the importance of the Mediterranean Basin Hotspot from a geographical, geological, climatological, biogeographical, biological and ecological perspective. It also outlines the importance of the hotspot in terms of the ecosystem services it provides to its human population.

3.2 Geography and geology

The Mediterranean Basin Hotspot covers 2,085,292 km^2. It stretches across 34 states and territories from Madeira and the Azores in the west to northern Iraq in the east. It includes most of Greece, northern Italy and the majority of the Iberian Peninsula. Regarding those countries covered by the ecosystem profile update, the hotspot encompasses almost all of Morocco, a broad strip of northern Algeria and Tunisia, and a narrow coastal portion (<200 km^2) of Libya and Egypt. The Middle Eastern portions cover much of the mountains of Lebanon, Israel and Syria and stretch as far inland as northern Iraq. Nearly 30% of Turkey is covered. The hotspot stretches into the Balkan states, covering the karstic lakes and rivers extending from sea level up to 1,100 meters. The altitudinal range is enormous with the Atlas Mountains towering at more than 4,000 meters and the shores of the Dead Sea as low as 420 meters below sea level, the lowest point anywhere on Earth's land surface.

Surrounded by the terrestrial Hotspot, the Mediterranean Sea covers 2,500,000 km^2 extending 4,000 km from 5.5ºW to 36ºE, and from 30 to 46ºN. The name of the sea refers to *Mediterraneum*, which means "in the middle of land". The sea has connections to the Atlantic ocean through the narrow Strait of Gibraltar (14 km wide and 300 – 900 meters deep), to the Black Sea through the Strait of Dardanelles (even narrower and only 70 meters deep) and, since 1869, to the Red Sea through the artificial Suez Canal to the Red Sea (Hofrichter 2001). The Strait of Sicily divides the Mediterranean Sea into two main sub basins - the western Mediterranean Basin (with more Atlantic influence) and the eastern Mediterranean Basin (Cartes *et al.* 2004). The complex topography, water mass circulation and oceanographic conditions produce a degree of isolation between areas within the two main Mediterranean sub-basins, thus contributing to the local marine biodiversity (Abelló *et al.* 2002). In spite of its relatively small size and isolation, the Mediterranean Sea is rather deep (average depth 1,500 meters, maximum depth 5,267 meters in the Ionian Sea), with narrow continental shelves that represent less than 25% of the total area. Coastal areas with a relatively wide continental shelf are primarily sedimentary, and related to the most important rivers in the region (especially the Nile, Po, Rhone and Ebro rivers), with the exception of the Tunisian Plateau, which is a structural part of the continental shelf (Sardà *et al.* 2004).

Geologic features in the present-day Mediterranean mainly result from two major processes: the tectonic displacement caused by the subduction of the African plate underneath the Eurasian plate; and the progressive closure of the Mediterranean Sea involving a series of submarine-insular sills. Some areas of the Mediterranean basin, such as Sicily and the Apennine Mountains, are still experiencing tectonic uplift and rapid erosion as a result of their folded and faulted characteristics. The Macaronesian islands, on the other hand, have originated through volcanic activity, with substantial differences between the archipelagos.

Volcanic activity throughout Macaronesia has both historic and present importance with ongoing seismic activity and recent eruptions on the Canary Islands, its youngest island being El Hierro which is only 750,000 years old. These features have created a landscape that is both complex and varied. The eastern Canary Islands (Lanzarote and Fuerteventura) are characterized by arid and rocky landscapes with scrub vegetation. The western Canary Islands are more forested with mountainous areas. Madeira has rugged terrain while the Azores, to the west, are home to river valleys and active volcanoes (EEA 2008).

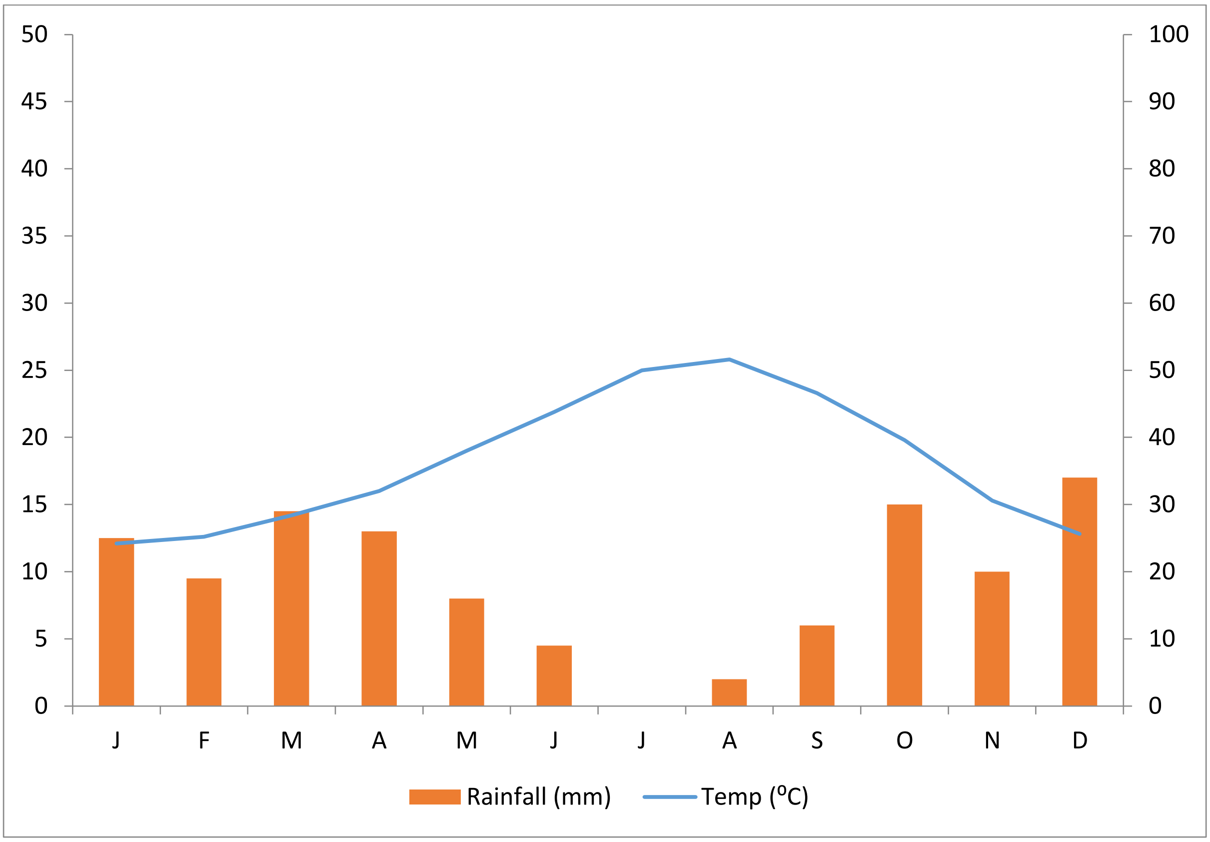
The high diversity of habitats at local and regional scales is highly influenced by the diversity of soil types. Many soils and substrates are limestone of marine origin, unusual soil types and discontinuous geological substrates including volcanic soils. Metamorphic granitic and siliceous (acidic) parent rocks occur locally, as do also occasional ultrabasic rock outcrops in Cyprus, continental Greece, Serbia, Croatia, and Montenegro. As lime content and degree of alkalinity have a great influence on plant growth, different vegetation types occur on calcareous compared with non-calcareous substrates (Blondel *et al.* 2010).

Many soil types, especially in the northern part of the basin, are ferruginous brown soils, known as *terra rossa*, but dolomite (from degraded calcites), clayey marls, rendzines, loess, regisols, lithosols, and alkaline and gypsum outcrops also occur more or less sporadically in many regions. The latter are very poor in nutrients and often harbor endemic plant species. In some parts of the basin, especially in Spain, along the Adriatic coast of Croatia, Montenegro, and Albania, and in Anatolia, large karstic outcroppings occur, where rainfall infiltrates rapidly and then reappears far away as vauclusian springs at the foot of mountain ranges. These springs are the outcome of networks of underground water resulting from the dissolution of thick calcareous deposits (Blondel *et al.* 2010).

3.3 Climate

Most of the Mediterranean Basin Hotspot is characterized by a Mediterranean climate, although on the Macaronesian islands the climate ranges from Mediterranean to arid and sub-tropical. The Mediterranean climate is characterized by cool, humid winters and hot, dry summers (Figure 3.1). Rainfall in the region is irregular, and annual precipitation can vary from as little as 100 mm to more than 3,000 mm in different years. The Atlas Mountains and the Macaronesian Islands receive plentiful rainfall as a result of moisture from the Atlantic, while portions of the Cyrenaic Peninsula in Libya receive very little precipitation. Almost all of the precipitation occurs during the autumn, winter, and spring seasons and there may be periods of almost 2 months in the western and 5 to 6 months in the eastern half of the Mediterranean without any significant precipitation. Accordingly, the short spring and autumn seasons are critical periods for plant growth (Blondel *et al.* 2010). Apart from in the mountains, snow falls rarely in the Mediterranean, but periods of hard frost are not infrequent.

Figure 3.1 Example of climate pattern of Mediterranean Basin (Almeria, Spain)



Mean annual temperatures in the basin, range from 2–3°C in mountain ranges, such as the Atlas and the Taurus, to over 20°C at places along the North African coast. At a local scale, the Mediterranean is well known for pronounced climatic differences over very short distances as a result of factors including slope, exposure, distance from the sea, and parent rock type.

The islands of Lanzarote and Fuerteventura, as well as the southern parts of Gran Canaria, Tenerife and La Gomera are characterized by a predominantly hot desert climate, except in higher areas. In the Azores a temperate climate with no dry season and mild summers is prevalent in nearly all its islands (Instituto de Meterologia de Portugal and AEMET 2012).

The Cabo Verde islands are part of the Sahelian arid belt and lack the rainfall levels of the West African mainland. The average annual rainfall of 261 mm (even though this differs between the islands) makes the climate on the islands a semi-desert one (Sociedade Caboverdiana de Zoologia 2016). The Tropical Atlantic region, which encompasses Cabo Verde, is dominated by a massive convection center over Africa, the marine Intertropical Convergence Zone (ITCZ) and the trade wind system. This climate system causes seasonal tropical storms and easterly waves in the area (Sociedade Caboverdiana de Zoologia 2016).

The general ocean circulation of the Mediterranean Basin is extremely variable and dynamic, and is dominated by the exchange of water masses though the Gibraltar Strait (Millot and Taupier Letage 2005), greatly affecting the climate. The warm Atlantic surface waters enter the Mediterranean Basin through the Strait, whereas cold, low-salinity, deep Mediterranean waters leave to the Atlantic. Within the Mediterranean Basin the overall circulation is cyclonic: the influx of Atlantic waters moves towards the east and eventually crosses the Straits of Sicily into the eastern basin. The return water flows along the European Mediterranean coast, increasing in salinity and temperature. As a result, the western basin is characterized by higher productivity than the eastern basin, and most of the primary production is concentrated over the continental shelf, declining sharply with increasing distance from the coast and depth. The Macaronesian region largely covers an open oceanic area, characterized by relatively low productivity (Davenport *et al.* 2002).

3.4 Biological history

The Mediterranean Basin is a center of plant endemism, with 10% of the world's plants found in about 1.6% of the Earth's surface (Blondel *et al.* 2010). The hotspot has roughly the same plant diversity as all of tropical Africa, in a surface area one-fourth the size of sub-Saharan Africa.

Diverse factors have contributed to this diversity. Tectonic movement, earthquakes and volcanic activities and the near-desiccation of the sea during the Messinian Salinity Crisis, had consequences for living systems and produced a mosaic of habitats with high heterogeneity of local topographies, soil types and microclimates related to altitude, rainfall and slope exposure (Blondel *et al.* 2010).

These factors combined with the region's location at the intersection of three major landmasses, Europe, Asia and Africa, result in an exceptionally diverse and highly distinctive fauna and flora. A final factor is the long history of human occupation in the region, with the region showing closer interrelations than any other region in the world between its flora, major landscapes and the human activities that have been molding them for nearly 10,000 years (Pons and Quézel 1985). Through to their particular life traits, Mediterranean endemic plants reflect the rich diversity of specialized habitats, topography and history of the region. Areas which have been exposed to high rates of geological change represent important endemism zones, where relict and more recent taxa coexist. Thus, the Mediterranean region constitutes both a refuge area and one that encourages floral exchange and active plant speciation due to isolation (Quézel 1985). In the western basin, high-endemism areas are related to regions derived from the southeastern part of the Iberic plate, whereas in the east, vicariant endemism is high due to the moderate role of glaciations and the presence of ultrabasic rocks (Verlaque *et al.* 1997).

The majority of the avian and mammalian fauna originate from outside the Mediterranean Basin, in particular from Eurasia and Africa. These species have higher dispersal abilities than the herpetofauna, which show a higher rate of endemism across the basin. There are several ancient lineages and many endemic genera for reptiles, amphibians and freshwater fish.

Evergreen oak, coniferous and deciduous forests form the natural climax communities of large areas of the hotspot. However, much of this forest has disappeared or been altered as a result of thousands of years of human settlement and habitat modification (Tucker and Evans 1997). The Mediterranean Basin Hotspot has the lowest percentage of natural vegetation remaining of any hotspot, less than 5% (Sloan *et al.* 2014). Despite human pressures altering Mediterranean ecosystems throughout history, this long-lasting "co-evolution" between ecosystems and land-use practices across the hotspot has helped shape many semi-transformed habitats that today hold many rare and threatened taxa (Blondel *et al.* 2010).

Today, the most widespread vegetation type is hard-leaved or sclerophyllous shrublands called maquis, maintained by grazing and sporadic fires. Many of the endemic and restricted-range plants depend on this anthropogenic habitat, and as a result several species are threatened by land-use changes and rural abandonment (Sirami *et al.* 2010).

3.5 Biogeographical zonation

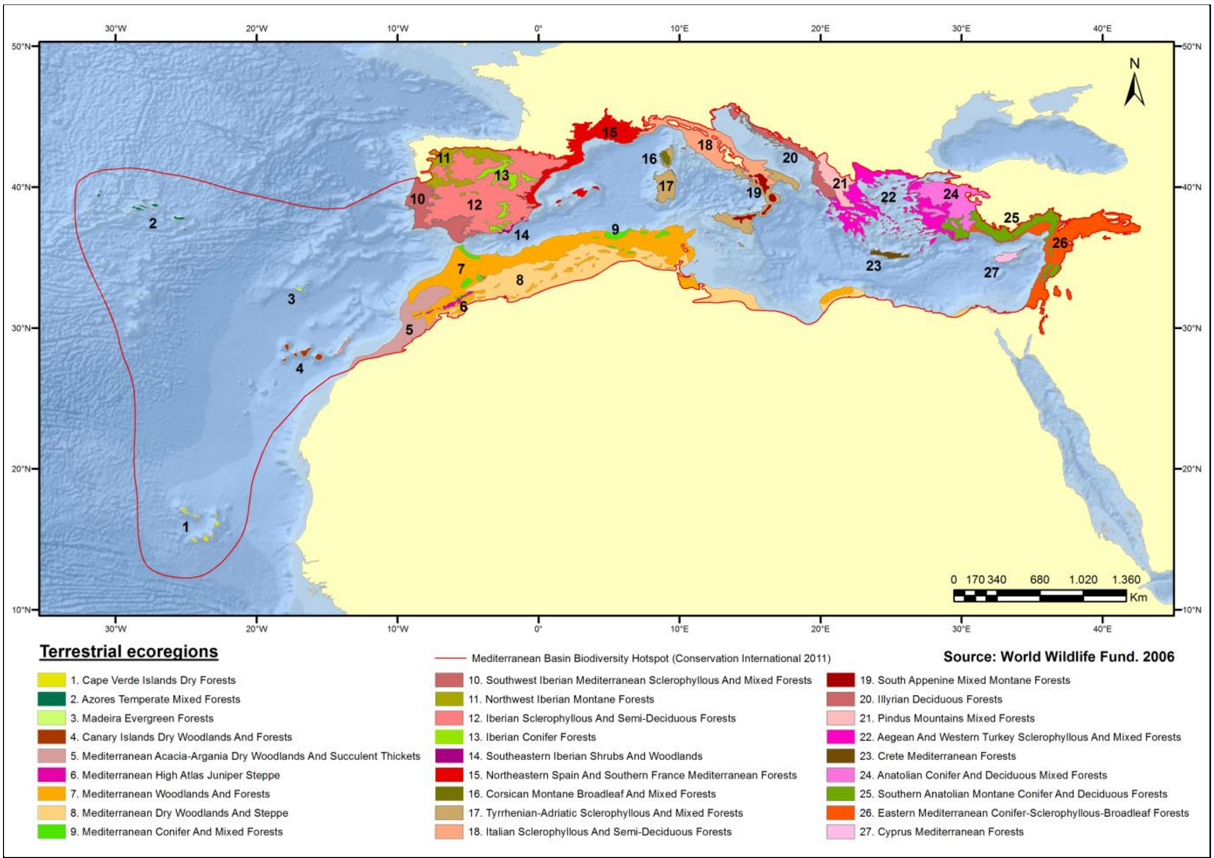
3.5.1 Ecoregions

Ecoregions are large units of land or water containing a geographically distinct assemblage of species, natural communities, and environmental conditions. The analysis of ecoregions in the Hotspot has been updated since the last profile, and sixty-four are now recognized based on WWF (2006) and The Nature Conservancy (2011-2013): 27 terrestrial (Figure 3.2); 26 freshwater (Figure 3.3); and 11 marine (Figure 3.4) (Spalding *et al.* 2007).

Terrestrial ecoregions

The Mediterranean Basin Hotspot supports six terrestrial biomes: (1) Mediterranean forests, woodlands and scrub; (2) tropical and subtropical dry broadleaf forests; (3) temperate broadleaf and mixed forests; (4) temperate coniferous forests; (5) montane grasslands and shrublands; and (6) deserts and xeric shrublands (WWF 2006). These biomes are further divided into the 27 terrestrial ecoregions in the hotspot, with the Mediterranean forests, woodlands and scrub biome most extensive, making up 21 ecoregions. A more in-depth description of these ecoregions can be found in Annex 11 (on-line).

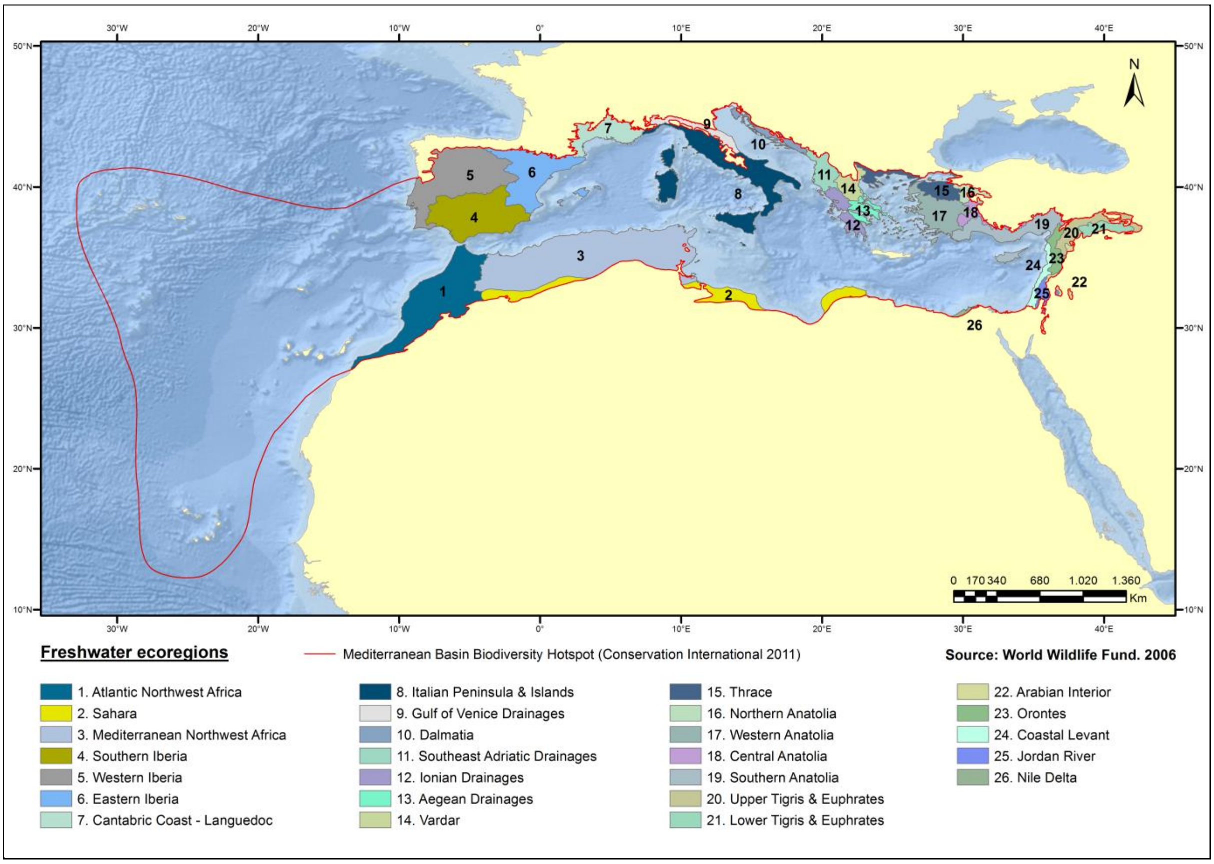
Figure 3.2 Terrestrial ecoregions of the Mediterranean Basin Hotspot (WWF, 2006)



Freshwater ecoregions

The Mediterranean Basin Hotspot supports 26 freshwater ecoregions comprised of four biomes types: (1) temperate coastal rivers; (2) temperate floodplain rivers and wetlands; (3) xeric freshwaters and endorheic (closed) basins; and (4) large river deltas (The Nature Conservancy 2011-2013). A more detailed description of these ecoregions can be found in Annex 11 (on-line).

Figure 3.3 Freshwater ecoregions of the Mediterranean Basin Hotspot (WWF, 2006 and TNC, 2011-2013)



Marine ecoregions

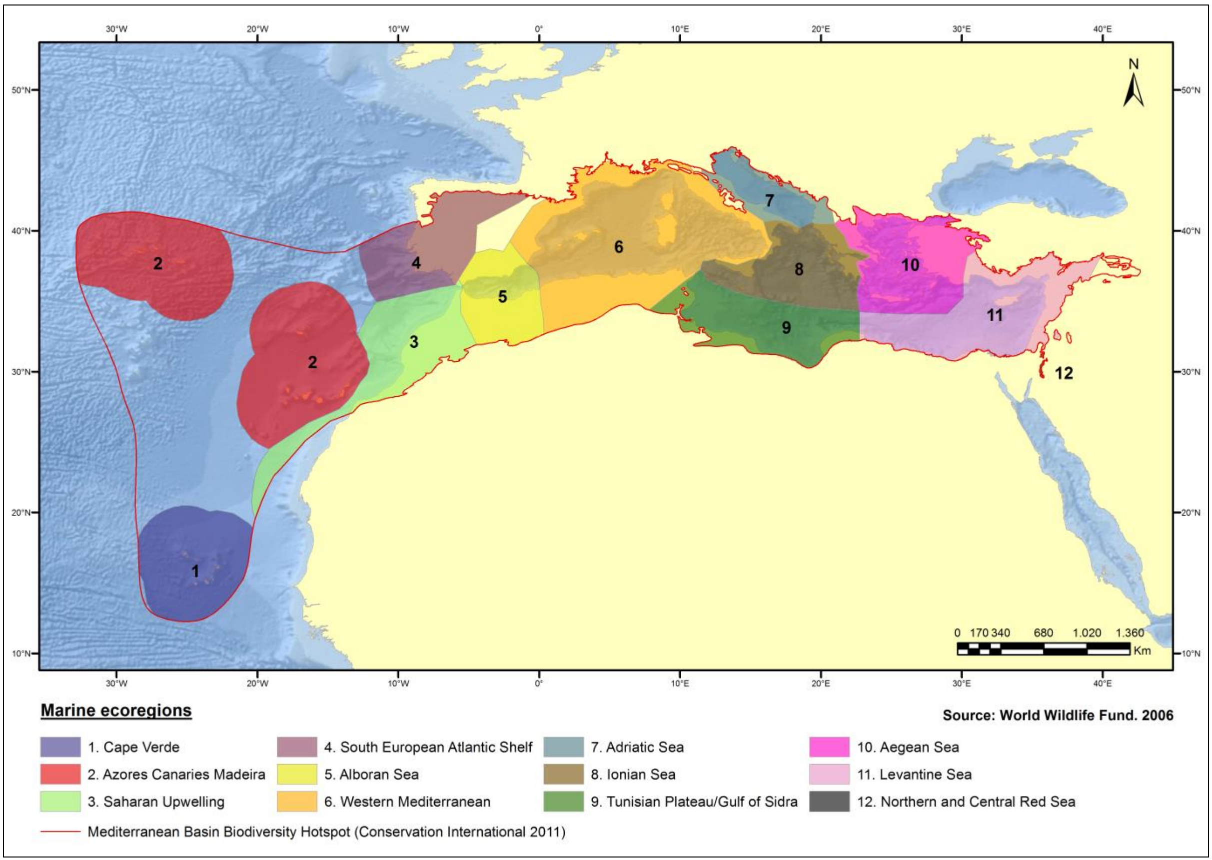
The Mediterranean Basin Hotspot supports 11 marine ecoregions from two biomes (Figure 3.4.): Tropic Atlantic and Temperate Northern Atlantic. The ecoregions are: Cabo Verde; Azores Canaries Madeira; Saharan Upwelling; South European Atlantic Shelf; Adriatic Sea; Aegean Sea; Levantine Sea; Tunisian Plateau/Gulf of Sidra; Ionian Sea; Western Mediterranean; and the Alboran Sea (Spalding *et al.* 2007). A further description of these ecoregions can be found in Annex 11 (on-line).

3.6 Species diversity and endemism

While there is huge diversity across this vast region, there are 10 principal areas that serve as centers of plant diversity for the basin (Médail and Quézel 1997 - 1999). These areas account for roughly 44% of the endemism in the basin. Most of them are mountain ranges and islands. The 10 areas are (1) the High and Middle Atlas Mountains in North Africa; (2) the Betic-Rif range including southern Spain and two coastal strips in Morocco and Algeria; (3) the Maritime and Ligurian Alps of the French-Italian border; (4) the Tyrrhenian Islands; (5) southern and central Greece; (6) Crete; (7) southern Turkey and Cyprus; (8) The Syria-

Lebanon-Israel area; (9) Cyrenaica in Libya; and (10) the Canary islands and Madeira. Cabo Verde, not included in Médail and Quézel analysis, is also a center of plant diversity, with 12.5 % rates of endemism (Romeiras *et al.* 2016).

Figure 3.4 Marine ecoregions of the Mediterranean Basin Hotspot (WWF 2006 from Spalding *et al*. 2007)



Note: Ecoregion 12 (Northern and Central Red Sea) is not in the hotspot.

For the marine portion of the hotspot, the disconnection between the Mediterranean Sea and the Atlantic Ocean is only partial, with Mediterranean taxa primarily derived from the Atlantic Ocean (Coll *et al.* 2010), and intense gene flow still present in some groups (Patarnello *et al.* 2007). The isolation of the basin is reflected in the high degree of endemism, estimated to be roughly 20% (Coll *et al.* 2010). Most of the biodiversity is concentrated in shallow coastal areas, although there is a rich biodiversity fauna and hotspots associated with deep waters, as well as with offshore pelagic waters (WWF and IUCN 2004, Danovaro *et al.* 2010).

The Macaronesian islands are largely oceanic, with abyssal plains scattered with numerous seamounts (plus the islands) that act as biodiversity islands for marine biota (for example, deep-water coral reefs) (Mitchell-Thomé 1976). Biological marine diversity occurs mostly on seamounts and the slopes of the islands, which remain largely isolated from each other. The region is also important as stronghold for large pelagic fish, seabirds and cetaceans. Almost 8% of the world's marine fauna and 18% of marine flora are concentrated in this region (Coll *et al.* 2010).

The high level of biodiversity and endemism occurring in the Mediterranean Basin Hotspot are summarized in Table 3.1 and described in the following sections.

Table 3.1 Number of species and level of endemism for selected species groups in the Mediterranean Basin Hotspot

Group	Native species	Endemic Species	Endemism (%)	Source
Vascular plants	25,000	12,500	50	Quezel (1985)
Vertebrates				
Marine fishes	1,122	122	7	Abdul Malak *et al.* (2011); IUCN (2016)
Freshwater fishes	622	280	45	Smith *et al.* (2014); Smith and Darwall (2006)
Amphibians	109	54	50	Cox *et al.* (2006); IUCN (2016)
Reptiles	299	117	39	Cox *et al.* (2006); IUCN (2016)
Birds	534	63	12	Birdlife international (2016)
Mammals*	298	38	13	IUCN (2016)
Invertebrates				
Butterflies*	462	98	21	Numa *et al.* (2016)
Dung beetles	579	150	26	Numa *et al.* (in prep)
Saproxilic beetles	576	338	13	IUCN (2016)
Dragonflies and damselflies	164	21	13	Riservato *et al.* (2009);Gobierno de Canarias (2016); Gobierno de Azores (2016)
Freshwater crabs	16	1	6	IUCN (2016)
Anthozoans*	138	24	17	Otero *et al.* (in prep)
Freshwater mollusks*	629	384	61	García *et al.* (2008); Smith *et al.* (2014)

Note: * = For these groups, data from the Macaronesian islands are not included.

3.6.1 Vertebrate species diversity and endemism

Mammals

The mammal fauna of the Mediterranean Basin Hotspot is mainly derived from the Eurasian and African biogeographic zones and therefore exhibits relatively low levels of endemism (Temple and Cuttelod 2009). There are almost 300 species, 38 of which are terrestrial endemics, with rodents and shrews being the most numerous.

The majority of mammal species are small mammals. The Muridae is the largest family, comprising 51 species of rats, gerbils, birds and mice. Other important families in the region include the Vespertilionidae (evening and vesper bats – 38 species) and Cricetidae (hamsters and voles – 23 species). Eight species can be considered as associated with freshwater environments. None of the hotspot's 31 marine mammals are endemic.

Birds

The avifauna of the hotspot consists of 534 species, including 63 endemic species. Three main groups of species can be identified: a group of species of northern, boreal origin, which are characteristic of forests, freshwater marshes and rivers over the western Eurasian part; a group of steppe species in the margins of the current Mediterranean area; and a group of species associated to shrubland habitats such as the partridges (*Alectoris*) and warblers (*Sylvia*, *Hippolais*) (Blondel *et al.* 2010). There are a significant number of species that migrate from Europe to Africa crossing the Mediterranean Basin at the Bosphorus, the Rift Valley, Gibraltar, Sicily, the Balearics, Corsica, Crete, Sardinia and Cyprus.

Reptiles

Richness and endemism among reptiles is notably higher when compared with other taxa. There are about 299 species of terrestrial reptiles, including five freshwater species and four marine species of which 117 species, almost 40%, are endemic (Cox *et al.* 2006; IUCN 2016). The reptile fauna of the Mediterranean Basin includes snakes, lizards, tortoises and tropical relicts, such as two species of chameleon (*Chamaeleo chamaeleon* and *C. africanus*). Most of the Mediterranean reptile species are lizards (67%) and snakes (27%). Many species of reptiles in the genera *Podarcis, Lacerta, Chalcides*, and *Vipera* evolved in the basin as a result of intensive adaptive radiation in localized areas. In the Lacertidae, the genera *Algyroides* and *Psammodromus* are typical relict Mediterranean endemics (Blondel *et al.* 2010). Reptiles in the Macaronesic Islands have high endemism rates with 90% (38 species) of the species being endemic.

Amphibians

Amphibian diversity and richness patterns are opposite of that for reptiles. Species richness is low overall (109 species) and the species distribution patterns have highest richness for amphibians in areas of higher rainfall, notably western Spain, northern Italy, France, Slovenia and Croatia. Despite richness being lower, endemism is relatively high with almost 50% (54 species) of all species endemic to the hotspot.

Most amphibians endemic to the Mediterranean belong to archaic lineages that have remained relatively unchanged since their origins. Some examples include two genera of toads, *Pelobates* (1 of the 4 species endemic) and *Discoglossus* (4 of the 6 species endemic), a genus of salamanders, *Euproctus* (2 endemic species.) and the Olm genus, *Proteus* (1 endemic species).

Freshwater fishes

Biogeographic and hydrological factors are the major drivers of freshwater fish biodiversity patterns in the region. With 26 freshwater ecoregions, each with its own particularities, the Mediterranean basin harbors high numbers of freshwater species and high levels of endemism.

Of the 622 species of freshwater fish in the hotspot, 280 are endemic (IUCN 2016b, Smith *et al.* 2014, Garcia *et al*, 2010). Most of these endemics belong to the Cyprinidae (63%), but other families rich in endemic species are Balitoridae (8%), Cobitidae (6%), Gobiidae (5%) and Cypronodontidae (4%).

Marine fishes

The Mediterranean Sea is considered to be a biodiversity ‘hotspot’ as it has high species diversity for a temperate sea (FAO 2003a, b). It is estimated that around 7% of the world’s marine fish species occur in this sea (Bianchi and Morri 2000), with a wide range of both temperate and tropical species being present (Abdul Malak *et al.* 2011). Currently, there are more than 600 marine fish species in the Mediterranean Sea, 519 of them being native. Approximately 122 species are endemic to the seas around the hotspot (Table 3.1.) of which 74 are confined to the Mediterranean Sea. Families with the higher numbers of endemic species are Gobiidae (25%), Blennidae (6%) and Labridae (6%).

3.6.2 Invertebrates species diversity and endemism

As in other biodiversity hotspots, invertebrates in the Mediterranean are highly diverse but little known in spite of new species being described every year. For insects alone, the number of species in the hotspot is estimated at 150,000 species (Baletto and Casale 1991). In the marine environment, is estimated that 10,000 of the 17,000 species occurring in the Mediterranean Sea are invertebrates and that about 1,000 are endemic (Coll *et al.* 2010).

Anthozoans

Anthozoans are a group of Cnidaria which include the corals, sea anemones, sea fans, and sea pens. It is estimated that 164 species occur in the Mediterranean Sea (Coll *et al.* 2010) from which approximately 24 species are endemic (Otero *et al.* in prep). The higher numbers of anthozoa species endemic to the Mediterranean Sea correspond to anemones of families Epizoanthidae (8 species) and Actiniidae (6 species) (Otero *et al.* in prep).

Freshwater mollusks

Freshwater mollusks are divided in two main groups, the bivalves and the gastropods. They find their highest levels of endemism and diversity in ancient lakes, large river basins and artesian basins (Seddon *et al.* 2014) and all of these habitats can be found in the Mediterranean region. At least 629 species are known to occur in the Mediterranean Basin Hotspot, 384 of them , being endemic (IUCN 2016, Garcia *et al*, 2010). More than 96% of the endemic species are gastropods, most of them from the family Hydrobiidae.

Damselflies and dragonflies

A total of 165 species of Odonata (damselflies and dragonflies) are found in the Mediterranean Basin Hotspot of which 61 belong to the Zygoptera suborder (damselflies) and 104 to the Anisoptera suborder (dragonflies). Diversity largely coincides with precipitation patterns; areas with relatively high rainfall, like the Alps and the mountains of the Balkans, Turkey and the Maghreb, have high diversity. One in eight of the dragonfly species (21 species) found in the Mediterranean Basin is endemic to the region, with the highest numbers of endemic species found in the Maghreb and the Levant. The Southern Balkans, Crete and the Western Mediterranean are also important areas for endemic species of Odonata (Riservato *et al.* 2009).

Butterflies

Butterfly fauna in the Mediterranean comprises 462 species (not including the Macaronesian islands). Families Nymphalidae and Lycaenidae comprise 75% of the species occurring in this part of the hotspot. Twenty-one percent (98 species) are endemic. The majority of the endemic species are concentrated in the north of Africa, especially the Rif Mountains, the High and Middle Atlas Mountains in Morocco and the Aurès Mountains in Algeria. There are also important zones of endemism in the southeast of Spain, on the islands of Corsica and Sardinia, in southern Turkey and in Lebanon (Numa *et al.* 2016).

Dung beetles

About 579 species of dung beetles occur in the Mediterranean Basin Hotspot, of which approximately 150 are endemic (Numa *et al.* in prep.). The majority of the endemic species are concentrated in the north of Africa and the south of the Iberian Peninsula. Higher values of endemism are found in Morocco especially along the Atlantic coastal habitats from Tangier to Safi, the Rif Mountains, the Middle Atlas and the coastal habitats of Algeria and Tunisia. Important areas of dung beetles endemism can also be observed in the southern edge of the Iberian Peninsula in Spain and Portugal and the northern part of Sicily Island in Italy (Numa *et al.* in prep.).

Saproxylic beetles

This group includes a variety of Coleoptera families comprising species which are dependent, during some part of their life cycle, upon the dead or dying wood of moribund or dead trees, or upon wood-inhabiting fungi or the presence of other saproxylics (Speight 1989). Families Cerambycidae and Elateridae comprise the higher numbers of endemic saproxylic species in the Mediterranean Basin Hotspot (excluding the Macaronesian Islands). It is estimated that there are at least 576 species of saproxylic beetles, of which approximately 338 are endemic or almost endemic in this part of the hotspot (IUCN 2016).

3.6.3 Plant diversity and endemism

Mediterranean plant diversity is enormous, with roughly 25,000 plant species, almost half of them endemic to the basin (Quézel 1985). Species richness is particularly high on true islands, on 'edaphic islands' which result from peculiar and/or hostile soil or rock types such as dolomias, limestones, gypsum, ophiolites; and on 'topographical islands' surrounded by extremely steep slopes or located on the top of mountain ranges (Blondel *et al.* 2010). The endemism rate generally increases with altitude: on Mediterranean mountain ranges, whether continental (Atlas, Taurus, Lebanon, Anti-Lebanon) or insular (Corsica, Sardinia, Sicily, Crete), the percentage of endemic species can exceed 25% (Blondel *et al.* 2010).

Despite widespread acknowledgment of the region as a global plant hotspot, precise data on the distribution and conservation status of plants and habitats within many Mediterranean countries are frequently insufficient, out of date or absent. This is particularly true of countries in the south and east of the Mediterranean basin (North Africa and the Middle East sub regions). Without baseline data on the patterns of plant diversity, it is difficult to monitor the condition of this diversity (Radford *et al.* 2011).

The high values of both species-richness and endemism recorded within the Mediterranean realm are strongly influenced by the number and the patchiness of local plant communities, which are in turn a consequence of the history of both natural and human disturbance regimes. Hence, in many cases diversity and endemism may be considered a 'byproduct' of anthropogenic impact on Mediterranean landscapes (Rackham 2008).

Vegetation

The most complex vegetation types usually considered as 'typically Mediterranean' are the evergreen shrublands and forests often described as 'maquis' and mostly dominated by sclerophyllous oaks such as *Quercus ilex s.l.*, *Q. coccifera s.l.* and *Q. suber*, and the conifer forests dominated by *Pinus halepensis*, *P. brutia* or *Cupressus sempervirens*. In the sectors of the Southern and Eastern Mediterranean subject to more arid climatic conditions open and discontinuous maquis communities prevail: they are often dominated by summer-deciduous species such as *Rhus* spp., *Lycium* spp., *Periploca angustifolia*, *Euphorbia dendroides*, etc. Additionally, an increasing number of recent paleoecological investigations point out that deciduous and semi-deciduous broadleaved trees played a major role in Mediterranean ecosystems during the post-glacial period, especially in the northern Mediterranean, and that the dramatic reduction of these forests was mainly due to the impact of humans and their domesticated livestock.

Mediterranean islands often host peculiar vegetation types and landscapes, because of the existence of endemic or range-limited plant species that characterize their ecosystems. This is the case of mountainous forests with *Pinus nigra* subsp. *laricio* in Corsica, Calabria and on Mt. Etna (Sicily), *Cedrus brevifolia* on Cyprus, of the open woodlands with *Zelkova abelicea*, *Quercus coccifera* and *Acer sempervirens* on Crete (Quézel and Médail 2003). The combined effect of disturbance (mostly wildfires and overbrowsing) and climatic stress gives rise to a kaleidoscope of low-growing plant communities throughout the Mediterranean. These are called *phrygana* or *batha* in the eastern Mediterranean, where they are mostly dominated by thorny, often aromatic and summer-deciduous shrubs and sub-shrubs, while the open and low shrublands or heathlands, dense and high scrub communities occurring in the central and western part of the northern Mediterranean are called *garrigues*, *tomillares*, *matorrals* depending on the dominant woody species and the country. Most of the islands are dominated by vegetation characteristic of the thermo-Mediterranean and meso-Mediterranean belts, whereas the upper vegetation levels (supra-Mediterranean to oro-Mediterranean) are restricted to the summits of the largest and highest islands, i.e., Corsica, Sardinia, Sicily, Crete and Cyprus and are characterized by discontinuous dwarf shrublands adapted to the extremely hostile climatic conditions of the high Mediterranean mountains (Guarino *et al.* 2005).

Flora

Due to its complex biogeographical history, the Mediterranean area played and still plays a role of melting pot for plants with the most diverse origins. For example, many 'boreal or temperate hosts' not only survived there, but were able to display local evolution, like firs (*Abies cephalonica*, *A. nebrodensis*, *A. numidica*, *A. pinsapo*, etc.), birches (*Betula aetnensis*, *B. celtiberica*), black Pines (*Pinus laricio s.l.*, *P. nigra* subsp. *dalmatica* and subsp. *pallasiana*), Cedars (*Cedrus brevifolia* and *C. atlantica*), *Salix* (e.g., *Salix pedicellata*-group), alders (e.g., *Alnus suaveolens*) and many little trees and shrubs belonging to the family Rosaceae (*Amelanchier*, *Cotoneaster*, *Prunus*, *Pyrus*, *Rosa*, *Sorbus*).

The Mediterranean flora has plenty of evergreen woody species *Cneorum tricoccon*, *Myrtus communis*, *Phillyrea* spp., *Pistacia lentiscus*, *Chamaerops humilis*, and even evergreen oaks such as *Q. coccifera/calliprinos*, *Q. ilex*, *Q. suber*, co-occur to build up maquis communities in the semi-arid regions. Many others, like *Taxus baccata*, *Arbutus* spp., *Buxus* spp., *Ilex* spp., *Laurus* spp., *Hedera* spp., *Rhamnus* spp., *Smilax* spp., might have been intermingled with deciduous and semi-deciduous trees belonging to the genera *Acer*, *Carpinus*, *Quercus*, *Platanus*, giving rise to warm temperate forest communities which underwent dramatic disruption along with Alpine-Himalajan orogenesis and the onset of glacial events (Box and Fujiwara 2015).

Also thermophilous conifers play a major role in the physiognomy of Mediterranean landscape. For instance, *Cupressus sempervirens*, *Tetraclinis articulata*, many species of junipers (*Juniperus phoenicea s.l.*, *J. oxycedrus s.l.*, *J. foetidissima*, etc.) and pines (*Pinus halepensis*, *P. brutia*, *P. pinaster s.l.*, *P. pinea*) still dominate the woodlands and the scrublands over wide surfaces in many countries.

Other genera and species belong to the so-called Tethysian element. Despite their current Mediterranean and/or Macaronesian and/or Irano-Turanian distribution, they often show clear relationships with paleotropical (e.g., *Anagyris foetida*, *Ceratonia siliqua*, *Plocama calabrica*, *Olea* spp.) and even S African (e.g., *Androcymbium*, *Calendula*, *Moraea*, etc.) families or genera.

The Saharo-Sindian element is mostly represented by scrub chenopods linked to coastal areas and salty soils (genera *Arthrochnemum, Sarcocornia, Halocnemum, Salsola, Suaeda*, etc.).

Plant endemism

The peninsulas (Iberian, Italian, Balkans-Greece, and Anatolia) and the main islands of the Mediterranean show very high values of species richness and endemism. The latter ranges between 9% on Balearic Islands and Cyprus and 18% on Crete (Médail 2016). Mediterranean peninsulas and islands also provided suitable refugia for the last remnants of mid-Tertiary flora. This is the case of several relict plants often characterized by a prolonged evolutionary standstill (Médail and Diadema 2009), now restricted to one or few locations, like the

Tethysian-Paleotropical fern *Woodwardia radicans* (Corsica, Sicily and Crete), *Zelkova abelicea* on Crete and *Z. sicula* in Sicily (Christe *et al.*2014), *Liquidambar orientalis* in Rodos and southern Anatolia, *Phoenix theophrasti* in Crete, some Aegean islands, Peloponnese and southern Anatolia, *Fontanesia phillyreoides* in Anatolia, etc. (Quézel *et al.*1999; Quézel and Médail 2003). Additionally, Mediterranean islands host several monotypic endemic genera, such as *Petagnaea* and *Siculosciadium* in Sicily, *Castroviejoa*, *Morisia* and *Nananthea* in Corsica and Sardinia, *Hostrissea* and *Petromarula* in Crete, *Femeniasia* and *Naufraga* in the Balearic Islands), and many other very distinct and ancestral species such as *Cytisus aeolicus* on Aeolian islands, *Ribes sardoum* in Sardinia, *Eokochia saxicola* along S Tyrrhenian coasts, *Atriplex lanfrancoi* at Malta, etc. Many of these taxa are Critically Endangered (Montmollin and Strahm 2005).

In the Macaronesian islands, good information is available for the Spanish and Portuguese autonomous regions (Reyes-Betancort *et al.* 2008, Regional Ecosystem Profile – Macaronesian Region, 2016; Borges *et al.* 2005), but data from Cabo Verde are scarce (e.g., Bonn Duarte *et al.* 2008; Romeiras *et al.* 2016). The Macaronesian region hosts a high number of plant species, many of them endemics, with the Canary Islands outstanding in this regard (of 2,091 vascular plant species, 539 (26%) are endemic). A majority of the endemics are relict species with affinities with the flora of the Tertiary era, and they are typically isolated or have relatives in remote geographical areas. For example, a Macaronesian endemic, the Canary Island pine *Pinus canariensis* is closely related to chin pine *P. roxburghii* in the Himalayas (EEA, 2008), and the endemic aderno *Heberdenia excelsa* is closely related to *H. penduliflora* in Mexico. Most of the endemics are perennial trees and shrubs, with lower rates of endemism among annuals (Regional Ecosystem Profile – Macaronesian Region, 2016). The Macaronesian islands (excluding Cabo Verde) have 792 species of bryoflora (mosses and liverworts), corresponding to about 5% of species globally and thus making Macaronesia a hotspot for bryoflora (Sérgio *et al*, 2008).

3.7 Ecosystem services in the Mediterranean Basin Hotspot

Ecosystem services are the benefits people obtain from the functioning of natural ecosystems. They can be categorized into four broad groups: provisioning, regulating, supporting and cultural services (Millennium Ecosystem Assessment 2005). In the Mediterranean Basin Hotspot these services include those that are important at a global scale, such as climate mitigation through carbon storage and sequestration, as well as those benefitting the local communities and individuals, such as those providing essential products to sustain livelihoods, such as food, fuel, building materials. A summary of ecosystem services provided within the hotspot is shown in Table 3.2.

Provisioning services are critical for the livelihoods and economic activity of all human populations in the hotspot. Water is the single most important ecosystem service in this highly water-stressed region. Vegetation and soils as well as geological features allow infiltration of water to replenish ground water and ameliorate run-off intensity (Llorens *et al.* 1997; Cosandey *et al.* 2005), while wetlands, and in particular marshes and riparian vegetation, contribute to the filtration of water and to the improvement of its quality when polluted (Mediterranean Wetlands Observatory 2012). Cleaner water is easier and cheaper to use for drinking, irrigation and energy production.

Forests provide timber used as a building material and for furniture and handicrafts (especially from very high quality woods such as olive, sandarac), as well as firewood and charcoal, which are still essential in many rural areas in the hotspot. Cedar wood has been particularly important as a source of high quality timber for construction in the Eastern Mediterranean. Non-Timber Forest Products (NTFP) have been sustainably used by humans for millennia, with cork probably the single most important NTFP in terms of number of workers employed and revenue generated (Cork Quality Council 2016). Several woody plants produce resins (labdanum, mastic, myrrh, rosin, sandarac, etc.) and essential oils (in particular from Lamiaceae). Historically important, they became less significant as synthetic substitutes were created, but markets for high-quality, natural products are now growing, and use of medicinal plants remains important in North Africa and the Middle East. Mushrooms, truffles, fruits and nuts are also commodities of great added value, consumed locally or exported (e.g., pine nuts). Ecosystems also provide nectar, essential for beekeeping and honey production, and browse and pasture, for livestock. Overall it has been estimated that NTFPs in the Mediterranean provide an average revenue of US$41/ha of forest (Croitoru 2007).

Table 3.2 Services provided by Mediterranean Basin ecosystems

Type of service	Ecosystem service	Beneficiaries	Relative importance within the hotspot
Provisioning	Water (artisanal and run-off) for drinking, irrigation, industrial use, energy generation	Entire population	Very important as the area is water stressed
	Fisheries in freshwater and marine systems	Local fishers, fish consumers, associated economic activity	very important for coastal communities within the hotspot
	Wood for firewood, charcoal	Rural communities	Minor, but significant for some remote communities
	Timber, poles and other construction material	Timber traders, forest owners, crafts-people	Significant in some areas
	Non-timber forest products (e.g., cork, resins, fruits)	Rural communities, forest owners, crafts-people	Minor, but significant for some remote communities
	Grazing and fodder for livestock	Local livestock herders and, indirectly, consumers of milk, meat	Significant in some areas
Regulating	Absorption of nutrient pollution, other pollutants in wetlands	Local populations, economic activity	Significant in some areas
	Reduction of disaster risk (flooding, landslide) through absorption of run-off	Local populations, economic activity, especially in mountainous areas	Significant in some areas
	Reduction of soil erosion and desertification through stabilization of soils	Local populations, economic activity, especially in mountainous and arid areas	Significant in some areas
	Control of pest species through predation, natural limits on populations	Farmers, livestock herders	Significant in some areas
Supporting	Source of novel genetic material for crops (e.g., olives, fruits)	Global	potentially significant
	Carbon sequestration	Global	Minimal
Cultural	Recreation (including sport hunting)	Local populations, especially urban populations using natural areas	Important mainly in coastal/urban areas
	Tourism using natural spaces (beaches, coastal habitats)	Global tourists, local people engaged in the tourism economy	Important mainly in coastal areas

Subsistence hunting and fishing would once have been a major source of animal protein for local populations, but are now less important except in some areas of the Balkans. Commercial fishing, especially in coastal and marine areas, is an important economic activity and a major food source, with estimates of between 140,000 and 280,000 people directly employed by the fishing industry in the hotspot (Farrugio 2013; Di Franco *et al.* 2014).

Regulating services can be expected to become more important as climate change impacts on increasingly densely populated areas. Between 2000 and 2009, more than 2 million people were affected by drought in the Mediterranean countries and more than 1.1 million by floods (including over 2,000 deaths). The cost of these events was estimated to be US$19 billion for drought (Mediterranean Wetlands Observatory 2012). Wetlands and other habitats provide important protection for coastlines and mountainous regions, mitigating the impact of increasingly intense storm and rainfall events.

Supporting services include the provision of renewable energy from solar and wind power, which will be increasingly important as energy demand rises and needs to be met from sources that are carbon-neutral. Sequestration of CO_2 is an important supporting service, mitigating the increased levels of greenhouse gases in the atmosphere and thus slowing climate change. The arid climate of most of the region limits the direct carbon sequestration potential of the forests, however.

The **cultural aspects** of ecosystem services include its importance for the tourist industry, one of the three principle service sectors on which much of the hotspot relies for its income (Chapter 5). However, in addition to this modern, economic significance, Mediterranean landscapes and species form the backdrop for the development of some of the world's most important civilizations and religions. The region is also known globally for its culinary uniqueness and diversity, and this is based on the wild plants and animals of the region as well as the products of traditional farming and livestock.

For many people hunting has changed from being a source of food to become a leisure activity in recent decades. Closely bound up with local identity and recreation, the intensity of some hunting activities, especially of migrant birds, make it a serious environmental concern (BirdLife 2016).

Despite the tremendous importance of ecosystem services to the economy and livelihoods, they are frequently unrecognized and undervalued and, as a result, may be damaged or destroyed in the process of economic development. In other cases, the value of communal resources was recognized, but traditional systems for maintaining these services (e.g., the *hima* system for managing pasture) have broken down as a result of state-imposed land categories, cultural and economic modernization and urbanization. A challenge with many services (e.g., water supply) is that there is spatial or temporal separation between land managers who can influence the quality of ecosystem services and the beneficiaries who may be willing to pay for the service. In other cases, the services (e.g., clean air, clean beaches) are difficult to quantify or manage, and may be perceived differently by, for example, local people and foreign visitors. Tourists are often willing to pay directly to governments to invest on natural and cultural ecosystem services (Seidl 2014).

Key to the integrating the protection and management of ecosystem services into government land use and development planning is information on the values of these services, and the impacts of change. Detailed information is available in Europe, but it is much less comprehensive in the hotspot countries covered by the ecosystem profile update. The mandate of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) includes producing Regional IPBES assessments which will present a thorough analysis of Ecosystem Services for Europe, Central Asia and Africa. They are due to be completed in 2018. There are also useful models of participatory, local valuation of ecosystem services from biodiversity protected areas in Madagascar (Neugarten *et al.* 2016) which could be adapted for implementation in areas where the ecosystem services issue is key to making the case for conservation.

The Mediterranean basin is one of the most vulnerable regions of the world to climate change (see Chapter 9), and this will impact on the capacity of ecosystems to provide goods and services to human society (Bangash *et al.* 2013), which is especially concerning given the increasing demands placed on ecosystems. Water availability for drinking and hydropower production will decrease, while water demand for irrigation and tourism will increase. Mediterranean forests will shrink as conditions become drier and fires more intense and more frequent. In combination, these changes will contribute to increasing erosion and loss of agricultural potential, and higher costs to manage the problems (Schröter *et al.* 2005; Bangash *et al.* 2013; Terrado *et al.* 2014).

4. CONSERVATION OUTCOMES DEFINED FOR THE HOTSPOT

4.1 Introduction

Despite its uniqueness and fragility, the Mediterranean Basin Hotspot has to provide livelihoods for 200 to 300 million people in a region of global political and economic importance. Huge changes have already taken place in the region's ecosystems and in the numbers and distribution of species. These changes will continue and, in some cases, accelerate, as human populations grow and patterns of economic activity change. For most species, these changes mean loss of habitat and increased pressure from harvesting and hunting, which result in smaller, more fragmented and more vulnerable populations.

Even with unlimited resources, it would be impossible to maintain all the species and ecosystems in the hotspot in their present state. Yet resources are highly limited, so conservation has to compete for space with land uses that are more economically productive. Choices need to be made, therefore, about which species, sites and corridors are the most important, feasible or urgent to conserve. CEPF refers to these priorities as "conservation outcomes," and this chapter describes the process and results of defining conservation outcomes for the hotspot, with a focus on the hotspot countries covered by the ecosystem profile update.

These outcomes constitute a long-term agenda for the Mediterranean Basin Hotspot which needs support from governments, civil society and funders. Over the next five years, within the limits of the available budget and with a focus on civil society, CEPF cannot address more than a small proportion of them. Chapters 11 and 12 define more specifically which outcomes will be prioritized for CEPF support in the coming five years.

4.2 Species outcomes

4.2.1 Methodology

Species outcomes are all those species that regularly occur in the hotspot and are classified as globally threatened. The identification of these species was based on the IUCN Red List (IUCN 2016), by selecting species in categories Critically Endangered, Endangered or Vulnerable. Species classified as Data Deficient were listed separately as candidates for further research, because it is considered that many of them are likely to be threatened with extinction. Thirteen species groups across all three realms (marine, freshwater, terrestrial) have been at least partially assessed for the Red List and were considered for this review: amphibians, birds, freshwater fishes, marine fishes, mammals, reptiles, anthozoans, dung beetles, butterflies, freshwater mollusks, dragonflies and damselflies, freshwater crabs and shrimps, and plants. Species lists were drafted combining lists of species from published Mediterranean Red List reports[2] with the results of targeted search by Mediterranean countries on the IUCN Red List website[3] in order to include the most up to date data for each species.

The review included checking and updating global and Mediterranean Red List categories and Mediterranean occurrence (according to the limits of the Mediterranean Basin Hotspot).

[2] See iucnredlist.org/initiatives/mediterranean

[3] See iucnredlist.org/

Given that many countries are only partly within the Mediterranean Basin Hotspot, species distribution maps published on the IUCN Red List website were used to identify species endemic to or present in the hotspot. Species with distribution ranges fully enclosed within the hotspot boundaries were considered to be endemic to the hotspot, with a 10 km buffer beyond the hotspot boundary employed to account for the lack of precision in mapping species' ranges. Species not present within the hotspot limits were removed from the list. For the species published in the IUCN Red List which do not have a distribution map, the review of Mediterranean distribution was based on the range description in the Red List assessment.

4.2.2 Species outcomes in the Mediterranean Basin Hotspot

From 5,785 species recorded from the Mediterranean Basin Hotspot with a global assessment in the IUCN Red List (2016), 1,311 species (23%) are globally threatened (Table 4.1). Sixty-five percent of the threatened species are animals, with freshwater mollusks (320) and freshwater fishes (224), making up the greatest number of threatened species. Plants make up 462 of the threatened species, 35% of the total.

In interpreting the relative level of threat among groups, it is important to note that some groups have been completely, or almost completely, assessed, while, for other groups, work has only just started. As shown in Table 4.1, assessments of the threat status for amphibians, birds, freshwater and marine fish, mammals and reptiles are complete or nearly so. This means that the numbers of threatened species can be assumed to be representative of the real situation in the field. For plants and most invertebrates, however, the proportion that has been assessed is much lower. This means that the figures for the total number and proportion of threatened should be treated as provisional. In the Mediterranean Basin, plants are of particular concern. Only approximately 7% of Mediterranean plants have been assessed for their conservation status (less in the south and east Mediterranean countries) but 28% of these are threatened.

It is also useful to look at the proportion of the species assessed that are in the Critically Endangered category. In the Mediterranean Basin, the proportion of threatened species categorized as Critically Endangered is particularly high for freshwater fishes (26%), reptiles (24%), freshwater mollusks (32%) and plants (34%).

In addition to the species listed in Table 4.1, 32 species from the hotspot are known to have become globally Extinct (EX), or Extinct in the Wild (EW): 11 freshwater fishes; two mammals; one reptile; 14 freshwater mollusks; and four plants.

The distribution of the major taxonomic groups of threatened species in each of the countries in the hotspot shows that the highest proportion of threatened species are located in Spain, Greece and Turkey (Table 4.2).

By species group, the highest numbers of threatened species associated principally with freshwater environments (i.e., freshwater fishes, freshwater mollusks, dragonflies and damselflies, and freshwater crabs and shrimps) are found in Spain, the Balkans, Greece and Turkey, with important numbers of threatened dragonflies and damselflies being found in Syria and Israel. Italy, Morocco and Tunisia are the countries with the highest number of threatened marine species. Greece, Spain and Turkey are the countries with the highest number of threatened terrestrial vertebrates. Italy and Morocco have high numbers of amphibians and reptiles and mammals, respectively. Syria also has high numbers of threatened species of reptiles, birds and mammals. With regard to terrestrial invertebrates, Greece, Spain, Morocco and Turkey are the countries with highest numbers of threatened species. For plants, the Canary Islands are the territory with the highest number of threatened species; mainland Spain and Italy are the countries with the highest numbers.

The full list of threatened and endemic species in the hotspot is presented in Annex 1. The relationship between trigger species and individual Key Biodiversity Areas (KBAs) is presented in Annex 5 (online only).

Table 4.1 Globally threatened species in the Mediterranean Basin Hotspot

Group	No. of threatened species				% estimated completeness of IUCN Red List assessment at global (Mediterranean) level	% threatened species at global (Mediterranean) level
	CR	EN	VU	Total		
Vertebrates – total	**94**	**157**	**207**	**458**		
Amphibians	6	12	14	32	100	31
Birds	5	8	22	35	100	7
Freshwater fishes	60	83	81	224	96	37
Marine fishes **	7	15	46	68	100	7
Mammals	2	15	24	41	100	14
Reptiles	14	24	20	58	89	22
Invertebrates - total	**106**	**141**	**144**	**391**		
Anthozoans*	0	3	1	4	21 (97)	14 (13)
Dung beetles	1	21	3	25	29 (35)	15 (13)
Butterflies	1	14	12	27	35 (98)	17 (7)
Freshwater mollusks	103	98	119	320	(98)	(52)
Dragonflies and damselflies	1	5	9	15	(95)	(10)
Freshwater crabs and shrimps	0	0	0	0	100	0
Plants	**158**	**148**	**156**	**462**	7	28
TOTAL	**358**	**446**	**507**	**1,311**		

Notes: CR = Critically Endangered; EN = Endangered; VU = Vulnerable; * = Mediterranean Sea only; ** = Atlantic Ocean and Mediterranean Sea.

A number of species groups in the Mediterranean Basin Hotspot can be considered to have been comprehensively assessed. For some groups, only endemic and almost endemic species have been assessed. The following overview of threatened species within the hotspot is compiled for each species group.

Vertebrates

Freshwater fishes. Eleven bony fish from the hotspot have already become extinct. All were freshwater species endemic to single lakes or river basins, and they disappeared because of habitat loss, pollution, introduced species, and/or drainage. Another 224 species are threatened with extinction, 167 of which are endemic to the hotspot. Sixty species are Critically Endangered (47 of them endemic), 83 are Endangered (62 endemic) and 81 are Vulnerable (59 endemic).

Table 4.2. Globally threatened species by country and group

Country	Freshwater fishes	Freshwater mollusks	Dragonflies/ damselflies	Freshwater crabs/shrimps	Anthozoans	Marine fishes	Amphibians	Reptiles	Birds	Mammals	Butterflies	Dung Beetles	Plants	Total
Albania	20	**82**	2		1	37	2	6	11	6	4	1	9	181
Algeria	5	11	2		2	45	3	10	14	9	1	3	21	126
Bosnia and Herzegovina	21	18				36	1	6	8	5	2		5	102
Bulgaria	2	1							7	4			3	17
Cabo Verde*						31		9	6	3			3	52
Croatia	27	38			2	38	2	6	10	5	3	1	11	143
Cyprus	1	3			1	28		6	6	5			19	69
Egypt	1					37		8	12	4		1	1	64
France	12	38	1		2	**46**		5	12	6	2	2	26	152
Gibraltar	6	2	1		1	44		5	8	5			3	75
Greece	**48**	**48**	**6**		**4**	39	**5**	9	**16**	10	**7**		**60**	252
Iraq	6	2							12	3				23
Israel	18	7	**6**		1	35	2	10	14	8			9	110
Italy	16	36	2		2	49	**9**	7	14	6	3	**4**	**67**	215
Jordan	13	8	4					4	11	8			6	54
Kosovo	2	1						1	2	3		1	2	12
Lebanon	19	9	5		1	34		8	12	5			12	105
Libya	1				1	31		5	5	5		2	1	48
Malta					2	35		4	5	2		1	4	53
Monaco	3	8			1	41		4	3	3			1	64
Montenegro	15	32			1	37	1	7	9	4	2	1	5	114
Morocco	10	43	2		2	**50**	2	**13**	14	**13**	**5**	**7**	40	201
Palestine (Gaza Strip)	3					30		4	6	4				47
Palestine (West Bank)	7	4	4				1	4	11	6			5	42
Portugal	22	12	1			41	1	7	9	8		2	35	138
Portugal (Selvagens)*						33			2	5			1	41
Portugal (Azores)*						25		4	4	7			10	50
Portugal (Madeira)*						32		4	2	7	2		32	79
Slovenia	9	14			1	36	2	4	8	3			11	88
Spain	**30**	41	2		2	45	**5**	**14**	**16**	**13**	4	**13**	83	268
Spain (Canary islands)*						45		9	6	7	4		**113**	184
Syrian Arab Republic	29	15	**6**		1	33		**12**	**16**	11			14	137
The FYR Macedonia	17	**64**							10	5	1		5	102
Tunisia	4	6	2		2	**46**	1	7	12	7		2	12	101
Turkey	**83**	36	**6**		2	35	**9**	10	**18**	**12**	**8**		24	243

Notes: The highest numbers of threatened species (IUCN Red list categories CR, EN and VU) in each group are marked in bold. * = Macaronesic islands.

Marine fishes. There are 68 species of marine fishes threatened with extinction at the global level in the Mediterranean Basin Hotspot, nine of which are endemic to the hotspot. At the global level, seven species are considered Critically Endangered, all of which are cartilaginous fishes. For this group, there are important differences in the conservation status at global and Mediterranean Sea levels. Forty-nine species are threatened at the Mediterranean Sea level, whereas 15 of these species are not threatened at the global level. Five of these threatened species in the Mediterranean Sea are listed as Data Deficient at global level, which could indicate that their global conservation status could be the same. Moreover, 19 species have a higher risk of extinction at the Mediterranean Sea level than at the global level. For example, five species listed as Vulnerable at the global level are considered Endangered in the Mediterranean Sea.

Amphibians. Six amphibians in the hotspot are Critically Endangered: four frogs; a salamander; and a newt. Another 26 amphibians are Endangered or Vulnerable, most of them salamanders or newts.

Reptiles. One reptile from the hotspot is already extinct. Cabo Verde giant skink (*Chioninia coctei*) was last seen in 1912, and probably succumbed to predation by introduced cats and rats. La Palma giant lizard (*Gallotia auaritae*), which is classified as Critically Endangered (Possibly Extinct), while a further 13 reptiles are Critically Endangered, 24 are Endangered and 20 Vulnerable. These include four marine turtles, three land tortoises, a snake of freshwater habitats, seven terrestrial snakes, and 31 lizards, skinks and geckos.

Birds. Thirty-five bird species occurring in the hotspot are globally threatened, five of which are Critically Endangered: sociable lapwing (*Vanellus gregarious*); slender-billed curlew (*Numenius tenuirostris*); northern bald ibis (*Geronticus eremita*); Balearic shearwater (*Puffinus mauretanicus*); and Raso lark (*Alauda razae*), an endemic species to Cabo Verde. For all these species, the wetlands and grasslands of the hotspot play a key role in their survival. The remaining 30 Endangered and Vulnerable species include 14 marine or wetland species and three grassland specialists, reflecting the critical important of these habitats in the region.

Mammals. One mammal in the hotspot is Extinct. Sardinian pika (*Prolagus sardus*), a relative of hares and rabbits, was native to the islands of Sardinia and Corsica but was last seen in 1774. The nominate subspecies of hartebeest (*Alcelaphus buselaphus buselaphus*) also became Extinct in North Africa in the first quarter of the 20th century. Scimitar-horned oryx (*Oryx dammah*), a desert-dwelling antelope, is Extinct in the Wild, as is Atlas lion (*Panthera leo leo*). A further 41 mammals are threatened, two of which are Critically Endangered, although neither of these species has the main part of its range within the hotspot: Dama gazelle (*Nanger dama*), and European mink (*Mustela lutreola*). Of greater conservation concern within the hotspot are 13 mammals that are endemic to the hotspot and classified as either Endangered or Vulnerable. These include two shrews, two gerbils, one hamster, four bats, Corsican hare (*Lepus corsicanus*), Iberian lynx (*Lynx pardinus*), Cuvier’s gazelle (*Gazella cuvieri*) and Barbary macaque (*Macaca sylvanus*).

Invertebrates

Freshwater mollusks. Freshwater mollusks are the group with the largest number of threatened species overall (320 species), and the largest number of Extinct species (14, all of them mud snails) and Critically Endangered species (103, 97 of them mud snails, six of them bivalves). Many of these species are known from one or very few locations in karst environments, where they are vulnerable to pollution and/or mining.

Dragonflies and damselflies. Only one odonate is Critically Endangered: the Greek red damsel (*Pyrrhosoma elisabethae*), which has a restricted range and depends on coastal freshwater areas that are threatened by climate change and tourism development. Another 14 species are Endangered or Vulnerable, nine of which are endemic to the hotspot. There is an additional species, which has not been assessed at global level but is classified as Vulnerable at Mediterranean level. This is *Ischnura hastate*, which occurs in the Mediterranean Basin Hotspot in Azores.

Butterflies. Overall, 27 butterflies in the hotspot are threatened with extinction, 21 of which are endemic to the hotspot. The only Critically Endangered species, Bolland's blue (*Polyommatus bollandi*) is known only from a single locality in Turkey. Twenty-six species are Endangered or Vulnerable. Three additional species, which have not been assessed at global level, are considered to be at risk of extinction in the Mediterranean: *Apharitis cilissa* and *Spialia osthelderi* from Turkey and Lebanon; and *Colias caucasica* from the Balkans, Greece and Turkey.

Dung beetles. Twenty-five dung beetle species frpm the hotspot are threatened with extinction globally. One is Critically Endangered, and known only from four localities in karst habitats in Morocco, where it is threatened by quarrying. Twenty-one species are listed as Endangered and three species are classified as Vulnerable. Most of the threatened species occur at high elevations in south-eastern Spain, the high and medium Atlas Mountains, and southern Turkey in the Anti-Taurus Mountains.

Anthozoans. Four anthozoans are listed as Endangered or Vulnerable. Two of them are species with limited ranges, and the other two are widespread species that have shown marked declines in recent years. Fourteen species that have not been assessed at global level are threatened with extinction in the Mediterranean. One of them, *Isidella elongate,* is considered Critically Endangered and six are listed as Endangered, including red coral (*Corallium rubrum*), known for its historical uses in handicrafts and jewelry.

Plants
With only 7% of the total estimated species richness assessed, 462 plant species from 71 families are considered to be threatened with extinction, 420 of which are endemic to the hotspot. More than half of the threatened species are from nine families: the Compositae; Cruciferae; Leguminosae; Umbelliferae; Labiatae; Iridaceae; Plumbaginaeae; Caryophyllaceae; and Liliaceae. Almost 70% of these species (319) are at risk due to reduced geographic distribution, fragmentation and progressive reduction of their habitat area and quality (IUCN Red List Criteria B1 and B2).

4.2.3 Priority species outcomes

The threats to most species are connected with habitat loss and over-exploitation, and, in many cases, these will be effectively addressed through the protection of KBAs (see Section 4.3) as effectively managed protected areas. However, some species cannot be effectively conserved within protected areas, because they occur at very low densities, or engage in long-distance movements seasonally or at different stages in their life history. Others may exist within protected areas but are under special threat because they are targets for illegal exploitation or persecution. Finally, for some species, the small size of their population makes them vulnerable to disease or chance events, such as fires, and they, thus, require specific conservation attention.

Based on these considerations, the full list of species outcomes were assigned priority rankings, according to the following criteria:

A. Species that are Critically Endangered.
B. Species that are Endangered.

C. Species that are endemic to the Mediterranean Basin Hotspot (i.e., 100% of the known global population or known global range is within the hotspot).

Species that met both criteria A and C were assigned to priority rank 1. Species that met either criterion A or both criteria B and C were assigned to priority rank 2. A total of 317 species were assigned to one of these two priority ranks (Annex 1).

4.2.4 Changes in species outcomes since the first ecosystem profile

The 2010 ecosystem profile listed 555 globally threatened species, 756 less than the current list. Much of the difference is due to increases in the number of species that have been assessed during the last five years, with major additions to the list of freshwater invertebrates in particular. Moreover, improved data on species distributions have also resulted in better understanding of where threatened species can be found, so that some species can now be deleted from the list of threatened species known from the hotspot. Overall, therefore, it is not possible to draw conclusions about trends in the conservation status of species from changes to the overall list of species outcomes. In the future, however, the data provided here will allow evaluations of trends in biodiversity conservation status, constituting a valuable tool for measuring long-term progress of conservation initiatives in the hotspot.

4.2.5 Data Deficient species and research priorities

A total 597 species assessed according the IUCN Red List criteria were classified as Data Deficient, including a large number of marine and freshwater bony fish. There is a high probability that some of these are in fact globally threatened, particularly the 103 plants and 213 animals known to be endemic to the hotspot. These endemic Data Deficient species are thus a priority for further survey work and clarification of their status. Table 4.3 summarizes the number of assessed species within the Mediterranean Basin Hotspot with insufficient information to determine their risk of extinction (Data Deficient).

Table 4.3 Number of species in assessed groups that are in the Data Deficient category

Group	Data Deficient species	Data Deficient species endemic to the hotspot
Vertebrates – total	**258**	**75**
Amphibians	1	0
Freshwater fishes	41	20
Mammals	40	8
Marine Fishes*	167	42
Reptiles	9	5
Invertebrates – total	**172**	**138**
Anthozoans	20	19
Butterflies	20	19
Dragonflies and damselflies	2	1
Dung beetles	68	64
Freshwater mollusks	62	35
Plants	**167**	**103**
TOTAL	**597**	**316**

Notes: * = Five species of cartilaginous fishes that are Data Deficient at the global level have been assessed as threatened in the Mediterranean Sea.

Based on this information and in discussions during the regional consultation, it was suggested that research effort should be focused on poorly known, restricted-range species. This is a particular need for plant species, which have a high proportion of restricted-range species and a low proportion of species assessed against the RIT Red List criteria. It is suggested to focus on those species with an expected or inferred distribution smaller than 5,000 km^2 (i.e., endemic to an area smaller than 5,000 km^2). This threshold was used to determine restricted range plants in Mediterranean by PlantLife International (Radford *et al.* 2009).

4.3 Site outcomes

4.3.1 Methodology

KBA Criteria

KBAs are sites that make significant contributions to the global persistence of biodiversity. KBAs are identified for biodiversity elements for which specific sites contribute significantly to their global persistence, such as globally threatened species or ecosystems. The identification of KBAs uses multiple criteria and sub-criteria, each with associated thresholds (IUCN, 2016). Sites are identified as KBAs when they meet at least one of the following criteria:

- A1: presence of a significant proportion of the population of a globally threatened species.
- A2: presence of a significant proportion of a threatened ecosystem.
- B1 to B4: presence of geographically restricted biodiversity (which may not necessarily be threatened), including individual species, co-occurring species, assemblages of species, and ecosystem types.
- C: ecological integrity: sites that hold exceptional intact ecological communities with supporting ecological processes.
- D: exceptional biological processes, including aggregations of a large proportion of a species' population, ecological refugia, and source populations essential for the survival of the species.
- E: high irreplaceability: quantitative analysis of complementarity between sites shows that a site has a very high irreplaceability (i.e., is highly unique) in terms of global biodiversity.

Fundamentally, KBAs are sites, meaning that they have a boundary which can be shown on a map. Delineating the boundary of a site requires judgement on the likely limits of the ecosystems or trigger species that the site is identified for, and the KBA boundary should represent an ecologically meaningful management unit, to ensure persistence of the biodiversity elements for which it is important. Boundary delineation also requires pragmatic judgement. For example, it may make sense to use an existing boundary of a protected area or an administrative boundary where this appears to coincide with the ecological boundary of the site.

Geographic scope of the KBA revision

The revision of the site outcomes analysis was limited to the countries covered by the update of the ecosystem profile. KBA data for other countries in the hotspot were presented in the first ecosystem profile, and this data are used, where relevant, to give an overall picture of KBAs in the hotspot.

KBA revision process

The process for identification and delineation of KBAs is necessarily a fluid and ongoing, responding to the provision of new information and a constantly changing environment. It is expected that this current KBA dataset will continue to be refined as further information becomes available.

Since the 2010 ecosystem profile, there have been important changes, which affect the identification of KBAs. These are listed below, with a brief summary of the relevant processes.

The identification of Important Plant Areas (IPAs). IPAs within the Mediterranean Basin Hotspot have been identified through several projects (Byfield *et al.* 2005, Radford *et al.* 2009, Radford *et al.* 2011) and compiled and validated at national workshops by Plantlife International and its partners. During 2016, there was a process of revision of IPA boundaries through an on-line micro-site and consultation, in parallel to national processes for the identification of new IPAs in certain countries (Algeria, Cabo Verde and Tunisia). The resulting IPAs required harmonization with the new global KBA standard, and this was done through national validation, as well as a regional workshop with plant specialists held in Montenegro in October 2016. This workshop allowed IPAs to be checked against the new KBA criteria and data on plant trigger species to be compiled.

Identification of freshwater KBAs. Freshwater KBAs were identified and validated through a series of three stakeholder workshops during the period 2012 to 2013. Through this process, 102 sites in the countries covered by the update of the ecosystem profile were identified, delineated and validated (Darwall *et al.* 2014). These original results were revised following publication of the new global KBA standard (IUCN 2016), and site outcomes were identified at two scales: freshwater KBAs, and Catchment Management Zones (CMZs).

Freshwater KBAs were defined as distinct areas (e.g., lakes, headwater streams or springs) within a CMZ that is of particular importance for one or more KBA trigger species. For example, a freshwater KBA may contain all or the majority of one or more trigger species populations, or the only known spawning area or migratory route of a species. Freshwater KBA boundaries were drawn on this basis. Where freshwater KBA boundaries overlapped with existing KBAs identified for other taxa, they were harmonized wherever appropriate, ecologically relevant, shared boundaries could be identified. The process of boundary harmonization will require further work as better data become available.

CMZ boundaries were delineated on the basis of clusters of river/lake sub-catchment boundaries, as the appropriate management unit for freshwater ecosystems. Sub-catchments are an appropriate basis to delineate sites as they represent well defined and ecologically meaningful management units and account for hydrological connectivity. They can be applied at 12 different grain sizes, the smallest being approximately 10 km^2. The standardized data facilitate input into conservation planning software, such as Marxan.

In total, 100 CMZs were identified and validated in the countries covered by the update of the ecosystem profile (see Section 4.3.3 and Annex 3).

Improved data on threatened species. New data on the population and distribution of species that trigger KBA identification in the Mediterranean have been collected by a wide range of NGO partners, scientists and others since the original ecosystem profile was prepared in 2010. These data were collated through national workshops and specialist consultations for IPAs, freshwater KBAs, and other projects.

The 2010 ecosystem profile identified KBAs for marine turtles and seabirds. These are included in the present analysis but additional data were gathered for this analysis.

Additions to the Red List of globally threatened species. As discussed in Section 4.2.4, there have been major additions to the number of species assessed according to the IUCN Red List criteria, resulting in a greatly increased list of KBA trigger species.

New KBA standard. The revised criteria for KBA identification encompass the full scope of marine, terrestrial and freshwater biodiversity (IUCN 2016). Most importantly, the new criteria introduce specific, percentage-based criteria for the proportion of a species's global population that must be at a site for it to qualify as a KBA (in the past, a site could qualify as a KBA on the basis of the presence of a globally threatened species). For many KBAs identified previously, the required population data are not yet available, and so it is impossible to confirm whether the KBA meets the new global criteria. To allow time for confirmation that sites still meet the KBA criteria, 81 KBAs identified prior to the introduction of the new standard are flagged as "global/regional status not confirmed", and included in the maps and analysis presented here.

National consultations

In addition to the validation and update process conducted a part of the identification of IPAs and freshwater KBAs, a draft set of KBAs was discussed at the national technical workshops organized as part of the ecosystem profiling process, which brought together experts from relevant organizations. The draft final analysis was then presented at the regional stakeholder workshop in November 2016. The consultation process gave a wide range of national stakeholders and international experts the chance to make inputs to KBA trigger species lists and KBA boundaries, and to identify new KBAs where appropriate. The consultation process is described in greater detail in Chapter 2.

Biological prioritization of KBAs

Eight criteria were used to prioritize KBAs for conservation investment, encompassing considerations of biological importance, existing actions, feasibility, and opportunities for sustainability. The first of these criteria, biological priority, is addressed in this chapter. The final prioritization, using all eight criteria, is discussed in Chapter 12.

Biological prioritization was carried out on the basis of uniqueness (i.e., irreplaceability, or how many other sites are known that have the same species or ecosystems for which the KBA was identified), and vulnerability (i.e., the likelihood that the site, or the species within it, will lose the conservation values for which it is identified). A detailed methodology for the biological prioritization of KBAs using these criteria is given in Langhammer *et al.* (2007).

Data limitations and improving the analysis

Site outcomes were defined using the global KBA standard developed by IUCN and its members, which has the advantage of being a standard "currency" for identifying KBAs. It does, however, mean that the identification of KBAs requires confirmed records of the presence of trigger species or ecosystems, with sufficiently accurate data on populations of species and area of ecosystems.

In many places in the southern and eastern Mediterranean, there have been few surveys, and so the requisite data for KBA identification are not available. In some places, survey data are available for the more easily identified groups (e.g., birds, non-flying mammals, flowering plants, etc.) but lacking for many of other groups of species. There is, thus, a bias in the identification of KBAs towards better-known groups, and towards countries where there has been greater survey effort.

Given the particularities of the marine realm, there are few KBAs identified there, even though Red List assessments have been carried out for certain marine taxonomic groups (e.g., sharks, bony fishes, anthozoans, etc.). Other marine species, such as seabirds and marine turtles, have KBAs identified for the critical stages in their lifecycle when they come on to land to breed. Nevertheless, the KBA analysis represents the best available summary of the current status of species and ecosystems, and the sites that are important for their conservation.

4.3.2 KBAs in the Mediterranean Basin Hotspot

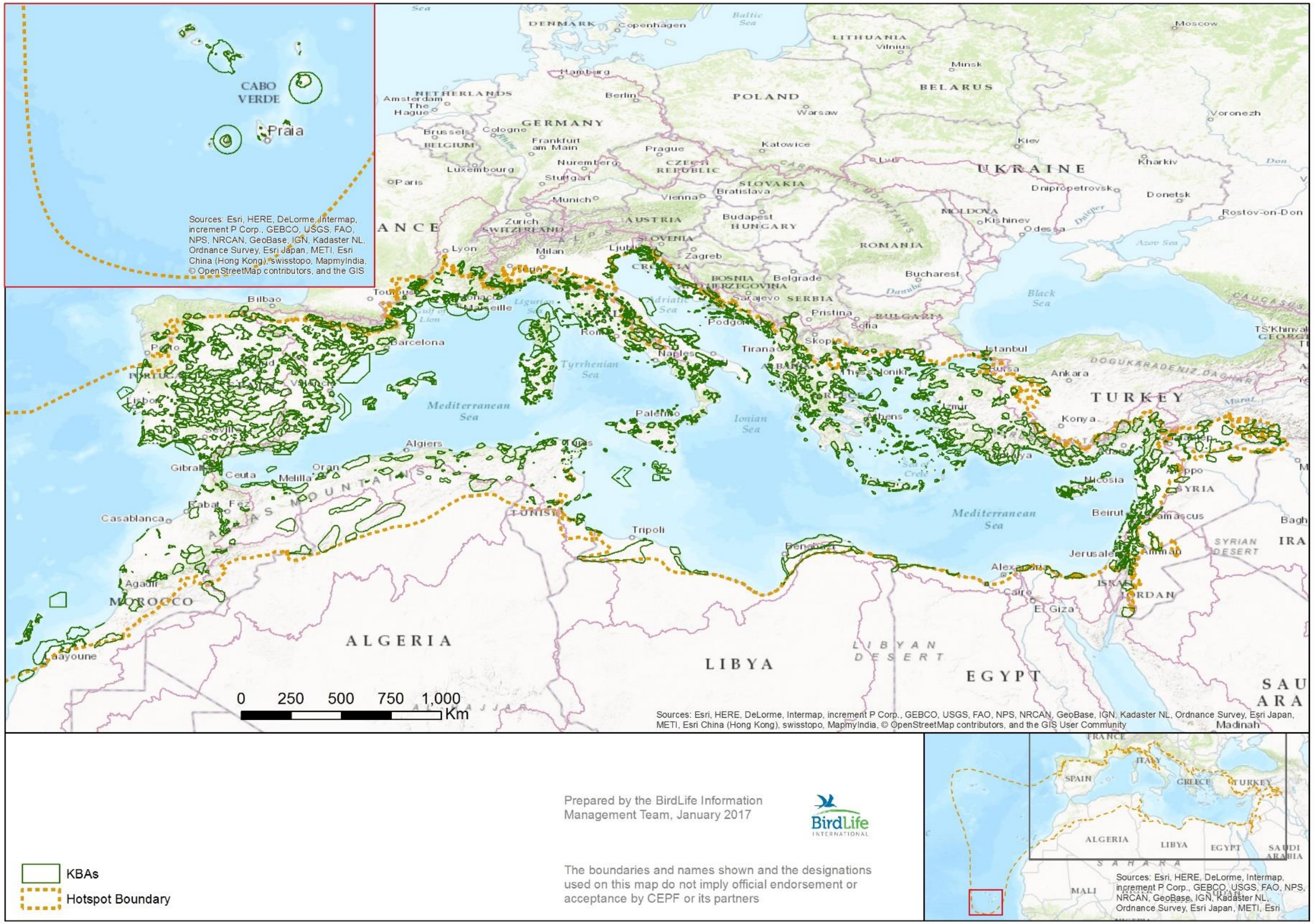
In total, 533 KBAs were identified for the 16 countries and territories in the Mediterranean Basin Hotspot covered by the update of the ecosystem profile. While KBAs were identified in all countries, there are marked differences between regions, with Turkey having the highest number of KBAs, and Libya having the greatest proportion of its land area within the hotspot included in KBAs (Table 4.4, Figure 4.1).

Table 4.4 Number and area of KBAs in the countries and territories of the Mediterranean Basin Hotspot covered by the ecosystem profile update

Country/Territory	No. of KBAs	Total land area of KBAs (km^2)[1]	Land area in hotspot (km^2)	% of hotspot land area in KBAs[1]
Albania	25	5,802	26,222	22%
Bosnia and Herzegovina	9	851	4,910	17%
Montenegro	15	1,126	4,206	27%
The FYR Macedonia	14	1,729	5,567	31%
Kosovo	1	134	268	50%
Balkans sub-region	**64**	**9,642**	**41,173**	**23%**
Palestine	14	1,252	5,062	25%
Lebanon	19	3,426	10,136	34%
Jordan	13	2,186	9,560	23%
Syria	42	11,176	51,702	22%
Middle East sub-region	**88**	**18,040**	**76,460**	**24%**
Algeria	52	50,194	302,054	17%
Cabo Verde	29	671	4,056	17%
Egypt	10	321	3,742	9%
Libya	14	35,381	63,913	55%
Morocco	64	30,981	323,579	10%
Tunisia	65	4,342	81,885	5%
North Africa sub-region	**234**	**121,890**	**779,229**	**16%**
Turkey	147	74,488	268,999	28%
TOTAL	**533**	**224,060**	**1,165,861**	**19%**

Notes: 1 = Figures consider only the terrestrial portion of the hotspot, and exclude marine KBAs and portions of terrestrial KBAs that cover marine areas. Parts of KBAs that are outside the hotspot boundary are also excluded.

Figure 4.1 Map of KBAs in the Mediterranean Basin Hotspot



The lists of KBAs for other countries in the hotspot were not revised as part of the ecosystem profiling process. A total of 617 KBAs were identified in these countries in the 2010 ecosystem profile (Table 4.5). Because factors similar to those outlined above also apply to KBAs, this list is in need of revision. The full list of 1,150 KBAs in the hotspot is, therefore, considered provisional.

Table 4.5 Number of KBAs in the countries of the Mediterranean Basin Hotspot not covered by the ecosystem profile update

Country	No. of KBAs	Country	No. of KBAs	Country	No. of KBAs
Bulgaria	0	Israel	10	San Marino	0
Croatia	37	Iraq	0	Serbia	0
Cyprus	1	Italy	156	Slovenia	0
France	33	Malta	0	Spain	221
Gibraltar	1	Monaco	0	Vatican city	0
Greece	103	Portugal	55		
TOTAL					**617**

Note: Based on data from the 2010 ecosystem profile.

Comparison with the 2010 ecosystem profile

The 2010 ecosystem profile identified 1,110 KBAs, including 493 in the countries and territories covered by the update (Table 4.6).

Table 4.6 Comparison of the number of KBAs identified in the 2010 and 2016 ecosystem profiles

Country	No. of KBAs in 2010	No. of KBAs in 2016	Change
Albania	16	25	+9
Bosnia-Herzegovina	9	9	0
Macedonia FYR	14	15	+1
Montenegro	11	14	+3
Kosovo	0	1	+1
Balkans sub-region	**50**	**64**	**+14**
Palestine	10	14	+4
Lebanon	29	19	-10
Jordan	14	13	-1
Syria	30	42	+12
Middle East sub-region	**83**	**88**	**+5**
Algeria	40	52	+12
Cabo Verde	19	29	+10
Egypt	12	10	-2
Libya	19	14	-5
Morocco	68	64	-4
Tunisia	62	65	+3
North Africa sub-region	**220**	**234**	**+14**
Turkey	140	147	+7
TOTAL	**493**	**533**	**+40**

The current analysis has identified 40 more, with the largest increases in Algeria, Cabo Verde, and Syria. In five countries, the total number of KBA has been reduced. This happens when a KBA is deleted (in a few cases experts in the national workshop reported that the site no longer has any conservation value and agreed to delete it), or more often, as a result of amalgamation of two or more KBAs to form a single unit. This most often occurs when new KBA boundaries derived from IPAs, freshwater KBAs, and older KBA designations are overlaid.

Balkans sub-region

The Balkans sub-region has 64 KBAs, equivalent to 12% of the total number in the hotspot. These cover 9,642 km^2 of terrestrial land within the hotspot or 4% of the total area of all KBAs in the hotspot countries covered by the ecosystem profile update. There are also 17 freshwater CMZs in the sub-region.

Table 4.7 List of KBAs in Kosovo

KBA code	KBA name
KOS01	Pashtrik Nature Park

Table 4.8 List of KBAs Albania

KBA code	KBA name
ALB01	Black Lake
ALB02	Boboshtica
ALB03	Dajti mountain-Me Gropa mountain-Bizë-Martanesh
ALB04	Devolli upperstream
ALB05	Drino valley - Kardhiq valley
ALB06	Gjergjevica
ALB07	Gramozi Mountain
ALB08	Griba Mountain
ALB09	Guri i Topit - Valamarë
ALB10	Korab-Korritnik Mountain range
ALB11	Krujë - Tujan
ALB12	Lake Ohrid
ALB13	Mali i Pashtrik-Morinë
ALB14	Munella Mountain – Oroshi Mountain – Lura lakes
ALB15	Osumi Spring
ALB16	Patoku lagoon
ALB17	Prespa Lakes
ALB18	Saranda bay - Butrint National Park
ALB19	Shebenik-Jabllanicë National Park
ALB20	Shkumbin - Divjakë - Seman
ALB21	Skadar Lake – Buna River – Velipoje-Vau i Dejes
ALB22	Tomorri Moutain
ALB23	Vjosë - Nartë
ALB24	Vlora bay-Karaburun Penn.-Sazani Is.-Çika Mountain
ALB25	Zhej-Nemercke

Figure 4.2 Map of KBAs in Albania and Kosovo

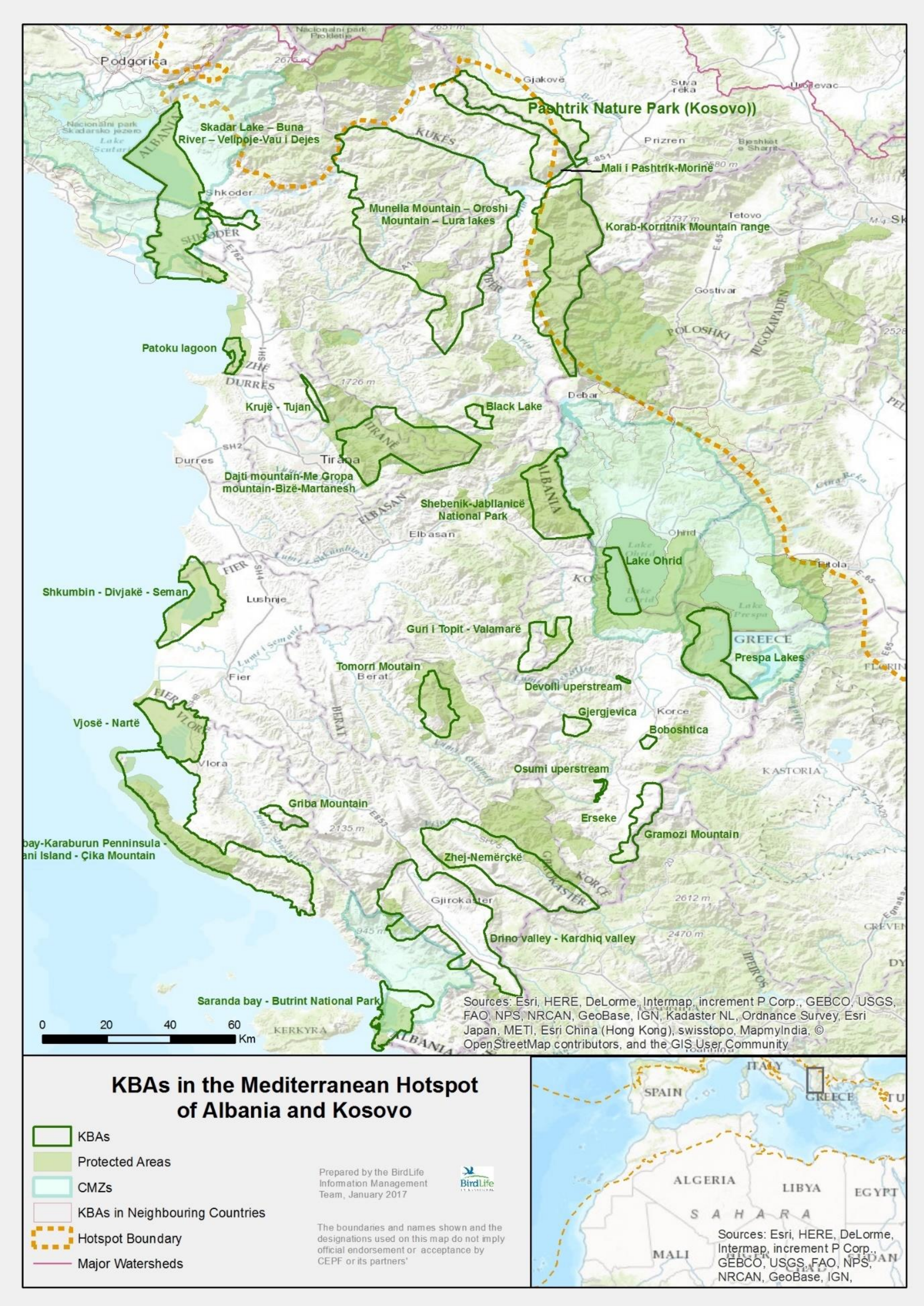


Figure 4.3 Map of CMZs in Albania

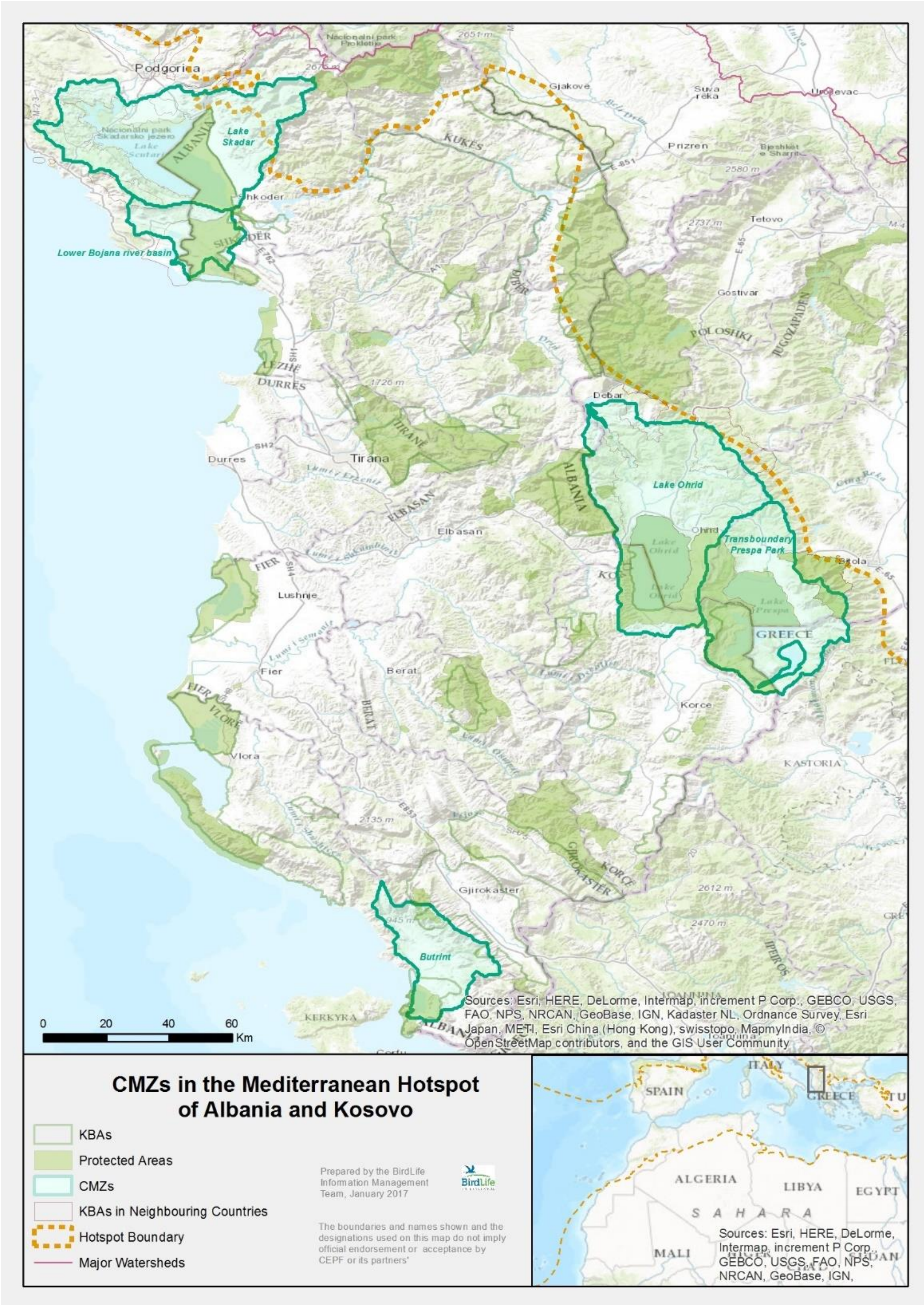


Table 4.9 List of CMZs in Albania

Country	Catchment Management Zone
Albania	Lake Butrint catchment
Albania, FYR of Macedonia	Lake Ohrid catchment
Albania, Montenegro	Lake Skadar catchment
Albania, Montenegro	Lower Bojana river basin
Albania, FYR Macedonia, Greece	Prespa Lake catchment

Table 4.10 List of KBAs in Bosnia-Herzegovina

KBA code	KBA name
BIH01	Dabarsko and Fatničko Karstic Fields
BIH02	Hutovo blato
BIH03	Livanjsko polje and Busko lake
BIH04	Mostarsko Blato
BIH05	Neretva River
BIH06	Orijen i Bijela gora
BIH07	Popovo polje, Vjetrenica
BIH08	Trebinjsko Jezero
BIH09	Trebizat River Tributary

Table 4.11 List of CMZs in Bosnia-Herzegovina

Country	Catchment Management Zone
Bosnia and Herzegovina	Lake Bilecko
Bosnia and Herzegovina	Listica river and Mostarsko blato
Bosnia and Herzegovina, Croatia	Neretva delta and associated springs/lakes including Hutovo Blato
Bosnia and Herzegovina	Nevesinjsko polje, Gatacko polje, Cernicko polje, Fatnicko polje and Dabarsko polje
Bosnia and Herzegovina	Part of the Neretva upper catchment
Bosnia and Herzegovina	Part of the Neretva upper catchment - eastern mid catchment
Bosnia and Herzegovina	Popovo polje and Trebišnjica
Bosnia and Herzegovina	Trebizat drainage including Imotsko polje
Bosnia and Herzegovina	Tributaries of Lower and Middle Neretva
Bosnia and Herzegovina	West B and H Karst poljes

Figure 4.4 Map of KBAs in Bosnia-Herzegovina

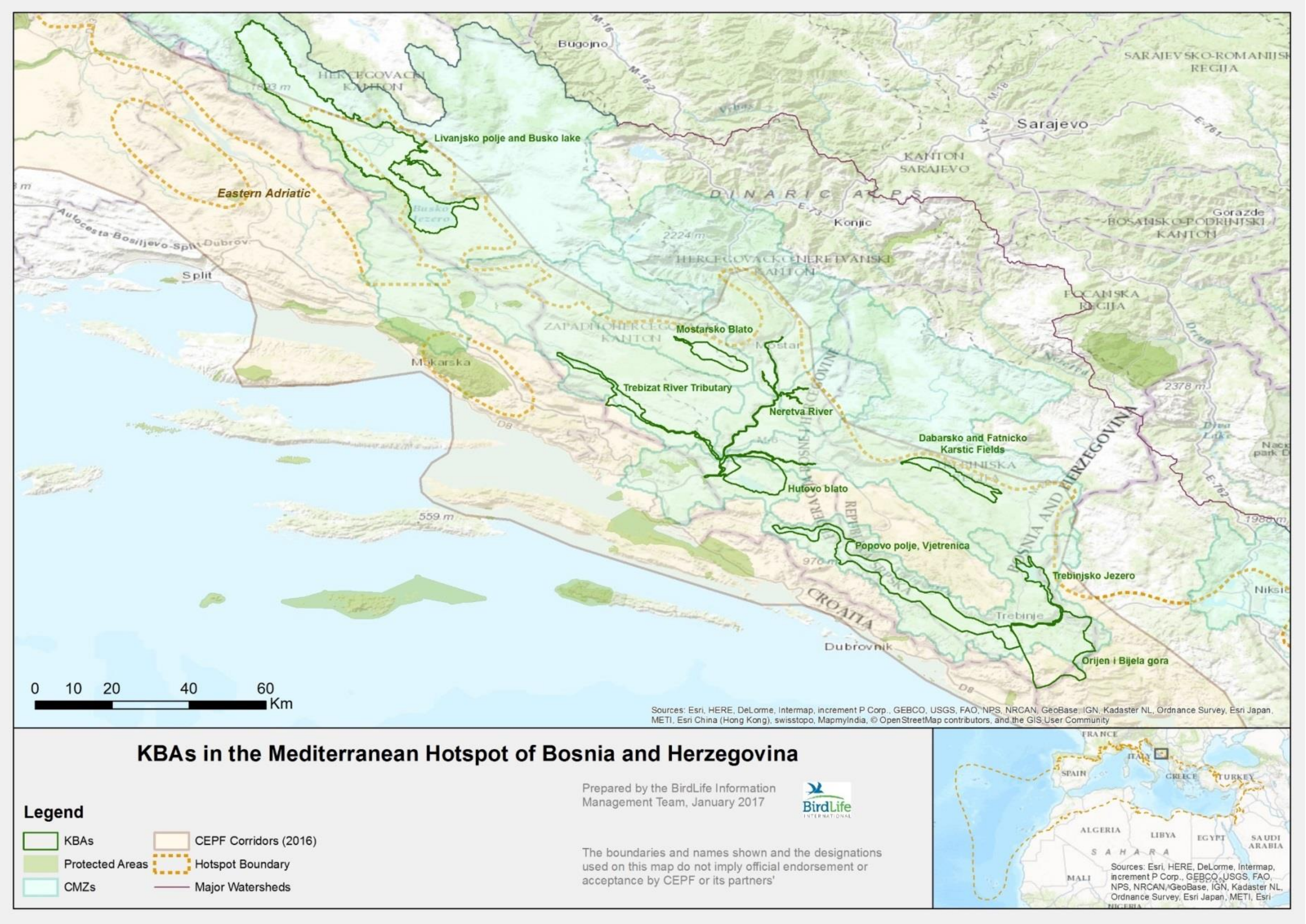


Figure 4.5 Map of CMZs in Bosnia-Herzegovina

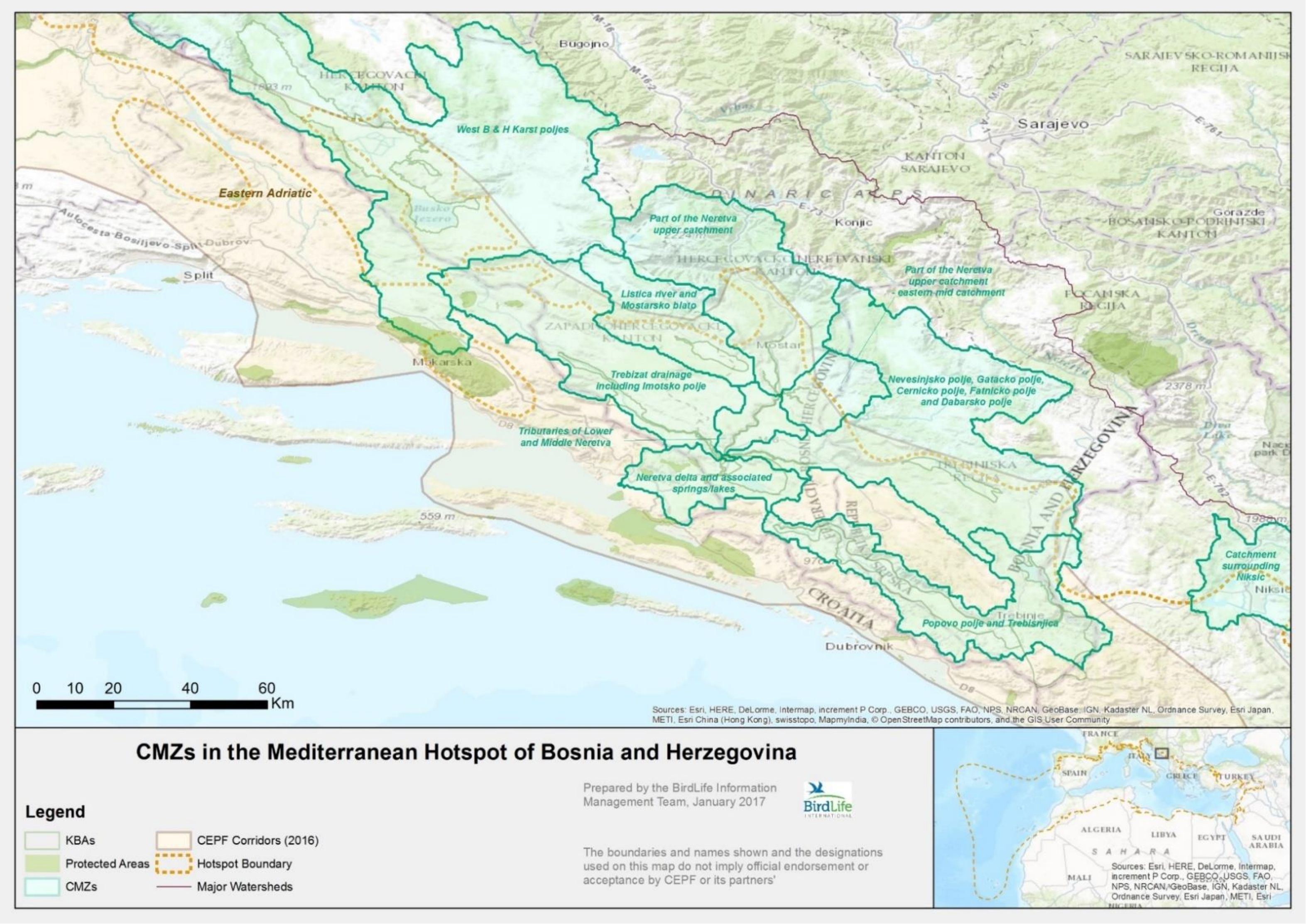


Table 4.12 List of KBAs in FYR Macedonia

KBA code	KBA name
MKD01	Belasica
MKD02	Crn Drim gorge
MKD03	Demirkapiska Klisura
MKD04	Dojransko Ezero
MKD05	Galichica Mountain
MKD06	Ilinska Planina Mt.
MKD07	Jablanica
MKD08	Mantovsko Ezero i reka Kriva Lakavica
MKD09	Monospitovo swamp
MKD10	Ohridsko Ezero
MKD11	Pelister
MKD12	Prespansko Ezero
MKD13	Stogovo
MKD14	Vardar River (formerly South Vardar and Bogdanci)

Table 4.13 List of CMZs in FYR Macedonia

Country	Catchment Management Zone
FYR of Macedonia, Greece	Doirani Lake catchment
Albania, FYR of Macedonia	Lake Ohrid catchment
Albania, FYR Macedonia, Greece	Prespa Lake catchment

Figure 4.6 Map of KBAs and CMZs in Former Yugoslav Republic of Macedonia

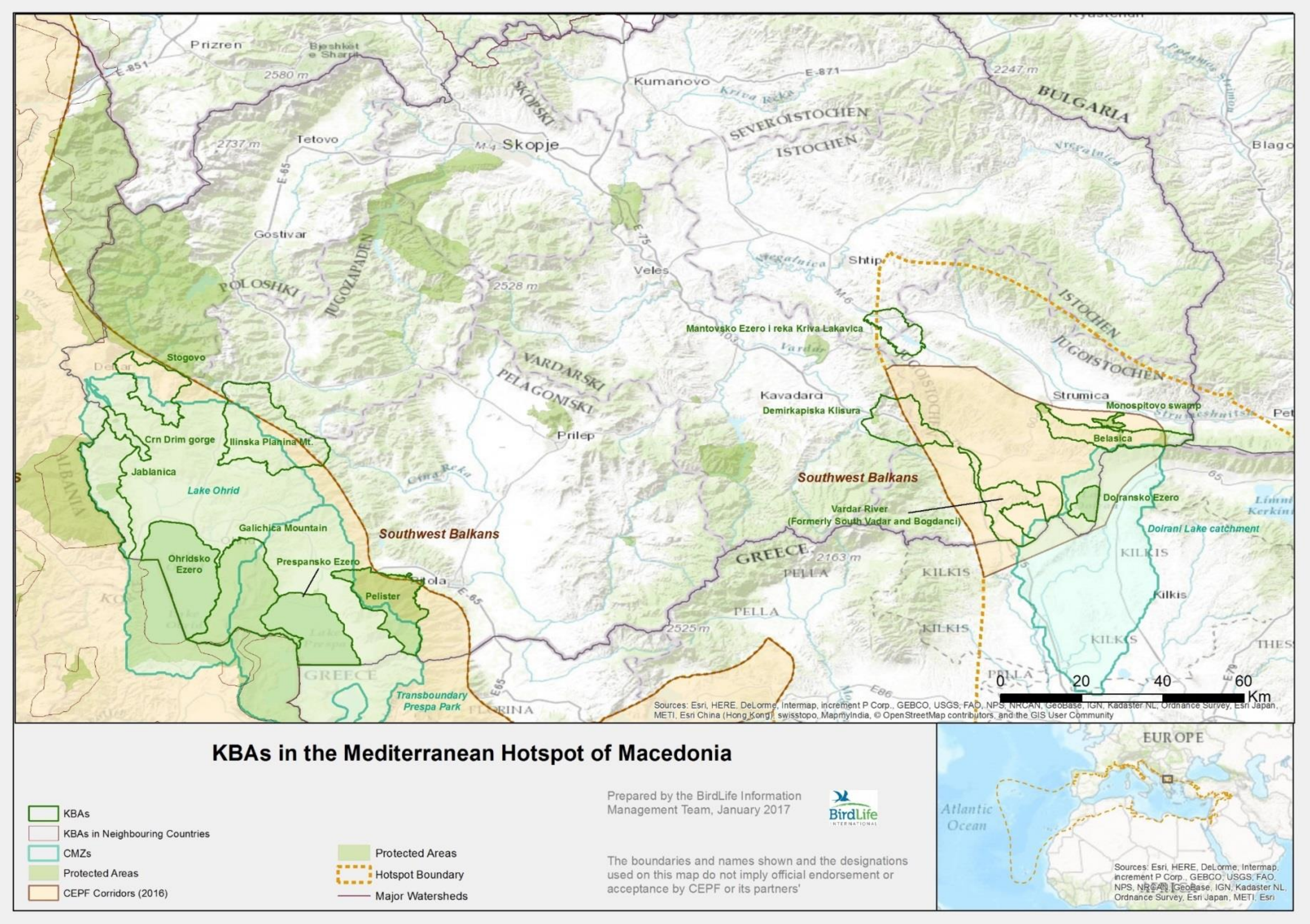


Table 4.14 List of KBAs in Montenegro

KBA code	KBA name
MNE01	Bojana Delta
MNE02	Buljarica
MNE03	Cemovsko Field
MNE04	Cijevna Canyon and Hum Orahovski
MNE05	Katici, Donkova and Velja Seka
MNE06	Kotorsko-risanski Bay
MNE07	Lovcen
MNE08	Morača River
MNE09	Orjen
MNE10	Platamuni
MNE11	Rumija
MNE12	Skadarsko jezero
MNE13	Tivat Salina
MNE14	Trebjesa
MNE15	Zeta Stream

Table 4.15 List of CMZs in Montenegro

Country	Catchment Management Zone
Montenegro	Catchment surrounding Niksic
Albania, Montenegro	Lake Skadar catchment
Albania, Montenegro	Lower Bojana river basin

Turkey sub-region

Turkey has 147 KBAs in the hotspot, 28% of the total. These cover 74,488 km^2 of land within the hotspot or 33 % of the total area of all KBAs in the countries covered by the ecosystem profile update. Turkey also has 23 CMZs in the hotspot.

Table 4.16 List of KBAs in Turkey

KBA code	KBA name	KBA code	KBA name
TUR01	İncirli Hills	TUR75	Gölgeli Mountains
TUR02	İstanbul Islands	TUR76	Güllük Bay
TUR03	Çığlıkara Forests (and Avlan Lake)	TUR77	Güllük Mountain
TUR04	Çeşme Western Foreland	TUR78	Gülnar
TUR05	Çiçek Islands	TUR79	Gavur Lake
TUR06	Çorak Lake	TUR80	Gazipaşa - Anamur Coast
TUR07	Acıgöl Lake	TUR81	Gediz Delta
TUR08	Acıkır Steppes	TUR82	Gelibolu Kemikli Headland
TUR09	Ahır Mountain	TUR83	Gevne Valley and Gokbel Highlands
TUR10	Akçakale Plains	TUR84	Geyik Mountains
TUR11	Akbük Coast	TUR85	Girdev Lake and Akdağlar
TUR12	Akdağ - Çivril	TUR86	Gorduk Creek
TUR13	Akdağ - Denizli	TUR87	Harran Ruins
TUR14	Akseki and İbradı Forests	TUR88	Honaz Mountain
TUR15	Aksu Valley	TUR89	Işıklı Lake

KBA code	KBA name	KBA code	KBA name
TUR16	Alaçam Mountains	TUR90	Kılıç Mountain
TUR17	Alaçatı	TUR91	Kızıldağ
TUR18	Aladağlar	TUR92	Kızıldağ Izmir
TUR19	Alata Dunes	TUR93	Kızılot
TUR20	Altınözü Hills	TUR94	Köprüçay Valley
TUR21	Altıntaş Plateau	TUR95	Köyceğiz Lake
TUR22	Amanos Mountains	TUR96	Küpeli Mountain
TUR23	Andirin	TUR97	Kaş-Kalkan Coast
TUR24	Antalya Plains	TUR98	Kale
TUR25	Araban Hills	TUR99	Karaburun ve Ildir Strait Islands
TUR26	Armutlu Peninsula	TUR100	Karacadağ
TUR27	Aydıncık ve Ovacık Coasts	TUR101	Karakuyu Marshes
TUR28	Ayvalık	TUR102	Karamık Marshes
TUR29	Büyük Menderes Delta	TUR103	Karataş Lake
TUR30	Büyükçekmece Lake	TUR104	Kargı River Valley
TUR31	Baba Mountain	TUR105	Karkamış
TUR32	Babakale - Asos Coast	TUR106	Kastabala Valley
TUR33	Bafa Lake	TUR107	Kaz Mountains
TUR34	Bakırçay Delta	TUR108	Kazanlı
TUR35	Barla Mountain	TUR109	Kekova
TUR36	Batı Menteşe Mountains	TUR110	Kibriscik
TUR37	Berit Mountain	TUR111	Kocaçay Delta
TUR38	Bey Mountains	TUR112	Kumluca
TUR39	Beyşehir Lake	TUR113	Lakes Karagal and Cinegol
TUR40	Biga Mountains	TUR114	Lesser Menderes Delta
TUR41	Binboğa Mountains	TUR115	Limonlu Basin
TUR42	Bismil Plain	TUR116	Mahal Tepeleri
TUR43	Bodrum Yarımadası	TUR117	Manyas Lake (Kuş Lake)
TUR44	Bolkar Mountains	TUR118	Mardin Threshold
TUR45	Bosphorus	TUR119	Marmara Islands
TUR46	Boz Mountains	TUR120	Marmara Lake
TUR47	Bozova	TUR121	Meriç Delta
TUR48	Bozyazı Coast	TUR122	Mersin Hills
TUR49	Burdur Lake	TUR123	Murat Mountain
TUR50	Burnaz Dunes	TUR124	Nemrut Mountain
TUR51	Canakkale Strait	TUR125	Nif Mountain
TUR52	Ceyhan Delta	TUR126	Northern Coast of Gökçeada
TUR53	Ceylanpınar	TUR127	Northern Coast of Gökova
TUR54	Cizre and Silopi	TUR128	Patara
TUR55	Dalaman Plain	TUR129	Pendik Valley
TUR56	Datça ve Bozburun Peninsula	TUR130	Sündiken Mountains
TUR57	Dedegöl Mountains	TUR131	Salda Lake
TUR58	Devegeçidi Dam	TUR132	Samandağ Dunes
TUR59	Dicle Valley	TUR133	Sandras Mountain
TUR60	Dilek Peninsula	TUR134	Saros Bay

KBA code	KBA name	KBA code	KBA name
TUR61	Dimçay Valley	TUR135	Seyhan Delta
TUR62	Eastern Boncuk Mountains	TUR136	Southern Euphrates Valley and Birecik Plains
TUR63	Eğirdir Lake	TUR137	Spil Mountain
TUR64	Elbeyli	TUR138	Sugözü - Akkum
TUR65	Ermenek Vadisi	TUR139	Türkmenbaba Mountain
TUR66	Eruh Mountains	TUR140	Taşeli Platosu
TUR67	Feke	TUR141	Tahtalı Mountains
TUR68	Fethiye	TUR142	Uluabat Lake
TUR69	Foça Peninsula	TUR143	Uludağ
TUR70	Gökçeada Lagoon	TUR144	Yılanlıkale Hills
TUR71	Gökdere	TUR145	Yamanlar Mountain
TUR72	Göksu Delta	TUR146	Yarışlı Lake
TUR73	Göksu Valley	TUR147	Yeşilce
TUR74	Gölcük Lake		

Table 4.17 List of CMZs in Turkey

Country	Catchment Management Zone
Turkey	Asku River catchment
Turkey	Azmak Stream
Turkey	Bakirçay
Turkey	Burdur lake and catchments
Turkey	Büyük Menderes River
Turkey	Duden river
Turkey	Eğirdir Lake catchment
Turkey	Gokdere (Yesildere) stream
Turkey	Işıklı/Çivril lake and catchment
Turkey	Karpuzcay stream
Turkey	Köprü Çay
Turkey	Korkuteli and Elmali plains
Turkey	Lake Beysehir catchment
Turkey	Lakes Acıgöl and Salda
Turkey	Lakes Aksehir - Eber system
Turkey	Lower Gediz river
Turkey	Manavgat River
Turkey	Qweik catchment
Turkey	Savrun catchment (Ceyhan drainage)
Turkey	Seyhan River catchment
Turkey	Upper Dalaman
Turkey	Yarpuz and Hamus catchment (in Ceyhan basin)
Turkey, Syria, Iraq	Main stem of the Tigris River

Figure 4.7 Map of KBAs and CMZs in Montenegro

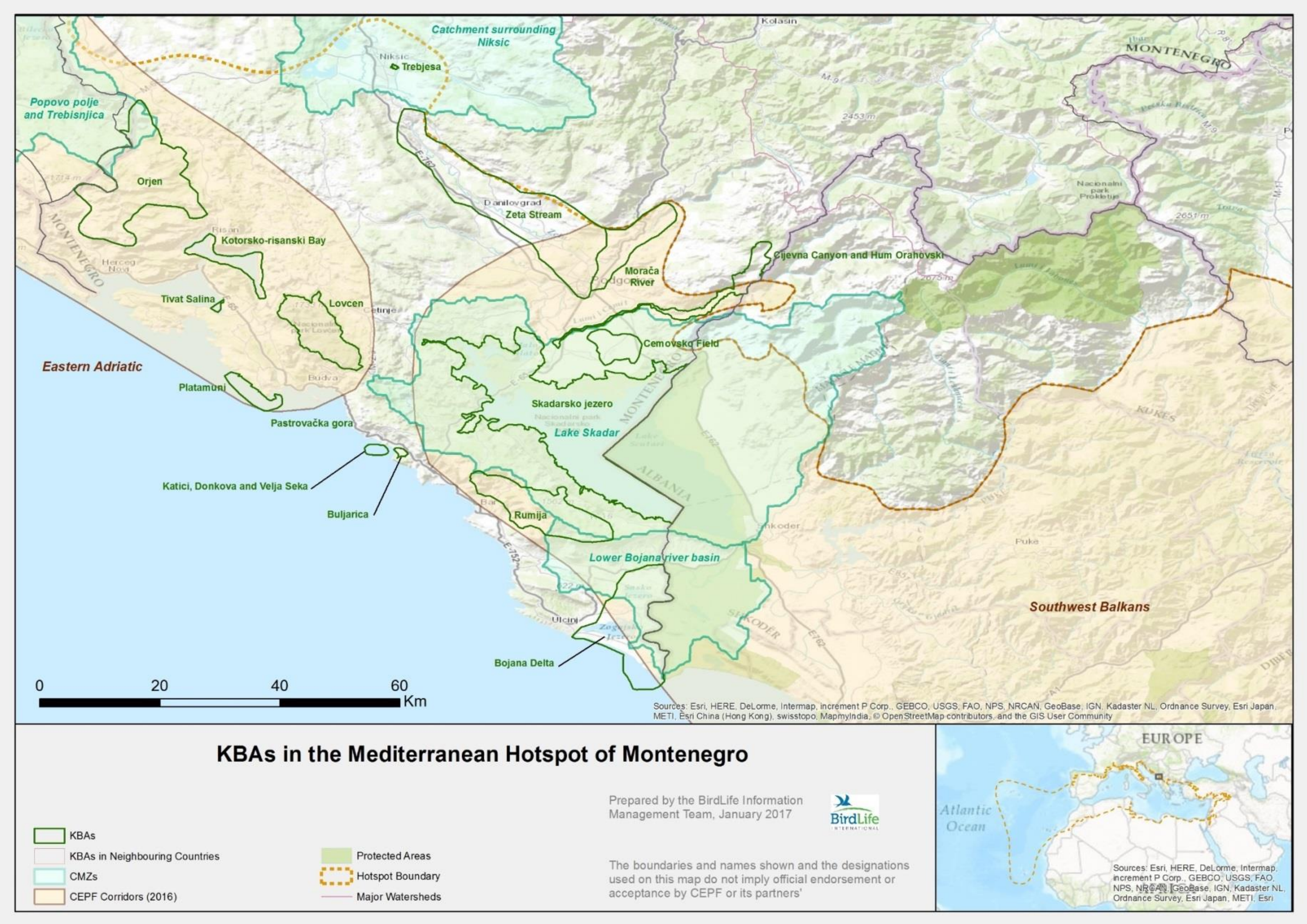


Figure 4.8 Map of KBAs in western Turkey

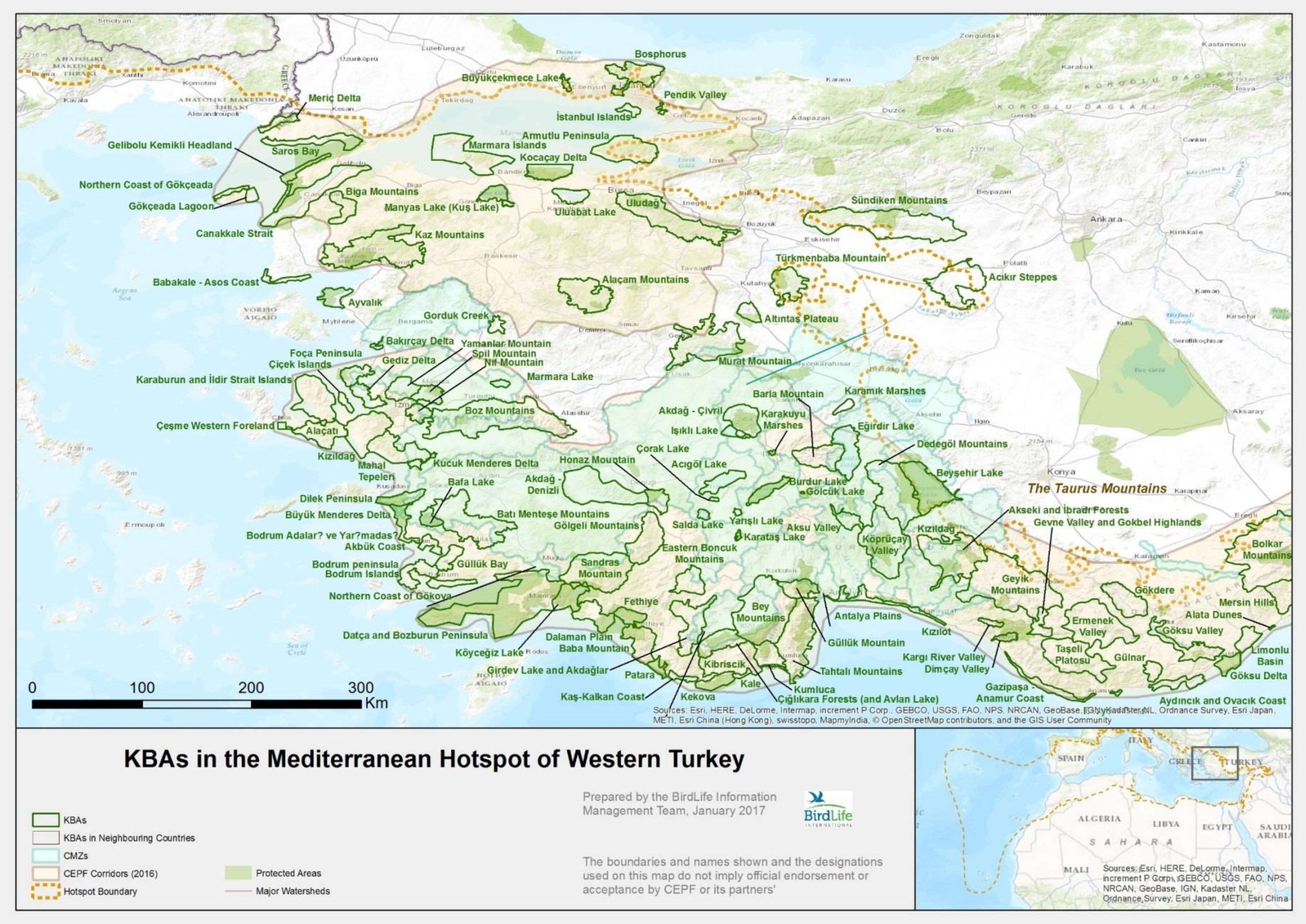


Figure 4.9 Map of KBAs in eastern Turkey

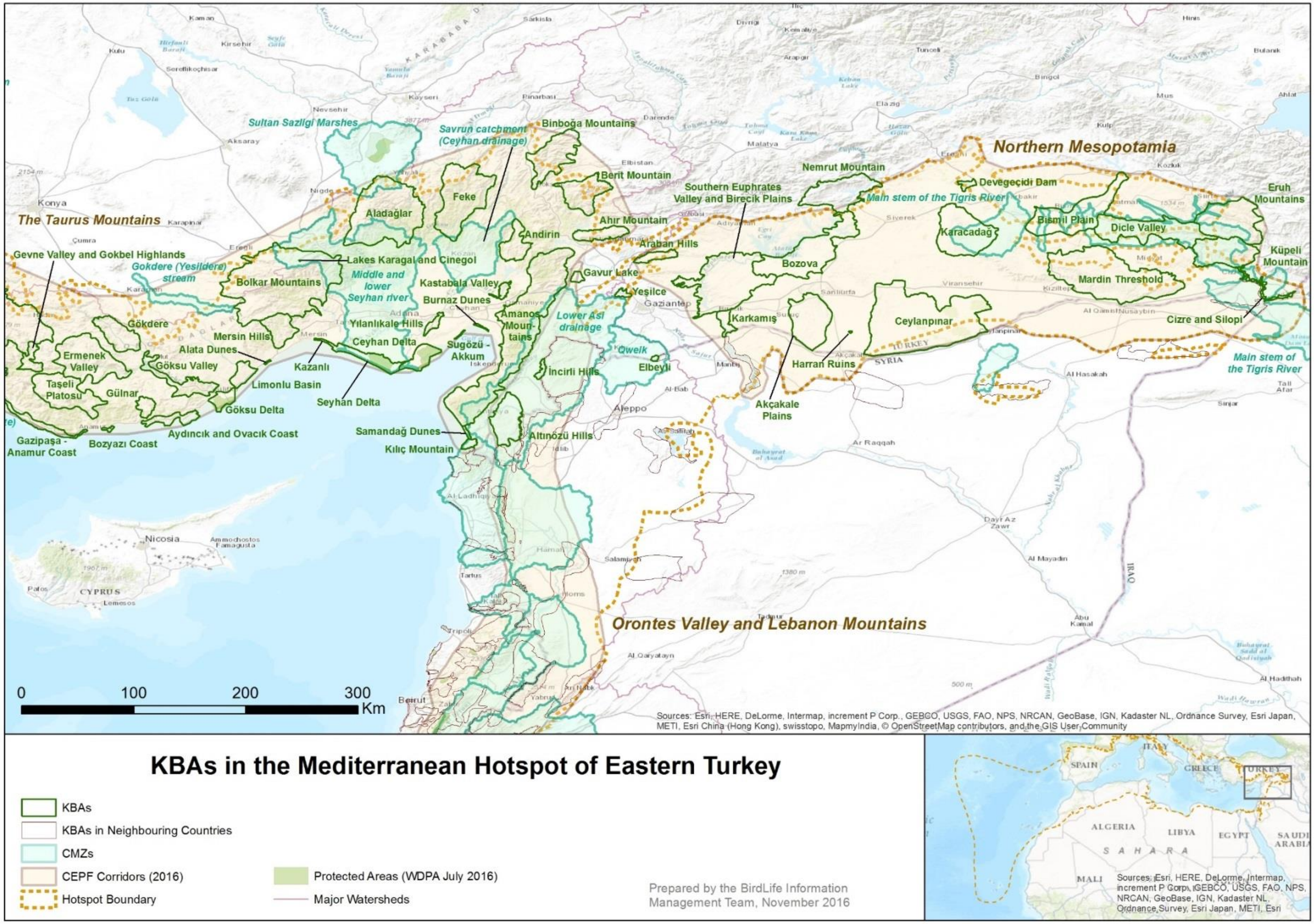


Figure 4.10 Map of CMZs in western Turkey

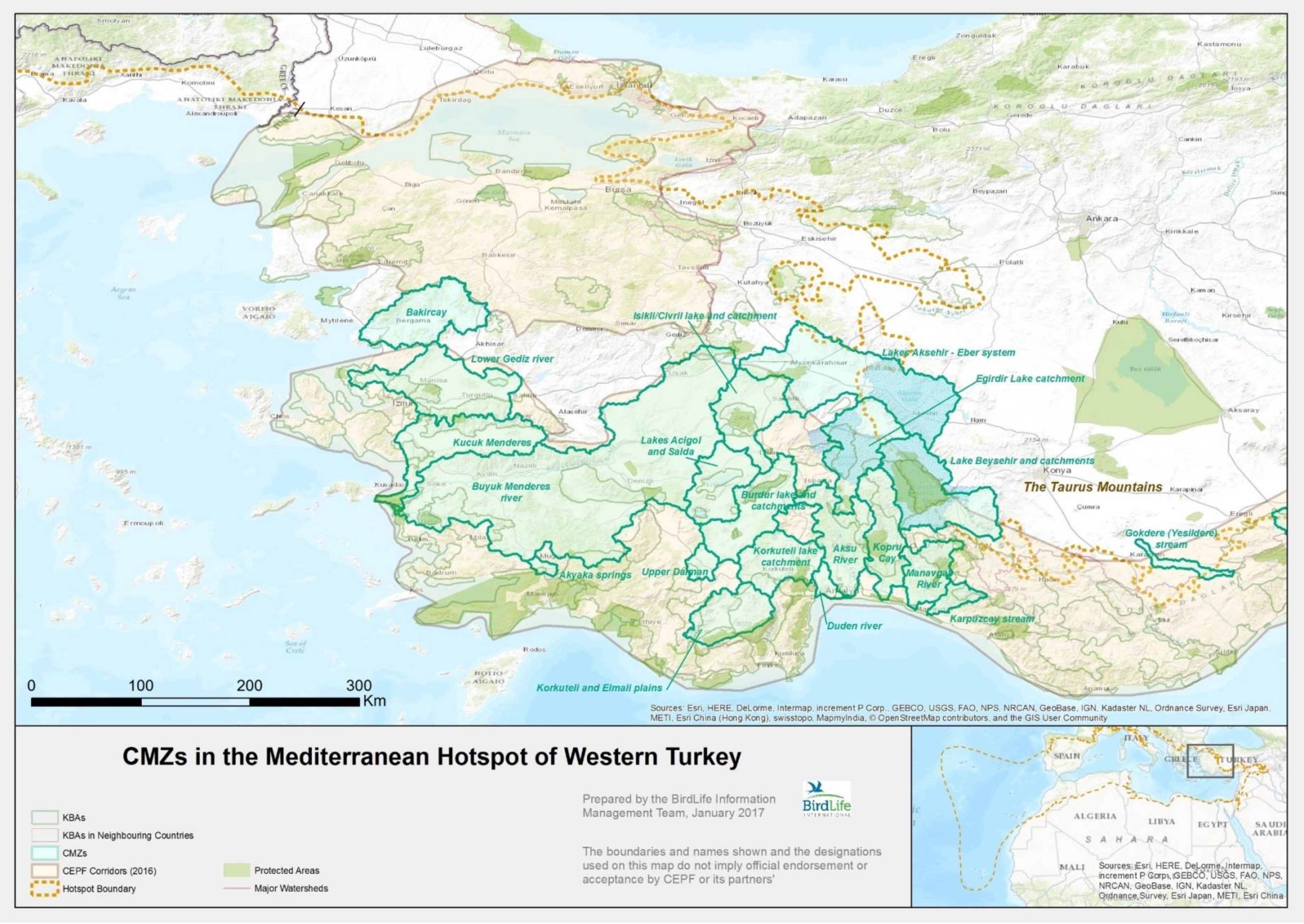
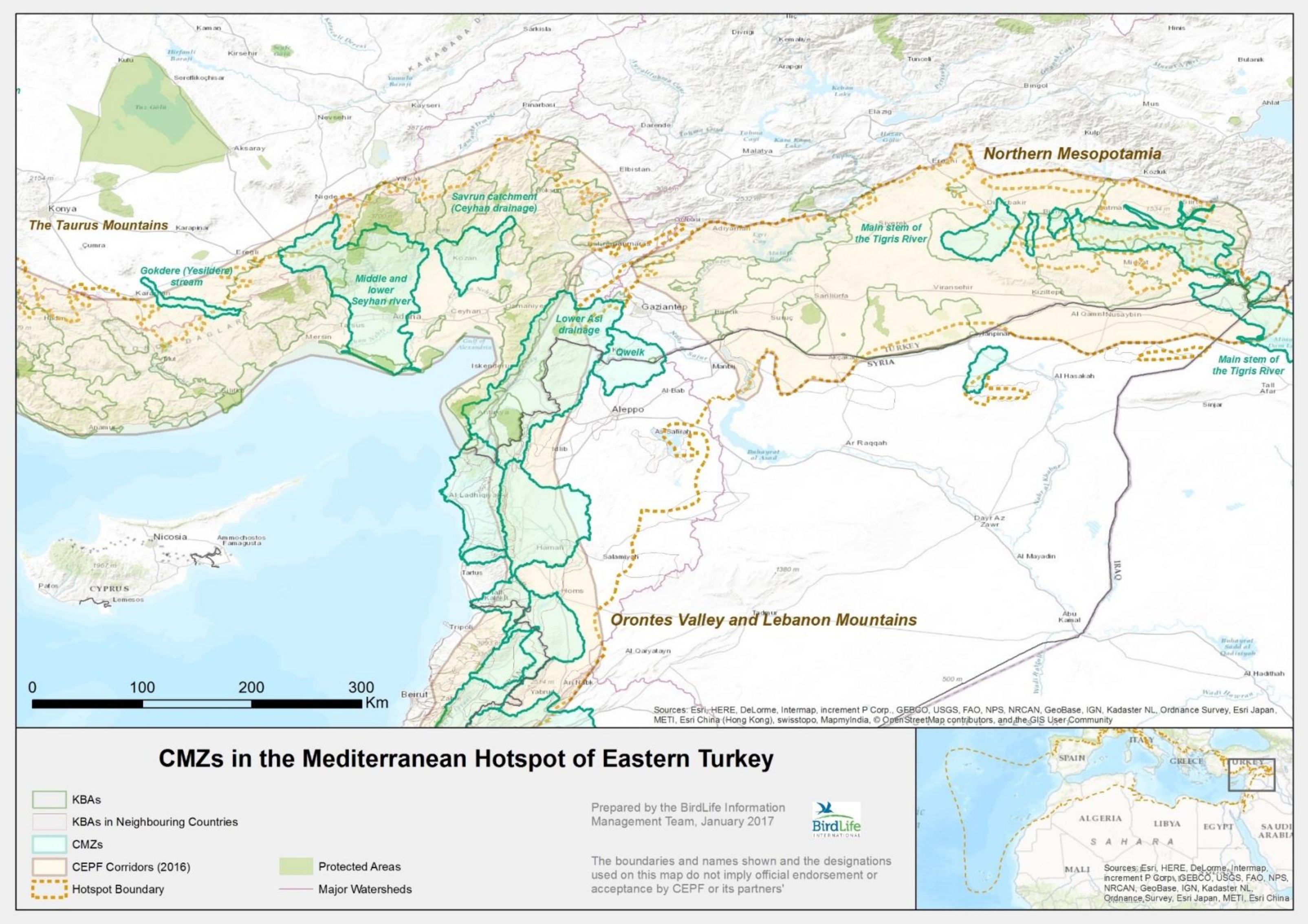


Figure 4.11 Map of CMZs in eastern Turkey



Middle East sub-region

The Middle East has 88 KBAs, 17% of the total number in the hotspot. These KBAs cover 18,040 km^2 of land in the hotspot or 8% of the total area of all KBAs in the countries covered by the ecosystem profile update. There are 19 CMZs in the sub-region.

Table 4.18 List of KBAs in Jordan

KBA code	KBA name
JOR01	Ajloun
JOR02	Dana and Shoubak
JOR03	Dibbin Forest
JOR04	Hisma Basin - Rum
JOR05	Irbid - Mafraq plains
JOR06	Madaba-Hisban and Kafrein
JOR07	Mujib and Hidan
JOR08	Northern Jordan Valley (North Ghor)
JOR09	Rumeinin spring
JOR10	Um Al Qutain and Dafianeh (Safawi Lava)
JOR11	Wadi Ibn Hammad
JOR12	Western Shuaib
JOR13	Yarmouk

Table 4.19 List of CMZs in Jordan

Country	Catchment Management Zone
Jordan, Israel, Palestine	Central Jordan River
Syria, Jordan, Israel	Lower Yarmouk
Jordan, Israel	Wadi Karak Basin
Jordan	Wadi Shuaib
Jordan	Zarqa River

Table 4.20 List of KBAs in Lebanon

KBA code	KBA name
LBN01	Awally to Litani Estuary
LBN02	Beirut River Valley
LBN03	Beirut-Damour
LBN04	Bentael
LBN05	Ehden-Bcharre-Tannourine, Makmal-Ainata
LBN06	Enfeh-Medfoun
LBN07	Jbail Coast
LBN08	Keserwan-Jabal Mousa
LBN09	Mount Hermon
LBN10	Nahr Ed-Damour
LBN11	Nahr Eh-Khabir Menjez
LBN12	Nahr Ibrahim Estuary
LBN13	Nakoura-Tyre
LBN14	Palm Islands and Tripoli Archepilagos
LBN15	Qammouaa-Dinnyeh- Jurd Hermel

KBA code	KBA name
LBN16	Rihane-Chouf-Ammiq-Sannine
LBN17	Sarada
LBN18	Upper Litani River
LBN19	Western Anti-Lebanon Mountains, Hermel-Aarsal

Table 4.21 List of CMZs in Lebanon

Country	Catchment Management Zone
Lebanon	Asi River
Lebanon	Litani River
Syria, Lebanon	Nahr al Kabir

Table 4.22 List of KBAs in Palestine

KBA code	KBA name
PSE01	Al Quds Region
PSE02	Central Ghor Region
PSE03	Dead Sea Coast Region
PSE04	'Ein el 'Auja and Wadi el Qilt Region
PSE05	Jebal Al Khalil North Region
PSE06	Jebal Al Khalil West Region
PSE07	Jerusalem Wilderness Region
PSE08	Masafer Yatta and Bani Naeim Region
PSE09	North Eastern Slopes Region
PSE10	North West Ramallah Region
PSE11	Umm er Rihan Region
PSE12	Umm Safa Region
PSE13	Wadi el Quff Region
PSE14	Wadi Qana and Wadi Al Shaer Region

Table 4.23 List of CMZs in Palestine

Country	Catchment Management Zone
Jordan, Israel, Palestine	Central Jordan River
Palestine	Jerico catchment

Figure 4.12 Map of KBAs in Jordan

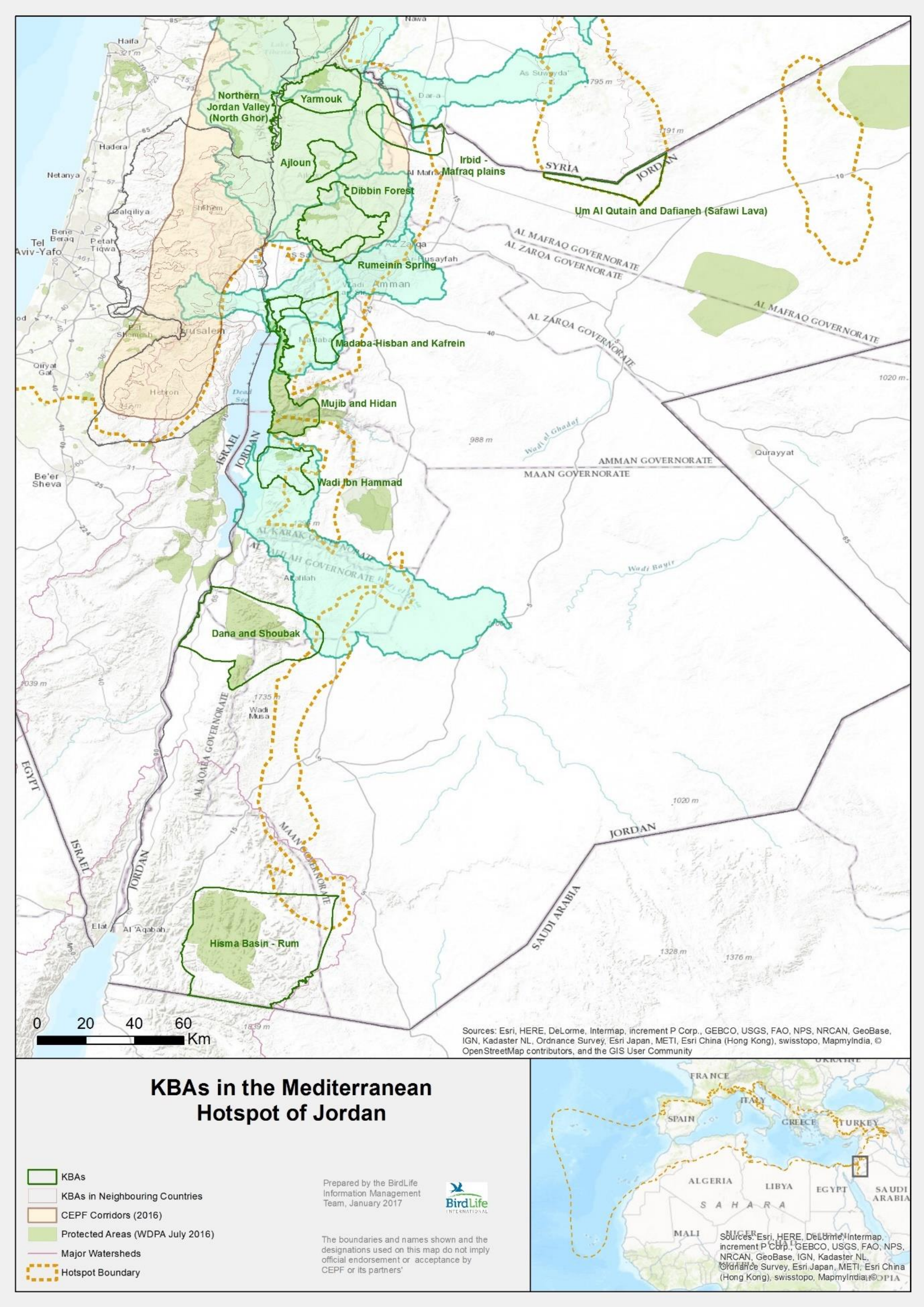


Figure 4.13 Map of CMZs in Jordan

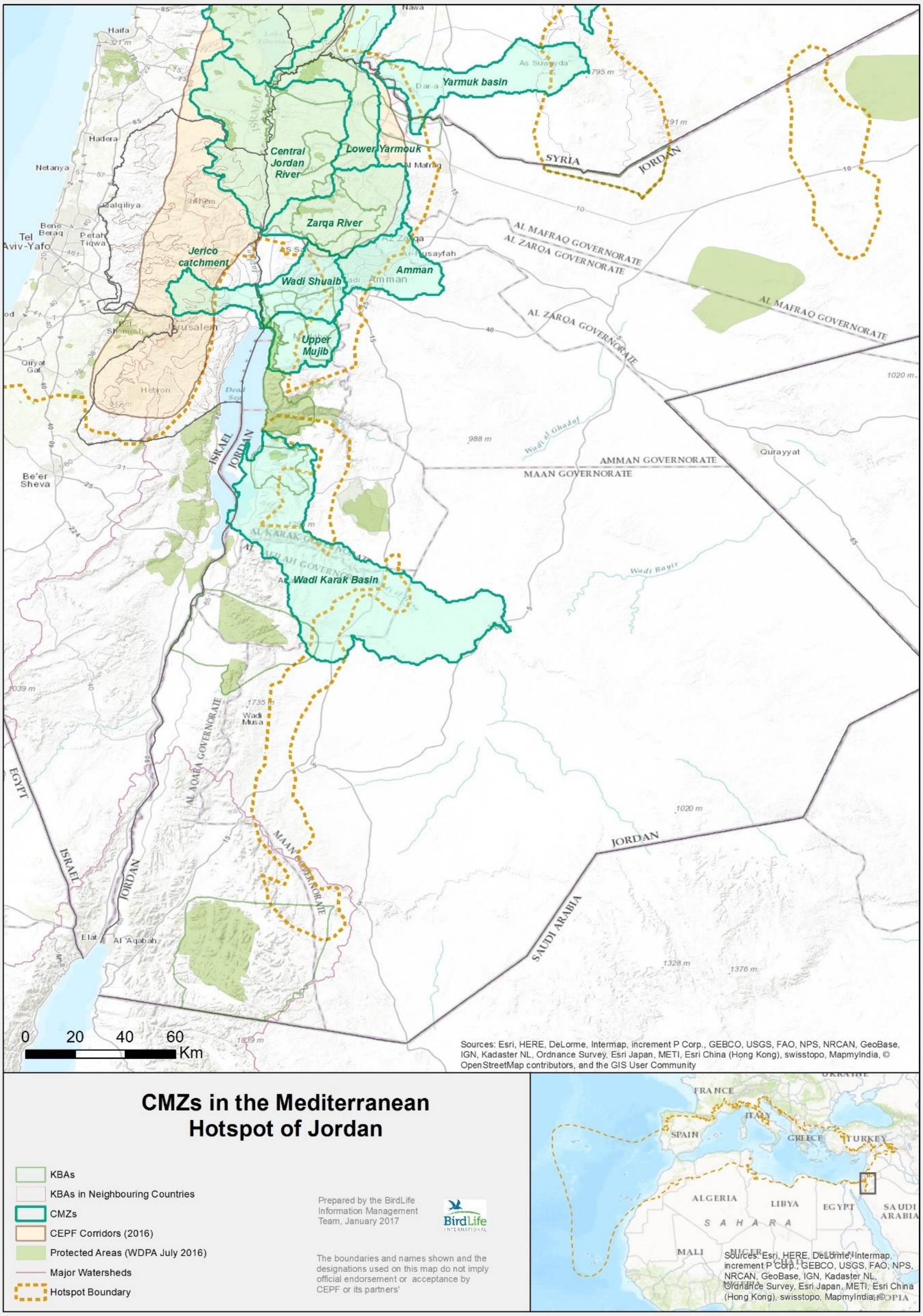


Figure 4.14 Map of KBAs in Lebanon

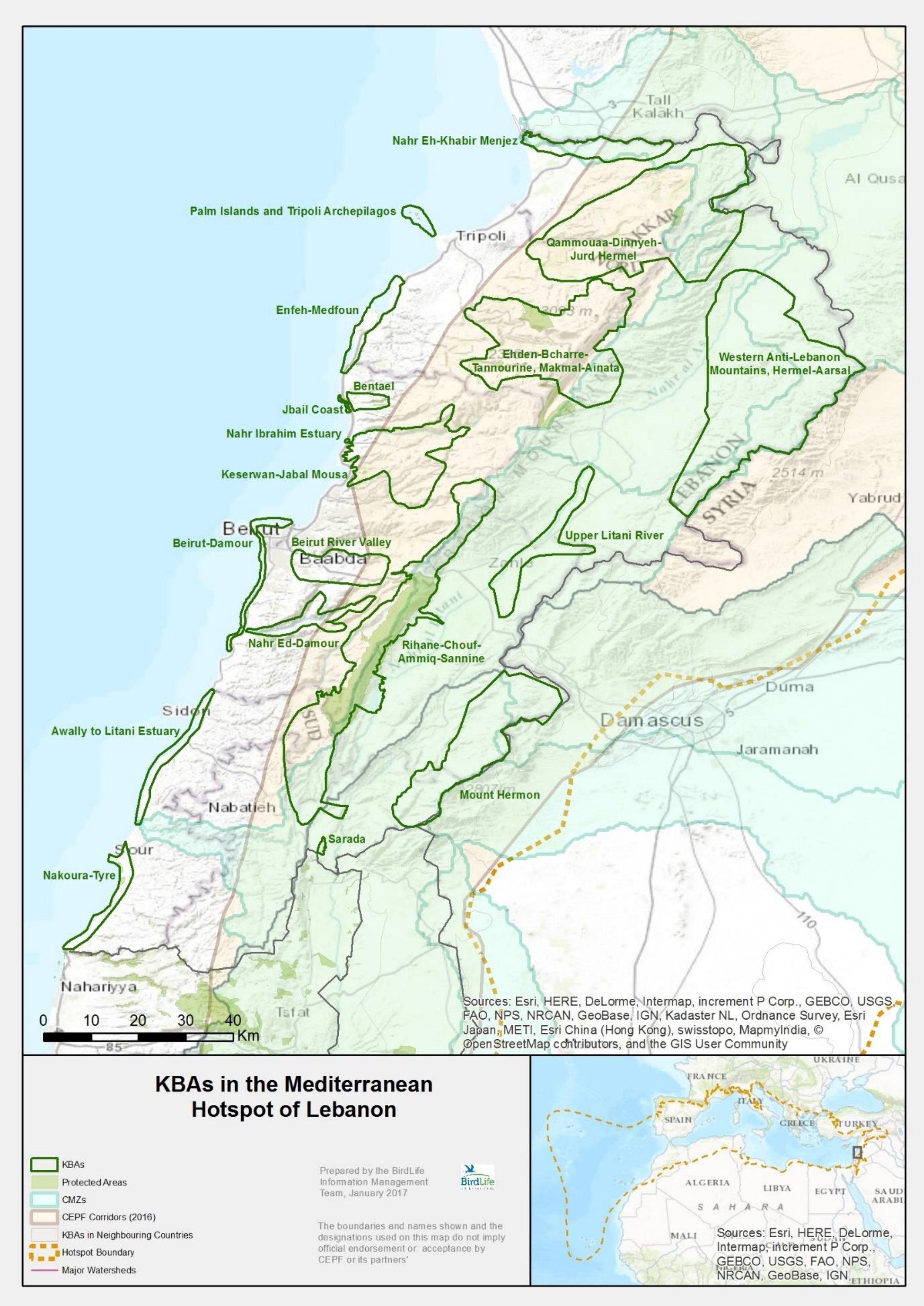


Figure 4.15 Map of CMZs in Lebanon

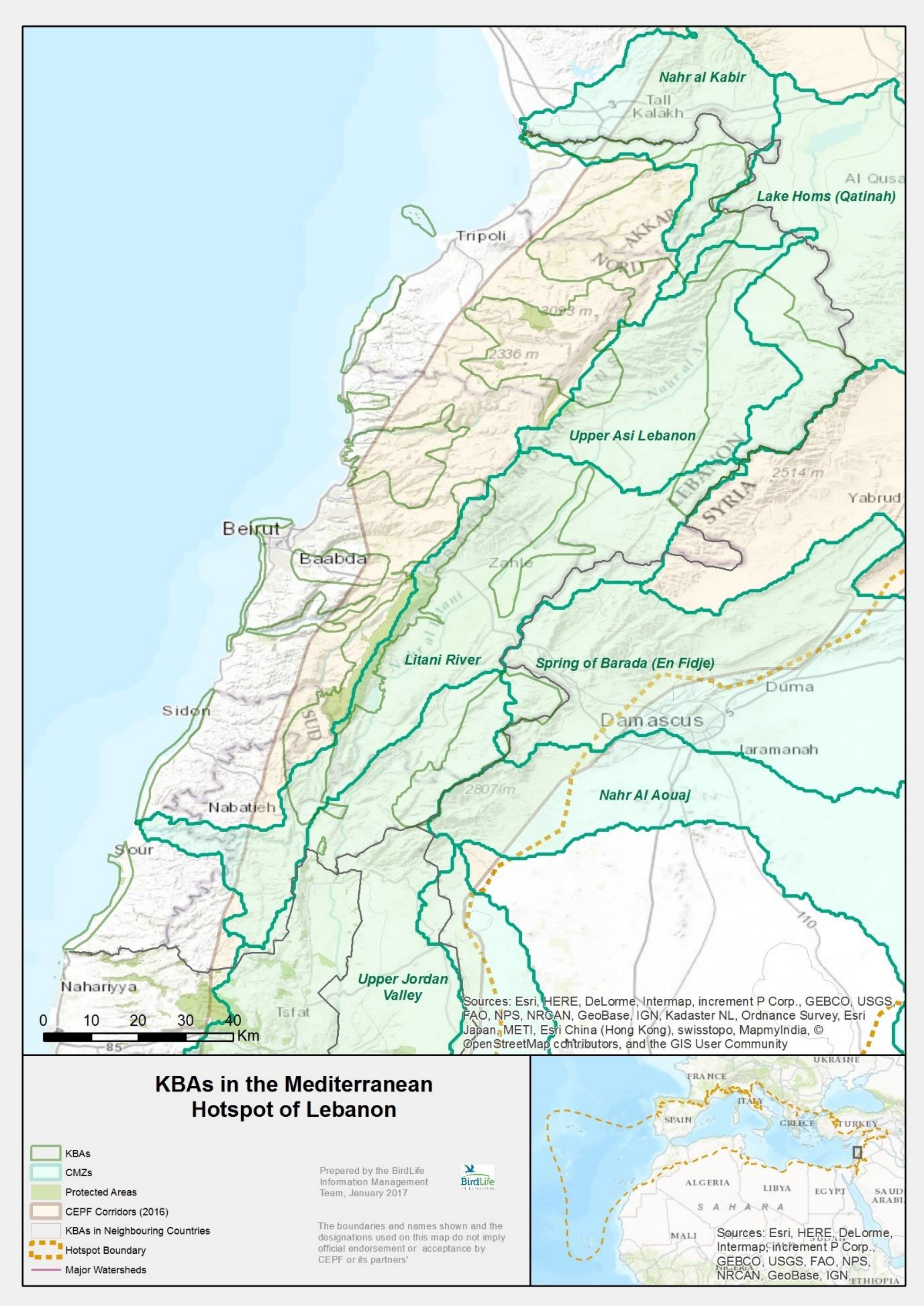


Figure 4.16 Map of KBAs and CMZs in Palestine

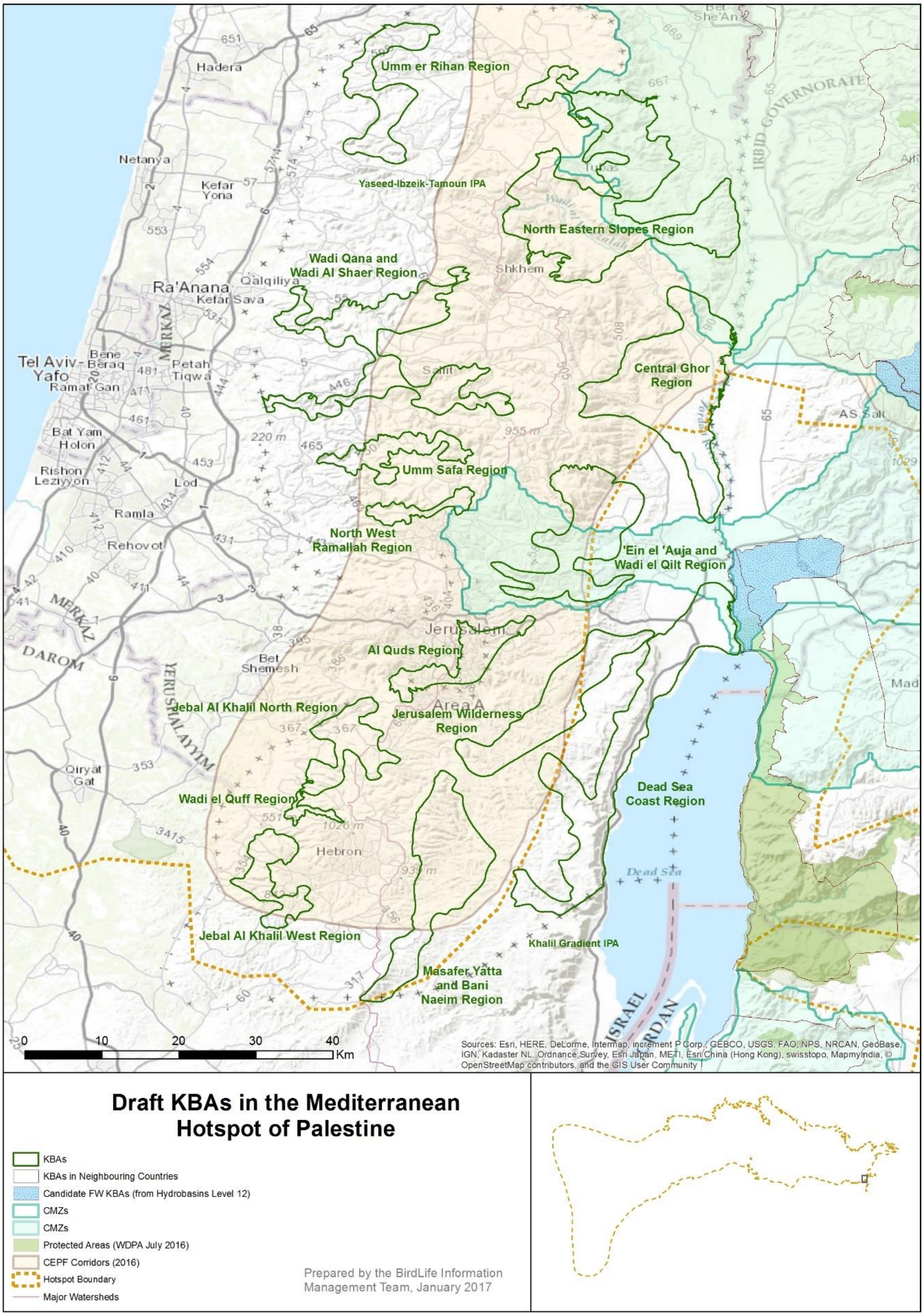


Table 4.24 List of KBAs in Syria

KBA code	KBA name
SYR01	Abu Zad
SYR02	Afrin - Kurd Dag
SYR03	Al Kabir al Jonubi
SYR04	Anti-Lebanon
SYR05	Daher Al Qseir
SYR06	Eastern Akroum
SYR07	Euphrates Valley (Upper Section)
SYR08	Fronloq-Kasab
SYR09	Ghab
SYR10	Hadhbat al-Jawlan
SYR11	Hass-Jabbul
SYR12	Jabal Abdul Aziz
SYR13	Jabal Al Arab
SYR14	Jabal al-Shaykh
SYR15	Jabal al-Shuah
SYR16	Jabal Slenfeh
SYR17	Jebel Bilas
SYR18	Jebel El Wastani
SYR19	Jisr al Shoghur
SYR20	Kanfo
SYR21	Karatchok-Tigris
SYR22	Lajat
SYR23	Lattakia Beach
SYR24	Lower Orontes River
SYR25	Marmousa - Qalamoun
SYR26	Massiaf-Qadmous
SYR27	Muzayib Lake
SYR28	Nahr al Hawaiz River
SYR29	North of Wuguf Plain
SYR30	Qassioun
SYR31	Quwayq River
SYR32	Sabkhat al-Jabboul
SYR33	Salma-Haffeh
SYR34	Tual al-'Abba
SYR35	Umm al-Tuyyur
SYR36	Upper Orontes River, Bahrat Homs and Homs Lake
SYR37	Wadi al-Azib
SYR38	Wadi al-Qarn - Burqush
SYR39	Wadi al-Radd
SYR40	Wadi Qandil Beach
SYR41	Yarmuk Valley
SYR42	Zebdani

Figure 4.17 Map of KBAs in Syria

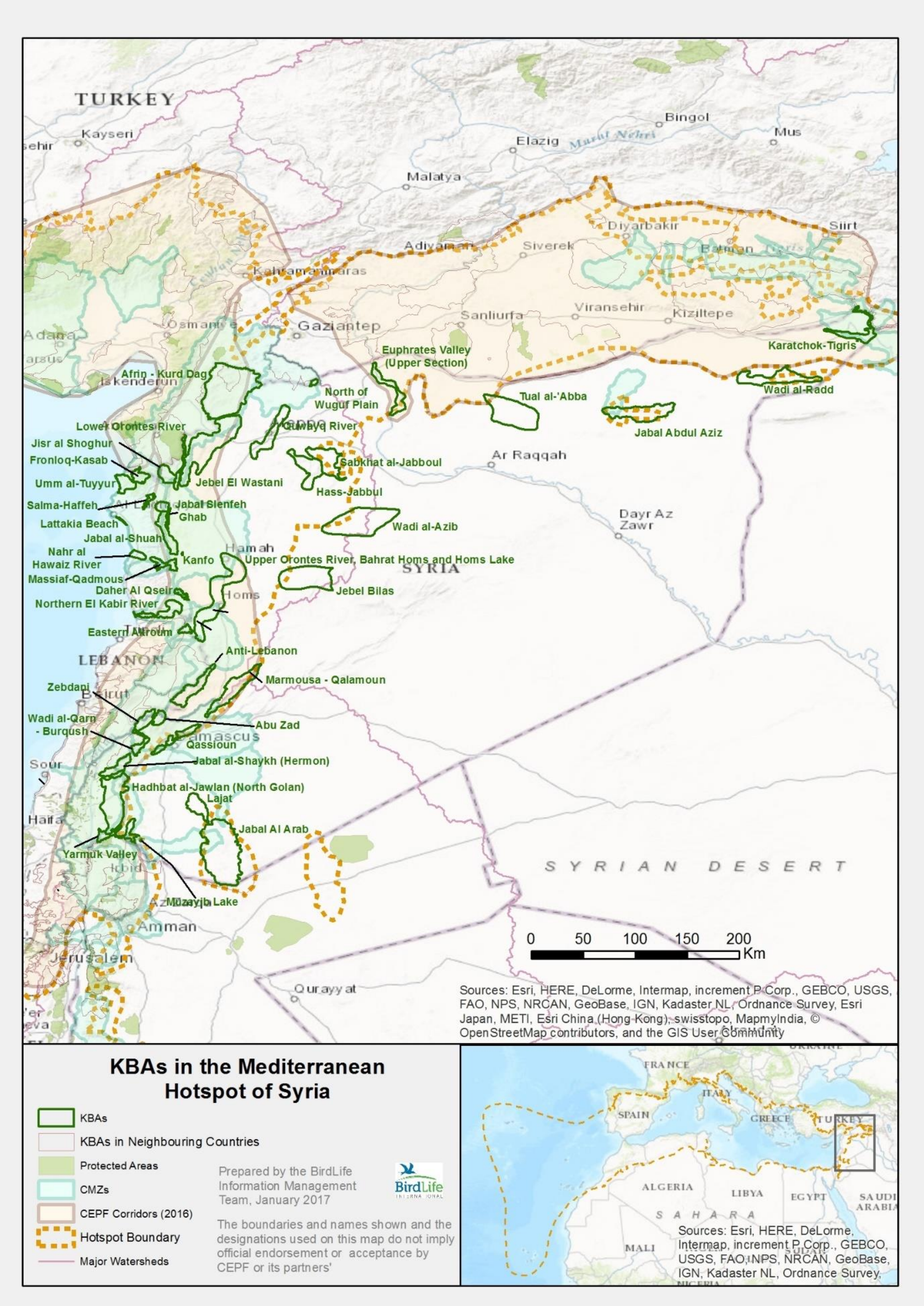


Figure 4.18 Map of CMZs in Syria

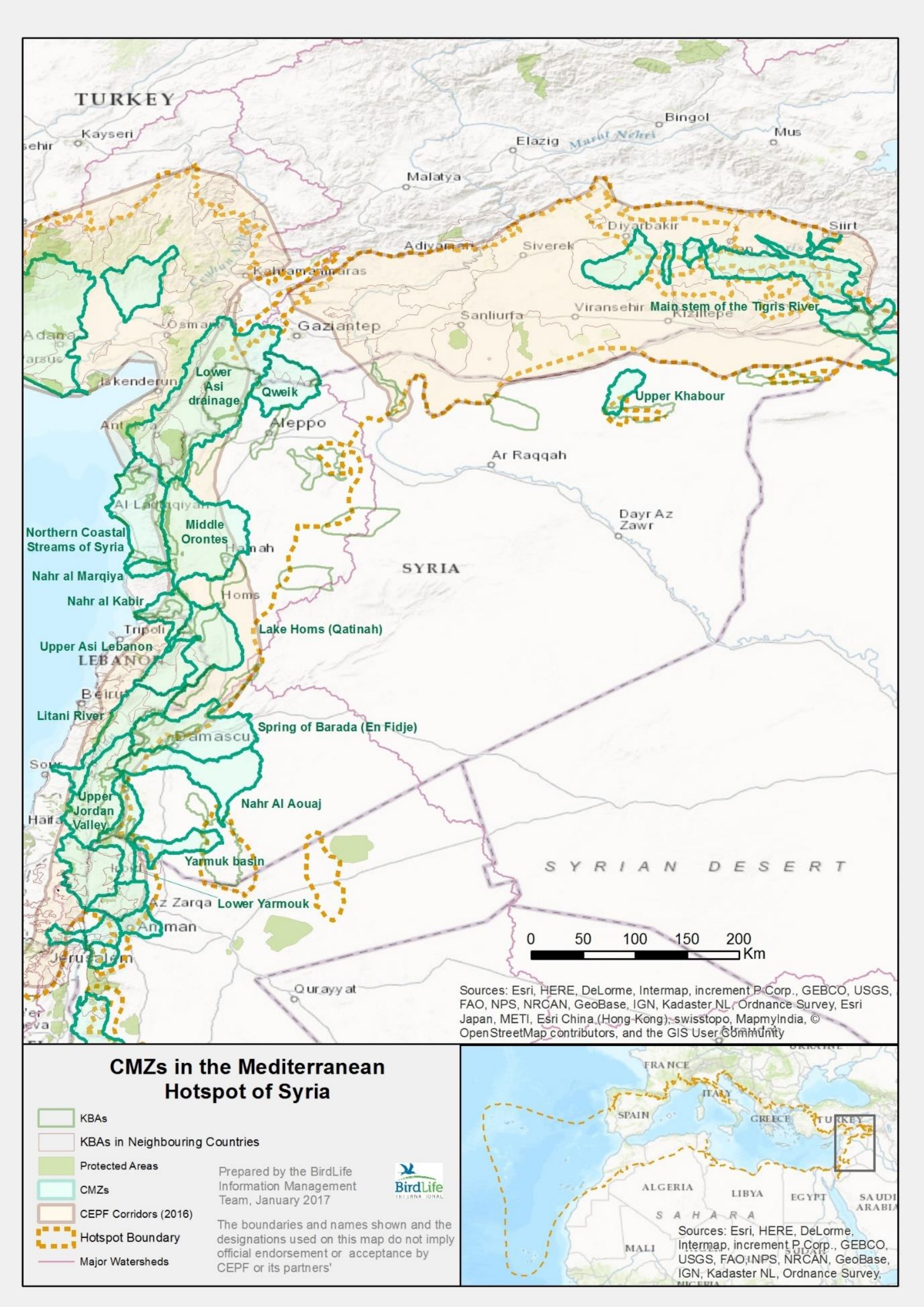


Table 4.25 List of CMZs in Syria

Country	Catchment Management Zone
Syria	Khabur River
Syria	Lake Homs and Orontes catchment
Syria	Lower Asi drainage
Syria, Jordan, Israel	Lower Yarmouk
Turkey, Syria, Iraq	Main stem of the Tigris River
Syria	Middle Orontes
Syria	Nahr Al Aouaj
Syria, Lebanon	Nahr al Kabir
Syria	Nahr al Marqiya
Syria	Northern Coastal Streams of Syria
Syria	Spring of Barada (En Fidje)
Syria	Yarmuk basin

North Africa sub-region

North Africa has 234 KBAs, equivalent to 44% of the total number in the hotspot. These cover 121,890 km^2 of terrestrial land in the hotspot or 54 % of the total area of all KBAs in the countries covered by the ecosystem profile update. The sub-region also has 42 CMZs.

Table 4.26 List of KBAs in Algeria

KBA code	KBA name
DZA01	Aures-Chelia
DZA02	Barrage de Boughzoul
DZA03	Cap Tenes
DZA04	Chaîne des Bibans
DZA05	Chaîne du Dahra
DZA06	Chott Ech Chergui
DZA07	Chott el Hodna
DZA08	Complexe de zones humides de la plaine de Guerbes
DZA09	Dayet El Ferd
DZA10	Djebel Aissa
DZA11	Djebel Amour
DZA12	Djebel Babor et Tababort
DZA13	Djebel Boutaleb (Hodna)
DZA14	Djebel Chenoua
DZA15	Djebel Mégriss
DZA16	Djebel Ouach - Constantine
DZA17	Djebel Ouarsseniss
DZA18	Djebel Takoucht
DZA19	Djebel Zaccar
DZA20	El Abiod sidi Cheikh
DZA21	El Bayadh
DZA22	El Kala-Tarf
DZA23	Forêt d'Akfadou

KBA code	KBA name
DZA24	Forêt de Bainem (collines de la Bouzareah)
DZA25	Forêt de Djimla
DZA26	Forêt de Tamentout
DZA27	Ghar Rouban
DZA28	Haut Seybouse
DZA29	Lac Fetzara
DZA30	Marais de la Macta
DZA31	Massif de Ghazoul
DZA32	Mont de Dréat
DZA33	Monts des Traras
DZA34	Numidie occidentale
DZA35	Ouenza Nord
DZA36	Ouenza Sud
DZA37	Parc National de Chréa
DZA38	Parc national de Gouraya
DZA39	Parc national de Taza
DZA40	Parc national du Belezma
DZA41	Parc national du Djudjura
DZA42	Presqu'île de Collo
DZA43	Presqu'île de l'edough
DZA44	Réserve du Mergueb
DZA45	Réserve naturel marine des Iles Habibas
DZA46	Sahel d'Arzew
DZA47	Sahel d'Oran
DZA48	Sebkha d'Oran
DZA49	Sebkhet Baker
DZA50	Tamesguida-Djendjen
DZA51	Theinet El Had
DZA52	Theinet El Had IPA

Table 4.27 List of CMZs in Algeria

Country	Catchment Management Zone
Algeria	Eastern Numidia
Algeria, Morocco	Figuig oasis and Oued Saoura
Algeria	Hauts Plateaux
Algeria	Oued el Harrach
Algeria	Oued Zhour
Algeria	Seybouse catchment
Algeria	Tafna catchment
Algeria	Western Numidia

Figure 4.19 Map of KBAs in Algeria

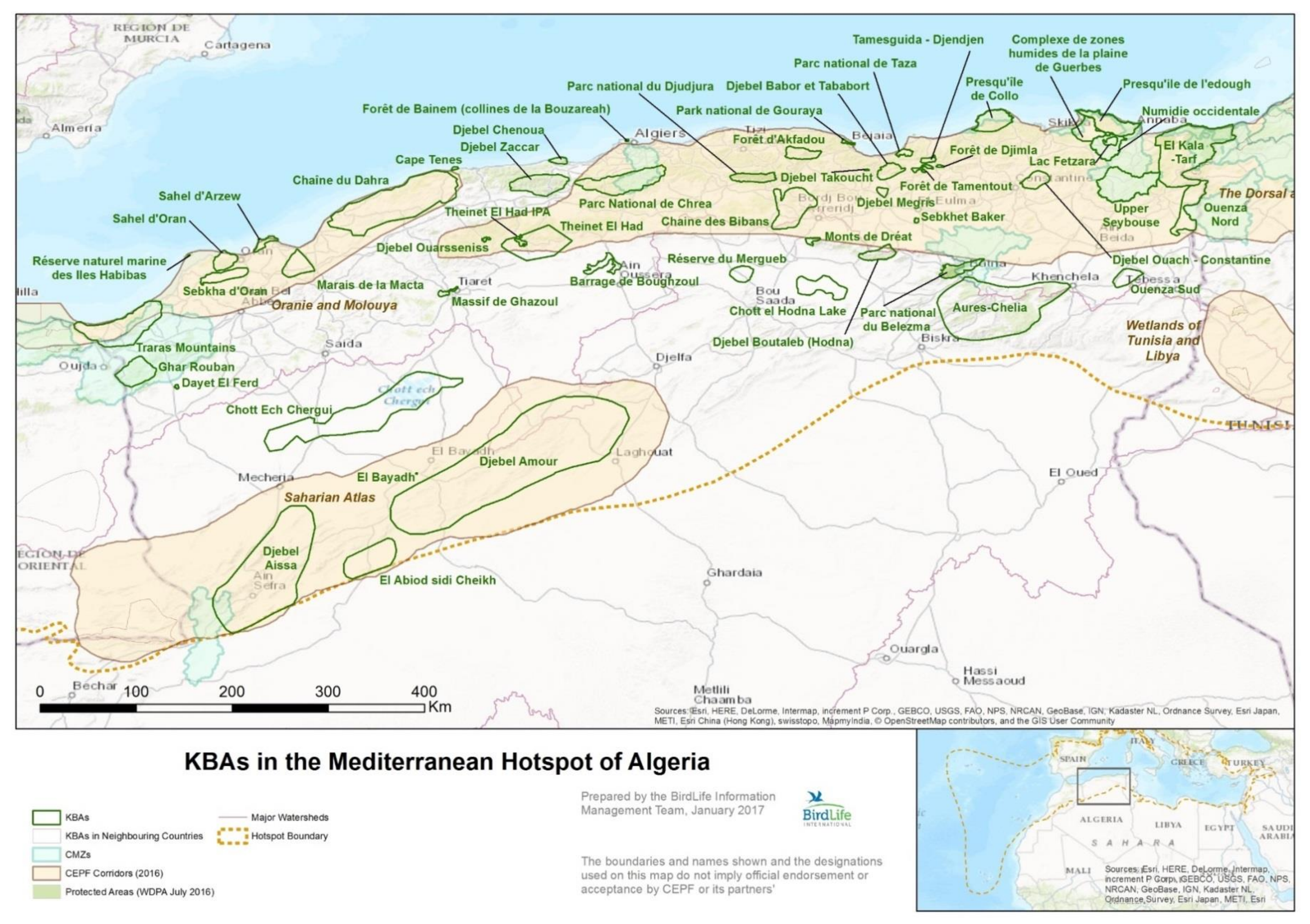


Figure 4.20 Map of CMZs in Algeria

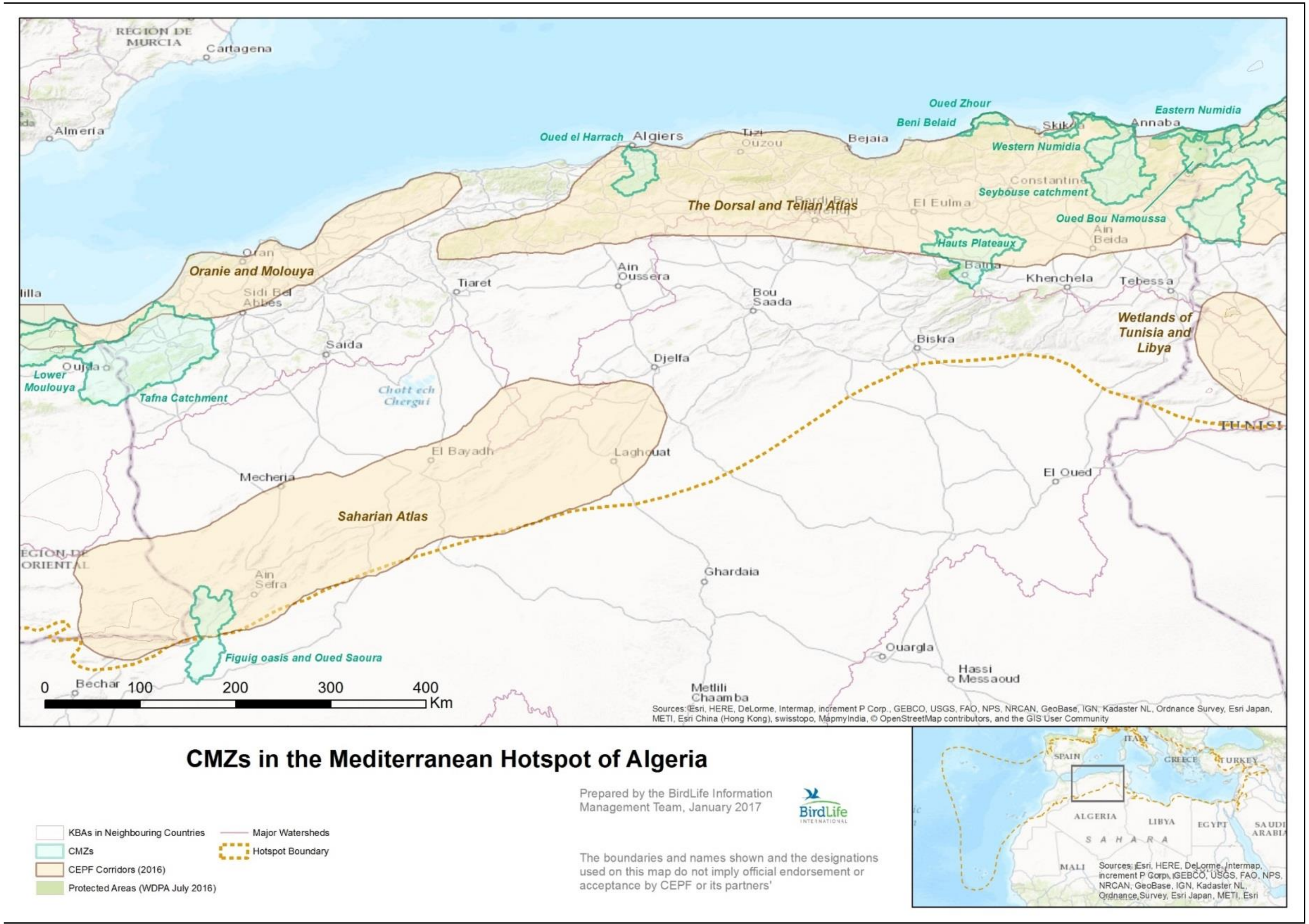


Table 4.28 List of KBAs in Cabo Verde

KBA code	KBA name
CPV01	Alto das Cabaças
CPV02	Beaches of Sao Nicolau Island
CPV03	Boa Esperança
CPV04	Boavista praias
CPV05	Central mountain range of Ilha de São Nicolau
CPV06	Coastal cliffs between Porto Mosquito and Baia do Inferno
CPV07	Coastal cliffs between Porto Mosquito and Baia do Inferno - Marine
CPV08	Costa de Fragata
CPV09	Cova / Paul / Ribeira da Torre and Moroco
CPV10	Cruzinha da Garça
CPV12	Ilhéu Branco
CPV11	Ilhéu de Curral Velho - Marine
CPV13	Ilhéu Raso
CPV14	Ilhéus do Rombo
CPV15	Monte Grande
CPV16	Monte Verde / Norte da Baía
CPV17	Parque Natural da Serra da Malagueta
CPV18	Parque Natural de Tope Coroa
CPV19	Parque Natural do Fogo
CPV20	Parque Natural do Norte do Maio
CPV21	Pedra Badejo lagoons
CPV22	Raso / São Nicolau - marine
CPV23	Ribeira de Fajã de Água
CPV24	Rocha de St António
CPV25	Santa Luzia Island
CPV26	Serra do Pico da Antónia
CPV27	Serra Negra
CPV28	Varandinha
CPV29	Volcano area, Ilha do Fogo - Marine

Table 4.29 List of KBAs in Egypt

KBA code	KBA name
EGY01	Lake Bardawil and Zaranik PA
EGY02	Lake Burullus
EGY03	Lake Edku
EGY04	Lake Manzala and Lake Malaha
EGY05	Lake Mariut
EGY06	Omayed Biosphere Reserve
EGY07	Ras El Hekma Coastal Dunes
EGY08	Sallum Area
EGY09	Sallum Gulf
EGY10	Western Mediterranean Coastal Dunes

Figure 4.21 Map of KBAs in Cabo Verde

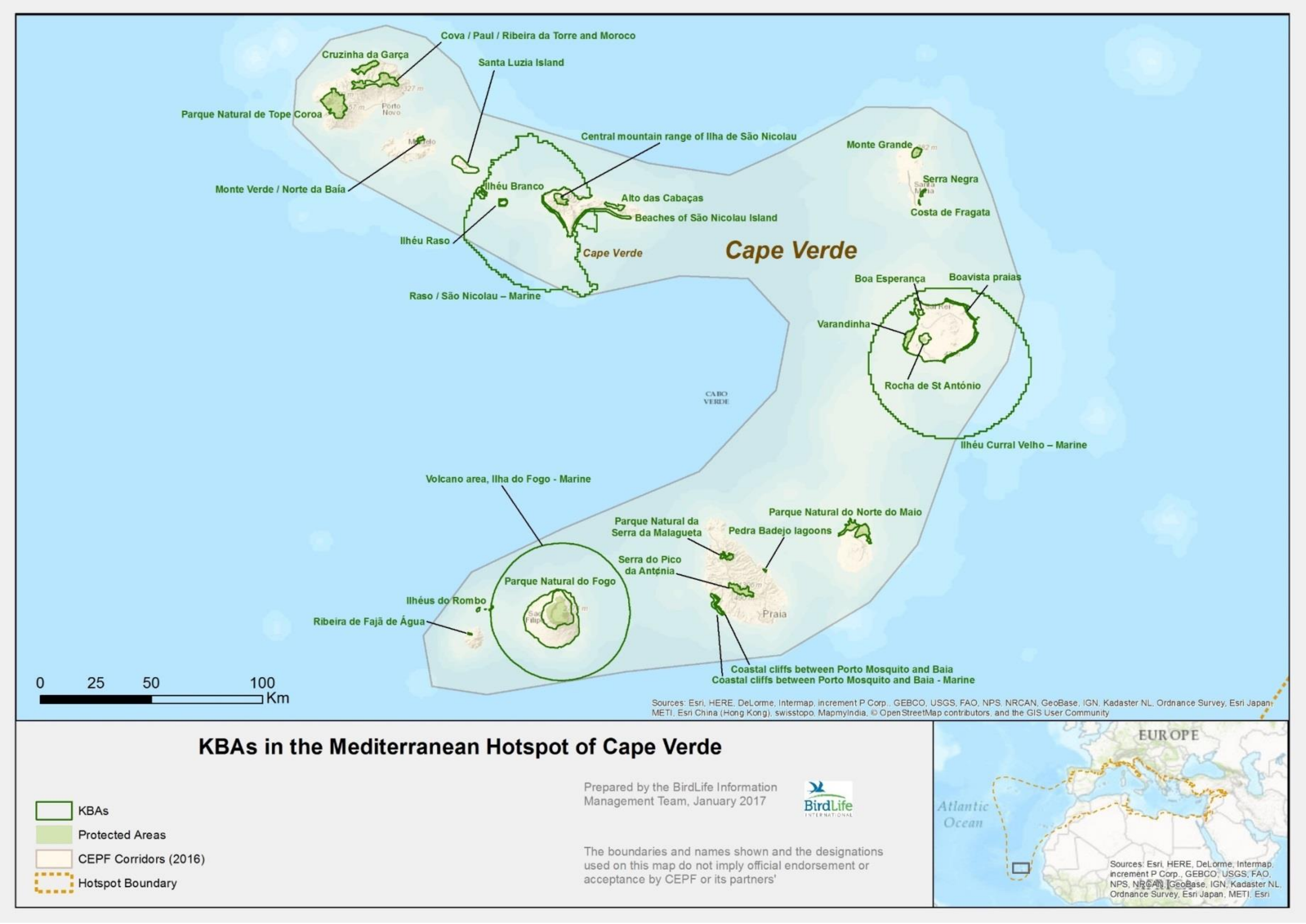


Figure 4.22 Map of KBAs in Egypt

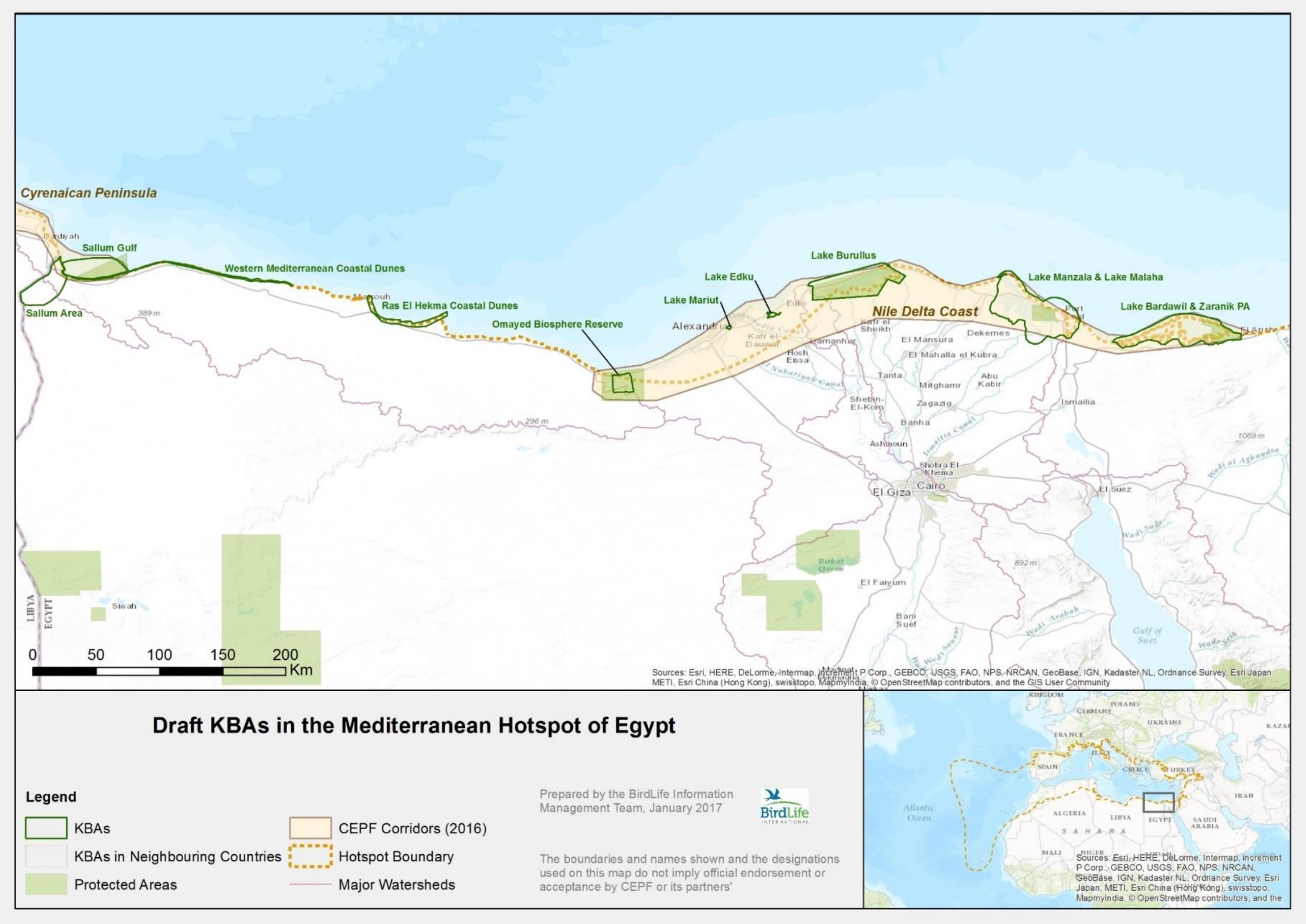


Table 4.30 List of KBAs in Libya

KBA code	KBA name
LBY01	Ajdabiya Marsh
LBY02	Al Hizam Alakhdar
LBY03	Bumbah Gulf
LBY04	Chat Elbadine
LBY05	Elfatayeh
LBY06	Farwa
LBY07	Garah Island
LBY08	Gulf of Sirte
LBY09	Jabal al Akhdar
LBY10	Jabal Nafusah
LBY11	Karabolli
LBY12	Marmarica
LBY13	Tawarghe
LBY14	Tawuoryhe Sebkha

Table 4.31 List of KBAs in Morocco

KBA code	KBA name
MAR01	Aguas de Melilla-Nador (L'Orientale)
MAR02	Aguas del norte de Marruecos (Alhucemas)
MAR03	Barrage Al Massira
MAR04	Barrage Mohamed V
MAR05	Bas Oum Er-Rbia
MAR06	Beni Snassene
MAR07	Bou Hachem
MAR08	Canary Current Shelf 1
MAR09	Canary Current Shelf 2
MAR10	Canary Current Shelf 3
MAR11	Cap Spartel - Perdicaris
MAR12	Cap Trois Fourches
MAR13	Complexe Chbeyka-Al Wa'er
MAR14	Complexe du bas Loukkos
MAR15	Côte Al Jadida-Jorf Lasfar
MAR16	Cote Imsouane-Taghazout
MAR17	Dayas d'Essaouira
MAR18	Dayas du Gharb
MAR19	Detroit de Gibraltar
MAR20	Dunes d'Essaouira
MAR21	Embouchure de la Moulouya
MAR22	Falaise de Sidi-Moussa
MAR23	Haut Wad N'Fiss
MAR24	Haute Moulouya
MAR25	Jbel Krouz
MAR26	Jbel Moussa
MAR27	Jbel Talassemtane et Khizana

KBA code	KBA name
MAR28	Jbel Tichoukt
MAR29	Jbel Zerhoun
MAR30	Jbels Kest-Imzi
MAR31	Maamora
MAR32	Marais Cote du Plateau Rmel
MAR33	Merja de Dwiyate
MAR34	Merja Zerga
MAR35	Moyenne Oued N'Fiss
MAR36	Moyenne Oum Er Rbia
MAR37	Msseyed
MAR38	Oued Amezmiz
MAR39	Oued Bouhlou
MAR40	Oued Matil: Ksob
MAR41	Oued Mird
MAR42	Oued Tizguite et Oued Ouaslane
MAR43	Oueds Lakhdar-Ahançal
MAR44	Parc National d'Al Hoceima
MAR45	Parc National de Khnifiss
MAR46	Parc National de Souss-Massa et Aglou
MAR47	Parc National de Tazekka
MAR48	Parc National de Toubkal
MAR49	Parc National d'Ifrane
MAR50	Parc National du Haut Atlas Oriental
MAR51	Plage Blanche - Ras Takoumba
MAR52	Plaines côtières de Saidia
MAR53	Réserve de Sidi Bou Ghaba
MAR54	Sahb al Majnoun
MAR55	Sebkha Bou Areg (Nador Lagoon)
MAR56	Sebkha Zima
MAR57	Sidi Moussa - Oualidia
MAR58	Tagdilt
MAR59	Tasga
MAR60	Vallée du haut Tifnout
MAR61	Wad et Jbel Mgoun
MAR62	Wad Lakhdar
MAR63	Zone Fouchal - Maatarka
MAR64	Zones Humides de La'youne

Figure 4.23 Map of KBAs in Libya

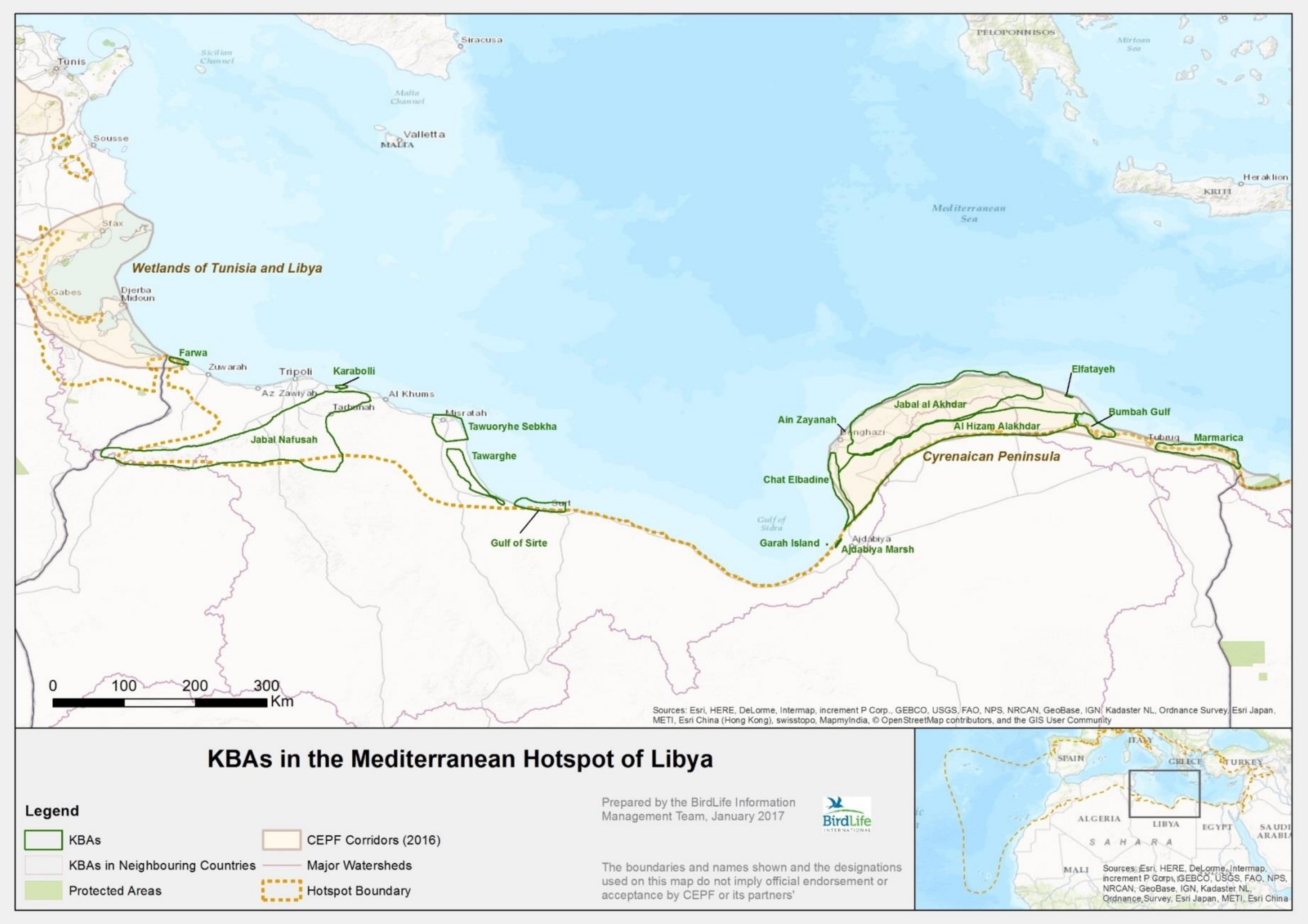


Table 4.32 List of CMZs in Morocco

Country	Catchment Management Zone
Morocco	Abid river
Morocco	Arhreme river
Morocco	Assif El Mal
Morocco	Assif El Mal East
Morocco	Assif Meloul river
Algeria, Morocco	Figuig oasis and Oued Saoura
Morocco	Le Grand Nador
Morocco	M'Goun river basin
Morocco	Middle N'Fiss river
Morocco	Middle Oum Er Rbia - Beni Mellal
Morocco	Moulouya catchment
Morocco	Moulouya river catchment
Morocco	N'Fiss river
Morocco	Oued Amizmiz
Morocco	Oued Bouhlou
Morocco	Oued Bouregreg
Morocco	Oued Imouzzer Kandar
Morocco	Oued Ksob - Igrounzar
Morocco	Oued Lakhdar
Morocco	Oued Laou
Morocco	Oued Massa catchment
Morocco	Oued N'Fiss
Morocco	Oued Tizguite and Oued Ouaslane
Morocco	Oued Ziz Errachidia
Morocco	Saidia Coastal Plain
Morocco	Sehb El Majnoune
Morocco	Souss river
Morocco	Tifnout basin
Morocco	Tigrigra stream
Morocco	Upper Dades
Morocco	Upper Oum Er Rbia
Morocco	Upper Oum Er Rbia above Kasba Tadla

Figure 4.24 Map of KBAs in Morocco

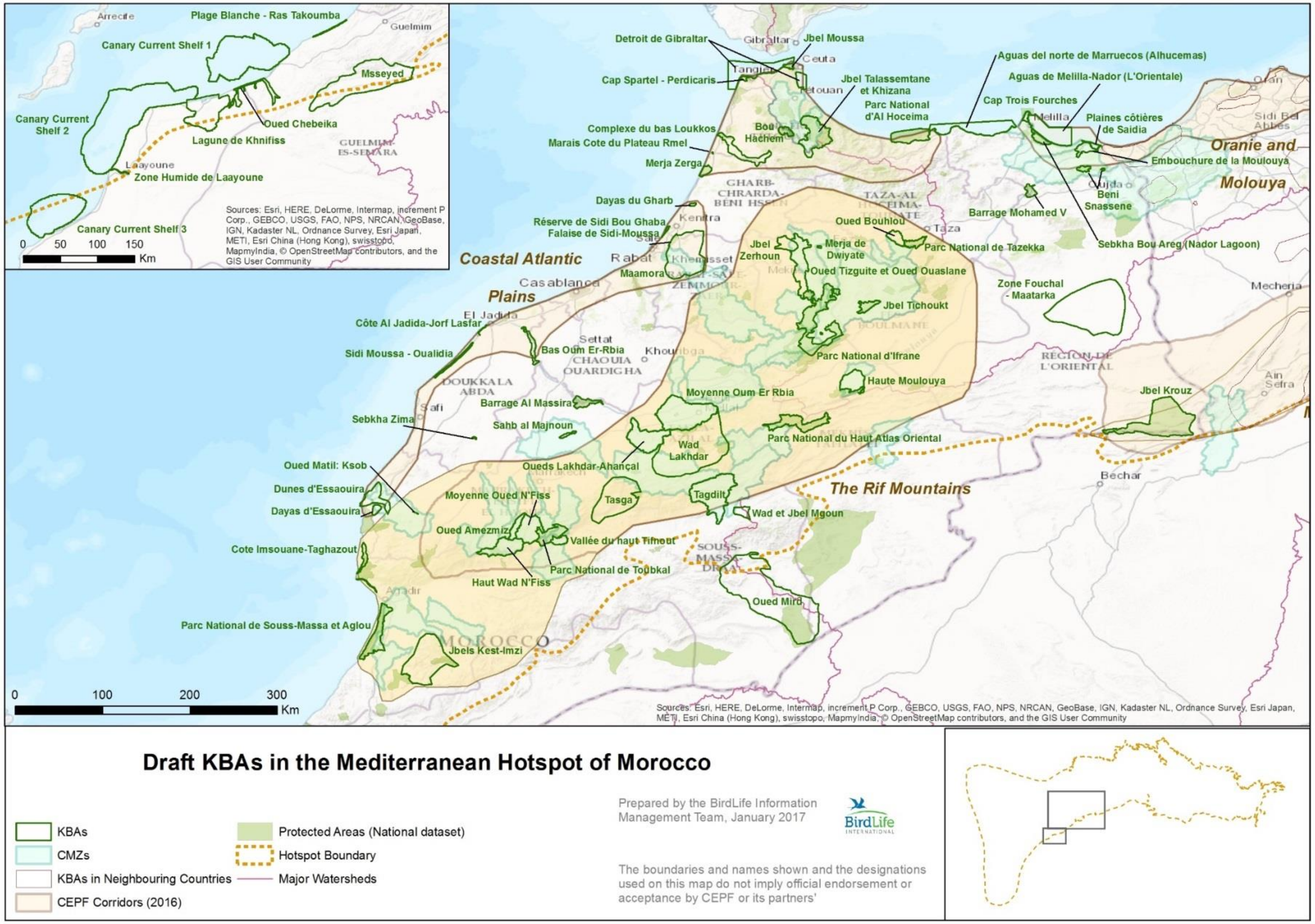


Figure 4.25 Map of CMZs in Morocco

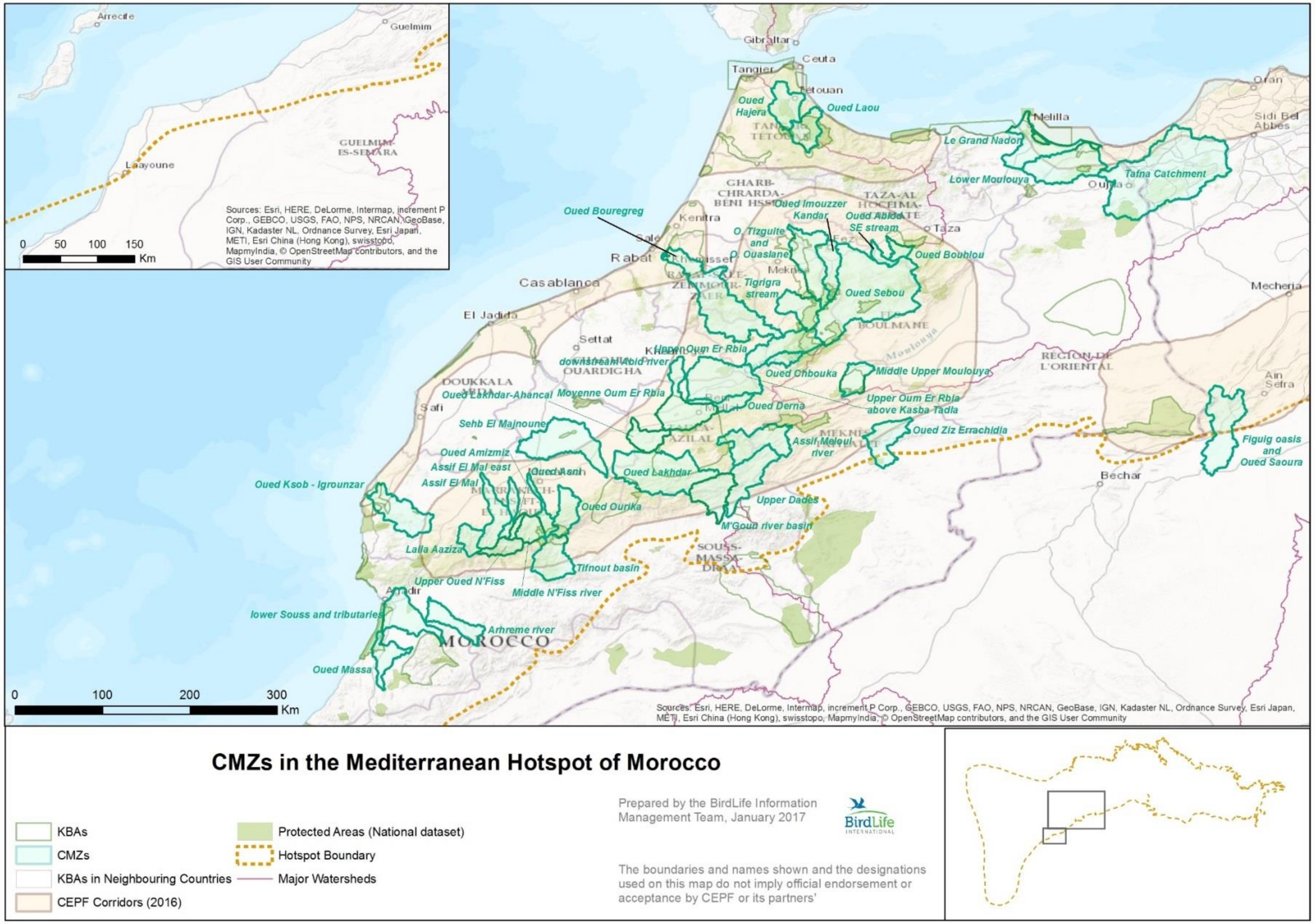


Table 4.33 List of KBAs in Tunisia

KBA code	KBA name
TUN01	Aqueduc de Zaghouan
TUN02	Archipel de la Galite
TUN03	Archipel de Zembra
TUN04	Île de Djerba
TUN05	Îles Kerkennah
TUN06	Îles Kneïss
TUN07	Îles Kuriat
TUN08	Barrage Bezikh
TUN09	Barrage Chiba
TUN10	Barrage de Lebna
TUN11	Barrage El Houareb
TUN12	Barrage El Ogla
TUN13	Barrage Khairat
TUN14	Barrage Masri
TUN15	Barrage Mlaâbi
TUN16	Barrage Mornaguia
TUN17	Barrage Moussa
TUN18	Barrage Moussa Chami
TUN19	Barrage Oued El Haajar
TUN20	Barrage Oued Rmal
TUN21	Barrage Sidi Abdelmonem
TUN22	Barrage Sidi Jdidi
TUN23	Côte de Cap Negro Ý Cap Serrat
TUN24	Côte de Zerkine et El Grine
TUN25	Côte du Cap Negro au Cap Blanc
TUN26	Côtes de l'Île de Djerba
TUN27	Cap Serrat
TUN28	Dunes de Ras El Melan
TUN29	Dyr El Kef
TUN30	Garaet Douza
TUN31	Garaet Sejnane
TUN32	Golfe de Boughrara
TUN33	Jbel El Haouaria
TUN34	Jbel Nadhour et Lagune de Ghar El Melh
TUN35	Jbel Zaghouan
TUN36	Kroumirie
TUN37	Lac de Tunis
TUN38	Lagune de Korba
TUN39	Lagune de Soliman
TUN40	Lagune El Bibane
TUN41	Lagunes de Maâmoura et Tazarka
TUN42	Maden River
TUN43	Metbassta

KBA code	KBA name
TUN44	Oasis de Gafsa
TUN45	Oasis de Lalla
TUN46	Oued Maltine
TUN47	Parc National de Bou Kornine
TUN48	Parc National de Bouhedma
TUN49	Parc National de Chaâmbi
TUN50	Parc National de l'Ichkeul
TUN51	Parc National d'El Feija
TUN52	Plaine de Kairouan
TUN53	Réserve Naturelle Aïn Zana
TUN54	Réserve Naturelle Jebel El Ghorra
TUN55	Salines de Thyna
TUN56	Sebkhet Ariana
TUN57	Sebkhet Draiaâ
TUN58	Sebkhet Ennoual
TUN59	Sebkhet Halk El Menzel et Oued Sed
TUN60	Sebkhet Kelbia
TUN61	Sebkhet Sejoumi
TUN62	Sebkhet Sidi El Hani
TUN63	Sebkhet Sidi Khelifa
TUN64	Sebkhet Sidi Mansour
TUN65	Steppes de Gafsa

Table 4.34 List of CMZs in Tunisia

Country	Catchment Management Zone
Tunisia	Cap Serrat - Cap Blanc - Parc national de l'Ichkeul
Tunisia	Maden River
Tunisia	Medjarda River

4.3.3 KBAs and protected areas

While KBAs are sites of elevated conservation importance, they are not necessarily protected areas, because they are identified on the basis of information on species and ecosystems, without taking into account the management status of the site. The fact that KBAs are identified independently of protected areas (even if boundary delineation processes do take into account the existence of protected areas) means that comparing the distribution of KBAs with the distribution of protected areas is a useful way of identifying gaps in the protected areas network, and of highlighting species or ecosystems that are not adequately protected. Once such gaps are identified, however, there are many possible ways of achieving the objective of ensuring that threatened biodiversity and associated ecosystem services are conserved. These include expansion of existing protected areas or creation of new ones, as well as sympathetic management of areas outside protected areas by resource users (e.g., local communities, private companies, etc.) or integration of biodiversity conservation into plans and policies for development sectors with an environmental footprint, for example water, tourism and energy.

Figure 4.26 Map of KBAs and CMZs in Tunisia

An indication of the degree of overlap between KBAs and protected areas was obtained by overlaying the KBA maps with available spatial information on protected areas. Information from the World Database on Protected Areas was used as a basis but with updated data from several countries (Table 4.35). The analysis shows that, of 438 KBAs present in countries with reliable data, 189 (43%) are entirely or partly within protected areas. In all, 23,472 km^2, or 13% of the terrestrial area of KBAs in the hotspot, is covered by protected areas. This percentage is different among countries, with Egypt, Cabo Verde and FYR of Macedonia having the greatest level of protection for KBAs (Table 4.36).

Table 4.35 Data sources for spatial analysis of KBAs and protected areas

Country Code	Country	Comments
MAR	Morocco	Data from HCEFLCD
DZA	Algeria	Data from World Database on Protected Areas, and corrections from DGF.
TUN	Tunisia	Data provided by DGF in Tunisia.
LYB	Libya	Data from World Database on Protected Areas. Data outdated, excluded from calculations.
EGY	Egypt	Data from World Database on Protected Areas and corrections from EEAA Egypt
LBN	Lebanon	Data from World Database on Protected Areas
SYR	Syria	Data from World Database on Protected Areas Data outdated, excluded from calculations.
TUR	Turkey	Data from World Database on Protected Areas
ALB	Albania	Data provided by National Agency for Protected Areas
MKD	Macedonia	Data from World Database on Protected Areas
SRB	Serbia	Data from World Database on Protected Areas
MNE	Montenegro	Data from World Database on Protected Areas
BIH	Bosnia and Herzegovina	Data from World Database on Protected Areas and corrections from CBD NFP Federal Ministry of Environment and Tourism Data for Republika Srpska provided by Institute for Natural and Cultural Heritage
CPV	Cabo Verde	Data from World Database on Protected Areas and data provided participants at consultation workshop

4.4 Corridor outcomes

Corridors represent higher spatial units necessary to maintain ecological and evolutionary processes at the landscape scale.

4.4.1 Methodology

In the 2010 ecosystem profile, 17 corridors were identified, covering 435 KBAs. They were identified for the presence of highly threatened endemic species, provision of key ecosystem services, importance in maintaining ecosystem resilience and ability to safeguard the health and biological integrity of the hotspot.

In 2016, the original analysis of corridors was reviewed and updated at the regional workshop. Where improved spatial data, especially on the boundaries of water catchments (often as a product of the identification of freshwater KBAs), were available, the boundary of the corridor was amended to more closely follow the catchment boundary. Where new information supported it, an existing corridor was extended or a new one defined.

Table 4.36 Summary of the overlap between KBAs and protected areas for countries with reliable protected area data

Country	Total no. of KBAs	Total area KBAs (Km^2)	No. of KBAs partly or entirely within a PA	% of KBAs partly or entirely within a PA	Area of KBAs partly or entirely within a PA (km^2)	% KBA area partly or entirely within a PA
Albania	25	5,802	18	72%	2,275	39%
Bosnia-Herzegovina	9	851	1	11%	0	0%
Montenegro	15	1,126	2	13%	428	38%
The FYR Macedonia	14	1,729	10	71%	911	53%
Balkans sub-region	**63**	**9.508**	**31**	**74%**	**3,614**	**38%**
Lebanon	19	3,426	6	32%	172	5%
Jordan	13	2,186	5	38%	168	8%
Middle East sub-region	**32**	**5,613**	**11**	**34%**	**340**	**6%**
Algeria	52	50,194	8	15%	1,504	3%
Cabo Verde	29	671	16	55%	346	52%
Egypt	10	321	3	30%	243	76%
Morocco	64	30,981	16	25%	7,124	23%
Tunisia	65	4,342	18	28%	664	15%
North Africa sub-region	**220**	**86,509**	**61**	**28%**	**9,881**	**11%**
Turkey	147	74,488	80	54%	10,065	14%
TOTAL	**462**	**176,118**	**181**	**40%**	**23,900**	**14%**

Note: Countries with outdated or unreliable protected area data (i.e., Libya, Syria, Palestine and Kosovo) have been excluded from the table to avoid distorting the calculations.

Of the 17 corridors identified in the 2010 ecosystem profile, five were modified and two were merged. Hence, the 2016 update ecosystem profile includes 16 corridors (Figure 4.27). The changes and modifications from previous ecosystem profile are as follows:

- Three corridors were reduced to exclude small areas that produce landscape heterogeneity (Atlas Mountains in Morocco, Dorsal and Telian Mountains of Algeria and Tunisia, and Cyrenaic Peninsula).
- Two corridors were increased in size (Saharan Atlas and Taurus Mountains).
- Two corridors were merged (to form the Orontes Valley and Levantine Mountains, corridor, which ranges across Turkey, Lebanon, Syria, Jordan and Palestine).

Of the 533 KBAs identified in the countries covered by the update to the ecosystem profile, 412 (or 77% of the total) are wholly or partially located within one or more corridors. Table 4.37 summarizes the relationship between corridors and KBAs, while the following section gives a brief summary of the main features of each.

Figure 4.27 Corridors in the Mediterranean Basin Hotspot

Table 4.37 Corridors and KBAs in the Mediterranean Basin Hotspot

Corridor	Total corridor area (km^2)	Terrestrial area of corridor (km^2)	No. of KBAs	Terrestrial area of KBAs (km^2)	% of corridor in KBAs
Atlas Mountains	106,620	106,620	19	13,786	13%
Cabo Verde	42,738	4,056	29	656	16%
Coastal Atlantic Plains	13,297	12,860	9	2,221	17%
Cyrenaic Peninsula	30,107	27,196	10	20,951	77%
Dorsal and Telian Atlas	82,555	81,987	41	12,300	15%
Eastern Adriatic	23,402	19,111	14	1,088	6%
Marmara Sea Basin	60,516	45,456	20	7,099	16%
Nile Delta Coast	14,752	11,116	5	321	3%
Northern Mesopotamia	62,009	62,009	20	13,961	23%
Orontes Valley and Levantine Mountains	38,427	38,426	56	12,860	33%
Oranie and Molouya	17,163	15,305	12	6,022	39%
Saharian Atlas	61,902	61,902	5	21,931	35%
Southwest Balkans	37,807	35,475	46	8,210	23%
Rif Mountains	15,493	15,171	10	1,667	11%
Taurus Mountains	167,663	153,761	98	50,057	33%
Wetlands of Tunisia and Libya	35,030	24,421	18	1,447	6%
Total	**809,481**	**714,872**	**412**	**174,577**	**24%**

4.4.2 Descriptions of Corridors in the Mediterranean Basin Hotspot

Coastal Atlantic Plains, Morocco

Located between the Atlantic Ocean and the Atlas Mountains, this corridor covers some of the broadest coastal plains in Morocco, comprising the breadbasket for agriculture. This area is densely populated with several large cities found in the corridor, including Casablanca (Morocco's largest city with a population well in excess of 4 million in the metropolitan area). Consequently, threats to biodiversity are the intensification of agriculture, development of housing areas and tourist resorts that particularly threaten coastal wetlands and dune ecosystems. Nevertheless, pockets of suitable habitat for a diversity of highly localized, endemic and globally threatened species are still found (a total of 12 globally threatened species).

These core habitats form the basis of zones where connectivity can be increased by linking them together in the corridor. Wetlands, in particular, are home to rare aquatic plants (e.g., *Lotus benoistii*, CR), amphibians (e.g., *Pelobates varaldii*, EN) and mammals (e.g., *Gerbillus hesperinus*, EN). They also hold five species of fish in the *Barbus* genus endemic to Morocco. Sidi Bou Ghaba KBA also represents one of the principal sites for marbled teal (*Marmaronetta angustirostris*, VU) in North Africa. The corridor also holds the most southerly cork oak forests in the hotspot, including in Maamora KBA. These forests serve as source populations for both anchoring connectivity around these areas, and providing essential dispersal zones from which other regions can be propagated. Unfortunately, the protection level of KBAs in this corridor is very low.

Cyrenaic Peninsula, Egypt and Libya

The Cyrenaic Peninsula is an area of historic importance in Libya, as the region was heavily colonized by the Greeks in antiquity. Although annual rainfall is generally low, the vegetation and climate is more Mediterranean than in the rest of the country and sharply contrasts with the desert landscapes of the Great Sahara to the south. A diversity of habitats is found in the corridor, including Mediterranean maquis and forest, arid steppe, coastal wetlands and dune systems. The area is of special importance for Egyptian tortoise (*Testudo kleinmanni*, CR), now almost extirpated from the country. Five globally threatened species occur in the KBAs in the corridor. Furthermore, the Cyrenaic Peninsula contains almost 80% of the Libyan flora, with approximatively 100 species endemic to the peninsula itself, including *Arbutus pavarii* (VU), *Cyclamen rohlfsianum*, *Libyella cyrenaica*, *Arum cyrenaicum* and *Orchis cyrenaica*. These wetlands are also home to the extremely threatened sebkha (a smooth, flat plain, usually high in salt) vegetation and associated endemics, such as *Frankenia syrtica*.

As the climate is more suitable for agriculture than in the rest of Libya, Cyrenaica is one of the most populated provinces. Consequently, conversion of coastal wetlands into housing areas is a serious threat (e.g., at Jabal al Akhdar and Chat Elbadine KBAs). Traditional hunting is very popular in this part of the country and a severe threat to waterbirds. Finally, agricultural expansion, charcoal production and road building threaten the KBAs in the corridor. Few protected areas are present with only one (El Salum) being documented. Conservation initiatives are limited, partially due to security situation. A landscape-level approach is essential for this corridor, as much of the endemic flora requires sufficient source areas that can serve as dispersal grounds and corridors linking the fragmented habitat in the corridor. In addition, as climate change will likely pose a threat to rainfall patterns here, connecting the remaining habitat fragments in a matrix of land uses is essential to the corridor's long-term viability.

Eastern Adriatic, Bosnia and Herzegovina, Croatia and Montenegro

This corridor covers a variety of habitat types, from karstic streams and caves to high mountain peaks to islands along the Croatian coast. The corridor ranges from sea level up to the lower slopes of Mount Dinara at 1,800 meters. Many of the KBAs in this corridor are important for threatened plants, as well as restricted-range and threatened fishes and amphibians. Among the endemic and relict plant species are *Degenia velebitica*, *Viola elegantula* and *Sibiraea croatica*. The Krka River and Visovac Lake KBA has a Critically Endangered fish species that is only found in the lake and the lower drainage of this river. This species and many KBAs in this hotspot are threatened from land abandonment and agricultural intensification. Along the coastal and island KBAs, tourism infrastructure poses a key threat to these sites. The KBAs in this corridor support 25 globally threatened species.

Marmara Sea Basin, Turkey

The Marmara Sea Basin Corridor covers marine, coastal, freshwater, wetland and terrestrial KBAs with both disturbed and intact patches of various Mediterranean and Euro-Siberian habitats, these include maquis and shrublands, the last remaining heathlands of Turkey, Mediterranean forests, alpine ecosystems, riverine systems, Aegean and Marmara sea and coasts, and inner and coastal wetlands. As one of the most important forest regions in Turkey, the Istanbul Forests cover KBAs around Istanbul. Additionally, the Turkish straits (the Bosphorus and the Dardanelles) lie within this corridor as key migration routes for marine species and birds in the western Palearctic region. The corridor covers a vast altitude range from Marmara deep sea up to the alpine peak of 2,542 meters in Uludağ KBA. The mountains of Kazdağları and Uludağ host most of the endemic species in the corridor. As the most threatened region of Turkey, natural resources have been exploited for years as the principal source of land and water for the main industrial, urban and tourist centers.

Main threats in the corridor are: residential and commercial development for commercial, industrial, housing and urban areas; unsustainable water use; agriculture intensification; transportation and service corridors (including roads, utility lines, shipping lanes and flight paths); mining and extraction; and recreational activities. In the most populated region of Turkey, pollution is one of the main threats. The pollution problems are household sewage and urban waste water, industrial effluents, agricultural effluents, garbage and solid waste, airborne pollutants, and excess energy (heat, light, noise, etc.). Given that the threats to this corridor act at a landscape scale, the solutions to combating these threats also need to focus on the same scale. To preserve the ecological integrity of the corridor, it is essential to safeguard the key bottleneck sites along the Bosphorous and Dardanelles. Additionally, geological events like earthquakes and tsunamis are also key threats.

Saharian Atlas, Algeria and Morocco

This transboundary corridor between Morocco and Algeria includes three massifs, located at the southern boundary of the hotspot abutting the Sahara (Djebel Ksour, Djebel Krouz and Djebel Amour). Under both Mediterranean and Saharan influences, this area offers unique landscapes in North Africa, being at the transition zone from mesic to xeric habitats. Groves of *Juniperus* trees alternate with alfa steppes that were originally used by a large range of pre-Saharan mammals (such as lion, cheetah and hartebeest). This corridor is still important for several medium-sized mammals, particularly Barbary sheep (*Ammotragus lervia*, VU) and Cuvier's gazelle (*Gazella cuvieri*, VU). Two globally threatened species occur in the five KBAs present in the corridor. Threats include the development of infrastructures (roads and motorways) and illegal hunting, which cause major disturbances to large-range mammals occurring there. Overgrazing by livestock is also a problem as it prevents the regeneration of *Juniperus* forest and alfa steppes. Protected areas are still to be defined in this area.

Dorsal and Telian Atlas, Algeria and Tunisia

This corridor covers terrestrial and coastal KBAs of two North African countries: Algeria and Tunisia. The Tell range is a coastal mountain chain exposed to a typical Mediterranean climate allowing northern slopes to be covered with cedar, pine and cork oak forests. Important wetlands are found along the Algerian and Tunisian coasts, with El Kala and Ichkeul well known for their extraordinary congregations of wintering waterbirds. This corridor is home of threatened mammals, such as Barbary macaque (EN), Barbary sheep (VU) and Cuvier's gazelle (VU). Many species endemic to this part of the Maghreb are found there, including Algerian nuthatch (*Sitta ledanti*, EN). Twenty globally threatened species are present in the KBAs of the corridor. The extensive mixed *Quercus canariensis* and *Q. suber* forests of the Tellien Atlas and Kroumerie Mountains on the border between Algeria and Tunisia host the last existing populations of the African endemic deer subspecies, *Cervus elaphus barbarus*. These oak forests are also a refuge for serval (*Felis serval*), which has been almost extirpated from the Mediterranean region. The Telian Atlas has 91 endemic plant species.

The area is densely populated, with several towns and one capital city (Algiers) included in the corridor or situated in the vicinity. As a result, urban and tourism development and water pollution are among the main threats, along with summer forest fires, dam building and overgrazing. The KBAs of the corridor are very poorly protected and although many wetlands are designated as Ramsar sites, very little management is in place.

Nile Delta Coast, Egypt

This corridor covers the coastal part of the Nile Delta with a series of extensive freshwater and brackish lakes. One of the world's largest river deltas, the Nile Delta is home to hundreds of thousands of waterbirds in winter and hosts threatened and restricted-range small mammals and reptiles. The Nile Delta was once known for large swamps of papyrus (*Cyperus papyrus*) but papyrus is now largely absent from the delta. Five globally threatened species occur in the KBAs in the corridor. People have lived in the Nile Delta region for thousands of years, and it has been intensively farmed for 5,000 years. Prior to the 20th century, the Nile River flooded on an annual basis but this ended with the construction of the Aswan dam.

Today, almost 40 million people live in the delta, which has a huge impact on the ecosystem. Agricultural intensification is perhaps the main threat, as it includes the conversion of remaining wetlands and the excessive use of pesticides and fertilizers. Pollution is a major problem, with industrial effluents, garbage and solid waste contaminating the water. The development of tourist resorts and road infrastructure also threatens coastal ecosystems. There are concerns about erosion since the delta no longer receives an annual supply of nutrients and sediments from upstream due to the construction of the Aswan dam. While much of the work required here is upstream from the hotspot, there is still the possibility for conserving the wetland and lake KBAs at a landscape level to ensure gene flow and connectivity between the species found here. Among the urgent conservation actions to undertake is developing better management of existing protected areas (covering 76% of the terrestrial area of KBAs in the corridor) and improving law enforcement for wildlife protection, as hunting pressure is very high in the whole area.

Northern Mesopotamia, Syria and Turkey

The Northern Mesopotamia Corridor covers semi-desert steppe habitats of Turkey and Syria, including the Tigris and Euphrates rivers and their surroundings, and the Anti-Taurus Mountains in the northern part. The corridor covers a vast altitude range from the Euphrates Valley KBA (310 meters) up to an alpine peak of 2,240 meters in Eruh Mountains KBA. The KBAs collectively support populations of 11 globally threatened species. KBAs in the corridor have good examples of riverine and riparian habitats of the Euphrates and Tigris, dry plain steppes and semi-desert habitats, volcanic steppe, mountain steppes, grassland, wetlands, cultivation, pistachio and fruit orchards, and eastern Mediterranean maquis and dry coniferous forests (Welch 2004). This region is considered one of the most important areas of plant diversity in Turkey: 82 species are endemic to the Anti-Taurus Mountains and about 165 species are endemic to the Upper Euphrates region. The corridor is located in the northern part of the historically significant Fertile Crescent, where large-scale wheat domestication and cultivation first started. Prominent KBAs hosting wild relatives of various crop species in this corridor include Karacadağ and Ceylanpınar. The Euphrates and Tigris rivers have been ecologically, socially and economically important for people over many millennia.

Main threats in the corridor are: natural ecosystem modification through dam construction and irrigation, agricultural intensification, overgrazing and desertification. The corridor is one of the main energy and agricultural products centers for Turkey. There have been efforts to develop irrigation and hydraulic energy production on the Euphrates and Tigris rivers since the 1970s. These efforts, known as the Southeastern Anatolia Project, transformed into a multi-sectoral social and economic development program in the late 1980s. The initiative had various negative environmental impacts leading to extensive habitat and species loss, agricultural intensification, excessive irrigation and land encroachment for agriculture practices. Protecting the sites across this region to promote connectivity and resiliency is essential to maintaining and restoring the ecological functions and integrity of the landscape.

Oranie and Molouya, Algeria and Morocco

This transboundary corridor between Morocco and Algeria includes a diversity of natural habitats including typical Mediterranean maquis and forests, freshwater and brackish wetlands, and steppes. Some offshore islets are also important breeding sites for a significant number of seabirds. KBAs identified in the corridor are especially important for several highly threatened and restricted range species of lizard (*Chalcides* spp.), marbled teal (VU), wetland-dependent plant species (e.g., *Spergularia embergeri*, VU, and *Limonium battandieri*) and, more generally, high numbers of waterbirds in winter. A total of six globally threatened species occur in the KBAs in the corridor. The area is quite densely populated, especially around the city of Oran in Algeria. Residential and tourist developments pose major threats to natural ecosystems in coastal areas. Pollution due to untreated waste urban water also contributes to the degradation of wetlands. Overgrazing and the intensification of agriculture are also serious threats. Given these threats, potential clearly exists for tackling these issues at a landscape scale, which will allow for greater connectivity in the corridor. Despite the designation of several wetlands as Ramsar sites, there is a difficulty of applying protection laws, notably due to the lack of support given to local protected-area managers. Moreover, none of the KBAs of the Oranie and Molouya corridor benefit from formal protection.

Atlas Mountains, Morocco

The Moroccan Atlas Mountains are divided into separate ranges, including the Middle Atlas, High Atlas and Anti-Atlas. They all, however, comprise one ecological block of mountains and ensuring connectivity across them is a clear need. The most important rivers of the Maghreb region originate in this corridor. The mountain slopes of Middle and High Atlas ranges hold extensive forests, intersected by deep valleys. The dominant canopy tree species of the montane conifer forests is the endemic Atlas cedar (*Cedrus atlantica,* EN), which normally constitutes mixed stands with the evergreen holm oak (*Quercus ilex ballota*) and less frequently with deciduous oak species (*Q. faginea,* and *Q. canariensis*). This corridor is home of a number of plant and animal species, especially reptiles and freshwater fishes, that are endemic to Morocco. The rate of endemism in flowering plants is also very high, with 237 endemic plant species in the Middle Atlas range. The southernmost mountains in the corridor, the Anti-Atlas Mountains, are under the Sahara's climatic influences and precipitation is much lower. KBAs in the corridor host 26 globally threatened species. The main threats to biodiversity include unsustainable water management, agricultural intensification, overexploitation of wild plant resources (aromatic and medicinal plant collection), and overgrazing that causes soil erosion. This corridor is large enough to allow dispersal of large-range species like Barbary macaque, Barbary sheep and Cuvier's gazelle. It maintains an altitudinal gradient rising up to Mt Toubkal, the highest peak in the hotspot, towering over 4,000 meters.

Cabo Verde, Cabo Verde

The 10 islands and five islets that comprise the Cabo Verde corridors form one of the most important complexes of islands within the Mediterranean Basin Hotspot. The islands were once covered by dry forests and typical Mediterranean scrub habitat. However, agricultural intensification has destroyed much of the native vegetation. The remaining habitat is limited to the montane peaks and steep slopes. Some 92 species of plants (14%) are endemic to these islands. The KBAs in the corridor support three globally threatened species. Given the complex interactions between the island and marine ecosystems, an integrated landscape-scale approach is necessary to secure the biodiversity found here. Protection levels in the corridor are relatively high, with 57% of the terrestrial surface area of KBAs protected. The principal threats in this corridor are residential and commercial development, alien invasive species and overexploitation of marine resources.

Orontes Valley and Levantine Mountains, in Turkey, Lebanon, Syria, Jordan and Palestine

This corridor stretches from the Orontes Basin in the north to the Great Rift Valley further south. The northern part of the corridor includes the valley which serves as the main catchment area for the Orontes River, providing essential watershed services. The KBAs contained here include many of the snow-capped peaks of the Lebanon and Syrian Mountains and the rivers that flow from them. The corridor ranges from sea level up to 3,000 meters in Lebanon's Ainata KBA. The corridor has been designed to ensure that conservation in the montane KBAs can secure the catchment and water resources feeding KBAs in the Upper Orontes River Basin. The corridor extends further south to the Great Rift Valley which is a landscape of great extremes in terms of altitudinal range and hosts the second most important flyway for migratory soaring birds in the world (1.5 million birds of 37 species, including five globally threatened species) and the most important flyway between Eurasia and Africa. The corridor has also been designed to ensure conservation of KBAs within large landscapes where traditional management is continuing. The focus is on threatened biodiversity where it is clear that the survival of the threatened species is dependent on the continuation of traditional management practices. Several highly threatened and endemic fish and reptiles are found in this corridor. The Upper Akkar/Hermel region is distinct in its 21% forest cover of ancient trees and as the entry bottleneck for soaring bird migration from Europe. Additionally, Mount Hermon KBA in Syria and Tannourine Nature Reserve KBA are important sites for endemic snakes and lizards. Collectively, the KBAs of the corridor support populations of 31 globally threatened species. The corridor delivers nearly all of the water for the country of Lebanon and has significant inflows into neighbouring Syria. The main threats acting in this corridor are residential and urban development, with many tourist facilities encroaching on important KBAs in the corridor and illegal hunting. However, agricultural intensification with poorly irrigated farms is the biggest threat to ecosystems, nature and people in the region.

Rif Mountains, Morocco

The Rif Mountains are one of the wettest regions of North Africa, with some parts receiving upwards of 2,000 millimeters of precipitation per year. As with many areas in the Mediterranean Basin Hotspot, historically most of the massif was covered with forests of Atlas cedar, Holm oak, cork oak, Moroccan fir and Aleppo pine. Today, remnants of montane forests still hold an enormous diversity of endemic amphibians and birds as well as scattered populations of Barbary macaque (EN). The Rif Massif itself has more than 190 plant endemics. The corridor was extended to the west and east to incorporate coastal wetlands, which are very important for waterbirds and threatened species of reptiles, amphibians, dragonflies and freshwater plants (for example, *Juncus maroccanus*, CR). Amongst these wetlands, Merja Zerga KBA was the last known regular wintering site for slender-billed curlew (CR) until the 1990s. The Strait of Gibraltar, which connects the Atlantic Ocean to the Mediterranean Sea and separates Spain from Morocco, is also crucial for many migratory species of sea fishes, mammals and birds. A total of 15 globally threatened species are present in the KBAs in the corridor. Threats to biodiversity are numerous and include pollution of water, agricultural intensification, urbanization and human disturbance. Massive deforestation due to overgrazing and forest clearing for agriculture has taken place over the last century. Plantations have been developed to increase resiliency and connectivity in the corridor and also to combat soil erosion.

Southwest Balkans, Albania, FYR Macedonia, Greece, Kosovo and Montenegro

This corridor includes five countries in the hotspot, although the KBAs are limited to three of them. This corridor was primarily identified for the unique freshwater biodiversity in this corner of the Mediterranean. There are three principal lake systems that comprise the corridor: the Prespa and Ohrid Lake systems shared between Greece, FYR Macedonia and Albania; the Skadar Lake system shared between Albania and Montenegro; and Dojran Lake KBA between FYR Macedonia and Greece. The corridor also includes montane KBAs for plants in FYR Macedonia and many coastal KBAs for breeding waterbirds and endemic plants. It is essential to manage this region at a landscape scale, as pollution in the upper catchment is one of the key threats to the freshwater KBAs downstream. Civil society will not be able to avert threats from further farm abandonment unless integrated watershed management is undertaken in the montane and highland plateaus above these freshwater lakes. Taken together, the 42 global KBAs in this corridor support a total of 30 globally threatened species. This corridor ranges from sea level up to 2,200 meters in Galicha Mountain KBA. Although protection levels of the KBAs are the highest of any corridor in the hotspot, enforcement and management of these protected areas is inadequate and can be strengthened. Further, many of these protected areas are multiple-use zones and do not effectively conserve the nature found in the KBAs. Hunting and overfishing are the key threats driving biodiversity loss in the corridor. Additionally, habitat destruction along the coast is driven by continued building for tourism.

Taurus Mountains, Turkey

The Taurus Mountains Corridor contains terrestrial, coastal and marine KBAs with good examples of the nearly all the diverse and varied habitats found in the Mediterranean Basin Hotspot. These include maquis and shrublands, Mediterranean forests, karstic ecosystems, alpine ecosystems, riverine systems, and coastal and inner wetlands. The world’s largest and most intact stand of cedar of Lebanon (*Cedrus libani*, VU) is found here, along with forests of endemic fir and oak species. Prominent forest KBAs in this corridor include the Datça-Bozburun Peninsulas, Baba Mountain, İbradı-Akseki Forests and Amanos Mountains. Additionally, Turkey’s Lakes region lies within this corridor, with many important freshwater lakes. The corridor covers a vast altitude range from the littoral zone at sea level in portions of the marine and coastal Datça-Bozburun Peninsula Specially Protected Area KBA up to an alpine peak of 3,756 meters in Aladağlar KBA. The KBAs in the corridor collectively support populations of 43 globally threatened species. The Amanos Mountains KBA hosts the highest number of threatened species in Turkey, is the main route of bird migration, and also supports unique, diverse and highly threatened relict flora with 20 AZE species. Coastal KBAs in the corridor host seagrass (*Posidonia ocenica*) communities. Mediterranean monk seal (*Monachus monachus*, EN) is the flagship marine species of the corridor and several marine turtle nesting sites are on the coast. The corridor is the principal source of drinking water for main tourist centers on the coast and regulates the flow of water. Main threats in the corridor are: residential and commercial development for tourism, forests fires, dams, unsustainable water use, agriculture and aquaculture, and road building. Marine and coastal zones have the potential for pollution due to oil pipelines and transport. Additionally, timber harvesting and extensive use of non-timber forest products by local communities are key threats.

Wetlands of Tunisia and Libya, Libya and Tunisia

This corridor encompasses the numerous wetlands found along the Gulf of Gabes, including the Tebessa Limestone Mountains and some of the last extant savannas in North Africa. The climate is semi-arid with less than 300 millimeters of precipitation per year. Wetlands in the corridor harbor hundreds of thousands of wintering shorebirds on the extensive mudflats of the Gulf of Gabes. Freshwater marshes also hold good numbers of marbled teal (VU) and white-headed duck (*Oxyura leucocephala*, EN). The corridor is also home to the last populations of Dorcas gazelle (*Gazella dorcas*, VU) and Cuvier's gazelle (EN) in Tunisia. Seven globally threatened species occur in the KBAs found in the corridor. The coast of Tunisia is a popular tourist destination; consequently, housing and tourism development threaten wetlands and their biodiversity. Landscape-scale conservation is appropriate here as this could increase resilience along the hard hit coastal areas and further inland to the wetland KBAs. Overgrazing is also a serious problem here as with many places in the Maghreb.

4.5 Recommendations for improving the outcomes analysis

The following actions are priorities for improving the effectiveness of the definition of conservation outcomes:

- Implement studies, and publish existing studies, to describe new species and clarify the taxonomic status of many known species.
- Complete Red List assessments for more species in the region, with special emphasis on: (a) species groups that have not yet been widely assessed; (b) Data Deficient species that apparently have limited ranges and small populations; and (c) assessments based on data more than 10 years old.
- Carry out field work to improve knowledge of the status and distribution of threatened species, particularly those known only from one or a few KBAs.
- Identify further (non-globally threatened) restricted range species, and review how well these are covered in the existing network of KBAs.
- Develop a mechanism to locate, store and facilitate access to relevant data, and use this to periodically re-evaluate the conservation outcomes.
- Collaborate with on-going national and sub-national studies, looking for opportunities to collaborate with national programs for improving biodiversity data, linking this to updating KBAs. For example, the Turkish National Biodiversity Inventory and Monitoring Project (2013-2018) is expected to provide improved data on the country's biodiversity.

5. SOCIOECONOMIC CONTEXT OF THE HOTSPOT

5.1 Introduction

This chapter presents an overview of the socio-economic context of the 16 countries covered by the ecosystem profile update, with reference to other countries in the hotspot where relevant. Where data allow, a distinction is made between the portion of a country within the hotspot and the country as a whole. This distinction is important because only a small fraction of the land area of some countries is included in the hotspot, although it should be noted that more than one-third of the Mediterranean population lives in the coastal administrative areas which overlap with the hotspot, and so national level data often give a fair picture of the situation in the hotspot (UNEP 2016).

The chapter is based on the original ecosystem profile, with updated data and analysis based on desk research, consultation with a range of relevant experts, and with reference to the responses to the questionnaires completed by each national coordinator (and partners) as part of the consultation for the development of the second ecosystem profile. These responses provide additional detail on these key economic sectors in individual countries of the region and on their impact on environment, and more specifically on biodiversity, as well as an insight into use of natural resources by the various ethnic and cultural groups in each country.

5.2 Context

The Mediterranean Basin has a recorded history of more than 5,000 years and is the hub of past civilizations whose heritage and cultural landscape made it unique in the world. The Mediterranean Sea has served as a central highway for commerce and cultural exchange among peoples from Africa, Asia and Europe and contributed to the formation of a regional identity (EEA-UNEP/MAP 2014). In terms of religions, the Mediterranean is evenly divided between countries that follow Christianity (generally in the northwest of the region) and Islam (generally in the south and east of the region). Throughout the history of the Mediterranean, the two religions have competed for influence, most notably on islands, such as Crete, Cyprus, Malta and Sicily.

The Mediterranean region is a highly fragmented region politically, demographically and socio-economically. Its complex political and cultural history has led to the creation of over 30 countries and territories ranging in area from 2 km^2 (Monaco) to 2.4 million km^2 (Algeria). More than half of these countries and territories have the surface areas smaller than 100,000 km^2, while three, all in the North-African sub-region, have a surface area larger than 1 million km^2. There is north-south gap, with the economically rich states of the northern rim (in particular the EU member states and less so the Western Balkans) characterized by an ageing population, industrialized societies, expanding urban concentration and decreasing rural population. In these countries, EU membership or candidacy status has contributed to peace and development of market economies. In contrast, the Arab states of the Middle East and North Africa are significantly poorer, with young, rapidly growing populations and a larger proportion of the population living in rural areas and dependent on natural resources for their livelihoods. However urban populations are increasing, especially in coastal areas, as large numbers of people migrate from the poorer south to the richer north. These flows have intensified in recent years due to insecurity following the “Arab spring” uprisings. The process of political and economic integration that has occurred among the EU countries has no equivalent the Middle East and North Africa, which continue to be politically unstable.

5.3 Key demographic trends and implications on environment

5.3.1 Demographic trends

The total population of the Mediterranean countries was 515 million in 2015. Of this total, more than half live in the countries of the southern and eastern shores of the region and this proportion is expected to increase to three quarters by 2025 (UNEP 2016) (Table 5.1).

Table 5.1 Summary of national level demographic statistics for hotspot countries

Country	Land Area (km^2)	Population (million) 2015	Population density (ppl/km^2) 2015	Annual population growth (%) 2015	Urban population (% of total) 2015	Net migration (2012)
Countries covered by profile update						
Albania	28,750	2.9	105	-0.2	57.4	-91,750
Algeria	2,381,740	40.0	17	1.9	70.7	-143,268
Bosnia-Herzegovina	51,210	3.8	74	-0.2	39.8	-2,506
Cabo Verde	4,030	0.5	129	1.3	65.5	-11,052
Egypt	1,001,450	91.5	28	2.1	43.1	-215,681
Kosovo	10,887	1.8	165	-0.9	…	…
Jordan	89,320	7.6	86	2.4	83.7	+229,617
Lebanon	10,450	5.6	572	4.2	87.8	+1,250.000
Libya	1,759,540	6.3	4	0.3	87.8	-501,692
Macedonia	25,710	2.1	82	0.1	57.1	-4,999
Montenegro	13,810	0.6	46	0.1	64.0	-2,412
Morocco	446,550	34.4	77	1.3	60.2	-310,624
Palestine	6,020	4.8	796	2.8	75.3	...
Syria	185,180	18.5	101	-1.4	57.7	-4,029,966
Tunisia	163,610	11.1	71	1.0	66.8	-32,941
Turkey	783,560	78.7	102	1.5	73.4	+2,000,000
EU						
Croatia	56,590	4.2	75	-0.3	59.0	-20,000
Cyprus	9,250	1.2	126	1.0	66.9	+35,000
France	549,087	66.8	87	0.5	79.5	+331,555
Greece	131,960	10.8	84	-0.6	78.0	-136,299
Italy	301,340	60.8	207	0.0	69.0	+528,269
Malta	320	0.4	1,348	0.9	95.4	+6,252
Portugal	92,220	10.3	113	-0.5	63.5	-140,000
Slovenia	20,270	2.1	102	0.1	49.7	+4,324
Spain	505,940	46.4	93	-0.1	79.6	-593,069
Other						
Andorra	470	0.1	150	-3.2	85.1	...
Gibraltar	10	0.0	3,222	0.7	100.0	...
Holy See	...	...	...	...	...	...
Israel	22,070	8.4	387	2.0	92.1	+19,497
Monaco	2	0.0	18,866	0.3	100.0	...
San Marino	60	0.0	530	0.6	94.2	...

Coastal areas tend to have a concentration of economic activities such as tourism, fishing, and maritime trade, and as a result population is highly concentrated along or close to the coast. Among the 739 administrative regions, 224 are considered to be coastal. Table 5.2 provides data about the share of population in the coastal regions in relation to national population.

Table 5.2 Proportion of the population of Mediterranean countries / territories living in coastal regions and in Mediterranean hydrological basins (period 2001 – 2008) (EEA-UNEP/MAP 2014)

Country	% national population in Mediterranean coastal regions	% national population in Mediterranean hydrological basins	Population within the hotspot, millions	Basis for assumption in calculating hotspot population
Countries covered by profile update				
Albania	68	100	2.90	Pop. In hydrobasin
Algeria	39	70	28.00	Pop. In hydrobasin
Bosnia-Herzegovina	6	18	0.68	Pop. In hydrobasin
Cabo Verde	100	100	0.50	National pop.
Egypt	35	93	32.00	Pop. in coast area
Jordan	...	...	No estimate available	
Kosovo	...	...	No estimate available	
Lebanon	72	90	5.00	Pop. In hydrobasin
Libya	83	85	5.04	Pop. In hydrobasin
Macedonia	...	...	1.00	50% Nat. pop.
Montenegro	67	54	0.40	Pop. in coast area
Morocco	11	12	34.00	National pop.
Palestine	68	38	4.80	National pop.
Syria	9	10	1.85	Pop. In hydrobasin
Tunisia	69	84	9.32	Pop. In hydrobasin
Turkey	20	27	21.25	Pop. In hydrobasin
EU				
Croatia	50	15	0.63	Pop. In hydrobasin
Cyprus	100	100	1.20	Pop. In hydrobasin
France	11	23	15.36	Pop. In hydrobasin
Greece	59	88	9.50	Pop. In hydrobasin
Italy	55	97	33.44	Pop. in coast area
Malta	100	100	0.40	National pop.
Portugal	...	...	5.00	50% Nat. pop.
Slovenia	5	13	0.10	Pop. in coast area
Spain	39	45	20.88	Pop. In hydrobasin
Other				
Andorra	...	...	0.10	Pop. In hydrobasin
Gibraltar	...	...	0	
The Holy See	...	...	0	
Israel	84	80	8.40	National pop.
Monaco	100	100	0	
San Marino	...	...	0	
TOTAL			**242.65**	

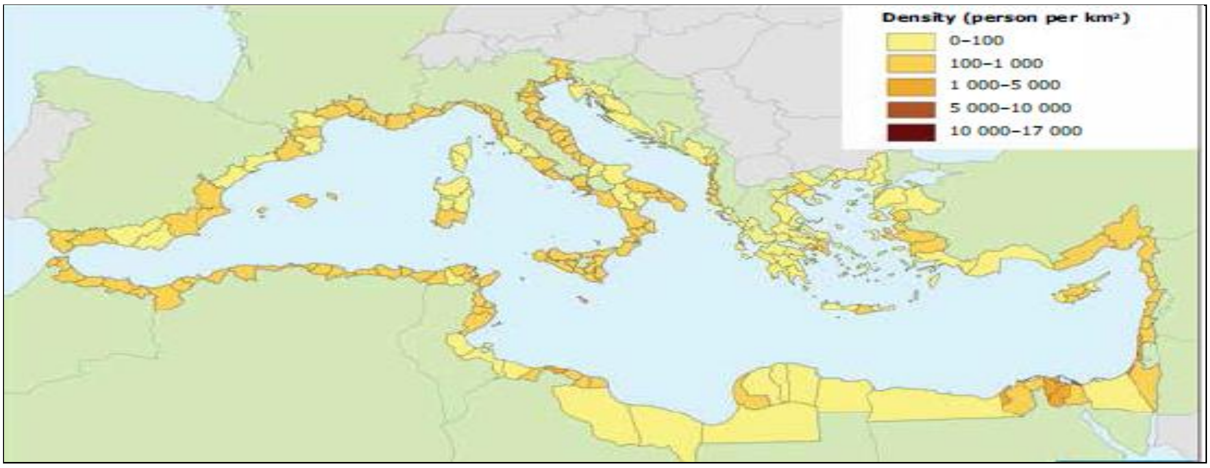
In the countries covered by the ecosystem profile update, the greatest concentration of population in coastal areas occurs in some western Balkan countries (Albania, 68%, and Montenegro, 67%), as well as in some North-African countries (Libya, 83%, and Tunisia, 69%) and some Middle-Eastern countries (Lebanon, 72%, and Palestine, 68%).

Twenty-five out of the total 31 Mediterranean countries exceed the global average population density of 58.8 people/km^2. However there are marked differences of population density between the hotspot countries covered by the ecosystem profile update, with Lebanon and Palestine by far the most densely populated (572 and 796 people/km^2), and another five countries with density over 100 people/km^2 (see Table 5.1). At the other extreme Libya (4 people/km^2), Algeria (17 people/km^2) and Egypt (28 people/km^2) have very low population densities.

Population density in the coastal regions of the Mediterranean is on average 120 people/km^2, as opposed to the national average of 58 people/km^2 (EEA-UNEP/MAP 2014). In hotspot countries covered by the ecosystem profile update, the highest concentration of population is in the coastal areas of Middle-Eastern countries and parts of the North-African coast. The variation in population density is greatest in the latter, ranging from less than 20 people/ km^2 in coastal Libya to over 1,000 people/ km^2 in Nile Delta (UNEP 2012).

Population of the Mediterranean countries doubled from 240 million in 1960 to 480 million in 2010, and is expected to reach around 530 million by 2025. Over this period, the distribution of population around the Mediterranean changed dramatically. In 1960, Mediterranean EU member states accounted for 59% of the total population, while by 2010 this figure had dropped to 40%. In contrast, the share of Middle-Eastern and North-African countries increased from 27 to 44% and the share of Western Balkan and Turkey from 14 to 17% (EEA-UNEP/MAP 2014).These changes are a consequence of differences in population growth rates. Two out of three of the largest countries covered by the ecosystem profile update (Algeria and Egypt) have an annual growth of population at a level around 2%. In contrast, Mediterranean countries on the north and a majority of the Western Balkan countries are characterized with either stagnant or decreasing population.

Figure 5.1 Population density in the Mediterranean coastal regions (last year available) (EEA-UNEP/MAP 2014)



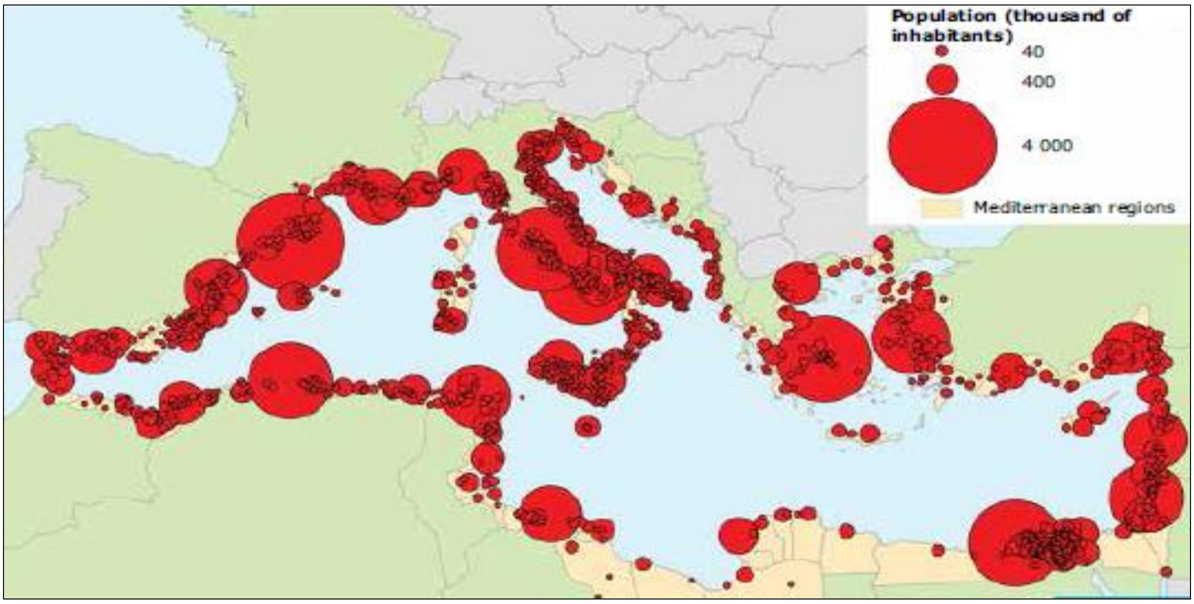
Urbanization in the whole Mediterranean region has been very rapid in recent decades. In 1960, 48% of people in the region lived in urban areas. By 2010, this figure had risen to around 61%, 315 million urban dwellers. Of the 190 million people added to the population between 1979 and 2010, 163 million live in urban areas (EEA-UNEP/MAP 2014, p42).

Most of the urbanization in the region has taken place along the coastal zones, with the most rapid urbanization in Middle-Eastern and North-African countries and Turkey, while the rate in the EU member states and the Western Balkan countries is lower. Between 1950 and 2010 Rabat and Istanbul grew 10- to 15- fold, Damascus, Beirut, Casablanca, Tel Aviv and Algiers grow 5- to 10-fold, and Cairo, Tunis and Alexandria from 3- to 5-fold (EEA-UNEP/MAP 2014, p. 43). Figure 5.2 shows population of coastal cities in the Mediterranean.

The region has traditionally been an area with strong migration flows into the EU member states, primarily from North-African Maghreb countries and to a lesser extent from Western Balkan countries and Turkey. Over recent decades until a few years ago, these flows were dominated by economic migrants. More recently and especially following the ‘Arab spring’ uprisings and wars in Syria and Libya, these flows have been more complex, involving large numbers of refugees.

Most of the countries covered by the ecosystem profile update are characterized by strong net emigration, with the highest figures for Syria and Libya as a result of the wars in these two countries, while lower but still significant emigration was experienced also by Algeria, Egypt and Morocco. The juxtaposition of wealthy European countries and relatively poorer countries in North Africa and the Middle East has long created opportunities for northward migration for work or to settle. The jobs occupied by most immigrants in the European economies are unskilled or semi-skilled, but even so wages in the agriculture sector are 10 to 13 times larger in Europe than south of the Mediterranean sea (Compés-López*et al.* 2013).

Figure 5.2 Population of coastal Mediterranean cities (last available year) (EEA-UNEP/MAP 2014)



The flow of economic migrants has been boosted by refugees from wars and political turbulence in Syria, Libya and elsewhere in the region. Turkey, Lebanon and Jordan were the main destinations of the refugees from the Syrian war and so registered net immigration. There are close to 1.5 million refugees in the Lebanon, making it the country with the highest per-capita concentration of refugees worldwide[4], and another four million in Turkey. At the same time, the areas closest to the straits of Gibraltar, Messina and the Aegean Sea are the conduit for displaced people trying to reach Europe. In 2010 sea arrivals to Europe in were less than 10,000, but by 2015 there were estimated to be more than one million (UNHCR 2016). Over 10,000 people died making these journeys between 2014 and 2016, nine out of ten of immigration casualties in the world (IOM 2016). In addition to those displaced from Syria and Libya, countries of the Hotspot are also transit routes for people migrating from sub-Saharan African and Asian countries to Europe.

5.3.2 Implications of demographic trends for the environment

The Mediterranean region is undergoing intensive demographic change. Population growth, high population density and coastal urbanization causes increasing demand for water and water resources, air and water pollution, increased land consumption, fragmentation of natural habitats, deterioration in the functioning of natural wetland ecosystems, overexploitation of biological resources and rapid expansion of poorly planned coastal development. Conversely, rural depopulation causes the abandonment of traditional grazing and changes in forestry regimes, which also leads to loss of habitats that are dependent on human activity to maintain their diversity. The introduction of diseases and invasive alien species through human activity presents an additional threat to the biodiversity.

Conservation efforts in the region need to address population pressures on the land and resources by mitigating infrastructure development risks and supporting traditional rural livelihoods. In the recent years, refugee flows have added to pressure on the environment in both host and transit countries.

Finally, climate change in the region has numerous implications for the population. A general rise in temperature[5] accompanied by more frequent heat waves could facilitate the spread of tropical diseases, especially insect-borne diseases, while an increase of dust-charged winds from Sahara could have an impact on the incidence of allergies and respiratory problems. Climate change will also disrupt traditional agricultural systems and water supplies, affecting food security and putting increasing pressure on upland ecosystems. These pressures will exacerbate environmental degradation, so that there is a risk that climate change and unsustainable land management become mutually reinforcing drivers of degradation. Finally, sea-level rise is threatening low-lying coastal areas already under pressure from increasing coastal erosion due to sediment retention in dams. These issues are discussed in greater detailed in Chapter 9.

5.4 Key economic and social trends

5.4.1 Macroeconomic trends

The Mediterranean share in the world GDP has been declining during the last 20 years, from 13.5% in 1990 to 11.5 in 2010 (EEA-UNEP/MAP 2014). It is, however, still higher than the share of the region in the world's population.

[4] Note that most data on refugees and migration are estimates, as much of the process is illegal and unrecorded.
[5]According to the IPCC, a temperature rise of 2–3 °C is expected in the Mediterranean region by 2050, and a rise of 3–5 °C is expected by 2100(IPCC 2013)

There is a large difference between national GDPs north and south-east of the Mediterranean Sea. The balance is changing, with the contribution of Mediterranean EU member states to Mediterranean GDP declining from 82% in 1980 to 75% in 2015. However the EU economies remain dominant, with France, Italy and Spain with a GDP of over US$1,000 billion in 2015. The GDP of France or Italy alone was higher than the combined GDP of all 16 countries covered by the ecosystem profile update. Among these countries, Turkey is by far the largest in economic terms with GDP of US$718 billion in 2015, and with G-20 member status. Three other countries (Egypt, Algeria and Morocco) have GDPs exceeding US$100 billion (Table 5.3).

GDP growth rates of the countries covered by the ecosystem profile update have been higher in recent decades than those of the EU members. While a majority of Middle-Eastern and North-African countries as well as Turkey registered a growth rate of over 2% in 2015, three (Morocco, 4.4%; Egypt, 4.2%; Turkey, 4%) grew faster. Among EU member states growth rates were significantly lower, partly due to the ongoing consequences of the global and euro-zone financial crises.

The relatively high economic growth rates of the Middle Eastern and North African countries needs to be seen in relation to their rapid population growth rates. In 2015 the average income per capita of southern countries (around US$6,000) was 4.6 times lower than the average per capita income in the EU, only a slight narrowing of the gap since 1980, when the EU per capita income was five times higher (EEA-UNEP/MAP 2014). There is significant variation in per capita GDP among the countries covered by the ecosystem profile update, with Morocco the lowest (below US$3,000) and Turkey the highest (over US$9,000), and with a large majority of the countries concentrated at levels between US$3,000 and US$5,000 (Table 5.3).

Prices in the countries of the region are by and large at a low, stable level. In 2015, there were only four countries (Algeria, Egypt, Tunisia, and Turkey), with an annual inflation rate over 4%.

Unemployment continues to be a major economic and developmental problem throughout the region (Table 5.3). High, two-digit unemployment was registered in around two thirds of both countries covered by the ecosystem profile update and EU member states. Unemployment is particularly high in some of the Western Balkan countries, such as Kosovo (30.9%), Bosnia and Herzegovina (27.9%), Macedonia FYR (27.9%) and Montenegro (19.1%) and among the EU member states that were most drastically hit by the euro-zone crisis, Greece (26.3%) and Spain (24.7%).

In contrast to inflation and employment where performance is broadly shared across the countries of the region, there are larger differences between the EU member states and countries covered by the ecosystem profile update with respect to the external imbalances. While the EU states have current accounts close to the equilibrium or in surplus, due to drastic fiscal and current account adjustments in recent years, the countries covered by the ecosystem profile update were all in deficit in 2015, with current account deficit surpassing 5% of GDP in more than half of them.

Table 5.3 Selected economic indicators (World Bank 2016a)

Country	GDP current prices (in $ billion) (2015)	Annual GDP growth (in %) (2015)	GDP per capita current prices (in $) (2015)	Annual inflation constant prices (in %) (2015)	Unemployment (% of labor force) (2014)	Current account (% of GDP) (2014)
Countries covered by profile update						
Albania	11.5	2.6	3,965	1.9	16.1	-12.8
Algeria	166.8	3.9	4,206	4.8	9.5	-4.5
Bosnia and Herzegovina	16.0	3.2	4,198	...	27.9	-7.5
Cabo Verde	1.7	2.5	3,131	0.1	9.2	-9.0
Egypt	330.8	4.2	3,615	10.4	13.2	-2.0
Kosovo	6.4	3.6	3,553	…	30.9*	…
Jordan	37.5	2.4	4,940	-0.9	11.1	-7.3
Lebanon	47.1	1.5	8,051	-3.7	6.4	-25.5
Libya	29.2	-10.2	4,643	...	19.2	-0.2*
Macedonia	10.1	3.7	4,853	-0.3	27.9	-0.9
Montenegro	4.0	3.4	6,415	1.5	19.1	-15.2
Morocco	100.4	4.4	2,872	1.6	10.2	-5.7
Palestine	...	...	...	...	...	...
Syria	...	...	...	...	10.8	...
Tunisia	43.0	0.8	3,873	4.9	13.3	-9.0
Turkey	718.2	4.0	9,130	7.7.	9.2	-5.5
EU						
Croatia	48.7	1.6	11,536	-0.5	16.7	+0.8
Cyprus	19.3	1.6	22,957	-2.1	15.6	-3.7
France	2,421.7	1.2	36,248	0.0	9.9	-1.0
Greece	195.2	-0.2	18,036	-1.7	26.3	-2.1
Italy	1,814.7	0.8	29,847	0.0	12.5	+1.8
Malta	9.6**	2.9*	...	1.1	5.9	+3.7
Portugal	198.9	1.5	19,223	0.5	14.2	+0.1
Slovenia	42.7	2.9	20,713	-0.5	9.5	+7.0
Spain	1,199.1	3.2	25,832	-0.5	24.7	+0.9
Other						
Andorra	3.3*	0.1*	...	...	...	...
Gibraltar	...	...	...	...	...	...
The Holy See	...	...	...	...	...	...
Israel	296.1	2.5	35,330	-0.6	6.1	+4.0
Monaco	...	...	...	...	...	...
San Marino	...	...	...	...	...	...

Notes: * = 2012; ** = 2013.

5.4.2 Economic sector trends

Economic development in the Mediterranean region is dominated by three sectors, all of them having a very large ecological footprint (see Section 5.5): (i) natural resource sector including agriculture, forestry and fishery, (ii) energy sector based on non-renewable sources, primarily oil and gas, as well as on renewable sources, primarily water but also wind, hydropower and solar energy, and (iii) services sector, primarily tourism and shipping.

Over 85% of the Mediterranean's total agricultural production is cereals, vegetables and citrus fruit. The area of cultivated land has remained approximately stable since 1960s, even though the total level of production has increased between 2.5 and 5 times (UNEP 2012), primarily as a result of greater use of irrigation. Nevertheless the Middle-Eastern and North-African countries are still highly dependent on food imports. In drier parts of the Mediterranean, agriculture relies heavily on use of areas of good soil and adequate rainfall or irrigation water, but the need to produce sufficient food forces the population to use marginal land that is easily degraded. The soil erosion often affects previously optimal grazing areas, and can be expected to get worse with climate change impacts (UNEP 2012).

In the energy sector, Algeria, Egypt and Libya are among the moderate-size world oil producers, and have significant oil and gas reserves. In the western Balkans, hydropower production is important economically and has potential environmental impacts. Manufacturing capacity is frequently located along the region's coasts where there is high population density, either within urban centers or close to other economic activities, primarily agriculture or tourism.

Within the services sector, tourism plays an important role. The Mediterranean region accounted for 285 million tourist arrivals (or 28 per cent of international tourism in the world) in 2010. By 2025, the number of arrivals could reach 637 million (EEA-UNEP/MAP 2014). The bulk of the tourists are from Europe, and the main destinations are the coastal areas.

Tourism is heavily seasonal in its character, but is a vital part of the Mediterranean economy, as it creates jobs, contributes to GDP, and is also an extremely important source of foreign exchange generation. In 2011, international tourism generated US$224 billion in revenues, compared to US$5.6 billion in 1970, a 40-fold increase (EEA-UNEP/MAP 2014).

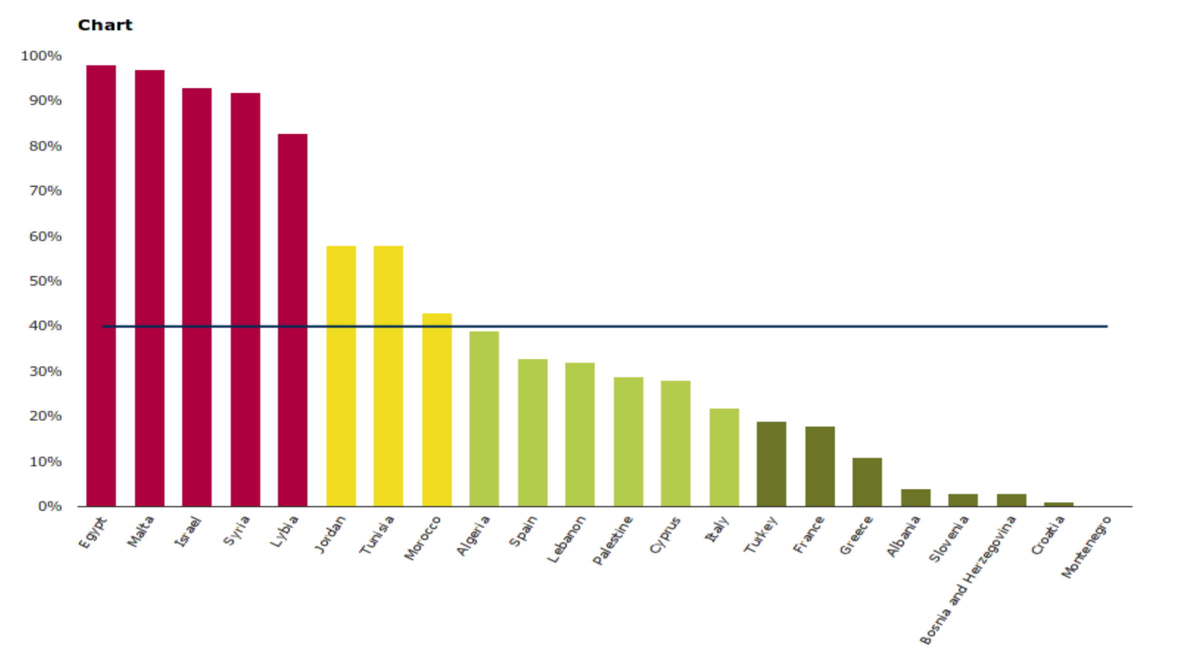
The tourist economy is sensitive to disturbance, however. Since 2010, political upheaval, wars and terrorism have significantly reduced tourism to Libya, Egypt and Tunisia, and to a lesser extent to Turkey and Jordan. In contrast, tourism remains strong in Montenegro, Cabo Verde and Morocco (Horwath 2015).

Shipping is the region's second strong service sector, and the Mediterranean Sea is among the world's busiest waterways, accounting for around 15% of global shipping activity by the number of calls, and 10% by vessel deadweight tonnes (UNEP 2012). In 2007, almost two-thirds of the traffic was between Mediterranean ports, while a significant proportion of the rest was a transit through the Mediterranean. The development of shipping is directly linked to the development of coastal infrastructure, such as ports as well as railways connecting these ports with the inland areas.

The structure of Mediterranean economies, highly dependent on climate-sensitive agriculture and tourism, coupled with increasing population concentrated in coastal urban areas, puts extreme pressure on the region's water resources. The arid climate of the region means that water has always been an issue of concern for the population, and these factors are only adding to the problem. Middle-Eastern and North-African countries are highly water-stressed

(Figure 5.3). Many countries in the region have a Water Exploitation Index (WEI)[6] higher than 40%, and Egypt, Israel, Syria and Libya, together with Malta, have WEIs exceeding 80 According to existing projections, the Mediterranean population classified as 'water-poor', (i.e., below 1000 m^3 per resident per year) will increase from 180 million people today to over 250 million within 20 years (EEA 2015).

Figure 5.3 Water Exploitation Index for renewable freshwater resources in Mediterranean countries (2005-2010) (EEA 2015)



5.4.3 Social trends

The long history of the Mediterranean has not only led to a diversity of political orientations and the political fragmentation of the region, but also to a diversity of economic approaches and social systems. The overall socioeconomic status of individual countries of the region is the most comprehensively captured in the UNDP's Human Development Index (HDI). Out of 188 countries of the world covered by the most recent Human Development Report (2015 Human Development Report), only one of the 30 Mediterranean countries – Syria – has a HDI that puts the country within the last third of all the countries included in the ranking (UNDP 2015) (Table 5.4). All the Mediterranean EU member states plus Israel and Montenegro are included in the ‘very high human development’ group, as they are ranked among top 47 countries in the world by HDI. North-African countries, Middle-Eastern countries (except Israel), Turkey and Western Balkan countries (except Montenegro) are middle income countries but also perform rather well in terms of their HDI, all of them included in either ‘high human development’ or ‘medium human development’ HDI groups with ranks between 49 and 134. None of the Mediterranean countries are in the ‘low human development’ HDI group.

[6] The WEI is the mean annual total demand for fresh water, divided by the long-term average freshwater resources. ‘Water stress’ starts at 20%, and WEI of >40% are considered severely water stressed (EEA 2003)

Table 5.4 Selected social indicators

	HDI rank (2014)	Change of HDI rank (2009-14)	Life expectancy at birth years (2014)	Expected years of schooling (2014)	Gini coefficient (2005-2013)	Population below national poverty line (2007-2015) (in %)
Countries covered by profile update						
Albania	85	+2	78	11.8	29.0	14.3 (2010
Algeria	83	+4	75	14.0	...	...
Bosnia and Herzegovina	85	+2	76	13.6	33.0	17.9 (2011)
Cabo Verde	122	+2	73	13.5	43.8	26.6 (2007)
Egypt	108	-3	71	13.5	30.8	25.2 (2010
Kosovo	…	…	71	…	…	…
Jordan	80	-8	74	13.5	33.7	14.4 (2010)
Lebanon	67	+1	79	13.8	...	...
Libya	94	-27	72	14.0	...	...
Macedonia	81	-2	75	13.4	44.2	22.2 (2014)
Montenegro	49	+1	76	15.2	30.6	8.6 (2013)
Morocco	126	+5	74	11.6	40.9	...
Palestine	113	...	...	13.0	34.5	....
Syria	134	-15	70	12.3	35.8	35.2 (2007)
Tunisia	96	-1	74	14.6	35.8	15.5 (2010)
Turkey	72	+16	75	14.0	40.0	1.6 (2014)
EU						
Croatia	47	-1	77	14.8	33.6	19.4 (2013)
Cyprus	32	-2	80	14.0	...	...
France	22	-1	82	16.0	31.7	...
Greece	29	-2	81	17.6	34.7	...
Italy	27	-1	83	16.0	35.5	....
Malta	37	+4	82	14.4	...	....
Portugal	43	0	81	16.3	...	....
Slovenia	25	-1	81	16.8	24.9	14.5 (2013)
Spain	26	+2	83	17.3	35.8	....
Other						
Andorra	34	...	...	13.5	...	
Gibraltar	...	....	...	...	...	...
The Holy See	...	...	...	...	...	...
Israel	18	+1	82	16.0	42.8	...
Monaco	...	...	...	...	...	...
San Marino	...	...	...	...	...	...

Sources: UNDP (2015) except column 3 (life expectancy) from World Bank (2016b).

Other indicators of the relatively good performance of countries in the region include life expectancy at birth, which is around 75 years in the countries covered by the ecosystem profile update. Although this is some five to seven years less than in EU member states, it is still well above 70 years global average for developing countries (UNDP 2015, Table 5.1).

Education, measured as expected years in schooling, was 16 years for the EU member states compared to 14 years for the countries covered by the ecosystem profile update in 2014, and 12 years for developing countries as a whole.

The Mediterranean performs relatively well also in terms of the equality of distribution of income among individuals and households within the country. For most countries for which the data are available, Gini coefficient is between 30 and 40, with only three countries scoring above 40, and two below 30. A gini co-efficient of 0 represents absolute equality; 100 represents absolute inequality.

Most of the countries covered by the ecosystem profile update have a relatively high per capita GDP compared to other developing countries, between US$2,800 and US$9,100. The proportion of the population under national poverty lines is below 25%. However even though absolute poverty is not very significant in the region as a whole, it is significant in war affected regions as well as within specific groups of the population that face problems, such as minority ethnic groups, unemployed and low income families. Poverty is a driver of environmental degradation, migration, and makes populations vulnerable to crime and political radicalization. All this has fed into the civil wars in Syria and Libya, and triggered Europe's migrant crisis.

Gender issues

Gender gaps in a number of spheres of life in Mediterranean countries are reflected in the Gender Development Index developed by UNDP. Out of 188 countries ranked in the 2014 index, all the EU members except Malta are among the top 30 countries indicating their low level of gender inequality. The Balkan countries are also relatively highly ranked, with the ranks between 33 for Macedonia and 45 for Albania (Table 5.5, figure 5.4). Countries in Middle-East and North-Africa are characterized with higher levels of gender inequality, with several of them placed at ranks over 100. It should, however, be mentioned that the situation of women in most of these countries has improved greatly with respect to literacy rates and equal opportunities for educational enrolment and completion. Although there is still discrimination in terms of streaming girls out of technical and vocational subjects in some countries and gender gaps at tertiary levels of education. Similarly there have been improvements in health status and health care. Women’s economic participation has also increased despite some obstacles remaining. Additional country-specific, gender- related information is provided by the questionnaire through responses to the following question: do men and women have strongly different roles in the use of natural resources that could be addressed to improve conservation?

5.4.4 Implications of economic and social trends on the environment

In contrast to the EU member states, the countries covered by the ecosystem profile update are characterized by higher political risks, with weak and unstable public finances and significant external imbalances reflected in large current account deficits. In such a fragile macroeconomic situation, governments are often focused on short-term oriented economic solutions that can deliver “quick win” gains in terms of increased income. Consequently, environmental sustainability is typically not very high on a political agenda, but environmental issues can, nevertheless, be turned into a priority if appropriately linked with economic and security concerns.

Table 5.5 Gender Inequality Index scores and ranks for hotspot countries

Country	**GII score 2014** - range 0 (equality) to 1 (total inequality)	**GII 2014 rank** Position out of 288 countries
Countries covered by profile update		
Libya	0.134	27
Macedonia	0.164	33
Montenegro	0.171	37
Bosnia and Herzegovina	0.201	41
Albania	0.217	45
Tunisia	0.240	48
Turkey	0.359	71
Lebanon	0.385	78
Algeria	0.413	85
Jordan	0.473	102
Morocco	0.525	117
Syria	0.533	119
Egypt	0.573	131
Cabo Verde	(no data)	(no data)
Kosovo	(no data)	(no data)
Palestine	(no data)	(no data)
EU		
Slovenia	0.013	1
Italy	0.068	10
France	0.088	13
Spain	0.095	16
Portugal	0.111	20
Cyprus	0.124	22
Greece	0.146	29
Croatia	0.149	30
Malta	0.227	46

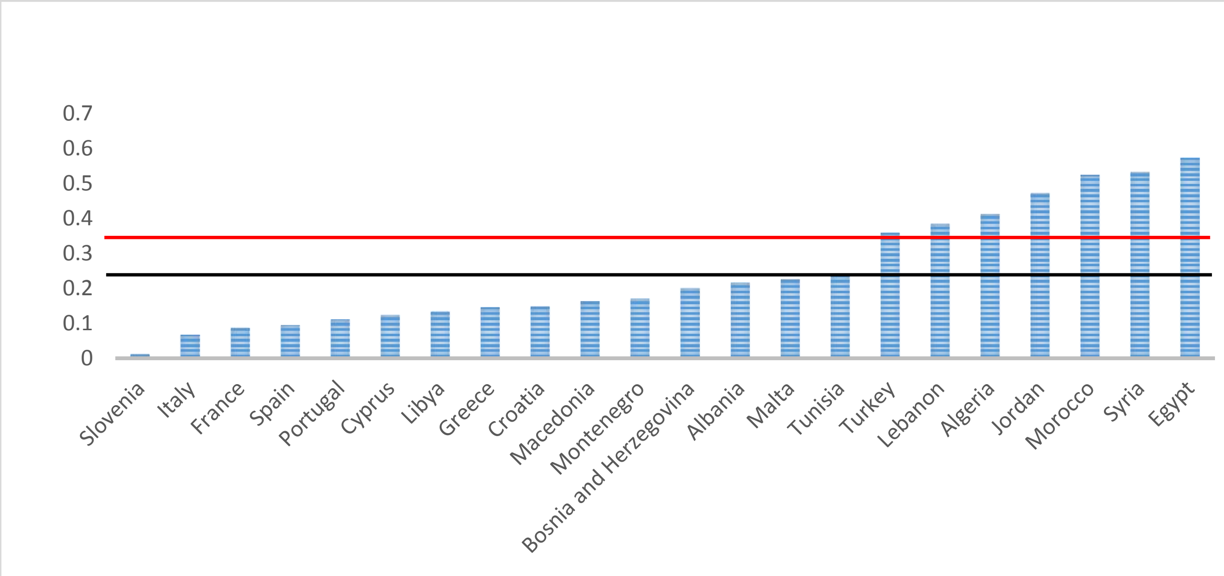
Source: UNDP (2015).

Pressures on the Mediterranean environment stemming from demographic factors are amplified by economic activities in the region. In addition to classical rain-fed and irrigated cultivation, other agricultural land uses in the Mediterranean include pastures, dairy farming and orchards, and all of them have significant implications for the environment. Agricultural production based on irrigation puts pressure on already scarce water resources in the region while intense use of fertilizers and pesticides has potentially devastating implications for the soil and water quality.

Strong negative implications for the Mediterranean environment also come from energy production and manufacturing, and include the use of land and natural resources, the generation of waste and the release of pollutants into the atmosphere and into the waters.

Although tourism brings significant economic benefits to the Mediterranean region, it is also associated with significant negative implications on environment. Tourism contributes to CO2 emissions, primarily through air and road transportation. As tourism is highly concentrated along the coastal areas, it intensifies pressure on the marine and coastal environment in form of the demand for space, both in the coastal zone (impact on urbanization) and on the coastline itself (construction of infrastructure, such as hotels and marinas). Coastal tourism is, by definition, located in sensitive habitats within the coastal zones and degradation of these habitats is unavoidable. Mass tourism typically intensifies this degradation process. Tourism in the Mediterranean is not only spatially strongly concentrated but is also highly seasonal. The summer season peak amplifies the negative impact on the environment due to increased waste generation and water consumption as well as an increased pressure on natural resources.

Figure 5.4 Gender Inequality Index scores for CEPF hotspot countries



Notes: Blue bars = Gender Inequality Index, 2014 (UNDP, 2015); Black line = average index score for all hotspot countries; Red line = average index score for countries covered by the ecosystem profile update.

5.5 Ecological footprint

The region's marginal biophysical characteristics, population growth, urbanization and socio-economic policies, coupled with high rates of natural resource consumption, are the main drivers of environmental problems. Insecurity and conflicts are also among the regional drivers of environmental degradation. These are further exacerbated by frequent droughts and climate change.

There is a general lack of coherent environmental data and information tools in the region, especially in eastern Mediterranean and North Africa countries. The systematic collection, processing, analysis, production, dissemination and exchange of environmental information would lead to more robust decision making and proper policy formulation and implementation. Trends show the need to make use of additional measures to improve enforcement and compliance processes. Moreover, there is a significant need for regular environmental reporting in all West Asian countries as well as greater public and private participation.

The involvement of the public in the environmental regulatory systems remains low because people are neither well informed nor encouraged to participate. Although access to general environmental information has recently improved, much effort is still required to achieve real public participation in environmental management.

The socio-economic analysis of the previous sub-chapter has broadly split the Mediterranean countries into two separate clusters; one consists of the northern rim countries belonging to the EU and the Western Balkans while the other cluster includes Middle-Eastern countries, North-African countries plus Turkey. The countries in the latter group generally have higher population growth, a younger population, lower per capita GDP, less developed infrastructure and also lower HDI. They also have generally lower ecological footprints than their counterparts on the northern side of the Mediterranean[7].

Between 1961 and 2010, the Mediterranean per capita ecological footprint increased by 54% while the regions' per capita biocapacity decreased by 21%. As a consequence, the growing gap between the demand and supply created a more than threefold increase in the regions' ecological deficit. In 2010, the average ecological footprint in the Mediterranean was 3.0 gha/cap, slightly above the global average (2.7 gha/cap) and more than double the 1.2 gha/cap biocapacity of the region. This clearly confirms that the current economic development trends in the Mediterranean are not sustainable on longer-term basis.

Table 5.5 presents 2012 country-by-country data for ecological footprint, biocapacity and ecological deficit / reserve. As the Table shows there was not a single Mediterranean country in that year that would not have an ecological deficit. This means that ecological footprint of all Mediterranean countries exceed their capacity to regenerate resources. All but two countries in the region – Syria and Morocco – had ecological footprint that was higher in that year than the world average biocapacity (1.7 gha/cap in 2010). On the other hand, there are only four countries, all on the north of the Mediterranean, whose biocapacity is higher than the world average: Montenegro – 3.3 gha/cap, France – 3.1. gha/cap, Slovenia – 2.4 gha/cap, Croatia, 2.2 gha/cap. On the southeastern part of the region, all North-African and Middle-Eastern countries have biocapacity around or below half of the world average.

The Middle East region has been in a state of ecosystem deficit since 1979 and the consumption levels of life-supporting goods and services are today more than twice that which local ecosystems can provide. This has been accompanied with a doubling in the regional ecological footprint and a four-fold decrease in freshwater availability. There are two main drivers which have led to this sharp jump: (1) a three-fold increase in population, leading to higher overall consumption; (2) a sharp rise in the amount of resources and services consumed per person as a result of higher incomes and changing lifestyles. The available average biocapacity per capita in Arab countries (including West Asia region) decreased by 60% over 50 years, from 2.2 to 0.9 gha. This sharp decline is mainly attributed to the vast increase in population size and the decline in the productive capacity of the region's ecological systems due to pollution, habitat destruction, and overall inadequate resource management. The vast deficit in the region's ecological resources is largely bridged by imports and an over-exploitation of finite local resources. On the one hand, the dependence on global trade imports introduces concerns of economic insecurity, often driven by soaring food prices, disruptions in global supply chains, and trade restrictions. For oil-importing countries, carrying debt to finance imports imposes burdens on their economies and places a limit on future wellbeing.

[7] See: Global Footprint Network: Mediterranean Footprint Initiative, available at footprintnetwork.org/content/documents/MED_2015_English.pdf

Table 5.5 Ecological footprint indicators

Country	Ecological footprint (gha/cap) (2012)	Biocapacity (gha/cap) (2012)	Ecological deficit / reserve (gha/cap) (2012)
Countries covered by profile update			
Albania	2.2	1.2	-1.0
Algeria	2.1	0.6	-1.5
Bosnia and Herzegovina	3.1	1.6	-1.5
Cabo Verde*	2.5	0.5	-2.0
Egypt	2.2	0.6	-1.6
Jordan	2.1	0.2	-1.9
Kosovo	…	…	…
Lebanon	3.8	0.5	-3.5
Libya	3.7	0.7	-3.0
Macedonia	3.3	1.5	-1.7
Montenegro	3.8	3.3	-0.5
Morocco	1.7	0.7	-1.0
Palestine	...	...	...
Syria	1.5	0.6	-0.9
Tunisia	2.3	0.9	-1.4
Turkey	3.3	1.5	-1.8
EU			
Croatia	3.9	2.2	-1.7
Cyprus	4.2	0.3	-3.9
France	5.1	3.1	-2.0
Greece	4.4	1.6	-2.8
Italy	4.6	1.1	-3.5
Malta**	4.4	0.5	-3.9
Portugal	3.9	1.5	-2.4
Slovenia	5.8	2.4	-3.5
Spain	3.7	1.3	-2.4
Other			
Andorra	...	...	...
Gibraltar	...	...	...
The Holy See	...	...	...
Israel	6.2	0.4	-5.9
Monaco	...	...	...
San Marino	...	...	...

Notes: * = Data from a graph; ** = 2010 (Source: Global Footprint Network 2016).

The Arab Forum for Environment and Development (AFED) annual reports on the state of Arab environment have repeatedly warned that overexploitation of resources, the impact of climate change, high population growth rates, uncontrolled economic growth and urbanization amplify the region’s environmental challenges and constrain its ability to manage them. Significant among those challenges are water scarcity, land degradation, inadequate waste management, coastal and marine environment degradation, and air and water pollution. AFED reports have estimated the cost of environmental degradation in the Arab region as a whole at 5% of total GDP, while budgetary allocations for environmental purposes do not even come close to 1% of GDP in any Arab country.

Countries with higher per capita GDP on the northern side of the Mediterranean are also countries with the highest demand for resources. Ecological footprint of the EU members is on average significantly higher (4.4.gha/cap) than of the group of countries covered by the ecosystem profile update consisting of Turkey, Western Balkan, Middle-Eastern and North-African countries (2.7 gha/cap). Also ecological deficits of these countries are on average lower than in the EU member countries (1.9 gha/cap vs. 2.8 gha/cap) even though countries from this part of the region have biocapacity twice as high as in comparison to Turkey, Western Balkan, Middle-Eastern and North-African countries (1.6 gha/cap vs 0.8 gha/cap).

6. POLICY CONTEXT OF THE HOTSPOT

6.1 The wider political context

The portion of the hotspot which is the focus of this ecosystem profile comprises 16 states and territories. Government institutions, legal systems and the place of environment within them have been influenced by the history of the region, which includes colonial periods and the influence of trade and interaction between Europe, Africa and the Arab world. A large part of the territory within the hotspot in south-eastern Europe, Turkey, the Middle East and North Africa (as far as Algeria) was under the control of the Ottoman Empire until the First World War (1914-1918). After the war the empire broke up, with new countries and federations emerging in the Balkans along broad ethnic lines (Yugoslavia, Albania and Greece), while European powers expanded their control over the Middle East and North Africa, with Egypt, parts of Syria and most of Jordan under British rule, Lebanon, Algeria and Tunisia controlled by France, and Libya occupied by Italy. Morocco remained a sovereign kingdom under the protectorates of France and Spain. Cabo Verde was unpopulated until it was colonized by Portugal in the 15th century. The North African and Middle Eastern countries gained independence between 1922 (Egypt) and 1975 (Cabo Verde). In the 1990's Yugoslavia's constituent republics became sovereign states, Macedonia in 1991, Bosnia and Herzegovina in 1992, Montenegro in 2006, and most recently Kosovo (2008).

Modern forms of government in the hotspot are diverse. Most countries are Parliamentary republics. Algeria, Cabo Verde, Egypt, Syria and Tunisia are semi-presidential republics, while Jordan and Morocco are Constitutional monarchies.

6.2 National environmental governance

6.2.1 Environmental institutions and mandates

Every country in the region has institutions responsible for the management of natural resources and conservation of nature, but there is frequently a divide between Ministries or Departments responsible for conservation of biodiversity, those responsible for forestry and agriculture, and those responsible for other aspects of the environment such as water, waste management and licensing of exploitation. An integrated approach to management of the environment, which balances the needs of conservation with economic development, requires effective cooperation between these different authorities, something which often proves challenging. The situation is made more complex when some responsibilities are delegated to sub-national governments, while others (typically including management of protected areas) remain under the authority of central government institutions.

Decentralization of authority to lower levels of government is important because, in theory, it allows decisions to be made closer to the people (and environment) which are directly affected. In FYR of Macedonia, several municipalities manage protected areas, forests are managed by a public enterprise, and game management is also delegated to hunting associations. In Montenegro there is also some degree of decentralization, but National Parks remain with national government. In Morocco and Tunisia protected areas management has been delegated to sub-national levels of government.

In a few cases governments have used a different approach, delegating government powers to non-government organizations, for example in Jordan, where protected area management is handled by NGOs, and Lebanon and Algeria, where hunting associations manage ‘responsible hunting areas’.

6.2.2 Environmental law and policies

Environment in national constitutions

The national constitutions of the hotspot countries generally refer to the right of people to enjoy a healthy environment, and some make specific reference to key environmental issues or responsibilities of the state – for example the Egyptian constitution has an article on the river Nile, the constitution of Cabo Verde notes that the State should stimulate and support the creation of associations to defend the environment and protect natural resources, and Albania’s constitution defends a public right to be informed about the state of the environment and its protection. Only the oldest constitutions, such as those of Jordan and Lebanon, do not make any reference to the environment.

General environmental regulations

Environmental legislation and policy is diverse among the countries of the hotspot. The EU countries have a generally uniform and comprehensive body of legislation based on European environment directives, including aspects such as environmental impact and strategic environmental assessments, integrated pollution prevention and control, industrial emissions, waste and landfills, water quality and sewage, noise, natural disasters and the protection of species and sites. The implementation of these policies is supported by further directives on transparency, accounting, auditing, and management control, and freedom of access to information.

The non-EU countries in the Mediterranean Basin Hotspot are making significant progress in updating their environment policies and legislation. In the case of some Balkan states, this is motivated by their desire to become EU members, with FYR Macedonia, Montenegro and Albania updating their legislation as part of their moves towards accession, often with the assistance of EU technical advice.

Elsewhere in the hotspot the picture is more variable. Turkey and Bosnia-Herzegovina have less well developed policy frameworks, although Turkey has made moves to encourage multipurpose use of forests and has developed a detailed Desertification Model and Risk Map which shows that half the country is at risk from desertification. Recent changes in Macedonian legislation allow more efficient enforcement of environmental legislation.

In the Middle East and North Africa, all the countries have legislation allowing creation of nature reserves and conservation of wildlife, as well as soil and forest protection, but Algeria, Egypt, Morocco and Tunisia have progressed since 2000 in amending and updating their environmental laws (for example, Egypt has amended its Environmental Protection Law twice since 1994; Morocco has enacted two laws in 2003, on EIA and Environmental Protection). The most recent nature conservation laws in Libya were enacted in the 1990s, with laws on forest management and hunting even older. In Lebanon, new regulations banning land use change in forests aim to reduce burning.

Many Mediterranean countries have water policies but these are not always enforced in ways that sustain or protect biodiversity. The challenge of water management is not only limited to physical savings. It is also a matter of economic and social planning of exploited water taking also the needs of ecosystems into account via policies such as integrated river basin management. Several recent experiences have demonstrated the feasibility and the win-win impact, both economic and environmental, of such policies. Tunisia has implemented a national irrigation water-saving strategy which includes the creation of user associations, pricing aimed at progressive cost recovery, targeted financial instruments for water-efficient farming equipment, and support to farmer revenues. Since 1996, this policy has stabilized irrigation water demand despite agricultural development, and the needs of both the tourism sector (a source of foreign currency) and cities (a source of social stability) have been assured. In Morocco, improved water management in Rabat-Casablanca has delayed or perhaps completely avoided costly investments (dams, transfer canals) initially scheduled by the Master Plan of 1980.

Protected areas

All of the countries of the hotspot have declared protected areas as part of their efforts towards protecting the environment. The proportion of each country covered by PAs varies from less than 1% in Syria and Libya to over 17% in Albania and 30% in Morocco (Table 6.1). Morocco's large extent of protected areas is a result of the four large Biosphere Reserves and the extensive network of SIBE (Biological and Ecological Interest Sites).

Other countries have also declared sites under international conventions including Ramsar and the World Heritage convention (see Section 6.3). In Albania, Bosnia and Herzegovina, Macedonia, and Montenegro there are in total more than 130 sites inside the Emerald Network of sites of Special Conservation Interest under the Bern convention.

Table 6.1 Protected areas in the hotspot countries covered by the profile update (WDPA 2016; KEPA/KINP 2016)

Country	#Protected areas	Area of terrestrial Protected areas (km^2)	% country in terrestrial PA	PAME score[2]
Albania	59	4,948	17.2	51.7
Algeria	78	174,220	7.5	57.6
Bosnia and Herzegovina	35	817	1.6	54.9
Cabo Verde	7	108	2.6	42
Egypt	50	129,394	13.1	56.5
Jordan	30	1,483	1.7	51.8
Kosovo	173		11.6	[no data]
Lebanon	34	268	2.6	42.5
Libya	24	3,438	0.2	[no data]
Montenegro	8	562	4.1	58.4
Morocco	323	125,435	30.8	57.7
Palestine[8]	0	0	0	[no data]
Syrian Arab Republic	19	1,293	0.7	36.7
FYR Macedonia	78	2,456	9.7	38.3
Tunisia	101	8,425	5.4	55.6
Turkey	18	1,709	0.2	50.8
TOTAL	**541**			

[8] WDPA has no data on Palestine; unofficial references refer to forest reserves, a series of protected areas declared by Israel (World Database Protected Areas, Coad *et al.* 2015).

Protected area management

The impact of protected areas on the conservation of biodiversity depends not only on the legal creation of protected areas, but on how well they are protected and managed. The Protected Area Management Effectiveness index (PAME; Coad *et al.* 2015) is a standard approach adopted by agencies such as the World Bank and GEF which gives an indication of the quality of management of protected areas. The scores for countries covered by the ecosystem profile update (Table 6.1) are averaged from the results of assessments at a number of protected areas, but are not necessarily representative of the situation in the country as a whole. Scores are between 36% (Syria) and 58% (Montenegro), but overall the results suggest that protected areas management is having some impact on the conservation of sites, but requires considerable improvement to be fully effective. Elsewhere in the hotspot, Slovenia and Croatia achieve scores of more than 70%.

As noted in chapter 5, the Mediterranean region is rich in cultural landscapes, and much of the wild biodiversity relies on the maintenance of traditional management practices. Many traditional land management systems were lost during colonial times, but those that survive have been adopted by CSOs looking for models of community-based sustainable exploitation (see examples in Chatty 2006). Resource use is present in many protected areas in the hotspot, legally or illegally. In the centralized administrations of the Middle East and North Africa, protected areas legislation typically lacks provisions to make creative use of these traditional institutions and conservation practices, and offers little opportunity to involve local people in the establishment and management of protected areas, or to ensure the equitable sharing of benefits (and costs) from the use of protected areas with the local people (WCPA 2001). However there are several examples of delegation of management responsibility to NGOs (see Chapter 7), and this creates opportunities for more constructive engagement between protected areas and local communities.

Protected areas are frequently on or close to the borders of states, as these are the areas which are most inaccessible and so retain the best examples of wild biodiversity. Managing threats from across the border often poses a challenge to these PAs, however, and so transboundary cooperation can be important, and may involve declaration of two contiguous protected areas, one in each country. There are not many transboundary collaborations over protected areas management in the Mediterranean Basin Hotspot, but there is cooperation over the management of Prespa Lake (Albania, Greece, FYR Macedonia) (Avramoski 2004), and Skadar Lake, (Albania, Montenegro) (Hurrell 2014).

Protection of species

The national laws on hunting of wild animals were reviewed by BirdLife International (2015) and their findings form the basis of this section unless otherwise referenced.

In the Balkans, Albania has the most progressive legislation on hunting, with a complete hunting ban in place since March 2014, and a ban on trapping where it is unselective and causes mass killing. Montenegro also has relatively tight legislation, with hunting for 19 bird species permitted on Sundays and public Holidays only, and many forms of hunting banned. FYR Macedonia restricts hunting to 33 bird species, but there is a long open season. Trapping is illegal. The situation is less clear in Bosnia and Herzegovina there are two valid hunting laws, for the Federation of Bosnia and Herzegovina and for the Republika Srpska. Both are complicated and poorly understood by the hunters themselves. For several species listed as game (12 in Federation of Bosnia and Herzegovina and 33 in Republika Srpska), no hunting season is defined, so they can be hunted throughout the year. Trapping is prohibited by both laws. In Turkey, hunting is permitted for 27 species, with several methods banned.

All the Middle Eastern countries have regulations on hunting and trapping in place. In Jordan licensed hunting is permitted during certain seasons for 26 bird species, but no hunting season is cleared stated in the law. An annual Ministerial decision defines the duration of the season and quota. Shooting with unlicensed hunting guns, from a moving vehicle and use of electronic birds calls and decoys are illegal, as are trapping and falconry. In Lebanon a complete hunting ban was put in place in 1995, with trapping for pest species only. A new law issued in 2004 refined the ban, but the hunting season re has not yet been opened by the required Ministerial decision. Palestine enacted a hunting law in 2000, but it has not been implemented. Syria had a complete hunting ban in 1994, with trapping allowed only for pest species.

A similar situation prevails across North Africa, with strong legislation and some controlled hunting allowed. Algeria has comprehensive legislation, and hunting was banned in 1994 but is tolerated in some areas. A new (2004) hunting law revised the ban but has not been implemented. Trapping is also banned. In Egypt hunting is permitted in certain seasons for 24 bird species, with the season and species list determined by an annual Ministerial Decree. Prior to the civil war in Libya hunting was illegal, but it is currently unclear what the regulation is. In Morocco, the game species list is defined by genus, not species, resulting in a long list (73) of species that may be hunted during the open season. Trapping and all hunting methods are allowed for pests, with landowners given the right to determine what species constitute pests on their land. Tunisia allows hunting of a defined list of species, and allows some exceptions to the protected species list for the taking of falcons.

6.2.3 Policy implementation

The quality of environmental management ultimately depends not only on good laws and policies, but on the effectiveness of policy implementation. The difference between official intentions, as reflected in policies and laws, and actual conditions on the ground is determined by funding, institutional co-operation, conflicts over land and resource rights, levels of knowledge and skills to implement policies. The challenges of policy implementation are made worse when there is corruption and weak rule of law (Mansourian 2012). The political importance given the environment by leaders can also have a major influence on how seriously environmental policies and laws are implemented. In recent years political and humanitarian issues have pre-occupied the short-term planning of many national governments in the region, to the detriment of long-term thinking about the environment.

Corruption is a global problem which distorts effective decision making and implementation by conflating personal and public interests, and by undermining confidence in key institutions such as the judiciary and the government. Corruption also tends to restrict civil society and undermine democracy. The Corruption Perceptions Index (Wilhelm 2002) gives an indication of the level of corruption in public institutions in a country (Table 6.2). Cabo Verde and Jordan emerge as the least corrupt among the countries covered by the ecosystem profile update but, even here, the score is only average. Other North African and Middle Eastern countries score lower: from 16 (Libya) to Tunisia (38).

Bad governance could be an obstacle for some process like climate change adaptation or mitigation. For instance, Komendantova and Patt (2011) stress the fact that the main barriers for investment in renewable energy in North Africa have an important policy component (political stability, lack of support from local governments, instability of national regulations, complexity and corruption in bureaucratic procedures, absence of guarantees). NGOs have noted a lack of transparency in the process used to select country investment plans on ‘nationally appropriate mitigation actions’ (NAMAs), and have called for greater involvement from civil society in the development of investment plans (Osornio *et al.* 2011). Of special importance are the policy issues regarding transboundary water-sharing that could affect regional conflicts because although corruption does not lead competition for water to escalate into conflict, it can precipitate the collapse or block the establishment of water-sharing arrangements (Solarte *et al.* 2008).

Table 6.2 Corruption Perceptions Index scores for the countries covered by the profile update

Country	CPI score 2015 (0 = highly corrupt, 100 = very clean)	Rank (position among 168 countries globally)
Cabo Verde	55	40
Jordan	53	45
Montenegro	44	61
The FYR of Macedonia	42	66
Turkey	42	66
Bosnia and Herzegovina	38	76
Tunisia	38	76
Albania	36	88
Algeria	36	88
Egypt	36	88
Morocco	36	88
Kosovo	33	103
Lebanon	28	123
Syria	18	154
Libya	16	161
Palestine	[no data]	[no data]

6.3 International environmental agreements

6.3.1 The biodiversity conventions

Seven international conventions focus specifically on biodiversity issues (Table 6.3): the Convention on Biological Diversity (CBD), the Convention on Conservation of Migratory Species (CMS), the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), the International Treaty on Plant Genetic Resources for Food and Agriculture (IT PGRFA), the Ramsar Convention on Wetlands (Ramsar), the World Heritage Convention (WHC) and the International Plant Protection Convention (IPPC). The status of accession/ratification by the hotspot countries covered by the ecosystem profile update, along with the number of site declared under the Ramsar and World Heritage conventions, is shown in Table 6.3.

Signatories to the main biodiversity conventions are committed to achievement of the Aichi targets. In the terrestrial realm this includes 17%, and in the marine realm, 10 % of coastal and marine areas are conserved through effectively and equitably managed, ecologically representative and well-connected systems of protected areas and other effective area-based conservation measures, and integrated into the wider landscapes and seascapes.

Convention on Biological Diversity (CBD)

The CBD is concerned with the conservation of biodiversity, its sustainable use, and fair and equitable sharing of benefits from use of genetic resources. It has subsidiary agreements on biosafety (the Cartagena Protocol) and access and benefit sharing (the Nagoya Protocol). The convention has adopted a 2011-2020 Strategic Plan which has five strategic goals implemented thought the achievement of the 20 ‘aichi targets’, which include (Target 11) that 17% of terrestrial/inland waters and 10% of coastal and marine areas should be managed for conservation. Parties to the convention prepare five-yearly National Biodiversity Strategy and Action Plan (NBSAP) documents, and submit annual reports to the convention. Under the CBD, 15 Ecologically or Biologically Significant Marine Areas (EBSAs) have been defined for the Mediterranean.

Table 6.3 Status of the biodiversity conventions in the countries covered by the profile update

Country	CBD (inc. Nagoya protocol)	Ramsar[2]	CMS	AEWA (CMS)	Raptor MOU (CMS)	CITES	UNESCO WHC[4]	IT PGRFA	IPPC
Albania	X*	4	X	X	-	X	0	X*	X
Algeria	X[1]	39	X	X	-	X	0	X*	X
Bosnia and Herzegovina	X*[1]	2	-	-	-	X	0	-	X
Cabo Verde	X[1]	4	X	-	-	X	0	X*	X
Egypt	X	2	X	X	X	X	0	X	X
Jordan	X	0	X	X	-	X	1	X	X
Kosovo	-	-	-	-	-	-	-	-	-
Lebanon	X[1]	4	-[3]	X	X	X	0	X	X
Libya	X[1]	2	X	X	X	X	0	X	X
Montenegro	X[1]	2	X	X	-	X	0	X*	X
Morocco	X[1]	21	X	X	X	X*	0	X	X
Palestine	X*	-	-	-	-	-	0[5]	-	-
Syrian AR	X	1	X	X	X	X	0	X	X
FYR Macedonia	X*[1]	2	X	X	-	X	1	X*	X
Tunisia	X[1]	38	X	X	X	X*	1	X	X
Turkey	X[1]	10	-	-	-	X	1	X	X

Notes: CBD = Convention on Biological Diversity; Ramsar = Convention on Wetlands of International Importance; CMS = Convention on the Conservation of Migratory Species of Wild Animals; AEWA = Agreement on the Conservation of African-Eurasian Migratory Waterbirds (under the CMS); Raptor MOU = Memorandum of Understanding on the Conservation of Migratory Birds of Prey in Africa and Eurasia (under the CMS); CITES = Convention on International Trade in Endangered Species of Wild Fauna and Flora; UNESCO WHC = World Heritage Convention; IT PGRFA = International Treaty on Plant Genetic resources for Food and Agriculture; IPPC = International Plant Protection Convention; X, or a number = contracting party/signatory; X* = acceded but not ratified the convention; - = not a contracting party/signatory; 1 = these states are not parties to the Nagoya protocol on access and benefit sharing; 2 = figures are the number of Ramsar sites within the hotspot in each country, for parties to the convention; 3 = Lebanon is not a Party to the main CMS agreement but is a signatory of the Raptors MOU and AEWA; 4 = figures are the number of natural or mixed natural and cultural world heritage sites within the hotspot, for parties to the convention; 5 = the UNESCO WHC is the only biodiversity convention to include Palestine.

Ramsar Convention

The Ramsar Convention provides a framework for national action and international cooperation on the conservation and wise use of wetlands. All the countries in the hotspot except Kosovo and Palestine are contracting parties to the convention. 131 wetlands of international importance have been listed under the convention by the hotspot countries covered by the ecosystem profile update, three-quarters of them in three North African countries: Morocco, Algeria and Tunisia. The convention has been less widely used in the other countries, with Jordan having no Ramsar sites in the hotspot (and only one in the country), Turkey having 10, and the other countries having two or four sites each.

Three of the sites are listed on Ramsar's Montreux record of sites where a detrimental change in ecological character has or is likely to take place. These are Ichkeul, Tunisia, threatened by dam construction, and the two Ramsar sites in Egypt, Lake Burullus and Lake Bardawil, threatened by pollution and siltation.

Convention on the Conservation of Migratory Species of Wild Animals (CMS, or the Bonn Convention)

Eleven of the 16 countries covered by the ecosystem profile update are parties to the CMS, non-party countries and territories are Bosnia and Herzegovina, Kosovo, Palestine, Lebanon and Turkey. Lebanon is, however, a Party to the AEWA and has signed Raptors MOU.

Under the CMS, two mechanisms are of particular importance for the Mediterranean region, the AWEA, and the Raptors MOU.

The **Agreement on the Conservation of African-Eurasian Migratory Waterbirds** (AEWA) is an intergovernmental agreement for the conservation of migratory waterbirds and their habitats. Eleven of the 16 hotspot countries covered by the ecosystem profile update are contracting parties. Parties are legally bound by the AEWA Action Plans, which outline the species and habitat protection measures, management of human activities, and supporting activities such as research and monitoring. Action Plans of particular relevance to the Mediterranean Basin Hotspot are:

- The AEWA Plan of Action for Africa (2012-2017), which contains actions and targets for the delivery of the five objectives of the AEWA Strategic Plan in Africa. The plan applies to North Africa countries in the hotspot - Morocco, Algeria, Tunisia, Libya, and Egypt - and requires contracting parties to undertake a series of practical and management actions to improve the conservation status of water birds, ensure any use of water birds is sustainable, and improve knowledge, communication, and capacity.
- The Plan of Action to Address Bird Trapping Along the Mediterranean Coasts of Egypt and Libya9, finalized in 2014, with implementation facilitated by an International Task Force, aims to address an apparent upsurge in the trapping of migrants birds as they arrive at the Mediterranean cost having crossed the Sahara or the Mediterranean Sea.

The **Memorandum of Understanding on the Conservation of Migratory Birds of Prey in Africa and Eurasia** ('Raptors MoU') has been signed by seven of the 16 hotspot countries covered by the ecosystem profile update (among 56 range states globally), all of them in North Africa and the Middle East: Egypt, Lebanon, Libya, Morocco, Syria and Tunisia. Signatories of the MOU agree to work together to maintain or improve the conservation status of migratory birds of prey.

[9] See illegalbirdkilling.aewa.info/, and Emile, W., Noor, N. and Dereliev, S. (compilers) 2014. Plan of Action to Address Bird Trapping along the Mediterranean Coasts of Egypt and Libya. Bonn, Germany.

Also under the CMS is the **Agreement on the Conservation of Populations of European Bats (Eurobats)**, which has been signed by 36 states including Albania, Montenegro and FYR Macedonia. Other hotspot countries covered by the ecosystem profile update are range states but have not signed. Parties commit to the protection of 53 species of bat which occur in Europe, through legislation, education and conservation measures.

In addition, the CMS has several working groups relevant to biodiversity in the Mediterranean Basin Hotspot:

- Migratory Land birds in the African-Eurasian Region (CMS COP Resolution 10.27)
- Minimizing the Risk of Poisoning to Migratory Birds (CMS COP Resolution 10.26)
- Working Group on Climate Change (CMS COP Recommendation 5.5, developed by subsequent Resolutions 8.13, 9.7 and 10.19).
- Working Group on Flyways (CMS COP Resolution 9.2, reinforced by Resolution 10.10 and 11.14).

Other agreements under CMS concern one or few species or they are relevant for only a part of the hotspot.

- Slender-billed Curlew MoU, aims the conservation and recovery of slender-billed curlew. Albania, Croatia, Cyprus, Egypt, Greece, Italy, Morocco and Spain are signatories of the MoU, while Algeria, Bosnia and Herzegovina, Malta, Tunisia and Turkey are in the range of the species.
- Atlantic Turtles MoU, concerns Atlantic African countries and both Cabo Verde and Morocco are signatories, while Portugal and Spain are range states.
- Aquatic Warbler MoU. It aims to safeguard aquatic warbler (*Acrocephalus paludicola*), the rarest migratory songbird in Europe. France and Spain are signatories, and Portugal and Morocco are range states.
- MoU concerning Conservation Measures for the Eastern Atlantic Populations of Mediterranean monk seal. Morocco, Portugal and Spain, together with Mauritania, are the only countries concerned by this agreement and all the three are signatories.
- Western African Aquatic Mammals MoU aims to achieve and maintain a favorable conservation status for manatees and small cetaceans of Western Africa and Macaronesia. Cabo Verde and Portugal are signatories, and Morocco and Spain are range states.
- MoU on the Conservation of Migratory Sharks is the first global instrument for the conservation of migratory species of sharks. All the coastal countries are concerned by this treaty, although only Egypt, the EU, Jordan, Libya, Monaco, Portugal and Syria have signed.

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

All the countries covered by the ecosystem profile update have acceded to CITES, although only Morocco and Tunisia have ratified the convention. CITES aims to ensure that trade does not threatened the survival of species, and is the principal global forum for negotiating limits on the international trade in wild species. 655 species from the hotspot countries covered by the profile update are currently listed in the appendices of CITES, the vast majority on

Appendix II (species where trade is controlled to avoid unsustainable utilization), but with 50 on Appendix I (trade prohibited).

Table 6.4 Number of species recorded from hotspot countries covered by the profile update listed in each of the CITES appendices

Taxon	Appendix			Total
	I	II*	III	
Plants	0	126	0	126
Vertebrates	50	164	12	226
Invertebrates	0	303	0	303
TOTAL	**50**	**593**	**12**	**655**

Notes: * = includes six species listed as Appendix I/II.

World Heritage Convention

All the countries in the hotspot, except Kosovo, are parties to the World Heritage Convention. They have declared 14 natural World Heritage Sites within the borders of the hotspot, but only four of these are in countries covered by the ecosystem profile update, in Jordan, FYR Macedonia, Tunisia and Turkey. There are large numbers of cultural World Heritage sites in North Africa and the Middle East, but the WHS mechanism has not been widely used for conservation of natural sites.

International Treaty on Plant Genetic resources for Food and Agriculture (IT PGRFA)

This treaty aims to enable farmers to access plant genetic resources, and to ensure that the countries of origin of these resources benefit from their use, anywhere in the world. The treaty explicitly recognizes and supports the importance of maintaining the diversity of local agricultural crops and varieties. Eight of the countries covered by the ecosystem profile update have ratified the convention, and another five have acceded or signed but not yet ratified.

International Plant Protection Convention (IPPC)

The IPPC aims to prevent the introduction and control the spread of pests of plants and plant products, and promotes sharing of information and collaboration between states to achieve this. Recognizing the importance of wild species, one of the four objectives of the convention’s 2012-2019 strategy is ‘to protect the environment, forests and biodiversity from plant pests’ (i.e., invasive alien species which are plants). Fourteen of the 16 countries covered by the ecosystem profile update have ratified the convention.

6.3.2 Other relevant global conventions and programs

UN Convention on Combating Desertification (UNCCD)

UNCCD is a legally binding international agreement addresses social and environmental challenges in arid, semi-arid and dry sub-humid areas (‘drylands’), with the aim of preventing desertification and mitigating the impacts of drought in support of poverty reduction and environmental sustainability. As the issues addressed by the convention are strongly linked to climate change and biodiversity, the convention collaborates with the UNFCCC, and the CBD. All of the countries covered by the ecosystem profile update are parties to the convention except Kosovo and Palestine.

Table 6.5 Status of environmental conventions in the countries covered by the profile update

Country	UNCCD	UNFCCC (Inc. Kyoto and Paris agreements)	UNCLOS	UNESCO MAB[1]
Albania	X	X	X	1[2]
Algeria	X	X	X	7
Bosnia and Herzegovina	X	X[4]	X	0
Cabo Verde	X	X[4]	X	0
Egypt	X	X[4]	X	0
Jordan	X	X	X	2
Kosovo	-	-	-	0
Lebanon	X	X[4]	X	3
Libya	X	X[4]	-	0
Montenegro	X	X[4]	X	1
Morocco	X	X	X	3[3]
Palestine	-	X	X	0
Syrian AR	X	X	-	0
FYR Macedonia	X	X[4]	X	1[2]
Tunisia	X	X[4]	X	2
Turkey	X	X[4]	-	0

Key: UNCCD = UN Convention on Combating Desertification; UNFCCC = UN Framework Convention on Climate Change; UNCLOS= UN Convention on the Law of the Sea; UNESCO MAB = UNESCO Man and Biosphere Program; X = contracting party/signatory; X* = acceded but not ratified the convention; - = not a contracting party/signatory; 1 = figures indicate the number of biosphere reserves declared in each country within the hotspot, including transboundary reserves. Figures in brackets indicate the number of transboundary reserves; 2 = Albania and FYR share a single transboundary biosphere reserve; 3 = Morocco shares one transboundary reserve with Spain; 4 = these countries have signed but not yet ratified the Paris agreement.

UN Framework Convention on Climate Change (UNFCCC)

The UNFCCC is the main international instrument for tackling climate change, including negotiating targets for emissions reductions. Important subsidiary agreements are the Kyoto Protocol, which establishes emissions reduction targets and guides emissions trading, and the 2016 Paris agreement, which forms a basis for current national level commitments to emissions reductions. Further information, including on the National Determined Contributions, are in Chapter 9 (Climate Change).

The UN Convention on the Law of the Sea (UNCLOS)

UNCLOS has been ratified by 12 of the 16 countries covered by the ecosystem profile update, with Kosovo, Libya, Syria and Turkey not represented. The convention provides guidelines on a wide range of issues concerning national territorial rights over coastal waters, rights of passage for shipping, and the management of ocean resources. Importantly in an environmental context, the convention has sub-agreements which require that states cooperate in the management of fish stocks found in open oceans and those which straddle Open Ocean and exclusive economic zone regions, through the operation of regional fisheries organization. One of these is the International Commission for the Conservation of Atlantic Tuna (ICCAT), which is focused on conservation of tuna and related species in the Atlantic and adjacent seas, including the Mediterranean. The 51 contracting parties include nine of the hotspot countries covered by the ecosystem profile update.

UNESCO Man and Biosphere program (MAB)

Governments of hotspot countries have declared 70 Biosphere reserves under the MAB within the hotspot, 19 of them in the countries covered by the ecosystem profile update, with the largest numbers in Algeria (seven) and Morocco (three). There are two transboundary biosphere reserves, in Albania/FYR Macedonia (Ohrid-Prespa), and Morocco-Spain (Inter-continental biosphere reserve of the Mediterranean).

The International Centre on Mediterranean Biosphere Reserves, established in 2014 in Spain (UNESCO 2016), aims to promote exchange and research cooperation across the Mediterranean.

6.3.3 Regional environmental agreements

Several regional environmental agreements and conventions provide a shared platform for cooperation on environmental issues in the region (Table 6.6).

Table 6.6 Parties to regional conventions in the Mediterranean Basin Hotspot

Country	Barcelona convention	Bern convention	ACCOBAMS agreement
Albania	X	X	X
Algeria	X		X
Bosnia and Herzegovina	X	X	-
Cabo Verde	-		-
Egypt	X		X
Jordan	-		-
Kosovo	-		-
Lebanon	X		X
Libya	X		X
Montenegro	X	X	X
Morocco	X	X*	X
Palestine	-		-
Syrian AR	X		X
FYR Macedonia	-	X	-
Tunisia	X	X*	X
Turkey	X	X	-

Notes: X = contracting parties/ratified; X* = acceded to the convention, not yet ratified.

The **Barcelona Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean** has nine protocols addressing specific aspects of Mediterranean environmental conservation. In particular, the Specially Protected Areas (SPA) and Biodiversity Protocol (1995) encourage the creation of SPA of Mediterranean Importance (SPAMI). In 2007 a Joint Management Action of the EC with the

UNEP/Mediterranean Action Plan (UNEP/MAP) started to promote the establishment of a representative network of marine protected areas in the Mediterranean open seas, through the SPAMI system. The proposals were incorporated into the definition of EBSAs under the CBD (see above), and are part of a strategy to reach the Aichi 2020 target for marine protected areas.

In February 2012, the signatories of Barcelona convention met to validate the "Paris Declaration" aiming in particular the reinforcement of the network of MPAs with the 10% objective in the Mediterranean by 2020 (Gabrié *et al.*2012).

The **Bern Convention on the Conservation of European Wildlife and Natural Habitats** aims to conserve wild flora and fauna and their natural habitats, as well as to promote European co-operation in this field. The Convention covers European and some North African countries. Among the countries covered by the ecosystem profile update, the Balkan states (except Kosovo), Turkey, Tunisia and Morocco are parties. Algeria and Cabo Verde have observer status at meetings. The Bern Convention launched the **Emerald Network** of Areas of Special Conservation Interest in states outside the EU (CoE 2016). In December 2015 there were sites nominated from: Albania (25), Bosnia and Herzegovina (29), Macedonia (35), Montenegro (32) and Morocco (11) (CoE 2015).

The **Agreement on the Conservation of Cetaceans in the Black Sea Mediterranean Sea and Contiguous Atlantic Area (ACCOBAMS)** is a binding agreement signed by nine of the hotspot countries covered by the ecosystem profile update, which requires contracting parties to take legislative and practical action to reduce deliberate persecution and bycatch of cetaceans.

Other regional institutions that have some impact on environmental affairs (Tabit-Aoul, 2011) include the Arab Maghreb Union (AMU), a platform for economic and political cooperation between the members, Morocco, Algeria, Tunisia and Libya, in the hotspot, and Mauritania. The union has promoted studies on underground water bodies in the Sahara, and the elaboration of a Maghreb charter on environmental protection and sustainable development.

6.4 Regional action plans and partnerships

A number of agreements and shared initiatives are within or centered on the Mediterranean region. They include formal political forums, multi-stakeholder platforms for joint action, and donor-led initiatives to encourage coordination and sharing.

The **Union for the Mediterranean (UfM)** consists of 28 European Union Member States and 15 countries from the Southern and Eastern shores of the Mediterranean to enhance regional cooperation and dialogue in the Euro-Mediterranean region. It promotes activities with a direct impact on the lives of people, including some priorities areas with relevance to the ecosystem profile, such as social affairs, research, urban development water and environment, and climate action.

The **Global Water Partnership (GWP)** aims at improving water security globally, through improved governance and management of water resources for sustainable and equitable development. GWP has a regional approach. All the countries in the hotspot belong to the GWP-Med, except Slovenia and Cabo Verde, which belong to the East Europe and West Africa regions, respectively.

The **Network of Marine Protected Area Managers in the Mediterranean (MedPAN)** counts eight founding members, 57 members and 37 partners from 18 Mediterranean countries: Albania, Algeria, Croatia, Cyprus, Egypt, France, Greece, Israel, Italy, Lebanon, Malta, Morocco, Monaco, Montenegro, Slovenia, Spain, Tunisia and Turkey. Members and partners include CSOs and networks, government bodies (national and regional governments, departments, national park authorities of committees) and international organizations.

The **United Nations Environmental Program/Mediterranean Action Plan (UNEP/MAP)** for the Protection of the Marine Environment and the Sustainable Development of the Coastal Areas of the Mediterranean, adopted in 1995, aims to:

- Ensure the sustainable management of natural marine and land resources and to integrate the environment in social and economic development, and land-use policies.
- Protect the marine environment and coastal zones through prevention of pollution and by reduction and, as far as possible, elimination of pollutant inputs, whether chronic or accidental.
- Protect nature, and protect and enhance sites and landscapes of ecological or cultural value.
- Strengthen solidarity among Mediterranean coastal States in managing their common heritage and resources for the benefit of present and future generations.
- Contribute to the improvement of the quality of life.

The **GEF Strategic Partnership for the Mediterranean Large Marine Ecosystems (LME)**, implemented by UNEP and the World Bank, responds directly to priorities of the countries of the Mediterranean Sea basin as identified in the Transboundary Diagnostic Analysis (TDA), and agreed interventions as outlined in the two Strategic Action Plans, SAP-BIO and SAP-MED.

7. CIVIL SOCIETY CONTEXT OF THE HOTSPOT

7.1 Introduction

CEPF's definition of civil society includes many kinds of NGOs and voluntary organizations, philanthropic institutions, social movements, private businesses, media and professional organizations and cooperatives. These groups may be international, national or local. This broad definition is pragmatic, because most CSOs cannot be neatly classified by type or activity. Conservation NGOs frequently implement community empowerment and development activities in order to achieve their conservation goals. Conversely, NGOs working for community and economic development may align with global environmental movements and ideas. Moreover, both conservation and development CSOs also use advocacy to influence key agendas, such as land and social reform, in pursuit of their objectives. The line between profit and nonprofit is similarly blurred. Private sector companies establish their own nonprofit organizations to conduct Corporate Social Responsibility (CSR) programs, and these NGOs may work on many of the same issues as other CSOs, from charity to micro credit and planting trees to natural disaster relief.

In most countries of the hotspot there are examples of the work of (1) international CSOs that are based outside the hotspot but work within it (e.g., WWF, IUCN), (2) regional CSOs which are based in one hotspot country but also work in other hotspot countries (e.g., Medmaravis, Medasset and Tour du Valat), (3) national CSOs working within their own country, and also (4) local CSOs working on specific sites or within specific regions. There are multiple networks and collaborative relationships within and between these four groups, based on shared objectives, funding or exchange of skills and knowledge, and many initiatives for cross-border cooperation in nature conservation and sustainable development.

CSOs face two main areas of challenges in their work: the external legal and policy environment, which is becoming more difficult in some cases; and their own capacity, including resources and skills.

7.1.1 Legal and policy environment for CSOs in the hotspot[10]

Balkans sub-region

The Balkan countries within the hotspot are members of the Council of Europe[11] and thus parties to the Convention for the Protection of Human Rights and Fundamental Freedoms, which secures the right of association.

Civil society organizations in **Albania** are legally defined in the Civil Code adopted in 1994 and amended in 2001, and CSOs are regulated by laws enacted in 2001 on non-profit organizations and NGOs registration[12]. This legal framework allows for a relatively simple process of registration and lays down the functional rules for CSOs. An important development was the creation of the Civil Society Support Agency in 2009. The Agency is a public law entity managed by a supervisory board that distributes grants to NGOs. However,

[10] Unless other sources are mentioned, the information comes from the International Center for Not-for-Profit Law (icnl.org)

[11] Kosovo is not a member.

[12] Law No.8788, date 7.5.2001 on Nonprofit Organizations, as amended in 2008 and Law No. 8789 dated 07.05.2001 on the Registration of Nonprofit Organizations.

the amount of funding is very limited, and there have been allegations that the agency awards grants to organizations which have links to government and or political parties.

Despite this generally positive environment, CSOs report lack of clarity on specific financial issues, such as the tax-exempt status of grants, and difficulties in securing reimbursement of value added tax (VAT), for example in the case of EU funded grants. This causes financial difficulties for CSOs, and has been blamed for a low rate of applications for EU funding from CSOs in Albania.

NGOs in **Bosnia and Herzegovina** act on the basis of the Law on Associations and Foundations, which regulates the establishment, internal organization, registration, and termination of associations and foundations, as well as other issues of importance for the free and voluntary association of citizens and legal entities. The formation of associations and foundations need at least 3 people.

The Constitution of the Republic of **Kosovo**, established in 2008, guarantees freedom of association and includes the right of everyone to establish an organization without obtaining any permission, to be or not to be a member of any organization, and to participate in the activities of an organization.

In **FYR Macedonia** funding for CSOs is distributed by government (between US$3.7-5.4 million per year), based on an annual plan, and includes funding for NGOs working on European integration processes. The government has a strategy and a unit for cooperation with NGOs**.**

The constitution of **Montenegro** guarantees civil rights and liberties, including freedom of association. In mid-2011, a new law on non-governmental organizations (number 39/11) was adopted, effective from January 2012. The law is harmonized with international standards (Convention on Human Rights of the Council of Europe and Recommendation CM / Rec (2007) 14 of the Committee of Ministers to member states on the legal status of NGOs in Europe) and the European Court of Human Rights. In addition, the law contributes to the strengthening of good governance and increased transparency in the work of NGOs.

Turkey sub-region

Since 2004, **Turkey** has improved the environment for CSOs, allowing easier access to foreign funding, partnerships or activities, with the previous repressive oversight by the authorities removed. In the middle of the instability created by disturbances and conflicts in 2015, the government outlined an Action Plan to, among other measures, enhance the civil society environment. It is not yet clear how recent political changes could affect this Action Plan.

Middle East sub-region

All the hotspot countries in the Middle East and North Africa are members of the Arab League (formerly the League of Arab States), though Syria has been suspended since 2011. Since the adoption of the Arab Charter on Human Rights in 2004, recognizing the right of association, and in particular since the 2011 Arab uprisings, CSOs have sought to promote human rights in the Arab region through the Arab League. The League has shown increasing willingness to address critical issues facing the Arab world jointly with civil society, and declared 2016-2026 the Decade of Arab CSOs (ICNL 2013). The charter of the Decade initiative, which was developed in cooperation with the UNDP, explicitly recognizes the role

CSOs play in sustainable development, and aims to develop a more favorable environment for Arab CSOs to play that role more effectively.

Jordan's Law on Societies (2008), amended in 2009, improved the environment for associations and NGOs in comparison to the previous 1966 law. However further amendments were proposed in 2016 which, if enacted, would restrict the legal environment for CSOs, requiring at least 50 founders to establish a CSO, providing the government with broad discretion to dissolve a CSO, imposing new requirements on branch offices of international organizations, and placing new restrictions on the foreign funding of Jordanian CSOs (ICNL 2013a).

Since 2000 **Lebanon** has established one of the most enabling legal and regulatory environments for civil society in the Arab world, with a focus on improved implementation. However the lack of a public funding for NGOs makes them vulnerable to becoming dependent on private funders and utilized for political or sectarian purposes (ICNL 2013b).

Palestine has a strong tradition of civil action and a diverse CSO community, with NGOs having a history of providing essential social services. Earlier government attempts to control NGOs were successfully resisted, leading to an NGO law passed in 2000 that was the 'least restrictive in the middle east' (ICNL 2013c). However NGOs have been caught up in the political struggles within the Palestinian state, with arbitrary dissolution of NGOs perceived to be supporting rival groups. In 2015 and 2016, there were further efforts to monitor and control the financial affairs of NGOs.

In **Syria**, security in the present civil war is a major concern for CSOs. In addition, counter-terrorism legislation and onerous reporting requirements are imposed by donors who are fearful of legal problems in their home countries if funds are misused (ICNL 2016). These restrictions have limited the freedom and effectiveness of NGOs.

North Africa sub-region

The **Algerian** Constitution establishes the right to form associations and mandates the State to encourage a flourishing voluntary movement. However the Law on Associations of 2012 created additional restrictions on the freedom of association, and gives the government broad discretion to refuse to register associations, to suspend an association's activities or to dissolve it, as well as to place restrictions on the association's founders. This makes it difficult for associations to receive foreign funds. Despite this legal framework, CSOs in Algeria are participating in some national and international programs aiming to develop CSO capacity and to increase their impact on the ground.

The Constitution in **Cabo Verde** establishes the basis for the freedom of association and in particular, article 70 encourages the State and the municipalities to collaborate with associations for environment protection, to adopt policies for the protection and conservation of the environment, to ensure the rational utilization of all natural resources, and to stimulate and support those associations.

In **Egypt** a new law was recently approved (September, 2016) which removes some of the restrictive elements of the previous (2002) Law on Associations and Foundations, but maintains broad government authority over civil society, including the power to reject an organization's registration, constrain its activities, become involved in its internal governance, and restrict its access to funding, particularly foreign funding (ICNL 2013).

Before the Arab spring, the regulations related to association in **Libya** were very strict and the activities of CSOs very controlled. Since 2011, the law has become more flexible, allowing establishment of environmental NGOs with a special mission for conservation. In practice, the security situation is the main issue constraining the activities of civil society organizations.

Recent reforms in **Morocco**, since King Mohammed VI ascended to the throne in 1999, have included the adoption of a new civil society policy (2003) with regulations that defined the relationship between the State and CSOs, including facilitating their access to public funding. This has encouraged several Ministries to develop CSO support programs, among them the Ministry of Environment. The launching of the National Initiative for Human Development in 2006 contributed to opening new opportunities for Moroccan CSOs in several fields including environment. The new constitution of 2011 strengthened the role of associations in formulation of strategies and actions plans and in the political, social and environmental life of the country. As a result, Moroccan civil society has undergone substantial development and is considered a key player in the country's current development process.

Since 2011, the CSO landscape in **Tunisia** has completely changed. The new law of 2011 on the organization of associations followed by the adoption of the new constitution in 2014 has strengthened the role and widened the opportunities for CSOs in Tunisia. Article 6 of the Law indicates that it is forbidden for public authorities to hinder or obstruct the activities of associations in a direct or indirect manner, although recent terrorist issues have led to some tightening of restrictions on funding. Several international organization are implementing CSO support programs in Tunisia in collaboration with national authorities.

7.2 Overview of environmental civil society organizations

The opportunities for civil society to raise the profile of environmental issues, and contribute to addressing them, has generally increased, especially in those countries affected by the political changes collectively known as the "Arab Spring" after 2010. There are still only a small number of environmental NGOs in the countries covered by the ecosystem profile update, and even fewer are active in biodiversity issues (inventory, monitoring, protected areas management, and direct conservation measures). GEF focal points in the governments of each country provide a contact point between GEF, government and civil society.

In addition to the NGOs, academic and research institutions, and private sector organizations reviewed in the sections below, there are local associations for development that also include aspects of sustainability and frequently, the conservation of biodiversity, forest, wetlands and soils. These associations are frequently active only at the village level, and are found throughout the whole hotspot in many different forms.

7.2.1 NGOs

Balkans sub-region

As noted in section 7.1.1, there are no significant legal restrictions on the work of biodiversity CSOs in the Balkans. Limits on the effectiveness of CSOs are more a result of the geographical concentration of CSOs in capital cities, dependence on foreign donor support, limited internal capacity (see section 7.4), and mixed relationships with government which are often colored by a lack of trust on both sides. In addition, networking and cooperation between CSOs, and between CSOs and private sector organizations, is typically poor.

Albania has an number of organizations linked to environment, among them Protection and Preservation of Natural Environment in Albania (PPNEA), Institute for Nature Conservation of Albania (INCA), Regional Environment Centre (REC), Albanian Society for the Protection of Birds and Mammals (ASPBM), Albanian Ornithological Society (AOS), Albaforest, Eco-Albania, Agro-Environmental and Economic Management Centre (AEEM), EDEN, Association for Protection of Aquatic Wildlife Albania (APAWA), Ekolevizja, Albanian Alps Alliance, EcoNORD.

CEPF made grants to 8 national and local CSOs in Albania during the first phase, INCA, PPNEA, AEEM, URI, Albaforest, IEP, ASPBM (listed above), and Iniciativa e Grave në Punë – The Women At Work Initiative (TWAWI).

Bosnia and Herzegovina's main CSOs are Ornithological society (Our Birds, Ornitološko društvo Naše Ptice), and Centre for Nature Protection, while NGOs within the hotspot include Udruga naša baština, Centar mladih Livno, Čaplja, Neretva Delta Forum, ŠREK Vidra, Referentna Grupa, Eko Most, Viridis, Via Dinarica, Anguila, Močvara.

CEPF made grants to 6 national and local CSOs in Bosnia and Herzegovina during the first phase: Center for Karst and Speleology (CKS), Society for Biological Research and Protection of Nature (BIO.LOG), Institute for Adriatic Crops and Karst Reclamation (IAC), Hrvatska Ekološka Udruga (BUNA), the Mountain Rescue Service of Herzegovina (Hercegovačka Gorska Sluzba Spasavanja), and Naše Ptice.

Kosovo's main environmental CSOs include Ecological Association Eko Viciana, Association for Protection of Birds and Mammals, Environmentally Responsible Action (ERA) group, Kosovo Environmental Education and Research Center (KEERC).

FYR Macedonia's environmental NGOs include the Macedonian Ecological Society (MES, the BirdLife Partner in FYR Macedonia), which has an academic and advocacy role; Society for the Investigation and Conservation of Biodiversity and the Sustainable Development of Natural Ecosystems (BIOECO), Bird Study and Protection Society of Macedonia, Front 21|42, Eko-Svest, Ohrid SOS, Biosfera, Natyra, Grashnica, Macedonian Limnological Society, and Milieukontakt Macedonia. The Regional Environment Center is also active in the country.

CEPF made grants to four national and local CSOs in FYR Macedonia during the first phase, MES; GAUSS Institute – Foundation for New Technologies, Innovations and Knowledge Transfer; Grashnica; and Front 21/42.

CSOs in **Montenegro** are represented at a national level by Green Home, Montenegrin ecologist society (MES), Centre for Protection and Research of Birds (CZIP, the BirdLife Partner in Montenegro) and by Green Step at a local level.

CEPF made grants to five national and local CSOs in Montenegro during the first phase, Institute for Entrepreneurship and Economic Development, CZIP, Green Home, The Network for the Affirmation of NGO Sector, and MES.

Turkey sub-region

Turkey has a diverse and active civil society community. CSOs active on environmental issues in the hotspot include national organizations such as the Doğa Derneği/BirdLife Turkey, the Nature Society, WWF Turkey, Buğday Society, Mediterranean Conservation

Society, TEMA, Rural Environment Association, ÇEKÜL, Nature Research Society, Nature Conservation Centre and the The Foresters' Association of Turkey. Local groups include North Forest Defence, South Marmara Protection of Natural and Cultural Environment Association, Çanakkale Ecological Life Initiative, Cittaslow Turkey, and Antakya Nature Conservation Society. Marine-focused conservation organizations include Underwater Research Society, Turkish Marine Environment Protection Society, and TÜDAV.

Middle East sub-region

The Middle East's environmental NGO community has traditionally been characterized by a small number of often quite well-established organizations, often with close relations with government and a clear mandate for their actions. Despite this they may lack secure independent funding. The Arab Spring has allowed a more diverse NGO community to develop, and has provided NGOs with the opportunity to have bigger roles and greater support from national governments, bringing challenges and risks as well as opportunities for the environmental community.

Jordan has several important foundations, including Jordan River Foundation, The Jordanian Hashemite Fund for Human Development (JOHUD), King Hussein Foundation and Noor Al Hussein Foundation. The main environmental NGOs are The Royal Society for the Conservation of Nature (RSCN, BirdLife partner in Jordan), which is in charge of the management of most protected areas, the Jordan Environment Society, Friends of the Environment, The Jordanian Society for Desertification Control and Badia Development, The Jordanian Society for Animal Protection, Energy Conservation and Environmental Sustainability Society, Arab Group for the Protection of Nature, Jordan Renewable Energy Society, The Jordanian Society for Sustainable Development, and the Jordanian Climate Change and Environment Protection Society.

CEPF made grants to 4 national and local CSOs in Jordan during the first phase, to RSCN, The United Society for Developing Water Resources and Environment, Bab Assalam Women's Cooperative, and Sweimeh Association Charity.

In **Lebanon**, 46 CSOs are members of the Lebanese Environment Forum (LEF), formed in 1992 to promote coordination among members, liaison with government, and the formation of new environmental organizations in Lebanon. Members include national organisations such as the Society for the Protection of Nature in Lebanon (SPNL, the BirdLife partner in Lebanon) and the Association for Forests, Development and Conservation, as well as groups focused on specific sites such as the Cedar Friends Committee, Al-shouf Cedar reserve, the Association for the Protection of Jabal Moussa. There are also groups with a broader environment and development focus, such as Development for People and Nature Association, and the Human Environmental Association of Development. T.E.R.R.E. Liban focuses on environmental education. The LEF is a member of the steering committee of the Environmental Fund for Lebanon, a government fund supported by the government of Germany.

CEPF made grants to four national and local CSOs in Lebanon during the first phase, to the LEF, SPNL, the Al-Shouf Cedar Society, and Environment For Life, as well as two Universities: the Arts, Sciences and Technology University, and Université Saint-Joseph de Beyrouth.

In **Palestine**, the Palestine Wildlife Society (BirdLife Partner in Palestine) is one of the main conservation organizations in the Territories. At a local level, there is also the Environmental Education Center.

In **Syria**, The Syrian Society for the Conservation of Wildlife (SSCW) is a pioneering organization that works for wildlife conservation in partnership with the national authorities to ensure the protection of all biodiversity.

North Africa sub-region

The environmental NGO community in North Africa has historically been rather weak, making a relatively small contribution to conservation. At the same time academic organizations have focused more on scientific research than applied work. There is a lack of confidence between government institutions and NGOs which continues to limit opportunities for interaction in some cases. Following the events of years 2011-2012 collectively referred to as the Arab Spring, the environment for NGOs has become more supportive in some countries, more restrictive in others.

Algeria has a number of local organizations and some NGOs act at a National level too: Association de Réflexion, d'Échanges et d'Actions pour L'Environnment et le Développement (AREA ED), Association des femmes pour l'économie verte, Mouvement Ecologique Algérien (MEA).

CEPF made grants to 4 national and local CSOs in Algeria during the first phase, to local group Association Promotion des Femmes Rurales de Wilaya de Skikda, AREA ED, the research laboratory "Ecologie des Systèmes terrestres et Aquatiques", Zahera Souidi.

Cabo Verde has a relatively small CSO community, including national organizations Cabo Verde Natura 2000, Fundação Tartaruga (both focused on marine turtle conservation), Bios.CV (marine turtles, birds and cetaceans), Biosfera 1, and local organisations Associação Amigos do Calhau, which focuses on environmental conservation, awareness and community involvement on the island of São Vicente; Estância de Baixo (on Boa Vista), and local community organisations.

CEPF made grants to 2 national and local CSOs in Cabo Verde during the first phase, to BIOS.CV and Biosfera 1.

Egypt has a rather small environmental NGO community. BirdLife International affiliate Nature Conservation Egypt (NCE) and the Arab Office for Youth and Environment have a national scope.

Libya has a number of CSOs, including Libyan Society for Birds (LSB), Libyan Wildlife Trust (LWT), Al Hayet Society for Wildlife Protection (Derna), Libyan Society for Artisanal Fishery Friends, Tree Friends Association, Libyan Marine Biology Society, Bado Society For Environment, O2 Oxygen or Society for Environment Protection,

Libya has been eligible for CEPF grants since 2013, and grants were made to 2 national and local CSOs in Libya, LSB and LWT, during the first phase. The security situation in Libya improved since early 2015, allowing CSOs to implement more activities safely in certain areas. CSO activity and capacity remains low, however.

In **Morocco**, the number of environmental associations reached 3500 in 2016, and at national level includes Association Marocaine pour l'Ecotourisme et la Protection de la Nature (AMEPN), Association de Gestion Intégré des Ressources (AGIR), Groupe de Recherche pour la Protection des Oiseaux au Maroc (GREPOM), Moroccan Association for Biodiversity, and Association of Natural Science Teachers (AESVT), considered one of the most important networks in Morocco on environmental education. CSOs are supported by the Mohammed VI foundation which was established by government to support civil society on environment and development issues. This reflects the growing concern to contribute in nature conservation in the country. The Foundation works on environmental education and awareness, in particular related to human enjoyment of the environment. Several networks have been set up to strengthen CSOs' work and advocacy, including the alliance for climate justice and the Moroccan network of NGOs for wetlands.

CEPF made grants to 8 national and local CSOs in Morocco during the first phase, to AMEPN, AESVT, ENDA Mahgreb, Tissu associatif de développement de la province d'Azilal, ADDICT.COM, Grepom, AGIR, Association Haute Moulouya pour l'Ecotourisme et la Protection de la Nature,

Tunisia has an active environmental CSO community including Association des Amis des Oiseaux (AAO, BirdLife Partner in Tunisia), and Réseau Enfants de la Terre, as well as locally based organizations such as Association des Fans de la Chebba (AFC), Association de protection de l'environnement Hammem Ghezaz (APEHG), and Notre grand bleu. Living Planet, the WWF affiliate in Tunisia, is now taking ON a regional scope as WWF-North Africa.

CEPF made grants to 9 national and local CSOs in Tunisia during the first phase, to AAO, AFC, APEHG, Association tunisienne des Ingénieurs Agronomes, Living Planet Tunisia, Réseau Enfants de la Terre, and Notre grand bleu.

7.2.2 Academic and research organizations

Academic interest in biodiversity conservation is well developed in most countries in the hotspot. In some areas (primarily the Balkans) academic stakeholders do much of the nature conservation activity, especially in countries where the NGO sector is comparatively underdeveloped. In North Africa and the Middle East academic involvement is more limited to research and publications, with less direct contribution to conservation action.

Research centers or academic institutions have often been incubator for NGOs, as is the case of the Macedonian Ecological Society, the Ornithological Society Naše Ptice in Bosnia and Herzegovina, the Albanian Society for the Protection of Birds and Mammals, as well as Dinaricum in Slovenia, SEO/BirdLife Spain or the Society for the Protection of Nature in Israel (SPNI). In some cases, these institutions continue to have roles on research and on advocacy. The CEPF phase 1 mid-term assessment found that in many countries it would be beneficial to strengthen the partnership between universities and NGOs to share and develop scientific expertise, mobilize resources and involve people in community projects.

The following section briefly reviews the main academic and research community in each country.

Balkans sub-region

Environmental research organisations in **Albania** include the Urban Research Institute (URI) and the Institute for Environmental Policy (IEP). The Polytechnic University of Tirana includes a department for geoscience, water and environment, with a focus on climate, natural energy and pollution. The Faculty of Agricultural and Environment of Tirana has developed some collaborations with environmental NGOs, including under CEPF-funded projects.

Environmental/biodiversity research in **Bosnia and Herzegovina** is led by the National Natural History Museum as well as the Center for Ecology and Natural Resources (associated with the University of Sarajevo), which collaborates with IUCN biodiversity projects and the Emerald Network.

Kosovo's academic sector includes the Institute for Biological and Environmental Research.

In **FYR Macedonia**, academic and research organisations with an interest in biodiversity are academic institutions are represented by the Universities of Saints Cyril and Methodius in Skopje, State University of Tetovo, University of Goce Delchev Shtip, Saint-Naum Ohridski University in Bitoala, Macedonian Academy of Arts and Sciences, Macedonian Natural History Museum, and the Hydro-biological Institute (Lake Ohrid).

The environment in the academic sector in **Montenegro** is represented by the Institute of Marine Biology, based in Kotor, which is affiliated with the University of Montenegro, with a Laboratory on General Biology and Protection of the Sea. The National Museum of Natural History has collaboration with environmental organizations on bird research and monitoring.

Turkey

Turkey has several universities with interests in the field of biodiversity, including Akdeniz University, the Aegean University, Dokuz Eylül University, Ege University, Hacettepe University, Istanbul University Forestry Faculty, METU Institute of Marine Sciences, and the Middle East Technical University. It also has the Scientific and Technological Research Council of Turkey (TUBITAK).

Middle East sub-region

Academic and research organisations in **Jordan** include the Royal Botanical Garden, The University of Jordan, Yarmouk University, Hashemite University and the Jordan Badia Research and Development Centre (involved in Ramsar wetland management).

In **Lebanon**, the National Council for Scientific Research and Lebanese Agricultural Research Institute provide scientific advice to government, while the main research institutions engaged in biodiversity research are the American University of Beirut, Balamand University, the Lebanese University, Université Saint-Joseph de Beyrouth, and the Holy Spirit University of Kaslik, as well as the Beirut Arab University and the Arts, Sciences and Technology University.

Research institutions with environmental expertise in **Palestine** are: Land Research Centre-LRC, The Biodiversity and Environmental Research Center (BERC), ARIJ institute, Maan Development Center, Palestine Institute of Biodiversity and Sustainability and Palestine Museum of Natural History, Bethlehem University, University Graduate Forum (UGF), Al-Quds University.

Research on the environment in **Syria** is currently limited. The two main universities with faculties of sciences are the Damascus and Aleppo universities.

North Africa sub-region

At a national level in **Algeria**, there are several universities (Tarf, Annaba, Jijel, Bejaia, Tizi Ouzou, Houari Boumediene, Blida, Chlef, Mostaganem, Oran, Tlemcen, Mascara, Biskra, etc.) and Technical Superior Schools (ENSSMAL, ENSA). Some of the universities are active on environmental issues and work with the government and civil society organizations.

In **Cabo Verde**, the Universidad de Cabo Verde is the leading research organisation. The National Institute for Research on Agricultural Development (Instituto Nacional de Investigação e Desenvolvimento Agrário, INIDA) has a department on environment, in particular with experts in botanic, and supports research and monitoring activities with the National Parks system.

In **Eygpt,** academic institutions active on environment are relatively numerous and well developed (more so than the NGO community), with Alexandria, Suez Canal, Tanta and Kafr El Sheikh Universities, and Coastal Research Institute and Egyptian National Oceanographic Data Center (ENODC).

In **Libya**, environment research is represented by the Faculty of Science, University of Tripoli and the Marine Biology Research Centre, all with limited capacity, as a result of the unstable political and security situation.

Research institutes and universities in **Morocco** often work in partnership with NGOs on environmental issues. They have developed surveys, Masters courses and projects related to biodiversity (for example the Rabat Institute of Science), renewable energies (for example the University of El Jadida), desertification (for example the National Centre for Forestry Research) and the monitoring of wetlands (through Mohamed V University Rabat).

In **Tunisia**, scientific institutions working on biodiversity or protected sites include the Institut National des Sciences et Technologies de la Mer, which is undertaking studies on the marine ecosystems and sustainable use of marine natural resources; the Institut des Régions Arides, focused on flora and fauna and reintroduction of species; and the Institut National Agronomique de Tunisie, which deals with management and sustainable use of marine natural resources, water bird and wetland studies and water management.

7.2.3 Private sector organizations

The private sector is partly responsible for the unsustainable resource use and other activities which threaten biodiversity in the hotspot (Chapter 8). However private sector organizations may also have a stake in the sustainable management of resources, especially where they directly own and manage them - for example in parts of the Balkans, woodlands owners are key players because they control up to half of the area of forest[13].

The private sector can also be a source of knowledge and investment in support of conservation. Corporate Social Responsibility (CSR) funding is growing in the region and

[13] Alternative figures suggest that in Montenegro, FYR Macedonia and Albania, the proportion under private ownership is lower (Pulla *et al.* 2013)

has had an important impact on the CSO activities, and there are examples of NGO and other institutions working with private sector land owners to make their management of resources more sustainable and biodiversity friendly. Many companies have developed systems to support local NGOs or communities working on biodiversity conservation, working with CSOs directly or through associated foundations.

Within the EU countries of the hotspot there are several examples of positive partnerships between NGOs and private sector companies, for example SEO/BirdLife Spain's involvement of corporations and local stakeholders in the *AlzandoelVuelo* program to conserve the Spanish imperial eagle, and WWF's promotion of Forest Stewardship Council (FSC) standards. Collaboration between private landowners and NGOs to implement effective land stewardship has been widely used in Spain (Račinska *et al.* 2015), and has recently been replicated in Bosnia and Herzegovina. In the marine realm, the European fishing industry has strived to minimize the impact of by-catch of sea turtles and marine birds.

Within the hotspot countries covered by the ecosystem profile update there are examples of private sector initiatives in the tourism, water and energy sectors, and a nascent fair trade program has the potential to reward local communities who are directly producing wild-sourced products. These are described briefly below.

The **tourism industry** is of particular significance to environmental management in the countries covered by the ecosystem profile update because it represents an important source of revenue and employment, a major source of pressure on resources (see chapter 8), but also depends for its survival on maintaining the quality of the environment. Many large tourism companies with extensive operations in the northern Mediterranean have expanded into new destinations, building or encouraging governments to allow building of resorts on pristine locations. There are examples of sustainability policies for hotel operations and funding of environmental projects and institutions[14], but to date, most tourism companies fail to consider their wider ecological 'footprint' in terms energy and water demand (Horwarth 2015). A variety of certification and accreditation schemes operate which allow tourism operators to demonstrate that they are working to minimize their environmental impacts.

There are several NGO initiatives working to mitigate the impacts of tourism. These include the SPEA and SEO/BirdLife Spain programs *MacaroAves*, for Macaronesia, including Cabo Verde, and *MediterAves*, for the Mediterranean, including Morocco and Tunisia (Adam 2011), which give training and technical support for entrepreneurs. There are also initiatives promoting good practice in fishing tourism (SEO/Birdlife, 2014). IUCN together with eight partners from Mediterranean launched the Mediterranean Experience of EcoTourism (MEET) network, an initiative on sustainable tourism in protected areas in the Mediterranean.

The **energy sector** has an impact on the environment through its power generation activities (coal mining, hydro-power generation), the management of waste in the air, water and spoil heaps, and through wider impacts on global warming. Nevertheless energy demand continues to rise and meeting this need is critical for meeting human development targets. There are successful examples of collaboration between NGOs and the private sector on reducing or

[14] For example, Akwa Group in Morocco, has in the past funded environmental protection projects and received the Mohammed VI Foundation Award for its commitment to clean beaches and sustainable coastal management; Marti Hotels and Marinas, Divan group in Turkey communicate on their environmental commitments and support reforestation projects

mitigating carbon emissions and reducing water use. In Montenegro, the Centre for Protection and Study of Birds (Centar za zaštitu i proučavanje ptica Crne Gore-CZIP) and Elektroprivreda CrneGore (a national electrical power supplier) worked together on improving the nesting sites for white storks in the area of Beranam, erecting platforms for nesting, and securing funds for buying telemetric equipment. CZIP has also worked with the CGES (Montenegro Electricity Utilities Company) on provision of nesting boxes for falcon and owl species. In Bosnia-Heregovina the CSO Lijepa naša had a small project "Raising awareness of the public about ISO standards and energy efficiency in the Herzegovina-Neretva canton" and other NGOs have similar small-scale projects of raising awareness in the field of environment protection. In Morocco, NGOs GREPOM and ADM have worked with the public highways authority to mitigate the impacts of infrastructure. Elsewhere in the hotspot, LPO (BirdLife France) works closely with Electricité de France on reducing impact of wind farms on migratory birds, and with CEMEX on rehabilitation and management of mine sites.

Social enterprises, which encourage the generation of wealth for local communities from the sustainable management of resources, can contribute to conservation by giving value to healthy, natural ecosystems. These enterprises have sustainability and improvement of local livelihoods at the core of their business, and they strive to develop markets which pay a premium for these values. Companies such as Lush are seeking to source products such as olive oil, almond oil and sea salt, in ways that complement and support biodiversity conservation. The Women’s Cooperative in Tighanimine (Morocco) is the first argan oil producer in the world to be Fairtrade certified, taking advantage of a recent boom in the use of argan oil for cosmetic purposes. CSO-private sector cooperation is also developing around the trade in immortelle (*Helichrysum* sp.) in Bosnia-Herzegovina; dates from the Beni Ghreb company, in Tunisia; various foodstuffs from *Terroirs du Liban*, in Lebanon. There are various Albanian associations for organic farming products (Organic Agriculture Association, Albanian Dairy and Milk Association, Albanian Permaculture Association, Albanian Livestock Farmers Association).

Despite these examples of positive actions by private sector companies and partnerships, the large number of players and lack of organization of the sector has so far proved an obstacle to the promotion of sustainable management and improved governance, and much of the private sector remains oblivious to environmental concerns beyond its legal requirements (Lengyel 2010; Petrović and Čabaravdić 2010).

7.3 Civil society programs and activities

The potential role for effective civil society organizations is huge: many of the 500+ KBAs in the countries covered by the ecosystem profile update are inhabited or used by large numbers of people who rely heavily on them for water and other natural resources. Civil society is critically positioned between communities and government to facilitate and negotiate improvements which will conserve and sustain biodiversity while enhancing livelihoods. In some cases civil society organizations can also effectively stimulate partnership between the governments and the corporate sector for the conservation of biodiversity.

7.3.1 National-level CSOs

Despite the small number of conservation-focused NGOs in most of the countries covered by the ecosystem profile update, in several countries NGOs play an important role in the management of protected areas. During the phase 1 of the CEPF investment in the hotspot, the management of 26 protected areas was strengthened through grants to CSOs.

In the Balkans, the NGO role in protected areas is not enshrined in law, but is usually formalized through MoU or other agreements between NGO and local government or PA authority. Examples include the Centre for Protection and Research of Birds (CZIP, Montenegro, management of Tivat Solila), Protection and Preservation of Natural Environment in Albania (PPNEA, working in Narta-Vjosa Landscape Area), Regional Environment Centre (REC, Albania, management of the Dojran lake jointly with the municipality), Institute for Nature Conservation of Albania (INCA, providing support to Karaburun-Sazan National Park with the Regional Agency for Protected Areas of Vlora), and Naše ptice (Bosnia-Herzegovina, Hutovo blato). The role played by the NGO is supporting, rather than taking on direct management responsibility, and includes raising funds, providing infrastructure and providing guides. Occasionally international NGOs have also become involved, for example the NGO EuroNatura has supported the employment of rangers at Hutovo blato, with local partner Naše ptice.

In some countries in the Middle East, the role of NGOs is even more central to the management of PAs. In Jordan, government provides a mandate and support to NGOs to lead on the management of protected areas. This includes both larger national organizations and smaller local ones where their activities support a nationally important biodiversity site. The smaller NGOs are most often formed by interested members of the local communities where they operate. Through this system, all PAs in Jordan are completely managed by NGOs, with the Royal Society for the Conservation of Nature (RSCN) taking the lead in managing larger PAs, while smaller local NGOs manage special conservation areas. Outside PAs, RSCN is also mandated by government to enforce the hunting law. The situation in Lebanon is similar, although NGOs are not mandated to have complete control of the PA, in practice all major PAs are managed by locally-based NGOs. There are also several examples of NGOs with a mandate to manage PAs in Palestine. Only in Egypt does the government not grant any mandate to NGOs to be involved in PA management. The challenge and opportunity to play a key role in the protection of important sites has encouraged NGOs in the region to innovate, with the result that during the first phase of CEPF support, CSOs in the Middle East were instrumental in developing micro-reserves for plant conservation, declaration of special conservation areas, and re-invigorating traditional communal conservation approaches like *Hima*.

In North Africa, there are legal frameworks for NGOs to be involved in PA management to some extent in Morocco, Tunisia and Cabo Verde, and there were several successful examples of grants to CSO to improve PA management during the first phase of CEPF. In Tunisia the NGO Notre Grand Bleu was the pioneer of co-management at Kuriat (to be a Marine protected area), and in Morocco the NGO SPANA is managing the Sidi Boughaba national park. As noted in section 7.1.1, the law in Cabo Verde encourages civil society engagement, with practical examples including Biosfera 1's involvement in the Santa Luzia reserve.

7.3.2 Regional organisations and partnerships

Several organizations and networks exist within the Mediterranean region or cover parts of the Mediterranean and neighboring European or Arab countries.

The **Arab Forum for Environment and Development (AFED)** is a regional NGO providing a platform for NGOs, corporates, academic and research organizations to contribute to sustainable development in Arab countries, including Lebanon, Jordan, Tunisia and Syria. Its main programs are policy, green economy and corporate social responsibility and education.

Conservatoire du Littoral works for the conservation and sustainable management of coastal ecosystems. It is governed by French national and regional state authorities, so is para-statal rather than a CSO, but is included here because of its role in international cooperation with partners across the Mediterranean. The Conservatoire provides technical support and assistance to coastal management agencies in partner countries, including Algeria and Tunisia, as well as collaborating on projects in Morocco, Libya and Albania (see also information on AFD and FFEM projects, Chapter 10). The organisation runs a Small Island Initiative to work on island restoration in the Mediterranean basin, and has recently established new partnerships in Montenegro and Lebanon. Conservatoire du Littoral is a member of MedPAN, the Marine protected areas network, and leads the development of the Integrated Coastal Zone Management protocol for the Barcelona Convention. It is also a member of the CEPF steering committee for the Mediterranean Basin Hotspot.

EuroNatur is a non-profit charitable foundation founded in 1987 by BUND (Friends of the Earth Germany), NABU (BirdLife Germany) and Deutsche Umwelthilfe. It promotes transboundary conservation efforts in Europe, but also engages in advocacy towards the European Union, and focuses on sustainable rural livelihoods and economies as well as biodiversity protection. Its extended network includes nature conservation associations, scientists and their research teams, volunteers, and public sector representatives in many European countries. Within the countries covered by the ecosystem profile update, EuroNatur is active in the Balkans: Albania, Bosnia-Herzegovina, Montenegro, FYR Macedonia, including at important KBA sites such as Lake Ohrid, Lake Skadar, Neretva Delta, and Bojana River.

The **Mediterranean Information Office for Environment, Culture and Sustainable Development (MIO-ECSDE)**, is a non-profit Federation of 126 Mediterranean NGOs working on Environment, Development and Culture from all Mediterranean countries. In co-operation with governments, international organizations and other socio-economic partners, MIO-ECSDE plays an active role for the protection of the environment and culture and the promotion of the sustainable development of the Mediterranean region and its countries. In the hotspot countries covered by the ecosystem profile update it has members in Albania, Algeria, Eygpt, Jordan, Lebanon, Libya, FYR Macedonia, Montenegro, Morocco, Palestine, Tunisia, and Turkey.

The **MedPan Initiative** is a network of 50 marine protected areas in 11 countries around the shores of the Mediterranean[15]. The initiative was originally established in 1990 by IUCN and the French Government with the support of the World Bank, and was re-launched in 2003/2004 with funding from the European Commission Interreg III C South Initiative Funds, with WWF-France as the lead partner.

The **Mediterranean Wetlands Initiative (MedWet)** brings together 26 Mediterranean and peri-Mediterranean countries that are Parties to the Convention on Wetlands (Ramsar, Iran,

[15] MedPan currently has 57 MPA member, 8 founding members, 37 partners.

1971). Its mission is to ensure and support the effective conservation of the functions and values of Mediterranean wetlands and the sustainable use of their resources and services.

The **Regional Environmental Center for Central and Eastern Europe (REC)** is an international organisation with a mission to assist in addressing environmental issues. The Center fulfils this mission by promoting cooperation among stakeholders, non-governmental organisations, businesses and other environmental stakeholders and by supporting free exchange of information and public participation in environmental decision making. The REC has country and field offices in 17 beneficiary countries: Albania, Bosnia and Herzegovina, Bulgaria, Croatia, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, the FYR of Macedonia, Montenegro, Poland, Romania, Serbia, Slovakia, Slovenia and Turkey. The REC actively participates in key global, regional and local processes and contributes to environmental and sustainability solutions within and beyond its country office network, transferring transitional knowledge and experience to countries and regions.

Tour du Valat is a private foundation dedicated to halting the loss and degradation of Mediterranean wetlands and their natural resources, and to restoring them. It is based in the Carmargue wetland in Mediterranean France, where its reserve and research facilities are used by scientists, teachers and students from around the Mediterranean. Tour du Valat addresses its mission through four main objectives: improving and sharing knowledge of Mediterranean wetlands, develop adaptive management approaches to wetlands management, develop the capacity of decision makers and resource managers to use wetlands widely, and to support development of scientific teams specializing on wetlands. Recent projects have included work in Tunisia and with the MedWet and MedWetCoast initiatives in Albania, Algeria, Egypt, Palestine, Lebanon and Morocco.

7.3.3 Sub-regional and transboundary partnerships and networks

There are many sub-regional networks in the Northern Mediterranean, many of them promoted by EU regional policies. In the countries covered by the ecosystem profile update, however, there are far fewer. One of the most important impacts of the first phase of CEPF investment in Civil Society development was the fostering of networks and collaborative actions. Several formal and informal networks, have been formed a result of CEPF support: in Tunisia with organizations working on coastal areas, in the Balkans around Lake Skadar and Lake Orhid, in Albania on the hunting issue, and in Lebanon on the protection of endangered flora.

In the Balkan States there are few cross-border networks active in biodiversity, with the Balkan Vulture Action Plan (promoted by the Vulture Conservation Foundation, Frankfurt Zoological Society and BirdLife International, together with local NGOs and governments) being the most notable. This plan is consolidating a regional network of local NGOs to work on nature conservation and sustainable development using vultures as flagship species. At site level, there is transboundary cooperation over the management of Prespa lakes (Macedonia, Albania and Greece) and Skadar Lake (Montenegro and Albania).

Another regional project is the Balkan Green Belt is part of the wider European Green Belt Initiative and includes nine Balkan countries. The Parks Dinarides network comprises 56 protected areas from Albania, Bosnia and Herzegovina, Montenegro, Croatia, Kosovo, Macedonia, Slovenia and Serbia.

In 2007 the Euro-Mediterranean University in Slovenia (EMUNI) was created with the support of the European Union, which complements a second academic initiative, the Centre of Research and Studies for the Eastern Mediterranean (CREMO) led by the University of the Aegean. Combined, these institutions have the potential to increase research on conservation and sustainable development in the Mediterranean Basin, among other issues.

There are some examples of networking at national level, including the Federation of Environmental NGO's in Jordan in 2014. This coalition brings together environmental and nature protection NGOs under one umbrella, and provides the platform for cooperation and coordination between the member NGOs of the federation. A similar initiative in Palestine is the Palestinian Environmental NGOs Network (PENGON)[16] which bring together 16 NGOs around environmental issues, and it is registered as an NGO (Constantini *et al.* 2011).

In the Macaronesia sub-region, there is an intense cooperation between the Canaries and the Madeira and Azores islands supported by EU programs. Recently the Interreg –Mac initiative, for the Macaronesian archipelagos, includes Cabo Verde as third country.

7.3.4 Global organizations and networks

BirdLife International is a network of national partner NGOs, and is present in the region at two levels: the national partners, with the recent incorporation of a new partner in Morocco, and three regional secretariats for Europe, Middle East and Africa regions. There are partners in all of the EU hotspot countries, and nine of the 16 countries covered by the ecosystem profile update, including all four Middle East countries, Egypt, Morocco and Tunisia in North Africa, Macedonia FYR and Montenegro in the Balkans. There are several projects that have been coordinated among the different countries in the region, for example the MAVA funded *Capacity Development for Flyway Conservation in the Mediterranean*, ending in 2016, and the GEF/UNDP Migratory Soaring Birds project which involves all of the countries in the Middle East and Egypt.

The **Environmental Law Alliance Worldwide (ELAW)** is a global alliance of attorneys, scientists and other advocates who provide legal support to grassroots activists taking action for their local environment. Activities include providing advice through publications, training paralegals, and bringing legal actions against corporations. In the Mediterranean Basin Hotspot the organization has activities and partners in Egypt, France, Greece, Israel, Morocco, Slovenia, Spain and Turkey.

The **Friends of the Earth** network includes FoE Middle East, which is the only NGO with national branches in Jordan, Palestine and Israel, being active in climate change and environmental issues along the Dead Sea Rift Valley.

IUCN has seen an increase in the number of organizations joining in all countries around Mediterranean. In the countries covered by the ecosystem profile update, IUCN is dominated by NGOs, with 77 NGOs in 13 of the 16 countries (though most of them are in Jordan and Lebanon), while government is represented by only 5 agencies in 3 countries, and five state parties (Table 7.1). The IUCN Centre for Mediterranean Cooperation is a member-based organization structured around collaboration with members. It includes more than 140 NGOS and 14 governments in the Mediterranean, international organizations, and volunteer experts

[16] PENGON is FoE Palestine (PENGON 2017).

of the six IUCN Commissions. The Centre's mission is to influence, encourage and assist Mediterranean societies to conserve and sustainably use the natural resources of the region and work with IUCN members and cooperate with all other agencies that share the objectives of IUCN.

Table 7.1 IUCN members in the hotspot countries covered by the updated ecosystem profile

Country	State members	Government Agencies	National NGO	Total
Albania	0	0	2	2
Bosnia-Herzegovina	0	0	1	1
Kosovo	0	0	0	0
Macedonia FYR	0	1	1	2
Montenegro	0	2	1	3
Balkans sub-region	**0**	**3**	**5**	**8**
Jordan	1	2	22	25
Lebanon	0	0	14	14
Palestine	0	0	7	7
Syria	0	0	1	1
Middle East sub-region	**1**	**2**	**44**	**47**
Algeria	1	0	2	3
Cabo Verde	0	0	0	0
Egypt*	0	0	4	4
Libya	0	0	0	0
Morocco	1	0	10	11
Tunisia	1	0	6	7
North Africa sub-region	**3**	**0**	**22**	**25**
Turkey	1	0	6	7
TOTAL	**5**	**5**	**77**	**87**

Note: * = The national NGO total for Egypt includes one NGO based in Egypt that works regionally.

WWF has country offices in six of the EU countries in the hotspot and in Turkey, but not elsewhere in the hotspot. However the WWF Mediterranean program has a presence in four of the countries covered by the ecosystem profile update, Morocco, Tunisia, Montenegro and Bosnia-Herzegovina, coordinating work in several countries in the Mediterranean. The Living Planet / WWF Tunisia office is gradually moving towards a regional role for North Africa. The WWF Mediterranean program focuses on the creation and management of Marine Protected Areas, fisheries policy reform, creation of new terrestrial protected areas, advocacy to prevent damaging hydropower projects, and promotion of sustainable forest management through the FSC system. Focal sites in the hotspot include the Karaburun MPA in Albania, the Kas-Kevova MPA in Turkey, and the Taza National Park MPA in Algeria.

7.4 Civil society capacity

While there are some strong, sustainable CSOs in the countries covered by the ecosystem profile update, the overall picture is of relatively small CSO community, focused on local issues, rather poorly networked, and lacking sufficient capacity and resources to do the most effective job. Dependence on donor funding is generally high, although there are some cases of NGOs running their own business to fund conservation – for example in Jordan, the Royal Society for Conservation of Nature (RSCN) raises funds to support the management of protected areas using its registered trademark, Wild Jordan. The existing funding for biodiversity conservation originates from a relatively small group of funding organizations which support civil society to play a role in the conservation of priority KBAs or wider landscapes (see Chapter 10, investment).

7.4.1 Skills and needs of civil society organizations

Information on CSO capacity building needs is available from the mid-term evaluation of the first CEPF program in the hotspot, and from the national consultation process during the updating of the ecosystem profile. It is augmented for the Balkans by the results of GIZ's Capacity Self-assessment of Biodiversity-related CSOs in South-east Europe[17], and CEPF's Long Term Vision for the Balkans (CEPF, 2015).

During the ecosystem profile consultation process, national stakeholders linked action to identified threats, and then identified the roles that CSO's can play in addressing these threats:

- Monitoring ecosystems for planning and assessment, identification of priority areas.
- Monitoring the implementation of bans and limits on hunting, logging, fishing and tourism development.
- Advising the authorities on relevant issues in the fields of biodiversity, climate change.
- Promoting awareness and educating the public on relevant issues – e.g., wildfires, waste management, sustainable production, conservation in general.
- Advocating towards government: improving cooperation between CSOs, lobbying, legal actions, participation in public hearings, participation in drafting of law and land-use planning decisions.
- Implementing direct conservation actions (for example vulture feeding, native tree planting).
- Supporting development and marketing products for a sustainable economy: farm products branding and labelling, sustainable tourism, traditional practices, and alternative sources of income.

Overall, both studies show that CSOs in the countries covered by the ecosystem profile update have weaknesses in many areas, including human resources, management systems and strategic planning, partnerships, financial resources and transboundary cooperation. The greatest need is funding and international cooperation, related in some cases to the difficulty in receiving funds from abroad.

The following sections summarize the situation in a sub-set of the countries covered by the ecosystem profile update:

[17]The GIZ study aimed to identify the strongest biodiversity-relevant CSOs in each country as a basis for the formation of a network in the region. The results are based on responses from 35 CSOs in Albania, Bosnia-Herzegovina, Kosovo, Macedonia, Montenegro and Serbia. About two-thirds of the CSO identified themselves as biodiversity conservation focused, with the remaining third working on a broader set of environmental issues.

Balkans sub-region

Albania's CSO representatives considered that although there has been progress, in particular regarding partnerships, there are still important gaps in terms of human resources, management systems and strategic planning, financial resources and trans-boundary cooperation. The GIZ study concluded that Albanian CSOs were particularly in need of opportunities to improve human resources capacity.

CSOs in **Bosnia and Herzegovina** suffer lack of funding and expertise, in particular regarding nature and biodiversity conservation issues. The lack of management systems and strategic planning that was identified at the beginning of the first phase, has improved in the recent years.

In **FYR of Macedonia** capacity is inadequate to respond to the conservation challenges in important areas including Lake Dojran, Lake Prespa, Lake Ohrid and the Drim catchment. The lack of funding is the most serious problem identified for CSOs.

The lack of governmental support and limited capacity for biodiversity research and advocacy are important concerns for CSOs in **Montenegro**. Major NGOs are located in the capital of the country and don't have local offices or employees, while local NGOs have limited capacity, a conclusion supported by the GIZ study.

In **Kosovo**, there is also a lack of human and financial resources for CSOs concerned with nature and biodiversity conservation. The GIZ study confirmed the poor access to financial support for CSOs in Kosovo.

Middle East sub-region

Jordan lacks cooperation and integration between different CSOs working in the hotspot, as many CSOs have overlapping mandates and roles. Generally organizations headed by members of the Royal family are well-established and have clear programs and focus areas, and usually get financial support because of their credibility and reputation. Small organizations and cooperatives are less structured, and have narrow mandates and limited number of beneficiaries.

North Africa sub-region

In **Algeria** the difficulty of linking to international networks, or to access international funds has been identified as an obstacle. National funds are also scarce. NGOs lack capacity in particular on management, governance and fundraising at the organizational level, but also lack capacity regarding legislation and technical issues related to biodiversity. Weak networking is also identified as a challenge. The lack of collaboration between government agency and association was recorded and need to be addressed.

In **Egypt**, while there are a number of environmental NGOs located along the Mediterranean coast, there is still a clear shortage of civil society organizations working on environmental protection and nature conservation. In addition, there are tight restrictions on civil society funding and lack of civil society engagement in larger decision making processes.

In **Libya**, there is a lack of public awareness about the civil society work, as well as a lack of funding, partly as a result of the security situation in the country. CSOs in Libya are at an early stage of development, with limited opportunities to gain experience with on-the-ground conservation or build their organizational capacity. As a result, Libyan CSOs typically have rather weak Governance, difficulties in raising funds, and limited project management experience.

In **Cabo Verde**, there is also reported to be a lack of communication and coordination between CSOs, and weaknesses in human resources and funding. Community based organizations also suffer from operational challenges. Stopping the illegal exploitation of Turtles brings CSOs into conflict with local economic interests, and has led to threats against staff.

8. THREATS TO BIODIVERSITY IN THE HOTSPOT

This chapter presents an overview of the main threats to biodiversity and natural ecosystems in the hotspot. The main information sources include the IUCN Red List of Threatened Species, the reports on KBAs (Darwall *et al.* 2014, Radford *et al.* 2011), published literature, and stakeholder inputs received through the workshops and remote consultations. The subsections include the threats confronting specific species, sites and corridors listed in the conservation outcomes chapter (Chapter 4) including threat actors. A qualification or quantification of each threat will be given to facilitate future monitoring of progress towards its reduction.

The categorization of threats follows the IUCN Threat Classification Scheme 3.2 (IUCN 2016), which was used to maintain consistency among species, sites and corridors. This scheme was utilized to rank the threats which affect the threatened species (threat data are available on 1256 of the 1311 threatened species including plants, invertebrates and vertebrates) occurring in the hotspot according the IUCN Red List of Threatened Species (IUCN 2016b). The same scheme was also used for the ranking based on expert opinion through the stakeholder consultations.

8.1 Overview of key threats

As reflected elsewhere in this report, the biodiversity of the Mediterranean Basin Hotspot is rich, unique and vulnerable. It is also one of the most densely inhabited regions of the world. Even though population density alone is not a particularly good predictor of threat in the Mediterranean Basin, it is the human population that is driving the main threats. Overall, the Mediterranean Basin Hotspot countries hold around 515 million inhabitants (2015), 33% of which live on the Mediterranean coast (EEA 2015). Further, the same coast is visited by 220 million tourists a year (32% of the planet's international tourism) (Plan Bleu 2006).

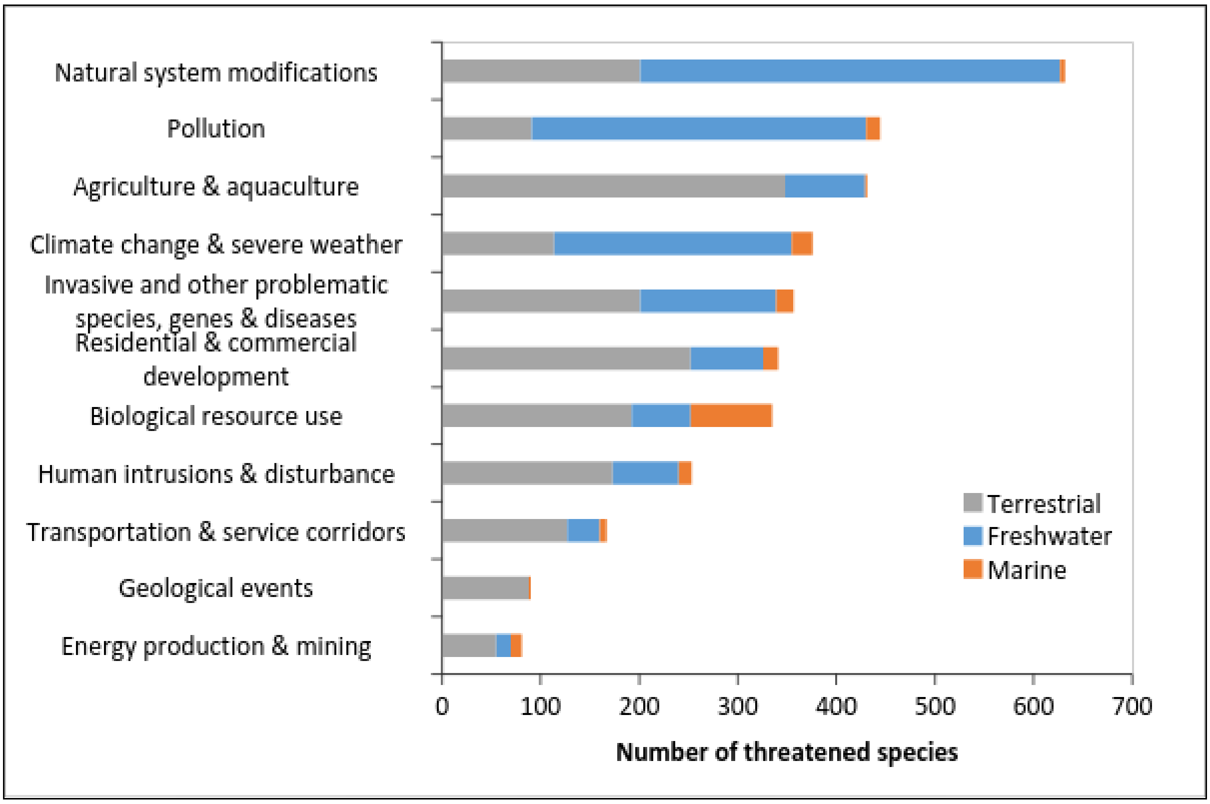
This results in one of the heaviest pressures from visitors and residents on the remaining natural habitats encountered anywhere on earth. The prospects of short-term financial gain from tourism are often winning over the long-term security of biodiversity and maintenance of ecosystem services. Further, some of the endemic taxa in the hotspot are confined to islands and small river catchments (effectively islands) and have a narrow genetic base, reduced competitive abilities and limited dispersal opportunities, and so increasing their vulnerability.

Fortunately, most of the region's continental biota have evolved alongside humans for thousands of years, and also with the many naturally occurring hazards, notably fires and droughts, and have thus developed a level of natural resilience to various pressures, although this is now being seriously tested. The same cannot be said of the oceanic island archipelagos of Macaronesia (including Cabo Verde), where species have evolved without the presence of competitors, and thus suffered immensely after human colonization. As a consequence, most of the recent extinctions in the Mediterranean Basin Hotspot have occurred in Macaronesia, and an important number of threatened species occur there.

Activities associated with natural system modifications, pollution, and agriculture are the threats affecting most of the threatened species in the Hotspot (Figure 8.1). Fauna at risk of extinction in terrestrial environments is mainly threatened by agriculture (intensification and abandonment), urban development, natural systems modifications (e.g., fires, land use changes) and invasive species in (Figure 8.2). In freshwater environments, natural system modifications (e.g., dams and water abstraction), pollution (e.g., fertilizers, pesticides and sedimentation), climate change (increased drought severity and unusually high river flows) and invasive species were the main threats (Figure 8.3). For the threatened fauna in marine environments, the main threats identified were overharvesting (biological resource use), climate change and invasive species (Figure 8.4). The main threats affecting Mediterranean flora are similar to those affecting fauna (Figure 8.5). Agriculture was the main threat affecting terrestrial and freshwater plants. In this case, most of the species under this category are threatened by livestock intensification and overgrazing. Other important threats for a high number of threatened plants are invasive species (especially for terrestrial plants), human intrusion through recreational activities and urbanization, residential development and pollution (especially for freshwater plants) and natural system modifications mainly caused by fires and livestock (especially for terrestrial plants).

The main threats identified at national level were similar to those observed from the threatened species but varied in their relative importance (Figure 8.6). Overharvesting (biological resource use), natural system modifications (dams, water management, and fires) and urbanization and infrastructure development were the main threats identified to be affecting species, habitats and KBAs in the assessed countries. The importance of these threats varies among countries (Table 8.1). Overharvesting and natural system modifications were the main threats in most of the countries analysed, while urbanization was identified as very important threat only in Montenegro, Libya and Algeria. Some threats identified as intermediate, such as those related to energy production and mining (mainly mining and quarrying, and wind and solar farms) were important in Albania and Jordan. Pollution (domestic, agriculture, industrial, etc.) was identified as important in Egypt.

Figure 8.1 Threats affecting fauna and flora at risk of extinction in terrestrial, freshwater and marine environments in the Mediterranean Basin Hotspot



Note: Based on threat analyses available for 1,256 of 1,311 species classified in the categories CR, EN and VU in 2016 IUCN Red List.

Figure 8.2 Threats affecting terrestrial fauna at risk of extinction

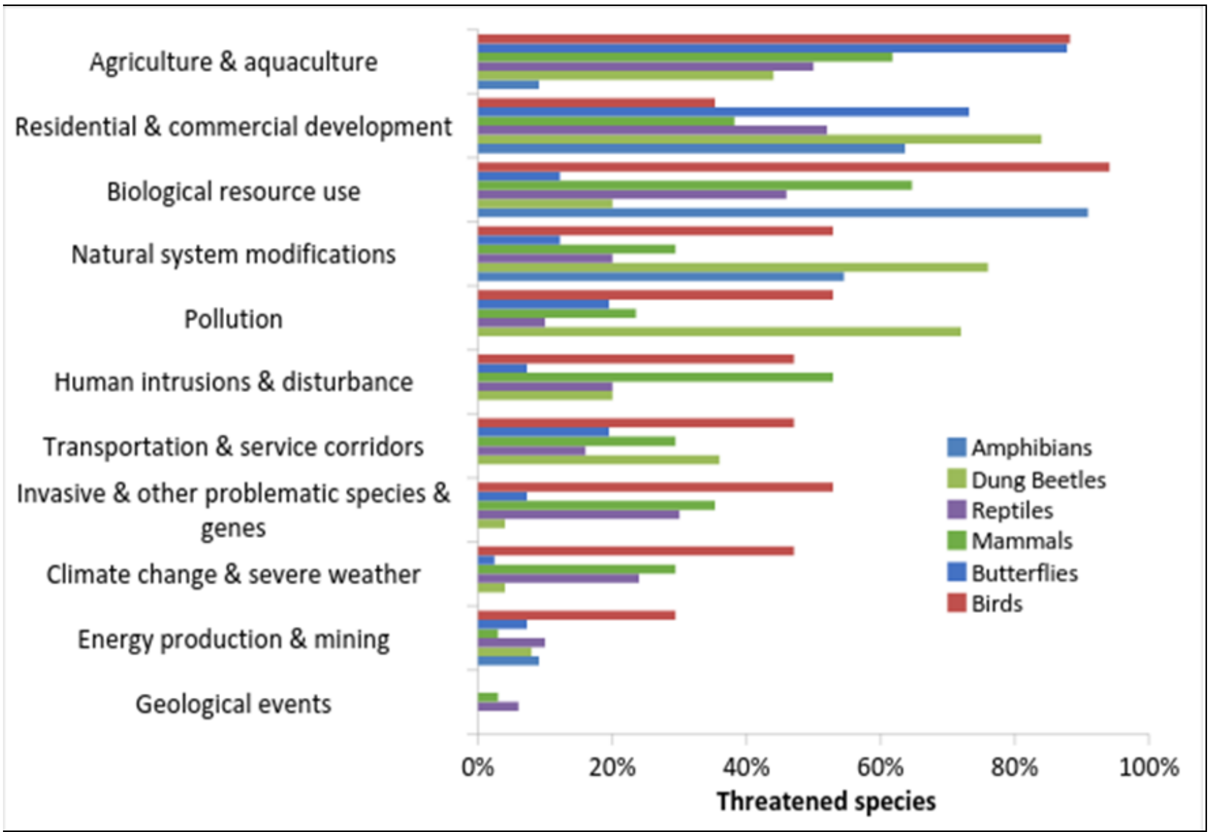


Figure 8.3 Threats affecting freshwater fauna threatened with extinction

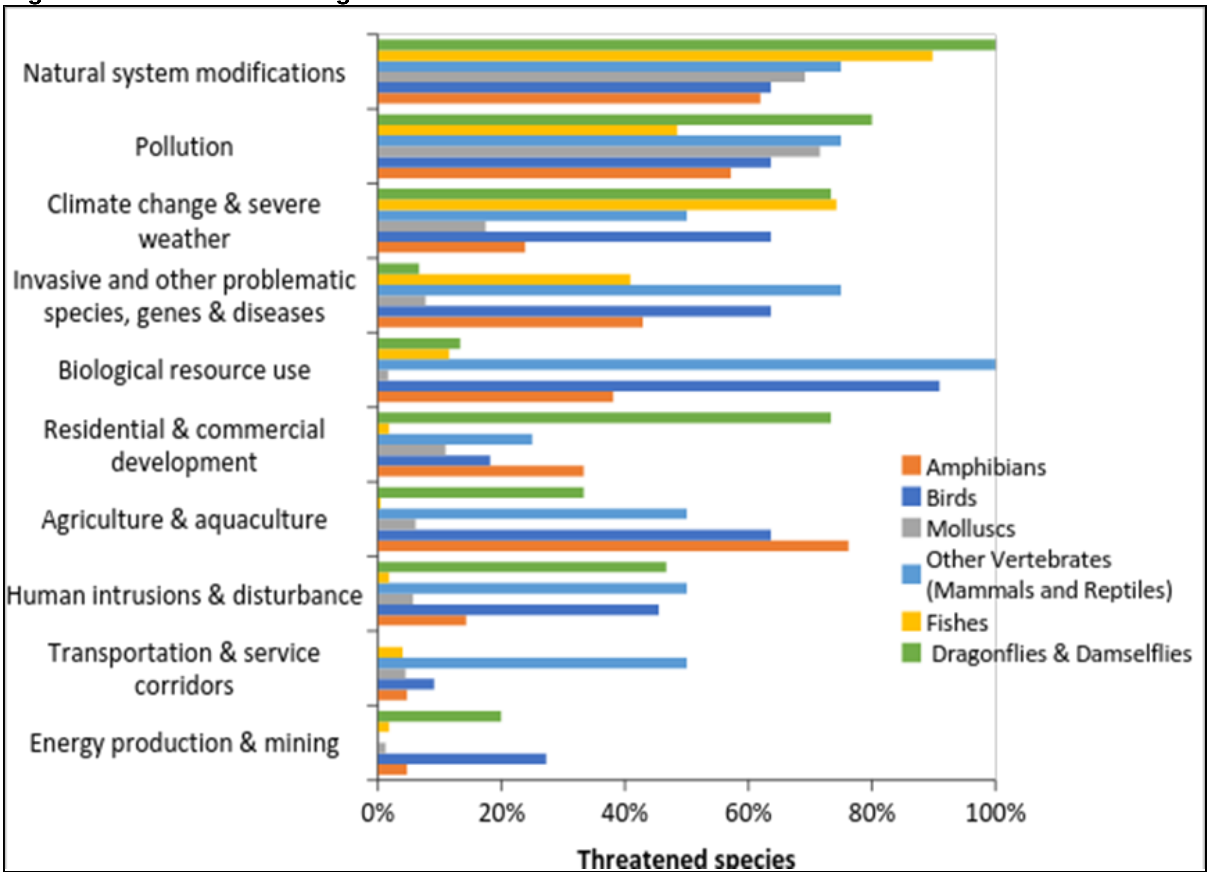


Figure 8.4 Threats affecting marine fauna threatened with extinction

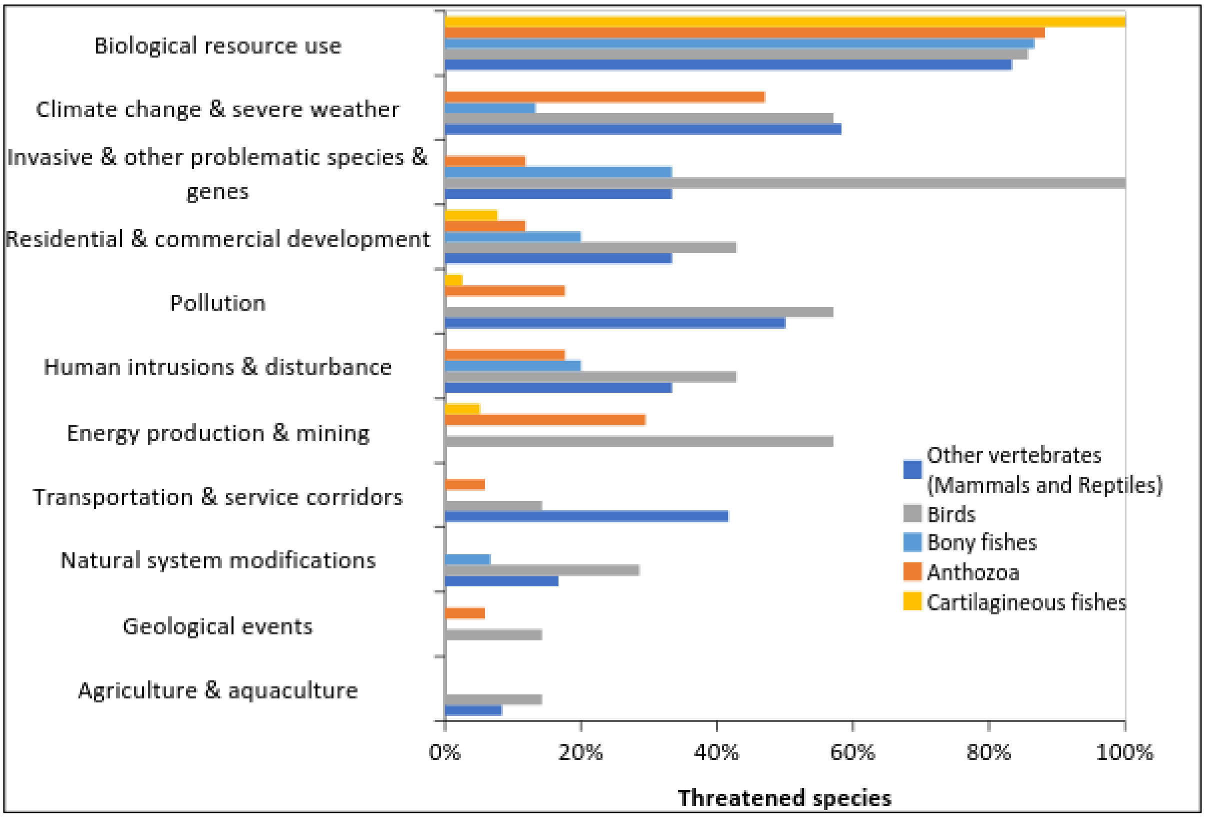
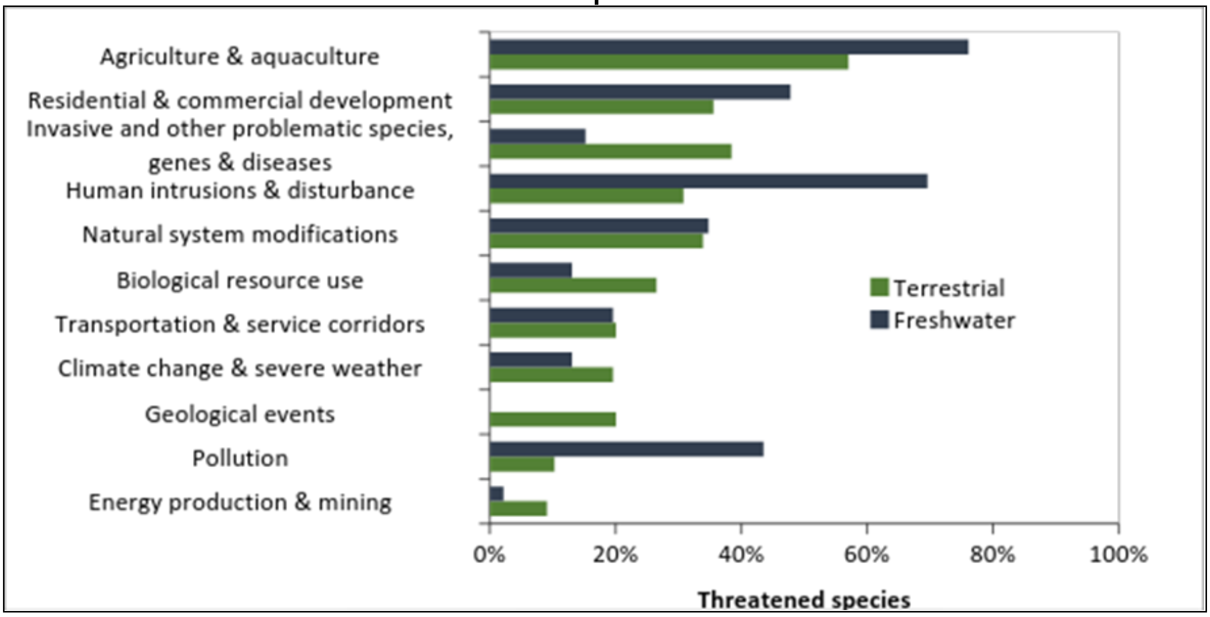
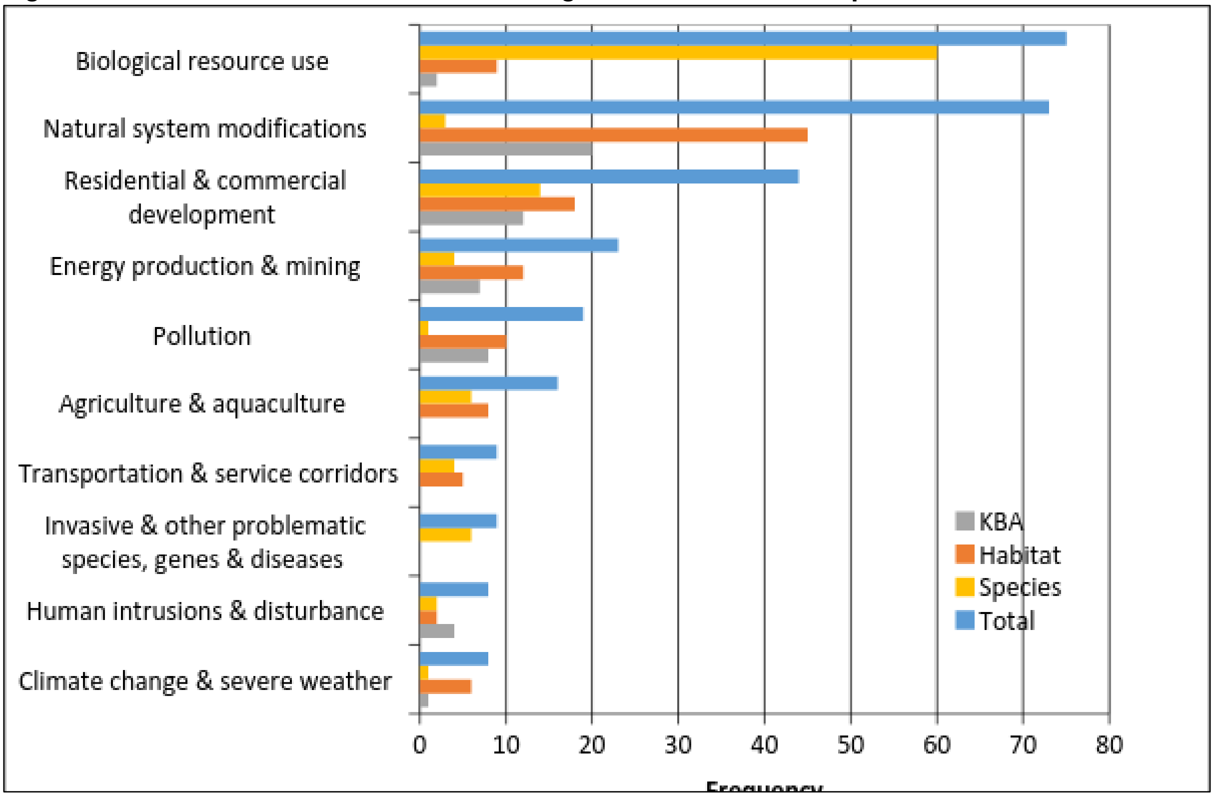


Figure 8.5 Drivers of threats affecting threatened flora in freshwater and terrestrial environments in the Mediterranean Basin Hotspot



Note: The 465 species considered threatened are those in categories CR, EN and VU in the 2016 IUCN Red List.

Figure 8.6 Prioritized threats identified during the national workshops



Notes: Frequency is based on the number of times participants identified a particular threat as important in their country at any scale (i.e., species, habitat or KBA). Countries assessed: Macedonia, Albania, Montenegro, Palestine, Bosnia Herzegovina, Lebanon, Egypt, Jordan, Libya, Algeria and Tunisia.

The key threats are described in detail below, ordered according to the number of species affected.

8.1.1 Natural system modifications

This category includes the actions that convert or degrade habitat, often with the objective of improving human welfare. It is associated with changes to natural processes such as fire, hydrology, and sedimentation.

Pressure on water resources

Most experts agree that the physical, socioeconomic and environmental limits of supply-based water policies in the Mediterranean Basin have been reached. As a direct and indirect result of this, large areas of freshwater habitats in all parts of the Mediterranean Basin have been lost, degraded or fragmented, with a significant impact on biodiversity. For example, 32% of freshwater fishes in the Mediterranean Basin were reported to be threatened by dam construction (McAllister *et al.* 2001).

Dams and their associated reservoirs impact freshwater biodiversity by blocking movement of migratory species up and down rivers, causing extirpation or extinction of genetically distinct stocks or species; changing turbidity/sediment levels to which species/ecosystems are adapted in the rivers; trapping silt in reservoirs which deprives downstream deltas and estuaries of maintenance materials and nutrients that help make them productive ecosystems; providing new habitats for waterfowl which may increase their populations; and diminishing or stopping normal river flooding in flood plains which are vital habitat for diverse river biotas during high-water periods (McAllister *et al.* 2001). Another impact of dam construction is that displaced human communities are often relocated in areas where they clear or place additional pressure on natural habitats (Smith *et al.* 2014).

Water policies within the Mediterranean region are largely dominated by efforts to increase water supply, and multiply the number of large water infrastructures (CEPF 2010). Increasing demand for flood control, irrigation, and electricity generation is fueling a wave of dam construction (Darwall *et al.* 2014). Current levels of water extraction are leading to the reduction of groundwater reserves at an alarming rate. For example between 2003 and 2009 the north-central Middle East lost 17.3 mm/yr in ground water height (equivalent to 91.3km^3 in volume) (Voss *et al.* 2013). The result of this has been reduced flows in rivers and wetlands, with some once permanent rivers becoming intermittent or even totally dry. The Qweik River, once the main source of water for the city of Aleppo in Syria, now only flows intermittently and the springs which fed it are dry (UN-ESCWA and BGR 2013). Many of the lakes in Central Anatolia (Turkey) have dried out because of high levels of water extraction from their tributaries and from their aquifers, famous examples being Lakes Burdur, Eber, and Akşehir which are currently in a critical ecological condition as significant quantities of water are being extracted directly or retained by dams in their catchments (Smith *et al.* 2014). The same is true for the former Ereğli marshes, which dried out completely in the 1990s after a dam was built on the İvriz stream and land drained for human use.

In addition, more than 500 large dams were built during the last century, big transfer infrastructures are underway in Egypt and Libya, and many other waterworks are planned in Algeria, Morocco, Turkey, Cyprus, Spain and Greece. Turkey, which is already one of the world's most active dam building nations (International Rivers 2014), plans to build an additional 1,700 dams and Hydroelectric Power Plants (HEPPs), on top of the 2,000 that already exist (GegenStrömung 2011). In the Balkans, Poljes (karst lakes) are heavily impacted by ongoing alterations to the associated hydrology for purposes such as hydropower development (Darwall *et al.* 2014)

Ecosystem management in the catchments above dams is essential to reduce run-off and siltation which leads to reduction in dam volume. To date, this aspect has not had sufficient attention, and many dams in the South and East of the region will lose a large share of their capacity due to silting. As an example, in Algeria, reservoirs have already lost one-quarter of their original capacity (Benoit and Comeau 2005).

A number of mollusks and fishes in North Africa and eastern Mediterranean are already feared to have gone extinct, as the rivers where they occurred are now completely dry for parts of the year (previously they flowed year round), due to a combination of climate change, increased water abstraction and construction of dams (Smith *et al.* 2014).

Furthermore, water abstraction or diversion for agriculture is one of the primary threats in the arid Mediterranean Basin. This has resulted in disappearance of several lakes in the region (for example, in Turkey). Water-intensive golf courses and lawns built as parts of tourism developments are common in the region and contribute to erosion, pollution and sedimentation which threaten both the marine as well as terrestrial habitats.

In the Maghreb, large-scale river habitat destruction due to excessive water abstraction for domestic, industrial and agricultural use is a threat that has had serious impacts on the associated freshwater species (Garcia *et al.* 2010). In the eastern parts of the Hotspot the widespread abstraction of water (primarily for agricultural irrigation), coupled with the damming of rivers (for hydropower and water storage), is compounded by increasing severity of droughts leading to reduced flows in rivers, in some cases leaving rivers and wetlands totally dry and a reduction of ground waters at an alarming rate (AQUASTAT 2009, Voss *et al.* 2013) leading to the disappearance of refuge pools and to the local extirpation (and extinction) of fishes. Not only is this unsustainable level of extraction threatening freshwater biodiversity but it also threatens the long-term water security of the region (UNEP 2008).

Fire and fire suppression

Natural disasters and extreme climatic events (forest fires, drought and storms) have always happened in the Mediterranean Basin, but the frequency of these is expected to increase as a result of climate change. In the last 20 years, droughts have been severe in several countries such as Morocco, Syria and Cabo Verde. Big floods (Bab el-Oued, Algiers, 2001) and forest fires (Spain, France, Italy) marked the beginning of the century.

The Mediterranean Basin is one of the most fire prone regions of the world and has a history of forest fires devastating large areas. Climate change models indicate that the Mediterranean Basin will experience decreasing rainfall and increasing temperatures (Bates *et al.* 2008), which suggests that forest fires will be more frequent and higher impact. Forest fire destroys or degrades forest cover, and this in turn accelerates landslips on steep hillsides, flooding and soil erosion.

To a certain extent, Mediterranean ecosystems are adapted to naturally occurring fires resulting from lightning strikes or volcanic activity. Natural fires have been a driving force for evolutionary change. In fact many species of Mediterranean plants have evolved with fire and now depend on it. Consequently, fire is not only a threat in the region, but a critically important natural process in some systems and an important land management tool.

However, the loss, fragmentation and degradation of natural habitats in the Mediterranean Basin, especially in the last 50 years, has reduced the resilience of the region’s remaining biodiversity to forest fires, with species sometimes reduced to small and often isolated populations (many threatened species), which may lose virtually all of their ranging area. The nature fire-return interval has decreased dramatically in the last century and may now be as little as five years in some areas (Trabaud and Prodon 2002), thus blocking successional processes, with often one or few shrub species dominating the landscape (Blondel and Aronson 1995).

Furthermore, 98% of fires in the Mediterranean Basin are started by people, either intentionally or accidentally. Frequent large fires are partly due to the widespread abandonment of traditional agriculture, grazing and forestry, which can lead to the growth of extensive areas of dense shrubland that is very susceptible to fire. Illegal and often uncontrolled burning is still used to produce fresh growth of vegetation for livestock grazing in some Mediterranean Basin countries. It is estimated that almost 1% of forested Mediterranean areas in the EU burn annually (San-Miguel-Ayanz *et al.* 2013).

8.1.2 Pollution

The main sources of pollution in the Mediterranean Basin are sewage and wastewater from urban sources (often untreated or insufficiently treated), excessive pesticide and nutrient additives from agricultural and livestock activity (principally nitrogen and phosphorus, pesticides, fungicides and herbicides from non-point sources, and veterinary drugs such as antibiotics, anti-inflammatories and anti-parasitics), discharges and accidents involving heavy metals and oils from industrial facilities (also oil from marine sources that washes ashore), toxic chemicals from mining operations, and dumping of solid waste from a variety of sources in wetlands, drainage channels, rivers and other wetlands.

The rapid and widespread intensification of agriculture in the hotspot in the last 30 years has been associated with a massive increase in the use of inorganic fertilizers, resulting in a widespread run-off. Nutrient pollution from sewage disposal is also a major problem, though not as great as riverine discharge of nutrients from agriculture. However, with the growth in the population, pollutants directly discharged into the sea are likely to reach higher concentrations. In many countries, particularly in the south, only primary treatment is given to sewage.

The Mediterranean Sea is extremely susceptible to ship-related pollution — 30% of international maritime freight traffic and some 20 to 25% of oil maritime transport transit through the Mediterranean Basin. Between 1977 and 2000 there were 156 accidents followed by oil spills. Significant progress has been achieved in combating marine pollution from ships: operational pollution from hydrocarbons decreased by a factor of 20 between 1985 and 2000, through stronger regulation, mainly the obligation to use separate ballast tanks. Emptying ballast waters into the sea is illegal, and yet this pollution is estimated at 100,000 to 150,000 tons per year (Plan Bleu 2006).

The Mediterranean Sea is the planet's most highly-affected area in terms of marine litter, both as whole plastic items and as micro plastics (Galgani *et al.* 2014). Marine litter has caused increasing mortality due to entanglement, ingestion and smothering, as well as causing problems harms due to hangers-on, hitch-hiking, and alien species transportation (Gregory 2009).

Over 80% of landfills are uncontrolled in the South and East of the region, and waste production, at a current average of 282 kg per capita per year versus 566 kilograms in the North, could reach 600 kilograms per capita by 2025. Total volumes of produced waste could almost triple in the south and double in the north by 2025 (Plan Blue 2006). Pollution is also recognized as having significant socioeconomic impacts in the region, including on human health.

The Mediterranean Action Plan (MAP) has a protocol on pollution from land-based sources, and a strategic action plan to combat pollution adopted in 1997, with further national plans. The EU has also strengthened its legal framework and set ambitious objectives for the protection of water resources. The water framework directive aims at improving the state of coastal and freshwater bodies in Europe. The first management cycle to meet environmental objectives ended in 2015; the second management cycle includes a second river basin management plan and first flood risk management plan is expected to be completed by 2027. Yet, 60% of urban wastewater is still discharged into the sea without any treatment and considerable differences exist between EU member countries, which benefit from structural aids, and the developing Southern and Eastern countries.

Freshwater ecosystems, being the lowest points in each catchment, are the recipients of much land based pollution with resultant impacts to their associated species. Water quality is a negatively impacted as a result of uncontrolled waste disposal from agricultural, industrial and domestic human activities that, in the majority of the cases, are also linked to soil pollution. In areas where the impact is higher, worsening of the freshwater quality has led to heavy pollution and eutrophication of both surface and ground waters.

8.1.3 Agricultural intensification and land abandonment

Overgrazing, deforestation, forest fires and land management practices are the human actions that have triggered or intensified processes of land degradation and desertification in the Mediterranean (Pla Sentis 2003). The results of the analysis for the Mediterranean threatened species agrees with numerous previous studies in showing that biodiversity loss is linked to intensification of agricultural activities on the one hand, and the abandonment of farming on the other hand. Intensification is generally associated with high yields, but also with significant changes in the natural environment. Abandonment generally implies the loss of cultivated landscapes and corresponding habitats (Maxwell *et al.* 2015; EEA 2015, Buttler *et al.* 2014).

Changes in land-use and management are known to have significant detrimental impacts on biodiversity. For example, over recent decades farmland birds across Europe have been impacted by changes in food abundance, availability of foraging and nesting habitats and nesting success as consequences of intensification of practices such as a move from spring to autumn sowing, increased agrochemical inputs, loss of non-cropped habitats, land drainage, a switch from hay to silage production and increased stocking densities. Land abandonment has also led to the loss of semi-natural grassland and forest growth (Laiolo *et al.* 2004; Donald *et al.* 2006; Wretenberg *et al.* 2006; Reif *et al.* 2008).

Several bird species characteristic of agricultural and pastoral landscapes have shown a marked decline during the past decades. This negative trend has been related to agricultural intensification in some cases and to land abandonment in others (Fuller *et al.* 1995; Bignal and McCracken 1996; Burel *et al.* 1998*;* Chamberlain *et al.* 2000*;* Donald *et al.* 2006). Indeed, agricultural intensification and land abandonment represent the main directions of land-use changes in European countries (Meeus 1995), and both may threaten farmland bird communities (Tucker and Evans 1997).

Overgrazing has also significantly altered the vegetation of many areas, leading to degraded scrub vegetation, and continues to be a threat to native vegetation, especially on islands with significant numbers of free-roaming sheep and goats. In addition to its better known impact to terrestrial habitats, such as land degradation, soil erosion and changes in plant composition and regeneration capacity (Czeglédi and Radácsi 2005), overgrazing is identified as one of the most important threats to the wetland ecosystems which are often utilized as a source of water and plants especially to domestic livestock (Smith *et al.* 2014).

Agricultural intensification

Agricultural intensification is a multi-scale process increasing in a varied pattern in the hotspot in the last 30 years with complex and detrimental effects on biodiversity (Buttler *et al.* 2010). Agricultural and livestock intensification involves management changes at field scale such as the increase in external inputs (nitrogen fertilization, pesticides, food supply, veterinary products), aimed to maximize yields (Chamberlain *et al.* 2000). Much of these substances are washed into the associated wetland ecosystems leading to eutrophication (though nitrogen input in particular) and species decline through poisoning. At landscape scale intensification affects the landscapes through changes in its structure and composition by simplification, homogenization, artificialisation and abandonment.

Irrigation practices are essential for agricultural intensification in the Mediterranean. Irrigation represents between 70% and 80% of the total water withdrawal in the Mediterranean countries, causing overexploitation problems of surface and groundwater, massive river regulation and pollution; wetland loss and degradation and saline water intrusion in coastal aquifers. The abstraction of water and regulation of river flows has a notably high impact on many freshwater species as they become deprived of essential habitats. Irrigated surfaces in the Mediterranean countries have doubled in 40 years, reaching 24 million hectares in 2007 (Castilla *et al.* 2013). In Tunisia, irrigated surfaces have increased by 64% in 35 years, reaching 400,000 hectares in 2011 (Omrani and Ouessar 2011).

During the last century, intensification of the Mediterranean agriculture was relatively low compared to that of northern Europe because of the prevalence of areas with unfavourable soils, precipitation and topography in addition to socio-political constraints. Farming intensification in most European Union Mediterranean countries is concentrated in the most accessible fertile irrigated lowlands, while the traditional, extensive systems in the inaccessible mountainous areas were gradually abandoned because of their low economic competitiveness.

Large-scale clearance of land for agriculture is not a new phenomenon in the Mediterranean Basin, as it happened hundreds, in some cases thousands of years ago. In northern Africa the transformation of forests into cropland and pastures for livestock, and wood use for charcoal, is one of the main causes of habitat degradation (Cuzin 2003; Beudels-Jamar *et al.* 2005) and the resulting increase in sediment run-off has wide-ranging impacts for downstream wetland habitats. In Tunisia for example, annual land losses from land degradation processes (water and wind erosion, salinization, overgrazing) are estimated at 37,000 hectares, 13,000 of which have suffered irreversible damage. Extensive areas of some deltas in the Mediterranean Basin have been lost for agricultural purposes (for example, Evros Delta in Greece, Caorle Lagoon in Italy). Freshwater habitats such as deltas and wetlands across the Hotspot are particularly vulnerable as they are often considered vacant or worthless land best converted to more ‘productive’ uses such as agriculture, urban expansion, and industrial development.

Greenhouse cultivation is a growing sector worldwide, especially in warm, coastal areas. In some countries the sector is developing without any type of spatial planning or organization, leading to the overexploitation and contamination of aquifers and to the uncontrolled dumping of waste. In the Mediterranean, the area devoted to greenhouses increased 68% from 1987 to 2006.

Land abandonment

Land abandonment threatens many important habitats in the hotspot that are managed for agriculture in a non-intensive or traditional way, such as steppes, montane grasslands, Iberian dehesas and Mediterranean shrublands. Abandoning farmland has resulted in a reduction of soil erosion as the land becomes reclaimed by plants but there is also an increasing incidence of fire and decreased habitat heterogeneity, changing the environment in which an important percentage of Mediterranean biodiversity has evolved (Di Castri 1981). Detrimental effects of land abandonment are likely to be more delayed than the effects of intensification (Buttler *et al.* 2010)

During the last 100 years, traditional land uses have been abandoned over millions of hectares of non-intensive cultivation and pasture in the Mediterranean Basin (Beaufoy *et al.* 1994). Without the checks to succession provided by ploughing or grazing, the result in the medium term is often the replacement of these open, wildlife rich habitat mosaics by uniform secondary scrub habitats of reduced conservation value.

Land abandonment may therefore have differential impacts on ecological communities, depending, for example, on their biogeographic origin. For instance, Eurosiberian birds may be favoured by land abandonment and forest recovery, while Mediterranean species, preferring open landscapes and shrublands, are generally threatened (Suárez-Seoane *et al.* 2002).

8.1.4 Infrastructure and residential development

The economies of some Mediterranean Basin countries are reliant on revenue from mass tourism. As tourism flows into the region increase and human populations grow, there are further strains on the limited marine and terrestrial resources.

Mediterranean tourism, mainly based on a mass seaside resort and seasonal model, has been seen as a driver of economic growth for the region. Nevertheless, the positive impacts of tourism and its key role in future development are matched by negative effects including loss of biodiversity as a result of land use management and the development of infrastructure and public services.

Urbanization is one of the principal and permanent results of tourism in a destination. Its actual effects depend on the intensity of the phenomenon and the land-use planning policies applied (Plan Blue 2006).

There are several areas in the Mediterranean with very low population levels which had very small built-up areas prior to the development of tourism, but which have experienced "urban explosion". At Martil on the Tetouan Coast (Morocco), the construction of residential areas around a golf course in the 1990s led to a multiplicity of construction projects on a coast that was already saturated: only 12.5% of the coastline is still "natural" (Plan Blue 2012). Torremolinos in Spain is one of the most extreme examples; where about 65% of the $20km^2$ of municipal land is now urbanised or in the process of being urbanised. This compares with 47% in 2002. Currently, natural vegetation is only found in inaccessible locations: high up on steep slopes; 29% is scrubland (down from 43.1% in 2002); 3.5% is abandoned agricultural land and pasture; 0.15% is forest and 0.59% rivers (Navarro *et al.* 2011). Urban area has also increased in foothills within commutable distances to major cities as a result of second home construction and the tourism and leisure industry.

Tourism often has irreversible effects on natural areas rich in biodiversity. These include the reduction in plant diversity and deterioration or destruction of coastal dunes by tourism infrastructure (for example, in Djerba in Tunisia, on the coast of Matrouh in Egypt and on the beaches of Tipasa in Algeria), the drainage of wetlands, which is leading to a loss of habitat for migratory birds (Tetouan Coast) and many other aquatic species. Water-related leisure activities damage aquatic plant communities (sea grasses and coralligenous species) and affect populations of marine turtles (nesting areas) and monk seals (Alanya in Turkey) (Plan Blue 2006).

8.1.5 Transport infrastructure and service corridors

In 2000, the Mediterranean Basin coastal strip had 70 million urban inhabitants, 584 coastal towns, 750 yacht harbours, 286 trade ports, 248 energy plants, 238 desalinization plants, 112 airports and numerous high-traffic roads (Plan Bleu 2006). Traffic growth outweighed population and economic growth in the Mediterranean by far between 1970 and 2000: 4.9% per year for passengers and 3.8% for freight (excluding maritime traffic). Traffic growth is mainly due to road transport, which accounted for 88% of passenger traffic and 82% of freight in 1999. High growth in air transport (7.3%) is linked to tourism development. Maritime freight transport also registered significant growth (4% per year). Transit-flows account for 40% of Mediterranean traffic (Plan Bleu 2006).

Both urbanization and the development of linear transportation infrastructures are causes of fragmentation. Transportation infrastructures lead to a disruption of the natural habitats that they cross, splitting them into several distinct patches. Fragmentation has negative consequences for habitat selection, abundance and species diversity (van den Berg *et al.* 2001) and limits or disrupts migration and dispersal of individuals. Linear Transportation infrastructures cause direct animal mortality due to vehicle collisions, electrocutions and drownings of individuals attempting to cross the infrastructures (van der Berg *et al.* 2001; Muñoz *et al.* 2015; Godino *et al.* 2015).

Transport infrastructure is a major cause of surface sealing/waterproofing, thus increasing vulnerability to floods. Even before the expected problem of sea-level rise, coasts were threatened by extensive costal engineering measures to protect land and property from inundation and or erosion. The construction of seawalls is common, and this is likely to increase in the future. One of the most important and wide ranging impacts of such sea defenses is the disruption of natural geomorphological processes, and the protection of coasts may actually exacerbate the problem of erosion and flood risk.

8.1.6 Biological resource use (harvesting, hunting, logging)

Threats from the use of ‘wild’ biological resources include both deliberate and unintentional harvesting effects; also persecution or control of specific species. This category focuses on the effects of the intentional use of wild plants and animals by hunting, collection, killing, gathering, trapping, fishing, logging or harvesting as well as of the unintentional effects when the species are not the target (e.g., bycatch, poisoning or habitat destruction by fishing techniques or harvesting methods). Direct mortality as consequence of these activities affects terrestrial and marine threatened species in the Mediterranean.

Intentional killing

Hunting and its associated management have significant costs and benefits for biodiversity conservation, which makes this socio-economic activity highly controversial at both international and regional levels (Caro *et al.* 2015). In areas where low-intensity land management is threatened by replacement with intensive farming, or even non-agricultural use, hunting can give value to semi-natural habitats and so contribute to their preservation (Arroyo and Beja 2002). However, management of other wildlife to increase game for hunting, most importantly predator control and habitat management favouring specific species, occur in some Mediterranean countries and may be detrimental to important biodiversity. Predator control is mainly directed to small predators, like foxes, corvids and some mustelids, but in some cases the use of poisons to reduce the populations of mammalian predators and corvids, causes the unintentional death of threatened raptors (BirdLife, 2011; Cano *et al.* 2016). Some bird scavenger species such as the red kite, the bearded vulture, the imperial eagle or the Spanish imperial eagle are seriously threatened by this problem (Arroyo and Beja 2002; BirdLife 2011; Cano *et al.* 2016).

The current decline in survival rates of many migratory birds seems to be related to excessive hunting and trapping pressures in Mediterranean countries (Brochet, *et. al.* 2016; CABS 2014, Emile *et al.* 2014) in addition to the degradation of breeding and wintering habitats and changes in climatic conditions (Brochet, *et. al.* 2016, Vickery *et al.* 2014, Eason *et al.* 2015). Such pressures are particularly high in islands, such as Malta, Cyprus, and most of the Aegean Islands and, as a result of intensive bird shooting in recent decades, Malta has lost all its breeding birds of prey: peregrine falcon (*Falco peregrinus*), common kestrel (*F. tinnunculus*) and barn owl (*Tyto alba*). The Balkans, most Mediterranean islands, and coastal countries of the Middle East and North Africa remain regions of unabated hunting of migratory birds. Twice yearly, millions of migratory birds fly between their breeding sites in temperate and Arctic zones in northern Europe and Asia, and winter in warmer regions like western and southern Europe, the Mediterranean, and Sub - Saharan Africa. It has been estimated that millions of migratory birds are illegally killed in the Mediterranean region every year for leisure, food and trade (Brochet, *et. al.* 2016; Emile *et al.* 2014; Eason *et al.* 2015; BirdLife 2015). The unsustainable hunting and illegal killing of birds constitutes a considerable challenge for bird conservation efforts, as many local communities in these areas might depend on bird hunting during the migration seasons for part of their livelihoods (Blondel *et al.* 2010, Elhalawani 2016)

Fishing

As mentioned above, the Mediterranean region has been inhabited for millennia and human settlements have been spreading continuously along its coastal areas. As a consequence, marine ecosystems of the Mediterranean have been altered in many ways over the centuries (Bianchi and Morri 2000). Fishing activity was probably the first major human disturbance in coastal areas (Jackson *et al.* 2001) and evidence of fishing activity going back to ancient times can be found throughout the Mediterranean Sea. Moreover, the development of fishing technologies, overcapitalization in recent decades, and an increasing demand for marine resources, is placing intensive pressure on marine ecosystems. At the end of the last century, fishing pressures increased rapidly in the Mediterranean Sea, shifting from a primarily artisanal and coastal activity to intensive exploitation (Goñi *et al.* 2000). The current assessment from the NW Mediterranean suggests that demersal stocks are fully exploited or overexploited, whilst some pelagic stocks also show signs of overexploitation. 96% or more of the Mediterranean bottom-living fish are overfished, and for the middle-water stocks like sardine and anchovy the figure is 71% or more. (EC 2015).

In addition, fishing methods such as benthic trawling alter benthic habitats, modifying the structure and species composition of sea grasses and coraligenous ecosystems. Other fishing gears such as longlines and driftnets can result in significant by-catch of turtles, sea birds, sharks and cetaceans (Caminas *et al.* 2006, Tudela *et al.* 2005). Drift netting, once used widely throughout the Mediterranean, is now prohibited; however, illegal drift netting still occurs (WWF 2004).

Freshwater fishes are also subject of overharvesting in some cases. The sturgeons, occurring in the Black and Caspian seas and their larger catchments, are a high profile example of overharvesting of a species which, combined with the impacts of dams blocking their migration to spawning ground, have become almost extirpated from many rivers (Ustaoglu and Okumus 2004).

In addition, a number of aquatic plants are threatened by overharvesting either for medicinal purposes or for food (Juffe-Bignoli and Darwall 2012).

8.1.7 Invasive species

Invasive Alien Species have been recognized as the second cause of species disappearance at global level, behind habitat loss and deterioration, affecting above all islands and isolated ecosystems. The movement of exotic species that is a side-effect of the globalization of markets has raised the rate of introduction of new alien species everywhere, with harmful consequences for native biodiversity and natural community structure, functioning and stability (Genovesi and Shine 2004).

This problem is particularly important in the Mediterranean Sea where more than 5% of the marine species are now considered non-native species (Zenetos *et al.* 2012). The number of invasive species varies across the Mediterranean basin, with the highest number of species (> 700) recorded in the eastern basin in the vicinity of the Suez Canal[18]. In the western basin, most species are introduced via maritime transport and aquaculture (Zenetos *et al.* 2012) (see Map 1.4). Studies show that the vulnerability of an ecosystem to invasive species may also be related to its environmental status: polluted or physically degraded environments are more prone to invasions than pristine sites (De Castri *et al.* 2012; González-Moreno *et al.* 2016).

Even well managed protected areas suffer from the introduction and settling of invasive alien species (Otero *et al.* 2013). Their effects on the biodiversity and habitats of the Mediterranean cannot be generalized, as alien species can cause very diverse effects at different locations or different times, sometimes with a strong invasive component and sometimes not. Non-native macroalgae (seaweeds), mollusks, crustaceans and fishes are particularly likely to become invasive in coastal environments.

In the freshwater environment, a large number of freshwater species in the hotspot are threatened by alien invasive species. For example, in northern Africa the Critically Endangered fish *Aphanius saourensis* is affected by the introduction of the North American mosquitofish (*Gambusia holbrooki*) and the Moroccan endemic freshwater mussel *Anodonta pallaryi* is affected by the introduction of the molluscivorous Louisiana red crayfish (*Procambarus clarkia*) that is rapidly spreading through Mediterranean Europe. In addition to the threat of alien species through predation and competition, hybridisation is also a threat, such as for *Salmo macrostigma*, at risk from hybridisation with an introduced trout species. Amongst the aquatic plants, *Utricularia inflexa*, is an example of a species threatened by competition with exotic plants.

In the terrestrial environments, human made habitats, such as industrial areas, arable land, parks and gardens, harbour most of the invasive alien plant species in the region. Riparian forests are also frequently invaded by alien trees such as black locust (*Robinia pseudoacacia*), *Acer negundo*, *Lonicera japonica* and *Eucalyptus* species (Vlachogianni *et al.* 2013). Although probably lower in number of species than marine and freshwater alien species invasions, several terrestrial vertebrates and invertebrates have been introduced and established in the Mediterranean Basin Hotspot. For example, ring-necked parakeet (*Psittacula krameri*), mitred parakeet (*Aratinga mitrata*) and monk parakeet (*Myiopsitta monachus*) which have established populations in Mediterranean countries compete with native cavity breeders for nest sites and have the potential to act as disease carriers and can cause significant damages to crops.

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[18] This is called Lessepsian migration, and is overwhelmingly in favour of Red Sea species migrating to the Mediterranean Sea. See wikipedia.org/wiki/List_of_Lessepsian_migrants

Brown rat (*Rattus norvegicus*) is well known for causing negative effects on native fauna, especially in islands. Locally distributed and harmful for native species and habitats include coypu (*Myocastor coypus*) and small Indian mongoose (*Herpestes auropunctatus*).

Red-eared slider (*Trachemys scripta elegans*), a semi-aquatic turtle from North America, is an invasive species massively traded worldwide as a pet. It has been introduced in most European Mediterranean countries and has managed to form free living populations. Red-eared slider is a competitor of Mediterranean pond turtle (*Mauremys leprosa*, Vulnerable at the European level) and European pond turtle (*Emys orbicularis*).

8.1.8 Climate change and severe weather

This category includes the threats from long-term climatic changes which may be linked to global warming, and other severe climatic or weather events that are outside of the natural range of variation, or potentially can affect a vulnerable species or habitat. The impacts include major habitat changes (e.g., sea-level rise, desertification, coral bleaching), droughts, temperature extremes (e.g., heat waves, oceanic temperature changes) and extreme precipitation and/or wind events (e.g., cyclones, dust-storms, erosion of beaches during storms).

Vulnerability of biodiversity and ecosystems to climate change is defined as the combination of three factors: a) the degree to which their climatic environment has or will change relative to conditions under which they evolved; b) the sensitivity of the ecosystem processes to the elements of climate which are changing; and c) the degree to which the system can maintain its structure, composition and function in the presence of such change, either by tolerating the change or adapting to it (Settele *et al.* 2014).

The effects of climate change, including ocean acidification are specially marked in the Mediterranean Sea, being especially vulnerable to the increased sea surface temperature (SST) caused by greenhouse gas emissions (Diffenbaugh and Giorgi 2012; IPCC 2013; Lionello *et al.* 2012). For example, the increase in seawater temperature due to climate change is having a particularly strong impact on gorgonians and some other coral populations, and mass mortality events have occurred in recent years along the Mediterranean coast (Otero *et al.* in prep.).

Effects of global warming seem to be already occurring in long-distance migratory birds, which usually spend the winter in sub-Saharan Africa. For some of these species, populations now stay in the Mediterranean instead of crossing the Sahara. For example, some partial migrants, such as little egret, became sedentary, and little ringed plover (*Charadrius dubius*) and squacco heron (*Ardeola ralloides*), now winter in the Mediterranean, previously a stopover area on their migratory journey. The importance of Mediterranean wetlands could increase in the future, especially if Sahelian wetlands continue to degrade (Blondel *et al.* 2010).

8.2 Threats at national and local levels

The consultation process for the preparation of this ecosystem profile included a questionnaire survey of national level informants which included specific questions about the threats to species and sites within the hotspot.

The following points summarize the responses for all levels, national, habitat and KBA (Table 8.1):

- Hunting, urbanization and tourism development are more or less universally identified throughout the basin (there is one country for each of those threats that did not prioritise them).
- Climate change and its effects were not one of the main concerns in the Balkans, but were very widely identified throughout Middle East and North Africa. However increased incidence of fires was one of the main threats in the Balkans, even though the link to climate change was not explicitly made.
- Invasive/alien species were not prioritized (included in the top five threats) in the Balkans, but were mentioned quite regularly in the other two sub-regions.
- Agricultural/aquaculture related threats featured more prominently in North Africa and Middle East then they did in the Balkans, where they were only properly addressed in Macedonia, and mentioned in passing in Bosnia.
- Pollution problems, either waste water management, or solid wastes, were more prominent in North Africa and Middle East, while in the Balkans this rarely got into top 5 threats. It is still perceived as a significant problem, but it was more commonly linked with urbanization and tourism pressures.
- Syrian refugee crisis was only mentioned in Jordan, although Lebanon is also affected. Human migration was not mentioned as an issue in the Balkans.
- Water management, and especially dam building and abstraction of surface waters, is a more prominent concern in the Balkans than in the other two regions. This particularly applies to dam building, as the main challenge in the Middle East and N Africa is ensuring water supply and avoiding losses of water to agriculture.

Table 8.1 Prioritized threats by country: frequency with which each threat was included in the top five threats for the country, ranked by national workshop participants

Threat	Macedonia	Albania	Montenegro	Bosnia Herzeg.	Lebanon	Egypt	Jordan	Libya	Algeria	Tunisia	Total
Biological resource use	**7**	**6**	**9**	**31**	**4**	2	**8**	**6**		**2**	75
Natural system modifications	**7**	3	7	**23**	**5**		**9**	2	**16**	1	73
Residential and commercial development	4		**14**		1	**5**	5	**4**	**10**	1	44
Energy production and mining	1	**4**	2	5			**8**		3		23
Pollution			2	1	3	**6**	4	1	1	1	19
Agriculture and aquaculture	1			8	1		2	1	2	1	16
Invasive and other problematic species, genes and diseases	2			3	2		2				9
Transportation and service corridors		2					4		2	1	9
Climate change and severe weather	1				1		2		3	1	8
Human intrusions and disturbance							6	1		1	8

Note: Numbers in bold correspond to the two main threats identified in each country.

For analysis of threats specifically to KBAs, workshop participants identified and ranked the three top threats to each KBA. For analysis, the threats were scored from 1 to 3, and scores for each threat summed for each sub-region. Countries with more KBAs, and countries which provided more detail in their responses, therefore had greater influence over the result. Data for Syria and Kosovo were not available.

Figure 8.7 Relative importance of threats to KBAs in the Balkans sub-region

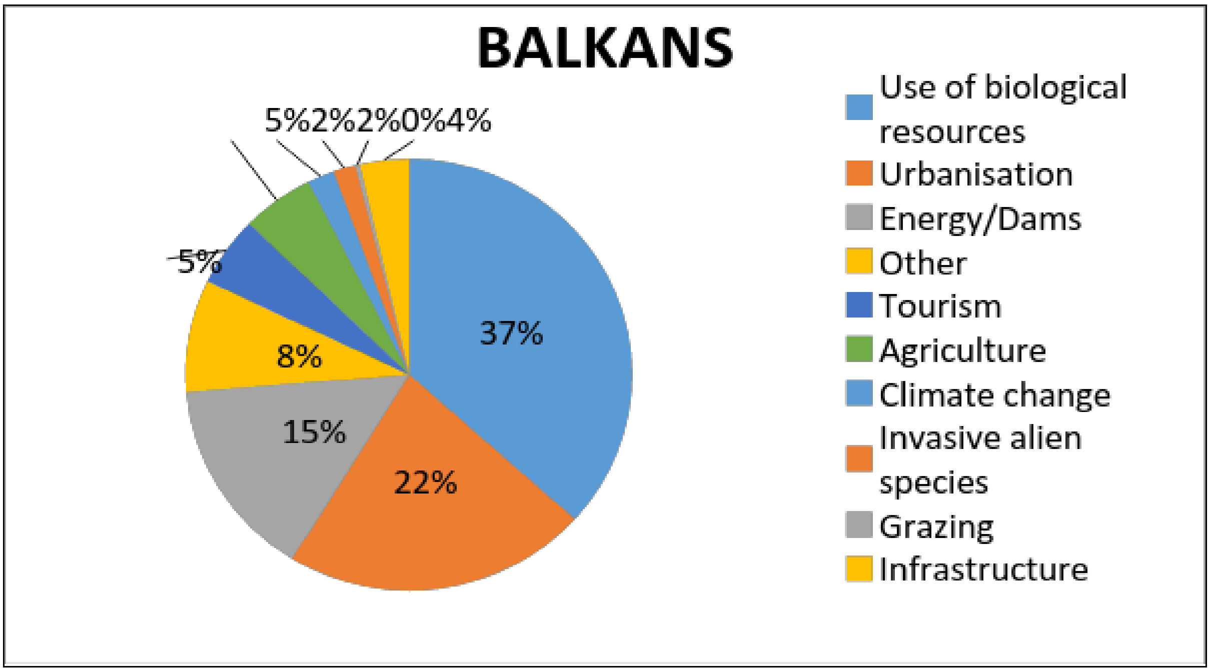
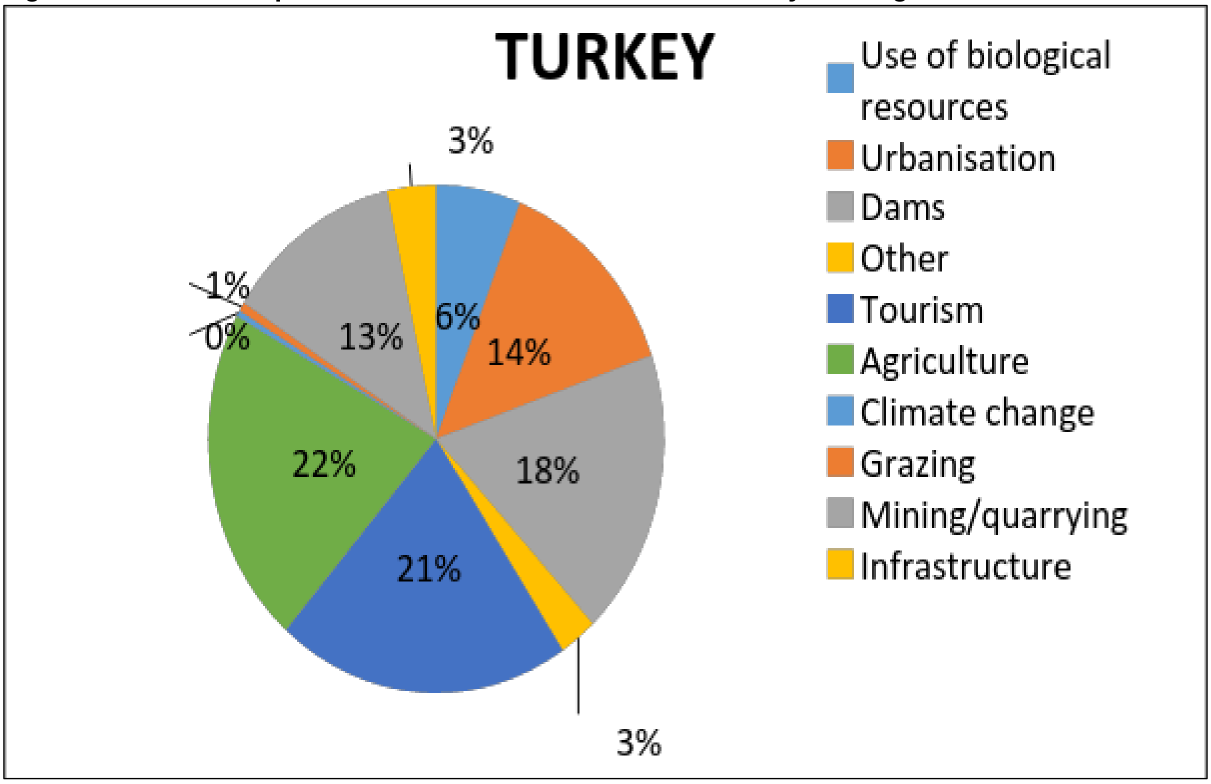


Figure 8.8 Relative importance of threats to KBAs in the Turkey sub-region



In the Balkans (Figure 8.7) and Middle East sub-regions (Figure 8.9), the two main threats identified by participants were Use of Biological Resources and Urbanisation. In both cases these two threats comprise more than half of all relative importance of threats mentioned in both sub-regions (59% in the Balkans and 52% in the Middle East). There was less similarity over other threats, with Dams and Renewable Energy a much higher priority in the Balkans than the Middle East. Biological resource use was also a significant threat in North Africa, but grazing emerged as the most widespread threat, a category that does not appear in the other regions. In Turkey (Figure 8.8), tourism was ranked as the greatest threat, followed by agriculture and dams.

Figure 8.9 Relative importance of threats to KBAs in the Middle East sub-region

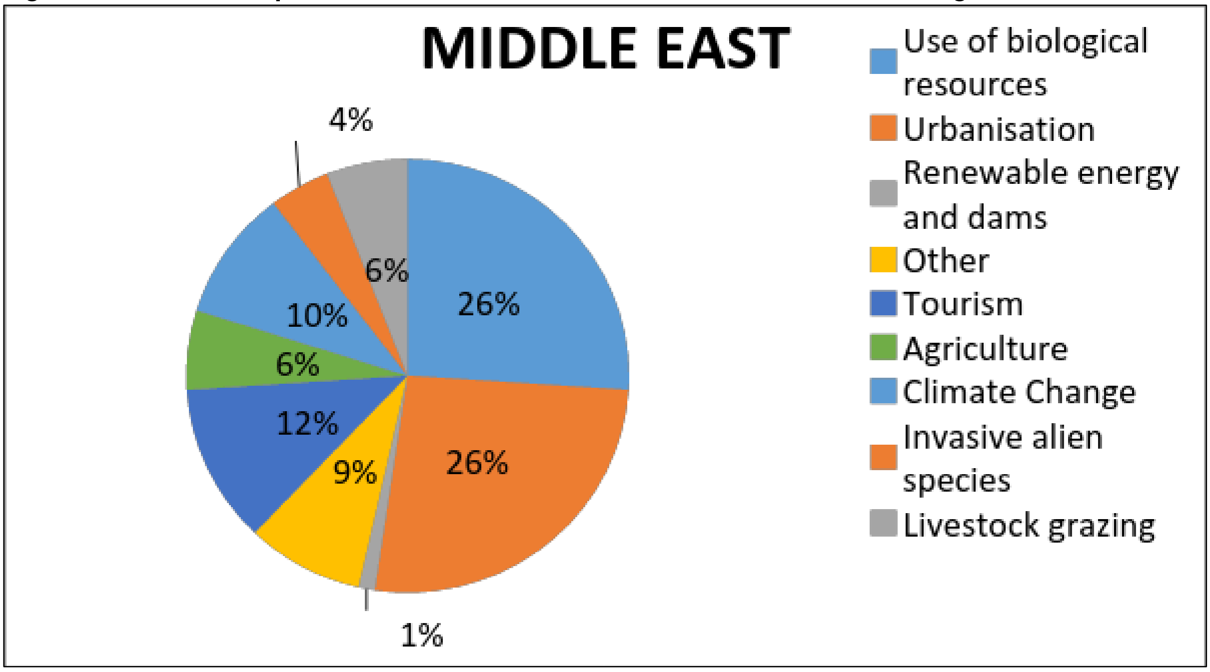
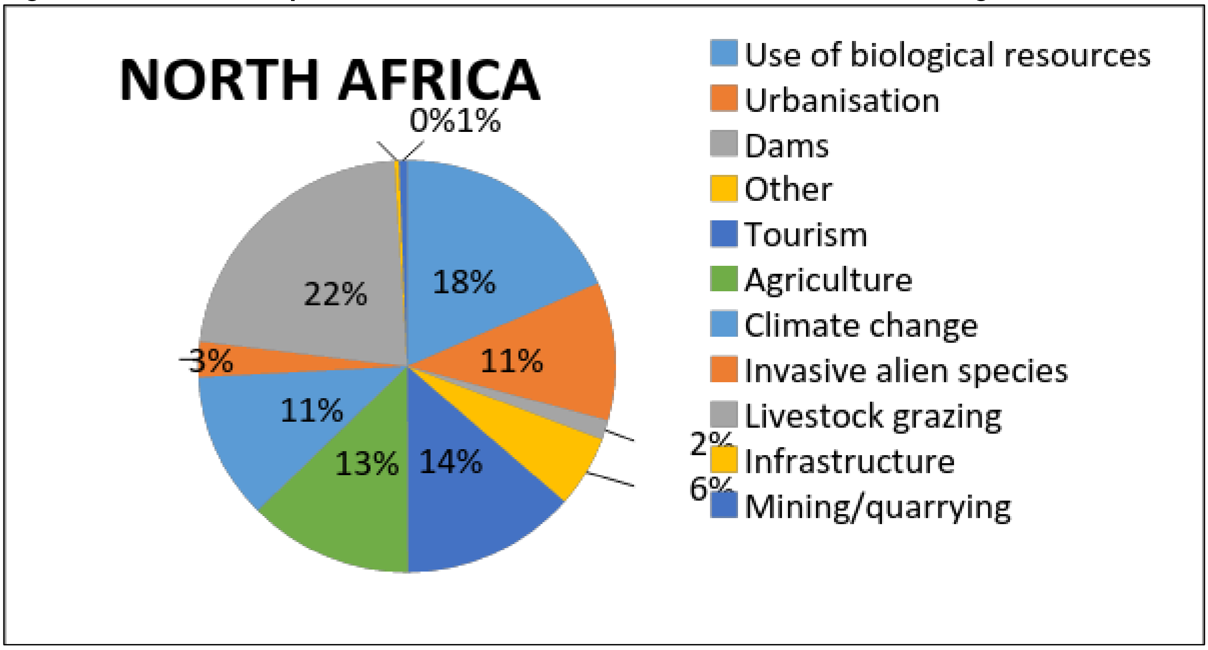


Figure 8.10 Relative importance of threats to KBAs in the North Africa sub-region



8.3 Drivers of biodiversity loss and barriers to conservation action

This section describes the underlying causes of the main threats to biodiversity in the hotspot described in Sections 8.1 and 8.2. Closely linked to the drivers of threats to biodiversity are the major barriers to conservation action in the region, which are also included in this section. These refer to policy, socio-economic, financial and other factors that hinder or diminish the impact of conservation efforts in the region.

The underlying causes of the threats outlined above are often deep rooted and complex. Many have their origins in regional and global economic trends, on-going demographic changes and the socio-political history of the region. They may be becoming further compounded by the unpredictable impacts of climate change. Based on the threat analysis the main direct and indirect drivers of biodiversity loss and ecosystem service changes in the Mediterranean region can be identified. Indirect drivers include overpopulation, urbanization, coastal development and unsustainable modes of consumption, trade, and tourism. Direct drivers are habitat fragmentation, degradation and destruction caused by overexploitation of natural resources, rapid and large scale land use changes, physical modification of and water withdrawal from rivers, alteration of sea floors due to dredging, drilling and trawling, various types of pollution including biological/microbial, chemical and sedimentation pollution, introduction of non-indigenous species, and unsustainable use/removal of wild living resources (hunting, fishing, logging).

8.3.1 Main drivers and root causes

Principal among these underlying root causes are increasing population, increasing material consumption and inequitable access to resources, policies and incentives that damage the environment, and under-valuation of Ecosystem Services. All these drivers can be either exacerbated or mitigated by public policies and institutional arrangements, at national, regional and international levels.

Population growth and movements

At a fundamental level, many trends affecting biodiversity and ecosystems in the Mediterranean Basin are a reflection of an ever-increasing number of people. All countries are witnessing rapid rates of urbanization and migration from rural to urban areas, in increased demands for natural resources, particularly for water and energy, and land for building, but also in land abandonment, and local economy decline.

The urban population in all riparian countries together grew from 94 million in 1950 (44% of total population) to 274 million in 2000 (64%). Spectacular urban development has taken place in the south and east of the region, where 74% of the population will be urban by 2025 (see 5.3.1 section above). The very high urban growth rates do not equate with economic growth, and the technical and financial capacities of cities are limited. With the expansion of urban areas, the proliferation of informal housing (between 30% and 60% of total) and the risks of instability have been accentuated.

Despite rural emigration, agricultural populations in the South and East of the region have increased by 10 million in 40 years, to reach 71 million in 2000. Non-agricultural employment is still scarce, and agriculture still plays a decisive social and economic role but is characterized by duality, where modern farming coexists with a mass of subsistence small farms, which are undergoing fragmentation. Rural poverty and disparities with cities are high, as shown by some indicators (population living under the poverty line, access to basic services, schooling and illiteracy rates). Considerable pressures are exerted on natural resources causing deforestation, desertification, rapid silting-up of reservoirs, altered stream flows and irreversible biodiversity losses. Desertification affects 80% of arid and dry areas; pasturelands and rain-fed croplands are the most affected but irrigated land is also under threat. In spite of very restrictive EU migratory policies, migratory flows remain significant and most unlikely to dry up. It is estimated that 10 million people, 5 million of whom are from other Mediterranean Basin countries, are living in a Mediterranean Basin country which is not their own (see Section 5.3.1 above).

Rapid economic growth, increasing consumption and inequitable access to resources

The current system of economic growth is unsustainable because it is based on increasing consumption, combined with a growing human population and poor overall management and governance of natural resources. Economic growth and ever-increasing consumption are one the main underlying causes of habitat loss and degradation, and overexploitation of plant and animal species. All countries in the region are, to varying degrees, pursuing market-oriented economic policies and export-led development strategies, on the promise of strong economic growth. This is especially notably in three critical sectors for biodiversity conservation: forestry, fisheries and agriculture.

On both sides of the Mediterranean, economic growth has been lower than in other comparable regions worldwide (see Section 5.4.1 above). Economic growth has helped push poverty back, and promote human well-being, but the sustainability of this growth is in doubt. Environmental Performance Index (EPI) is a measure of environmental performance of countries on high-priority environmental issues. Among the 20 indicators that comprise the EPI are air quality, forests, fisheries, and climate and energy. Table 8.2 presents the EPI index for the hotspot countries covered by the ecosystem profile update, with the worst and best score of the indicators dataset and the top end (Finland) and bottom end (Somalia) countries as a reference.

Table 8.2 EPI scores in 2016 for the hotspot countries covered by the ecosystem profile update

Country	EPI (0-100)	World Ranking (out of 178)	Worst indicator	Score	Best indicator	Score
Finland	**90.7**	**1**	**Agriculture**	**49.24**	**Health Impacts**	**99.4**
Montenegro	78.9	47	Fisheries	32.4	Water and Sanitation	94.0
Macedonia	78.0	50	Water Resources	58.8	Agriculture	92.1
Tunisia	77.3	53	Biodiversity and habitat	61.0	Air Quality	91.2
Albania	74.4	61	Agriculture	42.6	Climate and Energy	91.0
Morocco	74.2	64	Climate and Energy	59.6	Agriculture	100.0
Jordan	72.2	74	Biodiversity and habitat	42.9	Water and Sanitation	89.7
Algeria	70.3	83	Climate and Energy	43.6	Air Quality	89.0
Lebanon	69.1	94	Fisheries	34.6	Water resources	86.6
Turkey	67.7	99	Biodiversity and habitat	22.5	Agriculture	87.0
Egypt	66.5	104	Fisheries	30.6	Water and Sanitation	86.7
Cabo Verde	52.0	143	Biodiversity and habitat	37.0	Air Quality	81.8
Somalia	**26.2**	**180**	**Water Resources**	**4.0**	**Air Quality**	**68.7**

Source: HSU *et al.* (2016).

Five of the 11 countries covered by the ecosystem profile update with EPI values available were under the median value of the countries evaluated (70.8). Montenegro and Macedonia showed the best EPI values (78), while Cabo Verde showed the lowest one (52). The previous threat analysis based on the IUCN Red List of threatened species (Section 8.1), is confirmed with EPI indicators showing that for most of these 11 countries, the indicators with worst scores were Biodiversity and Habitat (Tunisia, Jordan, Turkey and Cabo Verde), Fisheries (Montenegro, Lebanon and Egypt), Climate and Energy (Albania and Morocco), Water Resources (Macedonia) and Agriculture (Albania).

Biodiversity and Habitat indicator is based on the protection of terrestrial and marine areas and species and stress the need for increase the protection of threatened species and habitats. Fisheries indicator is based on the coastal shelf fishing pressure and fish stocks, and confirm the importance of overexploitation of marine resources as one of the main causes of habitat loss and population declines. Climate and Energy indicator is based on the reduction of carbon emission intensity over time. It draws attention to the need of developing countries to implement strategies based on efficient energy sources and carbon emission reduction. Water resources indicator measure how well countries treat wastewater from households and industrial sources before releasing it back into the environment and Agriculture indicator is based on the Nitrogen use efficiency, It also confirm the relevance of pollution as one of the key causes of biodiversity loss and ecosystem functioning in these countries.

Most of the best scored indicators in the 11 countries were those related with Air Quality (Tunisia, Algeria, Cabo Verde) and Agriculture (Macedonia, Morocco and Turkey), while Montenegro, Jordan and Egypt was better scored in Water and Sanitation and Lebanon in Water Resources. Climate and Energy was high scored to Albania.

According the EPI report (HSU *et al.* 2016), air quality cause more deaths globally than water. Fortunately, some of the countries covered by the ecosystem profile update count with adequate levels of exposure to fine particulate matter, nitrogen dioxide and low percentage of population burning solid fuel indoors. Water Sanitation measured as the portion of a country's population that has access to toilets that provide the safe disposal of human waste is a good indication that in some of the countries covered by the ecosystem profile update the exposition risk to polluted drinking water is improved. The methodology and detailed findings indicate that countries with lower scores are more vulnerable to environmental risks as well as lack all the necessary institutional tools to respond to environmental threats.

Governance

Governance systems include laws, treaties, policies, transparency and corporate behaviour and are responsible for the distribution of costs and benefits derived from natural resource use. Generally, governments in the Mediterranean Basin have followed the dominant (non-sustainable) global economic models, through policies based on export-orientated development, and, in recent years, provision of services, especially in the tourism and financial sectors. These development policies have failed to integrate conservation and resource management considerations in a systematic and participatory way.

Associated with these policies have been economic incentives/subsidies, grants and financial arrangements to favoured sectors, such as reduced tariffs on water and electricity, tax exemptions on investments and exports, subsidized prices on imported fertilizers and pesticides, and construction of transport and communication infrastructure to facilitate development, that have encouraged unsustainable natural resource extraction and environmental degradation. For instance, government policy in many Mediterranean Basin countries has been to expand tourism as a means of generating jobs and foreign exchange, and external investment has been actively pursued with developers frequently given favourable terms. Subsidies within the forestry and agriculture sectors have promoted increased production of a number of products linked to forest loss, including forest products and cash crops, and promoted agricultural intensification and the large-scale use of agrochemicals.

Subsidies for tree planting have led to the afforestation of grasslands and other natural non-forest habitats. Such perverse incentives may be direct, for example tax write-offs, grants or low-interests loans, or indirect, for example low land rents, low labour costs, construction of “free” access roads and other infrastructure, or weak environmental protection regulations. In other cases development projects can be promoted and funded without taking into account their impact on biodiversity.

Undervaluation of ecosystem services

Although biodiversity has important cultural, spiritual, recreational, and personal values, government policies frequently recognize natural resources only for their market value. Indeed, the fact that quality of life is dependent upon a complex range of ecological functions that provide clean air, pure water, fertile soils and other ecosystem services, is seldom even considered. The undervaluation of ecological services may be partly because dispersed services, such as carbon sequestration, although important globally, are of less significance to national governments, and partly because immediate gains from exploiting a natural resource are frequently more attractive to decision makers than long- term, theoretical benefits from its maintenance. Furthermore, many of the most important values of biodiversity may simply be unquantifiable.

8.3.2 Barriers to conservation action

Barriers to conservation action refer to policy, socio-economic, financial and other factors that form obstacles to or diminish the impact of conservation efforts current and potential. The barriers identified are closely linked to the drivers of threats.

Poor land-use planning. The quality of urban and rural planning is often of critical importance for achieving environmental sustainability. In the Mediterranean Basin, with dense coastal populations, inappropriate land use can have much more of a significant impacts on the environment than in other regions, and there is less room for error in land use planning and management. land use planning for agriculture, tourism, industry, forestry and urban development is still largely confined to their own sectors in the region with little consideration of the impacts of these plans on other economic sectors or the environment (Strategic Environmental Assessments [SEA] is still not routinely undertaken in the Mediterranean Basin outside of the EU countries) and environmental costs of development are not generally incorporated into national accounts, which only furthers environmental degradation and biodiversity loss). Although the locations of many key biodiversity and ecosystem services sites have been identified through surveys and mapping exercises in recent years, such as KBAs, this information is still not fully integrated into decision-making in planning processes, consequently ecologically important sites are still targeted for inappropriate developments.

Limited capacity and resources for biodiversity conservation. Although there has been significant progress generally in building institutional and individual capacity (in terms of staffing and financial resources) in biodiversity conservation, the lack of adequate capacity remains, and continues to be recognized, as a major barrier to achieving effective environmental management and sustainable development. The size of government environmental departments, in terms of manpower and financial resources allocated to them, is usually not enough to effectively manage the environmental issues they face, and skilled, trained and experienced staff are often overburdened, which means that issues may not receive the attention they need (particularly the case in the review of EIAs which often receive little more than cursory reviews by overburdened government staff). This lack of capacity reflects low awareness and understanding of importance of environment (ecosystem services) among politicians and decision-makers.

Lack of awareness of the value of biodiversity and ecosystem services among decision makers and the general public. As well as lack of knowledge, there is a poor awareness and limited understanding of the ecological, economic, social and cultural values of biodiversity, costs of its loss and its critical importance to human health and well-being among decision-makers and the general public in the Mediterranean. Even in developed countries of the European Mediterranean the level of public awareness on local biodiversity is relatively low. Generally government budgets for environmental awareness-raising are inadequate.

Weak and ineffective policy and legislation to support biodiversity conservation. Even though biodiversity conservation legislation has improved markedly in most countries and there has been good progress on updating and harmonizing environmental policy and legislation in recent years (due in part to national obligations under the EU), this process is still incomplete: many environmental policies have basically remained top-down, corrective and regulatory instead of participatory, integrated and anticipatory, and have not been allocated the appropriate resources or inter-ministerial support. Overall, ‘environment’ is still largely seen as a niche issue and chiefly the responsibility of the environmental agencies in government. This is reflected in the lack of integration of environmental objectives into broader sector policies and programs, which is partly a reflection of poor understanding of the linkages between biodiversity and ecosystem services and local livelihoods, employment and national economies among decision makers in non-environment sectors.

Lack of political support, vested interests and corruption. Although there have been a number of important regional environmental agreements, commitment among high-level decision makers is still not translated into the necessary political support for biodiversity conservation. Short-term, and frequently shifting, national economic and political interests often take precedence over long-term local social and environmental impacts. This lack of political will is evidenced by continuing permission for destructive developments in ecologically sensitive areas, usually the result of strong lobbying by vested economic interests, especially the industrialists and land developers, who argue that environmental protection costs and safeguards will reduce international competitiveness. These positions are not corrected because there is generally little public pressure for national governments to fulfil their environmental promises as the public does not see the environment as a major political issue and other issues — jobs, the economy, health, etc. — are viewed as more important. This is partly a reflection of the absence of widespread public appreciation of the linkage between environmental degradation and the social and economic costs, and the separation between those groups who damage the environment (usually developers, the rich) and those who pay the price (usually the poorer sectors of society, but ultimately everyone). Consequently NGOs have taken on a critical role of holding governments to account for the environmental consequences of their development policies.

Inadequate public participation in decision-making processes. Although most recent national policy frameworks include provisions for private sector and public stakeholder participation in environment and development decision-making, and stakeholder participation is promoted under many regional and international initiatives in which Mediterranean Basin governments participate, government consultation processes have been criticized for being largely cosmetic in many countries, with involvement of public stakeholders only at the end of processes when decisions have essentially already been made such as with EIAs. There is a clear need to improve civil society participation in environmental decision making and governance.

9. CLIMATE CHANGE ASSESSMENT

9.1 Introduction

Changes in climate as a result of human activities have already impacted natural and human systems on all continents and across the oceans and these impacts are projected to intensify. Studies project that climate change could become the leading cause of biodiversity loss and degradation this century (Mace *et al.* 2005, Thomas 2010, OECD 2016), with serious implications for the provision of ecosystem services and biodiversity-based livelihoods.

The Mediterranean Basin is particularly vulnerable to the effects of climate change. Specific observed and projected impacts for the region include a rise in temperature larger than the European average, a decrease in precipitation and increased risk of forest fires, desertification and biodiversity loss.

Conservation in the Mediterranean Basin Hotspot must explicitly address the threat of climate change, enhancing ecosystem resilience and helping species to adapt to changing conditions. Restoring, conserving and sustainably managing ecosystems can also play a crucial role in mitigating climate change and protecting people from its impacts.

This chapter assesses the current and projected effects of climate change in the Mediterranean Basin Hotspot, provides an overview of the policy context and outlines potential mitigation and adaptation responses.

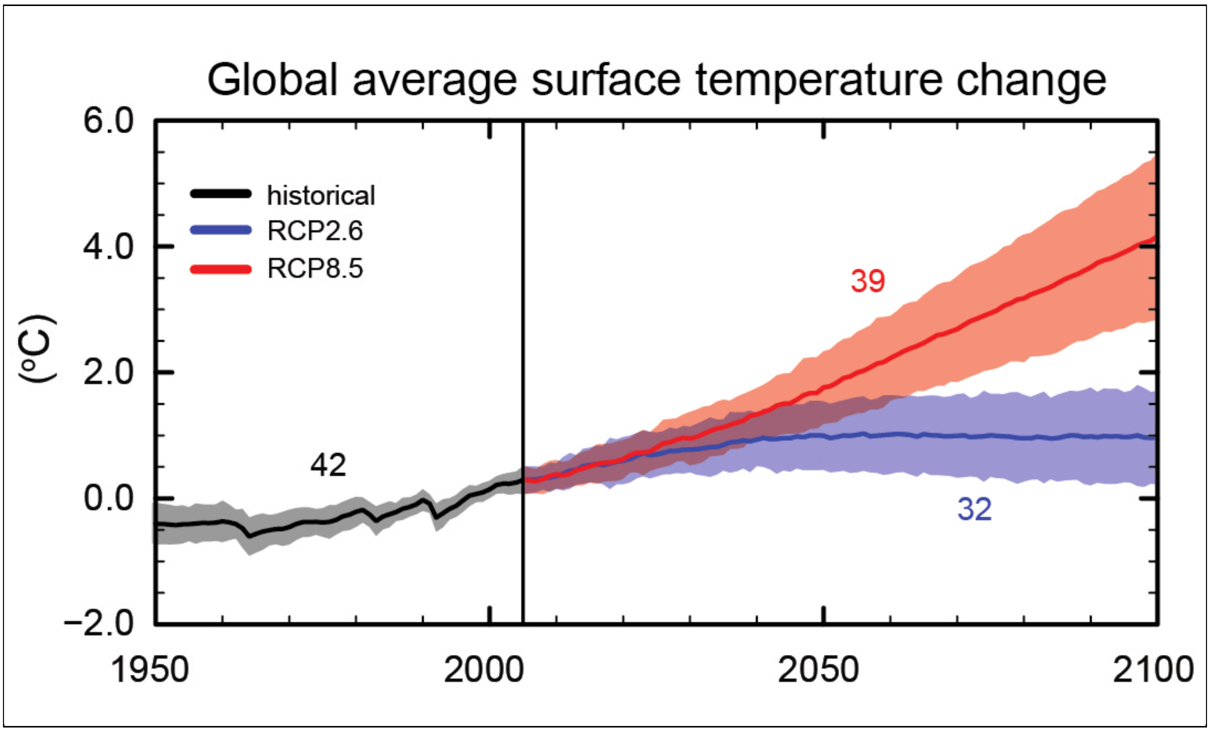
9.2 Overview of climate change

Greenhouse gases (GHG), such as carbon dioxide, methane and nitrous oxide, naturally occur in large quantities in the Earth's atmosphere. At "natural" concentrations, GHGs are important for maintaining the energy balance of the Earth's atmosphere as they absorb solar radiation and heat the atmosphere of the Earth, working much like a "greenhouse". The Earth's terrestrial and marine ecosystems form part of this balance through their ability to absorb and sequester GHGs. The crux of anthropogenic climate change is that humans are emitting GHGs at a faster rate and beyond the capacity of natural GHG "sinks". This alters the energy balance of the Earth's atmosphere, causing the global climate to deviate from expected natural patterns.

Driven by economic and population growth, GHG emissions have risen since the pre-industrial era to levels that are unprecedented in at least the last 800,000 years, with around half of the cumulative anthropogenic CO2 emissions occurring in the last 40 years. The main drivers of GHG emissions by economic sector are: electricity and heating (25%); agriculture, forestry and other land-use (24%); industry (21%); and transport (14%) (figures for 2010, IPCC 2014). This recent rapid increase in GHG emissions has contributed to a global mean surface temperature rise of ~ 0.85 (0.65 to 1.06) °C over the last ~ 130 years, with successive warming across the last three decades making the period between 1983 and 2012 the warmest 30-year period of the last 800 years (IPCC 2014).

Multiple lines of evidence lead to a strong, consistent and almost linear relationship between predicted future global temperatures and projected GHG emissions (IPCC 2014). The degree of predicted human-induced warming by the year 2100 varies widely depending on both socio-economic development and climate policy, with scenarios ranging from 'business as usual', leading to 3 to 5°C global warming, to stringent and rapid mitigation of GHG emissions, leading to 0.5 to 1.5°C warming (IPCC 2014, Figure 9.1). In the Paris Climate Change Agreement under the United Nations Framework Convention on Climate Change (UNFCCC), governments committed to keep global warming below 2°C above preindustrial levels and pursue efforts to hold warming to 1.5°C. To achieve this target and avoid widespread and irreversible impacts of future global warming, urgent action must be taken to mitigate GHG emissions, and to employ adaptation strategies (IPCC 2014).

Figure 9.1 IPCC 2014 predicted ranges of human-induced warming for given anthropogenic GHG emission scenarios



Note: Historic and projected global average temperature changes based on high, business-as-usual (red) and low (blue) future GHG emissions.

9.2.1 Influence of ecosystem conversion and degradation on global climate

Agriculture, forestry and other land-use (AFOLU) accounts for a quarter of all anthropogenic GHG emissions, with a significant proportion of this coming from the conversion and degradation of natural ecosystems. Forests, peatlands and wetlands not only store carbon as biomass, and as sequestered carbon in soils and sediments, they also take up carbon from the atmosphere, acting as vital carbon sinks. Globally, deforestation and forest degradation contribute to around 12% of all carbon emissions, by releasing the carbon stored in biomass and soils (Van der Werf *et al.* 2009). Conversion of forests for agriculture not only destroys these sinks; it can also lead to emissions of more potent GHGs associated with agriculture, such as nitrous oxide (N2O) and methane (CH4) from fertilizer use and livestock respectively. Ecosystem conversion and degradation therefore has a multifaceted impact on global climate.

9.2.2 Impact of climate change and human responses on biodiversity and ecosystem services

In the recent past, the main drivers of biodiversity loss have included ecosystem conversion (e.g., for agriculture, mining or infrastructure), over-exploitation (e.g., of forests and fish stocks) and invasive alien species. Climate change exacerbates and adds to these drivers. There is strong evidence that climate change has already impacted on biodiversity and several lines of research suggest climate change could become the leading cause of extinction over the coming century (e.g., Mace *et al.* 2005, Thomas 2010).

As the Earth warms some species are shifting their ranges to track suitable climate. For example, bird populations are expected to shift northwards in Europe (Huntley *et al.* 2008), and montane biota are expected to shift to higher altitudes (Thuiller *et al.* 2005). However, the rate at which species are able to shift is slower than the predicted rate of climate change, making some species particularly vulnerable[19]to climate change (e.g., Foden *et al.* 2013). Climate change also disrupts interactions between predators, competitors and prey (Adamík and Král 2008) and phenology (e.g., migration and breeding) (Møller *et al.* 2010). These and other effects have already led to population declines and are projected to worsen.

Human responses to climate change could pose an equally significant threat. For example as crop yields decrease due to warming and demand for irrigation increases due to drier conditions, agriculture expansion and increased water abstraction could further degrade ecosystems and reduce vital 'stepping stone' habitats needed for species to shift to more equitable climates (Segan *et al.* 2015). Mitigation policies and projects such as afforestation (IPCC 2007; Zanchi *et al.* 2007), bioenergy expansion (European Environment Agency Scientific Committee 2011; IPCC 2014), and the deployment of wind (Langston and Pullan 2003; Wang and Wang, 2015), solar (Turney and Fthenakis 2011; Walston *et al.* 2016), and hydropower (Kumar *et al.* 2011; van der Winden *et al.* 2014) also pose a threat to biodiversity if poorly planned and implemented.

Ecosystems provide important services to humans such as provision of food, water, fuel and fiber, pollination and pest regulation for agriculture, and buffer communities against climate change hazards such as flooding, sea-level rise and erosion. Climate change, human responses to climate change and other pressures undermine the provision of these ecosystem services, threatening people's lives and well-being (Meller *et al.* 2015). Maintaining healthy, biodiverse ecosystems and restoring degraded ones can be an effective strategy for building resilience to climate change, securing the provision of ecosystem services and enabling communities to adapt.

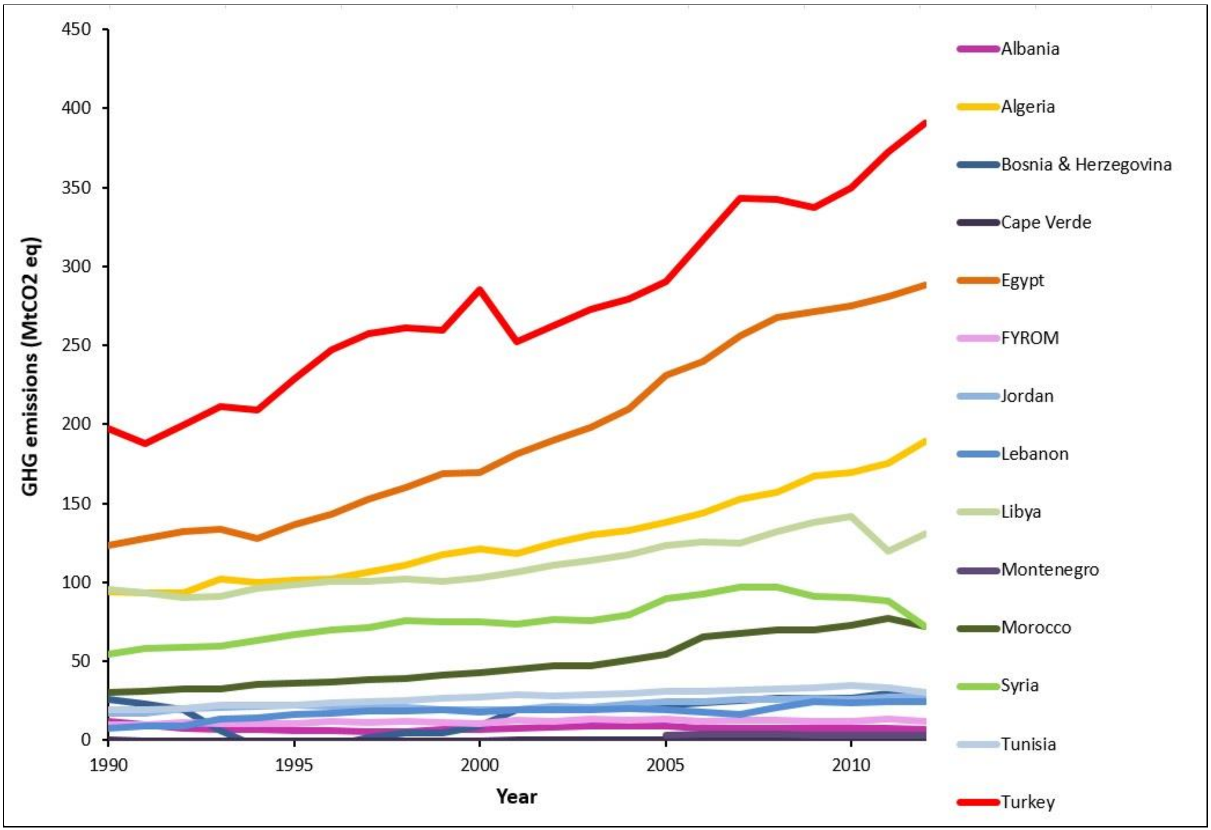
9.3 Contribution of the Mediterranean CEPF countries to climate change

At a national scale, the majority of GHG emissions generated in the Mediterranean region are from the larger European economies, namely France, Italy, and Spain, which together generated 58% of the basin's emissions in 2012. Considering just CEPF countries, the

[19] Vulnerability is defined by the IPCC as 'the predisposition to be adversely affected', with exposure, sensitivity and adaptability contributing in combination to vulnerability

observed national emission levels are related to the size of a nation's economy as well as population size (Figure 9.2).

Figure 9.2 Greenhouse Gas emissions per country within the Mediterranean Basin Hotspot between 1990 and 2012



Notes: $MtCO_2$ eq per year; GHG emissions including those associated with land use change and forestry are shown for all countries eligible for CEPF support (CAIT Climate Data Explorer 2015, including data from Carbon Dioxide Information Analysis Centre, Food and Agriculture Organization of the United Nations, International Energy Agency, the World Bank, US Energy Information Administration and US Environmental Protection Agency).

Southern and eastern Mediterranean countries tend to have lower emissions per person, but higher emissions per unit of economic growth, compared with more developed European nations in the region. There are notable anomalies, particularly for oil-producing nations such as Libya that have among the highest emissions per person. Here the prevalence of a single polluting industry in a relatively small nation can significantly affect the emission profile of the entire nation. Greater economic efficiency per ton of emitted GHG in the more developed nations may be due to a shift toward importing more high emission products rather than producing the products within the country (Davis and Caldeira 2010).

With the impact of AFOLU on global climate and biodiversity it is important to note that according to the Food and Agriculture Organization of the United Nations (FAO) the majority of countries covered by the ecosystem profile update reported forestry and land-use as a net carbon sink between 1990 and 2015. This is not to say that further mitigation gains cannot be achieved in the AFOLU sector in these countries nor that ecosystem conversion and degradation has not taken place; it only says that carbon sequestration was greater than carbon emissions. Nations which reported net positive emissions over the same time period include Algeria, Albania, and Morocco.

9.4 Climate change observations and projections for the Mediterranean Basin

9.4.1 Observed changes in temperature, precipitation and marine conditions

The Mediterranean Basin's climate is characterized by cold, wet winters and prolonged hot, dry summers (Giannakopoulos *et al.* 2005). Additionally, there is a strong northwest-southeast gradient in winter precipitation patterns across the Eastern Mediterranean and Middle East: for example Italy receives a lower proportion of its annual rainfall in the winter compared with Turkey (Lelieveld *et al.* 2012).

In recent decades there has been an increase in hot days (decrease in cool days) across the northern Mediterranean and an overall increase in dryness (IPCC 2014; Hoerling *et al.* 2011). At the same time the Southern Mediterranean has experienced annual and seasonal warming trends that are significantly beyond the range of changes due to natural variability (Barkhordarian *et al.* 2012), and areas such as the Atlas Mountains and the Algerian and Tunisian coasts have experienced a strong decrease in the amount of winter and early spring precipitation (Barkhordarian *et al.* 2013).

The Mediterranean Sea is characterized by a homogenous deep-water layer, below c.300 meters depth, that remains at a constant temperature and salinity year round. However, over the last decade the temperature and salinity of this layer has risen significantly year on year (Schroeder *et al.* 2016). Surface temperatures have also been changing, with an observed increase of almost 1°C since the 1980s (Vargas-Yáñez *et al.* 2010; Lionello 2012).

9.4.2 Projected changes in temperature, precipitation and marine conditions

There is significant agreement among climate models that, under all emissions scenarios, temperatures in the Mediterranean Basin will increase. Based on an intermediate emissions scenario, temperatures could be 3.5 – 7 °C higher than 1961 – 1990 levels by the end of the century for the Eastern Mediterranean, Middle East and North Africa, with the Balkans and Turkey exhibiting the largest temperature increase (Lelieveld *et al.* 2012; Lelieveld *et al.*2016). It is very likely that the number of hot days will increase and the number of cool days will decrease (IPCC 2014). Based on a global circulation model focusing on predicted changes in the Mediterranean Basin resulting from 2°C global warming, the region is expected to have an additional month of summer, with an increase in heatwave days and a decrease in frost nights (Giannakopoulos *et al.* 2009).

The Mediterranean Basin Hotspot region is likely to receive less annual precipitation, resulting in a consistent increase in drought area (IPCC 2014). More specifically the northern Mediterranean is likely to become wetter in winter (~ +10%), but drier in summer (~ -30%), while the southern Mediterranean will endure a small decrease in precipitation year round (Giannakopoulos *et al.* 2009). One high resolution modelling study predicts that 17-25% of the current European Mediterranean climate region will be lost, almost totally shifting to an arid climate domain by 2080, under a moderate emissions scenario (Barredo *et al.* 2016). On the other hand, predicted northward expansion of the Mediterranean climate domain could mean a doubling of the available area for Mediterranean species able to shift their range (Barredo *et al.* 2016).

The impact of increased temperatures and reduced precipitation in the region will be widespread, affecting human and natural systems. One consequence already observed, and of particular importance for conservation of the region's biota, is a significant increase in the extent and frequency of wildfires since the 1970s (Fernandes *et al.* 2010; Koutsias *et al.* 2012; Marques *et al.* 2011; Pausas and Fernández-Muñoz 2012). During this time 'megafires', triggered by extreme climate events, have caused record maxima of burnt areas in some Mediterranean countries (San-Miguel-Ayanz *et al.* 2013). The future risk of wildfires is projected to increase, with a greater occurrence of high fire danger days (Arca *et al.* 2012), a longer fire season (Arca *et al.* 2010), and with burned areas up by a factor of 5 in 2100 (Dury *et al.* 2011).

By the end of the century sea surface temperatures are predicted to rise by an average of 2.5°C relative to today (Lionello 2012), salinity of surface, intermediate and deep layers is expected to rise (Vargas-Yáñez *et al.* 2012), and acidity is likely to continue to increase due to continuing CO_2 emissions.

9.4.3 Biotic change in response to climate change

The projected warming and drying of the Mediterranean Basin as well as the increase in extreme climatic events are likely to have a significant effect on the biota of the region. In Southern Europe, including the Mediterranean Basin, there is projected to be a great reduction in phylogenetic diversity of plant, bird and mammal assemblages, which will not be offset by gains expected in regions of high latitude or altitude, resulting in a trend towards homogenization across the continent (Alkemade *et al.* 2011; Thuiller *et al.* 2011). Based on a combination of pollen data and modelling, changes in Mediterranean biomes may exceed changes recorded over the last 10,000 years, with the highest emissions scenarios resulting in desert conditions across southern Spain, and Mediterranean vegetation replacing deciduous forests across the basin (Guoit and Cramer 2016). In this section we use published studies to outline the effects of climate change, today and in the future, on different types of ecosystems. Most of this research has focused on the European component of the Mediterranean Basin, (Thuiller *et al.* 2005), however, this information can provide valuable insights that are applicable to the development of climate change mitigation and adaptation ventures in the southern and eastern components of the Mediterranean Basin.

Mountain ecosystems

Mountain ecosystems are among the most threatened of the Mediterranean Basin due to climate change (IPCC 2007). Already a decrease in species richness has been reported on Mediterranean mountain tops; with plant species counts from 14 summits lower in 2008 than in 2001, probably due to rising temperatures and a decrease in water availability (Pauli *et al.* 2012), and a decline in butterfly species richness due to increasing aridity (Stefanescu *et al.* 2011).Mountain flora is predicted to change significantly with local plant species losses of up to 62% and turnover rates of 70% by 2080 (Thuiller *et al.* 2005).

Significant range shifts are expected for flora and fauna. Current species ranges and entire vegetation zones (tree line, alpine and nival zones) are predicted to shift to higher elevations, due to rising temperatures and greater aridity affecting lower elevations, resulting in certain flora and fauna communities being restricted to higher elevations (IPCC 2007). One specific example of declining mountain ecosystems comes from the Egyptian Sinai region where a reduction in Sinai Thyme flowers, due to rising temperatures and drought, is threatening the smallest butterfly in the world, the Sinai baton blue (Egypt NBSAP 2016). Another example comes from the Sierra Nevada National Park, in the south of Spain, where the local Observatory for global change has registered a common pattern of displacement towards higher altitudes in the different taxonomic groups of the area. This trend is also common in other Mediterranean mountain ranges (Zamora *et al* 2015).

Forests

The observed increase in tree mortality globally has been linked to climate impacts, especially rising temperatures and drought (Reichstein *et al.* 2013; Williams 2013). Tree mortality and forest decline due to severe drought events have already been observed in forest populations in Algeria (Kherchouche *et al.* 2012), Italy (Bertini *et al.* 2011; Giuggiola *et al.* 2010), Cyprus (ECHOES country report: Cyprus) and Greece (Raftoyannis *et al.* 2008). In the Mediterranean Basin, future risk of tree mortality is expected to increase with higher fire risk, longer fire season, and more frequent large, severe fires expected to result from increasing heat waves in combination with drought (Duguy *et al.* 2013). In Italy it is estimated that ~ 9,200 fires a year damage or destroy 100,000 hectares of land, half of which is forested (Italy NBSAP 2010).

Climate change also affects tree growth rates, phenology and vulnerability to insect and pathogen damage, as well as the composition of animal and plant communities in forest systems with projected reduction in recruitment and net ecosystem production (NEP / carbon sequestration) rates (Sabaté *et al.* 2002). Even though a certain degree of "CO2 fertilization" is expected for Mediterranean forests, prolonged dry periods and droughts are expected to lead to a decrease in forest biomass (Sabaté *et al.* 2002).

Large range contractions are projected for several populations of *Pinus cembra* and *Pinus sylvestris* (Casalegno *et al.* 2010; Giuggiola *et al.* 2010), with range reduction or extinction of *Pinus mugo* and *Pedicularis ferdinandii*, and significant redistribution of *Crocus cvijicii* and *Quercus coccifera* (FYROM, third national communication to the UNFCCC). For fir and cedar forests with their most southerly limits in Mediterranean countries, including Algeria, Bosnia and Herzegovina, Lebanon, and Morocco range contractions could result in the loss of coniferous habitats (Slimani *et al.* 2014; Bosnia and Herzegovina NBSAP 2016; Lebanon NBSAP 2016).Results from Sierra Nevada observations also show that vegetation is moving towards higher altitudes: with clear ascent of three species registered in a timeframe of 11 years (Zamora *et al.* 2015).Human impacts on the distribution of tree species may affect their ability to adapt to climate change (Del Barrio *et al.* 2006; Hemery *et al.* 2010).

While observed and projected impacts of climate change are largely negative, some species may benefit. For example, the dominant Mediterranean tree species, holm oak, is projected to undergo a substantial range expansion under higher GHG emission scenarios (Cheaib *et al.* 2012). It is also projected that Mediterranean bat species found in forest ecosystems will benefit from warmer temperatures to the north with an expansion in their range (Rebelo *et al.* 2010), and that rodents and their associated predators may increase across Lebanon (Lebanon NBSAP 2016).

Shrublands

The spatial distribution of shrublands in southern Europe has increased over the past few decades and is expected to continue increasing in future (Mouillot *et al.* 2002). Expansion of shrubland is expected to bring other ecosystems changes such as the expansion of white-toothed shrews, currently limited by colder climate conditions and lack of favourable shrub cover (Torre *et al.* 2014). In a similar manner to forest ecosystems however, recruitment, nutrient cycling, NEP and associated carbon storage in biomass are expected to decrease due to progressive drying and warming (IPCC 2007; Lloret *et al.* 2004). In one of the few empirical experiments on the effect of climate change on Mediterranean shrubland, predicted warming and drying reduced the abundance of emerging seedlings and respective species richness (Lloret *et al.* 2004; Lloret *et al.* 2005), with a similar result reported for extreme drought conditions (Del Cacho and Lloret 2012). Future warming and drought responses are dependent on current conditions, with current cold, damp sites more strongly influenced by changes in temperature; and warm, dry sites being more responsive to changes in rainfall (Vicente-Serrano *et al.* 2012).

For shrublands, grassland and forests, the predicted increase in fire frequency coupled with an increase in extreme rainfall events is likely to lead to an increase in soil erosion for the region (Giannakopoulos *et al.* 2005; IPCC 2007; Mouillot *et al.* 2002).

Wetlands and coastal ecosystems

The Mediterranean Wetlands Observatory reports that nearly 50% of natural wetland surface area has disappeared since 1900 and remains in rapid decline. This trend is primarily due to human activity, but is now being exacerbated by climate change, with increased risk of wetland loss if runoff decreases and the wetland dries out (Zacharias and Zamparas 2010). There has already been an observed decline in some freshwater macroinvertebrate, fish and mammal species due to warming and decreased rainfall (Otero *et al.* 2011), and future distribution ranges of cool-water fish are projected to diminish (Buisson *et al.* 2010).

The IPCC (2014) report predicts that mean global sea level will continue to rise and is very likely to exceed the observed rate of 2.0 mm/yr within this century. This rise will not be uniform across all regions and the impacts will depend on coastal elevation, gradient and landforms. For example, Egypt has been identified as one of the top five countries in the world expected to be most severely impacted by sea level rise. The risk of submersion of coastal wetlands is expected increase due to rising sea level. This will impact numerous species including waterbirds that breed in these wetlands, stop over on migration, or winter in large numbers.

Ocean acidification also poses a threat to marine and coastal systems, particularly those with organisms that form calcium carbonate structures. Observations performed near natural CO2 vents in the Mediterranean Sea show that diversity, biomass, and trophic complexity of rocky shore communities will decrease at projected pH levels (Barry *et al.* 2011; Kroeker *et al.* 2011).

Marine ecosystems

Rising temperatures and salinity have influenced biotic and abiotic patterns such as planktonic and larval dispersal stages and nutrient cycling, impacting ecosystems at several ecological levels (UNEP/MAP RAC/SPA 2010). An observed increase in the abundance of thermo-tolerant species, a disappearance or rarefaction of 'cold' stenothermal species, and mass mortality of gorgonians have been attributed to this warming trend (Lejeusne *et al.* 2010; Garrabou *et al.* 2009). More than 30 species in Mediterranean hard-bottom communities have been affected by mass-mortality events associated with unusual increases in seawater temperature along thousands of kilometres of coastline, mainly in the north-western Mediterranean (Garrabou *et al.* 2009). Species distribution within the basins is also changing, with warm fish species such as *Thalassoma pavo* and coral species such as *Astroides calycularis* widening their ranges, and becoming more abundant in the north-west Mediterranean, resulting in 'tropicalization' of fauna and an overall poleward range shift in vegetated coastal habitats. The observed spread of invasive alien species originating in the Atlantic Ocean (Elkrwe *et al.* 2008; Katsanevakis *et al.* 2010), and the associated introduction of new microbial pathogens and diseases, have also been as a result of climate change (UNEP/MAP RAC/SPA 2010). Recent studies indicate that future rises in sea temperature will favour the spread of non-indigenous species, including the introduction of more Red Sea and tropical Atlantic species (Otero *et al.* 2013).

9.5 Expected impacts on human populations and potential repercussions for ecosystems

Climate change poses both direct and indirect risks to human activities, such as agricultural productivity, health, and infrastructure (Table 9.1). Many risks are mediated through ecosystems, and are linked to degradation in ecosystem services. For example, wildfires exacerbated by dry conditions result in water catchment degradation, whereby increased soil erosion and faster runoff due to loss of tree cover causes silting of rivers and diminished water supplies (Duguy *et al.* 2013). Future increases in temperature are also expected to deplete fish stocks in the Mediterranean, which will impact livelihoods and food provision across the region (Lacoue-Labarthe *et al.* 2016). Other sectors will also be impacted: tourism revenues are projected to fall by up to 0.45% of GDP per year in the Mediterranean EU region by 2100 as a result of climate change (Barrios and Ibañez 2015), impacting jobs and livelihoods.

The way humans manage climate risk and respond to climate impacts also has implications for biodiversity and ecosystems. As crop yields decrease due to projected warming and drying in the Mediterranean, the demand for water for irrigation is likely to increase and farming may move into new areas, further degrading ecosystems and reducing vital 'stepping stone' habitats needed for species to shift to more equitable climates (Segan *et al.* 2015).

Extreme weather events, drought, sea level rise and other climate change impacts are expected to lead to a significant increase in the scale of human migration and displacement, which could put further strain on natural resources in some areas of the Mediterranean. The Lebanon Environmental Assessment of the Syrian Conflict (2014), for example, found that the migration of refugees had direct impacts on ecosystems from settlements encroaching on environmentally sensitive areas, and indirect impacts from overexploitation of ground water resources, illegal felling of trees for fuel, and waste disposal on open lands. Planned mitigation and adaptation responses in the region such as the expansion of renewable energy sources, and relocation of settlements and agriculture in Egypt could also negatively affect biodiversity and ecosystems if they are not carefully planned (see the iNDC summary, Annex 12, on-line).

Table 9.1 Potential human impacts and possible ecosystem adaptation responses

Climate change hazard	Predicted impact on human activity in the Mediterranean Basin		Global examples of ecosystem-based adaptation responses
Water scarcity	1. Agriculture	Significant reduction in crop yield (up to 27% by 2080)[a]	Diversify agricultural systems using indigenous knowledge of crop varieties[c]
		Increased cost of irrigation	
		Vulnerability to pests and disease[b]	
	2. Energy	Disruption to hydro[d] and conventional power plants	Protection and maintenance of natural watershed systems[c]
		Increased demand from desalination plants[e]	
	3. Conflict	Deterioration in resource dependant livelihoods such as agriculture and pastoralism[e]	Maintaining grassland and rangeland[c]
Higher summer temperatures and increased heat waves	1. Agriculture	Increased risk of damage by wildfires[f]	Strategic management of shrublands and forests[c]
	2. Energy	Net increase in energy consumption from demand for summer cooling[g]	Green roofs to cool urban areas[h]
	3. Health	Increased heat related deaths and injuries[e]	Environmental management to reduce capacity of vectors[i]
		Change in the distribution and seasonal pattern of some human vector-born diseases[e]	
Sea level rise and coastal flooding	1. Agriculture	Salination of agricultural land and aquifers[j]	Maintaining reed beds and marshes as a buffer zone and natural flood defense[c]
		Coastal and delta erosion	
	2. Social	Migration of communities inland[k]	
Extreme precipitation events and inland flooding	1. Health	Loss of life[l]	
	2. Agriculture	Crop failure and loss of livestock[l]	Floodplain restoration and management[m]
		Soil erosion and reduction in fertility	
	3. Infrastructure	Damage to bridges, roads, railways and power lines[l]	Soil and water conservation[o]
		Reservoir sedimentation causing reduction in hydropower production[n]	

Notes: This table is based on Iglesias *et al.* (2012), Graux *et al.* (2011), Colls *et al.* (2009), López-Moreno *et al.* (2008), IPCC (2014), Flannigan *et al.* (2009), Gill *et al.* (2007), Campbell-Lendrum *et al.* (2005), Shaltout *et al.* (2015), Warner *et al.* (2010), Llasat *et al.* (2010), Kokpinar *et al.* (2010) and Vogl *et al.* (2016).

9.6 Policy context

9.6.1 The Paris Climate Change Agreement

The Paris agreement, which entered into force in November 2016, is a key agreement under the UNFCCC and has been signed by all of the hotspot countries covered by the ecosystem profile update, apart from Syria, and has been ratified by five of them. The agreement aims to keep global temperature rise this century well below 2ºC above pre-industrial levels (if possible to limit temperature increase to 1.5ºC) and to strengthen the ability of countries to deal with the impacts of climate change.

Due to significant differences in their current and historical emissions, and in their financial, technical and institutional capacity to take action on climate change, the nations of the Mediterranean Basin Hotspot were in the past split into two categories under the UNFCCC and its Kyoto Protocol: Northern Mediterranean countries located within the EU as well as Turkey were treated as Annex 1 (industrialized) countries under the Kyoto Protocol, with clear emission reduction targets, while countries outside of the EU located in the eastern and southern Mediterranean Basin were treated as non-Annex 1 (developing) countries, with no emission reduction targets. The Paris Climate Change Agreement does away with this bifurcated approach, requiring all nations to put forward mitigation pledges or "nationally determined contributions" (NDCs), but continues to recognize the UNFCCC principle of "common but differentiated responsibility" of nations.

Countries were required to submit preliminary or "intended" NDCs prior to the adoption of the Paris Climate Change Agreement in December 2015, and to communicate their first NDC no later than when they submit their respective instrument of ratification, acceptance, approval or accession of the Paris Agreement. NDCs are to be updated or replaced every 5 years, with increasing ambition. The intended NDCs submitted by the nations of the Mediterranean Basin Hotspot differ in terms of comprehensiveness and ambition, partly reflecting the principle of common but differentiated responsibility. Most developing nations in the hotspot propose an unconditional mitigation target as well as a more ambitious mitigation target dependent on international support. With the exception of the EU, nations in the Mediterranean have also incorporated adaptation in their iNDCs.

The importance of ecosystems has gained increasing recognition under the UNFCCC in recent years. The preamble of the Paris Climate Change Agreement, for instance, outlines the importance of ensuring "ecological integrity" and "the protection of biodiversity" for all climate action, Article 5 outlines the importance of sinks and reservoirs such as forests for mitigation, while Article 7 recognizes the importance of sustainable management of natural resources in building the resilience of socioeconomic and ecological systems.

Of the 11 intended NDCs submitted by countries covered by the ecosystem profile update before Paris[20], eight refer to ecosystems in the context of both mitigation and adaptation, and one for mitigation only. Most references to ecosystems are fairly general, and lack clear targets or details on what actions will be delivered. Some of the clearer and more ambitious targets include Morocco, aiming for renewal or afforestation of 50,000 hectares per year; and Jordan, intending to afforest 25% of barren forest areas in the rain belt.

In addition to the NDCs, most countries have or are in the process of developing national adaptation plans. It is important that these recognize and address the role of biodiversity and ecosystem services in helping people adapt to climate change, the adaptation needs of biodiversity and safeguards to avoid negative impacts on biodiversity and maladaptation.

[20] Libya, Palestine and Syria have not submitted iNDCs.

9.6.2 CBD and other environmental agreements

The links between biodiversity and climate change are also addressed within other multilateral environmental agreements (MEAs) of which Mediterranean Basin Hotspot nations are signatories, as well as the 2030 Agenda for Sustainable Development adopted in 2015. Under the Convention for Biological Diversity (CBD), for instance, Parties adopted Decision XII/20 which "encourages Parties and invites other governments and relevant organizations to promote and implement ecosystem-based approaches to climate change related activities and disaster risk reduction". Climate change is also entrenched in the CBD Strategic Plan 2011-2020 and accompanying Aichi Biodiversity Targets, particularly Target 15, which stipulates that "by 2020, ecosystem resilience and the contribution of biodiversity to carbon stocks has been enhanced, through conservation and restoration of at least 15% of degraded ecosystems, thereby contributing to climate change mitigation and adaptation and to combating desertification".

At CBD COP10, Parties agreed to translate the CBD Strategic Plan 2011-2020 into revised and updated national biodiversity strategies and action plans (NBSAPs). Only six of the 16 CEPF Mediterranean Basin Hotspot nations have done this. Each of these six NBSAPs include references to the impacts of climate change on biodiversity and/or ecosystem services and outline actions to address these with varying degrees of specificity and comprehensiveness. Examples include Jordan, which has a strategic goal to enhance the national understanding of dryland ecosystems benefits to national resilience to climate change, economic sustainability and local livelihoods; and Albania which refers to the need to protect genetic diversity in forests for adaptation.

For countries preparing for EU accession, it is noteworthy that European leaders have agreed a package of measures setting binding greenhouse gas emission targets for Member States from 2021-2030, with a long-term target of reducing emissions by 80 to 95% of 1990 levels by 2050. Of particular importance to the Mediterranean Basin Hotspot and the conservation of biodiversity and ecosystems services in the region, is that many of the recommended measures focus on land-use and the creation of an EU-wide "super-grid" that includes solar energy partnerships with non-EU nations in the Mediterranean Basin.

The legal framework set by the Protocols of the Barcelona Convention for the Mediterranean Sea also includes several climate-related policies and actions plans: the Regional Climate Change Adaptation Framework for the Mediterranean Marine and Coastal Areas; the Mediterranean Strategy for Sustainable Development (MSSD), which includes climate change mitigation and adaptation as one of its 7 Priority Fields of Action; the Ecosystem Approach; and the Strategic Action Programme for the Conservation of Biological Diversity and its updated plan and medium term goals on climate change issues.

9.7 Developing a response

9.7.1 Delivering climate-smart conservation

Promoting the conservation of intact and functioning ecosystems will continue to be fundamental to conservation. However, traditional conservation practices and objectives may need to be revised to reflect changing conditions. Strategies will need to be flexible and take into account uncertainty about the rate and magnitude of climate change and its impacts on species and ecosystem services. Monitoring will be critical to detect climate-induced shifts in species, assess the effectiveness of adaptation responses and inform adaptive management. Figure 9.3 outlines steps that can be taken to promote conservation responses that are climate-smart. Additionally, the climate-smart conservation framework must include human responses to climate change which could impact biodiversity (Maxwell *et al.* 2015).

Figure 9.3 Schematic representing the stages of climate smart conservation (Stein *et al.* 2014)

9.7.2 Maintaining and enhancing protected area networks

The effective management of existing protected areas and the establishment of new ones will continue to be an important conservation response (Hole *et al.*2009). For example, whilst 15-23% of the current Mediterranean Natura 2000 protected sites will likely experience a shift to an arid climate domain by 2080, the majority of sites will remain stable, acting as crucial refuges for Mediterranean biodiversity (Barredo *et al.* 2016). Current goals for expanding protected area coverage include: 17% of land and water area by 2020 for all EU Member States, Albania, Bosnia and Herzegovina, Montenegro and Morocco; 20% land and 5% coastal area protected for Cabo Verde by 2025; and 5% protected area with all types of ecosystems represented by 2030 for Lebanon. In the marine environment, the most recent figures indicate the total number of marine protected areas and Other Effective area-based Conservation Measures cover 7.14% of the Mediterranean Sea (MedPAN, *in prep*) but effectiveness on management implementation is still a large challenge for many sites.

There is an acute need for conservation planning to include the effect of climate change on species range when identifying new sites for protection and managing existing protected areas and other KBAs. Although initial analyses have been undertaken for the northern

Mediterranean Basin and Europe more specifically (Thuiller *et al.* 2005, Hannah *et al.* 2007; Pauli *et al.* 2012), little analysis has been completed for eastern and southern Mediterranean Basin countries.

9.7.3 Increasing connectivity and landscape resilience

As climate change forces many species to shift their distributions, improving connectivity among protected areas and other key sites can provide opportunities for species to migrate to more suitable climates and to ensure populations persist outside protected areas. Approaches may include stepping stones, corridors and matrices of suitable habitat across production landscapes. The European Green Belt passing through CEPF countries Montenegro, Republic of Macedonia, Albania, and Turkey up to northern Europe, for instance, could facilitate latitudinal shifts in species ranges. In some cases, there may be barriers to migration or species may have limited dispersal capacity, and targeted interventions such as captive breeding and, potentially, assisted colonization will be needed.

9.7.4 Ecosystem-based approaches for mitigation

Conserving and restoring ecosystems can be an effective way of reducing emissions and increasing the size of natural carbon sinks. Biennial National Reports submitted to UNFCCC indicate that a number of Mediterranean Basin Hotspot countries have already taken steps to reduce emissions and increase carbon sinks through such measures. For instance, Turkey aims to increase its forestland to cover 30% of the country by 2023; and Bosnia and Herzegovina have adopted a Forest Genetic Resources Program for 2013-2025 for improved forest management and conservation[21].

While most efforts have focused on natural forests or forest plantations, other ecosystems such as *Posidonia* seagrass meadows, wetlands, grasslands and agro-ecosystems are also important for mitigation. It is estimated, for instance, that 343 billion tonnes of organic carbon is stored in grassland soils globally – approximately the same amount as is stored in the World’s forest biomass above the ground – and shown that soil carbon stocks can decline by up to 60% following the conversion of grasslands to agriculture (Guo and Gifford 2002). While further efforts are needed to realize the mitigation potential of non-forest ecosystems, important steps have been taken in the region, such as the inclusion of permanent grassland preservation in the EU’s Common Agricultural Policy, in an effort to preserve environmentally sensitive areas and to meet the EU’s targets for GHG emission reduction.

9.7.5 Ecosystem-based approaches for adaptation

Ecosystem-based approaches for adaptation refer to “the use of biodiversity and ecosystem services […] to help people adapt to the adverse effects of climate change” (CBD 2009). They may include sustainable management, conservation and restoration of ecosystems, as part of an overall adaptation strategy that takes into account the multiple social, economic and cultural co-benefits for local communities. For example, through the Water Adaptation is Valuable to Everyone (WAVE) project (2008-2015), France has been promoting wetland preservation, tree planting, river restoration, rainwater collection and sustainable agriculture

[21] All Biennial Reports can be found at:
unfccc.int/national_reports/biennial_reports_and_iar/submitted_biennial_reports/

to reduce flooding and manage water resources sustainably. Through the GEF-funded project "MENA-DELP" Algeria, Egypt, Jordan, Morocco and Tunisia are piloting an integrated approach to ecosystem management and climate change adaptation in the desert, which includes palm restoration, conservation of biodiversity and agrobiodiversity, and protected area management. UNEP/MAP has put together a Climate Change Adaptation Framework Decision to address vulnerability and adaptation needs of Mediterranean marine and coastal regions including the application of ecosystem based approaches. Refer back to Table 9.1 for general examples of potential Ecosystem-based responses to address projected climate vulnerability in the Mediterranean Basin.

There is considerable potential to deliver ecosystem-based approaches to jointly deliver on both mitigation and adaptation, while supporting conservation and other sustainable development objectives. This will, however, require a much more integrated approach to policy-making and implementation.

10. ASSESSMENT OF CURRENT CONSERVATION INVESTMENT

10.1 Introduction

This chapter discusses the availability of funding for conservation in the hotspot countries covered by the ecosystem profile update. Data are presented for the latest widely available year, 2014, unless otherwise stated.

Funding is available for biodiversity conservation from official aid donors, multi-lateral fund, and private foundations. Data on the types and amounts of funding are patchy and inconsistent, but a best estimate for the last year for which data are available, 2014, is that around US$274 million was being spent on biodiversity conservation, or closely related projects in the hotspot countries covered by the ecosystem profile update.

Table 10.1 Indicative estimate of the funds invested in biodiversity conservation in 2014 in the hotspot countries covered by the ecosystem profile update

Category of funding source	Amount (million US$)	Main contributors
Bilateral ODA funds	100	AFD, FFEM, USAID,
Multi-donor funds	144	GEF, CEPF
Private foundations	32	MAVA,
TOTAL	**274**	

Note: Many of the figures included are the total value of multi-year projects, and so do not represent the funds available for conservation in that year, but rather commitments during that year.

10.2 Overseas development aid

10.2.1 Overall aid to hotspot countries

The countries of the Mediterranean Basin Hotspot covered by the update to the ecosystem profile received a net[22] total of US$21 billion (about 15% of global Official Develment Assistance or ODA) in overseas development aid in 2014 from 29 bilateral donors and a number of World Bank, United Nations and Regional development Bank sources. Two-fifths of this amount went to the middle-east region, to Syria (US$3.9 billion), Jordan (US$2.8 billion) and Palestine (US$2.3 billion). Almost as much (US$8.7 billion) went to the North Africa region, with half of it to Egypt (US$4.2 billion), and another third to Morocco (US$2.7 billion).

Table 10.2 Aid flows (all sectors) to the hotspot sub-regions in 2014 (OECD 2016)

Sub-region	Bilateral ODA 2014, (US$ million)	Multilateral ODA, 2014 (US$ million)	Total ODA, 2014 (US$ million)	Total ODA as % of ODA to all countries
Balkans	1,687.4	503.0	2,190.40	9
Turkey	3,374.9	1,101.8	4,476.70	18
Middle East	8,914.5	963.5	9,878.00	39
North Africa	6,941.4	1,737.2	8,678.60	34
TOTAL	**20,918.2**	**4,305.50**	**25,223.70**	**100**

[22] Net ODA is receipts minus re-payment of ODA loans. In some countries re-payments exceed receipts and so net ODA is negative

At a country level, total net ODA receipts vary from US$4.4 billion (Turkey) to US$119 million (Montenegro) (Table 10.3.). More than half (US$14.7 billion, 57%) went to Syria or its neighbors Turkey, Jordan, Palestine and Lebanon. Other significant recipients were Tunisia and Morocco. The region is highly aid-dependent, with 12 of the 16 countries having a higher than average level of ODA for the region (average for Middle East and North Africa is US$78 ODA per person (World Bank 2016a)), and all except Algeria above the global average for upper middle-income countries, US$6 ODA per capita. Highest of all is the Palestine (ODA of US$558 per person, and equivalent to 17.5% of GNI).

Table 10.3 Total net ODA and aid dependency per country in 2014

Country	Total net ODA (US$ million)	ODA per capita (US$)	ODA as a percentage of GNI
Turkey	4,491	57	0.4
Egypt	4,208	46	1.2
Syria	4,194	227	2.1
Jordan	2,922	384	7.6
Morocco	2,786	81	2.1
Palestine	2,457	558	17.5
Tunisia	1,103	99	2.0
Lebanon	729	124	1.8
Bosnia and Herzegovina	667	175	3.4
Kosovo	547	304	7.7
Albania	524	181	2.1
FYR Macedonia	363	173	1.9
Cabo Verde	266	531	12.9
Libya	208	33	0.5
Algeria	155	4	0.1
Montenegro	119	199	2.2
TOTAL	**25,738**	**83**	

Between 2008 and 2014 the volume of net ODA (bilateral and multilateral) disbursed across the region increased at 20% per year, or 120%, from US$11.7 billion to US$25 billion. This dramatic increase hides sharp regional differences, however. Aid to the Balkan sub-region, already only 12% of aid to the region in 2008, increased in value by 52% but shrunk as a proportion of aid to the region to 9%. Net ODA to North Africa and the Middle East sub-regions increased by 108% and 138%, respectively, while Turkey experienced the largest growth: 155%, an increase from US$1.7 billion in 2008 to US$4.5 billion in 2014.

10.2.2 Bilateral donor aid for biodiversity conservation

Overall pattern of bilateral aid disbursement

At least 29 bilateral donors contributed net ODA of almost US$21 billion to the region in 2014, 4 times more than the total net multilateral ODA. Six donors – EU, UAE, Turkey, USA, Germany, and France - were responsible for US$18.6 billion (89%) of this total (Table 10.4.). The EU, Germany and France contributed significantly to all sub-regions, while ODA from the UAE was focused on the Middle East and North Africa (specifically, large disbursements to Egypt, Jordan and Morocco), and the USA focused ODA on the Middle East, and Turkey on its neighbor, Syria.

Table 10.4 Bilateral aid disbursements in 2014, across all sectors, by sub-region, for donors making net disbursements over US$1 billion, to all countries in the Mediterranean Basin Hotspot (OECD 2016)

Donor	Balkans sub-region (US$ million)	Turkey (US$ million)	Middle East sub-region (US$ million)	North Africa sub-region (US$ million)	Total disbursements (US$ million)
EU institutions	889.8	2,698.3	1,087.3	1,379.2	6,054.6
UAE	7.7	-2.4	808.4	3,710.5	4,524.2
Turkey	94.3	0	2,364.9	224.9	2,684.1
USA	156.9	73.8	2,493.1	-118.1	2,605.7
Germany	156.9	343.9	566.1	623.4	1,690.3
France	16.5	182.6	146.2	735.9	1,081.2
other bilateral	365.3	78.7	1,448.5	385.6	2,278.1
TOTAL	**1,687.4**	**3,374.9**	**8,914.5**	**6,941.4**	**20,918.2**

The following sections discuss the environmental component of these aid allocations.

European Union

Globally, the EU remains "the largest contributor to biodiversity-related Official Development Assistance" (European Commission 2015) and committed to the CBD target (the 'Hyderabad Commitment') of doubling biodiversity related flows to developing countries by 2015, based on an average from 2006 to 2010, and of maintaining this level until 2020. Average annual ODA spent by EU institutions for biodiversity in 2006-2010 was €166.3 million, and the figure increased to over €300 million in 2012 and 2013. In the 2014-2020 multiyear framework the EU estimates it has allocated a total of over US$1.05 billion for biodiversity conservation globally (European Commission 2015, Table 10.5).

Table 10.5 Biodiversity-related funding lines from the EU

Funding instrument	Program	Biodiversity related allocation
Development Cooperation Instrument (DCI)	Thematic Program on Global Public Goods and Challenges (GPGC) – Biodiversity for Life initiative (B4Life)	US$1.4 billion earmarked for environment and climate change, of which US$260 million is specifically for biodiversity, with climate change and forest governance funding also contributing to biodiversity conservation
	Other thematic domains (agriculture, climate change adaptation/mitigation, infrastructure, energy	No specific allocation for biodiversity, but expected to be neutral or positive for biodiversity
European Development Fund (EDF)	Funding dedicated to natural resources	No specific biodiversity allocation, Indicative Programme for Cabo Verde, 2014 – 2020, value €55 million, focuses on social and economic development

The EU also aims to 'biodiversity proof' its aid, ensuing that it does not harm and where possible contributes to global biodiversity conservation. However an increasing share of development cooperation is delivered through budget support, rather direct project support, and integration of environment into budget support has been assessed as 'rather poor' (European Commission 2015), with few strategic environmental assessments carried out.

Hotspot countries are eligible for EU assistance through one of three main channels (Table 10.6). Cabo Verde can, therefore, access environment related funding through the EDF Environmental Allocation, and other countries through the Development Cooperation Instrument Global Public Goods Challenge (DCI-GPGC) budgets. In practice, the EU contribution to biodiversity in the Mediterranean region is lower than other regions of the world. An analysis of 2014-2020 Multiannual Indicative Programs, National Indicative Programs and Regional Indicative Programs shows that of 13 such plans in the North Africa–near east–eastern Europe region, there were none which had biodiversity as a specific sector, and only three where a chosen sector was considered significant for biodiversity (European Commission 2015).

Table 10.6 Access to EU funding lines for countries covered by the ecosystem profile update

EU funding mechanism	Countries eligible
European development Fund (for Africa, Caribbean, Pacific nations)	Cabo Verde
Instrument for Pre-accession Assistance (IPA)	Balkans: Albania, Bosnia-Herzegovina, Macedonia FYR, Montenegro, Turkey, Kosovo
European Neighborhood Instrument (ENI)	North Africa: Algeria, Egypt, Libya, Morocco, Tunisia Middle East: Jordan, Lebanon, Palestine, Syria

In the Balkans and Turkey, under the IPA, the Environment and Climate Regional Accession Network (ECRAN) assists countries move towards implementation of EU environment and climate policies, including an NGO environment and climate forum (ECRAN 2016).

Also under IPA, the Green Growth Fund (funded by the European investment bank and KfW Germany) invests in renewable energy in South-east Europe. To date the fund has made investments in the following countries: Albania, Bosnia and Herzegovina, Egypt, Macedonia FYR and Turkey (GGF 2016).

Of particular relevance to civil society support (although not necessarily in the field of biodiversity) are the following:

- The IPA Multi-country program support to technical assistance, information and training, which includes support to strengthen civil society and 'civil society facility' funds in each of the Balkan countries.

In North Africa and the Middle East, the ENI funds one program of direct relevance to biodiversity conservation:

- "Towards an ecologically representative and efficiently managed network of Mediterranean Marine Protected Areas" (ending 2018), which will work throughout the Mediterranean region to establish a network of ecologically representative, effectively managed marine protected areas (EUNPI 2016). Other programs indirectly related to biodiversity and sustainable environmental management including:
    - SWITCH-Med - Switching to more sustainable consumption and production in the Mediterranean (€20 million, 2012-2016).
    - ENPARD SOUTH – European Neighborhood Program for Agriculture and Rural Development (€4 million, 2012-2017).
    - ENI SEIS (Shared Environmental Information System) II SOUTH (2016-2020, no information on funding).
    - CSF SOUTH - Civil Society Facility South (€11 million, 2012-2016); and
    - CLIMA SOUTH - Support for Climate Change Mitigation and Adaptation in the ENPI South region (€5 million, 2013-2017).

Some other programs are of more general relevance to environmental management:

- The ERANETMED project (2014-2017, with Algeria, Egypt, Jordan, Lebanon, Morocco, Tunisia and Turkey among the partners from the countries, along with eight Mediterranean EU member states) aims at increasing coordination between the research programs of the partners. The first call for proposals (late 2015) was focused on renewable energy and water and led to the funding of 21 collaborative projects.

Horizon 2020 is a large (€80 billion, seven year) research funding program, which includes topic EU.3.5.2 on "Protection of the environment, sustainable management of natural resources, water, biodiversity and ecosystems". Projects funded in the countries covered by the ecosystem profile update include:

- Ecopotential: improving future ecosystem benefits through Earth observations (2015-2019, €15 million), includes participation of institutions in FYR Macedonia (European Commission 2015a).
- BiodivERsA3 'consolidating the European research area on biodiversity and ecosystem services (2015-2020, €38 million) includes participation of institutions in Turkey (European Commission 2015b).
- MERCES: Marine ecosystem restoration in changing European seas (2016-2020, €6 million), includes participation of institutions in Turkey (European Commission 2015c).

France

Assistance for biodiversity conservation from France is delivered through the French Development Cooperation Agency, AFD, and the French equivalent of the GEF, FFEM.

L'Agence Française de Développement (AFD). AFD is one of the six main contributors of ODA to the hotspot countries covered by the ecosystem profile update, providing US$1,081 million in 2014. Three-quarters (US$735 million) of this went to the North Africa sub-region, including US$539 million to Morocco. Turkey (US$184 million) and the middle-east region (US$146 million) were other major beneficiaries, while the Balkans received US$16.5 million.

AFD ODA to the region has declined 20% from US$1.4 billion in 2008, but the proportion of aid to each sub-region has remained broadly the same. Within north-Africa there has been a marked shift, however, with aid to Algeria, Egypt and Tunisia declining sharply, and aid to Morocco increasing by 230% over the period.

Of around 120 projects funded in the North Africa and Middle East region, about half are broadly related to environmental issues: 24 in the water and sanitation sector, and a further 37 in energy, agriculture, and urban management. Seven recent projects are specifically identified as biodiversity (or biodiversity-climate-change) relevant, although five have already closed:

- Turkey: reducing energy and water impacts of tourism, diversification of energy sources (€60 million loan, 2014-2017).
- Turkey: preserving Turkey's forests. The project has contributed to improved forest management techniques, reforestation of 380 000 ha, restoration of 310 000 ha and erosion control work over 650 000 ha. (2011-2014, first loan €150 million plus grant, second loan of €150 million made in 2014).

- Algeria: development of the national coastal commission (Commissariat National du Littoral), capacity building and communications to local and national governments, users of coastal environments (2006-2013, grant, €1.2 million).
- Jordan: protection of Jordanian flora: support to the Royal Botanic Garden of Jordan, producing a strategy for flora conservation, flora red list, invasive aliens list, strategies for threatened flora, gene bank and nursery for threatened species (grant).
- Lebanon: protecting the coastal areas of Lebanon - program MedWetCoast. Led to adoption of a framework law on protection of biodiversity at nature reserves, management of 2 sites, (2001-2005, co-financed by FFEM, €0.5 million).
- Lebanon: support to nature reserves in Lebanon: focus on Biosphère du Chouf, réserves de Horsh Ehden, de Tannourine, de Bentaël and de Tyr. Led to establishment of a Lebanon network of PAs, involved CSOs including the Association for the Protection of Jabal Moussa, and Aammiq wetlands. (2006-2011, grant, €1.4 million).
- Morocco: preserving the Lagune de Nador (Ramsar site) ecosystem: protecting the ecosystem, restore tourism, improve local living conditions (2007-2013, concessional loan).

Fonds Français pour l'environnement mondial (FFEM). FFEM funds projects in the areas of climate change (both energy and land use related), international waters, biodiversity, land degradation and POP. Eight relevant projects from the climate change and biodiversity funds are being implemented (or recently ended) in the Mediterranean Basin Hotspot. Five of them are multi-country, two jointly with multiple sub-Saharan African countries (FFEM 2016a). Together they represent €12.2 million of FFEM investment, and at least €167 million co-financing (some of it from donors covered elsewhere, including EU, MAVA and AFD).

- Algeria, Lebanon, Libya, Morocco, Tunisia, Turkey: Optimization of the goods and services from Mediterranean forest ecosystems in the context of global climate change (2011-2014, €2.7 million). The project promoted valuation of ecosystem services and participatory management planning to enhance the values and climate change mitigation potential of forests.
- Albania, Algeria, Libya, Morocco, Tunisia, Turkey: Model management of coastal, island and marine zones in the Mediterranean (2013-2017, €1.9 million FFEM plus €7.8 co-finance from multiple institutions including MAVA Foundation, Prince Albert II of Monaco Foundation, and Conservatoire du Littoral). The project supported management of sites in the target countries through a program of small grants to PA managers, engaged policy makers in integrated coastal zone management (ICZM), including sustainable financing mechanisms, developed capacity.
- Cabo Verde, Tunisia, Morocco, Algeria (including extension to sub-Saharan African countries): Small islands initiative (Programme PIM, Petites Iles de Méditerranée): this recent project, a continuation of the former, aims at strengthening an international platform for sustainable management and protection of the biodiversity of small islands (2016-2021, €1.6 million FFEM, €7.7 million co-finance). The project works on creation of an international network to encourage knowledge sharing on small island management, and support management at seven sites including Santa Luzia (Cabo Verde), Kerkennah (Tunisia), plus multiple islands in EU Med countries.
- Tunisia: Management of Natural Reserves in six vulnerable rural districts (2016-2021, €2 million FFEM, €56.1 million AFD, Tunisian Govt). Collaborative planning and management of natural reserves.

- Morocco, Tunisia: adaptation of agriculture to climate change (ACCAGRIMAG) (2013-2016, €1.5 million FFEM, €87.8 million AFD, GEF): increasing the CC resilience of small farmers.
- Tunisia: Promotion of ecosystem-based management of fisheries and other uses of marine environment in the Marine Protected Areas of the North of Tunisia (2013-2017, €1million from FFEM, €2.9 million co-financing from EU and others). Link existing marine protected areas to form a network (focus: Galite Zembra Cap Negro-Cap Serrat and Tabarka), build capacity for ecosystem based fisheries management.
- Tunisia: Management of the groundwater resources of the Gabes coastal oasis (2010-2017, grant, €1 million).
- Egypt (and multiple sub-Saharan African countries): RESOURCE: integrated management of migratory bird in African wetlands (2017-2021, €1.5 million from FFEM, €5.1 million co-financing from FAO, AEWA, CIRAD and others). Coordinated water bird monitoring, development of management plans, sustainable use/hunting, improve policy and legal frameworks.

FFEM has a small grants program (Programme Petites Initiatives, PPI) which funded a few projects in the region in the past (Morocco: household energy saving, and Algeria: forest reserve establishment). The PPI is just completing its fourth phase (2013-2016), but does not currently make grants in the Mediterranean (FFEM 2016b), and a new phase is in preparation, which will not cover Mediterranean countries either. A specific off-shoot of the PPI concept, called Programme Petites Initiatives pour les Organisations de la Societé Civile d'Afrique du Nord (PPI-OSCAN), has been specifically designed for North Africa, and was launched in 2014 for a 3-year period with a budget of €2 million cofounded equally by MAVA and FFEM.

For the period from 2015 to 2018, FFEM has decided to focus its funding on five areas. In biodiversity area, FFEM focuses on: biodiversity financing mechanisms; integrated coastal and marine zones management; sustainable agriculture and forest; sustainable urban territories; and energy transition.

Japan

Globally, Japan was one of the four largest contributors of bilateral ODA for biodiversity conservation during 2012-2014 (OECD 2016). Japan is also a significant bilateral donor to the region, active in 15 of the 16 hotspot countries covered by the ecosystem profile update (excluding Libya), providing US$219 million in 2014 (OECD 2016)[23]. Three-quarters (US$152 million) of this went to the Middle East sub-region, with the rest distributed across the other countries covered by the ecosystem profile update.

Japan's ODA to the region has declined 50% from US$435 million in 2008, with a significant shift of funds away from Morocco and Turkey (which made up 90% of all ODA in the region in 2008) to the four Middle Eastern countries.

In 2014 Japan funded a total of 117 projects in the 15 countries in the hotspot, 101 of them connected to local security or humanitarian aid, and others in the fields of water, agriculture, capacity building, waste management and power. One biodiversity project, supporting the

[23] Totalling the figures on the Japan Ministry of Foreign Affairs website, mofa.go.jp/policy/oda/data/, gives US$170 million in grant and technical aid, and a two loans, to Egypt and Tunisia, totalling US$525 million

Conservation and Sustainable Use of Divjake-Karavasta National Park, Albania, was funded from 2012-2014, at a total cost of around US$6 million.

Germany

Globally, Germany was the largest bilateral donor to biodiversity conservation projects over 2012-2014 (OECD 2016). Germany is also one of the six main contributors of ODA to the hotspot countries covered by the ecosystem profile update, providing US$1.7 billion in 2014 and active in all countries. One third (US$566 million) of funds went to the Middle East sub-region, and another third to North Africa, including US$415 million to Morocco. Turkey (US$344 million) was the other major beneficiary, while the Balkans received US$157 million.

German ODA to the region has increased by over 200% from US$0.5 billion in 2008, but the proportion of aid to each sub-region has remained broadly the same except for Egypt and Turkey, where there have been substantial increases.

German assistance in the region is focused strongly on water resource management, economic development, capacity building for state institutions, and to a lesser extent on energy, rural development, and education. There has also been major support to humanitarian efforts in the countries around Syria. Within these priorities, environment is generally relevant in the context of climate change, and specifically renewable energy (BMZ 2008). However GIZ is implementing a capacity building project, the Open Regional Funds for South-East Europe, in which capacity for 'biodiversity relevant institutions and organizations' is the 6th module, established in 2015, with three focal areas: biodiversity information system management and reporting, economic value of biodiversity and ecosystem services and transboundary management of ecosystems. The project focuses on Albania, Bosnia and Herzegovina, Kosovo, Macedonia, Montenegro (and Serbia). Activities include the establishment of a network for biodiversity conservation organizations in the region, BioNET.

There has been funding for biodiversity and environment from two sources, however: the Federal Ministry of Development Cooperation (BMZ) and Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (BMU), both of which fund projects related to biodiversity through the German aid program, and the BMU through the International Climate Initiative (IKI). On-going relevant projects (data up to 2014) include (BMZ and BMUB 2016; BMUB 2016):

- Morocco: National Competence Centre for Climate Change Mitigation and Adaptation in Morocco (2013-2017, US$3.3 million, IKI).
- Egypt: Biodiversity Conservation and Sustainable Use of Ecosystem Services in Wetlands of Transboundary Significance in the Nile Basin (multiple African countries) (2015-2020, US$6.7 million, IKI).

Recently finished projects from the same sources include:

- Albania: Protected Areas Management and Sustainable Use of Biodiversity in Mountain Areas (2011-2015, US$2.2 million).
- Albania/Turkey/ Macedonia/Montenegro: Study and expert fund SE and E Europe (on-going, annual, US$0.9 million).

- Albania/Macedonia: Prespa Basin conservation project: Transboundary Ecosystem Conservation and Integrated resource Management Program (2010 on, US$5.6 million).
- Albania/Macedonia/Montenegro: Conservation and Sustainable Use of biodiversity at Lakes Prespa, Ohrid, Shkodra/Skadar (2012-2014, US$2.2 million).
- Albania: Protecting health from climate change (2008-2011, US$1 million, IKI).
- Algeria: Resources management, climate change and energy (2011-2015, US$3.3 million).
- Algeria /Tunisia/Morocco/Libya/: Study and expert fund Maghreb (on-going, US$0.6 million annually).
- Algeria/Tunisia/Morocco/Lebanon/Syria/Turkey: adapting Forest Policy Condition to Climate Change in the Mediterranean region (2010-2015, US$8.3 million).
- Jordan: Sustainable Use of Ecosystems in Jordan (2013 on, US$5.6 million).
- Jordan: Protection of Environment and Biodiversity (2011-2015, US$3.6 million).
- Macedonia: Protecting health from climate change (2008-2011, US$1 million, IKI).
- Morocco: Adaptation to Climate Change - implementation of Nagoya Protocol (2013-2016, US$6.7 million).
- Morocco: Integrated management of water resources (2012-2016, US$9.3 million).
- Tunisia: Integrated water resource management (IWRM) program for the development of rural areas: coastal protection program I (20113 on, US$6.6 million).
- Tunisia/Morocco/Algeria: National forest monitoring and information systems for a transparent REDD+ process (2013-2016, US$4.4 million, IKI).
- Turkey: Adaptation to climate change and conservation of biodiversity through protection and sustainable use of wetlands (2009-2013, US$1.2 million, IKI).

Other bilateral donors

Spain. Spain has bilateral relationships between central government, regional government and local bodies and countries in North Africa and the Middle East (and also the Balkans until 2011). Total bilateral aid to these countries decreased by 73% between 2010 and 2014, from almost US$20 million to around US$5.5 million. In 2014 North African countries received a total of US$3.2 million, with support to projects in Algeria, Cabo Verde, Egypt, Morocco and Tunisia, while the Middle East received US$2.2 million, almost all allocated to Palestine. Funding in all countries was principally in the farming sector, with smaller amount allocated to environment, forestry and fisheries.

UAE. With total net bilateral ODA to the region of US$4.5 billion in 2014 the UAE is the second largest contributor after the EU. 70% of the ODA went to Egypt, 15% to Jordan, and another 10% to Morocco, with the remaining 5% distributed among Syria, Libya and Palestine. The main sectors supported are agriculture, urban management and development and humanitarian assistance. No assistance was provided to biodiversity or environmental projects (UAE Interact 2016).

UK. The UK’s Darwin Initiative funds UK organizations to work with partners on biodiversity conservation projects. Since 1993 the fund has supported 23 projects with a total value of over US$3 million in seven of the hotspot countries covered by the ecosystem profile update, with the largest investments in Lebanon and Turkey. Only three projects have been supported since 2010, two in Turkey and one in Morocco.

USA. The USA is one of the six main contributors of ODA to the hotspot countries covered by the ecosystem profile update, providing US$2.6 billion in 2014 and active in all countries.

However, 95% of this funding went to the Middle East sub-region, including almost half (US$1.2 billion) to Jordan. The remaining 5% (US$112 million) was shared roughly equally among the other three sub-regions.

US ODA to the region has increased by over 50% from US$1.7 billion in 2008, with a shift in resources away from Egypt (which is now a net re-payer of loans to the US).

Globally, the USA was the second largest contributor of bilateral ODA for biodiversity over 2012-2014 (OECD 2016)[24]. USAIDs biodiversity funding is guided by a strategy (USAID 2014) which identifies 'tier 1' countries where at least 50% of biodiversity funding will be spent. These are essentially the tropical countries of each continent, and do not include the Mediterranean Basin Hotspot. Spending on biodiversity in the Mediterranean is minimal, with USAID assistance focused on governance, participation, capacity building and access to water resources. Of the 182 projects reviewed (USAID 2016a,b), only one was biodiversity related:

- Lebanon: Lebanon Reforestation Initiative, (2010-2014, US$11.9 million) provided technical assistance on sustainable forestry practices and wildfire control, and planted several hundred thousand native trees throughout the country.

In funding year 2015, only a single disbursement, of US$1.8 million for forestry in Lebanon (presumably related to the same reforestation project) is recorded for the Middle East region (USAID 2016a). The USAID initiative on environment and climate change records only two projects in the Mediterranean region: the same reforestation program in Lebanon, and a water and sanitation project in Kosovo.

The US Fish and Wildlife service supports nine sea turtle conservation projects in the hotspot. Five projects in Cabo Verde (total investment around US$230,000) support the Turtle Foundation, Cabo Verde Natura 2000 and Bio CV (on Boavista), Associacao Projectos Biodiversidade (on Sal) and Maio Biodiversity Foundation (on Maio) to protect nesting sites for Loggerhead Turtles, carry out community awareness activities, and also support an annual meeting to coordinate Turtle protection efforts in the islands. In addition, USFWS support work with Spanish and Portuguese (Azores based) fishing fleets to understand and address Turtle bycatch in fisheries (total investment around US$100,000), and in Turkey works with NGO Pamukkale Bilim Merkezi Dernegi Danismanlik Ve Organizasyon on reducing Turtle bycatch close to the main Loggerhead nesting beach in the country (total investment US$12,000).

Turkey. Turkey has been a provided of ODA since the mid-1980s, and now disburses more than many of the DAC donors, and above the average ODA/GNI for DAC donors, to over 120 countries (Hausmann and Lundsgaarde 2015). It was the third largest net contributor of ODA in the region in 2014 as a result of major assistance for Syrian refugees. 80% of Turkish Aid is used for health, water and sanitation, education, administrative and civil infrastructure (TCCA 2013). There is no support for environmental or biodiversity focused projects.

[24] USAID invests about US$ 250 million per year (USAID 2016a)

10.2.3 Multilateral donor aid for biodiversity conservation

Multi-donor funds

CEPF. CEPF is one of the most important sources of biodiversity funding for CSOs in the hotspot. During the first phase, the CEPF Mediterranean grants program made 108 grants to 84 different organizations in 12 countries. Further information is presented in Chapter 2.

GEF. The GEF is a multi-donor fund which has invested around US$440 million for biodiversity conservation related activities in the hotspot countries covered by the ecosystem profile update since the fund was created[25], through 87 single country projects and 37 regional ones[26]. The GEF is now in its sixth funding cycle (2014-2018), with a total allocation for these countries of US$129 million, of which 29% (US$37.5 million) is allocated for biodiversity and 45% (US$58 million) for climate change, with the remaining 9% for land degradation and international waters. Almost half of the GEF allocation is to the North Africa sub-region, although the largest single country allocation is to Turkey (US$26 million), with Egypt (US$15.9 million) and Morocco (US$14.5 million) receiving about half that amount. The rest of the resources are spread between 11 countries, with an average of US$6.5 million each, while Kosovo and Palestine have no allocation. The pattern of allocation of biodiversity funding follows the overall pattern, with the exception of Cabo Verde which has over 50% of its GEF allocation (US$3.4 million of US$6.7 million) allocated for biodiversity.

Currently, 28 single country projects (total GEF investment US$100 million) are being implemented in every country covered by the ecosystem profile update, except Libya, Palestine and Syria. Almost half of the current funding goes to the North Africa sub-region (13 projects/US$47.7 million), with the rest split relatively equally between the other three sub-regions. There are also nine on-going regional projects related to biodiversity, representing a total of US$36 million, with around half the investment (seven projects, US$17.8 million) in the Balkans sub-region, and most of the rest (four projects, US$14.1 million) in Tunisia, Morocco and Egypt. Most recently, a regional project in Albania and Montenegro aims to address marine conservation through a spatial planning approach.

GEF biodiversity-related funding focuses strongly on ecosystem- and landscape-level approaches to conservation and resource management, with nine of the 28 ongoing projects, and seven of nine that are currently in the approval process, taking this approach across all the sub-regions. Other prominent themes are support for protected area networks and sites (the main focus in the Balkans sub-region) and sustainable agriculture, water resource management, and forestry (the main focus in North Africa sub-region). Four of the nine on-

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[25] GEF funding is from national governments. 39 have contributed to GEF since its creation, with 30 countries contributing €3.4 billion for the GEF-6 period (2014-2018). GEF donor countries within the hotspot are Egypt, France, Greece, Italy, Portugal, Slovenia, Spain, Turkey (GEF 2016)

[26] Data is from the GEF (2016) project database, and covers all periods of GEF. The data presented here includes GEF projects which have (a) biodiversity focal area, (b) international waters, land degradation and climate change focal areas but are related to natural resource and ecosystem management. It includes full size and medium size projects but excludes enabling activities, funding for the small grants programs, and funding for policy mainstreaming of international conventions. It includes projects which are completed, approved, or being approved, but excludes projects which have been cancelled. It is generally not possible to distinguish GEF projects focused inside and outside the hotspot, but where the project was clearly outside the hotspot it was excluded

going multi-country projects are focused on ecosystems (marine and terrestrial), as are all 20 of the regional projects that are in preparation (Table 10.9).

A total of nine single-country and eight regional projects are in the process of being approved[27], a total GEF investment of US$96 million. The projects continue the emphasis on ecosystem- and landscape- approaches, but the regional projects also represent a marked increase in investment in marine ecosystems, with four projects representing over US$76 million in GEF funding for Mediterranean marine programs.

Table 10.9 On-going biodiversity-related GEF projects in the Mediterranean Basin (GEF 2016a)

Sub-region	# single country projects	#multi-country projects	Approx. GEF investment (US$million)	Main foci
Balkans	8	8	40	Protected areas (4), river basin and landscapes (7), coastal ecosystems (1), marine ecosystems (3), sustainable tourism (1)
Turkey	4	1	19.3	Landscapes (3), sustainable livelihoods (2)
Middle East	3	1	16.8	Landscapes (2), coastal ecosystems (1), sustainable tourism (1)
North Africa	13	4	61.8	Protected areas (2), landscapes (7), coastal ecosystems (1), sustainable livelihoods (4), sustainable tourism (2), knowledge and benefit sharing (2)
TOTAL	**28**		**136.2**	

Note: Projects are full-size and medium size, classified as 'project approved', within the biodiversity focal sector, or a climate change/international waters/land degradation and judged to be relevant to sustainable natural resource management.

GEF Small Grants Program (SGP). There are GEF SGPs in 11 of the 16 countries covered by the ecosystem profile update (SGP 2012). There are no programs in Kosovo, Bosnia-Herzegovina, Montenegro or Libya, while the Syrian SGP closed in 2014. The 12 programs (including Syria) have made 1,772 grants to local civil society organizations since 1993, with a total value of US$46.6 million, and average of US$26,000 per grant. GEF-SGP grants fund a broad range of activities including water management, soil conservation and addressing desertification, and renewable energy. Projects in the biodiversity focal area were the majority in every country except Egypt, where climate change mitigation makes up 75% of grants. Altogether 832 projects (47%) were in the biodiversity focal area, representing an investment of perhaps US$22 million[28]. The largest number of biodiversity grants have been made in the Middle East (223) and North Africa (253), with fewer in the Balkans (179, 137 of them in Albania), and 177 in Turkey.

Development banks

The World Bank is a major donor in the region, with activities in all but two of the countries covered by the ecosystem profile update. Over 72 projects under the 'environment and resource management' theme are active in 11 countries, plus three regional projects, and another two projects in the pipeline. The total Bank contribution to these projects is US$4.9 billion.

[27] Projects classified as 'concept proposed', 'concept approved' or 'received by GEF secretariat' in the GEF project database

[28] This figure assumes projects in the different focal areas are, on average, the same grant size, so that the 47% total number of biodiversity projects can be extrapolated to the grant amount

Among the ‘environment and natural resources’ projects, two address integrated coastal zone management (in Egypt and Morocco), and three address forest management and restoration (Bosnia-Herzegovina, Albania, Tunisia). A further 15 projects (US$328 million investment) address sustainable land and water management and ecosystem services. Another quarter of the projects, with half of the investment (US$2.5 billion), are for energy, almost all of it for renewables – wind, solar and geothermal energy, and dam safety. There is also a small grant to support the Extractive Industries Transparency Initiative (EITI) in the region[29]. Another US$1.9 billion is invested in 32 projects on water supply, sanitation, pollution and waste.

Almost half of the ‘environment and natural resources’ investment (US$2.3 billion, 46%) goes to North Africa, most of it to Morocco, but with substantial investments in Egypt and Tunisia. A further 29% (eight projects, US$1.4 billion) goes to Turkey, 16% to the Middle East and 9% to the Balkans, mostly to Albania.

Table 10.10 Active World Bank projects in the environment and natural resources theme

Sub-region	Country	No. of projects	Investment (US$ million)	% of total investment
Balkans	Albania	10	316.77	6.21
	Bosnia-Herzegovina	4	96.58	1.89
	Kosovo	1	24.53	0.48
	Macedonia FYR	0	-	-
	Montenegro	2	16.20	0.32
Balkans sub-total		**17**	**454.08**	**8.90**
Middle East	Jordan	2	6.11	0.12
	Lebanon	5	746.54	14.63
	Palestine	10	70.30	1.38
	Syria	0	-	-
Middle East sub-region		**17**	**822.95**	**16.13**
North Africa	Algeria	0	-	-
	Cabo Verde	0	-	-
	Egypt	7	842.98	16.52
	Libya			-
	Morocco	10	1,216.93	23.85
	Tunisia	12	269.64	5.29
North Africa Sub-region		**29**	**2,329.55**	**45.66**
Turkey	Turkey	8	1,482.94	29.07
Regional	regional: Middle East + N Africa	1	1.00	0.02
	regional: SE Europe	2	11.14	0.22
TOTAL		**74**	**5,101.66**	

Multi-lateral environmental agreements funds

Agreement on the Conservation of African-Eurasian Migratory Waterbirds (AEWA). Under the Convention on Migratory Species, two instruments relevant to the Mediterranean have established their own small grants funding. These mechanisms are dependent on voluntary donations from member governments and other supporters. AEWA provides small grants for activities in line with its strategic plan and has funded two projects in hotspot

[29] Further information on the EITI is in Chapter 5, Socioeconomic, Policy and Institutional Context

countries: a 2014 project in Morocco on implementation of a species action plan for white-headed duck, by GREPOM, an NGO (US$19,000), and a project in Egypt that was outside the hotspot (in the Red Sea).

Agreement on the Conservation of Cetaceans in the Black Sea Mediterranean Sea and Contiguous Atlantic Area (ACCOBAMS). ACCOBAMS established a Supplementary Conservation Fund (SCF) in 2002, using voluntary contributions to make increased funds available for monitoring, research, training and projects relating to cetacean conservation. Selected projects, with maximum grants of €15,000, mainly address the development of capacity to conserve cetaceans (for example stranding networks, cetacean population monitoring, photo-identification databases) in developing countries and countries with economies in transition. By supporting concrete actions in countries where little funding is allocated to cetacean conservation and by stimulating dialogue and cooperation at the local and regional level, the ACCOBAMS SCF actively contributes to the conservation of cetaceans in the Mediterranean and Black Sea. Since the establishment of the fund, 17 projects have been supported with a total budget of about €250,000. The cycle for submission of project proposals depends on the availability of funding, but calls for project proposals are generally launched every two or three years.

Convention for the Protection of the Mediterranean Sea against Pollution (Barcelona Convention). The parties to the Barcelona Convention established a Regional Activity Centre for Specially Protected Areas (RAC/SPA) in Tunis in 1985. The RAC monitors the state of the environment and assists the Parties to implement the Protocol on Specially Protected Areas and Biodiversity in the Mediterranean. It is funded by the Trust Fund for the Protection of the Mediterranean Sea against Pollution (MTF), also established under the convention, and receives support from bilateral donors, and the private sector Total foundation.

Priority Actions Programme/Regional Activity Center (PAP/RAC). UNEP coordinates the Mediterranean Action Plan (MAP), including the PAP/RAC, which was established in 1977. The center focuses on ICZM.

10.3 International charities, trusts and foundations

MAVA Foundation. The MAVA Foundation (Switzerland) was the donor most frequently cited in the national questionnaires submitted as part of this update process. MAVA will cease funding, at least in its present form, in 2022, and so the foundation's current (2016-2022) strategy has a focus on achieving clearly defined objectives and mainstreaming and replicating successful approaches.

In the Mediterranean Basin, MAVA's geographic focus is closely aligned with the hotspot, working in 14 of the 16 countries covered by the ecosystem profile update[30], as well as 15 other countries in the hotspot, and Andorra, with the objective by 2022, 'to improve the conservation status of key basins and aquifers for biodiversity and services, coastal and island wetlands of high ecological value, seagrass and coralligenous habitats, high trophic level fish species targeted by artisanal fisheries, landscapes of high ecological value maintained by human practices and priority species.'.

[30] A 15th, Cabo Verde, is included in the foundation's West Africa programme, and 16th, Kosovo, is not explicitly excluded but may not be a priority as it has no coastline

MAVA's overall strategy (MAVA 2016) outlines seven outcomes for the Mediterranean by 2022: two are focused on unsustainable water use; one on unsustainable coastal development, two on unsustainable fishing practices; one on abandonment of land and traditional land use practices; and one on killing of priority species. A maximum of three sites/landscapes/marine geographies will be chosen per strategic outcome as a focus for funding support31. Further detail in the specific Mediterranean strategy for 2016-2020 (MAVA 2016a) emphasizes mainstreaming past successful approaches into national and regional policy, but with continued attention to priority ecosystem conservation: freshwater – key basins, aquifers, coastal and island wetlands; coastal habitats - coastal wetlands, seagrass beds and coralligenous beds; human managed landscapes of high ecological value; high trophic level fish species targeted by artisanal fisheries; and priority species: lynxes, sea turtles, vultures and migratory birds. In addition to the landscape/seascape focus, the foundation expects to place an emphasis on 'magnification': promotion of results and solutions, including through existing bodies able to support replication; developing awareness and building stakeholder capacity; advocacy for mainstreaming approaches through sectorial practice and legal frameworks.

In recent years MAVA has supported 23 projects within the countries covered by the ecosystem profile update (or regional projects including these countries), with a total value of between US$18 million and US$41 million[32]. Of these, 12 are regional projects with a strong emphasis on supporting networks and partnerships, economic valuation and integrated management of landscapes and ecosystems, five are regional marine projects, four are single-country projects (two in Lebanon, one each in Morocco and Palestine) and two focus on multiple countries in the Balkans. The projects include support to network organizations including the Mediterranean- Black Sea Cetacean Conservation network; Plan Bleu, Euronatur's work in the Balkans, IUCN South east Europe, IUCN Centre for Mediterranean Cooperation, BirdLife International, and a network of high ecological value Mediterranean forests, MEDFORVAL, created by AIFM (2016). MAVA has also supported the CEPF Mediterranean programme with a US$1.2 million allocation focusing on Integrated Coastal Zone Management, and additional US$0.1 million support to the ecosystem profile update.

In West Africa, MAVA focuses on coastal and marine conservation (focusing on sea turtles, coastal wetlands, seabirds, mangroves, seagrass beds and small pelagic fish) in the countries of the PRCM (which MAVA helped fund (PRCM 2015)) area, including Cabo Verde in the Mediterranean Basin Hotspot, as well as Gambia, Guinea, Guinea-Bissau, Mauritania, Senegal, and Sierra Leone. MAVA and FIBA (Fondation Internationale du Banc d'Arguin) merged in 2015, with the shared program called the 'MAVA West Africa Program'.

To date, MAVA has provided support to three projects in Cabo Verde, totalling US$200,000 to US$600,000, and six regional support programs which include Cabo Verde with a total value of between US$2.7 million and US$9 million.

[31] It is not clear, however, whether the 'strategic outcomes' referred to are the five themes noted above, or the five cross-cutting

[32] MAVA website (2016b) gives a range (e.g., €1-5 million) for project funding allocation, hence the low and high estimates of MAVA funding contributions.

MAVA funding for 2016-2022 will be guided by nine quite specific outcomes, with those relevant to Cabo Verde being:

- By 2022, disturbance and illegal harvesting in the four most important nesting sites for green and loggerhead sea turtles (PNO, PNMJVP [Guinea-Bissau], Maio, Boavista [Cabo Verde]) are eradicated;
- By 2022, illegal harvesting and disturbance are eradicated in at least 80% of all seabird breeding colonies located in MPAs; and
- By 2022, infrastructure development on turtles nesting beaches, mangroves, seagrass beds and coastal wetlands critical sites is regulated and sustainable.

Prince Albert II of Monaco Foundation. This foundation, established in 2006, focuses on three priority themes: climate change, biodiversity, and water resources/desertification, in three regions: the Mediterranean, Polar Regions, and least developed countries. Since 2008 the Foundation has made grants totalling over US$13 million for conservation in the region, including around US$10 million for marine conservation research and marine protected areas in the Mediterranean, US$1 million for green energy projects in Morocco, around US$1.5 million for conservation of the Northern Bald Ibis in Morocco, Turkey and Syria, and over US$0.5 million for wetlands, including support to an information centre at Skadar Lake in Albania and Montenegro. The foundation's current projects are all focused on marine protected areas and the impact of climate change on marine environments. The Foundation has also contributed $0.1 million to the CEPF ecosystem profile update.

Nando Perretti Foundation. This foundation has supported work against trapping of migrant birds in Northern Egypt (grant to BirdLife International, 2014-2017), in the past supported renewable energy in Bosnia-Herzegovina and Albania (Grant to Oxfam Italia).

Thalassa Foundation. This foundation supports project on marine biodiversity and sustainable development of small islands in Greece (Chios, Oinouses, Psara), and has expressed interest in collaborating on transboundary programmes on marine biodiversity.

Stavros Niarchos Foundation. This foundation has focused most of its support, in recent years, on social issues and economic development in Greece, following the financial crisis – with a budget of over €100 million. The Foundation is developing a programme to support the Prespa region (Greece-FYROM-Albania) together with the Society for the Protection of Prespa, including environmental protection.

Hima Fund. The Hima Fund is a Qatari foundation established to provide support for the conservation of Important Bird Areas in the Middle East (Hima Fund 2010), and is active in Lebanon, Syria, Jordan and Palestine in the hotspot. The fund supports application of the 'hima' concept of communal management of shared resources, and has supported actions by the Society for the Protection of Nature in Lebanon to establish recognized Hima management system at six important bird areas (= KBAs), and by the Royal Society for the Conservation of Nature (RSCN) in Jordan to address species conservation through management of the Dana Biosphere Reserve.

Mohamed bin Zayed (MBZ) Species Conservation Fund. The MBZ Fund provides small grants for focused work on the conservation needs of threatened and important species. Since 2008 the fund has provided 32 grants worth US$233,000 in eight of the 16 hotspot countries covered by the ecosystem profile update, with the bulk of the resources allocated to North

Africa and Turkey, and three projects in the Balkans. Seven of these projects (US$51,000) are currently underway or recently completed.

Rufford Foundation. This foundation supports early career conservationists in developing countries through a small grants programme. Since 2016, Rufford has made 91 grants averaging about US$6,500 (US$590,000 in total) in 11 of the hotspot countries covered by the ecosystem profile update, with a focus on the Balkans and Turkey (68 grants) but also Cabo Verde, Morocco, Algeria, Egypt, Tunisia and Palestine. The grants have a strong emphasis on supporting research and conservation work for specific species and groups.

10.4 Donor coordination

A Mediterranean Biodiversity Donor Round Table was established in 2013, under the auspices of the MAVA and Prince Albert II of Monaco foundations. The Round Table aims to provide a platform for sharing of strategies and plans for donors supporting civil society in the field of biodiversity conservation in the region. The current members are FFEM, CEPF, Fundación Biodiversidad (Spain), the MAVA Fondation, Stavros Niarchos Foundation, Thalassa Foundation, Prince Albert II of Monaco Foundation, Adessium Foundation and Oak Foundation. Those that make grants for biodiversity conservation in the countries covered by the ecosystem profile update are discussed in the bilateral and foundations sections, above.

The CEPF advisory committee also provides a platform for informal donor coordination, helping to ensure that CEPF investments complement those of other biodiversity donors. The advisory board members include representatives of international conservation organizations (IUCN Centre for Mediterranean Cooperation, WWF Mediterranean Programme Office), research and conservation groups (Tour du Valat, Conservatoire du littoral, Society for the Protection of Prespa, IUCN/SSC/MPSG - Mediterranean Plant Specialist Group, Université Béjaia, Algeria) and international and national funders (MAVA Foundation, Prince Albert II of Monaco Foundation, Fonds Français pour l'Environnement Mondial, GIZ, GEF Small Grant Programs in Jordan, Cabo Verde).

10.5 Innovative funding strategies

There are few examples of innovative funding for biodiversity conservation in the region.

The most promising example to date is the Prespa-Ohrid Nature Trust (PONT), a trust fund to provide long-term support to the Prespa Lake in Albania, FYR Macedonia and Greece, initiated by MAVA Foundation with WWF-Greece and currently capitalized at US$11 million by KfW and MAVA Foundation. CEPF supported the establishment of the fund with a US$76,000 grant during Phase 1.

UNEP operates the Mediterranean Trust Fund to support the activities to ensure the effective coordination and implementation of the Mediterranean Action Plan, which addresses coastal and marine conservation in the region. The fund receives contribution from the 22 signatories of the Barcelona convention, with contributions in 2016 totalling US$6 million.

10.6 Assessment of funding and funding gaps

In terms of overall development aid flows to the region, bilateral relationships, worth US$20 billion in 2014, are far more important than multilateral sources, worth US$4 billion. Among the regions six biggest bilateral donors, each of them contributing well over US$1 billion, are the world's first and second largest bilateral contributors to biodiversity conservation, Germany and the USA, and the EU, which committed to double its biodiversity funding by 2015 and maintain it at that level for five years. Despite this, the region is not viewed as a venue for funding biodiversity conservation, and there are very few bilateral projects addressing biodiversity conservation. Only Germany's International Climate Fund and the French FFEM providing significant, dedicated biodiversity conservation funds which have support action for the conservation of priority sites and species over the last five years.

Among the multilateral funds, the GEF provides by far the largest volumes for funding, with 28 projects totalling US$136 million under implementation. GEF large- and medium-size projects have a strong emphasis on landscape-level approaches and ecosystem services, and the pipeline projects show that the proportion dedicated to marine ecosystems will increase in future.

Among the providers of small grants, the GEF small grants program and the CEPF stand out as the major sources of funding, although there are several other sources of biodiversity small grants for specific regions. GEF Small grants fund a wide range of projects, including the conservation of biodiversity in general. CEPF (along with the UK government's Darwin Initiative and the MBZ Fund) are different in that they use the global threat status specifically as a criterion for submission of projects.

While it is difficult to put figures of the exact amount available for biodiversity conservation, or the need, it is clear that a great deal more funding is required in the hotspot. CEPF is addressing a vital niche, funding the conservation of sites and action to conserve species, but a great deal more work need to be done. Furthermore, even with increased funding, limited CSO capacity would rapidly become an issue in most countries. The volume and means of delivery of grants is as important as the targeting. Many of the larger bilateral funder disburse large sums which come with complex requirements in terms of proposal development and administration during implementation. Few indigenous CSOs could meet this challenge without assistance, and CSOs in the Balkans are reportedly unwilling to apply for EU grants, for example.

11. CEPF NICHE FOR INVESTMENT

The definition of the CEPF niche in the Mediterranean Basin Hotspot is guided by the global objectives of the program, to provide rapid and flexible funding to civil society to act in areas where globally significant biodiversity is under the greatest threat, and informed by the experience gained during the first CEPF investment phase (2012-2017). The niche is informed by the conservation outcomes defined in Chapter 4, the capacities and needs of civil society organizations reviewed in Chapter 7, the threats to biodiversity assessed in Chapter 9, the patterns and trends in conservation investment by other actors set out in Chapter 10, and the other thematic analyses presented in the profile.

The precise scope of the niche was established during the 11 national stakeholder consultation workshops, the electronic review process and the regional workshop (Chapter 2), during which participants were invited to propose priorities for CEPF investment.

11.1 Eligible countries

CEPF support is available for conservation action within the Mediterranean Basin Hotspot in those countries that are signatories to the CBD and also World Bank client members, excluding *de facto* EU Member States and their territories and the independent countries of Mediterranean Europe (Andorra, San Marino, Monaco, etc.). The security situation in some countries also currently precludes effective grant making to civil society, although this may change during the coming five years. Table 11.1 summarizes the eligibility of hotspot countries for CEPF support.

Table 11.1 Eligibility of countries covered by the ecosystem profile update for CEPF support

Sub-region	Country	Eligibility for CEPF support in Phase 2
Balkans	Albania	Eligible
	Bosnia and Herzegovina	Eligible
	Kosovo	Not currently eligible, not a signatory to the CBD
	FYR of Macedonia	Eligible
	Montenegro	Eligible
Middle East	Israel	Not eligible (not a World Bank client member)
	Jordan	Eligible
	Lebanon	Eligible
	Palestine (West Bank and Gaza)	Not eligible*
	Syria	Not currently eligible due to the security situation
North Africa	Algeria	Eligible
	Cabo Verde	Eligible
	Egypt	Eligible
	Libya	Eligible (but with geographic limitations on western part of the country due to the security situation)
	Morocco	Eligible
	Tunisia	Eligible
Turkey	Turkey	Eligible

Note: * = The eligibility of the West Bank and Gaza to receive CEPF funding still needs to be confirmed by the World Bank. Based upon the results of this review, the final version of the ecosystem profile will be amended accordingly.

11.2 Lessons learned from the first phase

During the first phase of CEPF investment in the Mediterranean Basin Hotspot, 108 grants were made to 84 different organizations in 12 countries (see Section 2.2 for further details on the distribution of investment). Important lessons learned from the first phase concerned the choice of focal ecosystems, the approach to site-based work as opposed to higher level policy-advocacy engagement, working with the private sector, and capacity building. These lessons are summarized in Sections 11.3 and 11.4, and described in detail in Annex 4, which compares the targets and impacts of Phase 1 with the planned targets for the Phase 2. The lessons from the Phase 1 relevant to each of the strategic directions for Phase 2 are described in the relevant sections of Chapter 12, including specific lessons on the role of the RIT in grant management, capacity building, and supporting regional networking.

11.3 Theory of change for CEPF investment in the Mediterranean Basin Hotspot

The fate of biodiversity and the overall environment, along with the multitude of services it provides in support of economic and social elements of livelihoods, is determined by three broad groups of stakeholder: state actors; private sector actors; and civil society. These groups include resource managers, decision makers, and interest groups, and include organizations that are likely to become CEPF grantees. The relative influence and importance of these groups vary among sites and countries across the hotspot but they are assumed to be present in some form at every site where CEPF makes grants. The overall Theory of Change for the program is based around influencing the behavior of these groups, to encourage and enable them to use their influence for the benefit of biodiversity and ecosystem sustainability. The specific changes that are hoped for in each of these groups, and the role of CEPF grantees in achieving these changes, are described below.

The state plays multiple roles, from local to international levels, but two roles are of particular importance in the context of the objectives of the CEPF program: the state as a direct manager of ecosystems (e.g., forests, wetlands); and the state as a planner and regulator of the management of natural resources. The most direct role of the state in biodiversity conservation is as a manager of protected areas. Section 4.3.3 showed that less than half of KBAs are included in protected areas, while Chapter 6 noted that, even where protected areas have been created, there are significant problems with funding and management effectiveness in many countries. Improving the management effectiveness of existing protected areas is essential, however, and Phase 1 demonstrated that this can be done when CEPF grantees bring together coalitions among protected areas staff, local government and interest groups, such as hunting associations or tourism businesses. The interesting examples of delegation of management responsibility for protected areas to CSOs (Section 7.3.1) are especially relevant to this kind of project.

In addition to managing protected areas, state agencies are typically responsible for management of significant areas of land as forest reserves, watershed reserves, coastal areas or under parastatal agricultural or other ventures. CEPF engagement should aim to work with these agencies to accommodate the needs of threatened biodiversity and ecosystems into their management practices. The role of CSOs may be direct, identifying high priority locations and appropriate changes to management and then working with government staff on the ground, or indirect, influencing the funding, regulations and policies that determine the way that these agencies manage the land under their control.

The second crucial role of the state is as legislator and regulator of natural resource use, using legal and financial tools. Here, the objective of CEPF engagement should be to support governments to be more strategic and effective in this role, and to give it a higher political priority. Given the pressure on land and resources, and the difficulty in managing the existing areas, it seems unlikely that creation of new protected areas offers a feasible solution to the challenges of conservation across the region. Rather, the state's role in enacting and enforcing legislation on land-use planning, environmental impact assessment, protected species and sites could be supported and strengthened with civil society's input on the basis of field work and site-based demonstration projects.

This is a difficult area for civil society intervention, as many of the governments in the region have traditionally been rather closed to input from civil society. However, this is changing, and one of the priorities identified for the RIT (see Chapter 12, SD6) is to help promote wider understanding of the positive role that CSOs can play in support of government policy formulation. Nevertheless, most local CSOs lack the capacity and experience to undertake the kind of long-term, intensive work required to influence national policies and programs.

In this context, CEPF will take a two-pronged approach to helping CSOs engage more deeply with state actors. At site level, the RIT will work with grantees (directly, or through facilitating mentoring arrangements involving more experienced NGOs) to assist them to package their work and results in a form that will attract the attention of local governments. This might entail demonstrating how work at sites enhances the economic value of ecosystem services, addresses food security issues, or increases tourism revenues. At the same time, CEPF will use its regional role to identify opportunities and facilitate the engagement of local CSOs with national, regional and international processes, including conventions and agreements, through which CSOs can increase their visibility and promote their experience and knowledge, including to their own country delegations.

The private sector is an extremely diverse group with very significant impacts on resource management. Where private sector actors are directly managers of land and resources, then the potential role for CSOs, as with government agencies, is to identify priority sites and engage with the company to improve the way they manage biodiversity as part of their business operations. For other companies, action may involve reducing their environmental footprint (for example, through reduced water use or improved waste management), where these actions are a direct threat to a priority site, or it may involve the company providing financial or in-kind support to conservation efforts. Establishing long-term relationships of support between companies and particular sites or species has the potential to be an important way to address the problem of sustainable funding for conservation efforts. Relevant voluntary industry schemes promoting, for instance, sustainable tourism may provide an entry point for discussion with companies. However, the lessons from Phase 1 suggest that local businesses are a more feasible target for grantees (see Section 11.4.2).

Companies that buy and sell products from traditionally managed, high biodiversity landscapes which are so important in the Mediterranean Basin Hotspot, play a particularly important role and are potential development partners for grantees addressing the conservation of sites under Strategic Direction 3. The relevance and limitations of the growing market for certified products are discussed in Section 11.4.2.

Civil society encompasses a diverse range of stakeholders but the most relevant for the CEPF program are those who directly manage or exploit threatened biodiversity or the ecosystems on which it depends. The generic objective of CEPF engagement with these stakeholders is to minimize harmful behavior, and optimize contributions to biodiversity conservation from their activities. Examples might include: assisting hunters or fishers groups to secure rights over resources that allow them to regulate offtake; assisting farmers to put in place more sustainable land management systems and benefit from improved access to markets; and working with tourism guides to minimize disturbance to rare species and enhance visitor experience. Strategies to do this will generally involve a combination of individual interest (e.g., improved income, long-term security of access) and mobilizing public and social opinion, exercised through formal and informal rules and norms (e.g., local regulations to maintain ecosystems which have a value as a public good). It can also involve working with other stakeholders who have an interest in sites and species, such as university departments, water-user groups and recreational user groups. CEPF grantees often originate from these civil society groups, and typically have strong networks and experience of working with them. In addition to financial support, the role of the RIT will be to assist CSOs become more strategic and effective in their work with civil society, and then to build on the results as a basis for influencing the state and private sector actors described above.

11.4 Strategic focus for the program, 2017-2022

11.4.1 Supporting local and national organizations in a regional context

The status of civil society in the Mediterranean Basin Hotspot has evolved in recent years. Civil society is increasingly diverse, influential and engaged in conservation at both site and policy levels in most countries across the hotspot. This is particularly the case in North Africa, where a new civil society has emerged in some countries, such as Tunisia, Egypt and, even, Libya. However, limited internal capacity, inadequate funding and, in some cases, restrictive official policies and norms limit the ability of CSOs to take full advantage of opportunities and address the most urgent conservation needs (see Chapter 7). Funding for biodiversity conservation is limited: environment funding through development aid budgets is less in the Mediterranean than elsewhere, both in terms of amount and share of financial flows, and mostly channeled through governmental institutions (see Chapter 10).

Access to funding for civil society actors working on biodiversity conservation is, therefore, extremely limited, with most support being provided by a small group of dedicated donors, including CEPF. This presents an opportunity for CEPF, as one of the most important supporters of civil society conservation action, but also a challenge in terms of identifying projects and organizations that can contribute to sustaining the impacts of CEPF grants. The first investment phase demonstrated that such organizations exist in each country of the hotspot, and that adequate financial support, combined with technical support, has the potential to build strong civil society constituencies able to tackle conservation issues at the local level.

In this context, there is a clear need for CEPF to focus support to local and national civil society, with the objective of strengthening the capacities of individual organizations and fostering the emergence of a conservation community in the eligible countries. Granting to international organizations will be limited to actions that either require specific expertise not yet available in the eligible countries, or have the main objective of transferring skills and capacities to local or national partners.

CEPF will support actions that build the capacity of civil society. Self-identification of capacity-building needs by grantees is an integral part of the CEPF grant-making process, with the RIT having primary responsibility for working with grantees to provide support. Experience from Phase 1 (and investments in other hotspots) supports the conclusion that capacity building has greatest impact when it is integrated into project implementation, which allows newly acquired skills and knowledge to be applied directly to addressing issues faced by the grantee. Applicants will, therefore, be encouraged to integrate capacity building into their proposals for conservation action, rather than propose stand-alone trainings.

The first phase of CEPF investment in the hotspot demonstrated the importance of lessons learned and peer exchanges for enhancing organizational capacities and disseminating good practice. The commonalities of the threats and the shared cultural identity of Mediterranean society across the hotspot create important opportunities for regional collaboration, which CEPF is ideally positioned to catalyze. This includes 'north-south' exchanges among CSOs in eligible and non-eligible hotspot countries, and 'south-south' exchanges among CSOs in eligible countries. Examples include sharing lessons and facilitating learning among such groups as protected area managers, CSOs, land managers and decision makers. This emphasis on regional collaboration will be maintained and enhanced in the new phase, through specific activities incorporated into individual projects (with guidance from the RIT) as well as dedicated grants at the regional level (see Strategic Direction 5, Chapter 12), with the objective of consolidating a nascent regional conservation community.

CEPF will support conservation action planned to achieve sustainability. Sustaining the impact of small grants is a major challenge and needs to be addressed at the planning stage. Likely pathways for sustainability include: integrating conservation functions into the organizational agendas, be they government, community or private sector; establishing long-term funding mechanisms; and linking benefits (e.g., rights to use resources by stakeholders) to actions needed to conserve resources (e.g., policing illegal extraction) with an independent system for monitoring (see Chapter 13 for more details).

11.4.2 Strategic engagement with the private sector

Phase 1 of the CEPF investment in the Mediterranean Basin saw a number of effective examples of engagement between grantees and private sector entities (Table 11.2), with the largest number being under the strategic direction on conservation of coastal zones, where the tourism industry is a major player.

Table 11.2 Examples of CEPF grantee engagement with the private sector during Phase 1

Country	Project
Albania	Butrint: linking local producers to existing tourism, development of a brand 'The Flavours of Albania', ecotourism project involved local business and established new ones (guest houses, mainly female local traditional food producers, boat operators)
Albania	Existing businesses (dive centres, restaurants, beach tenants, tourist boat operators) engaged in marine conservation
Bosnia and Herzegovina	Hydropower energy collaboration with a wetland reserve
Cabo Verde	Hotel and airport interaction for public awareness of turtle conservation
Montenegro	Šasko lake ecotourism – brochure listing providers of local products (olive oil, wine, cheese, honey, vegetables, crafts, souvenirs, carpets) compiled and disseminated
Montenegro	Bojana delta – worked with local sustainable businesses (diving, olive oil)
Montenegro	Working with beekeepers and vinyards
Morocco	Producing cash crops - almonds, olives etc
Tunisia	Eco-tourist trail in wetlands incorporated local business as part of cultural/eco trail

These projects involved collaborative actions such as joint promotion to increase the number of eco-tourism visits, awareness raising of environmental problems and behaviors, aimed at both tourists and business managers, and financial support for management of specific areas or to address specific problems. The projects generally involved local companies that had a clear stake in the area and were relatively easier for grantees to contact and approach. CEPF also invested in a study of opportunities in the tourism sector, with the intention that this would support further engagement, although the political and economic changes in the region subsequently undermined the assumptions about growth in this sector. National and, especially, multi-national companies proved far harder to engage than expected during Phase 1 but, now that CEPF is established in the hotspot, the networks of the RIT, donor partners and grantees should be explored for opportunities to make links with more global companies.

Key lessons for engagement with the private sector from Phase 1 are: start at the local scale, with businesses that are rooted in the community and landscape; seek opportunities to promote the image of the industry/business at the same time as delivering conservation benefits; gather data that demonstrate to business the financial benefits of the action; and be more creative in seeking opportunities for in-kind support from business (e.g., meeting venues, assistance with transport, etc.).

There is a growing market for fairtrade and sustainably produced goods, and achieving a higher price for these goods is one potential means to incentivize farmers and land managers to adopt biodiversity friendly approaches. A review of the (limited) evidence base on the social and environmental impacts of eco-labelling (Blackman and Rivera, 2010) shows that the expected price premium is not always achieved, and eco-labelling should, therefore, be combined with improved production, storage and marketing methods leading to better access to markets, which may be more important for producers. The work with local producers envisaged under SD3 but also, potentially, under SD1 and SD2 will ensure that all these aspects are taken into account.

11.4.3 Building on local actions to achieve policy impacts

With the majority of funded projects expected to focus on impacts at specific sites and their surrounding landscapes, there is a need for specific actions to address the wider policy, funding and programmatic issues that affect the impact of the project, as well as the potential for scaling up and wider adoption of successful approaches. There are important roles for the RIT, partners and grantees in addressing these wider issues. Specifically, the CEPF program will use the following approaches:

Work directly to facilitate links between grantees and decision makers. Building on relationships established during Phase 1, the RIT will help to ensure that CEPF grantees have access to key people in relevant national agencies (and, potentially, private sector organizations).

Contribute to partnerships and on-going processes of planning and reform. There are multiple national and regional initiatives on environmental governance in the hotspot (see Chapters 6 and 10). The RIT will work with partners, including World Bank country offices, EU delegations, and national GEF focal points, to monitor these processes and ensure that grantees are aware of opportunities to engage. Dedicated grants under SD5 will be used to empower local CSOs to engage with regional initiatives.

Promote the role and acceptance of the value of CSOs more generally. The level of openness towards CSOs, as expressed through official regulations and unofficial attitudes, varies widely across the countries of the hotspot (see Chapter 7). Promoting the value of civil society in contributing to sustainable development can make governments more receptive to CSOs’ messages and the public more likely to support these organizations. CEPF has a specific role to play demonstrating how CSOs have supported positive environmental and social agendas in countries across the hotspot, including how they can assist governments in meeting obligations under international conventions, and in mobilizing public participation in environmental programs.

11.4.4 Ensuring strategic focus for the program

The risk analysis emphasizes the problem of selecting funding targets from among the very many conservation priorities in the hotspot, and the risk of further instability and insecurity in the region. The strategy proposed in this ecosystem profile addresses these challenges in four ways:

Focus on a limited set of high priority sites. Chapter 12 describes how priority KBAs have been selected and how further prioritization is built into the grant selection process. Overall, the program aims to deliver action for at least 45 KBAs across a maximum of 14 countries. Further details on this target are presented in the logframe, and in Annex 4.

Focus on site-based action but build on this to achieve policy impacts. A clear lesson from Phase 1 was the effectiveness of local CSOs taking focused action at specific sites, often places where they had already had many years of engagement. Ensuring impacts on policy will require creative collaboration between the RIT and more experienced NGOs.

Spread risks geographically. Political change, economic uncertainty and instability are likely to continue to affect some countries in the hotspot. Spreading grant making across eligible countries, with flexibility in terms of timing and focus for the calls for proposals, maximizes CEPF’s ability to take advantage of these opportunities, while avoiding the risk of a large part of the portfolio failing because of political or security problems in particular countries. There are also likely to be opportunities to support CSOs in post-conflict situations over the next five years. Globally, CEPF has long track record of supporting civil society organizations in post-conflict countries, where minimal funding can make a major difference to the resurgence of a CSO community and to integrating environmental concerns into plans for reconstruction and social and economic recovery. The risks and merits of any such engagement would be carefully considered.

Create opportunities for synergy among grants. During Phase 1, there were several examples of ‘clustered’ grant-making, where clusters of grants were made to CSOs with complementary skills to address the conservation of the same site. This might result in collaboration between, for example, a CSO carrying out field surveys, feeding into the development of management recommendations by a CSO specializing in advocacy, in turn informing the program of another CSO involved in community facilitation around the site.

11.5 Background to the strategic directions

11.5.1 An ecosystem approach to Strategic Directions 1, 2 and 3

The investment strategy for Phase 1 made a distinction between actions related to coastal zones (SD1), freshwater catchments (SD2) and specific sites/protected areas (SD3). Similar ecosystem types share similar threats across the hotspot, and each have a specific set of stakeholders from civil society, private sector and governmental bodies. The approach by ecosystem type proved very well adapted to CEPF grant-making and corresponded to the needs of civil society organizations. Consequently, this approach has been preserved in the new strategy. On the other hand, the structure of the Phase 1 investment strategy led to an artificial separation between work on protected areas and KBAs on one hand (SD3), and coastal and freshwater sites on the other (SD1 and SD2). In practice, many important protected areas and other KBAs are located within coastal regions or freshwater catchments, and the distinction proved confusing to applicants and beneficiaries, as well as challenging in terms of implementation and monitoring for CEPF.

CEPF will support actions that directly improve the conservation status of priority sites (i.e., KBAs). The focus on priority sites is important for ensuring that projects deliver concrete outcomes for conservation, based on positive relationships with specific stakeholder groups and administrative arrangements. The site focus does not preclude support for more corridor-scale or policy-focused work but emphasizes that such work must have clear benefits for site conservation and should be grounded in site-level experience.

The emphasis on site-based action is reinforced by one of the lessons from the first phase, that, in many areas, CSOs do not initially have the requisite capacity and knowledge to address conservation challenges at the level of entire corridors or river basins, due to their complex, multi-stakeholder nature. As a result, few project proposals were received that addressed the core Phase 1 themes of ICZM and IWRM. On the other hand, CSOs that began by successfully implementing concrete actions at the site level were better placed to get involved in larger-scale land-use planning process and influence policy. This is the model that CEPF would like to pursue in Phase 2, with projects rooted in ground-level realities that provide local CSOs with the experience and legitimacy needed to engage effectively at larger scales.

Three ecosystem types are prioritized for CEPF support in the new phase, because of the large number of threatened species they hold, the immediacy of the threats they face, and the specific set of actions required for their long-term protection. For each of these ecosystem types, CEPF support will be focused on site-level actions for the conservation of specific sites, complemented by policy and landscape-level actions that contribute to site conservation by addressing threats originating away from the site. Integrated, multi-stakeholder approaches, including interventions outside of existing protected areas, will be encouraged, as these represent areas where civil society has a clear added value and can complement governmental actions.

The three priority ecosystems types are as follows:

Coastal ecosystems. These include nearshore marine habitats, beaches, wetlands, estuaries, coastal forests and heathlands. These are among the most threatened ecosystems in the hotspot, as a result of intense pressure from economic development and population growth. They were a priority for CEPF investment in Phase 1, and the consultation process for the update of the ecosystem profile strongly recommended a continued focus by CEPF on these areas, building on conservation gains to date.

Freshwater ecosystems. Large numbers of single-site and locally endemic threatened species have been identified from the hotspot's rivers, lakes and cave systems. Nearly one-third of the Critically Endangered species found in the hotspot are freshwater animals and plants (Chapter 4). Freshwater systems tend to be underrepresented in protected area systems but highly threatened in a region where fresh water is one of the scarcest natural resources. Freshwater ecosystems were a priority during the first phase, and the consultation process for the update of the ecosystem profile strongly endorsed continued CEPF support for conservation of these ecosystems.

Agricultural and cultural landscapes. The unique human history of the hotspot means that many of the threatened species found there are dependent on anthropogenic habitats maintained by traditional management practices, such as extensive grazing and cultivation. This creates an alignment between biodiversity conservation and maintenance of traditional resource management systems, something that conventional protected areas do not necessarily deliver effectively. In Phase 1, several CEPF-supported projects addressed traditional management systems as an entry point for community-based conservation. Nevertheless, the maintenance of traditional, biodiversity-rich landscapes was not explicitly part of the CEPF niche. Traditional practices persist particularly in mountainous areas where land-use change and industrialization have been less intense. As identification of KBAs within these zones is incomplete (especially for plants and invertebrates, for which traditional management practices are particularly important), four landscape corridors where traditional practices are known to be an important component of land-use management were selected for CEPF support (see Table 12.4).

11.5.2 Specific focus on plant conservation in Strategic Direction 4

The Mediterranean Basin Hotspot is defined principally on the basis of its flora, which is exceptional both for its diversity and for the high degree of threat it is exposed to (see Chapters 3 and 8). Thirty-two percent of the threatened species in the hotspot and 44% of the critically endangered species are plants.

The level of threat faced by plants and the lack of attention given to their specific conservation needs justifies an explicit focus on this group. Moreover, it is not safe to assume that an investment strategy concentrating on KBAs will address their conservation needs, because, given the current state of knowledge on the Mediterranean flora (in terms of distribution and threat assessment), many potentially important sites for plant conservation are not included in the KBAs identified to date. Indeed, during Phase 1, the lack of a dedicated strategic direction on plant conservation led to most site-level conservation actions at KBAs focusing on birds, mammals and other taxonomic groups. This proved very limiting for the plant conservation community, which already had limited access to funding for conservation (as opposed to research). By specifically emphasizing plant conservation in the strategy, the new phase of CEPF investment is expected to catalyze conservation actions for a greater number of highly threatened plant species, while also addressing the critical cross-cutting issue of capacity among organizations involved in plant conservation, by increasing the pool of botanical expertise in the region and improving knowledge and skills of site managers.

12. CEPF INVESTMENT STRATEGY AND PROGRAMMATIC FOCUS, 2017-2022

As outlined in Chapter 11, CEPF support to conservation action in the Mediterranean Basin Hotspot will be focused on three priority ecosystems (coastal, freshwater and traditionally managed landscapes), a species group (plants), and a supporting thematic focus (regional networking). Underpinning these strategic directions are three cross-cutting priorities: a focus on site-based conservation action; integration of CSO capacity building into projects; and attention to sustainability and mainstreaming of impacts.

Table 12.1 summarizes the strategic directions and investment priorities in the text following the table.

Table 12.1 Strategic Directions and Investment Priorities for CEPF in the Mediterranean Basin Hotspot, 2017-2022

Strategic direction	Investment priorities
1: Support civil society to engage stakeholders in demonstrating integrated approaches for the preservation of biodiversity in coastal areas.	1.1: Engage local stakeholders in conservation actions that address threats to key elements of biodiversity in priority KBAs in the coastal zone.
	1.2: Engage private sector stakeholders to adopt sustainable practices that deliver positive impacts for conservation in priority KBAs in the coastal zone.
	1.3: Support civil society to engage with local or national governments to mainstream biodiversity conservation into integrated coastal zone management, land-use and development planning processes.
2: Support the sustainable management of water catchments through integrated approaches for the conservation of threatened freshwater biodiversity.	2.1: Enhance the knowledge base on freshwater biodiversity and the importance of freshwater ecosystem services.
	2.2: Take action to reduce threats and improve management of selected sites in priority freshwater catchments with the participation of local stakeholders.
	2.3: Engage with government, private sector and other stakeholders to support integrated river basin management practices that reduce threats to biodiversity in priority CMZs.
3: Promote the maintenance of traditional land use practices necessary for the conservation of Mediterranean biodiversity in priority corridors of high cultural and biodiversity value.	3.1: Support local communities to increase the benefit they receive from maintaining and enhancing traditional, biodiversity-friendly land-use and agricultural practices.
	3.2: Promote awareness of the value of traditional, biodiversity-friendly land-use practices among local community and government decision makers, to secure their recognition and support.
	3.3: Encourage business actors in the trade chain to support and promote traditional, biodiversity-friendly land-use practices.

Strategic direction	Investment priorities
4: Strengthen the engagement of civil society to support the conservation of plants that are critically endangered or have highly restricted ranges.	4.1: Increase knowledge and skills to support assessment and planning for the conservation of plants, and foster the emergence of a new generation of young professionals in plant conservation.
	4.2: Support integration of plant conservation into the management of protected areas.
	4.3: Support innovative actions for the conservation of important populations of plants, working with land owners and managers.
5: Strengthen the regional conservation community through the sharing of best practices and knowledge among grantees across the hotspot.	5.1: Support regional and thematically-focused learning processes for CSOs and stakeholders.
	5.2: Support grantees to understand and engage with international conventions and processes.
6: Provide strategic leadership and effective coordination of CEPF investment through a Regional Implementation Team.	6.1: Build a constituency of civil society groups working across institutional and political boundaries toward achieving the shared conservation goals described in the ecosystem profile.
	6.2: Act as a liaison unit for relevant networks throughout the Mediterranean to harmonize investments and direct new funding to priority issues and sites.

Strategic Direction 1. Support civil society to engage stakeholders in demonstrating integrated approaches for the preservation of biodiversity in coastal areas

Main focus, justification and impact

This strategic direction addresses some of the most threatened sites and ecosystems in the hotspot: those in the coastal zone. Coastal ecosystems are under increasing pressure from human population growth and migration, the growth of tourism, and associated urbanization and pressure on land and water resources (Chapter 8). The specific threats in the coastal region are: (1) direct over-exploitation of biodiversity (for example, over-exploitation of coastal woodlands, over-fishing of wetlands and near-coastal marine habitats, intensive hunting of migrant birds using the coastal regions as a stop-over, collection of plants, etc.); (2) direct damage to sites through conversion of coastal habitats to intensive agricultural land, building land, and infrastructure; and (3) actions that take place outside key sites but impact on them, such as abstraction of water, dumping of solid waste and water pollution.

Lessons from Phase 1

The first phase of CEPF investment in the hotspot had a strategic direction (SD1) focused on coastal regions: "Promote civil society involvement in Integrated Coastal Zone Management to minimize the negative effects of coastal development". This strategic direction was focused on three priority corridors (Southwest Balkans, Cyrenaic Peninsula, and Mountains, Plateaus and Wetlands of Algerian Tell and Tunisia), and on 20 coastal and marine KBAs in other corridors. The investment priorities focused on implementing integrated coastal zone management (IP1.1), influencing the European tourism market (IP1.2), and enhancing local livelihoods through nature-based tourism (IP1.3). Although 37 projects were eventually funded under this strategic direction, experience showed that most CSOs did not have the capacity and credibility needed to address complex, multi-stakeholder conservation challenges at the level of entire coastal corridors. Lessons learned from the implementation of SD1 grants included:

- ICZM is a complex concept, poorly understood by many local CSOs, with little good explanatory material available in local languages. Starting with a site-focused approach and using this as a platform for engagement with wider planning and policy issues is the most effective way to approach the issue. In several cases, there were no opportunities for CSOs to engage in ICZM, as there was no on-going government-led process at the priority sites and corridors, and CSOs themselves were not in a position to catalyze the launch of ICZM processes.
- CSOs generally found it difficult to initiate or influence ICZM planning processes because these are the preserve of national governments, which, especially in North Africa, were not open to CSOs taking the lead. A project with the objective of influencing ICZM is unlikely to have an impact unless there is a clear opportunity for engagement with concerned government agencies. Such opportunities are becoming more frequent with the recent changes in government in some hotspot countries (see Chapter 5). Nevertheless, this kind of intervention will be difficult to promote proactively but, rather, will require CEPF to take advantage of opportunities that present themselves. This calls for relatively small-scale funding, available quickly to enable CSOs to take advantage of opportunities when they arise.
- The structure of the investment strategy in the first phase led to a separation between work on protected areas (covered under one strategic direction) and work on coastal sites (covered under a separate strategic direction). In practice, many important protected areas are located within coastal regions, and there are important opportunities for CSOs to support their management (see Chapter 7).
- The rapid growth in tourism in North Africa that was anticipated by the original ecosystem profile did not occur, primarily because of security concerns, although growth was rapid in the Balkans and Cabo Verde. The European tourism market was in flux during the first phase of CEPF investment, influenced by political and economic developments in the EU and the countries of the hotspot as well as globally. The Phase 1 strategy included an investment priority to influence the European tourism market but this proved hard to achieve and is now of less immediate relevance in some areas.
- The best results were obtained when local organizations were provided with the requisite means and support to achieve substantial results at the local level, thereby gaining in capacity and legitimacy. This provided the basis for some of these organizations to start working at a larger scale and effectively participate in and influence ICZM processes.

In response to these lessons, the new phase of CEPF investment will continue to focus on highly threatened coastal biodiversity but with a shift in emphasis from large-scale ICZM approaches to the sustainable management of specific priority sites, working with other stakeholders (e.g., government, private sector, local communities, fishers or farmers associations, etc.) to promote and demonstrate integrated approaches for management of important coastal sites (see IP1.1 and IP1.2). The engagement of CSOs with large-scale planning processes will be supported where and when there is a clear opportunity for their input (see IP1.3), a situation that is becoming more common in several countries after the Arab spring (e.g., Tunisia and Morocco; see Chapter 7). Pressure from tourism (especially in the Balkans) will be addressed at the site or local government unit level, complemented through links to other NGOs working on sustainable tourism in Europe where necessary, rather than being identified as a specific investment priority. The importance of CSOs engaging with the improved management of protected areas in the coastal zone is recognized by integrating protected areas as a key element of land-use planning for the conservation of coastal sites, together with the promotion of sustainable practices.

Geographic focus

Given the intense and widespread nature of the threats to many coastal KBAs, most actions under this strategic direction will focus on preserving specific, high-priority KBAs where key elements of biodiversity (i.e., threatened species and ecosystems) are under pressure but where there is also a realistic prospect of making a difference. Key partners for CSOs working to conserve these sites will be local resource users (e.g., fishers, hunters, farmers, etc.), local community groups, and agencies with a mandate to manage the site, such as protected area managers, mainly through the promotion of integrated, multi-stakeholder approaches for improved site management (IP1.1). Many of the threats to sites come from investment-driven economic activity and, so, the private sector is expected to be an important target and partner at many sites, both where there is a need to change private sector behavior, and where there is potential for sponsorship and collaborative actions (IP1.2). As a focus of economic activity and center for population, coastal regions are politically important and are often subject to government planning and zoning regulations, which can have a major influence on the conservation of species and ecosystems. The degree of opportunity for CSOs and local stakeholders to engage with and influence these planning processes varies from country to country but is generally becoming more open. As a result, CEPF will support CSOs to engage with government planning processes where there is a clear opportunity for effective intervention (IP1.3). CEPF support under IP1.3 will be available to any coastal planning and management process where the area concerned contains KBAs, whether or not they are prioritized for site-based action under IP1.1 and IP1.2.

Priority KBAs under this strategic direction were identified as follows:

1. A sub-set of coastal KBAs was identified, selecting all KBAs that include land below 300 meters in altitude, less than 20 km from the coastline. The resulting list was reviewed by key informants and sites that do not support coastal species and ecosystems were removed. This resulted in a sub-set of 165 KBAs in 11 countries.

2. The 165 coastal KBAs were ranked according to their biological importance, based on the presence of globally threatened species and single-site endemic species, and level of threat (using ratings assigned by participants at the national consultative workshops). The sites were also evaluated for feasibility of conservation action, taking into account security (insecurity led to the exclusion of three sites in eastern Libya), opportunities for investment, and presence of civil society partners. On the basis of these criteria, 31 KBAs in nine countries were identified as priorities for CEPF support (Table 12.2, Figure 12.1).

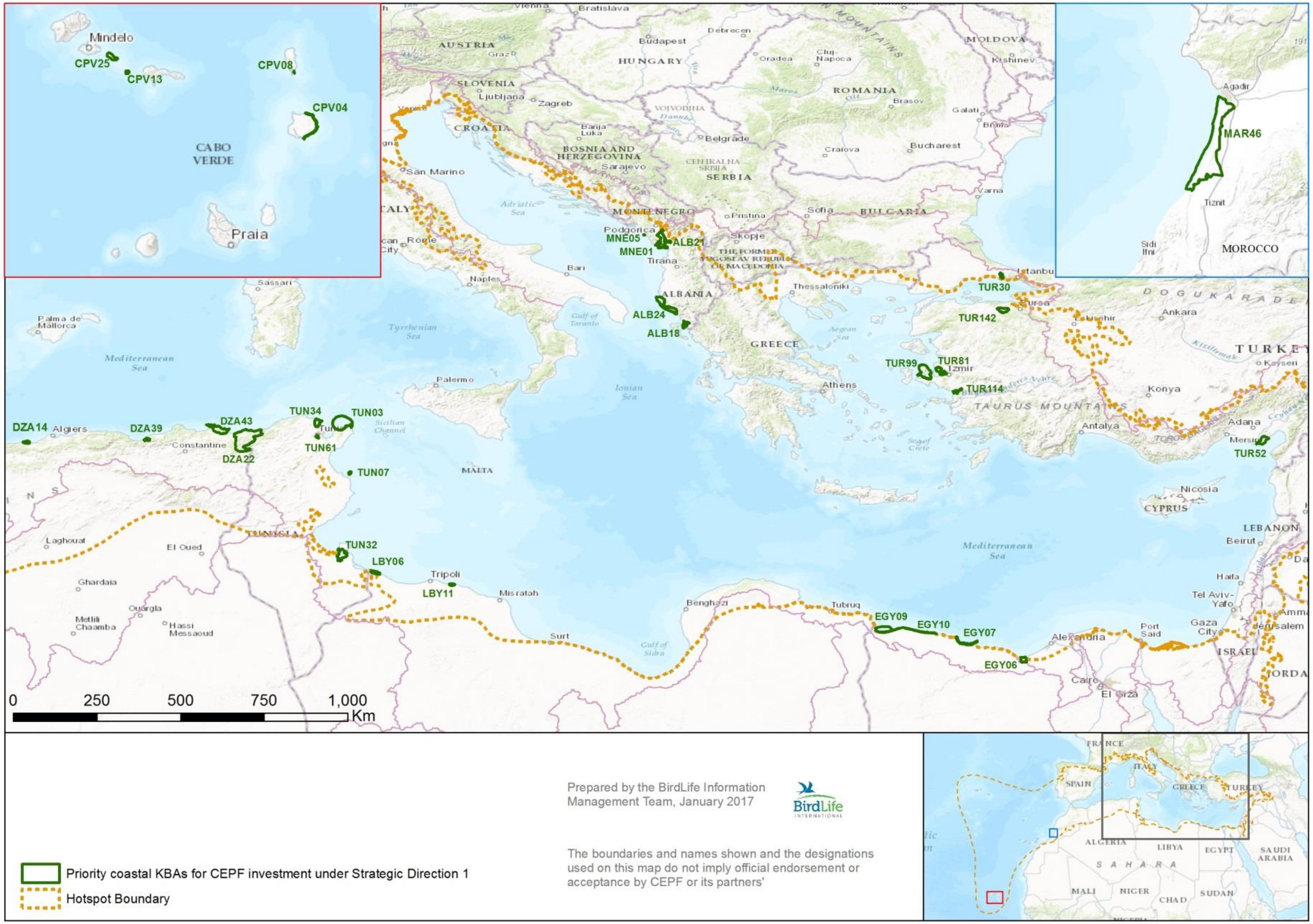
Investment Priority 1.1 Engage local stakeholders in conservation actions that address threats to key elements of biodiversity in priority KBAs in the coastal zone

Coastal ecosystems in the hotspot, including protected areas, are typically used by local people for fisheries, agriculture, and hunting. Other resources, such as sand and gravel, may also be extracted, and there may be non-exploitative uses, such as recreational use, that, nevertheless, create disturbance and other problems. Actions under this investment priority will include negotiating changes in damaging practices, with a particular focus on the threatened species or ecosystem(s) for which the site is important, and supporting changes in management regimes through improved planning, awareness and enforcement of agreed rules. They will encourage sustainable use where possible, and may introduce new uses that increase the value of the site to local stakeholders and, thus, encourage improved management.

Table 12.2 Coastal KBAs prioritized for CEPF support under Strategic Direction 1

Country	KBA code	KBA name
Albania	ALB18	Saranda Bay - Butrint National Park
Albania	ALB21	Skadar Lake - Buna River - Velipoje-Vau i Dejes
Albania	ALB24	Vlora Bay - Karaburun Penninsular - Sazani Island - Çika Mountain
Algeria	DZA14	Djebel Chenoua
Algeria	DZA22	El Kala-Tarf
Algeria	DZA39	Parc national de Taza
Algeria	DZA43	Presqu'île de l'edough
Cabo Verde	CPV04	Boavista praias
Cabo Verde	CPV08	Costa de Fragata
Cabo Verde	CPV13	Ilhéu Raso
Cabo Verde	CPV25	Santa Luzia Island
Egypt	EGY06	Omayed Biosphere Reserve
Egypt	EGY07	Ras El Hekma Coastal Dunes
Egypt	EGY09	Sallum Gulf
Egypt	EGY10	Western Mediterranean Coastal Dunes
Libya	LBY06	Farwa
Libya	LBY11	Karabolli
Montenegro	MNE01	Bojana Delta
Montenegro	MNE05	Katici, Donkova and Velja Seka
Morocco	MAR46	Parc National de Souss-Massa et Aglou
Tunisia	TUN03	Archipel de Zembra
Tunisia	TUN07	Îles Kuriat
Tunisia	TUN32	Golfe de Boughrara
Tunisia	TUN34	Jbel Nadhour et Lagune de Ghar El Melh
Tunisia	TUN61	Sebkhet Sejoumi
Turkey	TUR30	Büyükçekmece Lake
Turkey	TUR52	Ceyhan Delta
Turkey	TUR81	Gediz Delta
Turkey	TUR99	Karaburun ve Ildir Strait Islands
Turkey	TUR114	Lesser Menderes Delta
Turkey	TUR142	Uluabat Lake

Figure 12.1 Map of coastal KBAs prioritized for CEPF support under Strategic Direction 1



Actions likely to be implemented under this investment priority include:

- Building common visions for the management of sites, and supporting the establishment of negotiated agreements with local users and relevant stakeholders on land-use and natural resources management, allowing for the preservation of the key elements of biodiversity.
- Supporting pilot activities with local users to demonstrate the value of alternative practices, contributing to the preservation of key elements of biodiversity, for example by promoting improved fishing practices, sustainable harvesting, or improved practices of recreational activities (i.e., hiking, diving, etc.).
- Supporting enforcement of existing laws against hunting/harvesting, in combination with awareness, working with the authorities to document, report, and encourage action against damaging illegal activities, including hunting, trade in threatened wildlife and dumping of waste.
- Strengthening and expanding protected area designations. Protected areas have a key role to play in protecting sites in the coastal zone from inappropriate land use and development. Legal designation alone does not guarantee their protection, however, and there are important opportunities for CSOs to contribute to improved management planning and implementation, especially strengthening consultation and collaboration with local stakeholders. Where sites are unprotected, working with local stakeholders to encourage the government to establish new protected areas may be appropriate.
- Strengthening local resource management institutions. Effective natural resource management usually requires collaboration between users to plan management, organize appropriate sharing of resources and opportunities, and agree on and enforce rules. Examples include fisher co-operatives, grazers co-operatives, water user groups, or village committees but might also include protected area management agencies.

Investment Priority 1.2 Engage private sector stakeholders to adopt sustainable practices that deliver positive impacts for conservation in priority KBAs in the coastal zone

Threats to coastal zone species and ecosystems are, to a large extent, driven by private sector investment in infrastructure and land use associated with tourism, expanding urbanization, recreational land use, industrialization, and infrastructure development. The value of the coastal zone for these investments derives partly from the quality of the natural environment, including clean water, green spaces, clean seas and beaches. The private sector has an interest, therefore, in the improved management of the environment, and the challenge for conservation is to align conservation priorities (preservation of threatened species and ecosystems at priority sites) with the interests of private sector. The experience from Phase 1 (Section 11.2) was that smaller and more local companies were more approachable and more likely to respond positively. Consequently, these will be the priority focus under this investment priority.

Actions under this investment priority are likely to be carried out in conjunction with ones under IP1.1, and may include establishment of collaborative relationships with private sector actors to promote more sustainable practices (e.g., improved water use, recreational use, etc.) and financial support for conservation as part of ensuring a healthy natural environment.

This investment priority may be particularly significant for protected areas in the coastal zone where private sector actors are prepared to contribute to management costs or otherwise support the conservation of the site. Actions likely to be supported under this investment priority include:

- Documenting site values and impacts of threats communicated to decision makers in order to influence private sector planning (including EIAs on proposed developments) and practices (e.g., dumping of waste, land conversion, etc.).
- Negotiating changes to management practices, including providing advice and training to company staff, providing feedback on the impact of changes, and encouraging the dissemination of best practice from other sites. Engagements may be with individual companies, as well as industry groups, such as trade associations and local chambers of commerce.
- Negotiating sustainable financial support for conservation management of sites, including as part of CSR schemes, as part of a package of assistance for community development schemes, or as an integral part of managing the site to ensure continuation of benefits to private sector operations.

Investment Priority 1.3 Support civil society to engage with local or national governments to mainstream biodiversity conservation into integrated coastal zone management, land-use and development planning processes

While site-level conservation actions and engagement of private sector actors will address the conservation needs of specific priority sites and species, government decisions on planning and zoning of land use and development are particularly important in the coastal zone, because it is under such intense pressure from private sector investment and government schemes. The results of projects from Phase 1 and the anticipated actions under IP1.1 and IP1.2 present an opportunity to influence government decision making at the level of regional development plans and land-use zoning. While the bulk of resources under this strategic direction will be allocated to IP1.1 and IP1.2, CEPF will also support CSOs to engage with government planning processes where there are clear opportunities to do so.

CEPF support under this investment priority will be available for coastal planning and management process where the area concerned contains one or more KBAs, whether or not these KBAs are prioritized for site-based action under IP1.1 and IP1.2.

Actions supported under this investment priority are likely to include:

- Documenting the values of biodiversity, including provision of ecosystem services, biological resources, and local economic values.
- Forming consortia and networks to provide a platform for CSOs and other stakeholders to engage proactively in government coastal zone planning and management initiatives, for example through collection and presentation of data to decision makers, and monitoring of the implementation of policies and planning processes.
- Organizing awareness events and activities, to raise the public profile of the sites, species and issues in a way appropriate to constructive engagement with government planning. This might include media exposure and organizing visits for influential figures.

Strategic Direction 2. Support the sustainable management of water catchments through integrated approaches for the conservation of threatened freshwater biodiversity

Main focus, justification and impact

Nearly one-third of the Critically Endangered species found in the hotspot are freshwater animals and plants (Chapter 4). They occur in a wide range of freshwater ecosystems, including rivers, lakes, karst cave systems, ephemeral desert water courses and coastal marshes. The need for freshwater for agriculture and human consumption, especially in North Africa and the Middle East but also in Turkey and the Balkans, is one of the most persuasive reasons for the sustainable management of natural resources. Nevertheless, the hotspot's freshwater ecosystems are poorly represented in national protected areas networks, they are under pressure from over-use and pollution, and the species that live in them suffer from over-exploitation and disturbance (see Chapters 3 and 8). Moreover, climate change is likely to make these problems worse (see Chapter 9).

Some of the actions required to address these problems are national or international in scale, and cannot be tackled effectively by CSOs. CEPF investments in the first phase showed, however, that CSOs can be effective when working at defined sites or with existing authorities, such as protected area management agencies, or agencies charged with river basin management or water resource conservation. Once sustainable use of water resources is agreed, there can be strong alignment between the needs of threatened biodiversity and human development (e.g., for adequate supplies of clean water).

Annex 3 lists the CMZs identified during the ecosystem profile update, together with their associated KBAs.

Lessons from Phase 1

The first phase of CEPF investment in the Mediterranean Basin Hotspot had a strategic direction focused on river basins: "Sustainable management of water catchments and the wise use of water resources established". This strategic direction was focused on four priority corridors: Atlas Mountains; Taurus Mountains[33]; Orontes Valley and Levantine Mountains; and Southwest Balkans. There were four investment priorities under this strategic direction, focused on: implementation of integrated river basin initiatives; supporting policies and capacity; new financing mechanisms for catchment management; and improvements to agricultural water use allowing sufficient water for environmental functions. Best practices were captured and shared with relevant areas throughout the hotspot.

Lessons learned from the implementation of grants during Phase 1 included that:

- The integrated river basin management (IRBM) approach is complex and few CSOs have a full understanding of the concept or the skills required to implement it. However, there were successes in mitigating impacts of infrastructure development projects and reducing water pollution.
- Geographic priorities were not clearly defined for the strategic direction. While this has now been addressed at a landscape scale (see below), there is still a need for

[33] The Taurus Mountains corridor is located in Turkey, where CEPF did not make any grants during Phase I.

improved definition of sites for threatened species and identification of threats and potential mitigating actions, and maximize impact on biodiversity.
- The lack of a site-focus to some interventions was a problem, and work on protected areas in important freshwater areas (under a different strategic direction) added significant value to the work on freshwater KBAs under this strategic direction. The overlap between the two strategic directions created confusion for grantees and practical difficulties for portfolio management.
- Community awareness, and a demonstrated link between human development issues (e.g., water quality and availability) and conservation, were key to effective engagement of local people.
- There was potential for private sector engagement, especially as part of sustainable financing.

In response to these lessons, the first investment priority (IP2.1) under this strategic direction during the new phase will address the need to improve knowledge on important sites for freshwater biodiversity within priority CMZs, using this as an opportunity to build capacity for research and conservation action on freshwater organisms: an area in which clear gaps in capacity were recognized during consultations. Beyond that, the strategic direction will focus on site-based action, working with local stakeholders (IP2.2) but recognizing that in aquatic ecosystems, in particular, there is a great deal of connectivity within catchments and many threats will need to be addressed through engagement with government and private sector stakeholders (IP2.3).

Geographic focus
There have been significant improvements in the identification and definition of catchments in the hotspot, and of the threatened species they support, largely as a result of CEPF investment in the first phase. This has allowed the identification and delineation of 100 CMZs[34], with accurate boundaries based on watersheds, and with detailed lists of threatened freshwater species for each of them. Sixty-four global KBAs have also been defined for freshwater species, some of them identical to CMZs, and others contained within CMZs. It is expected that further KBAs will be identified within these CMZs, as more site-specific data become available. At present, however, the most effective method for setting priorities for freshwater ecosystems is to prioritize the CMZs, based on available information on biological importance, threat and feasibility, and then to focus conservation action on the KBAs within them, while giving attention to catchment or river basin wide issues, where this is relevant.

The process of prioritizing CMZs for CEPF support was as follows:

1. The 100 CMZ were ranked according to their biological importance. CMZs were shortlisted if they supported at least one species classified as Critically Endangered by IUCN and at least one species known only from the site. This produced a shortlist of 41 CMZs.

2. CMZs were then assigned a threat score and a score based on a sum of scores assigned during the national consultative workshops for funding need, management need, civil society capacity, operational feasibility, alignment with national priorities, and opportunity for landscape level conservation. On the basis of these scores, the 24 highest ranked CMZs were identified in eight countries (Table 12.3, Figure 12.2). Freshwater KBAs (or new sites

[34] The original figure was 102 CMZ, but the Lake Iznik catchment and Lake Yay catchment, both in Turkey, were deleted as <10% of the catchment is within the hotspot boundary.

demonstrated to qualify as freshwater KBAs) within these priority catchments will be the priorities for CEPF investment. In addition, four freshwater KBAs were identified outside the priority CMZs that are sufficiently important to be included under SD2: Livanjsko polje and Busko Lake and Mostarsko Blato, in Bosnia-Herzegovina; and Salda Lake and Burdur Lake in Turkey. All KBAs that fall within priority CMZs are listed in Annex 2.

Table 12.3 CMZs prioritized for CEPF support under Strategic Direction 2

Country	Catchment Management Zone
Albania	Lake Butrint catchment
Albania, FYR Macedonia, Greece*	Prespa Lake catchment
Albania, FYR Macedonia	Lake Ohrid catchment
Albania, Montenegro	Lake Skadar catchment
Albania, Montenegro	Lower Bojana river basin
Algeria	Eastern Numidia
Bosnia and Herzegovina	Trebizat drainage including Imotsko polje
Bosnia and Herzegovina	Popovo polje and Trebišnjica
Bosnia and Herzegovina, Croatia*	Neretva delta and associated springs/lakes including Hutovo Blato
FYR Macedonia, Greece*	Doirani Lake catchment
Montenegro	Catchment surrounding Niksic
Morocco	Abid river
Morocco	Arhreme river
Morocco	Middle Oum Er Rbia - Beni Mellal
Morocco	Oued Bouregreg
Morocco	Sehb El Majnoune
Morocco	Tifnout basin
Morocco	Upper Oum Er Rbia
Tunisia	Cap Serrat - Cap Blanc - Parc national de l'Ichkeul
Tunisia	Maden River
Turkey	Büyük Menderes River
Turkey	Eğirdir Lake catchment
Turkey	Karpuzcay stream
Turkey	Lake Beysehir catchment

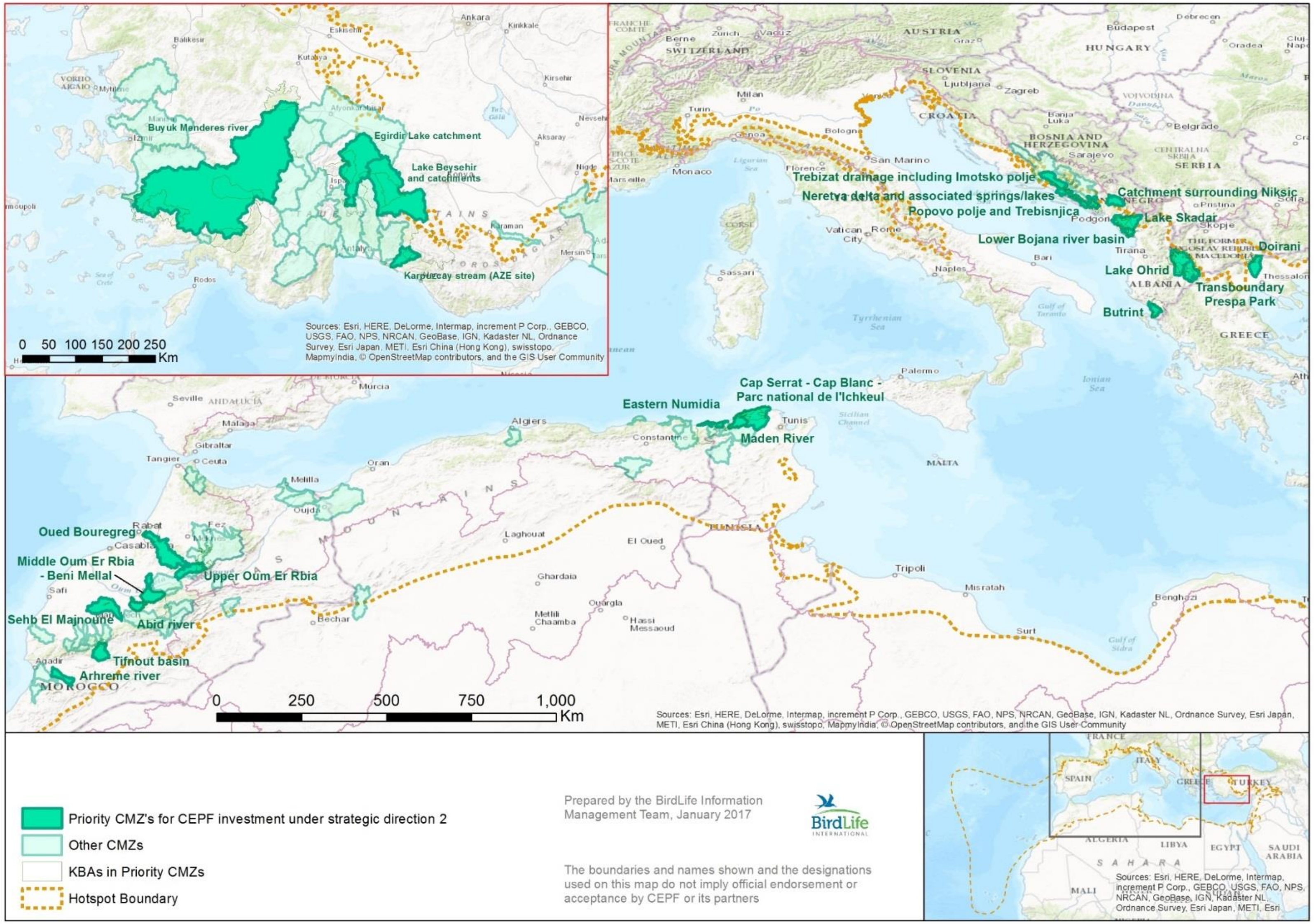
Note: * = Country not eligible for CEPF support.

Investment Priority 2.1 Enhance the knowledge base on freshwater biodiversity and the importance of freshwater ecosystem services

Information on the distribution, population and threat status of freshwater biodiversity within priority CMZs is, in many cases, inadequate to allow identification of the most urgent sites for conservation action, or to act as a baseline against which to judge improvements. In addition, the biological, social and economic values of ecosystem services from intact water catchments are poorly understood and not widely appreciated by decision makers. CEPF will support grantees to collect this information as a first step towards taking conservation action.

Undertaking joint research can also be a basis for working with other CSOs, local stakeholders and government agencies, to strengthen or develop collaborative relationships that can form the basis for joint action to address challenges to freshwater conservation in the priority CMZs.

Figure 12.2 Map of CMZs prioritized for CEPF support under Strategic Direction 2



Actions that are likely to be funded under this investment priority may include the following:

- Undertaking field surveys to establish the distribution and baseline population estimates for key taxa in priority catchments, and to identify threats to these populations.
- Establishing collaborative partnerships for research, communication and promotion of action for conservation of priority sites and species.
- Conducting bio-physical and economic analyses to establish the links between priority sites and species, and hydrological and land use factors influencing the wider catchment. This may involve modelling of the economic and social values of water catchment ecosystem services.
- Communicating research findings to decision makers and the local public (especially water users, for example), forming the basis for a call for action on threats to water quality and freshwater biodiversity.

Investment Priority 2.2 Take action to reduce threats and improve management of selected sites in priority freshwater catchments with the participation of local stakeholders

CSOs supported by CEPF grants are most likely to be able to take direct conservation action at specific sites, where working with management agencies or local stakeholders can change behavior and reduce the impact of specific threats. Examples of actions that might be funded under this investment priority include:

- Strengthening or establishing protected areas for freshwater biodiversity and ecosystems, working with local stakeholders, including user groups and local government agencies. This may include contributing to management planning, supporting mechanisms for collaborative management, and site monitoring.
- Encouraging the adoption of more sustainable practices for using the site's resources, especially where it impacts on threatened biodiversity. This is likely to include formation or strengthening of local groups involved in the management of specific resources (e.g., user groups, village-based groups, etc.) and negotiation of resource management agreements.
- Restoring and enhancing freshwater habitats, with a focus on maintaining or expanding the conditions required by populations of threatened species. Restoration may include removal of encroaching invasive or successional vegetation from water courses and marshes, re-planting of river banks and marginal vegetation, and management of water levels to re-instate natural flood cycles.
- Monitoring and encouraging enforcement of sustainable hunting and harvesting practices, working with user groups and local authorities to control excessive hunting/fishing and harvesting pressure.
- Promoting awareness of the value of the site to build support for conservation among local leaders and decision makers, with particular attention on locally significant cultural and economic values.

Investment Priority 2.3 Engage with government, private sector and other stakeholders to support integrated river basin management practices that reduce threats to biodiversity in priority CMZs

Although the most appropriate level for direct action by CSOs is at clearly defined sites, the connectivity of freshwater systems makes it highly likely that action will also be needed at the river basin level to address problems with water quality (e.g., from nutrient pollution, agriculture and forestry run-off, sewage disposal, etc.), water volume and flow and disturbance to habitat (e.g., straightening and deepening of river beds, drainage of wetlands, gravel mining, etc.). This will involve influencing those actors from government and/or the private sector who are involved with or have the authority to influence these issues.

Actions likely to be funded under this investment priority include:

- Consolidating evidence on the value of intact and well-managed wetlands, to support arguments for the biological and economic importance of water resources to engage the interest of decision makers.
- Engaging with decision makers in river basin management policy and planning processes to encourage alignment of conservation with land-use, economic development and sustainable water management priorities in the catchment.
- Networking and awareness raising to inform, and then influence, the actions of local authorities and government agencies responsible for protecting and monitoring river basins, supporting them to carry out their role more effectively with the assistance of improved data and expertise.
- Engaging with private sector actors, including those who contribute to threats and those who have an interest in sustainable management of resources. Experience from Phase 1 suggests that smaller, local companies are the most responsive to approaches by local NGOs, and these will be the priority for action. The objective may be to stop or reduce behavior which impacts negatively on freshwater biodiversity, to encourage adoption of more sustainable practices, or to secure support (e.g., materials, finance, access and permission) for action by other groups in support of catchment conservation.

Strategic Direction 3. Promote the maintenance of traditional land use practices necessary for the conservation of Mediterranean biodiversity in priority corridors of high cultural and biodiversity value

Main focus, justification and impact

Mediterranean biodiversity has evolved with human land-use practices over several thousand years, to the extent that many of the most threatened terrestrial species in the hotspot are dependent on habitats that are maintained through continuing human interventions for agriculture, seasonal grazing or harvesting of wild products (see Chapter 3). The species that depend on these anthropogenic systems can become threatened when an established management system is abandoned and vegetation succession occurs, when traditional sustainable practices change and cause degradation and erosion (e.g., over-grazing), or when modern agricultural and land use practices, including the use of irrigation and agrochemicals, replace traditional practices and eliminate the opportunity for wild biodiversity to co-exist with agricultural systems (see Chapter 8). Under this strategic direction, CEPF will support CSOs to work with local community land managers and local businesses to pioneer innovative ways to sustain the elements of traditional land use practices that are important for biodiversity.

Lessons from Phase 1

This issue was not addressed through a specific strategic direction during the first phase of CEPF investment in the hotspot. In practice, however, a number of projects working on the conservation of coastal and freshwater KBAs and in support of the protection of specific sites adopted related approaches, working with user groups to combat unsustainable approaches and enhancing livelihoods through more sustainable land use practices. These examples suggested the importance and feasibility of the approach.

Geographic focus

Social and institutional factors are as important as biological ones in the selection of priority sites or corridors for this strategic direction. Thus, in contrast to SD1 and SD2, objective biophysical characteristics alone were not used to define geographic priorities for CEPF investment. Traditional management survives throughout the region, often in places affected by emigration, marginalization and rural poverty. However, to maximize the value of projects in demonstrating innovative approaches to land management, four corridors were selected where elements of traditional management systems are still the main land use (Table 12.4, Figure 12.3). The selection of these corridors also gave consideration to opportunities for complementing funding from FFEM and MAVA (see Chapter 10).

Table 12.4 Corridors prioritized for CEPF support under Strategic Direction 3

Corridor	Countries	Corridor area (km^2)	No. of KBAs
Orontes Valley and Levantine Mountains	Turkey, Syria, Lebanon, Jordan, Palestine*	38,433	65
The Atlas Mountains	Morocco	106,691	44
The Dorsal and Telian Atlas	Tunisia, Algeria	82,633	50
The Taurus Mountains	Turkey	167,530	107

Note: * = Country not eligible for CEPF support.

The KBAs that intersect with the four corridors prioritized under this strategic direction are listed in Annex 2. Within each of these corridors, applicants can propose sites where the conservation of biodiversity within or in the vicinity of one or more KBAs depends on the continuation of traditional management practices, where these practices are changing but where an intervention to support the maintenance of traditional practices appears feasible. Feasibility is indicated by factors, including:

- There is security of access to the land/resource (or it can be secured without competition with a major alternative land use that has powerful economic and political backing), and the individuals or groups that directly use the resource are also the people who make decisions about its management.
- Customary knowledge and skills for resource management still exist within the community.
- There is an opportunity to engage a private sector actor (e.g., a buyer or processor of produce) who can support the marketing of products.
- There is an opportunity to cluster a series of grants, for example around a large KBA or a series of KBAs, allowing collaboration and experience sharing within similar social and environmental contexts.
- Recognizing that participatory community processes can be slow, and that a single grant may only be able to initiate the process, the presence of a longer-term source of support that could sustain activities into the long term (e.g., a donor funded or government scheme, or an institution such as a protected area management agency with a budget) will also be considered.

Figure 12.3 Map of corridors prioritized for CEPF support under Strategic Direction 3

Some of the landscapes where this strategic direction is relevant are in protected areas where traditional agro-sylvo-pastoral practices still exist (i.e., IUCN categories V and VI). There may be opportunities for CSOs to work with protected area managers and local resource users to establish collaborative management systems that promote traditional resource management as a way to maintain biodiversity while contributing to local livelihoods.

Investment Priority 3.1 Support local communities to increase the benefit they receive from maintaining and enhancing traditional, biodiversity-friendly land-use and agricultural practices

The core of this strategic direction is working with traditional resource managers to enable them to enhance their livelihoods through maintaining biodiversity-rich traditional practices. The key approach will be to enable resource users to increase their income, through improvements to processing and marketing of products, including through certification and labelling, as well as exploring opportunities such as payment for environmental services, and enabling resource users to access government support. Lessons on the difficulties of eco-labelling approaches and the importance of securing market access (see Section 11.4.2) will inform assessment of project proposals under this investment priority.

Actions likely to be funded under this investment priority include:

- Facilitating agreements among resource users to maintain traditional management systems. Agreements should be based on participatory assessment of the specific traditional practices that are essential for maintenance of threatened biodiversity and ecosystem functions within the landscape, and the threats/changes to them, leading to agreement on the action that will be taken by resource users.
- Providing information and advice to resource users to enable them to improve their income while retaining the essential elements of traditional management systems.
- Strengthening the capacity of local management institutions, including for management of economic activity (e.g., processing and marketing co-operatives), distribution of benefits and internal rules for management of resources.
- Working with private sector players and resource users to establish markets for certified or sustainable products from traditional management of biodiversity-rich systems, including market research, development of business plans, and initiation of marketing of products.
- Catalyzing the formation of partnerships that can bring specialist skills in, for example, community facilitations, institution building and marketing.
- Working with local resource users to protect, manage and enhance populations of threatened species within traditionally managed landscapes (e.g., physical protection of biodiversity by fencing, signing, creation of firebreaks, maintenance of suitable habitat through clearance of successional and invasive species, management of water levels, planting of food plants; and action to stop direct persecution of highly threatened species, etc.).

Investment Priority 3.2 Promote awareness of the value of traditional, biodiversity-friendly land-use practices among local community and government decision makers, to secure their recognition and support

While resource users and managers will be the main beneficiaries of projects under this strategic direction (under IP 3.1), it is also important to promote the importance of and rationale for traditional, biodiversity-friendly practices among a wider group of actors at local government level, as they are likely to have an important role in encouraging and sustaining them. They may also be able to support formation of user groups, and these groups' applications for government grants and services. Where an initiative is located in a protected area, the protected area manager may be in a position to encourage collaborative management of natural resources. Finally, especially where traditional practices are culturally important, local formal and informal leaders may have a strong influence over resource users' individual decisions over whether to continue or abandon traditional practices.

Actions likely to be funded under this investment priority include:

- Assessing the economic, cultural and historic value of the traditional systems, documentation of changes and its impacts, and dissemination of information to local formal and informal leaders and decision makers.
- Negotiating stronger rights and permissions needed to ensure that customary resource managers have security of access to resources and, where necessary, the right to exclude others (including, for example, the ability to call on village or local government authorities to help tackle activities which undermine the sustainability of resource management, such as illegal grazing, logging).
- Communicating to government officials, parliamentarians, etc. about the economic and social values of maintaining traditional practices (e.g., for employment, ecosystem services, production of local produce and maintenance of cultural landscapes that may be the basis for tourism), encouraging them to take appropriate policy of legislative measures to protect and support traditional management regimes.
- Networking and sharing of lessons and experiences, with the aim of building alliances of traditional resource managers across landscapes (e.g., between several villages around a KBA) and raising the interest of decision makers across the hotspot.

Investment Priority 3.3 Encourage business actors in the trade chain to support and promote traditional, biodiversity-friendly land-use practices

Businesses that buy, process and sell the products of traditional land-use practices have a key role to play in ensuring the sustainability of this incentive-based approach, and in providing the infrastructure through which a significant number of resource users can be engaged, thereby allowing it to achieve an impact at the level of a corridor, KBA or species population. The engagement and support of actors in the trade chain will enable successful demonstration approaches facilitated with CEPF support to be scaled up, and sustained into the long term.

Actions likely to be funded under this investment priority include:

- Collaborating with private sector partners in existing or potential trade chains for products from traditional resource use, to introduce the use of sustainability and/or biodiversity-friendly criteria and methods as a basis for trade.
- Working with private sector partners to explore markets and options for certification and valorization of traditional productions that contribute to preserving biodiversity.

Strategic Direction 4. Strengthen the engagement of civil society to support the conservation of plants that are critically endangered or have highly restricted ranges

Main focus, justification and impact

The Mediterranean Basin Hotspot is defined primarily on the basis of the presence of its unique botanical communities, with an exceptionally high number of endemic plants. While plants will benefit along with other species from CEPF investments under SD1, SD2 and SD3, the level of threat and the lack of attention to the specific conservation needs of plants to date justify a separate strategic direction focused on this group. In addition to supporting direct action for the conservation of plants, projects under this strategic direction will also contribute to strengthening the botanical knowledge and skills of scientists, conservationists and land managers within the region.

The limited range and very specific habitat requirements of some threatened plants means that their conservation can be tackled effectively by local CSOs working on the ground with limited resources, often in partnership with protected areas managers or local land owners.

Lessons from Phase 1

Phase 1 did not have a strategic direction focused specifically on plants, partly because there were insufficient data on plants in the countries covered by the ecosystem profile update to allow for clear identification of threats and needs. During the first phase, conservation of plants was the subject of several projects on the conservation of KBAs.

Since the original ecosystem profile was written, an important effort by the botanical community, under the auspices of Plantlife and the IUCN Mediterranean Plant Specialist Group (funded, in part, by CEPF), led to the identification of a set of Important Plant Areas (IPAs) and improved understanding of threats facing plants. Nevertheless, the number of plants in the Mediterranean Basin is so huge that only 7% of them have been assessed in the Red List process, making it very likely that there are many threatened plant species that have not yet been red listed. To anticipate this, this strategic direction focuses on highly restricted-range species that are known only from one site, as well as plants listed as Critically Endangered.

Thematic focus

This strategic direction is focused on the conservation of threatened plants, including improving knowledge on the distribution and conservation status of the Mediterranean's endemic plants. Priority will be given to projects that:

- Demonstrate that they are focused on a priority species or are addressing a priority need for the conservation of plants (for example, surveys of under-surveyed ecosystems, or population assessments of potentially threatened species).
- Demonstrate that they will lead directly to action for the conservation of threatened and endemic plant populations.
- Include, where possible, a significant component of capacity building for plant conservation, either for the project implementers, or their local partners (for example, community resource users or protected areas managers).
- Address the conservation of sites where there is a demonstrable need for funding and opportunity for success.

There are approximately 25,000 plant species in the hotspot, around half of which are endemic. Of the plant species that occur within the CEPF-eligible countries of the hotspot, 35 are Critically Endangered and 44 are endemic to a single site (Table 12.5). These species will be the focus of grant making under Strategic Direction 4.

Table 12.5 Plant species prioritized for CEPF support in the Mediterranean Basin Hotspot

Country	Critically Endangered plant species	Plant species endemic to a single site
Albania	0	0
Algeria	4	0
Bosnia	0	0
Cabo Verde	18	1
Egypt	0	0
Jordan	0	36
Lebanon	2	2
Libya	0	0
FYR Macedonia	0	0
Montenegro	0	1
Morocco	2	0
Syria	4	0
Tunisia	3	0
Turkey	6	0
TOTAL	**35**	**44**

Investment Priority 4.1 Increase knowledge and skills to support assessment and planning for the conservation of plants, and foster the emergence of a new generation of young professionals in plant conservation

One of the challenges in continuing the process of identifying IPAs, assessing the conservation status of plants, and taking action for their conservation, is the limited number of people in the region with the necessary botanical skills. CEPF will support projects that have a strong element of developing practical botanical skills, including survey, *in situ* protection and, in some cases, *ex situ* protection. This will involve working with traditional educational institutions (i.e., universities, research institutes, etc.), as well as working to improve the skills of other groups with the potential to contribute to plant conservation, including protected areas managers, members of voluntary societies and land managers.

Actions under this investment priority might include:

- Building capacity in plant survey and identification skills, including training-for-trainers to enable replication.
- Producing/translating materials into local languages, on-line and physical guides to support survey work.
- Networking and developing mechanisms for sharing information (e.g., on the status of IPAs and the identification of new sites).

Investment Priority 4.2 Support integration of plant conservation into the management of protected areas

Populations of threatened plants are often located within protected areas but are still threatened because management (or lack thereof) does not address their specific conservation need.

Actions under this investment priority may include:

- Conducting surveys and assessments of threatened plant populations within protected areas.

- Working with protected area managers to identify threats and potential solutions, and include specific actions for the preservation of endangered plants in the management plans for protected areas.
- Putting in place management of habitats, including attention to the management of specific sites within protected areas, to ensure suitable conditions for threatened plants.
- Working with protected area managers and other resource users (e.g., grazers under collaborative management regimes) to accommodate the requirements of threatened plants.

Investment Priority 4.3 Support innovative actions for the conservation of important populations of plants, working with land owners and managers

Many threatened plant populations survive in managed landscapes, outside protected areas, and are potentially threatened by changes in land use practices.

Potential actions under this investment priority include:

- Working with land users and landowners to identify threats and promote improved management practices to preserve rare plant populations.
- Establishing 'micro-reserves' where appropriate management, with negotiated sustainable practices, is introduced to ensure the survival of threatened plant species.
- Encouraging the passing of local regulations to protect micro-reserves/sites for threatened plants and control exploitation and other important threats.
- Raising awareness of local governments on threatened species on communal lands and engaging them in adapting their management practices for preservation of plant populations.
- Promoting integration of results into national conservation planning exercises, working with national authorities and sharing information to ensure plant conservation is fully taken into account in national regulations and conservation planning.

Strategic Direction 5. Strengthen the regional conservation community through the sharing of best practices and knowledge among grantees across the hotspot

Main focus, justification and impact

With the first four strategic directions focusing on conservation actions within countries, there is a need to facilitate regional-level interactions, to share lessons learned and good practice approaches developed by grantees, and to establish connections among CSOs around the Mediterranean Basin. Such interventions are expected to contribute to the development of a regional community of conservation organizations that can provide mutual support to its members beyond the end of the CEPF investment phase.

Mediterranean CSOs span a wide spectrum of stages of development. Some are engaged in conservation actions at the national-level and work alongside governments to implement activities (e.g., in Albania), while others are still emerging (e.g., in Libya). Despite these differences, there are important similarities in the issues and working environments faced by CSOs within each sub-region, and even across the hotspot. The hotspot as a whole includes countries with large, professional NGOs, which are a source of expertise and experience. The opportunities for CSOs to look beyond national solutions and see how other countries deal with similar issues through peer-to-peer networking, support and mentoring in the Mediterranean Basin are, thus, very considerable. There is also important experience to share from EU countries, where CSOs have more experience of engaging with decision-making processes and are better equipped to share these experiences. After five years of grant making, there is already a considerable body of knowledge and experience within the grantee network, which could inform projects being implemented under the new phase.

In addition to CEPF-organized and funded events, there are many other initiatives in the hotspot concerned with biological sciences, environment and sustainability, resulting in a large number of conferences and meetings, publications, on-line networking, webinars and other opportunities to share and learn. Participation of grassroots organizations in these events is often passive or limited, however, due to various barriers, including lack of information on available opportunities, lack of funding to attend meetings, and limited familiarity with the issues and approaches being discussed. Faced with these barriers, local CSOs that do attend meetings may lack the confidence or skills to effectively engage, and so fail to benefit or to put across their ideas.

Grant making under this strategic direction, which will comprise a relatively small proportion of the overall budget, will enable the RIT to work with grantees to identify opportunities for organizing dedicated regional events and to allow grantees to participate in events organized by other organizations. In addition to funding, the RIT will work with grantees to ensure that they are prepared for participation in events, and can maximize the benefit they get out of them. This strategic direction will complement activities to facilitate exchange of experience and capacity building activities, which will be built into each grant as far as possible.

Lessons from Phase 1

Phase 1 did not have a specific strategic direction for regional capacity building. The RIT facilitated knowledge sharing among countries and across the region wherever possible but opportunities and resources to do this in a systematic way were limited. During Phase 1, it became clear that many of the same conservation issues were being faced throughout the hotspot, and that sharing experiences from organizations in different countries would allow CSOs (including but not limited to CEPF grantees) to learn from entirely new approaches, for example, illegal hunting issues in Lebanon and Albania.

Priority setting for Strategic Direction 5

Priorities for action under this strategic direction will be thematic as well as geographic, and will be based on on-going assessment by the RIT of needs and opportunities (IP5.1 and IP5.2). Support to participation in events organized by other institutions (IP5.3) will necessarily be reactive, although the RIT will use its networks and the advice of the regional advisory committee to identify opportunities in advance, and ensure that funds are available for the most important and relevant events.

Investment Priority 5.1 Support regional and thematically focused learning processes for CSOs and stakeholders

This investment priority provides opportunities to work with groups of grantees across sub-regions or the hotspot to identify themes for events on shared learning. Potential themes include the first four strategic directions, for example management of coastal KBAs and freshwater KBAs, working with traditional resource management, and conservation of plants. It will be important to link these to existing initiatives, either by adding additional capacity building elements to existing conferences or by inviting relevant stakeholders to share their expertise. There are opportunities to involve experienced NGOs from EU countries in the hotspot in sharing their knowledge, especially where there is potential for future partnerships between 'northern' and 'southern' CSOs. Themes might also focus on working with communities, engaging with government or the private sector. Hosting events at grantees' field sites would create opportunities for learning for the host organization as well as the invited participants.

Actions under this investment priority are likely to include:

- Supporting selected grantees to prepare for their participation, including through documenting their own work (for instance through preparing a video or photo display), consulting with colleagues and partners to identify challenges and problems that they wish to discuss with others, and identifying opportunities for learning from other projects.
- Planning and implementing the event, including identifying the theme and selecting the host and participants. Documentation of the process should lead to participants being provided with materials to encourage them to disseminate lessons learned to colleagues and partners once they return home.
- Creating platforms for follow-up and networking, including facilitation of continued communication between participants and projects, and the operation of networks for learning and sharing ideas.

Investment Priority 5.2 Support grantees to understand and engage with international conventions and processes

Funding under this investment priority will allow CEPF to support individual grantees (or perhaps networks or groups of CSOs with a shared agenda) to engage with international and regional processes, including meetings of international conventions and associated national processes (e.g., CBD, Natura 2000, SDGs, UNFCCC, etc.), important conferences or other venues where their participation would create both an opportunity to learn, and an opportunity to impact on decisions affecting conservation in their countries.

There are a number of regional processes and conventions (e.g., Barcelona Convention, Euro-Mediterranean Partnership; see Chapter 6) and processes (e.g., MedPAN network, Medwet - Ramsar Regional Initiative, etc.) that are important for driving political processes but which local and national civil society often has a poor understanding of and has difficulty accessing. Projects under this investment priority could assist CSOs to understand these mechanisms, and identify and take advantage of opportunities provided by them.

Activities under this investment priority are likely to include:

- Supporting CSOs to engage with in-country processes related to multilateral environmental agreements, such as preparation of NBSAPs, reporting to the UNFCCC, review of World Heritage Sites, etc. CEPF will encourage documentation of impacts and experience, and sharing throughout the grantee network.
- Supporting CSOs to prepare for participation in international events, including articulating their own agenda, identifying opportunities to advance at the event (e.g., participation in side-events, presentation of posters and papers) and engaging with national delegations attending the event.
- Encouraging and supporting feedback post-event to the participants' own organizations and through networks of relevant grantees.

Strategic Direction 6. Provide strategic leadership and effective coordination of CEPF investment through a Regional Implementation Team

Main focus, justification and impact

An independent evaluation of the global CEPF program found that RITs are particularly effective, in collaboration with the CEPF Secretariat, at linking together the elements of comprehensive, vertically integrated portfolios, such as large anchor projects, smaller grassroots activities, policy initiatives, governmental collaboration and sustainable financing. The responsibilities of these teams have been standardized to capture the most important aspects of their functions.

In every hotspot where it invests, CEPF supports an RIT to convert the plans in the ecosystem profile into a cohesive portfolio of grants that exceeds in impact the sum of its parts. Each RIT consists of one or more CSOs active in conservation in the hotspot. For example, an RIT could be a consortium of CSOs or a single lead organization that engages other local experts in overseeing implementation of the investment strategy, such as through an advisory committee.

RITs are selected by the CEPF Donor Council based on approved terms of reference, competitive process and selection criteria. RITs operate in a transparent and open manner, consistent with the CEPF mission and all provisions of the CEPF Operational Manual. Organizations that are members of an RIT are not eligible to apply for other CEPF grants within the same hotspot. Applications from formal affiliates of those organizations that have an independent operating board of directors can be accepted, subject to additional external review.

Lessons from Phase 1

Lessons from the RIT's work in Phase 1 are divided into capacity building, managing the grants program, and the overall structure of the grants program.

Capacity building. Capacity across the Mediterranean Basin Hotspot varies significantly, providing a challenge to the RIT on how and where to target support. Experience, access to a pool of expertise, and the current political situation in the country all impact on a CSO's ability to formulate good quality proposals and manage grants successfully. As a consequence, the level of additional effort, support and flexibility required from the RIT varies between countries and regions. Assessment of capacity was incorporated into the grant-making process, with the RIT identifying potential grantee needs during the financial and programmatic risk assessments, prior to contracting, and then building-in additional activities and/or budget to help the organization address these.

Capacity building was also undertaken by more experienced grantees (typically regional organizations), who made sub-grants to local partners, and accompanied these with technical and financial support. These mentoring relationships worked well, and, in some instances, a local organization that started out as a sub-grantee was able to apply for funds in its own right by the end of the program.

In addition, CEPF's links to other funding initiatives helped identify opportunities for grantees to participate in capacity building programs organized by other entities.

Managing the grants program. Phase 1 showed that completing a proposal can be challenging for CSOs unfamiliar with CEPF's processes but that these challenges can be overcome by ensuring that calls for proposals are accessible and clear, and by providing simple tools, clear guidance and support through the RIT. This allowed CSOs to apply for funds and report on their projects in line with CEPF requirements. Another important factor was the facility for CSOs to apply for small grants in local languages. This allowed smaller organizations to apply, with nearly one-third of all small grants proposals being written in French, Arabic or Serbo-Croatian during Phase 1. Dissemination and understanding of written calls for proposals can be maximized by discussion and meetings (for example using other meetings or conferences as a venue). Finally, enough time needs to be allowed in the call for proposal processes for smaller CSOs to formulate ideas and develop proposals, something that may take them much longer than more experienced organizations. This applies particularly to calls for proposals related to more complex areas of intervention. For example, for Phase 2, calls for SD3 on traditional landscapes may require proponents to consult with local stakeholders to confirm opportunities for working with them.

After Phase 1, a significant sub-set of civil society is now familiar with CEPF's processes. Nevertheless, as the RIT reaches out to a wider group and, especially, to more grassroots CSOs, this kind of support will continue to be required in Phase 2.

Phase 1 demonstrated the importance of on-going monitoring to facilitate dialogue between the RIT and grantees, making it easier to assist them to manage challenges as they emerge, and to agree essential amendments to the timeframe or budget of grants. Many local grantees required support initially in report writing and financial management, and the RIT or, in some cases, a larger CSO supporting a smaller local partner as sub-grantee, played a key role in ensuring both project success and parallel capacity building. The results of monitoring, as well as other news and information, were disseminated through a quarterly newsletter, news alerts (used to announce calls for proposals), and news stories in the three main languages: Arabic; English; and French.

Local regulations and policies can affect CSOs' ability to access funding, or the time taken to transfer funds. Understanding and keeping up to date with the situation in each hotspot country is important to avoid unexpected problems.

Structure of the grants program. Phase 1 small grants were limited to US$20,000, and this level proved manageable and effective. Small grants made up half of the total number of grants, and 9% of the allocated funds. For Phase 2 it is proposed to retain the maximum size of small grants but to increase the proportion of overall funding that is spent through the small grants mechanism, with a target of at least US$1 million allocated to small grants.

Large, multi-year grants are often linked to targets for fundraising or leveraging of other support. Disbursement of grants in phases, with subsequent phases dependent on project success including demonstrating that co-funding has been raised, should be considered where this would contribute positively to sustainability.

Networking and collaborative actions. The RIT helped to identify and nurture relationships between CSOs with shared interests and complementary expertise. Several formal and informal networks have emerged as a result, with collaborative relationships involving sub-grants, professional services or in-kind support. Transboundary partnerships and country exchanges on similar themes were important in catalyzing network development. An important lesson was that collaboration is only effective if started at or before the project inception stage.

The key lesson from this networking is that transboundary projects and exchanges can have significant impacts with relatively little funding, and that there is potential for more of this type of approach. CEPF is well positioned to link projects thematically across the Mediterranean and facilitate peer-to-peer learning.

Focus for Phase 2

The role of the RIT will remain central to the operation of the grants program but will be broadened in Phase 2 to include a larger role in ensuring that experiences from site-level work are scaled up to achieve policy impacts (see Section 11.4.3) and sustainability (see Chapter 13).

Investment Priority 6.1 Build a constituency of civil society groups working across institutional and political boundaries toward achieving the shared conservation goals described in the ecosystem profile

CEPF will select and support an RIT to provide strategic leadership and local knowledge to build a broad constituency of civil society groups working across institutional and political boundaries towards achieving the conservation goals described in the ecosystem profile. The team's major functions and specific activities will be based on approved terms of reference. Given the size and the complexity of the Mediterranean Basin Hotspot, and considering the strategic lines proposed before, where mainstreaming conservation into development and promoting participation of a wider group of partners is going to be required, the RIT will play a crucial role supporting the consolidation of basin-wide networks and identifying regional funding opportunities to leverage and complement CEPF's investment. Major functions of the team will include but not be limited to:

- Acting as an extension service to assist civil society groups in designing, implementing, and replicating successful conservation activities.
- Reviewing all grant applications and manage external reviews with technical experts and advisory committees.
- Awarding grants up to US$20,000 and deciding jointly with the CEPF Secretariat on all other applications.
- Widely communicating CEPF objectives, opportunities to apply for grants, lessons learned and results.
- Involving the existing regional program of the RIT, CEPF donor and implementing agency representatives, government officials, and other sectors within the hotspot in implementation.
- Ensuring effective coordination with the CEPF Secretariat on all aspects of implementation.

The RIT will lead the management of risk in the program, and ensuring that progress and impacts are appropriately monitored:

- Before calls for proposals, management of risk includes updating assessments of the political and security situation in potential target countries, in consultation with CEPF's global donors and other partners where relevant. Once grants have been made, the level of supervision and contact by the RIT will be adjusted to take into account the level of risk as a result of security concerns, weak grantee capacity, or other risks identified during project preparation.

- The RIT will lead the monitoring and evaluation of individual projects and the overall program (in collaboration with the secretariat) using standard tools, site visits, and meetings with grantees, and assist the CEPF Secretariat in portfolio-level monitoring and evaluation. Ensure that monitoring of the overall CEPF program is sensitive to gender, and that gender-sensitive indicators and actions are taken into account in the design of grants and evaluations.

The RIT will also support implementation of CEPF's Gender Policy at the portfolio and grant levels. To this end, the RIT will:

- Work with grantees to ensure gender analysis and recommendations are included in the project design, implementation and monitoring processes.
- Develop indicators and report on gender equity as part of CEPF's Monitoring Framework.
- Promote best practices for incorporating gender in conservation strategies throughout the CEPF network.

Moreover, the RIT will coordinate capacity building support to grantees, including by:

- Assessing the capacity needs of individual grantees before contracting and incorporating measures to address key capacity gaps (either in individual contracts or through joint capacity building programs).
- Organizing capacity building events on themes of importance to grantees or potential grantees, including proposal development, financial management, project planning and management. Using these workshops to encourage the development of project ideas and collaborative working among CSOs, including mentoring relationships between more and less experienced CSOs.
- Facilitating learning from grantee experience. Supporting project impact evaluation and the development and sharing of lesson-learned case studies. Developing a platform for live information exchanges, linking those working on similar themes throughout the hotspot.

Investment Priority 6.2 Act as a liaison unit for relevant networks throughout the Mediterranean to harmonize investments and direct new funding to priority issues and sites

The Mediterranean Basin is unique within the CEPF global portfolio in that there are a large number of countries ineligible for CEPF support, and, at the same time, there are substantial funding opportunities from multinational, national, private and public funding sources within these countries, some of which already make a significant contribution to funding the activities of civil society. The RIT will act as a hub, liaising between existing networks such as the Barcelona, Bonn and Ramsar Conventions, as well as Plan Bleu and the nongovernmental and private sectors. The RIT should also be a resource for other donors to refine the areas in the hotspot that require additional financial support.

13. SUSTAINABILITY

This profile incorporates sustainability as a principle into its strategic directions in order to ensure the long-term survival of viable ecosystems which the life in the Mediterranean Basin depends on. Based on experience from the first phase of investment, the new investment strategy will need to strengthen civil society, encourage multi-stakeholder approaches, and build synergies between the CEPF strategy and other funding sources in the region.

Integrated, multi-stakeholder approaches

The coastal (SD1) and freshwater (SD2) strategic directions support integrated approaches, as it is now clear how important multilateral partnerships between NGOs, as well as long-term cooperation between civil society, governments and the corporate sector, are in the delivery of concrete and long-term conservation actions. The role of CSOs in enabling local communities to manage areas for biodiversity within traditional management systems (SD3) is a new strategic direction which reflects CEPF's understanding that local intervention is key for sustainability.

CSO capacity as a basis for sustainability

The CEPF investment in the Mediterranean Basin Hotspot will play a major role by supporting civil society and increasing the capacity of NGOs and other civil society entities based in the region. The first phase has shown where the weaknesses are, especially in North Africa, and so CEPF funds will continue to strengthen the ability of CSOs and their staff to carry out their conservation mission over the long term. The strengthening of civil society is a focus across all the strategic directions, but is made explicit in SD4, building up the next generation of plant conservationists, because this was identified as a particular need. SD5 addresses the need and opportunity to support regional-level knowledge sharing so that best practices can be replicated throughout the hotspot and a wider network of experts is established.

CSOs will ultimately influence those political decisions which have a major impact on natural resources. Mainstreaming biodiversity conservation and ecosystem services into all levels of decision making and development planning is a key approach that will strengthen institutional and financial sustainability of CEPF's investment in the region.

Alignment between CEPF funding and other sources of support

There are already several funding resources contributing to conservation in the Mediterranean Basin. The CEPF funding fills gaps in those areas where essential activities are not being undertaken at the moment and complements larger funding support from multilateral and bilateral sources to government agencies in the region. The donor community showed great interest in the CEPF investment strategy in the first phase, as efforts were made to identify areas of common interest and to align strategies. The Advisory Committee played a key role in this, and opened doors to portfolio and project level support such as that received from the MAVA Foundation for the ICZM strategic direction. MAVA and the Prince Albert II of Monaco Foundation also contributed funds to the ecosystem profile update process. Multiple CEPF-granted projects were also co-funded by other donors as complementing activities were identified. This collaboration of donors should continue into the second phase of investment and continue to widen networks and strengthen results.

The role of the RIT in delivering sustainability

The RIT's contribution to the sustainability of the impact of the CEPF program overall encompasses grant selection and management as well as their role in establishing linkages between the program and government decision makers and regional processes.

Through its grant management, the RIT will contribute to sustainability by considering potential project's relevance in the local political and cultural setting, and alignment with national priorities and commitments under international conventions. Through its regional networking role, the RIT is expected to be aware of other funding opportunities and relevant programs, and to be proactive in ensuring that grantees are involved, including through sharing information on the CEPF program with other donors.

In its role making linkages to government, CEPF will assist grantees to draw the attention of decision makers to their project results and lessons, and to demonstrate the ways that they can contribute to government agendas. Although less developed, the RIT will also have connection with private sector entities, allowing them to make links to relevant projects and organizations.

The RIT will contribute to securing additional and continuing funding for projects initiated under the CEPF program, including working with partners on innovative financing mechanisms.

Logical framework

<table>
<tr><th>Objectives</th><th>Targets</th><th>Means of Verification</th><th>Links to Aichi Targets</th><th>Important Assumptions</th></tr>
<tr><td rowspan="6">Engage civil society in the conservation of globally threatened biodiversity through targeted investments with maximum impact on the highest conservation priorities.</td><td>45 Key Biodiversity Areas, covering 1,000,000 hectares, have new or strengthened protection and management.</td><td rowspan="6">Grantee and Regional Implementation Team (RIT) performance reports

Annual portfolio overview reports; portfolio midterm and final assessment reports

Protected Areas Tracking Tool (SP1 METT)

Official decrees of creation of new protected areas

Civil Society Tracking Tool (CSTT)</td><td rowspan="6">Target 2: Biodiversity values have been integrated into national and local development and poverty reduction strategies and planning processes.

Target 4: Governments, business and stakeholders at all levels have taken steps to achieve or have implemented plans for sustainable production and consumption.

Target 7: Areas under agriculture, aquaculture and forestry are managed sustainably, ensuring conservation of biodiversity.

Target 11: At least 10% of coastal and marine areas are conserved through effectively and equitably managed protected area systems.</td><td rowspan="6">The evolving political and security situation in parts of the hotspot does not require a complete overhaul of geographic priorities for CEPF investment.

Formal accession to the European Union for Balkan countries does not occur during the investment phase, thereby making them ineligible for CEPF investment.</td></tr>
<tr><td>8 sites, covering at least 120,000 hectares that were unprotected or under temporary protection gain officially declared permanent protected status.</td></tr>
<tr><td>At least 8 initiatives launched with private sector stakeholders resulting in adoption or maintenance of biodiversity-friendly practices.</td></tr>
<tr><td>10 land-use plans or land use management practices incorporate provisions for biodiversity conservation (e.g., integrated coastal zone management plans, river basin management plans, agricultural development plans, etc.).</td></tr>
<tr><td>5 partnerships and networks formed among civil society, and with government and communities, to leverage complementary capacities and maximize impact in support of the ecosystem profile.</td></tr>
<tr><td>At least 60 civil society organizations, including at least 45 local organizations, actively participate in conservation actions guided by the ecosystem profile, and increase their capacities to deliver long-term conservation benefits.</td></tr>
</table>

Intermediate Outcomes	Intermediate Indicators	Means of Verification	Links to Aichi Targets	Important Assumptions
1. Support civil society to engage stakeholders in demonstrating integrated approaches for the conservation of biodiversity in coastal areas. $2,400,000	Multi-stakeholder approaches lead to improved management of at least 25 priority coastal KBAs, covering at least 600,000 hectares. At least 8 private sector stakeholders, in at least 4 countries, improve their business practices with positive impacts on biodiversity. At least 2 mechanisms initiated for the private sector to contribute financially to conservation management costs of priority coastal KBAs. Reduced pressure from unsustainable practices (hunting, fishing, over-harvesting) on at least 10 globally threatened species for which it is a significant threat. Improvement in the status (i.e., short-term increase in population and/or breeding success) of at least 15 threatened species in at least 20 priority coastal KBAs. At least 4 land-use planning and/or integrated coastal zone management processes show better integration of biodiversity conservation.	Grantee and RIT performance reports CEPF Secretariat supervision mission reports SP1 METT Scientific reports and published assessments Published coastal zone land-use and management plans	**Target 2:** Biodiversity values have been integrated into national and local development and poverty reduction strategies and planning processes. **Target 11:** At least 10% of coastal and marine areas are conserved through effectively and equitably managed protected area systems. **Target 12:** The extinction of known threatened species has been prevented.	The political situation in parts of the hotspot does not limit engagement of civil society in co-management of protected areas and policy influence. Changes in the tourism market do not intensify threats to coastal KBAs beyond the civil society's ability to respond.
2. Support the sustainable management of water catchments through integrated approaches for the conservation of threatened freshwater biodiversity. $2,270,000	Knowledge of freshwater biodiversity in at least 15 KBAs in priority Catchment Management Zones (CMZs) improved, documented and shared with decision-makers. Community stakeholders (e.g., fishers, farmers, etc.) in at least 20 sites in priority CMZs receive economic benefits from adopting practices with positive impacts on biodiversity. Improvement in the status (i.e. short-term increase in population and/or breeding success) of at least 12 globally threatened freshwater species. Management plans and/or practices for at least 4 river basins integrate provisions for biodiversity conservation.	Grantee and RIT performance reports CEPF Secretariat supervision mission reports SP1 METT Scientific reports and published assessments Published management plans	**Target 2:** Biodiversity values have been integrated into national and local development and poverty reduction strategies and planning processes. **Target 14:** Ecosystems that provide essential services, including water, and contribute to health, livelihoods and well-being, are restored and safeguarded.	Increased occurrence and intensity of extreme climatic events that place increased pressure on water resources do not undermine efforts to change practices.

Intermediate Outcomes	Intermediate Indicators	Means of Verification	Links to Aichi Targets	Important Assumptions
3. Promote the maintenance of traditional land-use practices necessary for the conservation of Mediterranean biodiversity in priority corridors of high cultural and biodiversity value. $2,350,000	At least 1,000 women and 1,000 men in at least 20 communities demonstrate improved economic wellbeing through maintenance of traditional, biodiversity-friendly land-use practices.	Grantee and RIT performance reports CEPF Secretariat supervision mission reports Scientific reports and published assessments Local government decrees and plans Media articles	**Target 4:** Governments, business and stakeholders at all levels have taken steps to achieve or have implemented plans for sustainable production and consumption. **Target 18:** Traditional knowledge, innovations and practices of indigenous and local communities relevant for the conservation and sustainable use of biodiversity are respected.	Increased income will lead to decisions to maintain traditional land-use practices. A market for eco-labelled products exists that is willing to pay a sufficiently large premium.
	At least 6 traditional products that demonstrate positive impacts on biodiversity see a positive market trends (in terms increased production, price, access to new markets) through certification, etc.			
	Status (indicators of population or breeding success) of at least 8 globally threatened species dependent on traditional land-use practices improved at site level in at least 3 priority corridors.			
	Local authorities in at least 3 priority corridors recognize the importance of traditional, biodiversity-friendly land-use practices and engage in supporting their maintenance.			
4. Strengthen the engagement of civil society to support the conservation of plants that are critically endangered or have highly restricted ranges. $900,000	Status of at least 12 threatened plant species improved at the site level (increased population or indicators of breeding success) in at least 4 different countries.	Grantee and RIT performance reports CEPF Secretariat supervision mission reports Revised protected area management plans Published articles and assessments Decrees for official recognition of protected areas	**Target 7:** Areas under agriculture, aquaculture and forestry are managed sustainably, ensuring conservation of biodiversity. **Target 12:** The extinction of known threatened species has been prevented and their conservation status has been improved.	Sufficient numbers of organizations are willing to engage in concrete plant conservation action. Sufficient numbers of young professionals are interested in a career in plant conservation.
	Improved management practices in at least 8 unprotected sites important for plants (including creation of micro-reserves, etc.).			
	At least 6 protected area management plans incorporate specific actions for plant conservation, and at least 10 protected area managers demonstrate improved skills and knowledge on plant conservation.			
	Improved knowledge for at least 35 locally endemic or highly threatened plant species and improved information on plants for at least 15 KBAs.			
	At least 6 young professionals (at least 3 men, 3 women) gain substantial experience in plant conservation.			
	At least 2 plans adopted at the national level with improved integration of plant conservation needs.			

Intermediate Outcomes	Intermediate Indicators	Means of Verification	Links to Aichi Targets	Important Assumptions
5. Strengthen the regional conservation community through the sharing of best practices and knowledge among grantees across the region. $430,000	At least 10 local organizations demonstrated increase knowledge of international and regional conservation agreements and take steps to engage in action at the local level.	Grantee and RIT performance reports CEPF Secretariat supervision mission reports Meeting minutes and participant lists Press articles in specialized media Signed grant agreements with other donors	**Target 19:** Knowledge, the science base and technologies relating to biodiversity, its values, functioning, status and trends, and the consequences of its loss, are improved, widely shared and transferred, and applied.	The security situation and visa issues do not reduce the possibility for regional exchanges.
	At least 5 regional thematic experience sharing events allow for informal and formal networking in the hotspot.			
	Grant support makes a significant contribution to catalyzing or sustaining at least 7 cross-border networking relationships.			
	Information on at least 15 funding opportunities for civil society disseminated to relevant organizations, resulting in at least 5 successful funding proposals for continuation or extension of CEPF-funded work.			
	At least 2 regional networks for biodiversity conservation in the Mediterranean Basin created or strengthened.			
6. Provide strategic leadership and effective coordination of CEPF investment through a Regional Implementation Team. $1,650,000	At least 60 civil society organizations, including at least 45 local organizations, actively participate in conservation actions guided by the ecosystem profile.	Grantee and RIT performance reports CEPF Secretariat supervision mission reports CSTTs Mid-term and Final Assessment Reports	**Target 20:** The mobilization of financial resources for effectively implementing the Strategic Plan for Biodiversity 2011-2020 from all sources should increase substantially from the current levels.	Suitable organizations are interested and apply to serve as the RIT for the hotspot.
	At least 80% of local civil society organizations receiving grants demonstrate more effective capacity to design and implement conservation actions.			
	At least 30 grantees show at an improvement in gender mainstreaming tracking tool scores over the period of CEPF support.			
	At least 2 participatory assessments undertaken, documenting lessons learned and best practices from the hotspot.			
	Performance of the RIT assessed as satisfactory during the Mid Term and Final Assessments.			
Funding Summary	**Amount**			
Total Budget	$10,000,000			

Risk analysis

Risk	Likelihood and severity	Mitigation measures
Program objective: The evolving political and security situation in parts of the hotspot requires a complete overhaul of geographic priorities for CEPF investment.	**Likelihood:** The likelihood of significant political/security problems in one or more countries is high. **Severity:** The impact on the CEPF program in these countries would be severe, with postponement or minimal grant disbursement. Nevertheless, the risk of problems across all or most of the eligible countries is very low, and so the risk of a complete overhaul of geographic priorities is low. Political risks also include the GEF focal points being unable to give a no-objection to the planned program. Again, it is highly unlikely that this would occur in the majority of countries.	**Program level:** Planning for grant-making across all eligible countries (see Section 11.4.4) reduces the impact of problems in one country on the overall program. Ensuring that the RIT has flexibility in timing and focus of calls for proposals and disbursement of grants allows it to respond to changing situations. **Grant level:** Grants in countries considered high risk will be subject to careful review, and disbursement timetable and monitoring schedules will be adjusted depending on the security situation. Neither grantees nor the RIT will be funded or asked to undertake activities in high-risk areas.
Program Objective: Formal accession to the European Union for Balkan countries occurs during the investment phase, thereby making them ineligible for CEPF investment.	**Likelihood:** Small. **Severity:** Severe at the country level, as it would make the country concerned ineligible for CEPF support but minor at the program level, as there are only two countries that could possibly join the EU during the next phase: Turkey; and Montenegro. These countries have commenced accession talks with the EU but the process is expected to be on-going for some years, and the outcome is uncertain and dependent on EU and regional politics. Only for Montenegro is there a likelihood that the process could be achieved before 2022. FYR Macedonia and Albania are recognized as candidates for accession but have not yet commenced accession talks. Bosnia-Herzegovina and Kosovo have not yet applied but are considered potential future members. For reference, Poland, Hungary and Croatia took 10 years to complete accession talks.	**Program level:** Planning for grant-making across all eligible countries (see Section 11.4.4) reduces the impact of one country becoming ineligible as a result of EU accession. **Grant level:** There will be considerable lead time when it becomes clear that accession is likely, and this will give time to re-program funds and decide on the future of on-going grants as necessary.

Risk	Likelihood and severity	Mitigation measures
SD1: The political situation in parts of the hotspot limits engagement of civil society in co-management of protected areas and policy influence.	**Likelihood:** Medium. **Impact**: Medium. The openness of governments to working with civil society is in flux across the hotspot, with positive and negative trends in different countries (see Chapter 7). Future trajectories are difficult to predict. The impact of a negative situation depends on its severity. With most grants expected to be focused on site-based action, immediate grant activities may not be severely affected, except where receiving funds from external sources becomes problematic. However, the intended scaling up of site results to achieve policy impact, by the RIT together with grantees, is likely to be affected by reduction in opportunities to engage with governments.	**Program level:** Grant-making across the eligible countries will reduce the overall risk to the program. The RIT will liaise with grantees and partners (including, for example, World Bank missions and EU delegations) to monitor changing circumstances and develop appropriate responses. **Grant level:** Only a ban on receipt of funds from foreign sources would result in cancellation of grant making in a country. Other limitations might require redesign of project objectives and strategies, for example from being formal managers of protected area to being a partner of a government agency.
SD1: Changes in the tourism market intensify threats to coastal KBAs beyond the civil society's ability to respond.	**Likelihood:** High at specific sites but low across the region as a whole **Severity:** High at specific sites. The trajectory of the tourism market is difficult to predict, and its impact on KBAs is dictated by both government and private sector policies and action.	**Program level:** Regional lessons learning and experience sharing (e.g., linking with 'northern' NGOs) will be important in helping CSOs detect and respond to increasing pressure from the tourism sector. **Grant level:** It will be important for the RIT to work with civil society to ensure that: (a) available capacity to respond is focused on the highest priority sites; and (b) that capacity is developed, if needed, in response to increased pressure. It may also be possible to encourage more CSOs to engage with an issue where a specific threat is imminent, through formation of coalitions and networks. Providing dedicated grants to tackle specific issues will be one way of directly encouraging CSOs to engage more actively with the issue.
SD2: Increased occurrence and intensity of extreme climatic events that place increased pressure on water resources undermine efforts to change practices.	**Likelihood:** Medium. **Severity:** High at relevant sites, low at program level. While extreme climate events are expected to become more common, their occurrence over the five years of the program is essentially random. How they impact depends on the situation at sites, and how local decision makers and resource users respond to any crisis.	**Program level:** Sharing lessons and techniques will help grantees working at vulnerable sites prepare to mitigate the impacts of extreme events (e.g., droughts, wildfires) or even turn them into opportunities for raising awareness and advancing the long-term conservation and livelihoods agenda. Links with donors projects and government initiatives on climate change adaptation may provide access to information and expertise.

Risk	Likelihood and severity	Mitigation measures
SD3: Increased income does not lead to decisions to maintain traditional land-use practices.	**Likelihood:** Medium. **Severity:** Severe for relevant sites. The decisions taken by resource managers within high-biodiversity traditional systems are influenced by a multitude of social, economic and even political factors, many of them beyond the control of grantees. The level of income generated by, for example, better access to markets or certification of products cannot be guaranteed, and may be strongly influenced by national or global market condition, weather and other factors.	**Program level:** Careful assessment of site and grantees will be important for this strategic direction. Clustering grants will allow sharing of lessons and comparing approaches between grantees working at the same/neighboring sites and communities. **Grant level:** Grants under this strategic direction on traditional management should show an understanding of the motivations and baseline circumstances of traditional managers, and explicitly address the assumptions they make about incentivizing people to maintain or improve these systems. The impacts of individual decisions can be ameliorated by working with larger groups of resource users, perhaps in more than one community/location. Testing approaches and careful evaluation of the response of local users will also be important.
SD3: A market for eco-labelled products that is willing to pay a sufficiently large premium does not exist.	**Likelihood:** Medium. **Severity:** Medium. Empirical studies suggest that the impact of eco-labelling is often not large, and can be difficult to achieve.	**Program level:** Opportunities to work with major buyers, and access trade chains connecting sites in the region to high value markets (e.g., in Europe) should be explored. **Grant level**: Dependence on eco-labelling alone will be discouraged unless there is a proven, relevant model of success, and market studies demonstrate a potential for the product before commitments are made to local stakeholders. Projects should be explicit about their assumptions and how they will be monitored. Eco-labelling should be considered as one of a suite of approaches (e.g., market access, processing, post-harvest storage) that can improve farmer incomes.
SD4: Insufficient numbers of organizations are willing to engage in concrete plant conservation action.	**Likelihood:** Low. **Severity:** Medium. While plant conservation has been identified as a high priority, it is recognized that lack of capacity in the region is a constraint.	**Program level:** This strategic direction specifically addresses the need to build capacity to work on plants, and anticipates practical training being a first step in projects for the conservation of rare plants. A list of priority sites for this strategic direction (with threatened or endemic plant species) has been developed but grantees would be able to choose any site on this list, to allow for institutions or CSOs across the hotspot to select sites where they have an opportunity to work.

Risk	Likelihood and severity	Mitigation measures
SD4: Insufficient numbers of young professionals are interested in a career in plant conservation.	**Likelihood:** Low. **Severity:** Medium. Several countries in the hotspot have a strong tradition of science, and creation of an opportunity for funding specifically for work on plants is expected to attract considerable interest.	**Program level**: The RIT will ensure that the call for proposals for this strategic direction is disseminated widely, including to relevant academic and scientific institutions.
SD5: The security situation and visa issues reduce the possibility for regional exchanges.	**Likelihood:** High. **Impact:** Medium. Existing delays and constraints can be expected to continue and may change depending on political developments.	**Program level:** The RIT will anticipate visa problems when selecting countries and making arrangements for meetings and events.
SD6: No suitable organizations are interested and apply to serve as the RIT for the hotspot.	**Likelihood:** Low. **Impact:** High. The success of the program is highly dependent on the recruitment of an effective RIT with relevant skills and networks	**Program level:** This is a pre-condition for the commencement of the program, not an assumption for successful program delivery. CEPF will manage the process to ensure that suitable candidates are aware of the call for proposals.

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ANNEXES

Annex 1: Species Outcomes

Species outcomes are all the globally threatened species recorded from the hotspot. Marine fishes, invertebrates and plants are not included. The on-line annex includes non-threatened Data Deficient and endemic species, as well as all marine species with an IUCN assessment.

Species	IUCN Red List status	Endemic	Priority
Amphibians			
Alytes dickhilleni	VU	Yes	
Alytes muletensis	VU	Yes	
Bombina pachypus	EN	No	
Calotriton arnoldi	CR	Yes	1
Chioglossa lusitanica	VU	No	
Euproctus platycephalus	EN	Yes	2
Hyla heinzsteinitzi	CR	Yes	1
Latonia nigriventer	CR	Yes	1
Lyciasalamandra antalyana	EN	Yes	2
Lyciasalamandra atifi	EN	Yes	2
Lyciasalamandra billae	CR	Yes	1
Lyciasalamandra fazilae	EN	Yes	2
Lyciasalamandra flavimembris	EN	Yes	2
Lyciasalamandra helverseni	VU	Yes	
Lyciasalamandra luschani	VU	Yes	
Neurergus strauchii	VU	No	
Pelobates varaldii	EN	Yes	2
Pelophylax cerigensis	CR	Yes	1
Pelophylax cretensis	EN	Yes	2
Pelophylax epeiroticus	VU	Yes	
Pelophylax shqipericus	EN	Yes	2
Pleurodeles nebulosus	VU	Yes	
Pleurodeles poireti	EN	Yes	2
Proteus anguinus	VU	No	
Rana holtzi	CR	Yes	1
Rana latastei	VU	No	
Rana tavasensis	EN	Yes	2
Salamandra algira	VU	Yes	
Speleomantes flavus	VU	Yes	
Speleomantes genei	VU	Yes	
Speleomantes sarrabusensis	VU	Yes	
Speleomantes supramontis	EN	Yes	2
Birds			
Acrocephalus brevipennis	EN	Yes	2
Acrocephalus paludicola	VU	No	

Species	IUCN Red List status	Endemic	Priority
Alauda razae	CR	Yes	1
Anser erythropus	VU	No	
Aquila adalberti	VU	Yes	
Aquila heliaca	VU	No	
Aquila nipalensis	EN	No	
Aythya ferina	VU	No	
Branta ruficollis	VU	No	
Chlamydotis macqueenii	VU	No	
Chlamydotis undulata	VU	No	
Clanga clanga	VU	No	
Clangula hyemalis	VU	No	
Falco cherrug	EN	No	
Fratercula arctica	VU	No	
Geronticus eremita	CR	Yes	1
Hydrobates monteiroi	VU	Yes	
Marmaronetta angustirostris	VU	No	
Melanitta fusca	VU	No	
Neophron percnopterus	EN	No	
Numenius tenuirostris	CR	No	2
Otis tarda	VU	No	
Oxyura leucocephala	EN	No	
Pelecanus crispus	VU	No	
Podiceps auritus	VU	No	
Pterodroma deserta	VU	Yes	
Pterodroma madeira	EN	No	
Puffinus mauretanicus	CR	Yes	1
Puffinus yelkouan	VU	Yes	
Pyrrhula murina	EN	Yes	2
Serinus syriacus	VU	Yes	
Sitta ledanti	EN	Yes	2
Sitta whiteheadi	VU	Yes	
Streptopelia turtur	VU	No	
Vanellus gregarius	CR	No	2
Butterflies			
Arethusana aksouali	EN	Yes	2
Coenonympha orientalis	VU	No	

Species	**IUCN Red List status**	**Endemic**	**Priority**
Gonepteryx cleobule	VU	Yes	
Gonepteryx maderensis	EN	Yes	2
Hipparchia bacchus	VU	Yes	
Hipparchia christenseni	EN	Yes	2
Hipparchia sbordonii	EN	Yes	2
Hipparchia tilosi	VU	Yes	
Lasiommata meadewaldoi	EN	Yes	2
Lycaena ottomana	VU	No	
Maniola halicarnassus	EN	Yes	2
Pararge xiphia	EN	Yes	2
Parnassius apollo	VU	No	
Pieris cheiranthi	EN	Yes	2
Pieris segonzaci	VU	Yes	
Plebejus vogelii	EN	Yes	2
Plebejus zullichi	EN	Yes	2
Polyommatus bollandi	CR	Yes	1
Polyommatus dama	EN	No	
Polyommatus golgus	VU	Yes	
Polyommatus iphicarmon	VU	Yes	
Polyommatus lycius	VU	Yes	
Polyommatus theresiae	EN	Yes	2
Pseudochazara amymone	EN	Yes	2
Pseudochazara orestes	VU	No	
Pseudophilotes fatma	EN	Yes	2
Pyrgus cirsii	VU	No	
Dragonflies and Damselflies			
Boyeria cretensis	EN	Yes	2
Brachythemis fuscopalliata	VU	No	
Calopteryx exul	EN	Yes	2
Calopteryx hyalina	EN	Yes	2
Calopteryx syriaca	EN	Yes	2
Ceriagrion georgifreyi	VU	Yes	
Coenagrion intermedium	VU	Yes	
Cordulegaster helladica	EN	Yes	2
Gomphus lucasii	VU	Yes	
Macromia splendens	VU	No	
Onychogomphus assimilis	VU	No	
Onychogomphus flexuosus	VU	No	
Onychogomphus macrodon	VU	Yes	
Pyrrhosoma elisabethae	CR	Yes	1
Somatochlora borisi	VU	No	
Dung beetles			
Ahermodontus ambrosi	EN	yes	2

Species	**IUCN Red List status**	**Endemic**	**Priority**
Ceratophyus martinezi	EN	no	
Ceratophyus rossii	EN	yes	2
Heptaulacus gadetinus	EN	yes	2
Nimbus anyerae	EN	yes	2
Onthophagus albarracinus	VU	yes	
Scarabaeus semipunctatus	VU	yes	
Thorectes balearicus	EN	yes	2
Thorectes baraudi	EN	yes	2
Thorectes castillanus	EN	yes	2
Thorectes catalonicus	EN	yes	2
Thorectes chersinus	EN	no	
Thorectes coiffaiti	EN	yes	2
Thorectes coloni	CR	yes	1
Thorectes distinctus	EN	yes	2
Thorectes hernandezi	EN	yes	2
Thorectes hispanus	EN	yes	2
Thorectes punctatissimus	EN	no	
Thorectes punctatolineatus	EN	yes	2
Thorectes puncticollis	EN	No	
Thorectes sardous	EN	yes	2
Thorectes valencianus	VU	yes	
Thorectes variolipennis	EN	yes	2
Typhaeus hiostius	EN	yes	2
Typhaeus momus	EN	yes	2
Freshwater crabs and shrimps			
Potamon bileki	VU	No	
Freshwater fishes			
Acanthobrama centisquama	CR	No	2
Acanthobrama telavivensis	VU	Yes	
Acanthobrama tricolor	CR	Yes	1
Achondrostoma arcasii	VU	No	
Achondrostoma occidentale	EN	Yes	2
Achondrostoma salmantinum	EN	Yes	2
Acipenser gueldenstaedtii	CR	No	2
Acipenser naccarii	CR	No	2
Acipenser stellatus	CR	No	2
Acipenser sturio	CR	No	2
Alburnoides ohridanus	VU	Yes	
Alburnoides prespensis	VU	Yes	
Alburnus albidus	VU	Yes	
Alburnus attalus	EN	Yes	2
Alburnus baliki	EN	Yes	2
Alburnus battalgilae	VU	Yes	

Species	IUCN Red List status	Endemic	Priority
Alburnus belvica	VU	Yes	
Alburnus carinatus	EN	Yes	2
Alburnus demiri	VU	Yes	
Alburnus macedonicus	CR	Yes	1
Alburnus nasreddini	CR	Yes	1
Alburnus orontis	VU	No	
Alburnus qalilus	EN	Yes	2
Alburnus vistonicus	CR	Yes	1
Alburnus volviticus	EN	Yes	2
Alosa macedonica	VU	Yes	
Alosa sp. nov. "Skadar"'	VU	Yes	
Alosa vistonica	CR	Yes	1
Anaecypris hispanica	EN	Yes	2
Anguilla anguilla	CR	No	2
Aphanius almiriensis	CR	Yes	1
Aphanius baeticus	EN	Yes	2
Aphanius danfordii	CR	Yes	1
Aphanius iberus	EN	Yes	2
Aphanius sirhani	CR	Yes	1
Aphanius sureyanus	EN	Yes	2
Aphanius transgrediens	CR	Yes	1
Aulopyge huegelii	EN	No	
Barbatula eregliensis	CR	No	2
Barbatula samantica	EN	No	
Barbatula tschaiyssuensis	EN	Yes	2
Barbus caninus	EN	No	
Barbus euboicus	CR	Yes	1
Barbus grypus	VU	No	
Barbus haasi	VU	No	
Barbus steindachneri	VU	Yes	
Barbus harterti	VU	Yes	
Barbus issenensis	VU	Yes	
Barbus ksibi	VU	Yes	
Barbus paytonii	VU	Yes	
Barbus reinii	VU	Yes	
Capoeta antalyensis	VU	Yes	
Capoeta barroisi	EN	Yes	2
Capoeta mauricii	EN	No	
Capoeta pestai	CR	Yes	1
Carasobarbus kosswigi	VU	No	
Chondrostoma beysehirense	EN	No	
Chondrostoma fahirae	EN	Yes	2
Chondrostoma holmwoodii	VU	Yes	

Species	IUCN Red List status	Endemic	Priority
Chondrostoma kinzelbachi	EN	No	
Chondrostoma knerii	VU	No	
Chondrostoma meandrense	VU	Yes	
Chondrostoma phoxinus	EN	Yes	2
Chondrostoma prespense	VU	Yes	
Chondrostoma soetta	EN	No	
Clupeonella abrau	CR	No	2
Cobitis arachthosensis	EN	Yes	2
Cobitis battalgili	EN	Yes	2
Cobitis calderoni	EN	No	
Cobitis dalmatina	VU	Yes	
Cobitis evreni	EN	Yes	2
Cobitis hellenica	EN	Yes	2
Cobitis illyrica	CR	Yes	1
Cobitis kellei	CR	Yes	1
Cobitis levantina	EN	No	
Cobitis meridionalis	VU	Yes	
Cobitis narentana	VU	Yes	
Cobitis paludica	VU	No	
Cobitis phrygica	EN	Yes	2
Cobitis puncticulata	EN	No	
Cobitis punctilineata	VU	Yes	
Cobitis stephanidisi	CR	Yes	1
Cobitis trichonica	EN	Yes	2
Cobitis turcica	EN	No	
Cobitis vettonica	EN	Yes	2
Cobitis zanandreai	VU	Yes	
Cobitis maroccana	VU	Yes	
Cottus petiti	VU	Yes	
Cottus rondeleti	CR	Yes	1
Cottus scaturigo	VU	Yes	
Crossocheilus klatti	EN	Yes	2
Cyprinus carpio	VU	No	
Delminichthys adspersus	VU	No	
Delminichthys ghetaldii	VU	No	
Economidichthys trichonis	EN	Yes	2
Eudontomyzon hellenicus	CR	Yes	1
Garra ghorensis	EN	No	
Gobio feraeensis	VU	Yes	
Gobio gymnostethus	CR	No	2
Gobio hettitorum	CR	No	2
Gobio intermedius	EN	Yes	2
Gobio maeandricus	EN	Yes	2

Species	IUCN Red List status	Endemic	Priority
Gobio microlepidotus	VU	No	
Gobio ohridanus	VU	Yes	
Gobio skadarensis	EN	Yes	2
Haplochromis flaviijosephi	VU	Yes	
Haplochromis desfontainii	EN	No	
Hemigrammocapoeta kemali	EN	No	
Hucho hucho	EN	No	
Huso huso	CR	No	2
Iberochondrostoma almacai	CR	Yes	1
Iberochondrostoma lemmingii	VU	Yes	
Iberochondrostoma lusitanicus	CR	Yes	1
Iberochondrostoma oretanum	CR	Yes	1
Iberocypris alburnoides	VU	Yes	
Iberocypris palaciosi	CR	Yes	1
Knipowitschia croatica	VU	No	
Knipowitschia ephesi	CR	Yes	1
Knipowitschia mermere	VU	Yes	
Knipowitschia milleri	CR	Yes	1
Knipowitschia mrakovcici	CR	Yes	1
Knipowitschia radovici	VU	Yes	
Knipowitschia thessala	EN	Yes	2
Ladigesocypris ghigii	VU	Yes	
Luciobarbus comizo	VU	Yes	
Luciobarbus esocinus	VU	No	
Luciobarbus graecus	EN	Yes	2
Luciobarbus guiraonis	VU	Yes	
Luciobarbus kottelati	VU	Yes	
Luciobarbus longiceps	EN	Yes	2
Luciobarbus microcephalus	VU	Yes	
Luciobarbus steindachneri	VU	Yes	
Luciobarbus subquincunciatus	CR	No	2
Luciobarbus xanthopterus	VU	No	
Mesopotamichthys sharpeyi	VU	No	
Nemacheilus dori	CR	Yes	1
Nemacheilus jordanicus	EN	Yes	2
Nemacheilus pantheroides	EN	Yes	2
Nemacheilus sp. nov.	EN	Yes	2
Oxynoemacheilus anatolicus	EN	Yes	2
Oxynoemacheilus eregliensis	VU	No	
Oxynoemacheilus galilaeus	CR	Yes	1
Oxynoemacheilus germencicus	VU	Yes	
Oxynoemacheilus hamwii	EN	Yes	2
Oxynoemacheilus mesudae	EN	Yes	2

Species	IUCN Red List status	Endemic	Priority
Oxynoemacheilus panthera	EN	Yes	2
Oxynoemacheilus phoxinoides	CR	Yes	1
Oxynoemacheilus pindus	VU	Yes	
Oxynoemacheilus seyhanensis	CR	No	2
Oxynoemacheilus seyhanicola	EN	Yes	2
Oxynoemacheilus simavica	CR	Yes	1
Oxynoemacheilus tigris	CR	Yes	1
Padogobius nigricans	VU	Yes	
Parachondrostoma arrigonis	CR	Yes	1
Parachondrostoma toxostoma	VU	No	
Parachondrostoma turiense	EN	Yes	2
Pelasgus epiroticus	CR	Yes	1
Pelasgus laconicus	CR	Yes	1
Pelasgus prespensis	EN	Yes	2
Phoxinellus alepidotus	EN	No	
Phoxinellus dalmaticus	CR	Yes	1
Phoxinellus pseudalepidotus	VU	Yes	
Phoxinus strymonicus	EN	Yes	2
Pseudochondrostoma duriense	VU	No	
Pseudochondrostoma willkommii	VU	Yes	
Pseudophoxinus alii	EN	Yes	2
Pseudophoxinus anatolicus	EN	No	
Pseudophoxinus antalyae	VU	Yes	
Pseudophoxinus crassus	EN	No	
Pseudophoxinus drusensis	EN	Yes	2
Pseudophoxinus egridiri	EN	Yes	2
Pseudophoxinus elizavetae	CR	Yes	1
Pseudophoxinus evliyae	EN	Yes	2
Pseudophoxinus fahrettini	EN	Yes	2
Pseudophoxinus hasani	CR	Yes	1
Pseudophoxinus hittitorum	EN	Yes	2
Pseudophoxinus maeandri	EN	Yes	2
Pseudophoxinus maeandricus	CR	Yes	1
Pseudophoxinus ninae	CR	Yes	1
Pseudophoxinus syriacus	CR	Yes	1
Pseudophoxinus zekayi	VU	Yes	
Pseudophoxinus punicus	EN	Yes	2
Pungitius hellenicus	CR	Yes	1
Romanogobio benacensis	EN	No	
Rutilus panosi	VU	Yes	
Rutilus prespensis	VU	Yes	
Rutilus ylikiensis	EN	Yes	2
Salaria economidisi	CR	Yes	1

Species	IUCN Red List status	Endemic	Priority
Salmo fibreni	VU	Yes	
Salmo obtusirostris	EN	No	
Salmo ohridanus	VU	Yes	
Salmo pelagonicus	VU	No	
Salmo peristericus	EN	Yes	2
Salmo platycephalus	CR	Yes	1
Salmo akairos	VU	Yes	
Scardinius elmaliensis	EN	Yes	2
Scardinius graecus	CR	Yes	1
Scardinius scardafa	CR	Yes	1
Seminemacheilus ispartensis	VU	Yes	
Squalius aradensis	VU	Yes	
Squalius carinus	EN	Yes	2
Squalius castellanus	EN	Yes	2
Squalius cephaloides	VU	Yes	
Squalius janae	VU	Yes	
Squalius keadicus	EN	Yes	2
Squalius kosswigi	EN	Yes	2
Squalius lucumonis	EN	Yes	2
Squalius malacitanus	EN	Yes	2
Squalius microlepis	EN	Yes	2
Squalius moreoticus	EN	Yes	2
Squalius recurvirostris	VU	No	
Squalius sp. nov. 'Evia'	CR	Yes	1
Squalius svallize	VU	No	
Squalius tenellus	EN	No	
Squalius torgalensis	EN	Yes	2
Squalius valentinus	VU	Yes	
Telestes beoticus	EN	Yes	2
Telestes metohiensis	VU	No	
Telestes turskyi	CR	Yes	1
Tristramella simonis	VU	Yes	
Tropidophoxinellus spartiaticus	VU	Yes	
Valencia hispanica	CR	Yes	1
Valencia letourneuxi	CR	Yes	1
Zingel asper	CR	No	2
Freshwater mollusks			
Acroloxus egirdirensis	VU	Yes	
Acroloxus improvisus	VU	Yes	
Acroloxus macedonicus	CR	Yes	1
Acroloxus tetensi	VU	Yes	
Alzoniella cornucopia	VU	Yes	
Alzoniella edmundi	EN	Yes	2
Alzoniella fabrianensis	VU	Yes	
Alzoniella finalina	EN	Yes	2
Alzoniella galaica	CR	No	2
Alzoniella lunensis	VU	Yes	
Ancylus lapicidus	EN	Yes	2
Ancylus scalariformis	VU	Yes	
Ancylus tapirulus	EN	Yes	2
Anodonta lucasi	CR	Yes	1
Anodonta pallaryi	CR	Yes	1
Anodonta pseudodopsis	EN	No	
Arganiella wolfi	VU	Yes	
Attebania bernasconii	CR	Yes	1
Belgrandia alcoaensis	CR	Yes	1
Belgrandia bonelliana	CR	Yes	1
Belgrandia gibberula	VU	Yes	
Belgrandia latina	VU	Yes	
Belgrandia lusitanica	EN	Yes	2
Belgrandia moitessieri	CR	Yes	1
Belgrandia silviae	VU	Yes	
Belgrandia sp. nov. 'wiwanensis'	VU	Yes	
Belgrandia torifera	VU	No	
Belgrandia varica	CR	Yes	1
Belgrandiella crucis	VU	No	
Belgrandiella edessana	VU	Yes	
Belgrandiella schleschi	VU	No	
Belgrandiella sp. nov. 'ramdanii'	CR	Yes	1
Belgrandiella superior	VU	No	
Belgrandiella zermanica	VU	Yes	
Bithynia badiella	VU	No	
Bithynia cettinensis	VU	Yes	
Bithynia graeca	VU	Yes	
Bithynia kastorias	CR	Yes	1
Bithynia kobialkai	VU	Yes	
Bithynia pesicii	EN	Yes	2
Bithynia prespensis	EN	Yes	2
Bithynia pseudemmericia	VU	Yes	
Bithynia quintanai	VU	Yes	
Bithynia skadarskii	EN	Yes	2
Bithynia zeta	EN	Yes	2
Boetersiella davisi	VU	Yes	
Boetersiella sturmi	EN	Yes	2
Bracenica spiridoni	EN	Yes	2
Bythinella cebennensis	VU	Yes	

Species	IUCN Red List status	Endemic	Priority
Bythinella eurystoma	VU	Yes	
Bythinella eutrepha	CR	Yes	1
Bythinella galerae	VU	Yes	
Bythinella ginolensis	VU	No	
Bythinella occasiuncula	VU	Yes	
Bythinella roubionensis	VU	Yes	
Bythinella sp. nov. 'tiznitensis'	CR	Yes	1
Bythinella turca	CR	Yes	1
Bythiospeum klemmi	EN	Yes	2
Bythiospeum rasini	VU	Yes	
Congeria kusceri	VU	Yes	
Costellina turrita	CR	Yes	1
Dalmatella sketi	CR	Yes	1
Daphniola exigua	EN	Yes	2
Daphniola louisi	CR	Yes	1
Dianella schlickumi	CR	Yes	1
Dianella thiesseana	CR	Yes	1
Dreissena blanci	VU	Yes	
Emmericia expansilabris	VU	No	
Emmericia ventricosa	VU	No	
Falsipyrgula barroisi	EN	Yes	2
Falsipyrgula beysehirana	CR	No	2
Falsipyrgula pfeiferi	EN	Yes	2
Ginaia munda	VU	Yes	
Giustia bodoni	EN	Yes	2
Giustia costata	CR	Yes	1
Giustia gofasi	EN	Yes	2
Giustia janai	EN	Yes	2
Giustia mellalensis	CR	Yes	1
Giustia midarensis	EN	Yes	2
Giustia saidai	CR	Yes	1
Giustia sp. nov. 'meskiensis'	EN	No	
Gocea ohridana	CR	Yes	1
Graecoanatolica brevis	CR	Yes	1
Graecoanatolica conica	CR	Yes	1
Graecoanatolica kocapinarica	VU	Yes	
Graecoanatolica lacustristurca	EN	No	
Graecoanatolica pamphylica	EN	Yes	2
Graecoanatolica tenuis	VU	Yes	
Graecoanatolica vegorriticola	CR	Yes	1
Graecorientalia vrissiana	CR	Yes	1
Graziana cezairensis	EN	Yes	2
Graziana provincialis	EN	Yes	2

Species	IUCN Red List status	Endemic	Priority
Graziana trinitatis	EN	Yes	2
Guadiella andalucesis	VU	Yes	
Guadiella arconadae	VU	Yes	
Guadiella ramosae	VU	Yes	
Gyraulus albidus	VU	Yes	
Gyraulus argaeicus	VU	Yes	
Gyraulus bekaensis	VU	Yes	
Gyraulus crenophilus	EN	Yes	2
Gyraulus fontinalis	EN	Yes	2
Gyraulus ioanis	CR	Yes	1
Gyraulus meierbrooki	EN	Yes	2
Gyraulus nedyalkovi	VU	Yes	
Gyraulus pamphylicus	VU	Yes	
Gyraulus shasi	CR	Yes	1
Gyraulus stankovici	EN	Yes	2
Gyraulus trapezoides	EN	Yes	2
Hadziella deminuta	VU	No	
Hadziella sketi	VU	Yes	
Hauffenia edlingeri	CR	Yes	1
Hauffenia jadertina	EN	Yes	2
Heideella knidirii	EN	Yes	2
Heideella sp. nov. 'boulali'	EN	Yes	2
Heideella sp. nov. 'kerdouensis'	CR	Yes	1
Heideella sp. n. 'makhfamanensis'	CR	Yes	1
Heideella sp. nov. 'salahi'	EN	Yes	2
Heideella sp. nov. 'valai'	CR	Yes	1
Heleobia foxianensis	EN	Yes	2
Heleobia galilaea	VU	Yes	
Heleobia tritonum	CR	Yes	1
Henrigirardia wienini	CR	Yes	1
Heraultiella exilis	VU	Yes	
Horatia macedonica	VU	No	
Horatia novoselensis	VU	Yes	
Horatia sp. nov. 'aghbalensis'	EN	Yes	2
Horatia sp. nov. 'haasei'	EN	Yes	2
Hydrobia anatolica	CR	Yes	1
Hydrobia maroccana	EN	Yes	2
Hydrobia djerbaensis	VU	Yes	
Iberhoratia gatoa	VU	Yes	
Iberhoratia morenoi	VU	Yes	
Iglica bagliviaeformis	EN	No	
Iglica elongata	VU	Yes	
Iglica sidariensis	VU	Yes	

Species	IUCN Red List status	Endemic	Priority
Iglica soussensis	CR	Yes	1
Iglica tellinii	VU	No	
Iglica wolfischeri	CR	Yes	1
Islamia anatolica	CR	Yes	1
Islamia bendidis	CR	Yes	1
Islamia bomangiana	VU	Yes	
Islamia bunarbasa	CR	Yes	1
Islamia cianensis	VU	Yes	
Islamia epirana	VU	Yes	
Islamia graeca	CR	Yes	1
Islamia hadei	CR	Yes	1
Islamia henrici	EN	Yes	2
Islamia lagari	VU	Yes	
Islamia pallida	EN	Yes	2
Islamia pseudorientalica	CR	Yes	1
Islamia trichoniana	CR	Yes	1
Islamia zermanica	CR	Yes	1
Kirelia carinata	CR	No	2
Kirelia murtici	CR	Yes	1
Lanzaia kotlusae	VU	Yes	
Lanzaia skradinensis	CR	Yes	1
Lanzaia vjetrenicae	VU	Yes	
Leguminaia saulcyi	CR	Yes	1
Lyhnidia gjorgjevici	EN	Yes	2
Lyhnidia hadzii	CR	Yes	1
Lyhnidia karamani	CR	Yes	1
Lyhnidia stankovici	CR	Yes	1
Lymnaea maroccana	EN	Yes	2
Malaprespia albanica	CR	Yes	1
Margaritifera auricularia	CR	No	2
Margaritifera homsensis	EN	Yes	2
Margaritifera margaritifera	EN	No	
Margaritifera marocana	CR	Yes	1
Maroccopsis agadirensis	EN	Yes	2
Melanopsis ammonis	CR	No	2
Melanopsis brevicula	CR	Yes	1
Melanopsis chlorotica	CR	Yes	1
Melanopsis dircaena	EN	Yes	2
Melanopsis etrusca	EN	Yes	2
Melanopsis germaini	CR	Yes	1
Melanopsis infracincta	CR	No	2
Melanopsis letourneuxi	EN	Yes	2
Melanopsis magnifica	EN	Yes	2

Species	IUCN Red List status	Endemic	Priority
Melanopsis mourebeyensis	EN	Yes	2
Melanopsis pachya	CR	Yes	1
Melanopsis penchinati	CR	Yes	1
Melanopsis saharica	CR	No	2
Melanopsis scalaris	EN	Yes	2
Melanopsis subgraellsiana	VU	Yes	
Mercuria meridionalis	EN	Yes	2
Mercuria sp. nov. 'mirlheftensis'	EN	Yes	2
Mercuria punica	CR	No	2
Microcondylaea bonellii	VU	No	
Micropyrgula stankovici	VU	Yes	
Moitessieria calloti	VU	Yes	
Moitessieria foui	VU	Yes	
Moitessieria guadelopensis	VU	Yes	
Moitessieria juvenisanguis	VU	Yes	
Moitessieria lludrigaensis	VU	Yes	
Moitessieria massoti	VU	Yes	
Moitessieria mugae	VU	Yes	
Narentiana vjetrenicae	EN	Yes	2
Neofossarulus stankovici	VU	Yes	
Ohridohauffenia depressa	EN	Yes	2
Ohridohauffenia minuta	CR	Yes	1
Ohridohauffenia rotonda	EN	Yes	2
Ohridohauffenia sanctinaumi	EN	Yes	2
Ohridohoratia carinata	EN	Yes	2
Ohridohoratia polinskii	VU	Yes	
Ohrigocea karevi	EN	Yes	2
Ohrigocea miladinovorum	EN	Yes	2
Ohrigocea ornata	EN	Yes	2
Ohrigocea samuili	EN	Yes	2
Ohrigocea stankovici	EN	Yes	2
Palacanthilhiopsis margritae	VU	Yes	
Palacanthilhiopsis vervierii	VU	Yes	
Paladilhia gloeeri	EN	Yes	2
Paladilhia jamblussensis	VU	No	
Paladilhia roselloi	VU	Yes	
Paladilhia umbilicata	VU	Yes	
Paladilhiopsis janinensis	CR	Yes	1
Paladilhiopsis neaaugustensis	CR	Yes	1
Paladilhiopsis thessalica	VU	Yes	
Palaospeum bessoni	VU	No	
Parabythinella graeca	CR	Yes	1
Parabythinella macedonica	EN	Yes	2

Species	IUCN Red List status	Endemic	Priority
Parabythinella malaprespensis	CR	Yes	1
Pezzolia radapalladis	EN	No	
Pisidium edlaueri	EN	Yes	2
Pisidium maasseni	EN	Yes	2
Plagigeyeria deformata	EN	Yes	2
Plagigeyeria gladilini	VU	No	
Plagigeyeria montenigrina	CR	Yes	1
Plagigeyeria stochi	VU	No	
Plagigeyeria tribunicae	CR	Yes	1
Plagigeyeria zetaprotogona	EN	No	
Planorbis macedonicus	EN	Yes	2
Planorbis presbensis	VU	Yes	
Potomida littoralis	EN	No	
Prespolitorea malaprespensis	CR	Yes	1
Prespolitorea valvataeformis	CR	Yes	1
Pseudamnicola chia	VU	Yes	
Pseudamnicola gasulli	VU	Yes	
Pseudamnicola geldiayana	EN	Yes	2
Pseudamnicola hydrobiopsis	VU	Yes	
Pseudamnicola intranodosa	VU	Yes	
Pseudamnicola leprevieri	CR	Yes	1
Pseudamnicola lucensis	EN	Yes	2
Pseudamnicola malickyi	VU	Yes	
Pseudamnicola meluzzii	VU	Yes	
Pseudamnicola pallaryi	CR	Yes	1
Pseudamnicola pieperi	VU	Yes	
Pseudamnicola pisolinus	VU	Yes	
Pseudamnicola solitaria	EN	No	
Pseudanodonta complanata	VU	No	
Pseudobithynia ambrakis	VU	Yes	
Pseudobithynia euboeensis	CR	Yes	1
Pseudobithynia falniowskii	CR	Yes	1
Pseudobithynia kathrinae	CR	Yes	1
Pseudobithynia kirka	VU	Yes	
Pseudobithynia levantica	EN	Yes	2
Pseudobithynia panetolis	CR	Yes	1
Pseudobithynia trichonis	EN	Yes	2
Pseudohoratia brusinae	VU	Yes	
Pseudohoratia lacustris	VU	Yes	
Pseudohoratia ochridana	VU	Yes	
Pseudoislamia balcanica	CR	Yes	1
Pyrgohydrobia grochmalickii	VU	Yes	
Pyrgohydrobia jablanicensis	CR	Yes	1

Species	IUCN Red List status	Endemic	Priority
Pyrgohydrobia prespaensis	EN	Yes	2
Pyrgohydrobia sanctinaumi	VU	Yes	
Radix pinteri	EN	Yes	2
Radix skutaris	EN	Yes	2
Radomaniola callosa	VU	No	
Radomaniola elongata	CR	Yes	1
Radomaniola lacustris	CR	Yes	1
Salenthydrobia ferrerii	EN	Yes	2
Sardohoratia islamioides	EN	Yes	2
Sardohoratia sulcata	CR	Yes	1
Saxurinator brandti	VU	No	
Saxurinator labiatus	CR	No	2
Saxurinator montenegrinus	EN	No	
Saxurinator orthodoxus	CR	Yes	1
Saxurinator sketi	EN	No	
Spathogyna fezi	EN	Yes	2
Spiralix corsica	CR	Yes	1
Spiralix gloriae	VU	Yes	
Spiralix pequenoensis	VU	Yes	
Spiralix valenciana	EN	Yes	2
Stankovicia baicaliiformis	CR	Yes	1
Stankovicia pavlovici	VU	Yes	
Stankovicia wagneri	VU	Yes	
Strugia ohridana	VU	Yes	
Tanousia zrmanjae	CR	No	2
Tarraconia gasulli	CR	Yes	1
Tarraconia rolani	EN	Yes	2
Tefennia tefennica	VU	Yes	
Theodoxus altenai	CR	Yes	1
Theodoxus baeticus	CR	Yes	1
Theodoxus marteli	VU	Yes	
Theodoxus numidicus	VU	Yes	
Theodoxus subterrelictus	EN	No	
Theodoxus valentinus	CR	Yes	1
Trachyochridia filocincta	CR	Yes	1
Trichonia trichonica	CR	Yes	1
Turcorientalia hohenackeri	VU	No	
Unio crassus	EN	No	
Unio durieui	EN	Yes	2
Unio foucauldianus	CR	Yes	1
Unio terminalis	VU	No	
Unio tumidiformis	VU	Yes	
Valvata hirsutecostata	VU	Yes	

Species	IUCN Red List status	Endemic	Priority
Valvata klemmi	EN	Yes	2
Valvata montenegrina	EN	Yes	2
Valvata relicta	VU	Yes	
Vinodolia fiumana	EN	No	
Vinodolia fluviatilis	EN	No	
Vinodolia gluhodolica	EN	Yes	2
Vinodolia hadouphylax	CR	Yes	1
Vinodolia lacustris	CR	Yes	1
Vinodolia matjasici	CR	Yes	1
Vinodolia scutarica	EN	Yes	2
Xestopyrgula dybowskii	VU	Yes	
Zaumia kusceri	CR	Yes	1
Zaumia sanctizaumi	CR	Yes	1
Mammals			
Allactaga tetradactyla	VU	No	
Ammotragus lervia	VU	No	
Arvicola sapidus	VU	No	
Capra aegagrus	VU	No	
Capra nubiana	VU	No	
Crocidura canariensis	EN	Yes	2
Crocidura zimmermanni	VU	Yes	
Dama mesopotamica	EN	No	
Dinaromys bogdanovi	VU	No	
Galemys pyrenaicus	VU	No	
Gazella cuvieri	EN	Yes	2
Gazella dorcas	VU	No	
Gazella gazella	VU	No	
Gazella leptoceros	EN	No	
Gerbillus hesperinus	EN	Yes	2
Gerbillus hoogstraali	VU	Yes	
Lepus corsicanus	VU	Yes	
Lynx pardinus	EN	Yes	2
Macaca sylvanus	EN	Yes	2
Meriones sacramenti	VU	No	
Mesocricetus auratus	VU	Yes	
Monachus monachus	EN	No	
Mustela lutreola	CR	No	2
Myomimus roachi	VU	No	
Myotis capaccinii	VU	No	
Nanger dama	CR	No	2
Nyctalus azoreum	EN	Yes	2
Oryx leucoryx	VU	No	
Ovis orientalis	VU	No	

Species	IUCN Red List status	Endemic	Priority
Panthera pardus	VU	No	
Pipistrellus maderensis	EN	Yes	2
Plecotus sardus	VU	Yes	
Plecotus teneriffae	EN	Yes	2
Rhinolophus mehelyi	VU	No	
Spermophilus citellus	VU	No	
Vormela peregusna	VU	No	
Plants			
Abies nebrodensis	CR	Yes	1
Abies numidica	CR	Yes	1
Abies pinsapo	EN	Yes	2
Acis nicaeensis	EN	Yes	2
Aconitum corsicum	VU	Yes	
Adenocarpus ombriosus	EN	Yes	2
Aeonium balsamiferum	VU	Yes	
Aeonium gomerense	EN	Yes	2
Aeonium saundersii	VU	Yes	
Aethionema retsina	CR	Yes	1
Aichryson dumosum	CR	Yes	1
Aldrovanda vesiculosa	EN	No	
Allium corsicum	CR	Yes	1
Allium exaltatum	VU	Yes	
Allium pardoi	VU	Yes	
Allium pseudoalbidum	EN	No	
Allium pyrenaicum	VU	Yes	
Allium schmitzii	VU	Yes	
Alyssum pyrenaicum	VU	Yes	
Amsonia orientalis	CR	Yes	1
Anacamptis boryi	VU	No	
Anacyclus pyrethrum	VU	No	
Anagyris latifolia	EN	Yes	2
Anchusa crispa	EN	Yes	2
Androcymbium psammophilum	VU	Yes	
Androcymbium rechingeri	EN	Yes	2
Andryala crithmifolia	CR	Yes	1
Anthemis glaberrima	CR	Yes	1
Antirrhinum charidemi	CR	Yes	1
Antirrhinum lopesianum	EN	Yes	2
Apium bermejoi	CR	Yes	1
Aquilegia barbaricina	CR	Yes	1
Aquilegia nuragica	CR	Yes	1
Arabis kennedyae	CR	Yes	1
Arbutus canariensis	VU	Yes	

Species	IUCN Red List status	Endemic	Priority
Arbutus pavarii	VU	Yes	
Arenaria bolosii	CR	Yes	1
Arenaria nevadensis	CR	Yes	1
Argyranthemum lidii	EN	Yes	2
Argyranthemum thalassophilum	EN	Yes	2
Argyranthemum winteri	CR	Yes	1
Armeria berlengensis	CR	Yes	1
Armeria helodes	CR	No	2
Armeria pseudarmeria	EN	Yes	2
Armeria sampaioi	VU	Yes	
Armeria soleirolii	EN	Yes	2
Artemisia granatensis	EN	Yes	2
Artemisia insipida	CR	No	2
Artemisia molinieri	VU	No	
Arum purpureospathum	VU	Yes	
Asparagus arborescens	VU	Yes	
Asparagus fallax	EN	Yes	2
Asparagus nesiotes	EN	Yes	2
Asparagus plocamoides	VU	Yes	
Asphodelus bento-rainhae	VU	Yes	
Aster sorrentinii	EN	Yes	2
Astragalus drupaceus	EN	Yes	2
Astragalus maritimus	CR	Yes	1
Astragalus tremolsianus	CR	Yes	1
Astragalus verrucosus	CR	Yes	1
Asyneuma giganteum	VU	Yes	
Athamanta cortiana	CR	Yes	1
Atractylis arbuscula	EN	Yes	2
Atractylis preauxiana	EN	Yes	2
Azorina vidalii	EN	Yes	2
Bassia saxicola	EN	Yes	2
Bellevalia webbiana	EN	Yes	2
Bencomia brachystachya	CR	Yes	1
Bencomia exstipulata	VU	Yes	
Bencomia sphaerocarpa	CR	Yes	1
Beta nana	VU	Yes	
Beta patula	CR	Yes	1
Biscutella rotgesii	CR	Yes	1
Biscutella vincentina	VU	Yes	
Bolboschoenus grandispicus	VU	No	
Borderea chouardii	CR	Yes	1
Brassica glabrescens	VU	No	
Brassica hilarionis	EN	Yes	2
Brassica macrocarpa	CR	Yes	1
Brimeura duvigneaudii	CR	Yes	1
Bupleurum capillare	VU	Yes	
Bupleurum dianthifolium	CR	Yes	1
Bupleurum elatum	CR	Yes	1
Bupleurum handiense	EN	Yes	2
Bupleurum kakiskalae	CR	Yes	1
Calamagrostis parsana	EN	No	
Calendula maritima	CR	Yes	1
Callitriche mathezii	EN	Yes	2
Callitriche pulchra	CR	Yes	1
Campanula mairei	VU	No	
Campanula sabatia	VU	Yes	
Canariothamnus hermosae	VU	Yes	
Carex fissirostris	EN	Yes	2
Carlina diae	EN	Yes	2
Carthamus balearicus	VU	Yes	
Carum asinorum	EN	Yes	2
Carum lacuum	VU	No	
Cedrus atlantica	EN	Yes	2
Cedrus libani	VU	Yes	
Centaurea akamantis	CR	Yes	1
Centaurea corensis	CR	Yes	1
Centaurea corymbosa	VU	Yes	
Centaurea gadorensis	VU	Yes	
Centaurea gymnocarpa	EN	Yes	2
Centaurea heldreichii	CR	Yes	1
Centaurea horrida	EN	Yes	2
Centaurea immanuelis-loewii	VU	No	
Centaurea kalambakensis	VU	Yes	
Centaurea niederi	VU	Yes	
Centaurea peucedanifolia	VU	Yes	
Centaurea princeps	EN	Yes	2
Centaurea pulvinata	VU	Yes	
Centranthus amazonum	CR	Yes	1
Centranthus trinervis	EN	Yes	2
Cephalanthera cucullata	EN	Yes	2
Cerastium dinaricum	VU	Yes	
Cerastium sventenii	EN	Yes	2
Chaerophyllum karsianum	CR	Yes	1
Chaerophyllum posofianum	CR	Yes	1
Chamaemeles coriacea	VU	Yes	
Cheirolophus crassifolius	CR	Yes	1

Species	IUCN Red List status	Endemic	Priority
Cheirolophus duranii	CR	Yes	1
Cheirolophus falcisectus	EN	Yes	2
Cheirolophus ghomerythus	EN	Yes	2
Cheirolophus junonianus	EN	Yes	2
Cheirolophus massonianus	EN	Yes	2
Cheirolophus metlesicsii	CR	Yes	1
Cheirolophus santos-abreui	CR	Yes	1
Cheirolophus satarataensis	VU	Yes	
Cheirolophus tagananensis	VU	Yes	
Cicer canariense	EN	Yes	2
Cicer graecum	EN	Yes	2
Cirsium ducellieri	VU	Yes	
Cistus chinamadensis	EN	Yes	2
Clinopodium libanoticum	EN	Yes	2
Coincya rupestris	EN	Yes	2
Colchicum corsicum	VU	Yes	
Consolida samia	CR	Yes	1
Convolvulus argyrothamnos	CR	Yes	1
Convolvulus durandoi	CR	Yes	1
Convolvulus fernandesii	VU	Yes	
Convolvulus lopezsocasii	EN	Yes	2
Convolvulus massonii	VU	Yes	
Coronopus navasii	CR	Yes	1
Crambe arborea	VU	Yes	
Crambe feuillei	CR	Yes	1
Crambe gomerae	VU	Yes	
Crambe laevigata	EN	Yes	2
Crambe microcarpa	EN	Yes	2
Crambe pritzelii	EN	Yes	2
Crambe scaberrima	VU	Yes	
Crambe scoparia	EN	Yes	2
Crambe sventenii	CR	Yes	1
Crambe tamadabensis	CR	Yes	1
Crambe wildpretii	CR	Yes	1
Cremnophyton lanfrancoi	CR	Yes	1
Crepis crocifolia	EN	Yes	2
Crepis granatensis	EN	Yes	2
Crocus cyprius	VU	Yes	
Crocus hartmannianus	VU	Yes	
Cupressus dupreziana	EN	No	
Cyperus cyprius	VU	Yes	
Cytisus aeolicus	CR	Yes	1
Dactylorhiza kalopissii	EN	Yes	2
Dactylorhiza maurusia	EN	Yes	2
Damasonium polyspermum	VU	Yes	
Daphne rodriguezii	VU	Yes	
Delphinium caseyi	CR	Yes	1
Dendriopoterium pulidoi	VU	Yes	
Dianthus morisianus	CR	Yes	1
Diplotaxis siettiana	CR	Yes	1
Diplotaxis vicentina	CR	Yes	1
Dorycnium spectabile	EN	Yes	2
Dracaena draco	VU	No	
Echium acanthocarpum	CR	Yes	1
Echium callithyrsum	VU	Yes	
Echium gentianoides	VU	Yes	
Echium handiense	CR	Yes	1
Echium pininana	EN	Yes	2
Epilobium numidicum	CR	Yes	1
Epipactis greuteri	EN	No	
Epipactis nordeniorum	VU	No	
Epipactis placentina	EN	No	
Epipactis tallosii	EN	No	
Erigeron frigidus	EN	Yes	2
Erodium astragaloides	CR	Yes	1
Erodium paularense	EN	Yes	2
Erodium rupicola	VU	Yes	
Eryngium variifolium	VU	Yes	
Eryngium viviparum	EN	No	
Erysimum kykkoticum	CR	Yes	1
Euphorbia bourgeana	VU	Yes	
Euphorbia handiensis	VU	Yes	
Euphorbia margalidiana	CR	Yes	1
Euphorbia nereidum	VU	Yes	
Euphorbia stygiana	CR	Yes	1
Euphrasia marchesettii	VU	No	
Ferula latipinna	VU	Yes	
Ferula mervynii	CR	Yes	1
Festuca brigantina	VU	No	
Flueggea anatolica	EN	Yes	2
Fritillaria conica	EN	Yes	2
Fritillaria drenovskii	VU	Yes	
Fritillaria epirotica	EN	Yes	2
Fritillaria euboeica	VU	Yes	
Fritillaria obliqua	EN	Yes	2
Fritillaria rhodocanakis	EN	Yes	2

Species	IUCN Red List status	Endemic	Priority
Gagea antakiensis	CR	Yes	1
Gagea apulica	VU	Yes	
Gagea chrysantha	VU	Yes	
Gagea dayana	EN	Yes	2
Gagea elliptica	EN	Yes	2
Gagea luberonensis	VU	Yes	
Gagea moniliformis	VU	Yes	
Gagea omalensis	VU	Yes	
Gagea sicula	VU	Yes	
Galanthus ikariae	VU	Yes	
Galanthus peshmenii	VU	Yes	
Galanthus reginae-olgae	VU	Yes	
Galanthus trojanus	CR	Yes	1
Galium viridiflorum	EN	Yes	2
Genista ancistrocarpa	EN	No	
Genista benehoavensis	VU	Yes	
Geranium maderense	CR	Yes	1
Globularia ascanii	CR	Yes	1
Globularia sarcophylla	VU	Yes	
Globularia stygia	VU	Yes	
Goodyera macrophylla	CR	Yes	1
Gymnadenia widderi	EN	No	
Hammatolobium kremerianum	VU	Yes	
Heberdenia excelsa	VU	Yes	
Helianthemum alypoides	VU	Yes	
Helianthemum bystropogophyllum	CR	Yes	1
Helianthemum teneriffae	CR	Yes	1
Helichrysum gossypinum	VU	Yes	
Helichrysum melitense	CR	Yes	1
Helichrysum monogynum	EN	Yes	2
Helictochloa hackelii	VU	Yes	
Herniaria algarvica	VU	Yes	
Hieracium lucidum	CR	Yes	1
Himantoglossum metlesicsianum	EN	Yes	2
Horstrissea dolinicola	CR	Yes	1
Hypochaeris oligocephala	CR	Yes	1
Iberis runemarkii	VU	Yes	
Iris antilibanotica	CR	Yes	1
Iris atrofusca	VU	Yes	
Iris atropurpurea	CR	Yes	1
Iris bismarckiana	EN	Yes	2
Iris boissieri	CR	No	2

Species	IUCN Red List status	Endemic	Priority
Iris bostrensis	EN	No	
Iris cedreti	CR	Yes	1
Iris grant-duffii	EN	Yes	2
Iris haynei	VU	Yes	
Iris hermona	EN	No	
Iris lortetii	EN	Yes	2
Iris nigricans	VU	No	
Iris nusairiensis	CR	Yes	1
Iris sofarana	EN	Yes	2
Iris vartanii	VU	Yes	
Iris westii	EN	Yes	2
Isatis platyloba	VU	Yes	
Isoetes azorica	VU	Yes	
Isoetes fluitans	EN	No	
Isoetes heldreichii	CR	Yes	1
Isoetes malinverniana	CR	Yes	1
Isoetes olympica	CR	Yes	1
Isoplexis chalcantha	CR	Yes	1
Isoplexis isabelliana	EN	Yes	2
Jasione lusitanica	EN	No	
Jasminum azoricum	CR	Yes	1
Juncus maroccanus	CR	Yes	1
Juncus sorrentinii	VU	Yes	
Juniperus brevifolia	VU	Yes	
Juniperus cedrus	EN	Yes	2
Jurinea fontqueri	CR	Yes	1
Kunkeliella psilotoclada	CR	Yes	1
Kunkeliella subsucculenta	CR	Yes	1
Lactuca singularis	VU	Yes	
Lactuca tetrantha	VU	Yes	
Lactuca watsoniana	EN	Yes	2
Lamyropsis microcephala	CR	Yes	1
Laserpitium longiradium	CR	Yes	1
Lathyrus belinensis	CR	Yes	1
Leontodon microcephalus	VU	Yes	
Leopoldia gussonei	EN	Yes	2
Lepidium violaceum	VU	Yes	
Leptochloa ginae	EN	Yes	2
Ligusticum huteri	CR	Yes	1
Lilium rhodopeum	VU	No	
Limonium calabrum	CR	Yes	1
Limonium dendroides	CR	Yes	1
Limonium duriaei	VU	Yes	

Species	IUCN Red List status	Endemic	Priority
Limonium fruticans	EN	Yes	2
Limonium legrandii	EN	Yes	2
Limonium ornatum	VU	Yes	
Limonium palmyrense	VU	No	
Limonium perezii	VU	Yes	
Limonium poimenum	EN	Yes	2
Limonium preauxii	EN	Yes	2
Limonium sibthorpianum	CR	Yes	1
Limonium spectabile	CR	Yes	1
Limonium strictissimum	EN	Yes	2
Limonium sventenii	CR	Yes	1
Linaria pseudolaxiflora	VU	Yes	
Linum katiae	VU	Yes	
Linum muelleri	VU	Yes	
Lithodora nitida	EN	Yes	2
Lotus benoistii	CR	Yes	1
Lotus callis-viridis	EN	Yes	2
Lotus eremiticus	CR	Yes	1
Lotus kunkelii	CR	Yes	1
Lotus maculatus	CR	Yes	1
Lotus pyranthus	CR	Yes	1
Marcetella maderensis	EN	Yes	2
Marsilea batardae	EN	Yes	2
Medemia argun	CR	No	2
Medicago citrina	CR	Yes	1
Micromeria glomerata	CR	Yes	1
Micromeria leucantha	EN	Yes	2
Micromeria taygetea	EN	Yes	2
Micropyropsis tuberosa	EN	Yes	2
Minuartia dirphya	CR	Yes	1
Moehringia fontqueri	EN	Yes	2
Moehringia tommasinii	EN	Yes	2
Monanthes wildpretii	CR	Yes	1
Monizia edulis	CR	Yes	1
Musschia wollastonii	EN	Yes	2
Myosotis azorica	VU	Yes	
Myrica rivas-martinezii	CR	Yes	1
Nananthea perpusilla	VU	Yes	
Narcissus nevadensis	EN	Yes	2
Nasturtium africanum	EN	Yes	2
Naufraga balearica	CR	Yes	1
Odontites granatensis	CR	Yes	1
Omphalodes kuzinskyanae	VU	Yes	

Species	IUCN Red List status	Endemic	Priority
Onopordum carduelium	CR	Yes	1
Onopordum nogalesii	CR	Yes	1
Ophrys argolica	VU	Yes	
Orchis sitiaca	EN	Yes	2
Origanum cordifolium	VU	Yes	
Origanum ehrenbergii	VU	Yes	
Paeonia parnassica	EN	Yes	2
Parolinia schizogynoides	VU	Yes	
Patellifolia webbiana	CR	Yes	1
Pericallis hadrosoma	CR	Yes	1
Pericallis malvifolia	CR	Yes	1
Petagnaea gussonei	EN	Yes	2
Petrocoptis grandiflora	VU	Yes	
Petrocoptis pseudoviscosa	VU	No	
Phalaris maderensis	VU	Yes	
Picconia azorica	EN	Yes	2
Picconia excelsa	VU	Yes	
Picris willkommii	EN	Yes	2
Pilularia minuta	EN	Yes	2
Pinguicula fontiqueriana	VU	Yes	
Pinguicula mundi	VU	Yes	
Pinguicula nevadensis	EN	Yes	2
Pittosporum coriaceum	CR	Yes	1
Plagius flosculosus	VU	Yes	
Plantago algarbiensis	EN	Yes	2
Plantago almogravensis	CR	Yes	1
Plantago famarae	CR	Yes	1
Plantago lacustris	VU	Yes	
Platanthera micrantha	EN	Yes	2
Pleiomeris canariensis	VU	Yes	
Polygala helenae	CR	Yes	1
Polygala sinisica	CR	Yes	1
Polystichum drepanum	CR	Yes	1
Potentilla delphinensis	VU	No	
Primula apennina	VU	Yes	
Primula palinuri	EN	Yes	2
Prunus korshinskyi	VU	No	
Prunus ramburii	VU	Yes	
Pseudarrhenatherum pallens	EN	Yes	2
Pteris incompleta	VU	Yes	
Puccinellia pungens	VU	Yes	
Pulicaria filaginoides	CR	Yes	1
Pyrus serikensis	VU	No	

Species	IUCN Red List status	Endemic	Priority
Ranunculus kykkoensis	VU	Yes	
Ranunculus schweinfurthii	VU	Yes	
Ranunculus weyleri	VU	Yes	
Rhamnus integrifolia	VU	Yes	
Rhynchospora modesti-lucennoi	EN	No	
Ribes sardoum	CR	Yes	1
Romulea antiatlantica	CR	Yes	1
Rorippa hayanica	VU	Yes	
Rorippa valdes-bermejoi	CR	Yes	1
Rosmarinus tomentosus	EN	Yes	2
Rumex algeriensis	EN	Yes	2
Rumex bithynicus	EN	Yes	2
Rumex tunetanus	CR	Yes	1
Ruta microcarpa	EN	Yes	2
Salicornia veneta	VU	No	
Salvia herbanica	CR	Yes	1
Salvia veneris	CR	Yes	1
Santolina elegans	VU	Yes	
Saponaria jagelii	CR	Yes	1
Saxifraga portosanctana	VU	Yes	
Scilla morrisii	CR	Yes	1
Scrophularia eriocalyx	EN	Yes	2
Sedum brissemoretii	VU	Yes	
Senecio caespitosus	VU	Yes	
Senecio elodes	EN	Yes	2
Serapias stenopetala	CR	Yes	1
Seseli intricatum	EN	Yes	2
Sideritis cypria	VU	Yes	
Sideritis cystosiphon	CR	Yes	1
Sideritis discolor	CR	Yes	1
Sideritis infernalis	VU	Yes	
Sideritis javalambrensis	VU	Yes	
Sideritis marmorea	CR	Yes	1
Sideritis reverchonii	EN	Yes	2
Sideritis serrata	CR	Yes	1
Sideroxylon mirmulano	VU	Yes	
Silene hicesiae	VU	Yes	
Silene hifacensis	EN	Yes	2
Silene holzmannii	EN	Yes	2
Silene nocteolens	CR	Yes	1
Silene orphanidis	EN	Yes	2
Sinapidendron angustifolium	CR	Yes	1
Sinapidendron frutescens	EN	Yes	2
Sinapidendron rupestre	CR	Yes	1
Sinapidendron sempervivifolium	EN	Yes	2
Sisymbrella dentata	EN	Yes	2
Sisymbrium cavanillesianum	VU	Yes	
Solanum lidii	CR	Yes	1
Solenanthus albanicus	EN	Yes	2
Sonchus gandogeri	CR	Yes	1
Sorbus maderensis	CR	Yes	1
Spergularia doumerguei	VU	Yes	
Spergularia embergeri	VU	Yes	
Stemmacantha cynaroides	EN	Yes	2
Stipa veneta	EN	No	
Sventenia bupleuroides	EN	Yes	2
Symphytum cycladense	VU	Yes	
Tanacetum oshanahanii	CR	Yes	1
Tanacetum ptarmiciflorum	EN	Yes	2
Teline nervosa	CR	Yes	1
Teline rosmarinifolia	EN	Yes	2
Teline salsoloides	CR	Yes	1
Teucrium abutiloides	CR	Yes	1
Teucrium lepicephalum	EN	Yes	2
Teucrium turredanum	VU	Yes	
Thermopsis turcica	CR	Yes	1
Thorella verticillato-inundata	VU	No	
Tolpis glabrescens	EN	Yes	2
Tuberaria major	EN	Yes	2
Tulipa cypria	EN	Yes	2
Verbascum litigiosum	VU	Yes	
Veronica micrantha	VU	No	
Veronica oetaea	CR	Yes	1
Vicia bifoliolata	CR	Yes	1
Vicia capreolata	EN	Yes	2
Vicia costae	CR	Yes	1
Vicia ferreirensis	CR	Yes	1
Vicia fulgens	CR	Yes	1
Viola athois	VU	Yes	
Viola libanotica	EN	Yes	2
Viola ucriana	CR	Yes	1
Wagenitzia lancifolia	EN	Yes	2
Zelkova abelicea	EN	Yes	2
Zelkova sicula	CR	Yes	1
Reptiles			
Acanthodactylus ahmaddisii	EN	No	

Species	IUCN Red List status	Endemic	Priority
Acanthodactylus beershebensis	CR	No	2
Acanthodactylus blanci	EN	Yes	2
Acanthodactylus harranensis	CR	Yes	1
Acanthodactylus mechriguensis	CR	Yes	1
Acanthodactylus pardalis	VU	No	
Acanthodactylus schreiberi	EN	Yes	2
Acanthodactylus spinicauda	CR	Yes	1
Algyroides marchi	EN	Yes	2
Caretta caretta	VU	No	
Chalcides ebneri	CR	Yes	1
Chalcides guentheri	VU	Yes	
Chalcides manueli	VU	Yes	
Chalcides mauritanicus	EN	Yes	2
Chalcides minutus	VU	Yes	
Chalcides parallelus	EN	Yes	2
Chalcides simonyi	EN	Yes	2
Chelonia mydas	EN	No	
Chioninia vaillantii	EN	Yes	2
Dermochelys coriacea	VU	No	
Dinarolacerta mosorensis	VU	No	
Gallotia auaritae	CRx	Yes	
Gallotia bravoana	CR	Yes	1
Gallotia intermedia	CR	Yes	1
Gallotia simonyi	CR	Yes	1
Hemidactylus bouvieri	CR	Yes	1
Hierophis cypriensis	EN	Yes	2
Iberolacerta cyreni	EN	Yes	2
Iberolacerta martinezricai	CR	Yes	1
Iberolacerta monticola	VU	No	
Lepidochelys olivacea	VU	No	
Macrovipera schweizeri	EN	Yes	2
Mediodactylus amictopholis	EN	Yes	2
Montivipera albizona	EN	Yes	2
Montivipera bornmuelleri	EN	No	
Parvilacerta fraasii	EN	Yes	2
Philochortus zolii	EN	No	
Phoenicolacerta kulzeri	EN	Yes	2
Podarcis carbonelli	EN	No	
Podarcis gaigeae	VU	Yes	
Podarcis levendis	VU	Yes	
Podarcis lilfordi	EN	Yes	2
Podarcis milensis	VU	Yes	
Podarcis raffonei	CR	Yes	1
Psammodromus microdactylus	EN	Yes	2
Rafetus euphraticus	EN	No	
Saurodactylus fasciatus	VU	Yes	
Tarentola boavistensis	VU	Yes	
Tarentola chazaliae	VU	No	
Tarentola gigas	EN	Yes	2
Telescopus hoogstraali	EN	No	
Testudo graeca	VU	No	
Testudo kleinmanni	CR	Yes	1
Trapelus savignii	VU	No	
Uromastyx aegyptia	VU	No	
Vipera anatolica	CR	Yes	1
Vipera latastei	VU	No	
Vipera ursinii	VU	No	

Notes: CR = Critically Endangered; CRx = Critically Endangered, possibly extinct; EN = Endangered; VU = Vulnerable; Yes = endemic to the hotspot; No = not endemic to the hotspot; Priority 1 = CR and endemic; Priority 2 = CR <u>or</u> EN and endemic.

Annex 2: List of KBAs including link to strategic directions

KBA code	KBA name	Area (hectares)	SD1	SD2	SD3	SD4
	ALBANIA					
ALB01	Black Lake	2,839	no	no	no	0
ALB02	Boboshtica	1,090	no	no	no	1
ALB03	Dajti mountain-Me Gropa mountain-Bizë-Martanesh	42,803	no	no	no	x
ALB04	Devolli upperstream	278	no	no	no	0
ALB05	Drino valley - Kardhiq valley	56,023	no	yes	no	x
ALB06	Gjergjevica	3,126	no	no	no	0
ALB07	Gramozi Mountain	9,956	no	no	no	x
ALB08	Griba Mountain	3,880	no	no	no	0
ALB09	Guri i Topit - Valamarë	12,998	no	no	no	1
ALB10	Korab-Korritnik Mountain range	48,900	no	no	no	5
ALB11	Krujë - Tujan	1,962	no	no	no	0
ALB12	Lake Ohrid	11,053	no	yes	no	x
ALB13	Mali i Pashtrik-Morinë	21,013	no	no	no	0
ALB14	Munella Mountain – Oroshi Mountain – Lura lakes	160,479	no	no	no	3
ALB15	Osumi Spring	623	no	no	no	0
ALB16	Patoku lagoon	3,228	no	no	no	x
ALB17	Prespa Lakes	22,800	no	yes	no	x
ALB18	Saranda bay - Butrint National Park	14,777	yes	yes	no	0
ALB19	Shebenik-Jabllanicë National Park	23,537	no	yes	no	3
ALB20	Shkumbin - Divjakë - Seman	19,101	no	no	no	1
ALB21	Skadar Lake – Buna River – Velipoje-Vau i Dejes	56,730	yes	yes	no	x
ALB22	Tomorri Moutain	11,663	no	no	no	x
ALB23	Vjosë - Nartë	19,606	no	no	no	0
ALB24	Vlora bay-Karaburun Penn-Sazani Is-Çika Mountain	65,660	yes	no	no	4
ALB25	Zhej-Nemercke	48,178	no	no	no	4
	ALGERIA					
DZA01	Aures-Chelia	483,457	no	no	no	3
DZA02	Barrage de Boughzoul	22,538	no	no	no	0
DZA03	Cap Tenes	1,361	no	no	no	2
DZA04	Chaîne des Bibans	105,049	no	no	yes	4
DZA05	Chaîne du Dahra	340,696	no	no	no	x
DZA06	Chott Ech Chergui	399,231	no	no	no	5
DZA07	Chott el Hodna	62,400	no	no	no	0
DZA08	Complexe de zones humides de la plaine de Guerbes	39,892	no	no	yes	0
DZA09	Dayet El Ferd	1,087	no	no	no	x
DZA10	Djebel Aissa	629,169	no	no	no	2
DZA11	Djebel Amour	1,272,511	no	no	no	1
DZA12	Djebel Babor et Tababort	24,479	no	no	yes	x
DZA13	Djebel Boutaleb (Hodna)	29,445	no	no	yes	3
DZA14	Djebel Chenoua	7,889	yes	no	no	1
DZA15	Djebel Mégriss	6,667	no	no	yes	2

KBA code	KBA name	Area (hectares)	SD1	SD2	SD3	SD4
DZA16	Djebel Ouach - Constantine	28,568	no	no	yes	2
DZA17	Djebel Ouarsseniss	1,908	no	no	yes	1
DZA18	Djebel Takoucht	455	no	no	yes	1
DZA19	Djebel Zaccar	77,137	no	no	no	0
DZA20	El Abiod sidi Cheikh	114,781	no	no	no	1
DZA21	El Bayadh	158	no	no	no	0
DZA22	El Kala-Tarf	253,419	yes	yes	yes	7
DZA23	Forêt d'Akfadou	28,232	no	no	yes	3
DZA24	Forêt de Bainem (collines de la Bouzareah)	495	no	no	no	1
DZA25	Forêt de Djimla	1,197	no	no	yes	0
DZA26	Forêt de Tamentout	5,623	no	no	yes	0
DZA27	Ghar Rouban	66,609	no	no	no	4
DZA28	Haut Seybouse	119,763	no	no	yes	x
DZA29	Lac Fetzara	7,531	no	no	yes	0
DZA30	Marais de la Macta	44,582	no	no	no	1
DZA31	Massif de Ghazoul	5,518	no	no	no	6
DZA32	Mont de Dréat	5,490	no	no	yes	x
DZA33	Monts des Traras	168,281	no	no	no	x
DZA34	Numidie occidentale	42,362	no	no	yes	x
DZA35	Ouenza Nord	64,514	no	no	yes	0
DZA36	Ouenza Sud	28,310	no	no	no	1
DZA37	Parc National de Chréa	116,146	no	no	yes	2
DZA38	Parc national de Gouraya	2,394	no	no	yes	1
DZA39	Parc national de Taza	7,056	yes	no	yes	1
DZA40	Parc national du Belezma	32,836	no	no	yes	x
DZA41	Parc national du Djudjura	29,418	no	no	yes	3
DZA42	Presqu'île de Collo	51,725	no	no	yes	1
DZA43	Presqu'île de l'edough	61,411	yes	no	yes	1
DZA44	Réserve du Mergueb	25,150	no	no	no	0
DZA45	Réserve naturel marine des Iles Habibas	63	no	no	no	2
DZA46	Sahel d'Arzew	11,809	no	no	no	x
DZA47	Sahel d'Oran	28,634	no	no	no	1
DZA48	Sebkha d'Oran	35,757	no	no	no	0
DZA49	Sebkhet Baker	1,512	no	no	yes	x
DZA50	Tamesguida-Djendjen	5,881	no	no	yes	1
DZA51	Theinet El Had	122,919	no	no	yes	1
DZA52	Theinet El Had IPA	4,563	no	no	yes	x
	BOSNIA AND HERZEGOVINA					
BIH01	Dabarsko and Fatničko Karstic Fields	4,061	no	no	no	0
BIH02	Hutovo blato	8,151	no	yes	no	0
BIH03	Livanjsko polje and Busko lake	45,791	no	yes*	no	0
BIH04	Mostarsko Blato	3,665	no	yes*	no	0
BIH05	Neretva River	1,317	no	yes	no	1
BIH06	Orijen i Bijela gora	18,590	no	yes	no	x
BIH07	Popovo polje, Vjetrenica	17,075	no	yes	no	0

KBA code	KBA name	Area (hectares)	SD1	SD2	SD3	SD4
BIH08	Trebinjsko Jezero	2,826	no	yes	no	0
BIH09	Trebizat River Tributary	4,292	no	yes	no	0
	CABO VERDE					
CPV01	Alto das Cabaças	1,264	no	no	no	5
CPV02	Beaches of Sao Nicolau Island	4,876	no	no	no	0
CPV03	Boa Esperança	491	no	no	no	2
CPV04	Boavista praias	3,104	yes	no	no	0
CPV05	Central mountain range of Ilha de São Nicolau	1,860	no	no	no	0
CPV06	Coastal cliffs between Porto Mosquito and Baia do Inferno	213	no	no	no	0
CPV07	Coastal cliffs between Porto Mosquito and Baia do Inferno - Marine	1,298	no	no	no	0
CPV08	Costa de Fragata	67	yes	no	no	3
CPV09	Cova / Paul / Ribeira da Torre and Moroco	5,587	no	no	no	x
CPV10	Cruzinha da Garça	2,509	no	no	no	4
CPV11	Ilhéu de Curral Velho - Marine	310,012	no	no	no	0
CPV12	Ilhéu Branco	1,539	no	no	no	0
CPV13	Ilhéu Raso	1,045	yes	no	no	0
CPV14	Ilhéus do Rombo	281	no	no	no	0
CPV15	Monte Grande	1,303	no	no	no	4
CPV16	Monte Verde / Norte da Baía	416	no	no	no	8
CPV17	Parque Natural da Serra da Malagueta	1,023	no	no	no	9
CPV18	Parque Natural de Tope Coroa	8,518	no	no	no	6
CPV19	Parque Natural do Fogo	16,146	no	no	no	17
CPV20	Parque Natural do Norte do Maio	4,661	no	no	no	4
CPV21	Pedra Badejo lagoons	106	no	no	no	0
CPV22	Raso / São Nicolau - marine	257,807	no	no	no	x
CPV23	Ribeira de Fajã de Água	111	no	no	no	6
CPV24	Rocha de St António	1,715	no	no	no	1
CPV25	Santa Luzia Island	4,260	yes	no	no	0
CPV26	Serra do Pico da Antónia	2,884	no	no	no	0
CPV27	Serra Negra	328	no	no	no	4
CPV28	Varandinha	2,128	no	no	no	3
CPV29	Volcano area, Ilha do Fogo - Marine	248,139	no	no	no	0
	EGYPT					
EGY01	Lake Bardawil and Zaranik PA	128,330	no	no	no	1
EGY02	Lake Burullus	109,242	no	no	no	3
EGY03	Lake Edku	1,825	no	no	no	0
EGY04	Lake Manzala and Lake Malaha	180,197	no	no	no	3
EGY05	Lake Mariut	544	no	no	no	1
EGY06	Omayed Biosphere Reserve	18,294	yes	no	no	6
EGY07	Ras El Hekma Coastal Dunes	19,875	yes	no	no	2
EGY08	Sallum Area	58,977	no	no	no	5
EGY09	Sallum Gulf	55,878	yes	no	no	0
EGY10	Western Mediterranean Coastal Dunes	12,064	yes	no	no	6

KBA code	KBA name	Area (hectares)	SD1	SD2	SD3	SD4
	FYR MACEDONIA					
MKD01	Belasica	11,168	no	yes	no	0
MKD02	Crn Drim gorge	3,210	no	yes	no	0
MKD03	Demirkapiska Klisura	11,981	no	no	no	0
MKD04	Dojransko Ezero	3,297	no	yes	no	0
MKD05	Galichica Mountain	24,864	no	yes	no	1
MKD06	Ilinska Planina Mt	27,510	no	yes	no	0
MKD07	Jablanica	16,192	no	yes	no	1
MKD08	Mantovsko Ezero i reka Kriva Lakavica	6,913	no	no	no	x
MKD09	Monospitovo swamp	871	no	no	no	0
MKD10	Ohridsko Ezero	24,726	no	yes	no	0
MKD11	Pelister	17,149	no	yes	no	0
MKD12	Prespansko Ezero	19,745	no	yes	no	0
MKD13	Stogovo	11,570	no	yes	no	x
MKD14	Vardar River (formerly South Vardar and Bogdanci)	13,042	no	yes	no	0
	JORDAN					
JOR01	Ajloun	15,193	no	no	yes	16
JOR02	Dana and Shoubak	118,899	no	no	no	9
JOR03	Dibbin Forest	46,533	no	no	yes	6
JOR04	Hisma Basin - Rum	210,179	no	no	no	6
JOR05	Irbid - Mafraq plains	29,315	no	no	yes	6
JOR06	Madaba-Hisban and Kafrein	25,945	no	no	no	4
JOR07	Mujib and Hidan	34,867	no	no	no	3
JOR08	Northern Jordan Valley (North Ghor)	5,974	no	no	yes	1
JOR09	Rumeinin spring	9,156	no	no	yes	0
JOR10	Um Al Qutain and Dafianeh (Safawi Lava)	26,026	no	no	no	4
JOR11	Wadi Ibn Hammad	26,025	no	no	no	2
JOR12	Western Shuaib	6,801	no	no	no	0
JOR13	Yarmouk	38,359	no	no	yes	x
	KOSOVO					
KOS01	Pashtrik Nature Park	20,888	not eligible for CEPF support			
	LEBANON					
LBN01	Awally to Litani Estuary	4,654	no	no	no	0
LBN02	Beirut River Valley	10,154	no	no	yes	0
LBN03	Beirut-Damour	3,280	no	no	no	7
LBN04	Bentael	2,117	no	no	no	0
LBN05	Ehden-Bcharre-Tannourine, Makmal-Ainata	46,543	no	no	yes	7
LBN06	Enfeh-Medfoun	5,519	no	no	no	2
LBN07	Jbail Coast	208	no	no	no	3
LBN08	Keserwan-Jabal Mousa	21,959	no	no	yes	12
LBN09	Mount Hermon	32,108	no	no	yes	2
LBN10	Nahr Ed-Damour	6,268	no	no	yes	0
LBN11	Nahr Eh-Khabir Menjez	8,557	no	no	yes	1
LBN12	Nahr Ibrahim Estuary	54	no	no	no	0
LBN13	Nakoura-Tyre	4,389	no	no	no	1

KBA code	KBA name	Area (hectares)	SD1	SD2	SD3	SD4
LBN14	Palm Islands and Tripoli Archepilagos	1,650	no	no	no	1
LBN15	Qammouaa-Dinnyeh- Jurd Hermel	66,350	no	no	yes	5
LBN16	Rihane-Chouf-Ammiq-Sannine	51,216	no	no	yes	9
LBN17	Sarada	317	no	no	yes	2
LBN18	Upper Litani River	11,677	no	no	yes	0
LBN19	Western Anti-Lebanon Mountains, Hermel-Aarsal	79,700	no	no	yes	1
	LIBYA					
LBY01	Ajdabiya Marsh	2,042	no	no	no	0
LBY02	Al Hizam Alakhdar	1,028,884	no	no	no	0
LBY03	Bumbah Gulf	80,441	no	no	no	0
LBY04	Chat Elbadine	88,457	no	no	no	x
LBY05	Elfatayeh	1,055	no	no	no	0
LBY06	Farwa	13,569	yes	no	no	0
LBY07	Garah Island	58	no	no	no	x
LBY08	Gulf of Sirte	73,635	no	no	no	0
LBY09	Jabal al Akhdar	1,152,673	no	no	no	0
LBY10	Jabal Nafusah	1,339,082	no	no	no	0
LBY11	Karabolli	5,123	yes	no	no	0
LBY12	Marmarica	155,991	no	no	no	0
LBY13	Tawarghe	106,218	no	no	no	0
LBY14	Tawuoryhe Sebkha	119,819	no	no	no	x
	MONTENEGRO					
MNE01	Bojana Delta	12,533	yes	yes	no	x
MNE02	Buljarica	156	no	no	no	0
MNE03	Cemovsko Field	2,609	no	yes	no	x
MNE04	Cijevna Canyon and Hum Orahovski	3,570	no	yes	no	0
MNE05	Katici, Donkova and Velja Seka	439	yes	no	no	0
MNE06	Kotorsko-risanski Bay	2,775	no	no	no	0
MNE07	Lovcen	6,258	no	no	no	1
MNE08	Morača River	5,295	no	no	no	0
MNE09	Orjen	17,218	no	yes	no	5
MNE10	Platamuni	1,696	no	no	no	1
MNE11	Rumija	9,246	no	yes	no	1
MNE12	Skadarsko jezero	37,055	no	yes	no	0
MNE13	Tivat Salina	133	no	no	no	0
MNE14	Trebjesa	40	no	yes	no	1
MNE15	Zeta Stream	22,146	no	no	no	0
	MOROCCO					
MAR01	Aguas de Melilla-Nador (L'Orientale)	74,156	no	no	no	x
MAR02	Aguas del norte de Marruecos (Alhucemas)	87,513	no	no	no	x
MAR03	Barrage Al Massira	18,447	no	no	no	0
MAR04	Barrage Mohamed V	10,256	no	no	no	x
MAR05	Bas Oum Er-Rbia	14,729	no	no	no	x
MAR06	Beni Snassene	6,944	no	no	no	0
MAR07	Bou Hachem	9,702	no	no	no	0

KBA code	KBA name	Area (hectares)	SD1	SD2	SD3	SD4
MAR08	Canary Current Shelf 1	390,017	no	no	no	x
MAR09	Canary Current Shelf 2	672,451	no	no	no	x
MAR10	Canary Current Shelf 3	266,589	no	no	no	x
MAR11	Cap Spartel - Perdicaris	2,433	no	no	no	0
MAR12	Cap Trois Fourches	4,532	no	no	no	0
MAR13	Complexe Chbeyka-Al Wa'er	35,521	no	no	no	x
MAR14	Complexe du bas Loukkos	38,722	no	no	no	x
MAR15	Côte Al Jadida-Jorf Lasfar	413	no	no	no	x
MAR16	Cote Imsouane-Taghazout	12,978	no	no	no	x
MAR17	Dayas d'Essaouira	6,912	no	no	no	0
MAR18	Dayas du Gharb	1,750	no	no	no	x
MAR19	Detroit de Gibraltar	109,382	no	no	no	x
MAR20	Dunes d'Essaouira	38,086	no	no	no	x
MAR21	Embouchure de la Moulouya	16,506	no	no	no	0
MAR22	Falaise de Sidi-Moussa	138	no	no	no	x
MAR23	Haut Wad N'Fiss	55,108	no	no	yes	x
MAR24	Haute Moulouya	43,416	no	no	yes	x
MAR25	Jbel Krouz	178,733	no	no	no	x
MAR26	Jbel Moussa	4,143	no	no	no	0
MAR27	Jbel Talassemtane et Khizana	78,270	no	no	no	x
MAR28	Jbel Tichoukt	14,701	no	no	yes	x
MAR29	Jbel Zerhoun	22,943	no	no	yes	x
MAR30	Jbels Kest-Imzi	167,406	no	no	no	x
MAR31	Maamora	160,948	no	yes	no	x
MAR32	Marais Cote du Plateau Rmel	109	no	no	no	x
MAR33	Merja de Dwiyate	733	no	no	yes	x
MAR34	Merja Zerga	8,551	no	no	no	x
MAR35	Moyenne Oued N'Fiss	58,575	no	no	yes	1
MAR36	Moyenne Oum Er Rbia	152,358	no	yes	yes	2
MAR37	Msseyed	352,521	no	no	no	x
MAR38	Oued Amezmiz	17,735	no	no	yes	3
MAR39	Oued Bouhlou	18,239	no	no	yes	1
MAR40	Oued Matil: Ksob	124	no	no	no	0
MAR41	Oued Mird	456,687	no	no	no	x
MAR42	Oued Tizguite et Oued Ouaslane	68,819	no	no	yes	0
MAR43	Oueds Lakhdar-Ahançal	80,382	no	yes	yes	x
MAR44	Parc National d'Al Hoceima	46,510	no	no	no	x
MAR45	Parc National de Khnifiss	165,765	no	no	no	x
MAR46	Parc National de Souss-Massa et Aglou	55,465	yes	no	no	0
MAR47	Parc National de Tazekka	13,871	no	no	yes	x
MAR48	Parc National de Toubkal	37,229	no	yes	yes	0
MAR49	Parc National d'Ifrane	127,597	no	yes	yes	0
MAR50	Parc National du Haut Atlas Oriental	55,508	no	no	yes	1
MAR51	Plage Blanche - Ras Takoumba	4,083	no	no	no	0
MAR52	Plaines côtières de Saidia	4,435	no	no	no	x

KBA code	KBA name	Area (hectares)	SD1	SD2	SD3	SD4
MAR53	Réserve de Sidi Bou Ghaba	950	no	no	no	x
MAR54	Sahb al Majnoun	3,861	no	yes	no	x
MAR55	Sebkha Bou Areg (Nador Lagoon)	13,745	no	no	no	0
MAR56	Sebkha Zima	675	no	no	no	x
MAR57	Sidi Moussa - Oualidia	7,995	no	no	no	1
MAR58	Tagdilt	14,938	no	no	no	x
MAR59	Tasga	149,796	no	no	yes	x
MAR60	Vallée du haut Tifnout	12,690	no	yes	yes	x
MAR61	Wad et Jbel Mgoun	133,555	no	no	yes	x
MAR62	Wad Lakhdar	331,646	no	yes	yes	x
MAR63	Zone Fouchal - Maatarka	322,790	no	no	no	x
MAR64	Zones Humides de La'youne	1,885	no	no	no	x
	PALESTINE					
PSE01	Al Quds Region	5,170	KBAs in Palestine are not eligible for CEPF support			
PSE02	Central Ghor Region	21,645				
PSE03	Dead Sea Coast Region	20,667				
PSE04	'Ein el 'Auja and Wadi el Qilt Region	13,505				
PSE05	Jebal Al Khalil North Region	5,765				
PSE06	Jebal Al Khalil West Region	4,712				
PSE07	Jerusalem Wilderness Region	10,912				
PSE08	Masafer Yatta and Bani Naeim Region	14,331				
PSE09	North Eastern Slopes Region	30,398				
PSE10	North West Ramallah Region	2,073				
PSE11	Umm er Rihan Region	7,496				
PSE12	Umm Safa Region	4,380				
PSE13	Wadi el Quff Region	745				
PSE14	Wadi Qana and Wadi Al Shaer Region	15,620				
	SYRIA					
SYR01	Abu Zad	10,077	no	no	yes	x
SYR02	Afrin - Kurd Dag	157,205	no	no	yes	x
SYR03	Al Kabir al Jonubi	23,369	no	no	yes	3
SYR04	Anti-Lebanon	33,999	no	no	yes	x
SYR05	Daher Al Qseir	4,423	no	no	yes	x
SYR06	Eastern Akroum	5,344	no	no	yes	x
SYR07	Euphrates Valley (Upper Section)	27,698	no	no	no	x
SYR08	Fronloq-Kasab	11,785	no	no	yes	x
SYR09	Ghab	1,592	no	no	yes	x
SYR10	Hadhbat al-Jawlan	80,137	no	no	yes	x
SYR11	Hass-Jabbul	40,857	no	no	no	x
SYR12	Jabal Abdul Aziz	58,218	no	no	no	0
SYR13	Jabal Al Arab	154,118	no	no	no	2
SYR14	Jabal al-Shaykh	19,280	no	no	yes	x
SYR15	Jabal al-Shuah	25,534	no	no	yes	x
SYR16	Jabal Slenfeh	8,041	no	no	yes	x
SYR17	Jebel Bilas	80,107	no	no	no	x

KBA code	KBA name	Area (hectares)	SD1	SD2	SD3	SD4
SYR18	Jebel El Wastani	112,140	no	no	yes	x
SYR19	Jisr al Shoghur	16,415	no	no	yes	x
SYR20	Kanfo	188	no	no	yes	x
SYR21	Karatchok-Tigris	24,772	no	no	no	x
SYR22	Lajat	24,884	no	no	no	x
SYR23	Lattakia Beach	612	no	no	no	x
SYR24	Lower Orontes River	10,481	no	no	yes	x
SYR25	Marmousa - Qalamoun	47,983	no	no	yes	x
SYR26	Massiaf-Qadmous	12,557	no	no	yes	x
SYR27	Muzayib Lake	169	no	no	no	0
SYR28	Nahr al Hawaiz River	6,826	no	no	no	x
SYR29	North of Wuguf Plain	2,428	no	no	no	x
SYR30	Qassioun	18,986	no	no	yes	x
SYR31	Quwayq River	38,517	no	no	no	x
SYR32	Sabkhat al-Jabboul	41,774	no	no	no	x
SYR33	Salma-Haffeh	4,135	no	no	yes	x
SYR34	Tual al-'Abba	87,601	no	no	no	x
SYR35	Umm al-Tuyyur	17,121	no	no	no	x
SYR36	Upper Orontes River, Bahrat Homs and Homs Lake	96,990	no	no	yes	x
SYR37	Wadi al-Azib	108,180	no	no	no	x
SYR38	Wadi al-Qarn - Burqush	10,604	no	no	yes	x
SYR39	Wadi al-Radd	2,164	no	no	no	x
SYR40	Wadi Qandil Beach	20	no	no	no	x
SYR41	Yarmuk Valley	20,869	no	no	yes	x
SYR42	Zebdani	16,064	no	no	yes	x
	TUNISIA					
TUN01	Aqueduc de Zaghouan	6	no	no	no	x
TUN02	Archipel de la Galite	8,140	no	no	no	x
TUN03	Archipel de Zembra	141,163	yes	no	no	x
TUN04	Île de Djerba	48,422	no	no	no	x
TUN05	Îles Kerkennah	15,335	no	no	no	x
TUN06	Îles Kneïss	15,936	no	no	no	x
TUN07	Îles Kuriat	3,569	yes	no	no	x
TUN08	Barrage Bezikh	84	no	no	no	0
TUN09	Barrage Chiba	107	no	no	no	0
TUN10	Barrage de Lebna	684	no	no	no	0
TUN11	Barrage El Houareb	868	no	no	no	x
TUN12	Barrage El Ogla	84	no	no	yes	x
TUN13	Barrage Khairat	319	no	no	yes	x
TUN14	Barrage Masri	78	no	no	no	x
TUN15	Barrage Mlaâbi	82	no	no	no	x
TUN16	Barrage Mornaguia	148	no	no	no	x
TUN17	Barrage Moussa	18	no	no	no	0
TUN18	Barrage Moussa Chami	30	no	no	no	0
TUN19	Barrage Oued El Haajar	210	no	no	no	0

KBA code	KBA name	Area (hectares)	SD1	SD2	SD3	SD4
TUN20	Barrage Oued Rmal	582	no	no	no	0
TUN21	Barrage Sidi Abdelmonem	24	no	no	no	x
TUN22	Barrage Sidi Jdidi	110	no	no	no	0
TUN23	Côte de Cap Negro Ý Cap Serrat	21,696	no	yes	yes	x
TUN24	Côte de Zerkine et El Grine	7,299	no	no	no	x
TUN25	Côte du Cap Negro au Cap Blanc	8,116	no	yes	yes	x
TUN26	Côtes de l'Île de Djerba	21,363	no	no	no	x
TUN27	Sejnane	76,103	no	yes	yes	4
TUN28	Dunes de Ras El Melan	1,909	no	no	no	x
TUN29	Dyr El Kef	837	no	no	yes	1
TUN30	Garaet Douza	1,644	no	no	no	x
TUN31	Garaet Sejnane	1,955	no	yes	yes	2
TUN32	Golfe de Boughrara	50,379	yes	no	no	x
TUN33	Jbel El Haouaria	1,357	no	no	no	x
TUN34	Jbel Nadhour et Lagune de Ghar El Melh	23,942	yes	no	no	x
TUN35	Jbel Zaghouan	8,071	no	no	yes	x
TUN36	Kroumirie	7,203	no	yes	yes	3
TUN37	Lac de Tunis	3,737	no	no	no	x
TUN38	Lagune de Korba	377	no	no	no	x
TUN39	Lagune de Soliman	635	no	no	no	x
TUN40	Lagune El Bibane	24,973	no	no	no	x
TUN41	Lagunes de Maâmoura et Tazarka	614	no	no	no	x
TUN42	Maden River	81,973	no	yes	yes	3
TUN43	Metbassta	100	no	no	no	x
TUN44	Oasis de Gafsa	1,377	no	no	no	x
TUN45	Oasis de Lalla	887	no	no	no	x
TUN46	Oued Maltine	659	no	no	no	x
TUN47	Parc National de Bou Kornine	3,676	no	no	no	x
TUN48	Parc National de Bouhedma	24,772	no	no	no	x
TUN49	Parc National de Chaâmbi	7,620	no	no	no	x
TUN50	Parc National de l'Ichkeul	13,265	no	yes	no	x
TUN51	Parc National d'El Feija	3,236	no	no	yes	x
TUN52	Plaine de Kairouan	1,389	no	no	no	x
TUN53	Réserve Naturelle Aïn Zana	0	no	no	yes	x
TUN54	Réserve Naturelle Jebel El Ghorra	2,347	no	no	yes	x
TUN55	Salines de Thyna	33,675	no	no	no	x
TUN56	Sebkhet Ariana	3,848	no	no	no	x
TUN57	Sebkhet Draiaâ	1,616	no	no	no	x
TUN58	Sebkhet Ennoual	23,081	no	no	no	x
TUN59	Sebkhet Halk El Menzel et Oued Sed	2,257	no	no	no	x
TUN60	Sebkhet Kelbia	13,557	no	no	no	x
TUN61	Sebkhet Sejoumi	2,704	yes	no	no	x
TUN62	Sebkhet Sidi El Hani	44,374	no	no	no	x
TUN63	Sebkhet Sidi Khelifa	1,523	no	no	no	x
TUN64	Sebkhet Sidi Mansour	4,172	no	no	no	x

KBA code	KBA name	Area (hectares)	SD1	SD2	SD3	SD4
TUN65	Steppes de Gafsa	24,362	no	no	no	x
	TURKEY					
TUR01	İncirli Hills	6,486	no	no	yes	0
TUR02	İstanbul Islands	9,442	no	no	no	0
TUR03	Çığlıkara Forests (and Avlan Lake)	49,461	no	no	yes	38
TUR04	Çeşme Western Foreland	3,464	no	no	yes	0
TUR05	Çiçek Islands	8,717	no	no	yes	0
TUR06	Çorak Lake	1,930	no	no	yes	1
TUR07	Acıgöl Lake	32,727	no	no	yes	6
TUR08	Acıkır Steppes	98,401	no	no	no	18
TUR09	Ahır Mountain	34,469	no	no	yes	32
TUR10	Akçakale Plains	108,593	no	no	no	0
TUR11	Akbük Coast	15,474	no	no	yes	0
TUR12	Akdağ - Çivril	52,226	no	no	yes	20
TUR13	Akdağ - Denizli	126,894	no	yes	yes	5
TUR14	Akseki and İbradı Forests	134,387	no	no	yes	19
TUR15	Aksu Valley	22,170	no	yes	yes	2
TUR16	Alaçam Mountains	80,602	no	no	no	1
TUR17	Alaçatı	56,746	no	no	yes	0
TUR18	Aladağlar	243,906	no	no	yes	50
TUR19	Alata Dunes	747	no	no	yes	0
TUR20	Altınözü Hills	74,516	no	no	yes	5
TUR21	Altıntaş Plateau	19,578	no	no	no	0
TUR22	Amanos Mountains	372,346	no	no	yes	152
TUR23	Andirin	43,792	no	no	yes	2
TUR24	Antalya Plains	27,034	no	no	yes	23
TUR25	Araban Hills	18,847	no	no	no	1
TUR26	Armutlu Peninsula	79,933	no	no	no	4
TUR27	Aydıncık ve Ovacık Coasts	26,408	no	no	yes	2
TUR28	Ayvalık	25,811	no	no	no	0
TUR29	Büyük Menderes Delta	24,614	no	yes	yes	1
TUR30	Büyükçekmece Lake	5,118	yes	no	no	1
TUR31	Baba Mountain	54,856	no	no	yes	30
TUR32	Babakale - Asos Coast	13,787	no	no	no	1
TUR33	Bafa Lake	17,650	no	yes	yes	0
TUR34	Bakırçay Delta	3,156	no	no	no	0
TUR35	Barla Mountain	59,383	no	yes	yes	14
TUR36	Batı Menteşe Mountains	142,141	no	yes	yes	6
TUR37	Berit Mountain	72,986	no	no	yes	41
TUR38	Bey Mountains	190,940	no	no	yes	38
TUR39	Beyşehir Lake	93,064	no	yes	yes	3
TUR40	Biga Mountains	31,055	no	no	no	2
TUR41	Binboğa Mountains	92,097	no	no	yes	36
TUR42	Bismil Plain	141,230	no	no	no	2
TUR43	Bodrum Yarımadası	37,502	no	no	yes	3

KBA code	KBA name	Area (hectares)	SD1	SD2	SD3	SD4
TUR44	Bolkar Mountains	399,068	no	no	yes	138
TUR45	Bosphorus	55,243	no	no	no	x
TUR46	Boz Mountains	236,077	no	no	yes	31
TUR47	Bozova	164,650	no	no	no	4
TUR48	Bozyazı Coast	2,144	no	no	yes	0
TUR49	Burdur Lake	25,087	no	yes*	yes	0
TUR50	Burnaz Dunes	1,360	no	no	yes	0
TUR51	Canakkale Strait	110,191	no	no	no	3
TUR52	Ceyhan Delta	34,030	yes	no	yes	10
TUR53	Ceylanpınar	384,491	no	no	no	10
TUR54	Cizre and Silopi	12,173	no	no	no	1
TUR55	Dalaman Plain	45,316	no	no	yes	3
TUR56	Datça ve Bozburun Peninsula	256,678	no	no	yes	41
TUR57	Dedegöl Mountains	138,509	no	yes	yes	32
TUR58	Devegeçidi Dam	6,779	no	no	no	5
TUR59	Dicle Valley	135,487	no	no	no	1
TUR60	Dilek Peninsula	28,693	no	yes	yes	8
TUR61	Dimçay Valley	9,476	no	no	yes	0
TUR62	Eastern Boncuk Mountains	40,064	no	no	yes	x
TUR63	Eğirdir Lake	62,604	no	yes	yes	1
TUR64	Elbeyli	2,037	no	no	no	0
TUR65	Ermenek Vadisi	139,631	no	no	yes	82
TUR66	Eruh Mountains	132,409	no	no	no	5
TUR67	Feke	167,785	no	no	yes	16
TUR68	Fethiye	23,524	no	no	yes	1
TUR69	Foça Peninsula	25,406	no	no	yes	0
TUR70	Gökçeada Lagoon	8,939	no	no	no	0
TUR71	Gökdere	60,526	no	no	yes	9
TUR72	Göksu Delta	21,608	no	no	yes	7
TUR73	Göksu Valley	52,778	no	no	yes	12
TUR74	Gölcük Lake	433	no	no	yes	0
TUR75	Gölgeli Mountains	75,284	no	yes	yes	21
TUR76	Güllük Bay	24,260	no	no	yes	0
TUR77	Güllük Mountain	35,238	no	no	yes	35
TUR78	Gülnar	17,539	no	no	yes	14
TUR79	Gavur Lake	6,649	no	no	yes	1
TUR80	Gazipaşa - Anamur Coast	30,349	no	no	yes	3
TUR81	Gediz Delta	26,159	yes	no	yes	0
TUR82	Gelibolu Kemikli Headland	22,897	no	no	no	1
TUR83	Gevne Valley and Gokbel Highlands	22,347	no	no	yes	45
TUR84	Geyik Mountains	251,347	no	yes	yes	81
TUR85	Girdev Lake and Akdağlar	74,937	no	no	yes	16
TUR86	Gorduk Creek	11,976	no	no	no	0
TUR87	Harran Ruins	365	no	no	no	0
TUR88	Honaz Mountain	25,576	no	yes	yes	28

KBA code	KBA name	Area (hectares)	SD1	SD2	SD3	SD4
TUR89	Işıklı Lake	9,725	no	yes	yes	0
TUR90	Kılıç Mountain	6,986	no	no	yes	39
TUR91	Kızıldağ	2,209	no	no	yes	15
TUR92	Kızıldağ Izmir	80,464	no	no	yes	x
TUR93	Kızılot	8,126	no	yes	yes	4
TUR94	Köprüçay Valley	146,942	no	no	yes	31
TUR95	Köyceğiz Lake	39,844	no	no	yes	40
TUR96	Küpeli Mountain	96,859	no	no	no	2
TUR97	Kaş-Kalkan Coast	9,494	no	no	yes	4
TUR98	Kale	4,717	no	no	yes	0
TUR99	Karaburun ve Ildir Strait Islands	87,256	yes	no	yes	0
TUR100	Karacadağ	135,393	no	no	no	13
TUR101	Karakuyu Marshes	1,582	no	no	yes	0
TUR102	Karamık Marshes	9,334	no	no	no	0
TUR103	Karataş Lake	2,426	no	no	yes	1
TUR104	Kargı River Valley	7,382	no	no	yes	16
TUR105	Karkamış	16,065	no	no	no	0
TUR106	Kastabala Valley	9,137	no	no	yes	2
TUR107	Kaz Mountains	160,073	no	no	no	30
TUR108	Kazanlı	1,616	no	no	yes	1
TUR109	Kekova	27,297	no	no	yes	1
TUR110	Kibriscik	95,317	no	no	yes	3
TUR111	Kocaçay Delta	38,377	no	no	no	0
TUR112	Kumluca	3,168	no	no	yes	0
TUR113	Lakes Karagal and Cinegol	78	no	no	yes	x
TUR114	Lesser Menderes Delta	7,771	yes	no	yes	x
TUR115	Limonlu Basin	24,267	no	no	yes	3
TUR116	Mahal Tepeleri	69,777	no	no	yes	0
TUR117	Manyas Lake (Kuş Lake)	22,664	no	no	no	x
TUR118	Mardin Threshold	286,962	no	no	no	0
TUR119	Marmara Islands	102,743	no	no	no	3
TUR120	Marmara Lake	6,911	no	no	yes	0
TUR121	Meriç Delta	15,278	no	no	no	0
TUR122	Mersin Hills	46,135	no	no	yes	11
TUR123	Murat Mountain	130,835	no	yes	no	24
TUR124	Nemrut Mountain	104,033	no	no	no	20
TUR125	Nif Mountain	21,394	no	no	yes	20
TUR126	Northern Coast of Gökçeada	9,137	no	no	no	x
TUR127	Northern Coast of Gökova	18,333	no	no	yes	x
TUR128	Patara	11,852	no	no	yes	16
TUR129	Pendik Valley	2,847	no	no	no	1
TUR130	Sündiken Mountains	212,481	no	no	no	11
TUR131	Salda Lake	6,221	no	yes*	yes	18
TUR132	Samandağ Dunes	2,915	no	no	yes	1
TUR133	Sandras Mountain	133,640	no	yes	yes	51

KBA code	KBA name	Area (hectares)	SD1	SD2	SD3	SD4
TUR134	Saros Bay	41,679	no	no	no	1
TUR135	Seyhan Delta	40,992	no	no	yes	13
TUR136	Southern Euphrates Valley and Birecik Plains	209,956	no	no	no	x
TUR137	Spil Mountain	26,445	no	no	yes	9
TUR138	Sugözü - Akkum	851	no	no	yes	0
TUR139	Türkmenbaba Mountain	53,944	no	no	no	0
TUR140	Taşeli Platosu	113,267	no	no	yes	6
TUR141	Tahtalı Mountains	132,776	no	no	yes	77
TUR142	Uluabat Lake	24,488	yes	no	no	1
TUR143	Uludağ	136,369	no	no	no	45
TUR144	Yılanlıkale Hills	9,632	no	no	yes	2
TUR145	Yamanlar Mountain	36,221	no	no	yes	2
TUR146	Yarışlı Lake	2,621	no	no	yes	0
TUR147	Yeşilce	5,451	no	no	no	10

Notes: SD1: yes = coastal KBA prioritized for CEPF support under SD1; SD2: yes = located within a CMZ prioritised for CEPF support under SD2, *=one of four additional freshwater KBAs included; SD3: yes = located within a corridor prioritised for CEPF support under SD3; SD4: number of plant trigger species at the KBA; X = no data.

Annex 3: List of Catchment Management Zones

The list contains 100 CMZs identified in the Mediterranean Basin Hotspot.

Country	Catchment Management Zone	CR species	Endemic species	Threat	Priority
Albania	Lake Butrint catchment	yes	yes	2	yes
Albania, FYR Macedonia, Greece*	Prespa Lake catchment	yes	yes	2	yes
Albania, FYR of Macedonia	Lake Ohrid catchment	yes	yes	2	yes
Albania, Montenegro	Lake Skadar catchment	yes	yes	1	yes
Albania, Montenegro	Lower Bojana river basin	yes	yes	1	yes
Algeria	Eastern Numidia	yes	yes	1	yes
Algeria	Hauts Plateaux	no	no		
Algeria	Oued el Harrach	no	yes		
Algeria	Oued Zhour	no	yes		
Algeria	Seybouse catchment	no	yes		
Algeria	Tafna catchment	no	yes		
Algeria	Western Numidia	no	yes		
Algeria, Morocco	Figuig oasis and Oued Saoura	yes	yes	3	
Bosnia and Herzegovina	Lake Bilecko	yes	no		
Bosnia and Herzegovina	Listica river and Mostarsko blato	no	no	2	
Bosnia and Herzegovina	Nevesinjsko polje, Gatacko polje, Cernicko polje, Fatnicko polje and Dabarsko polje	yes	no		
Bosnia and Herzegovina	Part of the Neretva upper catchment	yes	no		
Bosnia and Herzegovina	Part of the Neretva upper catchment - eastern mid catchment	yes	no		
Bosnia and Herzegovina	Popovo polje and Trebišnjica	yes	no	2	yes
Bosnia and Herzegovina	Trebizat drainage including Imotsko polje	yes	yes	1	yes
Bosnia and Herzegovina	Tributaries of Lower and Middle Neretva	yes	no		
Bosnia and Herzegovina	West B and H Karst poljes	yes	no	3	
Bosnia and Herzegovina, Croatia*	Neretva delta and associated springs/lakes including Hutovo Blato	yes	yes	2	yes
FYR of Macedonia, Greece*	Doirani Lake catchment	yes	yes	2	yes
Jordan	Wadi Shuaib	no	no		
Jordan	Zarqa River	yes	yes	3	
Jordan, Israel*	Wadi Karak Basin	no	yes		
Jordan, Israel*, Palestine*	Central Jordan River	no	yes		
Lebanon	Asi River	yes	yes	3	
Lebanon	Litani River	no	no		
Montenegro	Catchment surrounding Niksic	yes	yes	2	yes
Morocco	Abid river	yes	yes	1	yes
Morocco	Arhreme river	yes	yes	2	yes
Morocco	Assif El Mal	no	yes		
Morocco	Assif El Mal east	no	no		
Morocco	Assif Meloul river	yes	yes		

Country	Catchment Management Zone	CR species	Endemic species	Threat	Priority
Morocco	Le Grand Nador	no	yes		
Morocco	M'Goun river basin	no	yes		
Morocco	Middle N'Fiss river	no	yes		
Morocco	Middle Oum Er Rbia - Beni Mellal	yes	yes	2	yes
Morocco	Moulouya catchment	no	no		
Morocco	Moulouya river catchment	no	yes		
Morocco	N'Fiss river	no	yes		
Morocco	Oued Amizmiz	no	yes		
Morocco	Oued Bouhlou	no	no		
Morocco	Oued Bouregreg	yes	yes	2	yes
Morocco	Oued Imouzzer Kandar	no	no		
Morocco	Oued Ksob - Igrounzar	yes	yes	2	
Morocco	Oued Lakhdar	yes	yes		
Morocco	Oued Laou	no	no		
Morocco	Oued Massa catchment	yes	yes	3	
Morocco	Oued N'Fiss	no	no		
Morocco	Oued Tizguite and Oued Ouaslane	no	yes		
Morocco	Oued Ziz Errachidia	no	yes		
Morocco	Saidia Coastal Plain	yes	yes		
Morocco	Sehb El Majnoune	yes	yes	2	yes
Morocco	Souss river	no	yes		
Morocco	Tifnout basin	yes	yes	2	yes
Morocco	Tigrigra stream	no	yes		
Morocco	Upper Dades	no	yes		
Morocco	Upper Oum Er Rbia	no	yes	2	yes
Morocco	Upper Oum Er Rbia above Kasba Tadla	yes	no		
Palestine*	Jerico catchment	no	yes		
Syria	Khabur River	yes	yes		
Syria	Lake Homs and Orontes catchment	no	yes		
Syria	Lower Asi drainage	yes	yes		
Syria	Middle Orontes	no	yes		
Syria	Nahr Al Aouaj	yes	yes		
Syria	Nahr al Marqiya	yes	yes		
Syria	Northern Coastal Streams of Syria	no	yes		
Syria	Spring of Barada (En Fidje)	yes	yes		
Syria	Yarmuk basin	yes	yes		
Syria, Jordan, Israel*	Lower Yarmouk	no	no		
Syria, Lebanon	Nahr al Kabir	no	yes		
Tunisia	Cap Serrat - Cap Blanc - Parc national de l'Ichkeul	yes	yes	1	yes
Tunisia	Maden River	yes	no	3	yes
Tunisia	Medjarda River	no	no		
Turkey	Asku River catchment	no	yes		

Country	Catchment Management Zone	CR species	Endemic species	Threat	Priority
Turkey	Azmak Stream	no	yes		
Turkey	Bakirçay	no	yes		
Turkey	Burdur lake and catchments	yes	yes	4	
Turkey	Büyük Menderes River	yes	yes	1	yes
Turkey	Duden river	yes	yes	3	
Turkey	Eğirdir Lake catchment	yes	yes	2	yes
Turkey	Gokdere (Yesildere) stream	yes	yes	3	
Turkey	Işıklı/Çivril lake and catchment	yes	yes	4	
Turkey	Karpuzcay stream	yes	yes	2	yes
Turkey	Köprü Çay	no	yes		
Turkey	Korkuteli and Elmali plains	no	yes		
Turkey	Lake Beysehir catchment	yes	yes	1	yes
Turkey	Lakes Acıgöl and Salda	yes	yes	3	
Turkey	Lakes Aksehir - Eber system	yes	yes	3	
Turkey	Lower Gediz river	no	yes		
Turkey	Manavgat River	no	yes		
Turkey	Qweik catchment	yes	yes	3	
Turkey	Savrun catchment (Ceyhan drainage)	no	yes		
Turkey	Seyhan River catchment	no	yes		
Turkey	Upper Dalaman	no	yes		
Turkey	Yarpuz and Hamus catchment (in Ceyhan basin)	no	yes		
Turkey, Syria*, Iraq*	Main stem of the Tigris River	yes	yes		

Notes: CR species: yes = the CMZ supports at least one Critically Endangered species; Endemic species: yes = the CMZ supports at least one species that is believed to be endemic to the CMZ; Threat: threat ranking from high (1) to low (4), blank cells = no data; Priority: yes = priority CMZ for CEPF support under SD2. *: countries not eligible for CEPF support

Annex 4: Comparison of Phase 1 results with Phase 2 plans

These tables compare the strategic directions (referred to in the logframe as outcomes), targets and actual progress from the first phase of CEPF investment in the Mediterranean Basin Hotspot with strategic directions and targets for the second phase set out in this document. With regard to SD1, SD2 and SD6, phase 2 represents an evolution from phase 1. With regard to other elements of the investment strategy, the strategic direction on protected areas from phase 1 has been dropped, while three new strategic directions that were not included in phase 1 have been added for phase 2: on traditional landscapes (SD3); plants (SD4); and regional networking (SD5). The following tables summarises the relationship between the investment strategies of the two phases, with justifications for each change.

Summary of Phase 1 and Phase 2 investment strategies at the level of strategic direction

Phase 1	Phase 2
SD1: Coastal KBAs	SD1: Coastal KBAs
SD2: Freshwater KBAs	SD2: Freshwater KBAs
SD3: Protected Areas	*No equivalent* (although actions for protected areas are incorporated under other strategic directions)
No equivalent SD (although actions for traditional landscapes were partially covered under other strategic directions)	SD3: Traditional managed landscapes
No equivalent SD (although plant conservation actions were partially covered under other strategic directions)	SD4: Plants
No equivalent SD (although regional networking actions were partially covered under other strategic directions)	SD5: Regional networking
SD4: Regional Implementation Team	SD6: Regional Implementation Team

Comparison of program objective and strategic directions with direct equivalents in both phases

Phase 1 Objectives and Targets	Phase 1 Actual Progress	Phase 2 Objectives and Targets	Justification
Program Objective: Engage civil society in the conservation of globally threatened biodiversity through targeted investments with maximum impact on the highest conservation and ecosystem services priorities	84 organizations were involved as grantees on 108 projects.	**Program Objective:** Engage civil society in the conservation of globally threatened biodiversity through targeted investments with maximum impact on the highest conservation priorities.	The program objective reflects CEPF's overall mission, which continues largely unchanged in the second phase. It is accepted that 'conservation priorities' includes 'ecosystem services priorities'.
Phase 1 Program Objective Indicators	**Phase 1 Actual Progress**	**Phase 2 Program Objective Indicators**	**Justification**
NGOs and civil society actors from focal countries, with an emphasis on the priority 6 corridors and 70 key biodiversity areas, effectively participate in conservation programs guided by the ecosystem profile.	Projects were implemented in 53 KBAs; all eligible corridors were covered.	At least 60 civil society organizations, including at least 45 local organizations, actively participate in conservation actions guided by the ecosystem profile, and increase their capacities to deliver long-term conservation benefits.	Phase 1 did not have a target for the number of organizations involved. The phase 2 target provides a conservative target but also, importantly, emphasizes that a high proportion of grants should go to local organizations.

Development plans, projects and policies which influence the priority 6 corridors and 70 key biodiversity areas mainstream biodiversity and ecosystem services, with a focus on tourism, water and agriculture	14 development plans and policies have integrated ecosystem services and biodiversity, focusing on water resources management, and national strategies for integrated management of coastal areas.	10 land-use plans or land use management practices incorporate provisions for biodiversity conservation (e.g., integrated coastal zone management plans, river basin management plans, agricultural development plans, etc.).	Influencing development plans and policies is a key element of the Theory of Change for phase 2 but proved challenging in phase 1, especially for local organizations. While the political situation has become more open in some countries since the first ecosystem profile, local organizations generally have limited experience of policy analysis and advocacy. The target for phase 2 represents a balance between emphasizing support to local grantees and recognizing the constraints they face.
70 priority key biodiversity areas have strengthened protection and management.	46 KBAs and another 12 non-KBA sites, covering a total area of 1.5 million hectares, have strengthened protection and management as guided by sustainable management plans.	45 Key Biodiversity Areas, covering 1,000,000 hectares, have new or strengthened protection and management 8 sites, covering at least 120,000 hectares that were unprotected or under temporary protection gain officially declared permanent protected status.	The two targets for phase 2 target relate to improvements in management on the ground (which is expected at all sites where there are grants) and improved legal protection in the form of the creation or extension of protected areas (which is only relevant to a sub-set of sites). The targets represent a realistic estimate of the likely impact, given the experience of the first phase. KBAs are understood to include areas that are not currently recognized as KBAs but are found to meet the criteria during the investment phase. Thus, the reference to 'non-KBA sites' is dropped.
Strategic areas of production landscapes of six priority corridors under improved management for biodiversity conservation and ecosystem services.	6 conservation corridors have improved management in the production landscape with a total area of 1.1 million hectares, through conservation planning/ priority setting, strengthening management outside protected areas, strengthening management of protected areas, conservation planning/priority setting and enabling conditions	*No equivalent indicator in phase 2*	The corridor concept proved difficult to operationalize, as it reflects an ecological rather than a jurisdictional reality, with several corridors crossing national borders. Thus, while scaling of site-level impacts is intended to have broader landscape and policy impacts, corridors do not provide the most relevant basis for measuring success.

The Mediterranean Basin Hotspot ecosystem profile influences and complements other donor's investment strategies.	CEPF joined the Mediterranean Environmental Donors Round Table, where synergies and collaboration were discussed. Donor members of the Hotspot Advisory Committee were involved in the monitoring and assessment of the CEPF investment portfolio in the region. MAVA Foundation provided an additional \$1.129 million for coastal management GETF (Coca Cola Foundation) used the ecosystem profile to identify priorities and support CEPF grantees in Morocco and Tunisia. CEPF supported the development of PPI-OSCAN (FFEM/MAVA). Natura2000 preparation in Montenegro used the ecosystem profile. The EU Delegation in Albania focused support to environmental CSOs on priority KBAs.	5 partnerships and networks formed among civil society, and with government and communities, to leverage complementary capacities and maximize impact in support of the ecosystem profile.	Maintaining and deepening relationships with donors will continue to be an important role for the RIT, and is a key part of the sustainability strategy. As these relationships were successfully established during phase 1, it is no longer a key indicator of impact for the program objective.
No equivalent target in phase 1	*No equivalent results in phase 1*	At least 8 initiatives launched with private sector stakeholders resulting in adoption or maintenance of biodiversity-friendly practices.	Phase 1 did address private sector engagement at the level of the program objective. However, a number of successes in linking grantees, conservation action and (usually local) companies during phase 1 forms the basis for a stronger focus on this area of work in phase 2. It is relevant, therefore, to have an indicator addressing this at the program level.

Phase 1 Strategic Direction 1	Phase 1 Actual Progress	Phase 2 Strategic Direction 1	Justification
Negative effects of coastal development, especially those associated with tourism, minimized via promoting Integrated Coastal Zone Management (ICZM) and sustainable nature-based economic alternatives, with a focus on priority corridors	*No equivalent results in phase 1*	Support civil society to engage stakeholders in demonstrating integrated approaches for the conservation of biodiversity in coastal areas.	Coastal sites remain both highly important for biodiversity, and under increasing threat from economic development and population growth. During phase 1, the main successes were from site-level action, while wider-scale planning processes (ICZM or other) proved difficult for grantees to engage with and influence. Consequently, phase 2 retains a focus on coastal ecosystems but emphasises a site-scale, local-stakeholder-based approach, while preserving the opportunity for grantees to engage with ICZM processes if opportunities to do so emerge.
Phase 1 Strategic Direction 1 Targets	**Phase 1 Actual Progress**	**Phase 2 Strategic Direction 1 Targets**	**Justification**
Number of income generation projects that contribute to conservation of a key biodiversity area.	5 projects in the Balkans and 3 in North Africa awarded on ecotourism with expected income generation results; in Montenegro, Albania, Tunisia and Cabo Verde Creating small eco-business in Albania (Bojana, Karaburun Peninsula): diving tours, eco-guides, small restoration and habitat. Creating new ecotourism circuits in Tunisia and Algeria	*No equivalent target in phase 2*	While income generation is assumed to be directly linked to the maintenance of traditional management systems in poor rural areas, the pressures on coastal sites come from large-scale private and government-sponsored investment, from poor management of waste, and from the side-effects of urbanisation and infrastructure development. While the specific situation will vary from site to site, it seems that opportunities to achieve conservation results through marginal increases in local community income are likely to be limited. As a result, income generation is dropped as an indicator, in favour of business sector engagement.

Number of tourism development plans, tourism authorities, and tourism businesses adopting safeguards and environmentally friendly practices where CEPF investment will take place.	8 development plans: Developing eco friendly tourism initiatives (sea turtle watching, birdwatching, encouraging alternative livelihood).	At least 8 private sector stakeholders, in at least 4 countries, improve their business practices with positive impacts on biodiversity. At least 2 mechanisms initiated for the private sector to contribute financially to conservation management costs of priority coastal KBAs.	The assumptions made in phase 1 about rapid growth of the tourism sector proved wrong in some countries, as a result of the volatile political and security situation in the region. For phase 2, indicators are focused on the private sector as a whole, as productive relationships are expected with companies in the water, energy, waste and agricultural sectors (among others), as well as tourism. The two targets reflect the two main ways that private sector players can realistically be expected to contribute to improving the conservation status of important sites: improving their own practices; and contributing financially to conservation management by other actors.
Coverage area of coastal zones subject of Integrated Coastal Zone Management plans or similar planning tools	21 KBAs with CEPF-funded projects with improved coastal zone management: 5 in Albania; 2 in Algeria; 3 in Cabo Verde; 1 in Montenegro; 2 in Morocco and 8 in Tunisia.	At least 4 land-use planning and/or integrated coastal zone management processes show better integration of biodiversity conservation.	As noted above, a key lesson from phase 1 was that the most effective role for local CSOs is to take action at sites. On the basis of this experience, constituencies of support to advocate for wider changes can be built. Engagement with wider policy processes remains relevant for phase 2 but it is important not to be over-ambitious about the degree of impact that civil society can have on these processes, even given the improving opportunities for CSOs to voice their opinions in some countries. This target reflects the intention to make support available to grantees where there is a clear opportunity to influence a priority planning process, and where there is a grantee with relevant capacity to engage.
No equivalent target in phase 1	*No equivalent results in phase 1*	Multi-stakeholder approaches lead to improved management of at least 25 priority coastal KBAs, covering at least 600,000 hectares.	Based on experience from phase 1, this indicator outlines a level of ambition that is realistic, given the importance and urgency of conservation action for this sub-set of KBAs.

No equivalent target in phase 1	*No equivalent results in phase 1*	Reduced pressure from unsustainable practices (hunting, fishing, over-harvesting) on at least 10 globally threatened species for which it is a significant threat. Improvement in the status (i.e., increased population and/or breeding success) of at least 15 threatened species in at least 20 priority coastal KBAs.	The priority coastal sites are identified for a number of resident and migratory species for which unsustainable or illegal hunting and collection is an important threat. These practices threaten the global biological and economic values of the site without necessarily threatening the integrity of the site itself, and this pair of indicators emphasises the importance of ensuring that conservation actions not only address the threats to the ecosystem as a whole but target species that rely on it for their survival.
Phase 1 Strategic Direction 2	**Phase 1 Actual Progress**	**Phase 2 Strategic Direction 2**	**Justification**
Sustainable management of water catchments and the wise use of water resources established with a focus on the priority corridors of the (1) Atlas Mountains, (2) Taurus Mountains, (3) Orontes Valley and Levantine Mountains, and (4) Southwest Balkans. The lessons learned shared and replicated from and with other river basin management experiences elsewhere in the Mediterranean.	12 river basins with initiatives to improve river basin management at basin or sub-basin level.	Support the sustainable management of water catchments through integrated approaches for the conservation of threatened freshwater biodiversity.	Further survey and analysis during the last five years shows that over one-third of the threatened species in the hotspot are freshwater animals and plants, many of which are known only from a single site or river system. In addition, many countries of the region are highly water-stressed. As a result, conservation of freshwater species and ecosystems continues to be a very high priority. Phase 1 focused on four large corridor areas and emphasised river-basin level approaches, partly because the data to allow a more fine-grained analysis of priorities were not available. For phase 2, the data on freshwater biodiversity have improved considerably, making selection of priority Catchment Management Zones (CMZs) across the hotspot possible.
Phase 1 Strategic Direction 2 Targets	**Phase 1 Actual Progress**	**Phase 2 Strategic Direction 2 Targets**	**Justification**
No equivalent target in phase 1	*No equivalent results in phase 1*	Knowledge of freshwater biodiversity in at least 15 KBAs in priority Catchment Management Zones (CMZs) improved, documented and shared with decision-makers.	The identification of CMZs has resulted in the identification of more specific sites (KBAs) for the conservation of freshwater species. The process of defining these sites is unfinished and, in some priority CMZs, the first step will be to identify the specific sites that threatened species depend on, as a basis for targeting site-based conservation action.

Number of basins where IRBM has started	12 river basins with initiatives to improve river basin management at basin or sub-basin level.	Management plans and/or practices for at least 4 river basins integrate provisions for biodiversity conservation. Community stakeholders (e.g., fishers, farmers, etc.) in at least 20 sites in priority CMZs receive economic benefits from adopting practices with positive impacts on biodiversity.	The evaluation of phase 1 concluded that the greatest impact of CSO-led conservation actions was at site level. As a result, conservation actions for freshwater ecosystems under phase 2 focus at the site level actions and engage local stakeholders, with a focus on livelihoods and sustainable management. Where opportunities to do so emerge, these interventions may be scaled up to the river-basin or planning scale. These two targets reflect this approach.
Stronger legal basis for IRBM	Legal basis IRBM: formal adoption of the environmental education programmes (Morocco); integrating projects with fishermen associations, environmetal permit was issued (Bosnia and Hercgovina); formal land-use plans (Jordan)	*No equivalent target in phase 2*	Phase 1 showed that opportunities to positively influence the legal and policy setting of integrated river basin management are limited, as a result of lack of openness by government (in some cases), and lack of civil society capacity to engage with the process. As a result of the re-focusing from IRBM to site-based actions with scaling up where there are opportunities, the legal basis for IRBM is no longer a target for phase 2.
Hectares of habitats restored or protected through innovative financing triggered by CEPF investments	Innovative financing through grants such as PRESPA Trust Fund in the Balkans; payment for ecosystem services assessments, income generating projects for local communities, sustainable food production, drinking water and irrigation projects benefiting biodiversity.	Improvement in the status (increased population and/or breeding success) of at least 12 globally threatened freshwater species.	Innovative financing mechanisms remain important for all of the site-based actions under the strategy for phase 2. They are addressed by SD6 (on the RIT). Thus, a separate target on financing mechanisms under SD2 would be redundant. A metric on the impact of the project on species and ecosystems is important, however. While the phase 1 target assumed that the main activities supported would be habitat restoration or protection, many projects addressed different issues, including unsustainable hunting and fishing of species, pollution, etc. The phase 2 target, therefore, focuses on the direct impact on the threatened species that depend on the ecosystem.

Number of initiatives with significant impact to reduce water consumption	Reducing water consumption through gathering data for scientific papers, promoting sustainable values of the rivers and lakes, collaborations between NGOs tackling transboundary issues, working with water user associations to improve management practices; development and promotion of smart water use schemes, strengthen capacities of local institutions, private sector and community groups; plan for climate change adaptation and (eco)tourism.	*No equivalent target in phase 2*	Phase 1 demonstrated that, while reducing water use is important for the conservation of wetlands long-term, it is beyond the scope of many local CSOs, and is difficult to tackle through individual grants. In phase 2, reducing water use, along with other policy and catchment-level issues, will be addressed through interventions aimed at the private sector and decision makers.
Phase 1 Strategic Direction 4	**Phase 1 Actual Progress**	**Phase 2 Strategic Direction 6**	**Justification**
Strategic leadership and effective coordination of CEPF investment provided through a regional implementation team.	The RIT provided strategic leadership and effective coordination or the CEPF investment, overseeing development of a portfolio of 106 grants (excluding the RIT grants).	Provide strategic leadership and effective coordination of CEPF investment through a Regional Implementation Team.	This remains a central element of the CEPF model.
Phase 1 Strategic Direction 4 Targets	**Phase 1 Actual Progress**	**Phase 2 Strategic Direction 6 Targets**	**Justification**
Regional Implementation Team performance in fulfilling the approved Terms of Reference.	The RIT fulfilled its Terms of Reference.	Performance of the RIT assessed as satisfactory during the Mid Term and Final Assessments	The RIT performance target is amended to make it more specific.
Number of groups receiving grants that achieve a satisfactory score on final performance scorecard.	Excluding the RIT grants, 106 grants were made to 83 organisations in 12 countries.	At least 60 civil society organizations, including at least 45 local organizations, actively participate in conservation actions guided by the ecosystem profile.	Informed by phase 1, but also taking into account the unpredictable political situation in several countries of the hotspot, the target for phase 2 is a conservative estimate of the likely scale of grant-making. Grant making to local groups is emphasized for the first time.
No equivalent target in phase 1.	*No equivalent results in phase 1.*	At least 80% of local civil society organizations receiving grants demonstrate more effective capacity to design and implement conservation actions.	The capacity development aspect of grant-making is an important element of ensuring sustainability beyond the end of CEPF investment.
No equivalent target in phase 1.	*No equivalent results in phase 1.*	At least 2 participatory assessments undertaken, documenting lessons learned and best practices from the hotspot.	Facilitating grantees (and groups of grantees) to do their own evaluation and learning exercises creates ownership of the results. It produces direct learning for those involved, as well as highly relevant experience for the wider network.

Justification from removal of SD3 from phase 1 as a separate strategic direction

<table>
<tr><th>Phase 1 Strategic Direction 3</th><th colspan="2">Justification for Change in Phase 2</th></tr>
<tr><td>Conservation status of 70 priority key biodiversity areas improved via enhancing the protected area systems, supporting local communities and promoting international cooperation.</td><td colspan="2">During phase 1, it became clear that formal protected areas in the hotspot are chronically under-funded and receive little political support but that, in some countries, CSOs have been allowed to play a significant role in management. In discussions with stakeholders, it was clear that CSO's work on protected areas should be seen as a part of the strategy for implementation under other strategic directions, rather than a strategic direction in its own right. Extension of protected areas is referenced in the indicators for the program objective.</td></tr>
<tr><th>Phase 1 Strategic Direction 3 Targets</th><th>Phase 1 Actual Progress</th><th>Justification for Change in Phase 2</th></tr>
<tr><td>Demonstrable improvements in the conservation and management of priority key biodiversity areas as guided by formal management plan or other appropriate documents.</td><td>33 of the 42 eligible priority KBAs have improved conservation management. Further, CEPF has supported work at 46 KBAs overall, covering a total of 1,495,139 hectares, which have benefited from strengthened protection and management.

At the end of 2016, out of 8 protected areas with monitoring data from complete METTs, 7 have demonstrated improved management, with an average increase of 13 points.</td><td>KBAs that are also protected areas will benefit from support from grants under phase 2 grants under SD1 (coastal ecosystems), SD2 (freshwater ecosystems), SD4 (plants), and, perhaps, SD3, where traditional land-use practices occur inside protected areas.</td></tr>
<tr><td>Number of hectares brought under new or upgraded protection.</td><td>7 new protected areas were created with CEPF support, covering 27,542 hectares of terrestrial ecosystems.

Other on-going initiatives aim to designate approximately 116,000 hectares of new protected areas (8 proposed PAs are in the process of official designation).</td><td>KBAs that are also protected areas will benefit from support from grants under phase 2 grants under SD1 (coastal ecosystems), SD2 (freshwater ecosystems), SD4 (plants), and, perhaps, SD3, where traditional land-use practices occur inside protected areas.</td></tr>
<tr><td>Percent and number of grants that enable effective stewardship by local communities for biodiversity and ecosystem conservation.</td><td>At least 83% of the grants under SD3 in the Balkans featured improved stewardship by local communities.</td><td>The issue of community stewardship of natural resources is addressed through the site and local-stakeholder focus of SD1 and 2, and, especially, through the focus on traditionally managed landscapes under SD3.</td></tr>
</table>

Justification for addition of new strategic directions for phase 2

Phase 2 Strategic Direction 3	Justification
Promote the maintenance of traditional land-use practices necessary for the conservation of Mediterranean biodiversity in priority corridors of high cultural and biodiversity value.	The inclusion of a strategic direction on traditional land-use practice is as a result of: (1) analysis of threats, which repeatedly identified land abandonment as among the most significant threats to biodiversity in the hotspot; and (2) consultations with national stakeholders, where the link between biodiversity, livelihoods and the maintenance of traditional grazing, agriculture or forest management was emphasised. While coastal ecosystems (SD1) and freshwater ecosystems (SD2) suffer from the impacts of population growth and economic intensification, inland, high altitude steppes, montane grasslands, dehesa and shrublands are also at particular risk.

Phase 2 Strategic Direction 3 Targets	Justification
At least 1,000 women and 1,000 men in at least 20 communities demonstrate improved economic wellbeing through maintenance of traditional, biodiversity-friendly land-use practices.	The theory of change for this strategic direction is based around the idea that people will choose to continue traditional management arrangements if it is advantageous to do so, and that conservation impact will be achieved if a large enough group of people are engaged. This target addresses the direct impact on income from maintenance or enhancement of livelihoods.
At least 6 traditional products that demonstrate positive impacts on biodiversity see a positive market trends (in terms increased production, price, access to new markets) through certification, etc.	A number of projects during phase 1 demonstrated the potential to tap into the growing markets for sustainable and ethical products, and showed that opening of market access is an important benefit (and easier to deliver), as well as price premiums from specialised markets. Traditionally managed landscapes in the Mediterranean Basin already produce many hundreds of wild and agricultural products, which are used locally and, in some cases, collected in bulk and sold to distant markets. Projects that catalyse sustained relationships between communities managing biodiversity rich landscapes and business will be supported, and this target addresses this aspect of the approach.
Status of at least 8 globally threatened species dependent on traditional land-use practices improved at site level in at least 3 priority corridors.	This target focuses on the need to ensure that the biodiversity objectives of projects remain in focus, even though activities may be working with community land managers and intermediary businesses. Establishing baselines and identifying specific management practices that are important for wildlife will be essential for ensuring that projects under this strategic direction have conservation impacts.
Local authorities in at least 3 priority corridors recognize the importance of traditional, biodiversity-friendly land-use practices and engage in supporting their maintenance.	This target recognises that the pro-biodiversity community and business relationships envisaged above will require permission, political support and potentially financial and practical support from local governments and other decision makers. This is particularly important in enuring that the businesses established are sustainable, and not dependent on the presence of a local NGO facilitator in the long term.
Phase 2 Strategic Direction 4	**Justification**
Strengthen the engagement of civil society to support the conservation of plants that are critically endangered or have highly restricted ranges.	The Mediterranean Basin Hotspot is defined primarily on the basis of the presence of its unique botanical communities, with exceptionally high number of endemic plants. While plants will benefit along with other species from CEPF investments under SDs 1, 2 and 3, the level of threat and the lack of attention to the specific conservation needs of plants to date justify a separate strategic direction focused on this group.
Phase 2 Strategic Direction 4 Targets	**Justification**
Status of at least 12 threatened plant species improved at the site level in at least 4 different countries.	The core target under the outcome is an improvement in the population or conservation status of the target species through, for example, an increase in the number of plants or a reduction in unsustainable harvesting.
Improved management practices in at least 8 unprotected sites important for plants (including creation of micro-reserves, etc.).	A key target for this outcome is that changes in land management (e.g., changes in grazing, application of agrochemicals, water regimes, fire suppression) are undertaken that address the conservation needs of threatened and endemic plant species, both outside (this target) and inside (see below) protected areas

At least 6 protected area management plans incorporate specific actions for plant conservation, and at least 10 protected area managers demonstrate improved skills and knowledge on plant conservation.	The conservation value and needs of plants in protected areas is often not addressed. Working with protected area agencies to ensure that they possess the knowledge, skills and institutional plans to address these weaknesses will allow plant conservation to be institutionalized within management of protected areas.
Improved knowledge for at least 35 locally endemic or highly threatened plant species and improved information on plants for at least 15 KBAs.	As noted above, many KBAs identified as priorities under other strategic directions, or already declared as protected areas, are expected to be important for plant conservation. In many cases, this importance is unrecognised, and there is a risk that land-use change or even active management for the conservation of other species could damage important plant populations. Improved knowledge of direct relevance to conservation action for plants (e.g., on distribution, habitat, pollination vectors) is essential to address this problem, and is closely linked to development of local capacity for plant conservation.
At least 6 young professionals gain substantial experience in plant conservation.	Developing a pool of skills to identify plants and carry out practical field work that leads to conservation action is linked closely to the need for further information.
At least 2 plans adopted at the national level with improved integration of plant conservation needs.	To be sustainable in the longer term, and to have an impact at scale, lessons and case-studies from site-level actions for plant conservation need to be integrated into national policy and programs. The opportunities for doing this across the hotspot are dependent on national government agencies charged with protection of biodiversity, outside of the direct control of grantees, and so a conservative target is set.
Phase 2 Strategic Direction 5	**Justification**
Strengthen the regional conservation community through the sharing of best practices and knowledge among grantees across the region.	CEPF established a significant regional networking role in the Mediterranean Basin during phase 1, and this strategic direction will allow relatively modest investment to continue and expand this role. This is especially relevant at a time when opportunities for local CSOs are opening up in some countries, creating a need for sharing between the countries of the hotspot, as well as for linking between northern and southern countries in the hotspot.
Phase 2 Strategic Direction 5 Targets	**Justification**
At least 10 local organizations demonstrated increase knowledge of international and regional conservation agreements and take steps to engage in action at the local level.	Experience from phase 1 showed that a sub-set of local grantees are in a position where they could effectively use international and regional agreements to further their conservation aims, for example by supporting governments in their delivery of commitments under Multilateral Environmental Agreements. Assisting high-potential grantees to identify and engage with the forums and secretariats of these conventions will be an important element of the plan for sustainability.
At least 5 regional thematic experience sharing events allow for informal and formal networking in the hotspot.	Phase 1 has already demonstrated the value of bring together grantees working on similar issues (e.g., freshwater conservation, collaborative management of protected areas, plant conservation), both within the sub-regions and across the hotspot as a whole. Events should include making connections with organisations in non-CEPF hotspot countries that can offer experience and expertise.

Grant support makes a significant contribution to catalyzing or sustaining at least 7 cross-border networking relationships.	A number of critical conservation issues in the hotspot (e.g., management of freshwater resources, action against illegal hunting of migratory birds) have a strong cross-border dimension. Thus, facilitating strategic co-operation between grantees across borders will enhance the impacts of individual projects, as well as create opportunities for learning and resource sharing.
Information on at least 15 funding opportunities for civil society disseminated to relevant organizations, resulting in at least 5 successful funding proposals for continuation or extension of CEPF-funded work.	Enabling grantees to identify and approach new sources of funding to continue or expand their projects is a key part of the strategy for sustainability, and CEPF is in a strategic position to assist with this, because of its connections with other donors and programs working in the hotspot.
At least 2 regional networks for biodiversity conservation in the Mediterranean Basin created or strengthened.	Phase 1 demonstrated the value of regional approaches to networking. In phase 2, regional networking is a seen as a key approach to sustaining the impact of the CEPF program, enabling grantees to become part of larger networks that encourage learning and sharing of experience.