



**USAID** | **UKRAINE**  
FROM THE AMERICAN PEOPLE

# UKRAINE BIODIVERSITY ANALYSIS



**June 2017**

This report was produced for review by the United States Agency for International Development. It was prepared by ECODIT LLC for the Ukraine Biodiversity Analysis (Assessment) Task Order No. AID-121-17-00002.

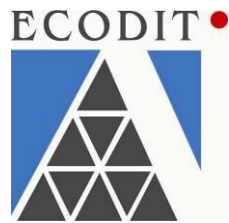
## **AUTHORITY**

Prepared for USAID/Ukraine under the REPLACE Indefinite Delivery Indefinite Quantity Contract (IDIQ) No. AID-OAA-I-14-00016, Task Order AID-I21-TO-17-00002 awarded March 2017 for a Biodiversity Analysis (Assessment) in Ukraine.

This Ukraine Biodiversity Analysis is made possible by the support of the American People through the United States Agency for International Development (USAID). The contents of this report are the sole responsibility of ECODIT LLC and do not necessarily reflect the views of USAID or the United States Government (USG).

## **PREPARED BY**

Ukraine Biodiversity Analysis (Assessment) Team.



1300 Wilson Blvd, Suite 920  
Arlington, VA 22209  
USA  
Tel: +1 703 841 1883  
Fax: +1 703 841 1885  
Web: [www.ecodit.com](http://www.ecodit.com)

Cover photo: Natural vegetation along the lower Dnieper River, protected in Nizhniodniprovski Pravni National Nature Park, which was established in November 2015 in and around the city of Kherson. Photo Credit: B. Byers/ECODIT, April 2017.

## TABLE OF CONTENTS

TABLE OF CONTENTS.....	iii
ACKNOWLEDGEMENTS.....	v
ABBREVIATIONS AND ACRONYMS.....	vi
EXECUTIVE SUMMARY.....	vii
1 INTRODUCTION.....	1
1.1 Purpose.....	1
1.2 Methods.....	1
2 STATUS OF BIODIVERSITY.....	3
2.1 Biophysical Setting.....	3
2.2 Ecosystems.....	3
2.2.1 Forests: Western Ukraine and Polissya.....	4
2.2.2 Forest-Steppe.....	6
2.2.3 Steppe.....	6
2.2.4 Carpathian Mountains.....	6
2.2.5 Crimean Mountains.....	7
2.2.6 Freshwater Ecosystems and Wetlands.....	7
2.2.7 Marine Ecosystems.....	8
2.3 Species.....	8
2.3.1 Description.....	8
2.3.2 Status.....	9
2.4 Genetic Diversity within Species.....	9
2.5 Agrobiodiversity.....	10
3 VALUES AND ECONOMICS OF BIODIVERSITY.....	12
3.1 Ecosystem Products.....	12
3.2 Ecosystem Services.....	13
3.3 Non-Material Benefits.....	15
4 THREATS TO BIODIVERSITY.....	16
4.1 Direct Threats.....	16
4.1.1 Threats As Identified by the Government of Ukraine.....	16
4.1.2 Threats as Identified by Assessment Team.....	17
4.2 Causes.....	21
5 GOVERNMENT POLICIES, LAWS AND INSTITUTIONS.....	25
5.1 Policies and Laws.....	25
5.2 Institutions.....	27
5.3 Protected Areas.....	29
5.4 Multilateral Environmental Agreements.....	32

6	NGO AND DONOR PROGRAMS AND ACTIVITIES.....	34
6.1	NGOs .....	34
6.2	Donors .....	34
7	ACTIONS NEEDED TO CONSERVE BIODIVERSITY.....	36
7.1	Actions Needed as Identified by the Government of Ukraine.....	36
7.2	Actions Needed as Identified by the Assessment Team.....	37
8	CONTRIBUTION OF CURRENT AND PROPOSED USAID ASSISTANCE.....	39
8.1	Results Framework for New USAID/Ukraine CDCS.....	39
8.2	Relevant Projects .....	39
8.3	Potential USAID Contributions to Biodiversity Conservation Needs .....	44
8.4	Potential Risks to Biodiversity from Proposed CDCS .....	45
9	RECOMMENDATIONS.....	47
9.1	Contributing to Actions Needed for Biodiversity Conservation .....	47
9.1.1	Integrate Biodiversity Conservation Support and Actions into Economic Growth, Agriculture, Energy, and Democracy & Governance Activities.....	47
9.1.2	Emphasize Water as an Integrating Ecosystem Service, and Restore Wetlands and Small Rivers in Upper Watersheds to Stabilize Downstream Flows.....	50
9.1.3	Support efforts to Increase Transparency, Reduce Corruption and Illegality, and Enforce Existing Policies and Laws .....	51
9.1.4	Support the Development of Multiple-Use, Landscape-Scale Conservation Models as an Alternative to Conservation Based on Strict Nature Protection.....	52
9.1.5	Support Monitoring the Ecological Effects of the Donbass Conflict.....	53
9.2	Avoiding Negative Impacts on Biodiversity .....	53
ANNEX A	REFERENCES.....	54
ANNEX B	BIOGRAPHICAL SKETCHES OF THE ASSESSMENT TEAM.....	60
ANNEX C	STATEMENT OF WORK .....	61
ANNEX D	WORK PLAN.....	71
ANNEX E	PERSONS CONTACTED, INSTITUTIONAL AFFILIATION, AND CONTACT INFORMATION .....	87
ANNEX F	NGOS.....	91
ANNEX G	DONORS AND PROJECTS .....	95
ANNEX H	SUMMARY OF THREATS, CAUSES AND ACTIONS NEEDED.....	98

## ACKNOWLEDGEMENTS

More than 50 people, representing government agencies, scientific institutions, NGOs, and USAID/Ukraine and other donor programs willingly and generously took the time to talk to us and shared their knowledge and opinions. The Ukraine Biodiversity Assessment Team would like to express our deep appreciation to all of them, even though we cannot acknowledge everyone by name. Tatiana Kistanova of USAID/Ukraine, Contracting Officer's Representative (COR) for this Task Order, coordinated our work and supported our communication with the Mission and other key informants. USAID staff from the Mission's Program Office and Democracy and Governance, Economic Growth, and Health familiarized us with USAID's work in Ukraine.

On our field site visits to six protected areas of different types in the Polissya region of northwestern Ukraine and in Kherson Oblast in the south, we saw both successes and challenges of conserving biodiversity first-hand, and we would especially like to thank the people who assisted us. The directors and staff of the protected areas provided information and opinions and accompanied the team on site visits. We wish to thank the director of Pripyat-Stokhid National Park, Mr. Oleksandr Sashchuk, and his staff; the director of Polisky Nature Reserve, Mr. Sergii Zhila; the director of Askania Nova Biosphere Reserve, Mr. Viktor Gavrylyuk, and his scientific staff; the director and staff of Nizhniiodniprovski Pravni National Park, staff of Oleshkyivski Pishky National Park, and director of Chernomorskiy Biosphere Reserve, Mr. Anatoliy Yurchenko, and his staff. The Assessment Team received extensive information and heard many viewpoints from the people we met, and if we have misunderstood them or misrepresented their views, the fault is ours.

Despite the serious challenges for biodiversity conservation in Ukraine, the high level of knowledge, skills, and professional dedication we observed give us hope that these challenges will be met. We hope that in some small but significant way this report will lead to support for actions that will conserve the valuable and beautiful natural heritage and biological diversity in Ukraine, in support of its sustainable social, economic, and political development.

## ABBREVIATIONS AND ACRONYMS

ARDS	Agriculture and Rural Development Support
BEO	Bureau Environmental Officer
EE	Europe and Eurasia
CBD	Convention on Biological Diversity
CDCS	Country Development Cooperation Strategy
CITES	Convention on International Trade in Endangered Species
DO	Development Objective
EIA	Environmental Impact Assessment
ENPI	European Neighborhood and Partnership Instrument
EU	European Union
FAA	Foreign Assistance Act
FLEG	Forest Law Enforcement and Governance
FSC	Forest Stewardship Council
GEF	Global Environmental Facility
GOU	Government of Ukraine
IBA	Important Bird Area
IPM	Integrated Pest Management
IR	Intermediate Result
IUCN	International Union for the Conservation of Nature
MAB	Man and the Biosphere
MEAs	Multilateral Environmental Agreements
MENR	Ministry of Ecology and Nature Resources
NECU	National Ecological Centre of Ukraine
NGO	Non-governmental Organization
NOBANIS	North European and Baltic Network on Invasive Alien Species
SAFR	State Agency of Forest Resources
SIDA	Swedish International Development Agency
SME	Small and Medium Enterprise
SOW	Scope of Work
TEEB	The Economics of Ecosystems and Biodiversity
USAID	United States Agency for International Development
USFS	United States Forest Service
UNCCD	United Nations Convention to Combat Desertification
UNDP	United Nations Development Program
UNEP	United Nations Environment Program
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNFCCC	United Nations Framework Convention on Climate Change
USPB	Ukrainian Society for the Protection of Birds
WWF	World Wide Fund for Nature



## EXECUTIVE SUMMARY

USAID/Ukraine last conducted a Biodiversity Analysis in 2011. Since then, the political and economic situation in Ukraine has changed significantly. USAID/Ukraine is now developing a new Country Development Cooperation Strategy (CDCS) for its programs (2018-2023), and – as required by Section 119 of the Foreign Assistance Act – requested a new Biodiversity Analysis (Assessment) for Ukraine.

Information needed to meet the assessment objectives was collected by a team of consultants contracted by ECODIT. The information-gathering and analysis process followed USAID guidance on a threats-based approach to biodiversity conservation and “best practices” for this kind of an assessment. The Assessment Team reviewed relevant documents and websites; interviewed key informants from diverse stakeholder groups, including national government agencies, international and national NGOs, and international donors; met with staff from the USAID/Ukraine Program Office and technical teams from sectoral offices; and visited six protected areas of different types and in different ecological regions in northwestern and southern Ukraine.

This report includes an overview, updated since 2011, of the status of biodiversity in Ukraine. It discusses relevant legal and institutional structures of the Government of Ukraine that affect biodiversity conservation – some of which have changed as the Association Agreement with the European Union has moved forward since 2014 – and reviews relevant NGO and donor projects and activities. We used the threats-based approach that guides USAID’s biodiversity programming as the conceptual framework for our analysis. We first identified the direct threats to species and ecosystems in Ukraine, and their social, political and institutional, and economic causes. We then identified the “actions needed” to address, reduce, and/or remove the causes of biodiversity threats, thus meeting the first of the requirements of the FAA Section 119. To determine the “extent to which” USAID/Ukraine’s current and proposed portfolio of projects contributes to the actions needed for biodiversity conservation in Ukraine – the second requirement of an FAA 119 Biodiversity Analysis – we reviewed the draft Results Framework of the new Ukraine CDCS and learned about the Mission’s portfolio of current projects in the democracy and governance, economic growth, agriculture, energy, and health sectors. By comparing the actions needed for biodiversity conservation with USAID/Ukraine’s current and planned programs, the analysis could determine the extent to which USAID can contribute to meeting those needs.

As we learned from our discussions with key informants, site visits, and review of background information and documents, Ukrainian ecosystems and species are experiencing direct threats of each of the five general types recognized by the Convention on Biological Diversity including:

- Conversion, loss, degradation, and/or fragmentation of natural habitats;
- Overharvesting or overexploitation of particular species;
- Pollution or contamination that harms natural habitats or species;
- Introduced non-native species that harm native habitats or species; and
- Climate change and related macro-environmental change (e.g., desertification, disruptions of floods, fires, and other natural disturbance regimes).

Based on the analysis of information on biodiversity threats and their causes that we obtained from our interviews with key stakeholders, site visits, and literature review, the Assessment Team developed a list of approximately 40 specific “actions necessary to conserve biological diversity” in Ukraine, as required by FAA Section 119 (Chapter 7). These specific “actions needed” can be organized under five general themes; these themes then provide an organizing framework for our discussions of the potential opportunities for USAID/Ukraine to contribute to biodiversity conservation (Chapter 8) and our recommendations about how the Mission might do so (Chapter 9). The five themes, stated as recommendations for possible support by USAID/Ukraine to the Government of Ukraine, NGOs, and other actors through its current and proposed projects and activities, are:

- 1) Integrate biodiversity conservation support and actions into economic growth, agriculture, energy, and democracy & governance activities.
- 2) Emphasize water as an integrating ecosystem service, and restore wetlands and small rivers in upper watersheds to stabilize downstream flows.
- 3) Support efforts to increase transparency, reduce corruption and illegality, and enforce existing policies and laws.
- 4) Support the development of multiple-use, landscape-scale conservation models as an alternative to conservation based on strict nature protection models.
- 5) Support monitoring of the ecological effects of the Donbass conflict.

USAID/Ukraine shared a draft Results Framework with the Assessment Team including both Development Objectives (DOs) and draft Intermediate Results (IRs). We used this information in our analysis of the “extent to which” the Mission’s proposed programs and activities may support the actions needed for conserving biodiversity in Ukraine, and in developing our recommendations. Because the specific language for the DOs and IRs has not yet been finalized or approved, in this report we discuss the proposed Results Framework in terms of four general sectoral focus areas:

- Anti-Corruption (DO1)
- Conflict Mitigation (DO2)
- Democratic Governance (DO3)
- Economic Growth (DO4)

There are ample opportunities for USAID/Ukraine to support biodiversity conservation through linkages with its current and proposed portfolio of projects and activities, but it will not happen automatically. Taking advantage of these opportunities will require some deliberate, proactive focusing and targeting of certain activities within the current and planned portfolio. The Biodiversity Analysis Team recommends that USAID/Ukraine:

**1) Integrate biodiversity conservation support and actions into economic growth, agriculture, energy, and democracy & governance activities**

USAID/Ukraine is not implementing or planning to implement any activities under a narrow environmental or biodiversity objective. However, USAID’s Biodiversity Policy (USAID, 2014) states that biodiversity is a cross-cutting issue in development, not a separate development sector, and that it should be viewed as a foundation for all sustainable development. Biodiversity conservation should therefore be integrated in USAID strategies and plans in all sectors.



As a first step in supporting such integration, the Assessment Team recommends that USAID/Ukraine undertake a geographical review and mapping exercise. The main purpose of this exercise would be to highlight the benefits for biodiversity conservation that could come from deliberately locating some kinds of USAID project activities in places in Ukraine that support important species and ecosystems. Important and unique species and ecosystems are distributed throughout Ukraine, they are valuable to people everywhere, and they need management and protection everywhere. Ukraine's system of protected areas is spread throughout the country, and it is still developing and expanding to try to catch up with international standards, including those of the Convention on Biological Diversity and of the European Union.

The Assessment Team recommends that USAID/Ukraine deliberately situate and implement some of the economic growth, agriculture, energy, democracy & governance activities in their portfolio in locations that will synergize with actions needed for biodiversity conservation. In many cases, those locations could also support Recommendation 2, to emphasize water as an integrating ecosystem service, and restore wetlands and small rivers in upper watersheds, and/or to contribute to Recommendation 4, to promote multiple-use, landscape-scale conservation models as an alternative to conservation based on strict nature protection.

The Mission's economic growth objective is supported by current and proposed projects in agriculture and clean energy development, both of which have linkages with biodiversity conservation. Support for agricultural development is relevant because pesticides and fertilizers used in agriculture can pose a threat to aquatic and other biodiversity, so by promoting agricultural practices and technologies that minimize or mitigate these threats (e.g., integrated pest management (IPM), soil nutrient management that minimizes fertilizer use and nutrient loss/runoff). USAID-supported agricultural activities could contribute to biodiversity conservation. In the energy sector, USAID support for renewable energy investments could promote practices and technologies that minimize or mitigate threats to biodiversity from renewable energy development (e.g., small and medium hydroelectric dams, wind, wood biomass, biofuel crops), and support strong accompanying environmental safeguards, including scientific studies and robust, transparent environmental impact assessments (EIAs).

One of Congress's objectives in inserting the Section 119 biodiversity analysis requirement as an amendment to the Foreign Assistance Act was to ensure that U.S. foreign aid does not support activities that harm the biodiversity of host countries. In Chapter 8 we provide a rough screening of the draft CDCS Results Framework, and suggest actions needed to avoid creating potential threats to biodiversity from any proposed actions. These recommendations apply exclusively to USAID/Ukraine's economic growth objective. For example, we suggest that all activities under this Development Objective include scientific studies and EIAs to prevent biodiversity loss from siting of small and medium hydropower dams, and to maintain ecological/environmental flows needed by species and ecosystems in watersheds where water is used for irrigation, hydropower, or other uses supported by project activities. Any small and medium enterprises (SMEs) supported under this objective should use the most biodiversity-friendly practices and technologies available, and should comply with all Ukrainian and U.S. environmental laws.

## **2) Emphasize water as an integrating ecosystem service, and restore wetlands and small rivers in upper watersheds to stabilize downstream flows**

Forests in the Carpathian Mountains and forests and bogs in Polissya absorb precipitation, and wetlands store water and regulate water flow, feeding downstream watersheds of the Dniester and Dnieper Rivers. These eco-hydrological processes stabilize water flows between wet and dry seasons, and supply water for domestic consumption, sanitation, irrigated agriculture, hydropower, industry, and transportation, and for environmental flows needed to maintain aquatic species and ecosystems. Because stable flows of clean water depend on biodiverse, functioning, healthy ecosystems, a focus on water automatically provides a link between biodiversity conservation and sustainable development. USAID strategies and policies, such as the Climate Change and Development Strategy (USAID, 2012) and Biodiversity Policy (USAID, 2014) recognize the importance of such ecosystem services.

Current and proposed projects in USAID/Ukraine's portfolio could support this recommendation in various ways. Energy-related activities under the Mission's economic growth objective could play a role in bringing a rule-of-law framework that would support integrated water management and sustain environmental flows needed to protect species and ecosystems. The Mission's EU Association Agreement support activity could help Ukraine move toward integration with EU frameworks on integrated water management, transboundary rivers, and climate change adaptation. The Agriculture and Rural Development Support (ARDS) Project and other agricultural activities could support ecologically-sound irrigation and help reduce or prevent water contamination by pesticides and nutrients.

## **3) Support efforts to increase transparency, reduce corruption and illegality, and enforce existing policies and laws**

Corruption and illegality are major root causes or “drivers” of many of the threats to species and ecosystems in Ukraine. The Assessment Team recommends, therefore, that environment and biodiversity be one focus for projects and activities supporting USAID's anti-corruption efforts. Making government information on ecologically-relevant topics (e.g., maps of annual legal logging concessions from the State Agency of Forest Resources, water management data from the State Water Agency, hydropower siting and EIA information) more available to the public would help to address a need for biodiversity conservation.

Strong investigative journalism is badly needed to make the public aware of biodiversity losses and threats – many driven by illegality and corruption – and to motivate civil society advocacy on behalf of nature protection for all citizens and future generations of Ukrainians. Corrupted media have prevented some environmental stories from being published. Environmental activists and journalists (such as those opposing or reporting on illegal logging) have been targets of intimidation. Building the capacity of a free and professional media sector in Ukraine could help to meet the need for transparent information that would reduce corruption and illegality, in support of biodiversity conservation.

## **4) Support the development of multiple-use, landscape-scale conservation models as an alternative to conservation based on strict nature protection models**

One challenge for biodiversity conservation in Ukraine is that the traditional perspective on conservation, dating from the Soviet era, is one of strict “nature protection.” Biodiversity is

seen as something to be “protected” from humans, in certain restricted places, rather than “conserved” in multiple-use landscapes, where it can be used and managed in a sustainable manner for various human benefits (products, services, and non-material values). While strict nature preserves may foster a small, and often very dedicated, constituency of scientific researchers, they do not lend themselves to developing a broader public constituency for biodiversity conservation. New initiatives and models for conservation in multiple-use landscapes are being developed in Ukraine, especially in and around new national nature parks, regional landscape parks, and nature reserves (*zakazniks*). Integrated conservation and development models are also being promoted in biosphere reserves that are registered with the UNESCO Man and the Biosphere (MAB) Program, although in some of those, tension exists between the old model of strict nature protection and integrated conservation and development.

A very promising avenue for expanding the area covered by protected areas in Ukraine are locally-controlled protected area categories, especially regional landscape parks and *zakazniks*. Supporting local governments and civil society organizations in places where there are existing protected areas of these types, or which are interested in creating them, would be a contribution to biodiversity conservation.

The Assessment Team recommends that USAID/Ukraine deliberately situate and implement some of their economic growth, agriculture, energy, democracy & governance activities in and around protected areas with potential to develop models of the integration of conservation and development. In many cases, those locations could also support Recommendation 1, to integrate biodiversity conservation across the development portfolio, and Recommendation 2, to emphasize water as an integrating ecosystem service.

### **5) Support monitoring of the ecological effects of the Donbass conflict.**

The conflict in eastern Ukraine has resulted in significant damage to some species and ecosystems in the conflict zone. Until the conflict is resolved, we can only recommend that USAID/Ukraine keep this fact in mind in its activities, and support efforts to monitor the negative impacts on biodiversity where possible. No current or proposed USAID/Ukraine projects of which we are aware are directly relevant to this task. Monitoring could potentially include using remote sensing and satellite imagery to assess damage to habitats from explosives and fires that result from fighting. Water quality monitoring of rivers flowing from the conflict zone into the Dnieper River or Sea of Azov is also needed.

Despite the serious challenges for biodiversity conservation in Ukraine, the Assessment Team was encouraged to find that innovative and important steps are being taken to meet many of those challenges. The high level of knowledge, skills, and professional dedication we observed in the many people we met during the assessment process also gives us hope that the actions needed to conserve Ukraine’s biodiversity will be taken in time to prevent further loss of species and ecosystems, and the ecosystem services that are essential to sustainable, resilient development of the country. We hope that this analysis will motivate USAID/Ukraine to adopt some of the recommendations included in this report, and strengthen the extent to which their development portfolio contributes to conservation of the valuable natural heritage and biological diversity of Ukraine, in support of its sustainable social, economic, and political development.

# I INTRODUCTION

## I.1 Purpose

The Foreign Assistance Act (FAA), which authorizes US bilateral foreign aid programs, requires that a Biodiversity Analysis be conducted in conjunction with the development of new foreign assistance strategies and programs. The purposes of this legal requirement are: 1) to provide a summary for USAID of the “actions needed” for conserving the biodiversity of the host country; 2) to inform the development of USAID assistance strategies and programs by identifying ways in which the host country could be supported to conserve its biodiversity; and 3) to assure that U.S. foreign aid does not support activities that harm the biodiversity of host countries. This requirement is predicated on the view that biological diversity provides the foundation for long-term, sustainable social and economic development in any country, and therefore must be conserved (USAID, 2014).

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

USAID/Ukraine has conducted several previous Biodiversity Analyses/Assessments, in 2001, 2006 (report published in 2007), and 2011 (see **Annex A**, References). Since the last assessment, the political and economic situation in Ukraine has changed significantly. USAID/Ukraine is now developing a new Country Development Cooperation Strategy for its programs (2018-2023), and therefore contracted ECODIT to conduct a new Biodiversity Analysis (Assessment) for Ukraine.

The major objectives of this assessment are to:

- describe the status of Ukraine’s biological diversity;
- describe the direct biophysical threats to Ukraine’s biodiversity and the causes of those threats;
- identify actions needed to reduce and/or mitigate the causes of those threats in the current political, economic, and social context; and
- recommend opportunities for USAID to support such needed actions within its current portfolio of projects and the proposed CDCS and programs it is planning.

## I.2 Methods

A team of consultants, contracted by ECODIT (*henceforth* the Assessment Team - see **Annex B**, Biographical Sketches of Team Members), collected the information needed to meet the objectives of this assessment, and followed USAID guidance on a threats-based approach to biodiversity conservation (USAID, 2005a; 2014; 2016b), and the “best practices” recommendations for Tropical Forestry and Biodiversity (FAA 118-119) Analyses developed by the Agency (USAID, 2005b; 2017) to gather and analyze collected material. This report provides a set of information and analyses that meet, to the extent possible, the requirements of the Scope of Work (SOW) (see **Annex C**, *Statement of Work*).

Information was gathered from several sources. No single source by itself was sufficient, and information from one source was validated by, and supplemented with, information from other sources. The sources of information include the following (see also **Annex D**, Work Plan):

- Review of relevant documents and websites, including the previous Ukraine FAA I I 9 Assessment conducted in 2011; Government of Ukraine (GOU) strategies, plans, atlases, and data books; donor project documents; reports in the scientific literature; web-based documents and reports;
- Meetings in Washington, DC (E&E Bureau BEO, E3 Bureau Forestry & Biodiversity Office, US Forest Service International Programs);
- Meetings with USAID/Ukraine Program Office and Sector Office Technical Teams;
- Interviews with key informants from diverse stakeholder groups, including national government agencies, international and national NGOs, and international donors (see **Annex E**, Persons Contacted); and
- Site visits to six protected areas of different types and in different ecological regions, and nearby communities, in three oblasts:
  - Pripyat-Stokhid National Nature Park, Volyn Oblast
  - Polisky Nature Reserve, Zytomyrska Oblast
  - Askania Nova Biosphere Reserve, Kherson Oblast
  - Nizhniiodniprovski Pravni National Nature Park, Kherson Oblast
  - Oleshkyvski Pisky National Park, Kherson Oblast
  - Chernomorskiy Biosphere Reserve, Kherson Oblast

## 2 STATUS OF BIODIVERSITY

The modern concept of biological diversity, or “biodiversity” for short, encompasses the variety and variability of life at three levels of organization: ecosystems, species, and genes. This chapter presents a review of and an update on the status of Ukraine’s biodiversity at the ecosystem and species levels, provides a brief discussion of genetic diversity within wild species, and briefly discusses agricultural biodiversity.

### 2.1 Biophysical Setting

Ukraine is situated in Eastern Europe between 44 and 55 N. latitude and 22-40 E. longitude. The land area of Ukraine is approximately 579,000 square kilometers (km<sup>2</sup>) – about the same size as the U.S. state of Texas – and its territorial seas cover approximately 24,000 km<sup>2</sup>. It shares borders with Romania, Moldova, Hungary, Slovakia, Poland, Belarus, and the Russian Federation. In 2016, Ukraine’s population was estimated at 44.2 million people. Ukraine’s has a temperate continental climate, and rainfall is unevenly distributed, highest in the northwest and much less in the southeast. Ukraine’s topography is mostly relatively flat, with an average elevation of 175 meters. The Carpathian Mountains in the west are the highest region of the country, with Hora Hoverla, at 2,061 meters, the highest peak. Mountains are also found in the southern Crimean Peninsula (CIA, 2017).

### 2.2 Ecosystems

The terrestrial ecosystems of Ukraine can be generally classified into six ecological regions or zones, as shown in Figure 2.1. These ecological zones result from the complex interactions between biological species, soils, topography, climate, and human factors that have occurred over long periods of evolutionary time. In addition to these terrestrial ecoregions, Ukraine has abundant freshwater, coastal, and marine ecosystems. Ukraine’s biodiversity includes many unique (endemic) species, and unique assemblages or communities of plants and animals, discussed in the appropriate sections below.

Millennia of human occupation and use – hunting, grazing, farming, and use of fire, for example – have had a significant effect of the ecosystems of Ukraine. Hunting caused the extinction of many large mammals in prehistoric and historic times, many extinct only within the past few hundred years. Some of these were undoubtedly keystone species, essential for maintaining the structure and function of certain ecosystems. It is agriculture that has most dramatically altered ecosystems. About 70 percent of the natural vegetation of Ukraine has been converted to agricultural systems.

A high-resolution land cover map for Ukraine (Kussel, et al., 2016) has been developed since 2011, when the last USAID/Ukraine Biodiversity Assessment was conducted (USAID/Ukraine, 2011), and their study documents land cover changes that occurred between 1990 and 2010. Land cover maps play an important role in studying and understanding the processes of change in ecosystems. Such maps are needed for assessing the status of biodiversity at the ecosystem level, and for effective biodiversity conservation planning, because they allow actual land use and cover to be compared with potential natural vegetation. Also new since 2011 is a publicly-available land cadaster map for the entire country (Web-Portal of the Ukrainian Government, 2017).

At the ecosystem scale, the National Atlas of Ukraine (2008) provides information on large-scale ecoregions. The diversity of vegetation types has been mapped at a finer scale of resolution in the Green Data Book (2009) that includes information about 800 biotic communities or associations, of which 347 are rare, 354 are endangered, and 99 are common. This information is important for national conservation planning at the landscape scale, such as the development of an ecological network (e.g. the Emerald Network of Ukraine).

**Figure 2.1 Ecological Regions of Ukraine**



Source: USAID 2016 a.

### 2.2.1 Forests: Western Ukraine and Polissya

Forests are the potential natural vegetation of about one-third of Ukraine, and now cover about one-half of their historically natural area. As of 2017, forests cover about 96,000 km<sup>2</sup> of Ukraine's land territory of 579,000 km<sup>2</sup>, or 16.6 percent of the total land area (State Agency of Forest Resources, 2017). Ukrainian forests contain more than 30 species of trees. Forests of western Ukraine are of Central European forest types; in these deciduous forests, hornbeam (*Carpinus betulus*), oak (*Quercus robur*), and beech (*Fagus silvatica*) are the dominant tree species. The Polissya zone lies in the north and northwest. Nearly one-quarter of this area is covered



with mixed forests of pine (*Pinus silvestris*), birch *Betula pendula*), oak (*Quercus robur*), and alder (*Alnus glutinosa*). Pine stands account for about 57 percent of the forest land, and birch about 20 percent (World Bank, 2006). Bogs cover six percent of Polissya, but this is only about half of their original area. The backbone of the hydrological system of the region is formed by the Pripyat and Desna Rivers, tributaries of the Dnieper River. Natural vegetation is most conserved along the Pripyat River. Polissya is one of the largest wetland areas in Europe and is an important link in one of the main bird migration routes of the continent. About 400 species of vertebrate animals are found in the region, roughly 80 percent of which are dependent on wetland and aquatic habitats.

In the last 50 years, the forested area of Ukraine has increased by 21 percent (State Agency of Forest Resources, 2017). However, current forests are mostly very different from the natural forests that once existed. About 50 percent of current forests are plantations, usually even-aged monocultures, and not natural or naturally regenerating forests. These plantations are generally of native species such as *Pinus sylvestris*, although sometimes planted outside of the historical range of the species. Almost no old, mature, mixed-age forest remains. According to the National Atlas of Ukraine (2008), “As a result of the continuous tree felling the overwhelming majority of forests changed their structure, composition and reduced productivity,” and have an unnaturally young age structure, the result of management for wood production rather than for naturalness and biodiversity value.

Biodiversity in forests is highly correlated with age structure and species diversity. Twenty-three percent of plants and 34 percent of the animals in the Ukraine Red Data Book need “old growth” forest habitats with a significant component of dead and decaying trees and dead wood on the ground. Old dead trees are particularly important for woodpeckers and other cavity-nesting birds, and for bark and wood-dependent insects.



Pine forest (*Pinus sylvestica*) and bog, Polisky Zapovednik, Zytomyrska Oblast.  
Photo Credit: B. Byers/ECODIT, April 2017

### 2.2.2 Forest-Steppe

The forest-steppe biogeographic zone covers about one-third of Ukraine's total land area, from the Carpathian foothills eastward to the Russian border, and between Polissya in the north and the steppe region to the south (see Figure 2.1). This is the ecological transition zone between forest and grassland ecosystems. Forests, meadow-steppe, wet-meadow and wetland landscapes in river valleys exist together in this area, with forests occupying about 13 percent of the area (National Atlas of Ukraine, 2008). Plantation forests now make up more than half of the forests of this zone.

Soils in the forest- steppe zone are mostly fertile, humus-rich chernozem ("black earth") soils, and therefore, as in the steppe zone, large areas of forest were cleared, and the majority of steppe grasslands in this zone were plowed for annual crops (National Atlas of Ukraine, 2008). Because few natural landscapes remain, protected areas are also few in number and small in this zone. As a result, the biodiversity of this ecoregion, like in the steppe zone, has declined and is highly threatened.

### 2.2.3 Steppe

Steppe is the potential natural vegetation of about 40 percent of Ukraine (National Atlas of Ukraine, 2008), and originally covered approximately 243,000 km<sup>2</sup> in southern and eastern Ukraine, or 40 percent of the country's total area. Steppe is a dry temperate grassland ecosystem, generally on chernozem or chestnut soils with a high humus content, where annual precipitation ranges from 300-450 mm per year. Steppe vegetation is dominated by drought-tolerant grasses such as fescue (*Festuca* spp.) and feather grasses (*Stipa* spp.), and forbs. The large grazing mammals that were once found on the Ukrainian steppe, such as red deer, saiga antelope, and wild horses, were hunted until locally extinct, and are no longer present except in a few protected areas. The present fauna of the steppe is dominated by ground-dwelling rodents and ground-nesting birds and their predators.

Conversion of native vegetation to agriculture fields was most extreme in the steppe region, mainly because of its fertile soils. Native steppe vegetation now covers only about 4 percent of Ukraine, approximately one-tenth of its original area (Parnikoza and Vasiluk, 2010). Steppe habitats continue to be fragmented, degraded, and converted to agriculture or industrial uses. Steppe is the least-conserved ecosystem in Ukraine, and it should not come as a surprise that roughly one-third of the plant and animal species found in the Ukraine Red Data Book (2009) are steppe species (Parnikoza and Vasiliuk, 2010).

### 2.2.4 Carpathian Mountains

The Ukrainian Carpathians occupy approximately 56,600 km<sup>2</sup>, almost one-tenth of Ukraine's total land area. This is a zone of relatively low mountains, foothills, and river valleys. Hoverla, at 2,061 meters elevation, is the highest peak in Ukraine. This zone is characterized by altitudinal zones of vegetation: foothill forests, lower and upper elevation montane forests, and subalpine and alpine zones. More than 2,000 species of plants are found in the Carpathian Mountains, and around two percent of those are endemic species that grow only in the Eastern Carpathians, including the Carpathian rhododendron (*Rhododendron kotschy*). There are also a number of rare relict plant species that have survived in the Carpathians. The Carpathians support a

diverse fauna including deer, rabbit, fox, wolf, brown bear, wild cat, lynx, marten, otter, wild boar, badger, squirrel.

### 2.2.5 Crimean Mountains

The Crimean Mountains biogeographic zone covers approximately 7,500 km<sup>2</sup> in the south of the Crimean Peninsula. This area has complex altitudinal zones of vegetation, ranging from forest-steppe at lower elevations, through oak forests; mixed forests of oak, beech, hornbeam, ash, maple, pine, and juniper; to mountain meadows at the highest elevations.

### 2.2.6 Freshwater Ecosystems and Wetlands

Ukraine has seven major river basins, all of which flow into the Black Sea except the Northern Bug, which flows towards the Baltic Sea. These major rivers are fed by a tributary system of more than 63,000 small rivers, most with catchments of less than 2,000 km<sup>2</sup>. The Dnieper (Ukrainian: Dnipro) River drains about 65 percent of the country, the Dniester (Ukrainian: Dnister) River 12 percent, and the Danube (Ukrainian: Dunai) River 7 percent. The ecosystems of most rivers, both small and large, have been dramatically altered by human activities.

The Dnieper is the longest river in Ukraine, a typical lowland river with a well-developed flood plain, but since the 1960s the Dnieper has been changed into a cascade of reservoirs behind six hydropower dams. Between 1975 and 2014 about one third of the Dnieper flow (from Kakhovka Reservoir) was diverted into the North Crimean Canal to provide water for irrigation in Kherson Oblast and the Crimean Peninsula. After the Russian annexation of Crimea in 2014, Ukraine stopped sending water to Crimea, and the amount of water taken from the Dnieper fell from around 1.5 billion cubic meters (m<sup>3</sup>) to around 400 million m<sup>3</sup>.

The upper section of the Dniester River, about 680 km of river above the Dniester Reservoir, is the last free-flowing major river in Ukraine. Despite the high level of industrial discharge into the river, the Dniester still supports more endangered species than the Dnieper.

River valleys and floodplains are under intensive use (agriculture, urbanization, transportation and industrial infrastructure). Rivers receive pollution from sewage, nutrient runoff from livestock farms and agricultural fields, industrial wastes, and sediment from ploughed fields and overgrazed areas. Flow in small rivers frequently decreases and becomes less stable, in part due to the drainage of riverine floodplain swamps and deforestation of the areas.

Approximately five percent (4.5 million hectares) of Ukraine is covered by wetlands. There are about 20,000 lakes in the country. Wetlands have undergone significant modification, especially between the 1950s and 1970s, through drainage for agriculture and water diversion for transportation and irrigation. For example, in the Dnieper Basin about two-thirds of the original wetlands have been drained – 19,500 km<sup>2</sup> of the original 30,800 km<sup>2</sup>. In the Polissya region, peatlands and bogs were estimated to cover about 12,000 km<sup>2</sup> originally; now around 6,400 km<sup>2</sup> remain, a loss of about 50 percent.

Ukraine has now designated 39 Ramsar Sites – Wetlands of International Importance under the Ramsar Convention – to protect some of its remaining wetlands; they cover a total area of about 790,000 hectares (ha) (Ramsar, 2017). Aquatic ecosystems and wetlands support many species included in the Red Data Book of Ukraine (MENR, 2009), including 45 species of invertebrates, about 40 fish species, and seven amphibians.

Intensive drainage began in 1966 in the Polissya Region to create agricultural land, resulting in the drying of 1.6 million ha, about 40 percent of Polissya's wetlands. By 1992, however, almost none of this drained land was agriculturally productive; about half was unproductive because of soil acidification, one quarter due to wind erosion, and one fifth as a result of water erosion. Flow regimes in about 50 percent of the small rivers of the region have been changed irreversibly, and the water table has dropped by 1-2 meters on average. As a result, 11 species of the wetlands plant species have disappeared and population of 115 plant species has dramatically dropped. About 80 percent of the wetland plant species listed in the Red Data Book of Ukraine are from the Polissya Region (79 species), including ten species protected by the Bern Convention. Seven species of birds and 17 species of mammals that are dependent on wetlands are listed in the IUCN Red List, including the globally endangered Aquatic Warbler (*Acrocephalus paludicola*).

Deltas and estuarine zones of the rivers entering the Black Sea are important for conserving biodiversity. From 50,000-100,000 water birds winter in the Danube Delta each year. The majority of the world's population of Red-breasted Goose (*Branta rutilcollis*), listed as "vulnerable" to extinction by the IUCN, depend on wintering sites in Ukraine located in the coastal area between the Danube and Dniester deltas.

### 2.2.7 Marine Ecosystems

The Black Sea is a unique marine ecosystem, characterized by a relatively thin surface layer of oxygen-containing water and a deeper anoxic layer below about 150 meters that supports only bacterial life. Twenty European countries discharge industrial, urban, and agricultural wastes, into the Black Sea, through the Danube, Dniester, Dnieper Rivers. The Azov Sea is severely affected with release of the untreated sewage from cities along its shores. Sewage and agricultural runoff carry nutrients, mainly nitrogen and phosphorus, into estuaries and seas, where nutrient loading can deplete oxygen, killing fish and shellfish. Large-scale oxygen depletion is most common in the shallow north-western part of the Black Sea. Decreased flows of freshwater into the Black Sea in the 20th century, because of water abstraction, mainly for irrigation, has led to increased salinity and consequent changes in species composition.

There are four species of marine mammals in the Black Sea: the Monk Seal *Monachus*, Bottlenose Dolphin *Tursiops truncatus*, Harbour Porpoise *Phocoena*, and Common Dolphin *Delphinus delphis*. All are included in the Red Data Book of Ukraine and their populations continue to decrease. The main threat to the dolphin species is entanglement in fishing nets.

## 2.3 Species

### 2.3.1 Description

The ecosystems of Ukraine provide habitats that support about 45,000 known species of invertebrate and vertebrate animals (BIOMON, 2017). About 35,000 of these are insect species. The vertebrates in Ukraine include 117 species of mammals, almost 400 species of birds, 21 species of reptiles, 17 species of amphibians, and 182 species and subspecies of fish. The known species of plants and fungi (mushrooms and lichens) of Ukraine number around 18,000 species (5,227 mushrooms, 1,322 lichens, 4,908 algae, 763 bryophytes (mosses and clubmosses), and 6,086 vascular plants (National Atlas of Ukraine, 2008).



### 2.3.2 Status

Information on species-level biodiversity of Ukraine is compiled in the country's Red Data Books, which were last updated in 2009. The Institute of Zoology of the National Academy of Sciences of Ukraine is the focal point for research on animal species and diversity, and coordinates production of the Red Data Book for animals. The Institute of Botany is the key institution for revisions of the Red Data Book for plants, and the Green Data Book of Ukraine, which describes plant communities. The Institute of Hydrobiology of the National Academy of Sciences is responsible for studies of freshwater biodiversity including Dnipro River reservoirs, estuaries, and the Danube River, with focus on fishes, especially endangered species. The A.O. Kovalevsky Institute of Biology of Southern Seas of the National Academy of Sciences, in Odessa, is the main institution for studies of biodiversity of the Black and Azov Seas. According to Ukrainian law, regional authorities (Oblasna Rada), as well as the Supreme Council of the Autonomous Region of Crimea, are responsible for approving the Red List of species that should be protected at the regional (oblast) level. Between 2009 and 2013, regional lists of plant species subject to special protection were prepared in all oblasts except Crimea (MENR, 2015).

In 2009, the first official Edition of the Green Book of Ukraine was published. It describes the status of 800 plant associations (e.g., plant communities) of Ukraine, and lists 354 as endangered, 347 as rare, and 99 as common (MENR, 2015).

Habitat maps, showing the distributions and ranges of species in the Red Data Books, do not exist at this time. The Red Data Books are compiled by experts on particular species, who rely on their personal maps. Some maps in the Red Data Books show points where certain species were collected, but as a rule scientists in Ukraine have not used GPS technology to precisely locate points where a particular species was observed or collected, so these maps typically do not provide adequate location information. Scientists have started to use GPS units and GIS maps recently, but old species data are still mostly not digitized. A database of animal species is being developed by the Institute of Zoology, but access to the data is limited and procedures for accessing it have not been developed yet. Maps of the ranges of some animal species that are hunted or fished, plant species that are exploited for timber or medicinal purposes, and some pests and weeds can be found in the National Atlas of Ukraine (2008). The Ministry of Ecology and Natural Resources is working to develop a web portal with information of Red Book species and protected areas, but the system is not functioning yet (MENR, 2017).

## 2.4 Genetic Diversity within Species

The diversity of genes within a single species is the subject of the scientific field called population genetics. Understanding the population genetic diversity within individual species, and its geographic distribution, is often essential for species and ecosystem conservation. For example, in the fragmented steppe ecosystem, it is likely that isolated subpopulations of plants and animals carry somewhat different and unique samples of the total genetic variation of the species. Conserving the full range of genetic variation within a species requires conserving these isolated subpopulations. Such within-species genetic variation will be necessary to enable the species to adapt to changing conditions, such as those that may be caused by climate change.

The Biodiversity Assessment Team found several good examples that illustrate the unique genetic diversity of some Ukrainian plants, including the Dnieper birch, *Betula borysthena*,

described in Box I below. The Scythian tulip, *Tulipa scythica*, is described in the Red Book of Ukraine as an endangered endemic species, found in the steppe region between the Dnieper and Molochna Rivers in Kherson Oblast, and protected especially in the Askania Nova Biosphere Reserve. A subspecies of *Pinus sylvestris*, *Pinus sylvestris* var. *cretacea*, is found in Polissya and border regions of Russia and Ukraine. A relict population of this variety, isolated since the Ice Age in Donbass, probably contains unique genetic diversity (Korshikov and Mudrik, 2006).

#### Box I - Dnieper Birch, *Betula borysthena*

The species name of the Dnieper Birch, *Betula borysthena*, comes from an ancient Greek name for the Dnieper River, “Borysthenes.” This birch is listed as an endemic, endangered species in the Red Book of Ukraine. Some botanists consider it a variety or subspecies of the much more widely-distributed European white birch, *Betula pubescens*. The species was described by the Russian botanist M.V. Klokov. It appears that Ukrainian and Russian botanists have tended to be “splitters” rather than “lumpers” when it comes to designating species. Because evolution is an ongoing process, there are many cases in which full speciation is difficult to ascertain. A recent paper (Tarieiev, et al., 2013) reported evidence for genetic differences between the Dnieper birch and European white birch, based on variation in seed storage proteins and seedling morphology. But they failed to find differences in other genetic markers, and concluded that “The taxonomical status of *B. borysthena* remains under discussion now.” Dr. Olga Umanets, Lead Scientist of the Chernomorskiy Biosphere Reserve, explained how the Dnieper Delta is an area of high endemism and relict species and subspecies because of its hydrographic isolation during the last Ice Age. The Dnieper birch – whether a full species or only a genetically distinct subspecies is still a question for research and debate among botanists – is well-protected especially in Chernomorskiy Biosphere Reserve.



Dnieper Birch (*B. borysthena*), Chernomorskiy Biosphere Reserve. Photo Credit: B. Byers/ECODIT, April 2017



Distribution of *Betula borysthena*, Ukraine Red Book of Plants, 2009

## 2.5 Agrobiodiversity

According to Ukraine’s Fifth National Report to the Convention on Biological Diversity (CBD) (MENR, 2015), the loss of traditional varieties of domesticated plants and animals used in agriculture and their replacement with modern varieties and breeds is a “negative trend, which needs to be corrected.” The Assessment Team found that no significant steps have been taken by the Government of Ukraine so far to stop the loss of agrobiodiversity.

In the 1980s and 1990s many traditional varieties of crops and livestock fell victim to a rapid switch to modern farming practices in Ukraine. The Assessment Team could not find any scientific research on how many traditional varieties of crops and livestock have been lost, but it seems clear that the process is continuing. During our site visit to Kherson Oblast, we learned that a wine grape variety that was cultivated in that area for 200 years has probably been lost because of a switch to the Cabernet Sauvignon varietal. Traditional varieties of crops undoubtedly still exist somewhere, but the Team did not discover any initiatives to find and save them.

An old, traditional breed of cattle, the Ukrainian Grey, is at risk. In 2015, only 850 animals remained, including 62 on the farm of the Kiev Pechersk Lavra Monastery (Agrobusiness, 2017), and a small herd at the Askania Nova Biosphere Reserve.

The conservation of traditional livestock biodiversity seems to be more advanced in the Carpathian region. The NGO “Society for Saving Agrobiodiversity in the Carpathian Mountains” has been working in Zakarpathia Oblast since 2008 to conserve the Carpathian buffalo, a traditional breed of the domesticated Mediterranean water buffalo, the Risca, a traditional Carpathian Mountain Cow, and the Hucul, a traditional breed of horse (Society for Saving Agrobiodiversity in the Carpathian Mountains, 2017).



### 3 VALUES AND ECONOMICS OF BIODIVERSITY

Biological diversity provides social and economic benefits of three distinct kinds: ecosystem products, ecosystem services, and non-material benefits (USAID, 2005a; Byers, 2008). Values of each of these types of benefits of Ukraine's biodiversity are summarized below.

#### 3.1 Ecosystem Products

Ecosystem products are direct material benefits for such things as food, fiber, building materials, medicines, fuel, and ornamental plants and pets. Wild products still play an important role in local rural economies and livelihoods in Ukraine. The 2011 Ukraine FAO Biodiversity Assessment report (USAID-Ukraine, 2011) included information on some ecosystem products for which 2009 data were available; the Assessment Team was able to obtain updated information from 2013, the most recent year for which data are available from the State Agency of Forest Resources (see Table 3.1).

**Table 3.1 Ecosystem Products**

Product	Year→	2009	2013
Birch sap (tons)		3,000	Not available
Christmas trees (number)		643,000	Not available
Wild berries (tons)		3,000	3,319
Wild fruits (tons)		Not available	435
Wild hazelnuts (tons)		11	20
Mushrooms (tons)		558	123
Tree bark (tons)		58	0.3
Wild hay (tons)		2,800	800
Medicinal plants (tons)		205	148
Reeds (tons)		Not available	262

*Source: State Agency of Forest Resources, 2009; 2013.*

In 2009, the estimated value of roundwood and sawn lumber from Ukraine was USD \$665 million, or about 1.3 percent of exports (USAID-Ukraine, 2011). In 2015, the export of timber from Ukraine was valued at USD \$345 million, or 0.9 percent of total revenue from exports, and in 2016, exports of all wood and wood products was USD \$1,132 (State Statistics Service of Ukraine, 2016). The value of commercial marine fisheries in the Black and Azov Seas (the Crimean Peninsula was excluded) was estimated to be USD \$10 million per year in 2015, and of commercial freshwater fisheries around \$25 million that year (State Statistics Service of Ukraine, 2016).



Traditional log beehive used by local beekeepers in Polisky Zapovednik for making honey from bog plants. Photo Credit: B. Byers/ECODIT, April 2017

## 3.2 Ecosystem Services

Ecosystem services are best defined as the benefits to humans that result from ecosystem functions and processes (Byers, 2008), such as:

- Major biogeochemical and nutrient cycles (e.g., of water, carbon, nitrogen, phosphorus);
- Natural pest control by predators in food webs;
- Pollination by insects, bats, and birds;
- Decomposition of biomass, wastes, and pollution;
- Soil formation, retention, erosion prevention, and maintenance of soil fertility; and
- Climate regulation.

The Assessment Team found a significantly greater understanding of the concept of ecosystem services and use of the term in 2017 than in 2011. Many of our key informants, especially at the Ministry of Ecology and Nature Resources (MENR) and the Institute of Hydrobiology, were familiar with the concept. It is still worth noting that the concept of hydrological ecosystem services has a long history in Ukraine. Beginning in the early 1980s, scientists at the Institute of Hydrobiology, were attempting to estimate the monetary value of ecosystem services provided by Ukraine's rivers and wetland ecosystems and their replacement cost if the natural services were destroyed by human activities such as the construction of dams. Among the ecosystem services of aquatic ecosystems are nutrient cycling, water retention, flood protection, riverbank stabilization, and erosion control. For example, biological nutrients such as nitrogen and phosphorus that are discharged into water from treated or untreated sewage and from

agricultural runoff from livestock farms and fertilized fields will pollute aquatic ecosystems, causing algal blooms that can deplete oxygen in the water and kill fish and other animals. Healthy, functioning wetlands and riverbank ecosystems can remove and retain these nutrients, thus reducing the negative effects of this type of pollution. When river floodplain vegetation and marshes are destroyed, this valuable ecosystem service is destroyed. This fascinating and very early attempt at applied ecological economics to ecosystem services has been largely forgotten, and likely was never widely known at the time. Ukraine can be proud of this pioneering effort by some of its scientists to value the human benefits of functioning ecosystems beginning 30 years ago.

No valuation studies of hydrological or other ecosystem services appear to have been done in Ukraine. This gap in information about the value of ecosystem services provides an opportunity to generate such information, and several methodologies for doing so have been developed and tested internationally.

A current international initiative that aims at “making nature’s values visible” is The Economics of Ecosystems and Biodiversity (TEEB) initiative that began as a global study in 2007 funded by the European Commission and the German Federal Ministry for the Environment. “Its principal objective is to mainstream the values of biodiversity and ecosystem services into decision-making at all levels. It aims to achieve this goal by following a structured approach to valuation that helps decision-makers recognize the wide range of benefits provided by ecosystems and biodiversity, demonstrate their values in economic terms and, where appropriate, capture those values in decision-making” (TEEB, 2017). A TEEB research team produced a report for the Ramsar Convention titled ***The Economics of Ecosystems and Biodiversity for Water and Wetlands*** (Russi, et al., 2013) that is of great relevance to Ukraine, and to the findings and recommendations of this Ukraine Biodiversity Assessment. Another TEEB report, ***TEEB for Agriculture & Food: an interim report*** (TEEB, 2015), was produced for the United Nations Environment Program (UNEP), and is relevant to the agricultural sector in Ukraine in general, and USAID’s Agriculture and Rural Development Support Project in particular. A country-focused scoping study was conducted in Georgia in 2013 using the TEEB framework (UNEP and WWF, 2013). Sections in that country study deal with hydropower, agriculture, and forestry, and they may provide models for how valuation of ecosystem services could be approached in Ukraine. A related methodology specifically focused on water and hydrological ecosystem services is being developed under the auspices of the UN Statistical Agency and the UN Environment Program’s TEEB Office (Vardon, 2014),

Another initiative to increase the extent to which ecosystem services are factored in to economic and development planning is the Natural Capital Project, which summarizes its mission as “developing practical tools and approaches to account for nature’s contributions to society, so that leaders of countries, companies, communities, and organizations worldwide can make smarter decisions for a more sustainable future” (Natural Capital Project, 2017).

USAID’s Biodiversity Policy (USAID, 2014) emphasizes the importance of conserving biodiversity because of the ecosystem services it provides. USAID’s Climate Change and Development Strategy (USAID, 2012) discusses valuing and conserving ecosystem services as one of its 10 “guiding principles” for USAID’s efforts to decrease vulnerability and increase resilience in the face of climate change.

### 3.3 Non-Material Benefits

Besides providing direct material benefits to humans in the form of ecosystem products, and indirect material benefits in terms of ecosystem services, natural ecosystems and species also provide a range of non-material benefits that are important to human well-being and development. These include historical, cultural, spiritual, recreational, educational, and scientific benefits (Byers, 2008; USAID, 2005a).

Ukraine spans a region of ecological transition from forest to steppe. Forest and steppe species have mixed and mingled in Ukrainian ecosystems throughout evolutionary time. Ukraine's human history is also the millennia-long story of the interaction of cultures adapted to steppe and forest ecosystems; this history has created the unique culture and nation of Ukraine. Thus, conserving Ukraine's biodiversity has a clear historical and cultural value, apart from its many direct material benefits. Ukrainian culture has a long and rich tradition of rural life and appreciation of nature, which is apparent, for example, in Ukrainian folk art.

Recreation and tourism is one of the management objectives of several categories of protected areas in Ukraine, notably national nature parks and regional landscape parks. During our site visit to Pripjat-Stokhid National Nature Park in Polissya, the Assessment Team heard about recreational opportunities for boating, hiking, picnicking, and fishing. In Askania Nova Biosphere Reserve we saw how the protected area and its birds and animals were used for nature-based recreation and educational tourism.

Science and education are clearly recognized values of natural areas, and these two non-material uses are permitted in virtually all protected areas in Ukraine, including strict nature preserves, as will be discussed in Section 5.

## 4 THREATS TO BIODIVERSITY

The Assessment Team used the threats-based approach to biodiversity conservation that has long guided USAID's biodiversity programming as the conceptual framework for this FAA 119 assessment (USAID, 2005a; 2005b; 2014; 2016; 2017). From our discussions with key informants, site visits, and review of background information and documents, we developed a list of the direct, biophysical threats to Ukraine's ecosystems and species. We organized those direct threats under the five main categories of threats to biodiversity recognized by the CBD and conservation biologists worldwide (CBD, 2006; 2010 USAID, 2005a), namely:

- Conversion, loss, degradation, and/or fragmentation of natural habitats;
- Overharvesting or overexploitation of particular species;
- Pollution or contamination that harms natural habitats or species;
- Introduced non-native species that harm native habitats or species; and
- Climate change and related macro-environmental change (e.g., desertification, disruptions of floods, fires, and other natural disturbance regimes).

We then describe the main causes of those direct threats. Causes can generally be described as one of three types: (1) Social (related to, for example, cultural beliefs, lack of awareness, information, science, or technology); (2) political, institutional, or governance-related; and (3) economic (USAID, 2005a). They can range from deep, systemic factors, which are sometimes also called "drivers," "constraints," or "root causes," to more specific, immediate, local factors, which are sometimes also called "indirect threats" or "proximate causes" (USAID, 2005a; 2005b; 2016b; 2017).

Using this threats-and-causes-based logical framework, the actions needed to address, reduce, and/or remove the causes and thereby reduce the direct threats can be determined (USAID, 2005b; 2017). This chapter summarizes the current threats and their causes. The Assessment Team prepared a detailed list of specific direct threats and proximate causes, included in **Annex H** of this report. This information is used to develop the list of "actions needed" for the conservation of Ukraine's biodiversity.

### 4.1 Direct Threats

#### 4.1.1 Threats As Identified by the Government of Ukraine

Ukraine's Fifth National Report to the Convention on Biological Diversity (MENR, 2015, pp. 10-11) has a section on threats to biodiversity, and lists 12 types of direct threats:

- Uncontrolled use of forest resources;
- Excessive exploitation and fragmentation of steppe;
- Loss of steppe from "scientifically unjustified afforestation";
- Pollution of aquatic and coastal ecosystems with inadequately treated sewage, leading to nutrient loading and eutrophication;
- Hydropower dams altering natural flow regimes and changing aquatic vegetation and communities;
- "Poaching and unauthorized fellings";
- Draining and reduction in area of wetlands;

- Loss of traditional varieties of crops and breeds of livestock, and replacement by modern varieties and hybrids;
- Introduction of fish species in reservoirs;
- Creation of forest monocultures;
- Introduction of invasive species; and
- Negative effects of climate change on forests, esp. drying and increase of insect pest outbreaks.

#### 4.1.2 Threats as Identified by Assessment Team

Ukrainian ecosystems and species are experiencing direct threats of each of the five general threat categories recognized by the CBD, listed above, as we learned from our discussions with key informants, site visits, and review of background information and documents. We briefly note the main direct threats in each category below, and refer the reader to a more detailed list of direct threats in **Annex H**.

##### **Habitat Loss and Degradation**

The loss and degradation of natural ecosystems continues to be a threat to biodiversity in Ukraine. During our information gathering, the Assessment Team heard most about:

- Forest loss/degradation from illegal (or sometimes legal) logging;
- Wetland loss from draining (see Box 2) or water extraction (mainly for irrigation);
- Fish habitat loss from hydropower dams;
- Steppe loss from conversion to agriculture; and
- Steppe and forest degradation from physical and chemical effects of bombs, shells, missiles (Donbass conflict zone).

Information on the ecological effects of the conflict in eastern Ukraine can be found in a report prepared by the NGO Environment People Law titled ***Military Conflict in the East of Ukraine: Challenges to Humanity*** (Environment People Law, 2015).



## Box 2 - Pripyat-Stokhid National Nature Park, Volyn Oblast



Map of the park. Red lines = park boundary; Blue lines = rivers, drainage canals

Pripyat–Stokhid NNP is located on the Pripyat and Stokhid Rivers, part of the upper watershed of the Dnieper Basin. The park has an area of 3,932 km<sup>2</sup>, 43% of is wetlands. Three Ramsar Sites are located in the park, and it supports 40 plants and 84 animal species in the Red Book of Ukraine. Drainage of the area started as early as 1775 during construction of Dnieper-Bug Canal. Today about two-thirds of the flow from the Pripyat is diverted into the canal, and the diversion is controlled by Belarus. According to experts from the Institute of Hydrology, the reduced flow of the Pripyat results in increased siltation and changes in riparian and wetland habitats and threatening the relict Ice Age biota of the area.

During the last half of the 20th century extensive draining of Polissya's wetlands occurred, with a total drained area of about 60,000 km<sup>2</sup>. Parts of this drainage system continue to function all around the park, reducing the ground water level 1-1.5 meters, reducing wetland area within the park. Much of the drained land that was used for agriculture is no longer used, but the pumps and canals continue to work. During our site visit we have observed the Korostyns'ka drainage system that covers 35.3 km<sup>2</sup>. The drained bogs, that used to be agricultural land are not in use anymore for agriculture production, however the drainage system continues to work. Wetland restoration has been discussed as part of the program to develop Ukraine's ecological network.



Marsh with marsh marigolds, Pripyat-Stokhid National Park



Drainage canals near Lyubeshiv, close to border of the park

Photos Credit: B. Byers/ECODIT, April 2017



## Overexploitation or Other Threats to Species

Overexploitation or overharvesting of a particular species (see Box 3), often because of its economic value, is a type of direct threat to biodiversity. Most commonly mentioned were threats to:

- Sturgeon from illegal catch for caviar production;
- Large mammals (e.g., moose, red deer) from illegal hunting;
- Ducks, geese from illegal hunting; and
- Food fish species from illegal fishing.

### Box 3 - Overexploitation of Sturgeons

Sturgeons (family Acipenseriformes) are the most valuable commercial fish in Ukraine, and among the most valuable fish in the world. Six species – Atlantic sturgeon (*Acipenser sturio*), ship sturgeon (*A. nudiventris*), Russian sturgeon (*A. gueldenstaedtii*), starry sturgeon (*Acipenser stellatus*), sterlet (*Acipenser ruthenus*), and Beluga sturgeon (*Huso huso*) – were once found in the waters of Ukraine, but the first two species are now locally extinct due to overfishing and loss of breeding habitat. All are listed in the Red Book of Ukraine.

Historically, the Black and Azov Seas produced the second-largest sturgeon catch in the world, after the Caspian Sea. Sturgeons used to breed in the Danube, Don, Dnieper, Dniester and Southern Bug Rivers. Now, because of the construction of hydropower dams that blocked the natural migration and spawning of these anadromous fish, natural breeding occurs only in the Danube River. A hatchery in Kherson owned by the State Agency of Fisheries of Ukraine releases juvenile sturgeon fingerlings into the Dnieper and Black Sea. During the Soviet era roe from Caspian sturgeon of the same species were used, so the genetic makeup of local sturgeon stock may have been altered.

Between the 1930s and 1990s sturgeon stocks in Ukraine were decimated by fishing, and have fallen even more due to illegal fishing, to less than one percent of their original populations. Experts now say even Danube sturgeons need an artificial breeding program to ensure **their** survival. Currently any catch of sturgeons is prohibited, including for scientific research purposes. However, high prices for caviar drive an active illegal sturgeon trade.

In addition to illegal fishing for adults, sturgeon populations are threatened by the commercial herring fishery because small sturgeon are caught as by-catch. Commercial fishing for herrings is currently allowed within the Danube Delta Biosphere Reserve, a transboundary biosphere reserve shared by Romania and Ukraine, and enforcement of laws against sturgeon fishing in Biosphere Reserve is very weak.

All species in the sturgeon family are listed on either Appendix II of CITES, which regulates international commercial trade, and some species are on Appendix I, which bans any trade. Unregulated and illegal transboundary trade in sturgeon and caviar is known to occur in Ukraine. Sturgeon and caviar would make an excellent subject for stories by investigative journalists, and such reporting could contribute to actions needed to conserve sturgeons in Ukraine.

## Pollution, Contamination

Pollution and contamination from agriculture, industry, and urban areas damage and stress species and ecosystems, especially:

- Nutrient loading of aquatic ecosystems from fertilizer runoff from agriculture;
- Pesticide contamination of terrestrial and aquatic ecosystems from agriculture; and
- Potential contamination from effects in the Donbass conflict zone.

## Introduced Non-Native, Invasive Species

Introduced invasive, non-native species continue to pose a serious threat to Ukraine's biodiversity, as reported in 2011 (USAID/Ukraine, 2011). According to the Fifth National Report to the CBD (MENR, 2015), there are 830 non-native, alien plant species in Ukraine, and about 85 of those are considered to have a high invasive potential. Research on invasive alien species is being conducted and attention is being focused on this threat. Information on invasive alien species of plants was provided to the Delivering Alien Invasive Species in Europe (DAISIE) Project. A draft National Invasive Alien Species (IAS) Strategy has been developed, in accordance with European and global strategies. Recommendations with regard to forecasting, prevention, and control of plant invasions were developed and published in the National Report on Environment Condition in Ukraine (MENR, 2012).

## Climate Change

Climate change is a potential threat of unknown magnitude, which may accentuate other direct threats already discussed above, especially habitat loss, degradation, and fragmentation, and the threat from invasive species. In some ways, it falls into a gray area between cause and threat, being itself a cause of some of the other direct biophysical threats to ecosystems and species.

Average temperatures in Ukraine are forecast to increase by 0.5-1.0 degrees Celsius by 2050, with increased precipitation in winter and spring, especially in the north, and significantly decreased summer rainfall in the southeast (USAID, 2016a). According to the Organization for Security and Cooperation in Europe (OSCE)'s 2012 study titled ***Experience of the European Union in Adaptation to Climate Change and its Application to Ukraine***, climate projections show a general warming trend over the next century, with the possibility of considerable increases in summer. Precipitation is expected to increase during winter and decrease during summer. Those changes in precipitation and the increasing temperatures are expected to affect water resources – in general the picture is one of increasing dryness, and water stress is expected to increase. In coastal areas, especially the Danube and Dniester Deltas, reduced upstream runoff and warmer water temperatures could alter the ecological conditions (Massey, 2012).

The Assessment Team heard most about the threat posed by climate change in:

- Drying of bogs, peatlands, and wetlands;
- Reduction of water flow needed by aquatic species and ecosystems in rivers and deltas (partly from increased use for irrigation); and
- Drying/stress on forests, increasing pine bark beetle (*Dendroctonus* sp.) attacks on pine forests.

Ukraine's Fifth National Report to the CBD (MENR, 2015) states that "Given that an average temperature in Ukraine for the last ten years has risen by 0.3-0.6 °C (for the last 100 years - by 0.8 °C), the shift of the boundaries of natural areas has already become a reality, which is proved by appearance of species of flora and fauna not specific to the zones." Forecasts of the effect of climate change on surface water resources and the hydrological regime were made by the National Climate Program for each of Ukraine's biogeographic regions (Manukalo, 2009).

According to Ukraine's Sixth National Communication to the United Nations Framework Convention on Climate Change (UNFCCC) (MENR, et al., 2013) "Long-term climate changes are very likely to have mostly adverse impacts on forests. Even in moderate predictions, the expected values of climatic parameters reach the values which the forests of Ukraine have not experienced for several prior thousand years. Modern science has no experimental data on the behavior of forest ecosystems, their buffer capacity, reactions and feedbacks in such circumstances." An increased risk of drought is forecasted in the southern Forest-Steppe and Steppe zones. Research in North American grasslands showed that greater species-level biodiversity provides greater resilience to drought (Tilman and Downing, 1994), and provides another argument for the need to conserve biodiversity in these zones, given that drought in those areas is a predicted effect of climate change.

## 4.2 Causes

The direct threats to biodiversity Ukraine have many specific, proximate causes, and those have deeper, more systemic root causes or "drivers." Root causes or drivers of direct threats are mainly related to inadequate governance and weak institutions, as was the case in 2011 (USAID/Ukraine, 2011). Economic drivers sometimes come into play, exacerbating the governance problems.

One example of this are weak policies, laws, and strategies related to biodiversity conservation. A few examples from key informants interviewed by the Assessment Team include:

- Lack of adequate national strategy, policy, laws, and regulations for integrated water resources management, valuing and conserving ecohydrological ecosystem services, and protecting "environmental flows" needed to safeguard aquatic species and habitats (e.g., deltas, fish spawning habitats, water birds);
- Lack of transboundary water management with Belarus to protect ecological flows needed in Pripjat River system;
- Legal logging of forests using silvicultural practices that reduce forest biodiversity by removing old trees, standing dead trees, and woody debris;
- Legal conversion of natural mixed-species, mixed-age forests to plantation forests;
- Lack of legal protection for areas of natural steppe that remain outside of protected areas; and
- Inadequate monitoring and control or eradication strategies for introduced invasive animal species.

In the following chapter, "Government Policies, Laws, and Institutions," we review the institutional landscape in more detail, and set the context for actions needed to address this category of causes of direct threats to Ukraine's biodiversity.

Even when strong policies and laws exist, weak implementation and enforcement are a significant cause of direct threats to biodiversity in Ukraine, for example:

- Illegal logging of natural forests (see Box 4);
- Illegal siting of dams;
- Lack of functioning fish passages and fish protection measures at dams, which are required by law;
- Illegal plowing of natural steppe;

- Lack of adequate enforcement of the sturgeon fishery and caviar trade; and
- Lack of adequate enforcement of hunting and fishing laws and regulations.

Economic factors often seem to underlie institutional weaknesses and governance issues related to biodiversity conservation. For example, the lack of enforcement of existing laws and regulations that causes many direct threats to ecosystems and species is to some extent the result of inadequate funding for the agencies with mandates to enforce the laws. This permits a level of illegality that opens doors for corruption, further weakening the enforcement of environmental laws.

Attention to corruption and illegality as a root cause of biodiversity threats in Ukraine has increased since 2011. The 2016 Transparency International Corruption Perceptions Index ranked Ukraine 131th out of the 176 countries (Transparency International, 2016). We found several examples that illustrate the links between corruption, illegality, and biodiversity threats. For example, in Tarutyn Steppe *Zakaznik*, a nature reserve that protected natural steppe vegetation in Odessa Oblast, 1,500 ha of the reserve was ploughed up in 2016 by the Ministry of Defense, and rented to local farmers. Documents showed that the area is protected, but the Ministry of Defense claimed it was authorized to manage it. Corruption is suspected as the root cause of this incident.

Another example involves the siting and construction of a small hydropower dam on the Rika River in the village of Nyzhnii Bystryi in Zakarpattya Oblast. There was strong opposition to the dam from local communities and conservation organizations from the beginning. The Institute of Fisheries of the National Academy of Agrarian Sciences of Ukraine took a position that any hydropower development should be prohibited on the Rika River due to its ecological importance. According to Ecosphera, a local NGO, the Environmental Impact Assessment for the Nyzhnii Bystryi hydropower project was copied from an EIA prepared for a different project, and there were no public hearings, and no regulatory documents approved by the local authorities. The dam and hydropower plant were nevertheless built and completed in 2016. Again, corruption was suspected in this case.



Hydropower Station on the Rika River, Nyzhnii Bystryi, Zakarpattya Oblast

#### **Box 4 - Illegal Logging: A Threat to Forests**

In 2015, the export of timber from Ukraine was valued at USD \$345 million, or 0.9% of total revenue from exports. Loss of revenue due to illegal logging was estimated at USD \$114 million USD in 2015, twice as much as in 2014, according to the State Agency of Forest Resources of Ukraine (SAFR). According to the head of the SAFR, Christine Yushkevich, 24,000 cubic meters of timber were cut illegally in 2015, and the problem may be growing. During the first half of 2016 the volume of illegal logging was 15.8 thousand cubic meters, a 36% increase from the previous year in the same period.

Illegal logging takes place when timber is harvested, transported, bought or sold in violation of national laws, according to the United Nations Economic Commission for Europe (UNECE). According to a fact-finding report by the Regional Environmental Center (Pavelko and Skrylnikovavelko, 2010a) it can include quite different types of illegality, including:

- logging without permission;
- false declaration of volumes and values of harvested wood;
- logging outside the limits of authorized concessions or in protected areas;
- obtaining logging authorization through bribes; and/or
- making unnecessary sanitary cuttings.

The government institutions with responsibilities for controlling illegal logging and timber smuggling are the SAFR, the Ministry of Internal Affairs, the Prosecutor's Office, the Main Control and Revision Office, the Security Service and the State Ecological Inspection. Institutional weakness of various kinds are the causes of the low level of monitoring, control, and enforcement by these institutions eligible institutions, including lack of transparency of SAFR; lack of reliable scientific studies; an inefficient judiciary system that enables illegal loggers to evade punishment; a low level of legal protection for forest rangers/ forest watch activists; a low level of public awareness about the ecosystem services of forests; and high-level corruption (Pavelko and Skrylnikovavelko, 2010b).

One example of illegal logging in Ukraine was described in a 2016 report by the Environmental Investigation Agency (EIA) titled "Built on Lies: New Homes in Japan Destroy Old Forests in Europe" (EIA, 2016), that claims that the Japanese housing boom is purchasing wood from the Austrian company Holzindustrie Schweighofer, and thereby fueling illegal logging in Romania and Ukraine. The report presents trade data showing that nearly 50 percent of all exports from the Romanian sawmills of Schweighofer are shipped to Japan for use primarily in housing construction, lumber worth USD \$165 million in 2015. Following increased public scrutiny over the company's growing market share and its monopolistic control over Romania's forest sector, Schweighofer has shifted more of its log sourcing to neighboring Ukraine. In 2015, the company Schweighofer imported nearly one million cubic meters of spruce and pine logs from Ukraine, totaling 33% of the timber used in its Romanian mills. This Ukrainian timber is destined in large part for the Japanese market (Rossberg, 2016).

After years of complaints from World Wide Fund for Nature (WWF), the Forest Stewardship Council (FSC) announced its decision to stop working with Schweighofer in February 2017 (WWF, 2017a). WWF argues that transparency is needed to stop illegal logging and the mixture of illegal timber into the legal market. They hope that FSC can pressure Schweighofer to reform its log-sourcing practices. .

One initiative to reduce illegal logging in Ukraine is the WWF project "Forest Watch" (WWF, 2017b). The project aims to build the capacity of activists to identify and report illegal logging. Forest Watch staff have had their property damaged and been threatened with physical violence, apparently by people involved in illegal logging activities.

Another initiative to reduce many kinds of illegal activities that threaten biodiversity is the WWF Ecomap Project (WWF, 2017c), an interactive platform that supports civil society in awareness of illegal activities. Users can report an issue, find fellow activists who want to help, and guidelines for public action, including which government agency is responsible and how to approach them. There is even guidelines about how to try to create a new *zakaznik*, a nature reserve.

The Rika River dam raises the issue of how scientific information related to biodiversity conservation is fed into the policy and legal process in Ukraine. Various scientific institutes, such as the Institute of Hydrobiology, Institute of Botany, and Institute of Zoology, have research scientists with the capacity and responsibility to generate relevant scientific information, and in some cases it already exists. However, we heard repeatedly from key informants we interviewed about causes of threats to biodiversity involving, for example:

- Lack of scientific quota-setting and management of hunted/fished species (mammals, birds, fish);
- Lack of scientific information about how land use practices had affected hydrological ecosystem services, and how to restore them; and
- Siting of dams based on inadequate scientific information and environmental impact assessments (EIAs).

Economic factors become more direct causes and drivers of another category of threats we heard about from key informants. These involve causes of agricultural practices and technologies that can threaten biodiversity, especially perhaps aquatic biodiversity, including:

- Use and overuse of chemical fertilizers;
- Lack of proper management of livestock waste;
- Use of old/illegal pesticides;
- Lack of awareness and practice of integrated pest management (IPM); and
- Increased use of neonicotinoid pesticides (e.g., for seed treatment).

Addressing these causes could involve implementing new technologies and practices that in fact may be more economical and efficient than the more harmful practices and technologies.

## 5 GOVERNMENT POLICIES, LAWS AND INSTITUTIONS

### 5.1 Policies and Laws

The Government of Ukraine's official view about the importance of biodiversity conservation in the larger national agenda is given in the ***Strategy for National Environmental Policy in Ukraine to 2020***, approved by the Verkhovna Rada, the national parliament, and signed by the President of Ukraine in December 2010. An analysis of the policy was made in 2014 in conjunction with budgetary support to the MENR from the European Union. That analysis found satisfactory progress toward several of the policy's objectives, including improvement of regional environmental policies, increasing public environmental awareness, improving environmental safety, integration of environmental policy and improvement of integrated environmental management, and developing an ecological network of protected areas to halt the loss of biodiversity.

***A National Action Plan for Environmental Protection in Ukraine for 2011-2015***, was developed during the last half of 2010 for implementing the above Strategy. The list of actions needed is now outdated.

Ukraine has an extensive body of environmental laws and policies, many of which provide guidance on biodiversity conservation and protected areas. Key laws and legislated programs include:

- Environmental Protection Act (last amended December 2010): The Act sets up the overall environmental framework and is the paramount legal act for all environmental activities; it briefly discusses biodiversity conservation;
- Land Code (last amended March 2011): Ukraine's land use legislation which is supposed to ensure "rational land use and protection of lands," and divides all land into nine categories, including four categories especially relevant to biodiversity conservation: protected areas, forest lands, agricultural lands, and water lands;
- Protected Areas Act (last amended December 2010): The main framework for the governance, conservation, and effective use of protected areas in Ukraine; establishes a classification of protected areas;
- Forest Code (last amended December 2010): The Forest Code covers not only forested lands, but all lands supervised by the State Agency of Forest Resources, which include many wetlands and certain agricultural lands;
- Water Code (last amended December 2010): defines roles and responsibilities of state institutions in water management, briefly mentioning that waters found within protected areas are thereby protected;
- Law on Ecological Expertise (1995): remains the framework for EIAs that apply to new projects that may have adverse impacts on the environment;
- Law on the Ukraine Nature Reserve Fund (1992);
- Law on Animals (2001);
- Law on Plants (1999);
- Law on the Red Book of Ukraine (2002);
- Law on Environmental Audits (2004);



- National Program for Establishment of the Ecological Network in Ukraine in 2000 – 2015 (adopted as law in September 2000);
- Action Program for Biodiversity Conservation and Protected Area Management in Ukraine through 2020 (adopted by Cabinet of Ministers of Ukraine in February 2006): The Program calls for the establishment of a representative and well-managed protected area network, the “Ecological Network” or “EcoNet,” by 2020; and
- The EU Association Agreement (2014), one component of which is the harmonization of national conservation policies to the EU’s Natura 2000 policies.

The EU-Ukraine Association Agreement was signed by the European Union and Ukrainian President Poroshenko in June 2014, and ratified by the Verkhovna Rada (Parliament of Ukraine) and the European Parliament in September 2014. The Association Agreement focuses on support to core reforms, economic recovery and growth, and cooperation in areas including energy, transportation, social development, education, and environmental protection. Under the Environment chapter of the Association Agreement, Ukraine is supposed to gradually harmonize its environmental legislation to that of the EU within the stipulated timeframes. Specific commitments (Ukrainian Center for European Policy, 2016) include harmonization of laws and regulations on:

- environmental impact assessment and strategic environmental assessment;
- public access to environmental information;
- conservation of wild flora and fauna;
- development of a national biosafety system;
- emissions of volatile organic compounds;
- marine environmental policy;
- industrial emissions;
- greenhouse gas emissions allowance trading;
- substances that deplete the ozone layer; and
- assessment and management of flood risks.

Two laws that would have promoted the integration of environmental policy in other sectoral policies, a law on environmental impact assessment and a law on strategic environmental assessment were passed by the Verkhovna Rada in October 2016 but were immediately vetoed by the President of Ukraine. In a positive development, a law on introducing “Integrated Approaches to Water Resources Management Following the Basin Principle” was adopted; it will move Ukraine toward EU water resources policies. (Ukrainian Center for European Policy, 2016). Ukraine has increased its participation in regional cooperation on fisheries including the Black Sea Working Group of the General Fisheries Commission for the Mediterranean.

Among the EU legislation most relevant to biodiversity conservation are Directive 2009/147/EC on the Conservation of Wild Birds, and Directive 92/43/EC on the Conservation of Natural Habitats and of Wild Fauna and Flora. The MENR is leading the efforts to harmonize Ukrainian policies and laws with both directives. Key informants in the MENR informed the Assessment Team that they are currently discussing whether the EU requirements can be accommodated under Ukraine’s existing Law “On Nature Conservation Fund of Ukraine,” or whether there is a need to develop a separate law. The tasks and timelines laid out in the Annexes to the Agreements are ambitious, and probably beyond the capacity and budgets of the state

authorities to achieve on their own. Donor funding for support of Ukraine's work toward the Association Agreement is discussed in Chapter 6 and **Annex G**.

Under the Convention on the Conservation of European Wildlife and Natural Habitats (the Bern Convention), Ukraine has officially nominated 271 sites to the Emerald Network. A detailed list of sites can be found on the Emerald Network Reference Portal (Council of Europe, 2017); a map is also available (InterEcoCenter, 2017). The Natural Habitats Directive requires "preparation of [an] inventory of sites, designation of these sites and establishing priorities for their management."

According to key informants we interviewed at the MENR, Ukraine is preparing amendments to its National Environmental Strategy (covering until 2020) and a National Environmental Action Plan to harmonize with the EU framework.

A biodiversity conservation strategy and action plan will be part of the general strategy. According to these key informants, the MENR has seven main priorities for 2017 including:

- development of integrated water management;
- development of mineral resources;
- improving environmental safety in the Chernobyl Exclusion Zone;
- nature conservation;
- efficient and safe waste management;
- a new climate policy; and
- reform of environmental governance and regulations.

The MENR has developed and approved a detailed workplan for 2017 as well as a long-term workplan.

The "Single and Comprehensive Strategy and Action Plan for Agriculture and Rural Development in Ukraine 2020" was approved by the National Reforms Council in December 2015 and was presented to the Agrarian Committee of the parliament in January 2016. In the near term, the government plans to focus on land reform, privatization of state owned enterprises, and agricultural support. So far, few concrete steps have been taken towards land reform. The parliament has extended by one year, to January 1<sup>st</sup>, 2018, the moratorium on the sale of agricultural land. The Ministry of Agriculture is working to improve environmental practices in line with the obligations under the Association Agreement. Sustainable management of forestry and fisheries resources, including reduction of unregulated and illegal practices in those sectors, remain to be addressed.

## 5.2 Institutions

The Ministry of Ecology and Natural Resources (MENR) is the central national authority responsible for environmental management and biodiversity conservation. The MENR implements national environmental policies and laws, and coordinates environmental activities with other ministries and executive agencies. In the current structure, MENR manages the State Ecological Inspectorates and coordinates the activities of State Committees on Land, Water, and Resources, and the Chernobyl Exclusion Zone. It also manages protected areas and is responsible for developing the National Ecological Network. The Environmental Inspectorate Unit within the MENR oversees all aspects of the MENR's work, including management of

protected areas. This unit is undergoing reforms to make it a more effective and transparent monitoring and enforcement institution.

The Ministry of Agrarian Policy and Food also has important responsibilities relevant to biodiversity conservation and sustainable use. It manages the State Agency of Forest Resources (SAFR), State Agency of Fisheries, and State Authority on Geodesy, Mapping and Cadaster.

The MENR interacts with the Verkhovna Rada, especially through the Committee on Environmental Policy, Nature Management and Elimination of the Consequences of the Chernobyl Disaster. The Committee assesses the implementation of policies, laws, and regulations, and holds public consultations and parliamentary hearings. The legislative branch establishes the policy fundamentals and approves laws and development programs. The executive branch usually develops environmental strategies, policies, and regulations.

At the regional (oblast) level, environmental management, including biodiversity conservation, is the responsibility of offices of the State Department of Environmental Protection in Ukraine's oblasts and the city of Kyiv. These offices coordinate oblast-level activities with the MENR. The Environmental Inspectorate Unit has representatives in each oblast.

In terms of actual management, MENR manages around half of Ukraine's protected areas, the State Agency of Forest Resources about one-quarter, with the rest managed by various other institutions, such as the National Academy of Sciences; Ukrainian Academy of Agrarian Sciences; Ministry of Education and Science, Youth, and Sport; and Taras Shevchenko National University. The Ministry of Agrarian Policy does not supervise any protected areas, but has to be consulted if new protected areas are proposed on lands managed by that Ministry.

The SAFR develops national policies and regulations for forestry and hunting, implements them, and is charged with ensuring inter-ministerial coordination related to forestry and hunting. SAFR is entrusted, among other things, with forest management, timber harvesting, afforestation and reforestation, forest conservation, and hunting.

A number of national research institutions within the National Academy of Sciences of Ukraine provide the scientific information relevant for biodiversity conservation. The Institute of Zoology of the National Academy of Sciences of Ukraine is the focal point for research on animal species and diversity in Ukraine. It coordinates revisions of the Red Data Book for animal species, has an important role in monitoring biodiversity, and provides training for zoologists and ecologists. It is the scientific supervisory institution for many protected areas, and coordinates the Inter-Sectoral Commission on Protected Areas. It is also the key scientific institution concerning animal species for Ukraine's participation in international treaties such as the CBD, CITES, Ramsar, and Bern Conventions.

The Institute of Botany of the National Academy of Sciences is the main institution in Ukraine for studies of plant species and biodiversity. It is the key institution in development and revisions of the Red Data Book for plants, and for the Green Data Book of Ukraine. The Institute of Botany supervises research activities in several protected areas, and is the key scientific institution regarding plants for Ukraine's participation in international conventions. The Institute of Hydrobiology of the National Academy of Sciences of Ukraine is the main institution in Ukraine for aspects of freshwater biodiversity, including that of the Dnieper River reservoirs, estuaries, and Danube River, with a focus on fishes, especially endangered species. For marine biodiversity of the Black and Azov Seas the A.O. Kovalevsky Institute of Biology of

Southern Seas of the National Academy of Sciences, in Odessa, is the main national research institution. It conducts research on the biodiversity of marine ecosystems, and their structure and function, and on human influences on these ecosystems. It is also responsible for monitoring of marine species and developing the scientific basis for sustainable use of living marine resources.

### 5.3 Protected Areas

The national system of protected areas is currently composed of more than 8,200 protected areas covering around 4.3 million ha, or 6-7 percent of the national territory. The protected area system was established in 1992 by the “Law on the Ukraine Nature Reserve Fund,” which defined a national system of protected areas for an independent Ukraine. It was, however, based on the perspective of nature conservation and the system of protected area categories that was developed throughout the former Soviet Union. This has led to some difficulty in comparing it with current global concepts and categories of protected areas. A key to understanding this are the Russian or Ukrainian names of the protected areas: *zapovednik*, *zakaznik*, and “park.” *Zapovednik* (Russian: заповедник, plural заповедники, from the Russian заповедный), meaning “sacred,” or “protected from disturbance,” is an established term throughout the territory of the former Soviet Union for a protected area which is kept “forever wild.” It suggests strict nature protection, with human entry and use limited mainly to scientists. The closest English translation would therefore be “nature preserve” or “nature sanctuary.” *Zakaznik* (Ukrainian: singular: заказни́к; plural: заказники́, transliterated: zakaznyk, zakaznyky;) is a type of protected area in Russia and other former Soviet republics such as Ukraine where temporary or permanent limitations are placed upon certain on-site economic activities, such as logging, mining, grazing, or hunting

The Law on the Ukraine Nature Reserve Fund defined eleven categories of protected areas, only five of which form the core of the protected area system. Table 5.1 summarizes key aspects of the protected areas system.

**Table 5.1 Protected Areas of Ukraine, 2017**

PA Category Name (Eng/Ukr)	#	Area, ha	Percentage of PA Network	Principle Purposes	IUCN Category
National Nature Preserve/ Natsionalny Pryrodnyy Zapovednik	19	206,631	4.7	Strict protection, scientific research, education	I
Biosphere Preserve/ Biosphernyy Zapovednik	5	479,111	11.09	Strict protection, scientific research, education	I
National Nature Park/ Natsionalnyy Pryrodnyy Park	49	1,311,638	30.37	Conservation, nature recreation, science, education	II
Regional Landscape Park/ Regionalnyy Landshaftnyy Park	81	786,025	18.2	Conservation, nature recreation, education	V
Nature Reserve/Zakaznik	3,167	1,389,674	32.18	Conservation, restoration of natural habitats & species	IV, VI
Protected Site/ Zapovidne Urochyshe	812	97,860	2.27	Protect specific natural feature	III
Nature Monument/Pamyatnyk Pryrody	3441	29,769	0.68	Protect specific natural feature	III
Other categories, not natural	671	17,516	0.4	Zoos, botanic gardens, parks	N/A
<b>Total</b>	<b>8,245</b>	<b>4,318,224</b>	<b>100.0</b>		

Source: MENR, State Department for Protected Areas, January 2017.

A large marine zakaznik of more than 4,000 km<sup>2</sup> was created in 2008 in the Black Sea to protect declining beds of the red alga *Phyllophora*.

Analysis of the information in Table 5.1 shows that:

- The nationally-managed categories of protected areas (national nature preserves, national nature parks, and biosphere preserves) make up 46 percent of the area of Ukraine's protected area system;
- Nature Reserves (*zakazniks*) account for 32 percent of the area of Ukraine's protected area system, and regional landscape parks another 18 percent.

These statistics suggest the important role in biodiversity conservation of the regional landscape parks, managed at the oblast level with input from local councils, and *zakazniks*, administered through regional offices of the MENR and managed by local councils and land users.

The MENR currently does not have a map or geographic information system (GIS) with complete information on Ukraine's protected area system. Maps showing various aspects of Ukraine's biodiversity and protected areas have been developed by the MENR and various NGOs, and are available online. For example:

- Nature Protection Fund of Ukraine (MENR, 2017);

- Nature Protection Fund of Ukraine (Grachov, 2017) 016);
- Emerald Network of Ukraine (InterEcoCenter, 2016);
- Ramsar Sites in Ukraine. 2016 (Ramsar Sites Information Service, 2016);
- Nature in Ukraine (NECU, 2017);
- Nature Protection Fund of Kyiv Oblast (NECU, 2012);
- Old Growth and Virgin Forests of the Ukrainian Carpathians (WWF, 2016);
- High Conservation Value Forests of the Carpathian Region (WWF Danube-Carpathian Programme, 2014); and
- Carpathian Heritage Inventory (Carpathian Convention, 2011).

National nature preserves have the strictest restrictions on use, and there is no zoning of uses within the preserve – the entire area is managed for the same and limited objectives. Rangers responsible for ensuring these restrictions are generally full-time staff of the preserve with limited qualifications and low salaries. Protected areas of this category are financed from the government national budget. If the budget of the preserve is low, the number of rangers is often not sufficient for controlling the whole area, and illegal hunting, fishing, and gathering of mushrooms, berries, and medical herbs by local people may occur.

Biosphere Preserves are also under strict protection, and financed from the national budget. Their territories are zoned into areas of strict protection, buffer zones, and zones of “anthropogenic landscapes,” and this allows more opportunities for creating additional revenue for their protection through tourism and collection of wild products in the zones with fewer restrictions. This additional income can, in turn, lead to more money to hire rangers and better protection.

For National Parks and regional landscape parks that allow tourism and recreation, budgets can often support more rangers than in other types of protected areas, which improves resource protection. These four main types of protected areas have administrations with appropriate staff, including rangers. Some other categories of protected areas, such as nature reserves (*zakazniks*) have no administration, no budget, and no rangers. Protection is supposed to be provided by land users and local authorities. Most of these “protected areas” have practically no protection.

National forest lands play an important role in conserving biodiversity in the forested ecoregions of Ukraine. The total area of Ukrainian forest lands managed by the SAFR is around 10.4 million ha, about 73 percent of Ukraine’s forest lands, with the remainder under the control of other agencies, such as the Ministry of Defense, MENR, and local authorities.

The percentage of land in Ukraine’s protected area system is smaller than that in the majority of European countries, where the average is around 15 percent. The Government of Ukraine plans to expand the PA system more than two-fold, from the current 4.3 million ha to over 6 million ha, which would represent more than 10 percent of the national total land area. The National Program for Establishment of the Ecological Network in Ukraine in 2000 – 2015, and the Action Program for Biodiversity Conservation and Protected Area Management in Ukraine through 2020, are the foundations for this expansion. The plan is to incorporate new lands identified as ecologically important based on scientific assessments carried out by a working group of leading scientific institutes established in 2005. Selection of new protected areas is

supposed to be based primarily on the presence of species listed in the Red Data Book of Ukraine, or other international lists of threatened species.

As discussed in the next section, Ukraine has many protected areas registered through its participation in international agreements. There are, for example, eight UNESCO Man and the Biosphere (MAB) Program Biosphere Reserves and 39 Wetlands of International Importance registered under the Ramsar Convention.

## 5.4 Multilateral Environmental Agreements

Ukraine is a party to more than 40 Multilateral Environmental Agreements (MEAs) including treaties and conventions. The MENR is responsible for ensuring compliance with these MEAs, and considers that these international conventions and treaties have the force of Ukrainian laws. MEAs of greatest relevance to biodiversity conservation are:

- Convention on Biological Diversity (CBD);
- Convention on International Trade in Endangered Species (CITES);
- Ramsar Convention on Wetlands of International Importance;
- Bern Convention on the Conservation of European Wildlife and Natural Habitats;
- Agreement on the Conservation of Populations of European Bats;
- United Nations Framework Convention on Climate Change (UNFCCC);
- United Nations Convention to Combat Desertification (UNCCD);
- Convention on the Protection and Sustainable Development of the Carpathians;
- Convention on Environmental Impact Assessment (Espoo Convention);
- Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention);
- European Landscape Convention;
- Convention on the Protection and Use of Transboundary Watercourses and International Lakes;
- Convention on the Protection of the Black Sea Against Pollution;
- The Cartagena Protocol on Biosafety;
- Carpathian Convention;
- The Agreement on the Conservation of African-Eurasian Migratory Waterbirds (AEWA);
- Agreement for the Conservation of Cetaceans of the Black Sea, Mediterranean Sea and Contiguous Atlantic Area; and
- World Heritage Convention.

The Convention on Biological Diversity (CBD) is of course a centerpiece of biodiversity conservation. Ukraine's Fifth National Report for the CBD (MENR, 2015) was completed in 2015, and is available in Ukrainian and English. Ukraine is a member of the UNESCO Man and the Biosphere Program, and has eight designated Biosphere Reserves registered with the MAB Program including Shatsk, East Carpathians (a transboundary biosphere reserve shared with Poland and Slovakia), Danube Delta (shared with Romania), Chernomorskiy, Askaniya-Nova, Desna, Roztochya, and West Polissya (UNESCO-MAB. 2017).

Ukraine has 39 Wetlands of International Importance registered under the Ramsar Convention, covering an area of around 786,000 ha (Ramsar, 2017).



Ukraine also has seven UNESCO World Heritage sites, one of which, the Primeval Beech Forests of the Carpathians, is a Nature World Heritage Site that was registered in 2007. Ukraine's three other World Heritage Sites are cultural sites.

Given the strong interest among NGOs and civil society organizations to participate more fully in decisions about environmental protection and biodiversity conservation, many of them see the UNECE Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters, usually known as the Aarhus Convention, as an important tool to press for more openness and information-sharing by the Ukrainian government, and in particular the MENR and SAFR. Ukraine is a party to this convention. The Aarhus Convention grants the public rights regarding access to information, public participation and access to justice, in governmental decision-making processes on matters concerning the local, national and transboundary environment. It focuses on interactions between the public and public authorities" (European Commission, 2017).

Ukraine ratified the Paris Agreement on Climate Change in September 2016 and has started to develop policies to introduce systems for monitoring, reporting and trading emissions. There is still no comprehensive policy to mitigate and adapt to climate change and sectoral climate policies and actions are still under development. EU assistance in this area continued to be provided through the regional ClimaEast Program (ClimaEast, 2017).

## 6 NGO AND DONOR PROGRAMS AND ACTIVITIES

### 6.1 NGOs

There are more than 500 environmental organizations in Ukraine, some of which are well established and advocate strongly for environmental protection. Based on the survey of representatives of governmental institutions, NGOs and donors, environmental NGOs are among the strongest in the country, and environmental activists are well-connected to European networks. Environmental NGOs advocate strongly for environmental protection in general, and issues related to human health and safety in particular (such as control of air and water pollution). More and more NGOs focus on biodiversity conservation as a cross-cutting issue; some international biodiversity conservation organizations are coming to the country with their own funding sources and also competing for funding in the country.

The Assessment Team was impressed with the array of energetic NGOs working on many issues of relevance to biodiversity conservation, including environmental education and environmental law. Many of these NGOs are strengthening their networks within Ukraine and with other regional and European NGOs, and taking advantage of new electronic networking tools to expand their effectiveness. Building the capacity of these NGOs can help to bring about some of the actions needed for conserving biodiversity in Ukraine. We summarize the activities of many of the NGOs working on issues of biodiversity conservation in Ukraine in **Annex F**.

### 6.2 Donors

International donors, both bilateral and multilateral, have played a key role supporting improved environmental management and biodiversity conservation since Ukraine's independence. Many of the programs and projects of international NGOs summarized above, such as those of the Ukrainian Society for the Protection of Birds, Wetlands International, and WWF, have been funded by international donors. There is no support to NGOs from the government.

International donors are currently funding activities in a number of thematic issues that are relevant to supporting the actions needed for conserving the species and ecosystems of Ukraine, including:

- Environment and Climate Change: Charles Stewart Mott Foundation, Czech Embassy, European Union, United Nations Development Program (UNDP), Norwegian Agency for Development Cooperation, SIDA (Swedish Embassy), OSCE
- Energy Efficiency and Renewable Energy: Czech Embassy, European Union, Heinrich Boell Fund, Swiss Agency for Development and Cooperation, United Nations Development Program, USAID
- Good Governance and Democratic Participation: Charles Stewart Mott Foundation, European Union, Friedrich Naumann Fund, Heinrich Boell Fund, Matra/Netherlands Embassy Kyiv, Norwegian Agency for Development Cooperation, USAID
- Sustainable Development: European Union, Friedrich Naumann Fund, Heinrich Boell Fund, Swiss Agency for Development and Cooperation, USAID
- Environmental Education and Awareness: Charles Stewart Mott Foundation, Norwegian Agency for Development Cooperation

Donor coordination is important in supporting the range of actions needed for biodiversity conservation in Ukraine. In some cases one donor may be in a better position than another to support a certain type of action because of its history of work in the country or its strategic objectives. In other cases donors can coordinate to focus on priority actions, or create synergies among their programs.

**Annex G** provides additional summary information about these relevant donor activities.

## 7 ACTIONS NEEDED TO CONSERVE BIODIVERSITY

The language of FAA Section 119(d) calls for a Biodiversity Analysis to identify “the actions necessary in that country to conserve biological diversity.” These “actions necessary” are actions that will address and reduce the causes of threats to biodiversity, as discussed in Section 4 of this report. These actions include, in general, those that address the social causes; political, institutional, and governance causes; and economic causes.

### 7.1 Actions Needed as Identified by the Government of Ukraine

The Assessment Team took as a starting point Ukraine’s own official view of what actions they consider necessary to conserve biodiversity in the country. Therefore, we reviewed first Ukraine’s Fifth National Report to the CBD, submitted by the MENR to the CBD in 2015 (MENR, 2015). That report contains (on pp. 13-17) what is essentially a list of 25 “actions necessary” to move Ukraine toward the CBD’s Aichi Biodiversity Targets (CBD, 2010). All of the actions listed for biodiversity conservation are important, but a dozen of them, noted below, called to our attention because of strong parallels with what we heard directly from key stakeholders and informants; for example:

- Introducing the ecosystem approach in the management activities and harmonization of the Ukrainian environment protection legislation in accordance with the requirements of the European Union Directives;
- Integrating the issue of biodiversity value into the national and local development strategies and planning processes, into the financial, where appropriate, and reporting systems;
- Ensuring regulation and fishing for all stocks of fish and other aquatic resources in a sustainable way, legally and with the use of the ecosystem approach in order to avoid overfishing; preventing significant negative impact on species [and] endangered and vulnerable ecological systems;
- Reducing pollution of the environment, including from the excess of biogenic substances, to the levels that do not harm the ecological systems and biodiversity;
- Taking control measures for invasive alien species, in particular ways of their distribution, detecting the level of environmental hazards, implementing measures to prevent their introduction and rooting;
- Expanding the area of the nature and reserve fund up to 15 percent of the total territory of the country and bringing the area of the national ecological network to the level (41 percent of the country's territory), which is required to ensure conservation at least 17 percent of terrestrial ecological systems and ecological systems of inland waters, and 10 percent of coastal and marine areas, especially valuable for biodiversity and ecosystem services of the territories;
- Saving genetic diversity of cultivated plants and domesticated animals and wild relatives, including other socially and economically as well as culturally valuable species; developing and implementing the strategy to minimize genetic erosion and conserve their genetic diversity;

- By 2020, the ecosystems that provide essential services, including the services related to water, will be restored and saved;
- Boosting sustainability of ecosystems and biodiversity contribution to the accumulation of carbon through conservation and restoration, including restoration of at least 15 percent of the degraded ecosystems, thereby mitigating effects of climate change and adaptation to it, as well as combating desertification;
- Improving, wide dissemination and application of the scientific knowledge base and technologies that relate to biodiversity, its monetary value, functioning, status, trends and consequences of its loss;
- Increasing forest coverage to 17 percent of the territory of the State by expanding the area of forest, field protecting forest strips and other protective plantings, except for the natural steppe areas, in accordance with the scientifically justified indicators taking into account regional specifics and climatic conditions; and
- Reducing the area of arable land by 5-10 percent on average by virtue of erosion dangerous, degraded, low productive and urban polluted farmlands, floodplains and coastal protective lines of water sites.

## 7.2 Actions Needed as Identified by the Assessment Team

Based on analysis of the information on biodiversity threats and their causes (see Chapter 4) obtained from interviews with key stakeholders, site visits, and document review, the Assessment Team developed a list of approximately 40 specific “actions necessary in Ukraine to conserve biological diversity,” as required by FAA Section 119 (see **Annex H**). In order to identify opportunities and develop recommendations for USAID/Ukraine, we propose that the list of specific “actions needed” included in **Annex H** to be organized under five general themes. These types of actions involve needs to:

- 1) Integrate Biodiversity Conservation Support and Actions into Economic Growth, Agriculture, Energy, and Democracy & Governance Activities (related to MENR CBD Fifth National Report, Action #3);
- 2) Emphasize Water as an Integrating Ecosystem Service, and Restore Wetlands and Small Rivers in Upper Watersheds to Stabilize Downstream Flows (related to MENR CBD Fifth National Report, Action #17);
- 3) Increase Transparency and Reduce Corruption and Illegality, and Enforce Existing Policies and Laws;
- 4) Develop and Promote Multiple-Use, Landscape-Scale Conservation Models as an Alternative to Conservation Based on Strict Nature Protection Models; and
- 5) Monitor the Ecological Effects of the Donbass Conflict.

These general themes will be used as an organizing framework in our discussions in Chapter 8, Contribution of Current and Proposed USAID Assistance, and Chapter 9, Recommendations.

Although most of the actions needed are ultimately the responsibility of the Government of Ukraine, the Assessment Team believes that few of them can be realized unless there is a political constituency for them. Such a political constituency is needed to create the demand for these actions by the government to conserve biodiversity, and thus the political will on the part of lawmakers and government officials to carry them out. Demand from civil society for

biodiversity conservation is needed, especially at the oblast and even more at local levels. Increased capacity of NGOs to raise conservation awareness and knowledge, build a conservation constituency, and advocate for conservation is needed.



## 8 CONTRIBUTION OF CURRENT AND PROPOSED USAID ASSISTANCE

Our SOW for this Ukraine FAA 119 Biodiversity Assessment requested “... a brief description of relevant current and planned areas of USAID assistance, an assessment of their potential for meeting the perceived biodiversity conservation needs, and recommendations for incorporating biodiversity conservation considerations in designing new USAID/Ukraine projects/activities and/or modifying the current ones.” It further noted that “Since USAID/Ukraine is neither implementing nor will propose programs under a strictly environmental objective,” they are interested in identifying “cross-sectoral linkages.”

USAID’s Biodiversity Policy (USAID, 2014) states that biodiversity is a cross-cutting issue in development (like gender or climate change). It is not viewed in the policy as a separate development “sector,” but rather a foundation for any and all sustainable development. The Biodiversity Policy states, for example, “... biodiversity conservation is not an afterthought or special-interest issue, but rather an essential component of achieving sustainable development.” Biodiversity conservation should therefore be integrated in USAID strategies and plans in all sectors.

We first summarize the information on the draft USAID/Ukraine Country Development Cooperation Strategy (CDCS) Results Framework that was provided to us, then discuss relevant current USAID/Ukraine projects and activities. We then compare “actions needed” identified in Chapter 7 with USAID/Ukraine’s current and proposed activities, and thereby describe “the extent to which the actions proposed for support by the Agency meet the needs thus identified,” the second part of the legal requirement for an FAA 119 analysis. Finally, we also discuss potential risks to biodiversity that some of those activities could pose.

### 8.1 Results Framework for New USAID/Ukraine CDCS

USAID/Ukraine shared a draft Results Framework with the Assessment Team including both Development Objectives (DOs) and draft Intermediate Results (IRs). We used this information in our analysis of the “extent to which” the Mission’s proposed programs and activities that may support the actions needed for conserving biodiversity in Ukraine, and in developing our recommendations. Because the specific language for the DOs and IRs has not yet been finalized or approved, in this report we discuss the proposed Results Framework in terms of four general focus areas, corresponding to the proposed Development Objectives including:

- Anti-Corruption (DO1)
- Conflict Mitigation (DO2)
- Democratic Governance (DO3)
- Economic Growth (DO4)

### 8.2 Relevant Projects

The Mission provided the Assessment Team with descriptions of its current portfolio of projects, many of which are relevant to addressing some of the actions needed for biodiversity conservation in Ukraine. Those projects, and their potential relevance to biodiversity conservation, are summarized below, organized under the responsible technical offices.

## **Democracy and Governance**

- **Accurately Reflecting the Ukraine-Europe Union Association Agreement in Ukrainian Media (09/14/2015 – 03/31/2017)**

This activity increases awareness and knowledge among Ukrainian media professionals to better understand and communicate facts about the European-Ukraine Union Association Agreement (EU/AA), what it accomplishes in practice, and how it affects citizens, communities, and the country. The goal of the activity is to increase citizen awareness of EU/AA opportunities and challenges and the EU/AA accession process.

**Relevance:** *The EU accession process has many aspects that are related to biodiversity conservation and sustainable natural resources management (e.g., rivers, logging, migratory species, protection of natural habitats). The Ukrainian public needs to become aware of these environmental aspects of the EU/AA accession process, and lend their support.*

- **Decentralization Offering Better Results and Efficiency (DOBRE) (06/08/2016 – 06/07/2021)**

DOBRE provides assistance to local communities to make local government more effective, responsive, capable of delivering tangible benefits to citizens, and able to quickly implement reforms in key sectors. DOBRE is part of a coordinated package of international donor assistance to the Government of Ukraine to implement nationwide decentralization reforms and ensure the success of newly consolidated communities. DOBRE has two primary objectives: (1) build the capacity of consolidated communities to carry out their responsibilities and provide quality services to their constituents, and (2) increase the involvement of local residents and civil society organizations in local government decision making.

**Relevance:** *DOBRE could proactively support local civil society organizations and governments in the protection of local ecosystems and ecosystem services. They could assist local communities in the creation and management of regional landscape parks, for example, including involvement in local councils for management of local protected areas (e.g., regional landscape parks, zakazniks)*

- **Enhance Non-Governmental Actors and Grassroots Engagements (ENGAGE) (10/01/2016 – 09/30/2021)**

The ENGAGE project seeks to increase citizen awareness of and engagement in civic actions at the national, regional and local level, and represent citizens' interests and drive Ukraine's reform agenda through more effective advocacy, monitoring, and activism. ENGAGE focuses on four key objectives: (1) Enhanced civic education; (2) Support for civic coalitions and initiatives at the national, regional and local levels; (3) Improved organizational capacity of partner CSOs; and (4) Long-term sustainability of civic engagement in democratic reforms.

**Relevance:** *One of our key findings in the 2011 assessment was the weakness of the environmental/conservation NGO sector in Ukraine. Although it has improved significantly, it is still relatively weak compared to EU countries or the U.S., and should be proactively targeted as one civil society sector where capacity-building is most needed.*

- Justice Sector Reform Program  
(10/01/2016 – 02/07/2021)

The Justice Sector Reform Program supports government and non-government-based efforts to establish an independent, accountable, transparent, and effective justice system that upholds the rule of law and is empowered to fight corruption. The activity strengthens judicial independence, increases accountability and transparency while instituting rule of law, enhances justice administration, and improves the quality of legal education.

**Relevance:** *Corruption and illegality are major root causes or “drivers” of many types of threats to species and ecosystems in Ukraine. There is a large need for environmental lawyers.*

- Local Capacity Development Program  
(7/18/2013 – 09/30/2017)

Through a partnership between USAID/Ukraine and Peace Corps Ukraine, the Local Capacity Development Program (LCDP) places experienced Peace Corps Volunteers and with USAID’s local NGOs for a two-year period to strengthen those institutions’ organizational capacity. Peace Corps volunteers will help local NGOs assess their organizational capacity, identify areas for improvement, and address capacity building needs. Local NGOs will increase their organizational capacity to implement high quality development projects with donors, including USAID. LCDP is designed to advance both Peace Corps Ukraine Community Development Project objectives and the USAID objective to directly engage local organizations in the implementation of their development work.

**Relevance:** *Local environmental, protected area, and nature conservation NGOs could be deliberately targeted/selected for some of this support.*

- Policy for Ukraine Local Self Governance (PULSE)  
(12/14/2015 – 12/13/2020)

This activity strengthens local governance, deepens democracy, improves conditions for development of communities and promotes stability. The activity helps the Government of Ukraine and local governments adopt and implement sound decentralization policies, beginning with decentralization enabling legislation based on local government input and by increasing resources and capacity of institutions of local self-government.

**Relevance:** *A very promising avenue for expanding the area covered by protected areas in Ukraine (it is currently far below EU and CBD targets for percentage of national territory under protection to conserve biodiversity) are locally-controlled protected area categories, especially regional landscape parks and zakazniks. Supporting local governments in areas with existing protected areas of these types, or which are interested in creating them, would support an action needed for biodiversity conservation.*

- Transparency and Accountability in Public Administration and Services (TAPAS)  
(08/04/2016 – 08/03/2021)

This anti-corruption activity provides e-governance tools to reduce opportunities for corruption within the Government of Ukraine and engages the public in anti-corruption efforts. The program’s an Open Data initiative disseminates standardized, accessible, and consistent GOU data for public, intra-governmental, and international oversight.

**Relevance:** Publicly available information on ecologically-relevant topics, such as maps of annual legal logging concessions from the State Forestry Agency, water management data from the State Water Agency, and hydropower siting and EIA information would help to meet some of the “actions needed” for biodiversity conservation.

- Ukraine Civil Society Capacity Building Project  
(07/11/2014 – 07/10/2019)

This project seeks to improve the organizational capacity of Ukrainian CSOs to become stronger citizen advocates and government watchdogs. The project improves the organizational development skills of CSOs through the NGO Marketplace (mini-grants voucher system, web-portal and regular capacity development forums), and strengthens the NGO Capacity Building Marketplace as a mechanism for providing organizational development assistance to civil society.

**Relevance:** As above, capacity-building in the “green” environmental and nature conservation arena is badly needed in Ukraine.

- Ukraine Civil Society Enabling Environment  
(07/11/2014 – 07/10/2019)

The purpose of this activity is to improve the legislative and policy environment to become more conducive to civil society needs and to reflect European standards. To achieve this, the project is focused on three objectives: 1) to improve the quality of relevant civil society enabling legislation and policy; 2) to increase capacity of public officials and CSOs to ensure effective implementation of legislation and policy; and, 3) to increase technical and organizational capacity of the Ukrainian Center for Independent Political Research (UCIPR) as a leader and driver of civil society legislative efforts.

**Relevance:** Environmental and ecological protection are key arenas for civil society to influence economic and political developments. In the US, some of the strongest NGOs are environmental and conservation NGOs. A proactive effort to include environmental and ecological issues in this project would help to meet some of the actions necessary for conserving biodiversity in Ukraine.

- Ukraine Media Project (U-Media)  
(10/01/2011 – 09/30/2018)

The U-Media Project promotes the development of a free, vibrant and professional media sector in Ukraine that provides a wide range of useful news and information, serves as a watchdog in the public interest and defends freedom of speech. The U-Media Project seeks to achieve this goal through four key objectives designed to: (1) Support and promote freedom of speech and media independence; (2) Increase the variety of news sources and improve news quality; (3) Improve the enabling environment for media and freedom of speech; and (4) Improve organizational capacity of Ukrainian media CSOs. Local media partners monitor and publicize intimidation and attacks on civic activists and journalists.

**Relevance:** Investigative journalism is badly needed to make the public aware of biodiversity losses and threats – many driven by illegality and corruption – and to motivate civil society advocacy on behalf of nature protection for all citizens and future generations of Ukrainians, Corrupted media have

*prevented some environmental stories from being published. Environmental activists and journalists (such as those opposing or reporting on illegal logging) have been targets of intimidation.*

- Small Project Assistance Program (SPA)  
(09/28/2012 – 09/30/2017)

The Small Project Assistance Program (SPA) is a joint collaboration between USAID and the Peace Corps aimed at building the capacity of local communities and organizations. The purpose of the SPA Program is to encourage and support community self-help efforts by providing small amounts of funding for activities, which have an immediate impact at the community level. Through the SPA Program, Peace Corps Volunteers assist local communities to develop and implement small community-initiated projects in such areas as health and sanitation, basic education, including non-formal education with out-of-school youth, women's organizations and other disadvantaged groups; agricultural and economic growth activities; environmental activities; and civic education and democracy building activities.

**Relevance:** *A range of biodiversity-friendly SME enterprises in rural areas adjacent to regional landscape parks or other types of locally-managed protected areas would greatly benefit from this type of support, and could be proactively targeted for some of this support under this project.*

### **Economic Growth -- Agriculture**

- Agriculture and Rural Development Support (ARDS)  
(09/07/2016 – 07/31/2020)

The project aims to support a more inclusive, competitive, and better governed agriculture sector that provides attractive livelihoods to rural Ukrainians. It will create a better enabling environment for agricultural small and medium enterprises (SMEs) by strengthening the capacity of the Ministry of Agriculture to implement sector reforms, by developing a transparent legal framework for agricultural land market, and by implementing reforms that attract investments in irrigation system modernization. The ARDS will improve agriculture sector competitiveness by supporting agricultural SMEs to introduce international quality and safety standards.

**Relevance:** *This project has strong natural linkages with biodiversity through the concept of water as an integrating ecosystem service. It is also relevant to biodiversity because of the pesticides and fertilizers used in agriculture. Integrated pest management (IPM) and soil nutrient management that minimizes nutrient loss/runoff are important for minimizing harm to aquatic and other biodiversity.*

### **Economic Growth – Energy**

- Energy Sector Anticorruption and Fiscal Transparency Initiative in Ukraine (Transparent Energy)  
(06/15/16 – 12/14/18)

This initiative seeks to reduce corruption and improve transparency in Ukraine's energy sector by disclosing, analyzing, and publicizing energy sector information commonly obscured from public view. The activity monitors and collects data; initiates journalist investigations, information inquiries, and a public pressure campaign along with exploring innovative models for disclosing fiscal information to the public, including legislative initiatives that would institute regular public reporting of key energy data.

**Relevance:** *Disclosing, analyzing, and publicizing information on hydroelectric power development plans, dam siting, and water management would assist in minimizing risks to aquatic biodiversity from hydropower development. This project also may provide a model for increased transparency in the forestry sector, which is needed to control illegal logging.*

- Development Credit Authority (DCA) Energy

USAID's energy efforts include a Development Credit Authority (DCA) component designed to promote end-use energy efficiency and renewable energy investments

**Relevance:** *In order to prevent threats to biodiversity from many kinds of renewable energy investments, strong environmental safeguards (including scientific studies and EIAs) are needed. This is applicable for hydropower, wind, and wood biomass energy development, and also expansion of biofuel crops (e.g. rapeseed) that are often grown on converted steppe.*

- Development Credit Authority (DCA) Loan Portfolio Guarantee Program with ProCredit Bank

09/2015 – 09/2023)

This DCA loan guarantee program with ProCredit Bank encourages more long-term financing for agriculture and clean energy.

**Relevance:** *As above, USAID has an opportunity to promote strong environmental safeguards that protect biodiversity through awareness and science-based EIAs as a condition of loans for agriculture or renewable energy development.*

### 8.3 Potential USAID Contributions to Biodiversity Conservation Needs

Many of the projects and activities in USAID's current and planned portfolio broadly and indirectly address some of the "actions needed" for biodiversity conservation in Ukraine, although none are targeted specifically enough to do so directly. The Biodiversity Assessment Team believes that USAID/Ukraine could make a significant contribution to addressing some of the country's biodiversity conservation needs through relatively minor, but deliberate and proactive, focusing and targeting of its current and proposed projects.

The long list of specific actions needed identified by our information gathering and analysis (**Annex H**) can be organized under five general themes, as discussed in Section 7.2. In Table 8.1 below we identify the objectives from the draft CDCS and the current USAID/Ukraine projects that have a potential to contribute to those five "actions needed" themes.



**Table 8.1 Relevance of USAID/Ukraine Portfolio to Actions Needed for Biodiversity Conservation**

<b>Actions-Needed Themes</b>	<b>Relevant Objectives and Sub-Sectors from Draft CDCS</b>	<b>Projects Implementing Relevant Actions</b>
Integrate Biodiversity Conservation Support and Actions into Economic Growth, Agriculture, Energy, and Democracy & Governance Activities	<ul style="list-style-type: none"> <li>• Anti-Corruption</li> <li>• Democratic Governance</li> <li>• Economic Growth <ul style="list-style-type: none"> <li>○ Agriculture</li> <li>○ Energy</li> <li>○ Private sector/SMEs</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• TAPAS</li> <li>• Transparent Energy</li> <li>• PULSE</li> <li>• DOBRE</li> <li>• Peace Corps</li> <li>• ARDS</li> <li>• DCA Ag. &amp; Energy</li> </ul>
Emphasize Water as an Integrating Ecosystem Service, and Restore Wetlands and Small Rivers in Upper Watersheds to Stabilize Downstream Flows	<ul style="list-style-type: none"> <li>• Democratic Governance</li> <li>• Economic Growth <ul style="list-style-type: none"> <li>○ Agriculture</li> <li>○ Energy</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• TAPAS</li> <li>• Transparent Energy</li> <li>• EU/AA</li> <li>• ARDS</li> <li>• DCA Ag. &amp; Energy</li> </ul>
Increase Transparency and Reduce Corruption and Illegality, and Enforce Existing Policies and Laws	<ul style="list-style-type: none"> <li>• Anti-Corruption</li> </ul>	<ul style="list-style-type: none"> <li>• Justice Sector Reform</li> <li>• TAPAS</li> <li>• U-Media</li> <li>• ENGAGE</li> </ul>
Develop and Promote Multiple-Use, Landscape-Scale Conservation Models as an Alternative to Conservation Based on Strict Nature Protection Models	<ul style="list-style-type: none"> <li>• Democratic Governance</li> <li>• Economic Growth <ul style="list-style-type: none"> <li>○ Agriculture</li> <li>○ Energy</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• DOBRE</li> <li>• PULSE</li> <li>• ENGAGE</li> <li>• Peace Corps</li> </ul>
Monitor the Ecological Effects of the Donbass Conflict	<ul style="list-style-type: none"> <li>• Conflict Mitigation</li> </ul>	No obvious candidate projects

## 8.4 Potential Risks to Biodiversity from Proposed CDCS

As discussed in the Introduction to this report, one of Congress's objectives in inserting the Section 119 biodiversity analysis requirement as an amendment to the Foreign Assistance Act was to assure that U.S. foreign aid does not support activities that harm the biodiversity of host countries. Table 8.2 provides a rough screening of the four general development objectives of the draft CDCS, and suggests actions needed to avoid creating potential threats to biodiversity from proposed actions.

**Table 8.2 Potential Risks to Biodiversity from Proposed Strategy**

<b>CDCS Results Framework DOs</b>	<b>Actions Needed to Mitigate Potential Risks of Negative Impacts to Biodiversity</b>
<b>Anti-Corruption (DO 1)</b>	None
<b>Conflict Mitigation (DO 2)</b>	None
<b>Democratic Governance (DO 3)</b>	None

CDCS Results Framework DOs	Actions Needed to Mitigate Potential Risks of Negative Impacts to Biodiversity
<b>Economic Growth (DO 4) --</b> <u>Agriculture Activities</u>	<ul style="list-style-type: none"> <li>• Safeguards needed to prevent any further conversion of natural steppe vegetation to agriculture or forestry</li> <li>• Regulation and IPM needed to reduce pesticide use</li> <li>• Soil testing, minimum tillage, riparian buffer zones needed to prevent excess fertilizer use and nutrient runoff</li> <li>• Scientific studies and safeguards needed to maintain ecological/environmental flows needed by species and ecosystems in watersheds where water is used for irrigation</li> </ul>
<b>Economic Growth (DO 4) --</b> <u>Energy Activities</u>	<ul style="list-style-type: none"> <li>• Scientific studies and EIAs needed to prevent biodiversity loss from hydropower dam siting</li> <li>• Scientific studies and safeguards needed to maintain ecological/environmental flows needed by species and ecosystems in watersheds where water is used for hydropower, thermal (coal, nuclear) powerplant cooling</li> </ul>
<b>Economic Growth (DO 4) --</b> <u>Private Sector/SME Activities</u>	<ul style="list-style-type: none"> <li>• SMEs based on natural resources (e.g., logging, fishing, wild products harvesting) need to comply with all environmental laws</li> </ul>

## 9 RECOMMENDATIONS

The Statement of Work for this Ukraine Biodiversity Assessment requested “recommendations for incorporating biodiversity conservation considerations in designing new USAID/Ukraine projects/activities and/or modifying the current ones.” It further stated that “Since USAID/Ukraine is neither implementing nor will propose programs under a strictly environmental objective, the Contractor most likely will be seeking to identify cross-sectoral linkages. For example, there may be local governance or economic growth work with municipalities that may be contributing to conservation needs, or economic policy reform work that may have implications for biodiversity. The Contractor may also identify potential opportunities that could enhance USAID contributions in the biodiversity conservation within the context of CDCS for Ukraine. These opportunities could range from influencing policies and programs of the GOU or donors, to making an additional linkage to conservation that the Mission may not have been aware of.”

In Chapter 8 we discussed potential opportunities for USAID to contribute to meeting biodiversity conservation needs in Ukraine through relatively minor focusing and specific targeting of its current and planned portfolio. In this final chapter, we prioritize and focus those potential opportunities into a handful of recommendations, which we again organize under the five general “actions needed” themes already discussed. We also provide recommendations about the need to recognize and mitigate the potential risks to biodiversity of specific kinds of activities that USAID/Ukraine is proposing to support.

### 9.1 Contributing to Actions Needed for Biodiversity Conservation

There are ample opportunities for USAID/Ukraine to support biodiversity conservation through linkages with its current and proposed portfolio of projects and activities, but this will not happen automatically. Taking advantage of these opportunities will require some deliberate, proactive focusing and targeting of certain activities within the current and planned portfolio. We recommend that USAID/Ukraine:

#### 9.1.1 Integrate Biodiversity Conservation Support and Actions into Economic Growth, Agriculture, Energy, and Democracy & Governance Activities

USAID’s latest “best practices” guide for FAA 118-119 assessments (USAID, 2017) states that “The FAA 118/119 analysis... is an important early step in identifying opportunities to use integrated approaches that support both biodiversity conservation and improved development outcomes.” As discussed in Chapter 8, USAID’s 2014 Biodiversity Policy (USAID, 2014) says that biodiversity is a cross-cutting issue in development – a foundation for all sustainable development that should be integrated in USAID strategies and plans in all sectors.

As a first step in supporting such integration, the Assessment Team recommends that USAID/Ukraine undertake a geographical review and mapping exercise. Our SOW requests that “... biodiversity maps, a list or a map of ecologically sensitive sites, ...” be included in the annexes. This request may have been primarily due to an interest in areas to avoid in their development activities, because the SOW also states that “In particular, the FAA 119 Analysis Report (Part I) will clearly identify (if possible) ecologically sensitive sites where USAID/Ukraine should neither undertake nor promote any activities involving: ...,” followed by a long list of energy, agriculture, and infrastructure activities the Mission might be supporting. We were also

informed about this request for maps or geospatial information on biodiversity directly from several USAID/Ukraine staff members.

Although this interest in avoiding ecologically sensitive areas for actions that would have a direct negative impact on biodiversity is important, we would like to highlight the benefits for biodiversity conservation that could come from deliberately targeting certain kinds of USAID project activities in places in Ukraine which support important species and ecosystems. It should be noted that important and unique species and ecosystems are distributed throughout Ukraine, they are valuable to people everywhere, and they are in need of management and protection everywhere. Ukraine's system of protected areas is spread throughout the country, and it is still developing and expanding to try to catch up with international standards, including those of the Convention on Biological Diversity and of the European Union (see Figure 9.1).

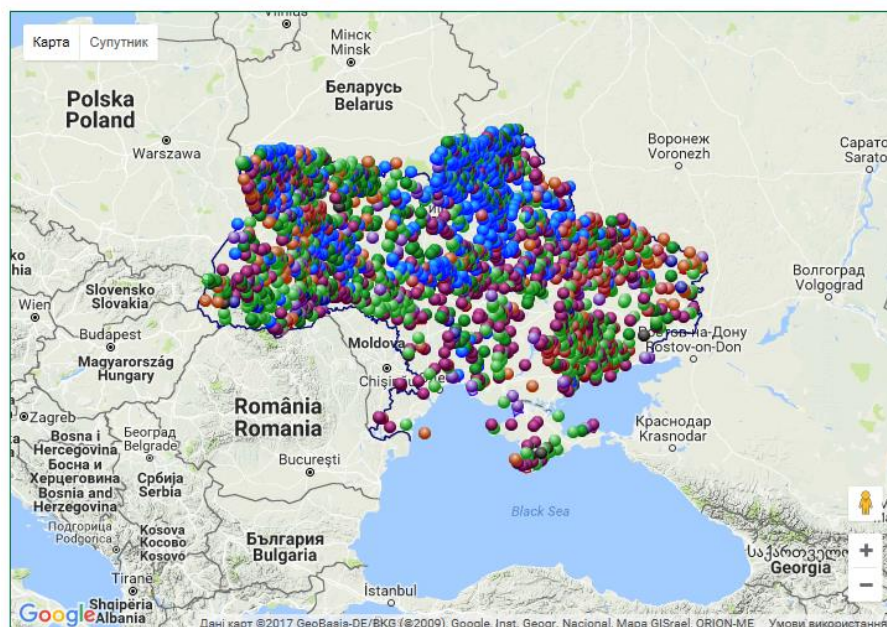
The maps in Figure 9.1 present two different views of biodiversity conservation in Ukraine, but both give an impression of the extensive distribution of important biodiversity areas in the country. Overlaying USAID/Ukraine's current and proposed activities on these biodiversity maps and others in a GIS system would be an excellent tool for planning integrated conservation and development.

**Figure 9.1: Biodiversity Conservation Areas in Ukraine**



Source: Emerald Network of Ukraine 2016 (InterEcoCentre, 2016)

<http://www.arcgis.com/home/webmap/viewer.html?webmap=d1804eb1f77546b8a282cd6dff1aa202>



Source: Grachov, A. Website “Project of Nature,” with map showing location of zakazniks  
<http://pzf.land.kiev.ua/pzf6-12.html>

We recommend that USAID/Ukraine conduct a geospatial analysis that overlays the locations of current and proposed USAID/Ukraine project activities on the distribution of current and proposed protected areas, as well as the Emerald Network. This task is beyond the scope of this assessment, but we think it would reveal many examples where USAID/Ukraine is already working, or proposing to work, in oblasts or local communities in or near to protected areas or other areas of important biodiversity (e.g., the Emerald Network). As discussed in Chapter 5, Ukraine is a party to the Bern Convention, and has been developing its “Emerald Network” since 2009, as part of the Association Agreement signed with the EU. That biodiversity conservation planning framework will be the foundation for Ukraine’s compliance with the convention and incorporation into the EU’s Natura 2000 network.

After conducting this mapping exercise, the Assessment Team recommends that USAID deliberately situate and implement some of the economic growth, agriculture, energy, democracy & governance activities in their portfolio in locations that will synergize with actions needed for biodiversity conservation. In many cases, those locations could also support Recommendation 3, to emphasize water as an integrating ecosystem service, and restore wetlands and small rivers in upper watersheds, and/or to contribute to Recommendation 4, to promote multiple-use, landscape-scale conservation models as an alternative to conservation based on strict nature protection.

Locating USAID project activities near protected areas with decentralized management structures – such as regional landscape parks and *zakazniks*, which are managed at the oblast level, with involvement of local councils – seems especially promising for finding synergies between sustainable development and conservation. Twenty-three new regional landscape parks have been created in the past five years, and it is very likely that the oblasts and communities where they are located would welcome institutional capacity-building and support for citizen engagement (e.g., from the DOBRE project), as well as support for agriculture and



energy development, and SME development and financing (e.g., from ARDS, DCA for agriculture and energy). Such locations would make excellent targets for pilot activities, because these types of protected areas involve decentralized management of biodiversity, with local input, and for multiple use. They could eventually provide replicable models of how to integrate broad-based sustainable development and biodiversity conservation.

Many current projects in USAID/Ukraine's portfolio could support the integration of development and conservation with only minor targeting and focusing. The Assessment Team recognizes that USAID cannot yet determine what modifications to the scope and cost of current projects would be needed to enable the targeting and focusing required for them to contribute to addressing actions needed for biodiversity conservation. However, we provide specific examples here for illustrative purposes. For example:

- TAPAS could help to reduce corruption and illegality in the siting and operation of small and medium hydropower facilities, water abstraction for irrigation, and logging.
- Transparent Energy could likewise assist in reducing the negative impacts of hydropower and other energy development.
- DOBRE and PULSE could strengthen local, decentralized institutions and enable more efficient management of water and other natural resources, and of local or regional protected areas such as regional landscape parks.
- ENGAGE and U-Media projects could help independent media and civil society organizations ensure that illegal activities and corruption were not diverting benefits that local ecosystems could be providing to local communities toward individual actors.
- ARDS, and DCA loan guarantees in the agriculture and energy sectors, could increase rural agricultural development, SMEs, and renewable energy production, but also help to ensure proper safeguards and technology to avoid or minimize risks to species and ecosystems.
- Peace Corps Local Capacity Development and Small Project Assistance Programs could deliberately target biodiversity-friendly agriculture and economic growth activities and nature conservation efforts.

#### 9.1.2 Emphasize Water as an Integrating Ecosystem Service, and Restore Wetlands and Small Rivers in Upper Watersheds to Stabilize Downstream Flows

Forests in the Carpathian Mountains and forests and bogs in Polissya absorb precipitation, and wetlands store water and regulate water flow, feeding downstream watersheds of the Dniester and Dnieper Rivers. These eco-hydrological processes stabilize water flows between wet and dry seasons, and supply water for domestic consumption, sanitation, irrigated agriculture, hydropower, industry, and transportation, and environmental flows needed to maintain aquatic species and ecosystems. Many of the forests, wetlands, and bogs that provide ecohydrological services are currently conserved in protected areas. In the past, many of these ecosystems were damaged or degraded by extensive drainage for agriculture or water diversion for irrigation or transportation, as we saw on a site visit to Pripjat-Stokhid National Nature Park. In some places, such as the Poliskiy Nature Preserve (zapovednik) that we visited, reflooding of wetlands and restoration of peat bogs is beginning to restore some of the ecological functions



and hydrological benefits of these ecosystems. Because stable flows of clean water depend on biodiverse, functioning, healthy ecosystems, a focus on water automatically provides a link between biodiversity conservation and sustainable development.

USAID strategies and policies recognize the importance of ecosystem services. The Climate Change and Development Strategy (USAID, 2012), for example, states that “Although these [ecosystem] services are critical to development, they are often not valued appropriately in the marketplace. For example, forests offer more than just timber for harvest... [they store] carbon; ... reduce erosion, improve the quantity and quality of water.” The Climate Change Strategy lists “value ecosystem services” as one of its 10 “guiding principles.”

Current projects in USAID/Ukraine’s portfolio could support this recommendation in various ways:

- TAPAS and Transparent Energy projects could play a role in bringing a rule-of-law framework and culture that would support integrated water management and sustain environmental flows needed to protect species and ecosystems
- EU/AA support activity could help Ukraine move toward integration with EU frameworks on integrated water management, transboundary rivers, and climate change adaptation.
- ARDS, and DCA loan guarantees in the agriculture and energy sectors, could support ecologically-sound irrigation and help reduce or prevent water contamination by pesticides and nutrients.

#### 9.1.3 Support efforts to Increase Transparency, Reduce Corruption and Illegality, and Enforce Existing Policies and Laws

Corruption and illegality are major root causes or “drivers” of many types of threats to species and ecosystems in Ukraine. The Assessment Team recommends, therefore, that environment and biodiversity could be a target sector for anti-corruption-related and governance-related activities supporting the Mission’s proposed anti-corruption and democratic governance objectives in the draft CDCS.

Relevant current projects in USAID/Ukraine’s portfolio include:

- ENGAGE could deliberately support activities to increase citizen awareness of, and engagement in, civic action for the sustainable use and conservation of Ukraine’s biodiversity.
- Justice Sector Reform project could enhance the rule of law with regard to environmental laws and treaty obligations that conserve biodiversity.
- TAPAS could also help to reduce illegality and corruption that threatens species and ecosystems by increasing the level of publicly available information on ecologically-relevant topics, logging concessions, water management, hydropower siting, hunting, and fishing.
- U-Media could support independent/non-corrupt media and investigative journalism on biodiversity-related stories: illegal logging, amber extraction, caviar, hydropower, illegal water diversion, environmental flows, *etcetera*.

#### 9.1.4 Support the Development of Multiple-Use, Landscape-Scale Conservation Models as an Alternative to Conservation Based on Strict Nature Protection

One challenge for biodiversity conservation in Ukraine is that the traditional perspective on conservation, dating from the Soviet era, is one of strict nature protection. That is, biodiversity is seen as something to be “protected” from humans, in certain restricted places, rather than “conserved” in multiple-use landscapes, where it can be used and managed in a sustainable manner for various human benefits (products, services, and non-material values). While strict nature preserves may foster a small, and often very dedicated, constituency of scientific researchers, they do not lend themselves to developing a broader public constituency for biodiversity conservation.



Map of Nizhniodniprovski Pravni National Nature Park,  
a mosaic of natural areas and urban and industrial zones in and near the city of Kherson.  
Photo Credit: B. Byers/ECODIT, April 2017

During our site visits, the Assessment Team saw several examples of innovative efforts to integrate biodiversity conservation with human activities in multiple-use landscapes. We saw examples in Pripyat-Stokhid National Nature Park in Volyn Oblast, Polisky National Nature Preserve (zapovednik) in Zytomyrska Oblast, the relatively new Nizhniodniprovski Pravni National Nature Park in Kherson Oblast, and the sprawling Chernomorskiy Biosphere Reserve, also in Kherson Oblast. In Pripyat-Stokhid, for example, we saw wetlands along the Pripyat River where local farmers had been allowed to cut emergent marsh vegetation for hay to feed cattle. This centuries-old technique helps to improve breeding habitat for the highly-endangered Aquatic Warbler (*Acrocephalus paludicola*). In Polisky Zapovednik we saw how community members were using traditional log hives to harvest honey from wild plants growing in the bogs of the reserve. Nizhniodniprovski Pravni National Nature Park, created in late 2015, included the urban waterfront and industrial docks of Kherson, islands in the Dnieper River with marsh

and forested swamp habitats, a Ramsar site, riverside suburbs and villages, and tiny strictly-protected areas that supported populations of rare plants.

Several current and proposed projects in USAID/Ukraine's portfolio could support actions needed under this theme including:

- DOBRE and PULSE could strengthen local, decentralized institutions for managing protected areas that are not strict nature reserves.
- ENGAGE could deliberately target communities and civil society organizations in and around some of these multiple-use protected areas to increase citizen awareness of their benefits and regulations, and engagement in their conservation and management.
- ARDS and the Peace Corps Local Capacity Development and Small Project Assistance Programs could support biodiversity-friendly agriculture, SMEs, and economic development activities in regional landscape parks and buffer zones of national nature parks and biosphere reserves.

### 9.1.5 Support Monitoring the Ecological Effects of the Donbass Conflict

In earlier chapters of this report, we described the threats to species and ecosystems that have resulted from the conflict in eastern Ukraine. Development Objective 2 of the draft CDCS, titled "Impacts of the Conflict Mitigated," would be the place for linkages with support for actions related to biodiversity. At this stage of the conflict, we can only recommend that USAID/Ukraine keep in mind that there have been negative impacts on biodiversity and monitor those impacts. No projects that we are aware of are directly relevant to this task. We think that monitoring could include:

- Remote sensing and satellite imagery of damage to habitats from explosives;
- Remote sensing and satellite imagery to monitor fires that may result from fighting; and
- Chemical testing and water quality monitoring of rivers flowing from the conflict zone into the Dnieper River or Sea of Azov.

## 9.2 Avoiding Negative Impacts on Biodiversity

In the previous chapter, we provided a general overview of potential threats to biodiversity that could be created by activities under its proposed economic growth objective, and suggested some general types of actions needed to avoid and/or mitigate them. The Assessment Team recognizes that specific activities supported by USAID must comply with the Agency environmental procedures and regulations specified in 22 CFR 216, and the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA). We understand that the Ukraine ARDS Project is currently undertaking a Pesticide Evaluation Report and Safer Use Action Plan (PERSUAP), as required, which should enable the project to minimize threats to species and ecosystems from pesticides.

## ANNEX A REFERENCES

Agrobusiness. 2017. <http://www.agro-business.com.ua/suchasne-tvarynnystvo/4445-sira-ukraiinska-poroda-natsionalne-nadbannia-na-mezhi-znyknennia.html>

BIOMON: Biodiversity Monitoring in Ukraine. No date. Website visited 7 May 2017. <http://www.biomon.org/en/>

Byers, Bruce A. 2008. Ecosystem Services: What Do We Know and Where Should We Go? ARD, Inc. [http://ncseonline.org/Conference/Biodiversity/Resources/Breakout%2029/Ecosystem\\_Services\\_Jan.\\_2008\\_update.pdf](http://ncseonline.org/Conference/Biodiversity/Resources/Breakout%2029/Ecosystem_Services_Jan._2008_update.pdf)

Carpathian Convention. 2011. Carpathian Heritage Inventory. <http://www.carpathianconvention.org/carpathian-heritage/>

CBD: Convention on Biological Diversity. 2006. Global Biodiversity Outlook 2. Secretariat of the Convention on Biological Diversity, Montreal, Canada.

CBD: Convention on Biological Diversity. 2010. Global Biodiversity Outlook 3. Secretariat of the Convention on Biological Diversity, Montréal, Canada.

CBD: Convention on Biological Diversity. 2010. Aichi Biodiversity Targets. <https://www.cbd.int/sp/targets/>

CIA: Central Intelligence Agency. 2017. Ukraine. The World Factbook. [https://www.cia.gov/library/publications/the-world-factbook/geos/print\\_up.html](https://www.cia.gov/library/publications/the-world-factbook/geos/print_up.html)

ClimaEast. 2017 EU ClimaEast Program. <http://www.climaeast.eu/>

Council of Europe. 2017. Emerald Network Reference Portal. <http://www.coe.int/en/web/bern-convention/emerald-network-reference-portal>

ENVSEC-UNECE-OSCE, 2015. Strategic Framework for Adaptation to Climate Change in the Dniester River Basin. [http://www.zoinet.org/web/sites/default/files/publications/Dniester\\_framework\\_en.pdf](http://www.zoinet.org/web/sites/default/files/publications/Dniester_framework_en.pdf)

European Commission. 2017. The Aarhus Convention. <http://ec.europa.eu/environment/aarhus/>

GOU: Government of Ukraine. 2016. National Biodiversity Strategy and Action Plan. v. 3., Law of Ukraine "On the Main Principles (Strategy) of the National Environmental Policy of Ukraine until 2020" (adoption - December 21, 2010, No. 2818; entry into force - January 14, 2011) – submitted to CBD on 7 November 2016 and posted on CBD website, “unofficial translation” <https://www.cbd.int/doc/world/ua/ua-nbsap-v3-en.pdf>

Grachov, A. 2017. Nature Protection Fund of Ukraine. 2012-2016. <http://pzf.land.kiev.ua/pzf4.html>.

Green Data Book of Ukraine. 2009. First Edition. Didukh, Y.P. (Ed.)  
<http://eng.menr.gov.ua/index.php/greenredbook> and <http://pryroda.in.ua/blog/chervona-ta-zelena-knyga-2009>

Hydropower Reform Coalition. 2017. Hydropower's Impacts on Rivers.  
<http://www.hydroreform.org/abouthydro/impacts-on-rivers>

InterEcoCenter. 2016. Emerald Network of Ukraine 2016.  
<http://www.arcgis.com/home/webmap/viewer.html?webmap=d1804eb1f77546b8a282cd6dff1aa202>

Jansson, Roland. 2006. The effect of dams on biodiversity. Pp. 77-84 in: **Dams under Debate**, Publisher: Swedish Research Council Formas, Editors: Birgitta Johansson and Björn Sellberg.  
[https://www.researchgate.net/profile/Roland\\_Jansson/publication/265914243\\_The\\_effect\\_of\\_dams\\_on\\_biodiversity/links/542140bf0cf2ce3a91b6d443/The-effect-of-dams-on-biodiversity.pdf](https://www.researchgate.net/profile/Roland_Jansson/publication/265914243_The_effect_of_dams_on_biodiversity/links/542140bf0cf2ce3a91b6d443/The-effect-of-dams-on-biodiversity.pdf)

Korshikov, I. I., and E. A. Mudrik. 2006. Age Dynamics of Genetic Variation in an Isolated Population of Chalk Pine *Pinus sylvestris* var. *cretacea* Kalenicz. ex Kom. from Donbass. Russian Journal of Genetics, 2006, Vol. 42, No. 5, pp. 532–538.  
[https://www.researchgate.net/profile/Elena\\_Mudrik/publication/6976961\\_Age\\_dynamics\\_of\\_genetic\\_variation\\_in\\_an\\_isolated\\_population\\_of\\_chalk\\_pine\\_Pinus\\_sylvestris\\_var\\_cretacea\\_Kalenicz\\_ex\\_Kom\\_from\\_Donbass/links/0deec53ac12254f0bc000000/Age-dynamics-of-genetic-variation-in-an-isolated-population-of-chalk-pine-Pinus-sylvestris-var-cretacea-Kalenicz-ex-Kom-from-Donbass.pdf](https://www.researchgate.net/profile/Elena_Mudrik/publication/6976961_Age_dynamics_of_genetic_variation_in_an_isolated_population_of_chalk_pine_Pinus_sylvestris_var_cretacea_Kalenicz_ex_Kom_from_Donbass/links/0deec53ac12254f0bc000000/Age-dynamics-of-genetic-variation-in-an-isolated-population-of-chalk-pine-Pinus-sylvestris-var-cretacea-Kalenicz-ex-Kom-from-Donbass.pdf)

Kussul, N., A. Shelestov, R. Basarab, B. Yailymov, M. Lavreniuk, A. Kolotii . 2016. High Resolution Land Cover Map for Ukraine.  
<http://inform.ikd.kiev.ua/content/ua/publications/articles/content/2016/HIGH%20RESOLUTION%20LAND%20COVER%20MAP%20FOR%20UKRAINE.pdf>

Manukalo, V. 2009. Impacts of Climate Changes in Ukraine on Hydrological Regime and Water Resources: Assessment and Measures of Adaptation. American Geophysical Union, Fall Meeting 2009, abstract #GC43B-03 <http://adsabs.harvard.edu/abs/2009AGUFMGC43B..03M> keep this, hotlink still works

Massey, Erik. E. 2012. Experience of the European Union in Adaptation to Climate Change and its Application to Ukraine. OSCE: Organization for Security and Cooperation in Europe; Office of the Co-coordinator of OSCE Economic and Environmental Activities.  
<http://www.osce.org/eea/93302?download=true>

MENR: Ministry of Ecology and Natural Resources of Ukraine. 2010. Fourth National Report to the Convention on Biological Diversity. (in Russian). <http://www.cbd.int/doc/world/ua/ua-nr-04-ru.pdf>

MENR: Ministry of Ecology and Natural Resources; State Service of Ukraine of Emergencies;

National Academy of Sciences of Ukraine; and Ukrainian Hydrometeorological Institute. 2013. Sixth National Communication of Ukraine on Climate Change. <http://www.seia.gov.ua/seia/doccatalog/document;jsessionid=513E9BB285610BA9DAD5E1B0728C0931.app2?id=638134>

MENR: Ministry of Ecology and Natural Resources of Ukraine. 2015. Fifth National Report of Ukraine to the Convention on Biological Diversity. 2015. Ministry of Ecology and Natural Resources of Ukraine, Directorate of Natural Resources Protection. Submitted to CBD 7 April 2015. <https://www.cbd.int/doc/world/ua/ua-nr-05-en.pdf>

MENR: Ministry of Ecology and Natural Resources. 2017a. Web portal on Red Book species and protected areas. <http://pzf.menr.gov.ua/geo-portal.html>

MENR. 2017b. Nature Protection Fund of Ukraine. <http://pzf.menr.gov.ua/>

National Atlas of Ukraine. 2008. Paton, B.E., A.P. Shpak, and L.G. Rudenko, Eds. National Academy of Sciences of Ukraine. <http://wdc.org.ua/atlas/en/4120100.html>

Natural Capital Project. 2017. Project website: <http://www.naturalcapitalproject.org/>  
Parnikoza I.Yu., and Vasiluk O.V. 2010. Ukrainian Steppes: Current State and Prospects for Preservation. National ecological center of Ukraine, a/b 89, Kyiv-25, Ukraine, 01025  
<http://pryroda.in.ua/step/doslidzhennya-rozrobki-sposterezhennya/ukrainian-steppes-current-state-and-perspectives-for-safe/>

Nature Protection Fund of Kyiv Oblast. 2012. National Ecological Center of Ukraine. Kyiv. <http://pryroda.in.ua/kyiv-region>

NECU: National Ecological Center of Ukraine. 2017. Nature in Ukraine. <http://pryroda.in.ua/blog/category/pzf>

Pavelko, Anatoliy, and Dmytro Skrylnikovavelko. 2010a. Illegal Logging in Ukraine: Fact-finding study. Regional Environmental Center (REC).

Pavelko, Anatoliy, and Dmytro Skrylnikovavelko. 2010b. Illegal Logging in Ukraine (Governance, Implementation and Enforcement): Diagnostic audit. Regional Environmental Center (REC).

Ramsar. 2017. Country Profile: Ukraine. <http://www.ramsar.org/wetland/ukraine>

Ramsar Sites Information Service. 2017. Map of Ramsar Sites of Ukraine. [https://rsis.ramsar.org/ris-search/?f\[0\]=regionCountry\\_en\\_ss%3AUkraine](https://rsis.ramsar.org/ris-search/?f[0]=regionCountry_en_ss%3AUkraine)

Red Data Book of Ukraine. Animals. 2009. I. A. Akimov (Ed.). Kyiv: Globalconsulting: 600. <http://eng.menr.gov.ua/index.php/greenredbook>



Red Data Book of Ukraine. Plants. 2009. Y. P. Didukh Y.P. (Ed.). Kyiv: Globalconsulting: 900.  
<http://eng.menr.gov.ua/index.php/greenredbook>

Rossberg, Max A.E. 2016. Japanese buyers fueling illegal logging in Romania's and Ukrainian last ancient forests. European Wilderness Society. <http://wilderness-society.org/japanese-buyers-fueling-illegal-logging-romanias-last-ancient-forests/>

Russi, D., ten Brink P., Farmer A., Badura T., Coates D., Förster J., Kumar R. and Davidson N. 2013. The Economics of Ecosystems and Biodiversity for Water and Wetlands. IEEP, London and Brussels; Ramsar Secretariat, Gland.

Society for Saving Agrobiodiversity in the Carpathian Mountains. 2017. <http://www.karpaten-bueffel.eu/en/mountain-hucul.html>

State Statistics Service of Ukraine. 2016. <http://www.ukrstat.gov.ua/>

Tarieiev A.S., Bojko V.R., Moysiienko I.I., Kostikov I.Yu. (2013). Similarity of *Betula borysthena* Klov with intraspecific taxa of *Betula pubescens* Ehrh. Chornomors'k bot. z., 9 (2): 158-169.  
[https://www.researchgate.net/publication/256442414\\_Similarity\\_of\\_Betula\\_borysthena\\_Klov\\_v\\_with\\_intraspecific\\_taxa\\_of\\_Betula\\_pubescens\\_Ehrh](https://www.researchgate.net/publication/256442414_Similarity_of_Betula_borysthena_Klov_v_with_intraspecific_taxa_of_Betula_pubescens_Ehrh)

TEEB: The Economics of Biodiversity and the Environment. 2017. Project website:  
<http://www.teebweb.org/>

TEEB: The Economics of Biodiversity and the Environment. 2015. TEEB for Agriculture & Food: an interim report. United Nations Environment Programme, Geneva, Switzerland.

TEEB: The Economics of Biodiversity and the Environment. 2013. Georgia Scoping Study.  
[http://doc.teebweb.org/wp-content/uploads/2014/01/TEEB-Scoping-Study-for-Georgia\\_2013WEB.pdf](http://doc.teebweb.org/wp-content/uploads/2014/01/TEEB-Scoping-Study-for-Georgia_2013WEB.pdf)

Transparency International. 2016. Corruption Perceptions Index 2016.  
[http://www.transparency.org/news/feature/corruption\\_perceptions\\_index\\_2016](http://www.transparency.org/news/feature/corruption_perceptions_index_2016)

Tilman, David, and John A. Downing. 1994. Biodiversity and stability in grasslands. *Nature* **367**, 363 – 365. <http://www.nature.com/nature/journal/v367/n6461/abs/367363a0.html>

Ukrainian Center for European Policy, 2016. Ukraine and the Association Agreement, Implementation Monitoring July 1 — November 1 2016.

UNESCO-MAB. 2017. Biosphere Reserves in Ukraine.  
<http://www.unesco.org/mabdb/br/brdir/europe-n/Ukrainemap.htm>



UNEP and WWF, 2013. TEEB Scoping Study for Georgia. United Nations Environment Programme (UNEP), Geneva, Switzerland. [http://doc.teebweb.org/wp-content/uploads/2014/01/TEEB-Scoping-Study-for-Georgia\\_2013WEB.pdf](http://doc.teebweb.org/wp-content/uploads/2014/01/TEEB-Scoping-Study-for-Georgia_2013WEB.pdf)

USAID. 2001. Biodiversity Assessment for Ukraine. August 2001. Chemonics International.

USAID. 2005a. Biodiversity Conservation: A Guide for USAID Staff and Partners. Sept. 2005 [http://pdf.usaid.gov/pdf\\_docs/PNADE258.pdf](http://pdf.usaid.gov/pdf_docs/PNADE258.pdf)

USAID. 2005b. Tropical Forestry and Biodiversity (FAA 118-119) Analyses: Lessons Learned and Best Practices from Recent USAID Experience. Sept. 2005 [http://pdf.usaid.gov/pdf\\_docs/Pnade195.pdf](http://pdf.usaid.gov/pdf_docs/Pnade195.pdf)

USAID. 2007. Ukraine FAA-119 Biodiversity Analysis. Feb. 2007. DevTech Systems, Inc.

USAID. 2012. Climate Change and Development Strategy. [http://pdf.usaid.gov/pdf\\_docs/Pdacs780.pdf](http://pdf.usaid.gov/pdf_docs/Pdacs780.pdf)

USAID. 2014. USAID Biodiversity Policy. March 2014. [http://pdf.usaid.gov/pdf\\_docs/pdacy300.pdf](http://pdf.usaid.gov/pdf_docs/pdacy300.pdf)

USAID. 2016a. Ukraine Climate Change Risk Profile. <https://www.climatelinks.org/resources/climate-change-risk-profile-ukraine>

USAID. 2016b. Developing Situation Models in USAID Biodiversity Programming. USAID Measuring Impact Project. August 2016. [http://pdf.usaid.gov/pdf\\_docs/PA00M8MV.pdf](http://pdf.usaid.gov/pdf_docs/PA00M8MV.pdf)

USAID. 2017. Foreign Assistance Act 118/119 Tropical Forest and Biodiversity Analysis: Best Practices Guide. USAID BRIDGE Project. February 2017. [http://pdf.usaid.gov/pdf\\_docs/PA00MKS3.pdf](http://pdf.usaid.gov/pdf_docs/PA00MKS3.pdf)

USAID-Ukraine. 2011. Ukraine FAA119 Biodiversity Assessment: Actions Needed for Conservation. [http://pdf.usaid.gov/pdf\\_docs/pnaed216.pdf](http://pdf.usaid.gov/pdf_docs/pnaed216.pdf)  
Web-Portal of Ukrainian Government. 2017. The public cadastral maps is freely available. [http://www.kmu.gov.ua/control/en/publish/article?art\\_id=245929406](http://www.kmu.gov.ua/control/en/publish/article?art_id=245929406)

Vardon, Michael. 2014. Water and Ecosystem Accounting. Technical Note, UN Statistical Agency, System of Environmental-Economic Accounting (SEEA) Program; UN Environment Program, The Economics of Ecosystems and Biodiversity (TEEB) Office; Secretariat of the Convention on Biological Diversity; and Norwegian Ministry of Foreign Affairs.

Wikipedia. No date. Categories of Protected Areas of Ukraine: [http://en.wikipedia.org/wiki/Categories\\_of\\_protected\\_areas\\_of\\_Ukraine](http://en.wikipedia.org/wiki/Categories_of_protected_areas_of_Ukraine)

WWF: World Wide Fund for Nature. 2017a. FSC disassociates from Schweighofer, following

WWF complaint. 17 Feb. 2017. <http://wwf.panda.org/?292630/FSC-disassociates-from-Schweighofer-following-WWF-complaint>

WWF: World Wide Fund for Nature. 2017b. Forest Watch (in Ukrainian). [http://wwf.panda.org/uk/our\\_work/forests/sustainable\\_forestry/forest\\_watch/](http://wwf.panda.org/uk/our_work/forests/sustainable_forestry/forest_watch/)

WWF: World Wide Fund for Nature. 2017c. Ecomap Project (in Ukrainian). <http://www.ecomap.org/#/map>

WWF. 2016. Old Growth and Virgin Forests of the Ukrainian Carpathians (web map) <http://gis-wwf.com.ua>

WWF. 2014. High Conservation Value Forests of the Carpathian Region. <http://sfmu.org.ua/ua/hcvf/maps>

## ANNEX B BIOGRAPHICAL SKETCHES OF THE ASSESSMENT TEAM

**Dr. Bruce Byers, Team Leader:** Bruce Byers is an ecologist and biodiversity conservation and natural resources management specialist with more than 30 years of experience working in more than 40 countries in Africa, Asia, Europe and Eurasia, and Latin America. He holds an M.A. and Ph.D. in ecology and evolution from the University of Colorado. Dr. Byers has led many multi-disciplinary and international teams in assessments, evaluations, and strategic planning exercises, on topics including biodiversity conservation, forestry, climate change adaptation and mitigation, ecosystem services, and environmental communication, outreach, and behavior change. He has led or participated in more than a dozen FAA 118-119 assessments for USAID, including as team leader for the previous USAID/Ukraine FAA 119 Biodiversity Analysis in 2011. He was the lead consultant and author of the 2005 USAID publication *Tropical Forestry and Biodiversity (FAA 118 and 119) Analyses: Lessons Learned from Recent USAID Experience and Guidelines for USAID Staff*, which was based on a review of more than 30 USAID FAA 119, FAA 118/119, and ETOA reports.

**Ms. Olena Tarasova-Krasiieva, Local Natural Resource Management Specialist:** Olena Tarasova-Krasiieva is a conservation science and policy expert with more than 10 years of experience in her field. She has worked with governmental, non-governmental, and international donor institutions, and has served since 2015 as the Ukraine Country Coordinator for WWF, the World Wide Fund for Nature. She holds an M.A. in Environmental Science and Policy from the National University of Kyiv-Mohyla Academy, and an M.Sc. in Conservation Science from Imperial College, London. From 2007-2012 she was an assistant professor at the National University of Kiev-Mohyla Academy, and was a founder and project coordinator of the NGO EcoClub “Green Wave.” Ms. Tarasova-Krasiieva was a member of the team that conducted the 2011 FAA 119 Biodiversity Assessment for USAID/Ukraine. In 2012 she was selected to participate in the International Visitor Leadership Program of the U.S. Department of State. Ms. Tarasova-Krasiieva is fluent in Ukrainian, Russian and English.

**Ms. Olga Denyschuk, Local Aquatic Resources/Wetlands Specialist:** Olga Denyschuk is an ecologist specializing in freshwater and wetland biodiversity conservation and aquatic resources management. She currently serves as Senior Freshwater Officer for WWF, the World Wide Fund for Nature, in Ukraine, where she is leading the development of a strategy and action plan for freshwater biodiversity conservation. Ms. Denyschuk holds an M.Sc. in Ecology from the National University of Kyiv-Mohyla Academy, and an M.Sc. in Environmental Science and Management from Duquesne University in Pittsburgh, Pennsylvania, USA. From 2007-2010 she was a wetlands and protected areas specialist for the UNDP Bangladesh Coastal and Wetland Biodiversity Management Project. Ms. Denyschuk is fluent in Ukrainian, Russian and English.

## **ANNEX C      STATEMENT OF WORK**

### **BIOLOGICAL DIVERSITY (FAA 119) ANALYSIS (ASSESSMENT)**

#### **I.      Purpose and Objective**

The purpose of this task is to conduct an assessment of biodiversity conservation needs in Ukraine for the purposes of complying with sections 118 and 119 of the Foreign Assistance Act of 1961, as amended, and country strategy guidelines under ADS 201.3.4.11 and ADS 204.5. Based on this assessment, assist the Mission to define how its new five-year country development cooperation strategy (CDCS) contributes to Ukraine's conservation needs, as required by U.S. legislation and agency regulations. This assessment could also serve as a planning tool to assist USAID/Ukraine in better integrating environment concerns into their overall program.

#### **II.      Background**

USAID/Ukraine is currently in the process of developing a new CDCS for the 2017-2022 timeframe. Biodiversity conservation is a critical approach for achieving sustainable development and should be considered in Mission strategic approaches as a way to improve development outcomes.

The U. S. Foreign Assistance Act of 1961 (FAA) Section 119 requires USAID analyze national needs for conserving biological diversity and potential USAID contributions to these needs in all country strategy plans. Specifically, FAA Section 119(d), Country Analysis Requirements requires that: "Each country development strategy statement or other country plan prepared by the Agency for International Development shall include an analysis of: (1) the actions necessary in that country to conserve biological diversity, and (2) the extent to which the actions proposed for support by the Agency meet the needs thus identified. (FAA, Sec. 119(d))."

The FAA 119 analysis is an opportunity for the Mission to better understand the strategic linkages between the conservation of a country's biodiversity and development, so that it can structure a sound Results Framework that will support future programming. Potential USAID partners and other stakeholders including the Government of Ukraine (GOU), Ukrainian civil society organizations (CSOs), other domestic and international development partners will have an opportunity to convey their views on Ukraine's biodiversity conservation needs, to re-assess their past and current cooperation (or the lack of cooperation) with USAID in this area, and to learn about opportunities for conserving biodiversity that the Mission may address in 2017-2022.

As Ukraine is not a tropical country, a tropical forest analysis mandated by FAA 118 is not required.

### III. Scope of Work

Under the direction of a team leader, the assessment team shall evaluate biodiversity concerns and conservation efforts in Ukraine. The focus of all activities taken under this assignment is twofold:

- 1) To identify actions necessary to conserve biodiversity, and
- 2) To describe how and to what extent actions proposed in the country strategic plans meet, or could meet, the biodiversity needs thus identified.

It is anticipated that the assessment team will perform the following activities:

#### A) Desk Review and Data Collection

1. Gather and begin to analyze existing information on biodiversity in Ukraine to identify biodiversity status, key biodiversity issues (including climate change related impacts), relevant stakeholders, policy and institutional frameworks, practices and promotion systems, as well as gaps in the available information.
2. Conduct a desk review of existing documentation on biodiversity in Ukraine, such as those prepared by the host government agencies, donors, and national and international NGOs. Examples of such documents may include the National Biodiversity Conservation Strategies and Action Plan (NBSAP), the National State of the Environment Report (NSOER), National Environmental Action Plan (NEAP); Global Environment Fund (GEF) project reports; reports by FAO, UNESCO, UNEP, or UNDP; reports by conservation NGOs, etc. USAID FAA I I9 Analyses for Ukraine can be found at: [Ukraine Biodiversity \(FAA I I9\) Analysis 2011 \(Actions Needed\)](#) and [Ukraine Biodiversity \(FAA I I9\) Analysis 2007](#).
3. The Mission will provide the team with its current CDCS, relevant project/activity documents, and a draft Results Framework for the new CDCS. The Mission also may provide the team with advice and protocol on approaching USAID partners and host country organizations with respect to this assignment. The team shall be aware of sensitivities related to an assessment exercise (e.g., the potential for raising expectations, and the need to be clear as to the purpose of the assessment) and respect Mission guidance.
4. Hold meetings with the Europe & Eurasia (E&E) Bureau Environmental Officer (BEO), other E&E Bureau technical staff as recommended by USAID/Ukraine, relevant staff of the [Forestry and Biodiversity Office](#) (FAB) of the [Bureau for Economic Growth, Education and Environment](#) (E3), the [U.S. Forest Service](#) of the [U.S. Department of Agriculture](#), and any other Washington, DC-based entities (such as other U.S. government agencies and conservation organizations with active programs in Ukraine) to gather relevant information on regional programs and agency environmental regulations.
5. Update questionnaires, surveys, focus group discussion (FGD) guides, and other data collection tools that will be used in Ukraine. Update the list of stakeholders who will be invited to share their opinion on biodiversity status, key biodiversity issues, policy and institutional frameworks, and related topics. Update the schedule of tasks/milestones and

related consultations, surveys, meetings, round table discussions, FGDs, site visits, and other events/venues planned for data collection in Ukraine.

6. In coordination with the Mission, begin planning site visits based on the Mission's recommendations and on the Team's preliminary review of key topics and information gaps. The team will discuss organizations to be contacted and any planned site visits with the Mission and coordinate as required.

#### **B) Field Work and Data Collection**

1. Upon arrival in Ukraine, meet with the Mission Program and Environmental Officers to get Mission perspectives on the assignment, discuss the Mission's current CDCS and activities, and gain an understanding of the status of the CDCS and CDCS program goals and objectives, specific Mission interests and protocol on approaching USAID partners and host country organizations with respect to the assignment.
2. Update the FAA I I9 Analysis Work Plan that includes the List of FAA I I9 Analysis Stakeholders and Stakeholder Engagement Strategy, the schedule of tasks/milestones and data collection events/venues, and data collection tools.
3. Meet with the Office of Economic Growth and the Office of Democracy and Governance to gain an understanding of their current activities and proposed CDCS goals and objectives and to get their recommendations for consultations, interviews, surveys, round table discussions, FGDs, site visits, and other data collection events and tools.
4. Discuss biodiversity status and key issues, policy and institutional frameworks, and related topics with relevant GOU organizations, market regulators, local research centers, local and international NGOs, donors and other organizations, initiatives/projects, and individuals, who are involved in forest and biodiversity conservation and/or relevant cross-cutting issues or may influence policies and/or activities that have impact on biodiversity in Ukraine.
5. Conduct one to three site visits, if necessary to supplement the understanding gained from interviews, literature, and other second-hand sources. The Mission expects the Contractor to consider wetland areas in Kherson, Odesa, and/or Zaporizhzhia oblasts, and wildlife sanctuaries in Kherson and Transcarpathian oblasts as potential site visit locations, as well as .

#### **C) Data Analysis and Presentation**

1. Prepare a MS PowerPoint based presentation of FAA I I9 Analysis methodology, tasks, key findings, as well as preliminary conclusions and recommendations.
2. Prior to departure, present FAA I I9 Analysis methodology, tasks, key findings, preliminary conclusions and recommendations at two separate pre-departure briefings for the Mission and major stakeholders and collect their feedback.

#### D) Preparation of Reports

1. Prepare and submit for USAID review an initial report describing FAA I 19 Analysis methodology, team, tasks, findings, conclusions, and recommendations related to the actions necessary to conserve biodiversity in Ukraine (FAA I 19 Analysis Report: Part I).
2. Review draft CDCS, as well as all relevant project/activity design documents (including project approval documents (PADs)), and assess the extent to which actions proposed in the new USAID/Ukraine strategic plan and relevant project/activity design documents meet Ukraine's biodiversity conservation needs identified.
3. Prepare and submit for USAID review an addendum to the initial report describing findings, conclusions and recommendations associated with the assessment of the extent to which actions proposed in the new USAID/Ukraine strategic plan meet Ukraine's biodiversity conservation needs identified (FAA I 19 Analysis Report: Part II).

#### IV. **Methodology**

It is anticipated that a mix of analytical approaches will be required to meet the requirements outlined in the *Scope of Work* section above. Suggested data sources include: (a) U.S. government publications, (b) GOU publications, (c) publications of other biodiversity stakeholders, (d) individual and group consultations, (e) interviews, (f) surveys, (g) round table discussions, (h) FGDs, (i) site visits, and (j) direct observations.

When planning and conducting the FAA I 19 Analysis, the Team will make every effort to reflect opinions and suggestions of all major stakeholders and different gender perspectives. Where surveys or interviews are used, appropriate sampling and questioning techniques will be utilized to ensure representative results. Emphasis will be on collection of reliable empirical data and/or objectively verifiable evidence, as opposed to anecdotal evidence.

The Contractor is invited to consider a staged effort to ensure that international specialist(s) have acquired sufficient knowledge of Ukraine's biodiversity status and needs, stakeholders, policy and institutional frameworks, practices and promotion systems before arrival to Ukraine.

#### V. **FAA I 19 Analysis Team Qualifications and Composition**

The Team Leader must have strong team management skills and extensive and diverse experience in designing and/or conducting biodiversity analysis and crosscutting programming. The Team Leader must have sound knowledge of 22 CFR 216, FAA I 17-119, and USAID development policies and practices. Excellent communication skills (both verbal and written) and experience in conducting biodiversity analysis in Ukraine are desirable. Knowledge of Ukrainian or Russian is desirable.

The Contractor must include in the Team at least one Senior Natural Resource Management Advisor with post-graduate qualifications (Master's level degree or higher) in biology, ecology, zoology, forestry, or a closely related field; good knowledge of USAID's strategic planning



process related to biodiversity; demonstrated substantial international expertise in assessing environmental threats and development program impacts on the environment; good knowledge of regional ecosystems and relevant experience in the E&E region; excellent analytical, writing, and presentation skills; and fluency in English. Experience in conducting similar biodiversity analysis is desirable. Relevant experience in Ukraine is desirable. Knowledge of relevant Eastern Europe/CIS region development issues and international assistance approaches is desirable. Knowledge of 22 CFR 216, FAA 117-119 is desirable. Knowledge of Ukrainian or Russian is desirable.

The Contractor must include in the Team at least one Local Natural Resource Management Specialist with post-graduate qualifications (Master's level degree or higher) in biology, ecology, zoology, forestry, or a closely related field; excellent knowledge of Ukrainian ecosystems and relevant governmental and non-governmental institutions, expertise in Ukraine's environmental policy and institutional framework; demonstrated experience in the analysis of relevant policies and practices; sound knowledge of relevant local practices and promotion systems; good contacts within relevant Ukraine's governmental and non-governmental organizations; excellent analytical, writing, and presentation skills; good knowledge of international biodiversity conservation agreements and EU's approaches; and fluency in English. Experience in conducting similar biodiversity analysis and development program impacts on the environment in Ukraine or the E&E region is desirable. Knowledge of 22 CFR 216 and FAA 119 is desirable. Knowledge of USAID's strategic planning process related to biodiversity is desirable. Good knowledge of biodiversity conservation activities undertaken by other international donors in Ukraine is desirable. Knowledge of English is desirable.

The Team may include an aquatic resources specialist (with or without marine expertise) and/or a local agricultural, governance, or other non-environment sector specialist who will focus on linkages between biodiversity and key USAID technical assistance sectors.

The Team Leader, Senior Natural Resource Management Advisor (s), and Local Natural Resource Management Specialist(s) will be key personnel under this TO.

**Note:** *One individual may act as the Team Leader and Senior Natural Resource Management Advisor if all qualifications requirements are met.*

## **VI. FAA 119 Analysis Management**

The Mission will appoint the FAA 119 Analysis COR and the Alternate COR (A/COR) to provide technical guidance and administrative oversight in connection with the FAA 119 Analysis, to review the FAA 119 Analysis Work Plan (FAA 119 AWP) and to review and accept the draft and final FAA 119 Analysis Reports (ARs). The Mission may delegate one or more staff members (or involve staff of other USAID missions) to work full-time with the Team or to participate in the field data collection. The COR will inform the Contractor about any full-time/part-time Mission delegates no later than three working days after the submission of a draft FAA 119 AWP. All costs associated with the participation of full-time/part-time Mission delegates in the FAA 119 Analysis will be covered by the Mission.

To facilitate FAA I19 Analysis planning, the COR will make available to the Contractor the list of current USAID/Ukraine projects and activities, implementing partners, counterparts, and project/activity sites within one working day of the award effective date (as warranted, the Contractor will receive additional documentation).

The Contractor will submit an electronic version of the revised FAA I19 AWP to the COR at least two working days prior to the proposed Team's departure for the field data collection. The submitted FAA I19 AWP should be fully consistent with the Scope of Work requirements and Contractor's proposal (if the latter is fully or partially incorporated into the TO).

The FAA I19 AWP should define all FAA I19 Analysis tasks and milestones and include: (1) the FAA I19 Analysis Stakeholder Engagement Strategy, (2) a list of interviewees, (3) a preliminary list of survey participants (when a survey is planned), (4) a preliminary schedule of the Team consultations, interviews/meetings, survey(s) (when planned), round table(s) and FGDs (when planned), site visits and any other data collection events/venues, as well as briefings for USAID/Ukraine staff and biodiversity stakeholders, (5) all data collection tools (questionnaire(s), survey(s), FGD guides, etc.), which the Contractor will use for the FAA I19 Analysis, (6) adjustments to the FAA I19 Analysis methodology (if needed) including selection criteria for site visits, and (7) an outline of each FAA I19 Analysis Report (if different from the templates included in the TO). If needed, the Contractor will update the submitted FAA I19 AWP and submit the updated version to the COR on a weekly basis.

The Team will conduct weekly briefings for the COR and A/COR and other relevant Mission personnel in order to keep them informed of the progress of the FAA I19 Analysis and any issues that may arise/have arisen. The Team shall also be prepared to do a briefing for the COR and A/COR and other relevant Mission personnel within two working days after their arrival for the field data collection. The Team will discuss any FAA I19 Analysis barriers/constraints and significant deviations from the original/updated FAA I19 Analysis AWP with the COR and seek USAID/Ukraine's guidance on those matters.

The Team will invite the COR and other relevant Mission personnel to participate in all meetings, group discussions, site visits and other activities planned in conjunction with the FAA I19 Analysis as soon as those events are on agenda. The Team shall be prepared to have USAID staff and other activity stakeholders invited by the COR to any meeting, group discussion, site visit, or other activity planned in conjunction with the FAA I19 Analysis as observers.

## **VII. Timing and Logistics**

It is anticipated that the FAA I19 Analysis will require up to fifteen (15) weeks including three (3) weeks of work in Ukraine.

Upon executing the contract, the *Document Review and Meetings in the US* (Phase I) will begin on/about March 13, 2017 and continue through on/about March 24, 2017 with the submission of the draft workplan to USAID/Ukraine on/about March 17, 2017.

The full Assessment Team will begin their work in Ukraine on/about April 3, 2017. The Assessment Team will submit the Draft FAA I 19 Analysis Report: Part I on/about May 11, 2017 and the Draft FAA I 19 Analysis Report: Part II on/about May 12, 2017.

The Contractor shall submit the Final FAA I 19 Analysis Report Part I until June 8, 2017 and Part II June 9, 2017, respectively. Translation of the final FAA I 19 Analysis Report Part I and Part II shall be completed by June 16, 2017.

The Contractor shall be prepared to postpone the production of the final FAA I 19 Analysis Report (Part II) for several weeks if a draft CDCS is not available for Contractor's review. In this case a no-cost extension could be granted by USAID/CO.

The Contractor will be responsible for all logistical support of the FAA I 19 Analysis activities, including translation/interpretation, transportation, accommodation, meeting/visit arrangements, office space, equipment, supplies, insurance and other contingency planning (FAA I 19 Analysis is a time-sensitive task). The Team will coordinate logistical arrangements with the COR, USAID/Ukraine Mission Environmental Officer (MEO) and USAID/E&E Bureau Environmental Officer (BEO). The Contractor must not expect any substantial involvement of Mission staff in either planning or conducting the FAA I 19 Analysis (except for full-time/part-time Mission delegates discussed above).

However, the COR and/or MEO will facilitate meetings with USAID/Ukraine technical offices and other key Mission personnel to allow the Team to gain a full understanding of the country program and strategy. The MEO will facilitate interaction and information exchange with any other assessment teams in the field, as necessary. Upon request, the Mission will provide the Contractor with introductory letters to facilitate meeting arrangements.

USAID requests that any forthcoming American and Ukrainian holidays be considered in scheduling assessment meetings, group discussions, surveys, and site visits in the United States and Ukraine.

## **VIII. Deliverables**

The Contractor will submit a clear, informative, and credible FAA I 19 Analysis Report for USAID/Ukraine that examines the biodiversity, natural resource management, and other related environmental issues and identifies contributions and/or potential contributions to meeting identified conservation needs by the Mission's proposed strategy. It shall clearly meet the legal requirement of FAA Sec I 19 (and Sec I 18 if applicable) by: 1) clearly articulating the actions necessary to conserve biodiversity in Ukraine (Part I), and 2) clearly describing the extent to which actions proposed in the new USAID/Ukraine strategic plan meet the needs identified (Part II).

The FAA I 19 Analysis Report (up to 40 pages in English version, excluding annexes and references) will reflect all relevant Team's findings, conclusions, and recommendations made in conjunction with the FAA I 19 Analysis. It must describe in detail FAA I 19 Analysis design and the methods used to collect and process information requested in the *Purpose and Objective*,

*Scope of Work*, and *Methodology* sections. It must disclose any limitations to the FAAI 19 Analysis and, particularly, those associated with the analysis methodology.

The FAAI 19 Analysis Report should represent thoughtful and well-organized effort that includes sufficient local and global contextual information. Analysis findings should be based on facts, evidence, and data. Findings should be specific, concise and supported by reliable quantitative and qualitative evidence [i.e. there should not be words like “some”, “many”, “most” in the report and frequency of responses and absolute number of interviewed respondents should be given, e.g. five out of 11 experts agreed that ...; 30 per cent of survey respondents reported that]. Conclusions should be supported by a specific set of findings. Recommendations should be clear, specific, practical, action-oriented, and supported by a specific set of findings, conclusions, suggested responsibility for the action, relevant examples (both successful and unsuccessful) and, where appropriate, estimates of implementation costs. Recommendations should be useful for developing strategic approaches, which will safeguard biodiversity and maintain ecosystem services that sustain well-being, whether or not a Mission receives biodiversity funding. The Contractor shall ensure that conclusions and recommendations are based on data that are accurate, objective, and reliable.

The FAAI 19 Analysis Report (Part I) will discuss biodiversity status, key biodiversity issues, relevant stakeholders, policy and institutional frameworks, practices and promotion systems, as well as gaps in the available information. In particular, the FAAI 19 Analysis Report (Part I) will clearly identify (if possible) ecologically sensitive sites where USAID/Ukraine should neither undertake nor promote any activities involving: (1) classes of actions normally having a significant effect on the environment pursuant to 22 CFR 216.2(d) (programs of river basin development; irrigation and water management; agricultural land leveling; drainage projects; large scale agricultural mechanization; resettlement projects; new land development; penetration road building and road improvement; powerplants; industrial plants; and potable water and sewerage projects); (2) activities effecting endangered species or introducing exotic species; (3) support to extractive industries (e.g. mining and quarrying); (4) support for activities that promote timber harvesting; (5) construction, reconstruction, rehabilitation, or renovation work; (6) activities involving support to agro-processing, industrial enterprises, and regulatory permitting; (7) activities involving support to industrial enterprises, and regulatory permitting; (8) potential activity components dealing with privatization of industrial facilities or infrastructure with heavily polluted property; (9) project preparation, project feasibility studies, and infrastructure investments for projects that may have a potentially significant impact on the environment; (10) assistance for the procurement (including payment in kind, donations, guarantees of credit) or use (including handling, transport, fuel for transport, storage, mixing, loading, application, clean up of spray equipment, and disposal) of pesticides or activities involving procurement, transport, use, storage, or disposal of toxic materials; pesticides cover all insecticides, fungicides, rodenticides, etc. covered under FIFRA – ‘Federal Insecticide, Fungicide, and Rodenticide Act’; (11) procurement or use of genetically modified organisms (GMOs); and DCA or GDA programs.

The FAAI 19 Analysis Report (Part II) will include a brief description of relevant current and planned areas of USAID assistance, an assessment of their potential for meeting the perceived biodiversity conservation needs, and recommendations for incorporating biodiversity

conservation considerations in designing new USAID/Ukraine projects/activities and/or modifying the current ones.

Since USAID/Ukraine is neither implementing nor will propose programs under a strictly environmental objective, the Contractor most likely will be seeking to identify cross-sectoral linkages. For example, there may be local governance or economic growth work with municipalities that may be contributing to conservation needs, or economic policy reform work that may have implications for biodiversity. The Contractor may also identify potential opportunities that could enhance USAID contributions in the biodiversity conservation within the context of CDCS for Ukraine. These opportunities could range from influencing policies and programs of the GOU or donors, to making an additional linkage to conservation that the Mission may not have been aware of.

The FAAI I9 Analysis Report annexes should include the FAAI I9 Analysis SOW; description of the FAAI I9 Analysis Team and its member qualifications; the final version of the FAAI I9 AWP; the tools (in English and Ukrainian) used for conducting the FAAI I9 Analysis such as questionnaires, checklists, discussion guides, etc.; lists of species and endangered species, biodiversity maps, a list or a map of ecologically sensitive sites, and other technical information; properly identified sources of information; in-depth analyses of specific issues; and the final version MS PowerPoint-based presentation of the FAAI I9 Analysis design, findings, conclusions, and recommendations. The Executive Summary Section should be two-three pages long and reflect the purpose of the FAAI I9 Analysis, analysis methodology and its limitations, key analysis findings, conclusions, and recommendations.

The FAAI I9 Analysis Report will be written English and Ukrainian, and submitted in electronic form readable in MS Word 2010 based on MS Word Times New Roman 12 or other legible font of similar size. Web URLs for information resources should be provided (if available). The FAAI I9 Analysis Report must follow all USAID Branding and Graphic Standards (see <http://www.usaid.gov/branding/gsm>).

Any data (at a minimum, raw quantitative data and any code books) used to prepare the FAAI I9 Analysis Report (except for the data protected by any formal agreements between the Contractor and interviewees and survey/focus group participants) will be presented in the MS Office compatible format suitable for re-analysis and submitted either by e-mail or on a CD or a flash drive to the COR. The data should be fully documented and well organized for use by those not fully familiar with the FAAI I9 Analysis. USAID will retain ownership of all FAAI I9 Analysis records including interview transcripts or summaries, survey(s), datasets developed, copies of which are provided to the COR.

The draft FAAI I9 Analysis Report (Part I) will be due in 15 working days after a pre-departure briefing for the Mission. The draft FAAI I9 Analysis Report (Part I) must include all relevant FAAI I9 Team findings and conclusions made in conjunction with the FAAI I9 Analysis, as well as corresponding recommendations of the Team. In particular, it will (a) summarize the status of biodiversity in Ukraine, including the social, economic, institutional, legal, and policy context for biodiversity conservation efforts and, specifically, actions currently being taken by government, other donors, NGOs, and the private sector; (b) identify the key direct and

indirect threats to biodiversity, and (c) identify the actions necessary to conserve and sustainably manage natural resources and biodiversity in Ukraine.

The draft FAAI I9 Analysis Report (Part II) will be due in 10 working days after receipt of a draft CDCS from the Mission. The draft FAAI I9 Analysis Report (Part II) must include all relevant FAAI I9 Team findings and conclusions made in conjunction with the FAAI I9 Analysis, as well as corresponding recommendations of the Team. In particular, it will (a) detail the extent to which the Development Objectives (DOs) and Intermediate Results (IRs) of the proposed CDCS and relevant PADs help meet the needs identified and (b) recommend additions or revisions to the draft CDCS and relevant project/activity design documentation, which would help meet the needs identified.

The draft FAAI I9 Analysis Report shall be prepared in line with the general requirements (clarity, credibility, length, font size, etc.) set for the FAAI I9 Analysis Report. It may include the feedback received from the Mission and stakeholders at the pre-departure briefings. The Mission will have 15 working days to review the draft FAAI I9 Analysis Report (Part I) and provide comments to the Contractor; the Mission will have 15 working days to review the draft FAAI I9 Analysis Report (Part II) and provide comments to the Contractor. The Mission will decide whether any stakeholders will be invited to comment on the draft FAAI I9 Analysis Report.

The final FAAI I9 Analysis Report (Part I) will be due in five working days following the receipt of the Mission's comments on a draft FAAI I9 Analysis Report (Part I). The Contractor will use either a cover memorandum or similar format to explain how comments provided by the Mission and other stakeholders (when solicited) were addressed in the final FAAI I9 Analysis Report (Part I) if the final version differs substantially from the draft one. Both the Mission and the Contractor will have a right to initiate an extension of the FAAI I9 Analysis Report (Part I) review or preparation/completion time for up to 10 working days at no additional cost.

The final FAAI I9 Analysis Report (Part II) will be due in five working days following the receipt of the Mission's comments on a draft FAAI I9 Analysis Report (Part II). The Contractor will use either a cover memorandum or similar format to explain how comments provided by the Mission and other stakeholders (when solicited) were addressed in the final FAAI I9 Analysis Report (Part II) if the final version differs substantially from the draft one. Both the Mission and the Contractor will have a right to initiate an extension of the FAAI I9 Analysis Report (Part II) review or preparation/completion time for up to 10 working days at no additional cost.

## **ANNEX D      WORK PLAN**

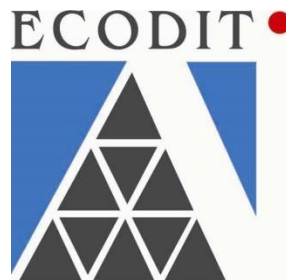
# **U.S. Agency for International Development**

**Request for Task Order Proposals (RFTOP) Number  
SOL-121-17-000006**

### ***Biodiversity Analysis (Assessment)***

## **Work Plan**

Prepared by:



*April 8, 2017  
Arlington, VA*



## Table of Contents

1. Biodiversity (FAA I I9) Analysis (Assessment) Background.....	1
2. Assessment Methodology .....	2
2.1 Review of Background Documents.....	2
2.2 Meetings with Relevant USAID/Washington Offices and Others .....	2
2.3 Meeting with USAID/Ukraine Sector Teams .....	2
2.4 Meetings and Interviews with Key Stakeholders.....	3
2.5 Site Visits .....	3
2.6 Analysis of Information Collected .....	7
3. Reporting .....	8
3.1 Out-briefing Presentations of Preliminary Findings .....	8
3.2 Biodiversity (FAA I I9) Analysis Report, Parts I and II .....	8
4. Detailed Work Schedule .....	9

## Annexes

Annex A: Preliminary List of Key Informants and Institutions to Contact.....	12
Annex B: Outline for Ukraine Biodiversity (FAA I I9) Assessment Report .....	14

## I Biodiversity (FAA 119) Analysis (Assessment) Background

The purpose of this analysis of biodiversity conservation needs in Ukraine is to comply with Section 119 of the Foreign Assistance Act of 1961, as amended, and country strategy guidelines under ADS 201.3.4.11 and ADS 204.5. USAID/Ukraine is currently in the process of developing a new Country Development Cooperation Strategy (CDCS) for the 2017-2022 timeframe. Biodiversity and the ecosystem products and services it provides are a foundation of sustainable development, and support for its conservation should be considered in the CDCS as a means to improve development outcomes.

The U.S. Foreign Assistance Act of 1961 (FAA) Section 119 requires that USAID analyze the needs for conserving biological diversity in any country where it works, and identifies the potential USAID contributions to meeting those needs proposed by activities undertaken through all USAID country strategic plans. Specifically, FAA Section 119(d), Country Analysis Requirements requires that: “Each country development strategy statement or other country plan prepared by the Agency for International Development shall include an analysis of: (1) the actions necessary in that country to conserve biological diversity, and (2) the extent to which the actions proposed for support by the Agency meet the needs thus identified.”

The FAA 119 Biodiversity Analysis will help USAID/Ukraine understand the linkages between the conservation of the country’s biodiversity and broad based, sustainable development, so that those linkages can be factored into the new CDCS and its Results Framework that are currently under development. Potential USAID partners and other stakeholders, including the Government of Ukraine (GOU), Ukrainian civil society organizations (CSOs) and NGOs, and other domestic and international development partners will have an opportunity to convey their views on Ukraine’s biodiversity conservation needs, to reassess their past and current cooperation (or the lack of cooperation) with USAID on this theme, and to learn about opportunities for conserving biodiversity that the Mission may address in 2017-2022.

We here present a revised, final **Work Plan** that responds to and meets the requirements of the Scope of Work (SOW), and addresses comments and concerns identified by the Mission on an earlier draft. The ECODIT Biodiversity Assessment Team will follow best practices for FAA 119 assessments as described in: [Tropical Forestry and Biodiversity \(FAA 118 and 119\) Analyses: Lessons Learned from Recent USAID Experience and Guidelines for USAID Staff, USAID, 2005](#), and [Foreign Assistance Act 118/119 Tropical Forest And Biodiversity Analysis: Best Practices Guide, USAID, 2016](#).

## **2 Assessment Methodology**

### ***2.1 Review of Background Documents and Information***

The ECODIT Assessment Team will gather and analyze existing information to understand the current status of biodiversity and the natural environment in Ukraine, identify key threats to biodiversity (including climate change impacts), actions needed to address those threats and their underlying causes, the relevant stakeholders, and policy and institutional frameworks available for addressing biodiversity and environmental threats and their causes. Gaps in the available information relating to biodiversity will be noted.

Documents to be reviewed in this desk study will include previous USAID FAA I 19 Analysis reports, National Biodiversity Conservation Strategies and Action Plan (NBSAPs), the National State of the Environment Report (NSOER), National Environmental Action Plan (NEAP); Global Environment Fund (GEF) project reports; and other reports by international organizations such as FAO, UNESCO, UNEP, UNDP, and WWF.

### ***2.2 Meetings with Relevant USAID/Washington Offices and Others***

The Assessment Team Leader will hold meetings with appropriate USAID staff in Washington, DC, to gather information relevant to this assessment. He will meet with the Europe & Eurasia (E&E) Bureau Environmental Officer (BEO) and other E&E Bureau technical staff as recommended; relevant staff of the Forestry and Biodiversity Office (FAB) of the Bureau for Economic Growth, Education and Environment (E3); and staff of the U.S. Forest Service International Programs Office.

### ***2.3 Meetings with USAID/Ukraine Sector Teams***

After the initial in-briefing with the Mission, the Assessment Team will meet with teams from several USAID/Ukraine sectoral offices, including Economic Growth (EG), Democracy and Governance, and Health, and EG sub-teams on Energy and Agriculture. Through those meetings, we will gain basic familiarity with the current and expected USAID programming in Ukraine.

During our initial call with USAID/Ukraine on 15 March, we were informed that the Mission is on, or even a little ahead of, schedule with the CDCS strategy process. We were told that we should receive a draft Results Framework, at least to the Goal and Development Objective level, by 3 April, and the full Results Framework, down to the Intermediate Results levels, by 21 April. The Assessment Team will review the Results Framework for the new CDCS, and any other relevant planning documents provided by the Mission. Information about the current and proposed activities will provide the foundation for the “extent to which” analysis required by Section 119 of the Foreign Assistance Act, which will be the focus of Part II of the Ukraine FAA I 19 Analysis Report.

## 2.4 Meetings and Interviews with Key Stakeholders

A key component of this, and every, FAA I I9 biodiversity analysis is to engage key stakeholders in a discussion of threats to biodiversity and the natural environment, the actions needed to address those threats and their causes, the institutional, policy, and legal foundation for doing so, and the extent to which international donors can assist and support a country in meeting its needs for biodiversity conservation. We intend to interview informed experts, scientists, natural resource managers and decision-makers, and other key development and conservation stakeholders in Ukraine. **Annex A** provides a preliminary list of persons and institutions we expect to contact and meet with.

The Assessment Team will use a simple, semi-structured guide or “script” of general questions in each of our meetings and interviews with key informants (see Exhibit 2.1). By asking the same general questions in all interviews, to a range of stakeholders, we will gather parallel information that can be analyzed semi-quantitatively through content analysis of the interview notes.

### Exhibit 2.1: General Script of Questions for Interviews with Key Informants

- 1) What are the biggest threats (including “emerging”/future threats) to native species and ecosystems in Ukraine?
- 2) What are the causes of those threats?
- 3) What actions are needed to remove the causes and reduce the threats?
- 4) What is your institution/organization doing to carry out the actions that are needed in Ukraine to conserve, protect, and sustainably manage its natural environment and biodiversity?

## 2.5 Site Visits

Site visits are usually an important component of biodiversity assessments because they allow the Assessment Team to learn by seeing, and to talk with local stakeholders about conservation issues. The SOW for this assessment suggested an interest in wetlands and wildlife, saying “The Mission expects the Contractor to consider wetland areas in Kherson, Odesa, and/or Zaporizhzhia oblasts, and wildlife sanctuaries in Kherson and Transcarpathian oblasts as potential site visit locations.” We noted these suggestions, and discussed them with the USAID/Ukraine Mission Environmental Officer (MEO), our COR for this assignment, during an initial telephone call, and with the E&E Bureau Environmental Officer. The Assessment Team then developed a rationale for visiting protected areas and other sites relevant to this analysis in Volyn, Zhytomyrska, and Kherson Oblasts (Exhibit 2.2). Further details and web links supporting this rationale are given Exhibit 2.3. A schedule for these visits, which will take place during the second week of meetings and fieldwork, is given in Exhibit 2.4.

## Exhibit 2.2: Site Visits Rationale\*

Place	Reasons for Selection
Pripyat-Stokhid National Nature Park, Volyn Oblast	<ul style="list-style-type: none"> <li>Well-conserved Polesya ecosystem</li> <li>Ecosystem services – water to Dnieper River Basin linked to health and industry for 10 million people</li> <li>Ramsar sites and transboundary international conservation agreement with Belarus</li> <li>Example of Oblast-level conservation in Pripyat-Stokhid Regional Nature Park, example of integration of biodiversity conservation and human needs</li> <li>Recommended for site visit by MENR to Ukrainian Assessment Team members</li> </ul>
Polis'kiy National Nature Reserve, Zhytomyrska Oblast	<ul style="list-style-type: none"> <li>Polesya ecosystem, nature reserve in contrast to nature park for comparison of management structures</li> <li>Peatland restoration project</li> <li>Restoration of biodiversity and ecosystem services in Dnieper River Basin</li> </ul>
Chernomorskiy Biosphere Reserve, Kherson Oblast	<ul style="list-style-type: none"> <li>Freshwater and coastal wetlands ecosystems of the Dnieper Delta</li> <li>UNESCO Biosphere Reserve</li> <li>Two Ramsar sites</li> <li>Responds to SOW, which says that assessment team should consider site visits to wetlands and wildlife areas in Kherson Oblast</li> </ul>
Askania-Nova Biosphere Reserve, Kherson Oblast	<ul style="list-style-type: none"> <li>Steppe ecosystem, largest area of virgin steppe protected in Europe</li> <li>Freshwater wetlands ecosystem, Great Chapli Depression Ramsar Site</li> <li>Nature tourism as an economic activity supporting local communities</li> </ul>

\*Detailed information and links given in Site Visits Selection Matrix

## Site Visits Selection Matrix

Criterion	Place/Location	Issues/Features/Rationale
1) Sites that illustrate emerging threats to biodiversity (ecosystem, species), including threats from climate change (e.g., sea level rise, temperature change)	Pripyat-Stokhid National Nature Park, Volyn Oblast	Hydrological threats (e.g., draining) to wetlands that provide ecosystem services (water) for Dnieper River Basin <a href="http://www.pripyat-stokhid.com.ua/en">http://www.pripyat-stokhid.com.ua/en</a>
	Polis'kiy National Nature Reserve, Zhytomyrska Oblast	Peatland restoration to address hydrological threats (e.g., draining) to wetlands that provide ecosystem services (water) for Dnieper River Basin
	Chernomorskiy Biosphere Reserve, Kherson Oblast	Hydrological changes caused by water management on Dnieper River, and coastal climate change including sea level rise
2) Sites with international or transboundary conservation agreements, programs, initiatives (e.g., UNESCO Biosphere Reserves, Ramsar sites, trans-national conservation areas)	Pripyat-Stokhid National Nature Park, Volyn Oblast	Interactive Map for the Ramsar sites in Ukraine: <a href="https://rsis.ramsar.org/ris-search/?f[0]=regionCountry_en_ss%3AUkraine">https://rsis.ramsar.org/ris-search/?f[0]=regionCountry_en_ss%3AUkraine</a>  Two Ramsar Sites, Pripyat and Stokhid River Floodplains These are linked to a transboundary Ramsar site in Belarus <a href="http://www.undp.org/content/undp/en/home/presscenter/articles/2010/05/19/preservation-nations-belarus-ukraine-partner-on-wetlands.html">http://www.undp.org/content/undp/en/home/presscenter/articles/2010/05/19/preservation-nations-belarus-ukraine-partner-on-wetlands.html</a>

Criterion	Place/Location	Issues/Features/Rationale
	Chernomorskiy Biosphere Reserve, Kherson Oblast  45 km SW of Kherson	<a href="http://www.unesco.org/new/en/natural-sciences/environment/ecological-sciences/biosphere-reserves/europe-north-america/ukraine/chernomorskiy/">http://www.unesco.org/new/en/natural-sciences/environment/ecological-sciences/biosphere-reserves/europe-north-america/ukraine/chernomorskiy/</a>  Includes two Ramsar sites: Tendrivska and Yagorlytska Bay
	Askania-Nova Biosphere Reserve, Kherson Oblast  150 km E of Kherson	<a href="http://www.unesco.org/new/en/natural-sciences/environment/ecological-sciences/biosphere-reserves/europe-north-america/ukraine/askaniya-nova/">http://www.unesco.org/new/en/natural-sciences/environment/ecological-sciences/biosphere-reserves/europe-north-america/ukraine/askaniya-nova/</a>  Great Chapli Depression Ramsar Site
3) Sites that illustrate local or oblast-level natural resources/forestry/biodiversity management and engagement (e.g., regional nature parks, community-based conservation or ecotourism initiatives)	Pripyat-Stokhid Regional Landscape Park	Managed at oblast level  “Regional landscape parks, managed at the oblast level with input from local councils, and <i>zakazniks</i> , administered through regional offices of the MENR and managed by local councils and land users, play an important role in biodiversity conservation in Ukraine.” (USAID/Ukraine, 2011 Biodiversity Assessment)
4) Sites that illustrate successful institutional and governance approaches by NGO and other civil society, or private sector, partners	Pripyat-Stokhid Regional Landscape Park	
5) Sites in areas/regions of focus for USAID development assistance in other sectors (e.g. agriculture, energy, economic growth, democracy and governance)		USAID/Ukraine works mainly at the national level, with project activities occurring or planned in many Ukrainian oblasts.

## Exhibit 2.4 Site Visits Schedule

9 April, Sunday	All day: Drive to Pripyat-Stokhid National Nature Park (approx. 6 hr.) Overnight in Lyubeshiv, Volyn Oblast
10 April, Monday	All day: Visit park; meet park managers, local communities Overnight in Lyubeshiv
11 April, Tuesday	All day: Drive back to Kyiv, visiting peatland restoration project in Polis'kiy National Nature Reserve in Zhytomyrska Oblast on the way Overnight in Kyiv
12 April, Wednesday	All day: Team work day in Kyiv Overnight in Kyiv
13 April, Thursday	To Kherson by train (Depart Kyiv 07:35, Arr. Kherson 15:00); Meet Head of DENR and Protected Areas Specialist, Kherson Oblast State Administration Drive to Askania-Nova (approx. 1.5 hr.); Overnight in Askania-Nova
14 April, Friday	AM: Meet Director, Askania-Nova Biosphere Reserve and visit reserve; PM: Drive to Chernomorskiy Biosphere Reserve; Overnight in Hola Prystan'
15 April, Saturday	All day: Visit to Chernomorskiy Biosphere Reserve and Ramsar Sites; Drive to Kherson; Overnight in Kherson
16 April, Sunday	AM: Fly to Kyiv (Depart Kherson 06:30, Arr. Kyiv 07:45) Overnight in Kyiv

## 2.6 Analysis of Information Collected

In the desk study phase of this assessment, the Assessment Team will analyze existing documents, reports, and other information to identify biodiversity threats, causes, and actions needed described and discussed there. Notes from interviews and meetings with key informants (including during site visits) will be analyzed for content related to these and other questions listed in Exhibit 2.1. The information gathered from analysis of both secondary and primary sources will be synthesized in findings in Part I of the Ukraine FAA I19 Analysis Report, and findings and recommendations in Part II of that report.



### **3 Reporting**

#### **3.1 Out-briefing Presentations of Preliminary Findings**

The Assessment Team will prepare a PowerPoint- based presentation describing the purpose and objectives of the FAA 119 analysis, the methodology used, and preliminary findings, conclusions, and recommendations. This presentation will be tailored primarily for USAID/Ukraine staff and will be presented during an out-briefing at the Mission before the Assessment Team Leader returns to the U.S., and will provide an opportunity for discussion and feedback from the Mission prior to preparing the draft FAA 119 Analysis Report. If the Mission wishes to engage some key stakeholders in this feedback and discussion process, we believe two options would be available. The Mission could invite selected key stakeholders to the presentation at USAID; or, a separate presentation to key stakeholders could be held in another venue.

#### **3.2 Biodiversity (FAA 119) Assessment Reports**

The ECODIT Biodiversity Assessment Team will submit a two-part FAA 119 Analysis Report that identifies the actions needed to conserve biodiversity, natural resources, and the environment in Ukraine according to all available information, including the opinions of qualified experts and key stakeholders. The second part of the report will discuss the extent to which the Mission's current portfolio and proposed CDCS strategy contributes to meeting the identified conservation needs. Together, these reports will clearly meet the legal requirements of FAA Sec 119. **Annex B** provides the tentative outline of the two-part report. Part I responds to the legal requirement of FAA Section 119 to identify "actions necessary" for biodiversity conservation, and Part II responds specifically to describe the "extent to which" USAID's proposed activities support or contribute to the conservation needs of Ukraine.

Findings of the analysis will be based on data, facts, evidence, and the opinions of informed experts, scientists, natural resource managers and decision-makers, and other key development and conservation stakeholders in Ukraine. Our findings will be supported by a range of quantitative, semi-quantitative, and qualitative evidence. Based on its analysis, the ECODIT Biodiversity Assessment Team will provide recommendations to USAID/Ukraine about how its proposed activities could contribute to, or support, some of the actions needed to safeguard Ukraine's biodiversity and natural environment. We recognize that USAID/Ukraine does not receive biodiversity funding, and is not implementing or proposing programs under a strictly environmental objective, so our recommendations will refer to linkages with sectors in which the Mission is proposing activities.

## 4 Detailed Work Schedule

The Work Schedule we propose, shown below, will accomplish the Ukraine Biodiversity Assessment in an efficient and timely manner:

Timeline for USAID/Ukraine Biodiversity Assessment																																											
Tasks/Deliverables		Document Review & Meetings in the US																												Field Activities													
		Week 1						Week 2						Week 3						Week 4						Week 5						Week 6											
		Weekday	M	T	W	Th	F	S	Su	M	T	W	Th	F	S	Su	M	T	W	Th	F	S	Su	M	T	W	Th	F	S	Su	M	T	W	Th	F	S	Su						
Date		6-Mar	7-Mar	8-Mar	9-Mar	10-Mar	11-Mar	12-Mar	13-Mar	14-Mar	15-Mar	16-Mar	17-Mar	18-Mar	19-Mar	20-Mar	21-Mar	22-Mar	23-Mar	24-Mar	25-Mar	26-Mar	27-Mar	28-Mar	29-Mar	30-Mar	31-Mar	1-Apr	2-Apr	3-Apr	4-Apr	5-Apr	6-Apr	7-Apr	8-Apr	9-Apr	10-Apr	11-Apr	12-Apr	13-Apr	14-Apr	15-Apr	16-Apr
Mobilization for Task Order - Mobilize consultants and begin to gather information																																											
A. Desk Review and Data Collection/Review, Planning, and Pre-Departure Meetings																																											
A.1 Review background information, identify stakeholders to interview, plan site visits and travel logistics																																											
A.2 Hold teleconference between Team Leader and Ukraine-based Assessment Team																																											
A.3 Initial conference call with USAID-Ukraine to launch assessment process																																											
A.4 Hold meetings with E&E BEO, E&E Bureau technical staff, relevant staff of the FAB and E3, USFS																																											
A.5 Submit draft Work Plan (1D)																																											
A.6 USAID Ukraine reviews and provides comments on draft Work Plan (1C)																																											
A.7 Schedule meetings and arrange site visits logistics full Assessment Team																																											
A.8 Revise Work Plan based on USAID-Ukraine comments and submit final Work Plan (1F)																																											
B. Field Work and Data Collection																																											
B.1 Team Leader departs Washington, DC and travels to Kyiv, Ukraine																																											
B.2 Assessment Team meets in Kyiv, Ukraine to finalize schedule and logistics																																											
B.3 In-briefing with USAI-/Ukraine																																											
B.4 Meet with relevant USAID-Ukraine sector offices																																											
B.5 Meet with relevant GOU organizations, research institutions, NGOs and other relevant stakeholders																																											
B.6 Site visits to Danube Delta, Chernomorskiy Biosphere Reserves and other sites en route																																											
B.7 Out-briefing presentation(s) of preliminary assessment findings to USAID-Ukraine and major stakeholders																																											
B.8 Team Leader departs Ukraine and travels to Washington, DC																																											
C. Report and Document Preparation and Submission																																											
C.1 Prepare and submit draft FAA 119 Analysis Report: Part I and Part II (3)																																											
C.2 USAID-Ukraine reviews draft FAA 119 Analysis Report: Part I and Part II and provides comments (3C)																																											
C.3 Revise FAA 119 Analysis Report: Part I and II ) based on Mission comments and submit (4)																																											
C.4 Translate of Final FAA 119 Analysis Report Part I and Part II to Ukrainian once approved by USAID/Ukraine																																											
C.5 Submit of all deliverables to USAID/Ukraine and USAID DEC																																											
Deliverables/Due Dates																																											
(1D) Draft Work Plan																																											
(1C) Draft Work Plan with USAID comments																																											
(1F) Final Work Plan																																											
(2) PowerPoint presentation of preliminary assessment findings																																											
(3) Draft FAA 119 Analysis Report: Part I and Part II																																											
(3C) Draft FAA 119 Analysis Report Part 1 and Part II with USAID comments																																											
(4) Final FAA 119 Analysis Report: Part I and Part II																																											

Timeline for USAID/Ukraine Biodiversity Assessment																													
Tasks/Deliverables		Field Activities							Report and Document Preparation and Submission																				
		Week 7							Week 8					Week 9					Week 10										
Weekday		M	T	W	TH	F	S	Su	M	T	W	TH	F	S	Su	M	T	W	TH	F	S	Su	M	T	W	TH	F	S	Su
Date		17-Apr	18-Apr	19-Apr	20-Apr	21-Apr	22-Apr	23-Apr	24-Apr	25-Apr	26-Apr	27-Apr	28-Apr	29-Apr	30-Apr	1-May	2-May	3-May	4-May	5-May	6-May	7-May	8-May	9-May	10-May	11-May	12-May	13-May	14-May
Mobilization for Task Order - Mobilize consultants and begin to gather information																													
A. Desk Review and Data Collection/Review, Planning, and Pre-Departure Meetings																													
A.1 Review background information, identify stakeholders to interview, plan site visits and travel logistics																													
A.2 Hold teleconference between Team Leader and Ukraine-based Assessment Team																													
A.3 Initial conference call with USAID-Ukraine to launch assessment process																													
A.4 Hold meetings with E&E BEO, E&E Bureau technical staff, relevant staff of the FAB and E3, USFS																													
A.5 Submit draft Work Plan (1D)																													
A.6 USAID Ukraine reviews and provides comments on draft Work Plan (1C)																													
A.7 Schedule meetings and arrange site visits logistics full Assessment Team																													
A.8 Revise Work Plan based on USAID-Ukraine comments and submit final Work Plan (1F)																													
B. Field Work and Data Collection																													
B.1 Team Leader departs Washington, DC and travels to Kyiv, Ukraine																													
B.2 Assessment Team meets in Kyiv, Ukraine to finalize schedule and logistics																													
B.3 In-briefing with USAI-/Ukraine																													
B.4 Meet with relevant USAID-Ukraine sector offices																													
B.5 Meet with relevant GOU organizations, research institutions, NGOs and other relevant stakeholders																													
B.6 Site visits to Danube Delta, Chernomorskiy Biosphere Reserves and other sites en route																													
B.7 Out-briefing presentation(s)of preliminary assessment findings to USAID-Ukraine and major stakeholders																													
B.8 Team Leader departs Ukraine and travels to Washington, DC																													
C. Report and Document Preparation and Submission																													
C.1 Prepare and submit draft FAA 119 Analysis Report: Part I and Part II (3)																													
C.2 USAID-Ukraine reviews draft FAA 119 Analysis Report: Part I and Part II and provides comments (3C)																													
C.3 Revise FAA 119 Analysis Report: Part I and II ) based on Mission comments and submit (4)																													
C.4 Translate of Final FAA 119 Analysis Report Part I and Part II to Ukrainian once approved by USAID/Ukraine																													
C.5 Submit of all deliverables to USAID/Ukraine and USAID DEC																													

ECODIT Home Office  
 Team Leader  
 Full Assessment Team  
 Ukrainian Assessment Team Members  
 USAID-Ukraine



## Annex A: Preliminary List of Key Informants and Institutions to Contact

Name	Position	Institution	Phone	Email	Type of Institution
Kiev					
Tomahin Mykhaylo Loranovych	Director of Department of Conservation of Natural Resources	Ministry of Ecology and Natural Resources	(044) 206-31-22	<a href="mailto:tomahin@menr.gov.ua">tomahin@menr.gov.ua</a>	Government Agency
Gubar Serhiy Ivanovych	Director of Department of Conservation of Natural Resources, Head of Division of Econetwork and Biosafety, Focal point of CBD, Focal Point of Carpathian Convention	Ministry of Ecology and Natural Resources	(044) 206-31-66	<a href="mailto:sgubar@menr.gov.ua">sgubar@menr.gov.ua</a>	Government Agency
Domshlinets Volodymyr Grygorovych	Head of Division of Conservation of Animal Species	Ministry of Ecology and Natural Resources	(044) 206-31-27	<a href="mailto:domashlinets@menr.gov.ua">domashlinets@menr.gov.ua</a>	Government Agency
Artem Lyashenko	Laboratory of Hydroecological Problems of the Danube River	Institute of Hydrobiology	(38 044) 419 39 81	<a href="mailto:post_mail@hydrobio.kiev.ua">post_mail@hydrobio.kiev.ua</a>	Scientific Institution
Sergii Afanasev	Department of Ichthyology and Ecology of River Systems	Institute of Hydrobiology	(38 044) 419 39 81	<a href="mailto:post_mail@hydrobio.kiev.ua">post_mail@hydrobio.kiev.ua</a>	Scientific Institution
Vasyl Kostyushyn	Department of Wildlife Monitoring	Institute of Zoology	044 235 51 87	<a href="mailto:kost@izan.kiev.ua">kost@izan.kiev.ua</a>	Scientific Institution
Didukh Yakiv P.	Director and Professor	Institute of Botany	(38 044) 234 40 41	<a href="mailto:didukh@botany.kiev.ua">didukh@botany.kiev.ua</a>	Scientific Institution
Mykola Kuzio	Deputy Director for European Integration	Ministry of Ecology and Natural Resources	044 206 31 02	<a href="mailto:mykola.kuzio@menr.gov.ua">mykola.kuzio@menr.gov.ua</a>	Government Agency
Oleysa Petrovych	Chief Specialist, National Ramsar Committee	Ministry of Ecology and Natural Resources	38 067 784 11 53	<a href="mailto:petrovych.o@gmail.com">petrovych.o@gmail.com</a>	Government Agency
Aleksey Vasylyuk	Ecologist	Environment, People, Law/National Environmental Center of Ukraine		<a href="mailto:vasyliuk@gmail.com">vasyliuk@gmail.com</a>	NGO
Viktor Karamushka	Head, Department of Environmental Studies	National University of Kyiv-Mohyla Academy	38 067 403 53 45	<a href="mailto:vkarama2011@gmail.com">vkarama2011@gmail.com</a>	University
Galyna Levina	Environmental Lawyer	Ecopravo Kiev	(063) 849-04-12	<a href="mailto:galynap@yandex.ru">galynap@yandex.ru</a>	NGO
Oleg Dudkin	Director	Ukrainian Society for Bird Protection	044 284 7131	<a href="mailto:director@birdlife.org.ua">director@birdlife.org.ua</a>	NGO
Tamara Kutanova	Environmental Consultant	GEF Small Grants Program	38 093 124 03 28	<a href="mailto:tamara.kutanova@gmail.com">tamara.kutanova@gmail.com</a>	International Donor Cooperation
Frank Moerschel	Senior Project Manager, Energy and Natural Resources	KfW German Development Bank	(49) 69 7431-8681	<a href="mailto:frank.moerschel@kfw.de">frank.moerschel@kfw.de</a>	International Donor Cooperation
Vasyl Tolkachov	Project Manager, Clima East: Sustainable Use of Peatlands in Ukraine	UNDP	38 050 446 50 05		International Donor Cooperation

## Annex A: Preliminary List of Key Informants and Institutions to Contact – Continued

Name	Position	Institution	Phone	Email	Type of Institution
<b>Volyn Oblast</b>					
Sashchuk Oleksandr Ivanovych	Director	Pripyat-Stokhid National Park	(067) 361 69 21		Government Agency
<b>Zhytomyrska Oblast</b>					
Zhila Sergii Mykolayovych	Director	Polis'kiy National Nature Reserve			Government Agency
<b>Kherson Oblast</b>					
Dmytro Chernyakov	Director	Chernomorskiy Biosphere Reserve	(380.5539) 26757	<a href="mailto:bsbr@nauka@yandex.ua">bsbr@nauka@yandex.ua</a>	Government Agency
Yurii Poputko	Head of Department	Department of Ecology and Natural Resources (DENR), Oblast State Administration	26-31-95	<a href="mailto:dp-ekology@khoda.gov.ua">dp-ekology@khoda.gov.ua</a>	Government Agency
Gavrylyuk Viktor Semenovich	Director	Askania-Nova Biosphere Reserve	(067) 551 70 50		Government Agency

## **Annex B: Outline for Ukraine Biodiversity (FAA 119) Assessment Report**

Table of Contents  
Abbreviations and Acronyms  
Acknowledgements  
Executive Summary

### **Part I – Actions Needed for Biodiversity Conservation**

- 1.0 Introduction
  - 1.1 Purpose
  - 1.2 Methods
- 2.0 Status of Biodiversity and the Natural Environment
  - 2.1 Biophysical Setting
  - 2.2 Ecosystems
  - 2.3 Species
  - 2.4 Genetic Diversity
- 3.0 Values and Economics of Biodiversity
  - 3.1 Ecosystem Products
  - 3.2 Ecosystem Services
  - 3.3 Non-Material Benefits
- 4.0 Threats to Biodiversity
  - 4.1 Direct Threats
  - 4.2 Causes
- 5.0 Government Policies, Laws, and Institutions
  - 5.1 Policies and Laws
  - 5.2 Institutions
  - 5.3 Protected Areas
  - 5.4 Treaties
- 6.0 NGO and Donor Programs and Activities
  - 6.1 NGOs
  - 6.2 Donors
- 7.0 Actions Needed to Conserve Biodiversity
  - 7.1 Actions Identified in Background Documents
  - 7.2 Actions Identified by Key Informants

### **Part II – Potential USAID Contributions to Actions Needed**

- 8.0 Contribution of Current and Proposed USAID Assistance



- 8.1 Relevant Current and Planned USAID Programs
- 8.2 Results Framework for New USAID/Ukraine CDCS
- 8.3 Potential Contributions to Biodiversity Conservation Needs
- 9.0 Recommendations
  - 9.1 Opportunities for Cross-Sectoral Linkages in Proposed USAID Programs
  - 9.2 Avoiding Negative Impacts of Proposed Programs

Annex A: References

Annex B: Biographical Sketches of the Analysis Team

Annex C: Statement of Work

Annex D: Persons and Institutions Contacted

## ANNEX E PERSONS CONTACTED, INSTITUTIONAL AFFILIATION, AND CONTACT INFORMATION

Name	Institution	Contact Information
<b>Washington, DC</b>		
Julie Appelhagen	Deputy Bureau Environmental Officer USAID Bureau for Europe and Eurasia	<a href="mailto:jappelhagen@usaid.gov">jappelhagen@usaid.gov</a>
Alicia Grimes	Senior Forest Policy and Program Advisor, USAID E3 Bureau, Forestry and Biodiversity Office	202-712-1642 <a href="mailto:agrimes@usaid.gov">agrimes@usaid.gov</a>
Mark Kamiya	Bureau Environmental Officer USAID Bureau for Europe and Eurasia	202-567-4179 <a href="mailto:mkamiya@usaid.gov">mkamiya@usaid.gov</a>
Hadas Kushnir	Biodiversity and Natural Resources Advisor, USAID E3 Bureau, Forestry and Biodiversity Office	202-712-1399 <a href="mailto:hkushnir@usaid.gov">hkushnir@usaid.gov</a>
Shelia Slempe	Program Specialist, Eastern Europe and the Balkans, US Forest Service International Programs	202-459-3400 <a href="mailto:srslempe@fs.fed.us">srslempe@fs.fed.us</a>
<b>Kiyv, Ukraine, 1 April -20 April 2017</b>		
Galina Levina	Lawyer Eco-Pravo-Kiev	+38 063 849-04-12 <a href="mailto:galynap@yandex.ru">galynap@yandex.ru</a>
Olexii Vasylyuk	Environment, People, Law/National Environmental Center of Ukraine	<a href="mailto:vasyliuk@gmail.com">vasyliuk@gmail.com</a>
Dr. Yakiv Diduh	Director, Institute of Botany	+38 044 2344041 <a href="mailto:inst@botany.kiev.ua">inst@botany.kiev.ua</a>
Dr. Vladimir Domashlinets	Head of Animal Protection, Department of Biodiversity, Land Protection, and Econet, Ministry of Ecology and Natural Resources of Ukraine	+38 044 206-2588 +38 044 066-288-6229 <a href="mailto:domashlinets@menr.gov.ua">domashlinets@menr.gov.ua</a> <a href="mailto:vdomashlinets@yahoo.com">vdomashlinets@yahoo.com</a>
Mykola Kuzyo	Deputy Minister for European Integration, Ministry of Ecology and Natural Resources	+38 044 044 206-33-02
Mykhaylo Tomahin	Director of Department of Conservation of Natural Resources, Ministry of Ecology and Natural Resources	+38 044 206-31-22 <a href="mailto:tomahin@menr.gov.ua">tomahin@menr.gov.ua</a>

Name	Institution	Contact Information
Serhiy Gubar	Director of Department of Conservation of Natural Resources, Head of Division of Econetwork and biosefety, Focal point of CBD, Focal Point of Carpathian Convention Ministry of Environment and Natural Resources	+38 044 206-31-66 <a href="mailto:gubar@menr.gov.ua">gubar@menr.gov.ua</a>
Dr. Vasiliy Kosyushin	Institute of Zoology, and Coordinator, Black Sea Program, Wetlands International	+38 044 24658 62 <a href="mailto:kost@izan.kiev.ua">kost@izan.kiev.ua</a>
Vasyl Tolkachov	Project Coordinator, GEF-UNDP Clima-East Project	Tel: +380-50-446-5005 <a href="mailto:Vasyl.Tolkachov@undp.org">Vasyl.Tolkachov@undp.org</a>
Sergei Afanasiev	Director of Hydrobiology Institute	+38 044 419 39 81
Tamara Kutonova	Environmental consultant	
Frank Mörschel	Senior Project Manager, Energy and Natural Resources, Eastern Europe, Caucasus, Central Asia KfW Development Bank (Germany)	Tel: +49 69 7431-8681 <a href="mailto:frank.moerschel@kfw.de">frank.moerschel@kfw.de</a>
Iryna Loik	Senior Project Assistant, OSCE Ukraine Economic, Environmental and Politico-Military Programme	+ 380 44 492 0382 <a href="http://osce.org/ukraine">osce.org/ukraine</a>
Alla Yushchuk	Senior Project Assistant, OSCE Ukraine Economic, Environmental and Politico-Military Programme	+ 380 44 492 0382 <a href="http://osce.org/ukraine">osce.org/ukraine</a>
Dmytro Averin	Project Expert, OSCE Ukraine Economic, Environmental and Politico-Military Programme	+ 380 44 492 0382 <a href="http://osce.org/ukraine">osce.org/ukraine</a>
Carlos A. Guerrero	Chief of Party, USAID Transparency and Accountability in Public Administration and Services (TAPAS) Project	044 333 33 80 <a href="mailto:cguerrero@eurasia.org">cguerrero@eurasia.org</a>
Lesia Chmil	Deputy Chief of Party, USAID Transparency and Accountability in Public Administration and Services (TAPAS) Project	044 333 33 80 <a href="mailto:lchmil@eurasia.org">lchmil@eurasia.org</a>
<b>Volyn Oblast, 10 April 2017</b>		
Sazhuk Oleksandr Ivanovych	Director, Pryp'yat Stohid National Nature Park	(067) 361-69-21
Korh Yurii Oleksiovych	Senior Scientist, Pryp'yat Stohid National Nature Park	+38066 224 7891

Name	Institution	Contact Information
<b>Zhitomir Oblast, 11 April, 2017</b>		
Sergii Mykolayovych Zhyla	Director, Polissya Nature Reserve, Seleznyovka Village, Ovrutskii Rayon, Zhytomirskia Oblast	Tel: (04148) 6-33-12 <a href="mailto:05453947@mail.gov.ua">05453947@mail.gov.ua</a> <a href="http://polesye-reserve.org.ua/">http://polesye-reserve.org.ua/</a>
<b>Kherson Oblast, 13-15 April 2017</b>		
Dr Anatolii Yurchenko	Director, Chernomorskii Biosphere Reserve	+38 05539 2-64-71 <a href="mailto:bsbr-priemn@ukr.net">bsbr-priemn@ukr.net</a> <a href="http://bsbr.ks.ua/">http://bsbr.ks.ua/</a>
Dr. Olga Umanets	Lead Scientist, Chernomorskii Biosphere Reserve	+38 095 877 42 99 <a href="mailto:olg-ummanets@yandex.ru">olg-ummanets@yandex.ru</a>
Viktor Tatanov	Deputy Director, Chernomorskii Biosphere Reserve	(05539) 2-67-57
Mykola Porubliov	Head of "Radinske" Section of National Nature Park "Oleshivski Pisky"	(050) 559 93 38
Olexander Gurov	Inspector of Protected Area, National Nature Park "Oleshivski Pisky"	(050) 723 68 46
Sergii Dudka	Inspector of Protected Area National Nature Park "Oleshivski Pisky"	(099) 486 51 18
Viktor Gavrilenko	Director, Biosphere Reserve "Askania Nova"	+38 05538 6-12-32 <a href="http://askania-nova-zapovidnik.gov.ua/administration.htm">http://askania-nova-zapovidnik.gov.ua/administration.htm</a>
Nataliya Yasynetska	Deputy Director of Scientific Research, Biosphere Reserve "Askania Nova"	+38 05538 6-12-32 <a href="http://askania-nova-zapovidnik.gov.ua/administration.htm">http://askania-nova-zapovidnik.gov.ua/administration.htm</a>
Natalia Korinets	Senior Scientist, Biosphere Reserve "Askania Nova"	+38 05538 6-14-41 <a href="http://askania-nova-zapovidnik.gov.ua">http://askania-nova-zapovidnik.gov.ua</a>
Oleksand Mezinov	Head of Biodiversity Conservation Lab, Biosphere Reserve "Askania Nova"	+38 05538 6-14-75
Viktoriya Smagol'	Junior Scientist, Biodiversity Conservation Lab, Biosphere Reserve "Askania Nova"	+38 05538 6-11-41
Olena Ponomariova	Deputy Director Nyzhniodniprovs'kii National Nature Park	+38 0552 460-460, <a href="mailto:npp_n@ukr.net">npp_n@ukr.net</a> <a href="http://nppn.org.ua/">http://nppn.org.ua/</a>
Tetyana Kryuchkova	Eco-education Specialist, Nyzhniodniprovs'kii National Nature Park	+38 0552 460-460, <a href="mailto:npp_n@ukr.net">npp_n@ukr.net</a> <a href="http://nppn.org.ua/">http://nppn.org.ua/</a>
Hanna Naimovych	Scientist, Nyzhniodniprovs'kii National Nature Park	+38 0552 460-460, <a href="mailto:npp_n@ukr.net">npp_n@ukr.net</a> <a href="http://nppn.org.ua/">http://nppn.org.ua/</a>
Viktoriya Ovsienko	Specialist, Nyzhniodniprovs'kii National Nature Park	+38 0552 460-460, <a href="mailto:npp_n@ukr.net">npp_n@ukr.net</a> <a href="http://nppn.org.ua/">http://nppn.org.ua/</a>
Yurii Poputko	Head of Department, Kherson Oblast State Administration Department of Ecology and Natural Resources	+38 0552 26-31-95 <a href="mailto:dp-ekology@khoda.gov.ua">dp-ekology@khoda.gov.ua</a> <a href="http://ecology.ks.ua/">http://ecology.ks.ua/</a>
Natalia Savchenko	Head of the Department of Protected Areas, Kherson Oblast State Administration Department of Ecology and Natural Resources	+38 0552 26-31-95 <a href="mailto:dp-ekology@khoda.gov.ua">dp-ekology@khoda.gov.ua</a> <a href="http://ecology.ks.ua/">http://ecology.ks.ua/</a>

<b>USAID/Ukraine Staff, Project Managers, and COPs, 3-5 April 2011</b>		
David Hatch	PCS Director	
Gregory Olson	PCS Deputy Director	
Ann Hopper	Ann Hopper, Program Officer, CDCS Team Leader	
Micah Goberson	Program Officer	
Oksana Litvinovska	Program Development Specialist	
Peter Luzik	Program Development Specialist	
Iryna Fominykh	Administrative Assistant	
Tatiana Kistanova	Mission Environmental Officer and COR for Ukraine Biodiversity Assessment	<a href="mailto:tkistanova@usaid.gov">tkistanova@usaid.gov</a>
Susan Fritz	Mission Director	
John Pennell	Deputy Mission Director	
Stephen Gonyea	Director of the Office of Economic Growth	
Steve Rynecki	Deputy Director of the Office of Economic Growth	
Dan Ryan	Deputy Director of the Office of Democracy and Governance	
Laura Gonzales	Regional Legal Officer	
Larissa Piskunova	Deputy Mission Environmental Officer (DMEO)	
Sukru Bogut	Senior Energy Advisor	
Luis Valzquez,	Energy Officer	
Diana Zadorozhna	Project Management Assistant	
Evgenia Malikova	Project Management Specialist (Trade)	
Kenneth Dunn	Agricultural Officer	
Garth Willis	Democracy and Governance Officer (Anti-Corruption)	
Marat Kyurchevsky	Project Management Specialist	
Tetyana Sira	Project Management Specialist	
Anna Novak	Project Management Assistant	
Jeri Dible	Office Director	
Olga Dudina	Project Management Specialist	
Tatiana Rastrigina	Senior Project Management Specialist	

## ANNEX F      NGOS

### **Environment People Law** <http://epl.org.ua/>

This NGO works to protect environmental rights of citizens and organizations, to promote nature protection, environmental education, science and culture. Environment People Law is a member of the IUCN. The organization incorporated into its portfolio projects and topics that are closely connected to biodiversity conservation, e.g. water, soil, climate change, green areas of cities, air, waste, illegal logging, nuclear energy, and small hydropower plants.

### **National Ecological Center of Ukraine (NECU)**

[http://www.necu.org.ua/wp-content/uploads/booklet\\_necu\\_eng.pdf](http://www.necu.org.ua/wp-content/uploads/booklet_necu_eng.pdf)

The interests of the NECU are:

- **Biodiversity:** NECU is campaigning for new nature protection zones creation to keep unique species of animals and plants in their natural environment. NECU also makes sure that the existing protected territories remain untouched. With the help of public actions and legal procedures, such as courts and public hearings, NECU stands firm against illegal building construction on green territories in Kyiv region and works with local activists around Ukraine.
- **Energy:** NECU is trying to redirect the energy policy of Ukraine away from intensive coal and nuclear energy development to energy efficient economy and alternative energy sources.
- **Global climate change:** NECU is a member of Ukrainian NGO Working Group on climate change that works to integrate climate change issues into Ukrainian government policies.
- **Transport:** NECU develops policy recommendations to reduce the negative impact of the transport sector.
- **Multilateral Development Banks:** NECU is monitoring the activities of development banks (such as EBRD, EIB, World Bank, etc.) in Ukraine to prevent the negative impacts of their projects on environment and local people.
- **Russia, Caucasus and Central Asia:** NECU cooperates with NGOs in the region, sharing its experience of working with development banks and on Climate Change issues. NECU is a member of CEE Bankwatch Network, NGO Working Group on climate change, Ukrainian River Network, IUCN, Climate Action Network International.

### **Ukrainian Society for the Protection of Birds (USPB)**

- <http://www.birdlife.org.ua/eng/index.htm> This NGO is the partner of the international NGO Birdlife International. It works for the conservation of migratory and resident birds, monitors populations of threatened and endangered bird species, and advocates for habitat and environmental protection. USPB has a program to identify Important Bird Areas (IBAs) ([http://www.birdlife.org.ua/eng/iba\\_prog.htm](http://www.birdlife.org.ua/eng/iba_prog.htm)). There are now 166 recognized IBAs in Ukraine; the majority support significant numbers of waterfowl, many of European conservation concern, during breeding, wintering, or migration seasons. Projects of USPB include:
- Sustainable Integrated Land Use of Eurasian Steppe in Russia, Ukraine and Moldova. This project, funded by the European Union from 2007-2009, worked in Lugansk and Odesa

oblasts, and had as its main task to test and implement mechanisms of steppe area management that would facilitate the development of rural areas on one hand and conservation of steppe ecosystem areas on the other hand.

<http://www.steppe.org.ua/eng/about.php>

- The Steppe Biodiversity project, “Enhanced Economic and Legal Tools for Steppe Biodiversity Conservation and Climate Change Adaptation and Mitigation,” is funded by the European Union. USPB is the project leader, and its implementation partners include the Institute for Community Development (Ukraine); Rural Development Centre (Ukraine); Euroconsult Mott MacDonald (Netherlands); and European Centre for Nature Conservation (Netherlands). The focus is on protecting habitats, but the approach combines classic tools (protected area designation and management) and innovative approaches (development and marketing of carbon credits and renewable energy from grassland and agri-biomass). The three-year project aims to restore depleted or abandoned steppe lands in a sustainable way and to understand and prepare for climate change issues locally. The project runs from January 2011 to December 2013 <http://www.birdlife.org/eu/pdfs/BlenewsMarch.pdf>

- Environmental monitoring and assessment of potential impact on the environment of projected windmills on Kerchinskiy peninsula for Nova-Eco company.
- Conservation of virgin forests under support of Frankfurt Zoological Society.
- CLIMPARKS : intégration du changement climatique à la gestion des écosystèmes vulnérables : parcs naturels en zones humides et forêts, Ukraine. (Incorporation of climate change into management of vulnerable ecosystems: protected areas of Polissya (2011-2013). Project partners: «[VERSeau Development](#)» (France), Polisskyi nature reserve, National nature park “Prypyat-Stokhid” under financial support of European Union.

USPB is partnering for any year with Coca Cola in Ukraine. The corporate projects include wetlands restoration and environmental education.

### **Ecoclub “Green Wave”** [ecoclubua.com](http://ecoclubua.com)

This NGO works on raising environmental awareness and enhancing environmental education of the general public, youth and children by information sharing and work with communities.

One of the projects is

- “BUILDING CAPACITY FOR BIODIVERSITY CONSERVATION IN UKRAINE: NETWORK AND TRAINING SUPPORT” in partnership with Center for Biodiversity and Conservation (CBC) at the American Museum of Natural History in New York (United States) under financial support of Mava Foundation and the embassy of the Netherlands in Ukraine.
- “Nature and heritage interpretation in Ukraine: building capacity” under support of US Forest Service.

### **Ecopravo-Kyiv** <http://ekopravo.kiev.ua/>

EcoPravo-Kyiv is providing legal support to entities and individuals on any environmental case.



**Eremurus** <http://eremurus.org>

The main activities of the organization are: the introduction in 2002 of the international school education project on rational use of resources and energy SPARE in all regions of Ukraine; development of a series of teaching materials on sustainable development, climate change mitigation and energy efficiency; teacher training, attracting young people to participate in practical activities and projects to attract public attention to the rational use of resources and energy.

**Svit Osvit** <http://www.sweetosvit.org.ua>

Main emphasis of the organization is environmental education with attempts to influence environmental education of the national level.

**Green Dossier** <http://dossier.org.ua>

Green Dossier is an information center whose objective is to educate people, especially youth, about humanities, environmental issues and sustainable development. Green Dossier is working with building capacity of journalists on environmental issues, on promoting sustainable tourism and sustainable agriculture.

**InterEcoCentre** <http://www.geocities.ws/interecocentre/>

InterEcoCentre was established in 1994 as an Charity Fund, with capabilities in project management, accounting, and environmental protection. InterEcoCentre has implemented a number of biodiversity conservation projects of the World Bank, including the Transcarpathian Biodiversity Project from 1993-1997, and Danube Delta Biodiversity Project from 1995-1999, and for Wetlands International, such as the Dnipro Corridor Project, signed in 2006. From 2009 till 2016 has been working on the Development of Emerald Network in Ukraine under support of Council of Europe.

**Bureau of Environmental Investigations** <http://www.bei.org.ua/>

Bureau of Environmental Investigation is an environmental NGO established to protect environment and human health, promote environmental rights and interests of people. One of the emphases recently was on the development of Small hydro power plants.

**All-Ukrainian Ecological League** <http://www.ecoleague.net/index.php>

Main emphasis of the organization is on Environmental Policy and Sustainable Development.

**Green Front** - Kharkiv regional environmental organization, which deals with environmental protection and social rights. Actively participated in protection of urban green areas.

International NGOs play an important role in biodiversity conservation in Ukraine. A few are described below:

**WWF** <http://wwf.panda.org/uk/>

Through its Vienna-based Danube-Carpathian Regional Program Office, WWF has a number of active projects in Ukraine, linked with their regional initiatives. It is building its presence in Ukraine with 15 people staff in Kyiv, Lviv, Uzhgorod, Ternopil, and Odessa

The main strategic topics include:

- Sustainable use of forest resources, virgin and old-growth forest conservation, FSC certification
- Freshwater conservation: Dniester, Danube, Tisza and Carpathian rivers
- Wildlife conservation: Large carnivore and sturgeon conservation

Among the projects that has been or are being implemented are:

Climate Forum East II (2015-2017) is an EU-funded project led by the Austrian Red Cross with the objective of strengthening the capacities of six existing national CSO Climate Change Adaptation networks and individual CSO network members to contribute to national and local policy making processes, public awareness raising, and education on Climate Change and environmental governance in the Eastern Neighbourhood Region.

[http://www.panda.org/uk/our\\_work/climate\\_change/climate\\_adaptation/climate\\_forum\\_east/](http://www.panda.org/uk/our_work/climate_change/climate_adaptation/climate_forum_east/)  
<http://climateforumeast.org/>

Transgreen (2017-2019) The project aims to contribute to safer and environmentally-friendly road and rail networks in mountainous regions of the Danube Basin with a special focus on the Carpathian Mountains. It will do so by improving planning frameworks and developing concrete environmentally-friendly and safe road and rail transport solutions taking into account elements of Green Infrastructure, in particular ecological corridors. Partners involved: four pilot sites located in Beskydy (CZ-SK), Miskolc-Kosice-Uzhgorod (HU-SK-UA), Tirgu Mures-Iasi and Lugoj-Deva (RO). It is supported by European Union Interreg Danube Transnational Programme.

FLEG: Forest Law Enforcement and Governance Program <http://www.enpi-fleg.org/> The FLEG Programme has been developed in response to the growing problem of illegal forest activities in the participating countries (Armenia, Azerbaijan, Belarus, Georgia, Moldova, Russia and the Ukraine). These activities include illegal logging, timber theft and smuggling and lack of enforcement of forest regulations due to corruption which can result in loss of revenue for governments, the private sector and local people and degradation of forest ecosystems with loss of biodiversity and livelihoods. The overall objective of the project was to contribute to establishing legal and sustainable forest management and utilization practices, strengthening the rule of law, and enhancing local livelihoods in the participating countries. The aim is to assist governments to meet their commitments towards the St. Petersburg Ministerial Declaration on FLEG in Europe and North and Central Asia.

FLEG Programme's partners: the European Commission, the World Bank, IUCN and WWF.

Support of Nature Protected Areas, Ukraine (May 2016- May 2022) Supported by: KFW. Project partners: WWF, Ukrainian Society of Protection of Birds. Frankfurt Zoological Society, AHT GROUP AG. The objective of the Project is to improve management and effectiveness of selected protected areas in the Carpathian region in Ukraine as well as to increase support for protected areas in local communities.

## ANNEX G DONORS AND PROJECTS

### **Canada's Bilateral Development Assistance in Ukraine (Canadian Embassy Kyiv)**

Promoting sustainable economic growth and supporting the rule of law and democratic governance. <http://www.international.gc.ca/development-developpement/countries-pays/ukraine.aspx?lang=eng>

### **Charles Stewart Mott Foundation, USA**

Civil Society, Education, Environment

<http://www.mott.org/grantsandguidelines/ForGrantseekers/grantseeker/inquiryletterstep2>

### **ClimaEast** <http://www.climaeast.eu/>

ClimaEast, funded by the European Union, supports climate change mitigation and adaptation in eastern European countries and Russia. In Ukraine, ClimaEast focuses on the conservation and sustainable use of peatlands through developing and piloting an ecosystem-based approach for converting degraded private arable peatlands to semi-natural conditions with high value for local people and for biodiversity conservation. The project targets the Nizhyn rayon in Chernihiv Oblast, one region where 95% of Ukraine's drained peatlands are located.

### **Czech Embassy**

Power & Energy, Energy Efficiency & Climate Change, Transport, Natural Resources, Agribusiness, Municipal and Environmental Infrastructure, including transportation, economic and renewable energy sources.

[http://www.mzv.cz/kyiv/uk/x2010\\_05\\_17/x2010\\_08\\_20\\_1/x2010\\_05\\_17\\_1/index.html](http://www.mzv.cz/kyiv/uk/x2010_05_17/x2010_08_20_1/x2010_05_17_1/index.html)

### **European Endowment for Democracy, Belgium**

Increasing the state's accountability; Enhancing the inclusiveness of societies, including by fighting all forms of discrimination against women and minorities, and by increasing their participation; Supporting citizens' representation and involvement in decision-making processes, both at national and local levels; Promoting an increased, more effective and more professional role of pro-democracy actors, such as political parties, Unions and civil society organizations.

<https://www.democracyendowment.eu/support>

### **European Union**

The EU program of financial and technical cooperation supports Ukraine's ambitious reform agenda. More than 250 projects are currently being carried out across a wide-range of sectors, regions and cities in Ukraine. Of relevance to biodiversity conservation, support to Ukraine to move toward harmonization with EU environmental directives started in October 2015.

Support has been provided to the Ministry of Ecology and Natural Resources and other institutions responsible for implementation of environmental requirements under the Association Agreement's Chapter 6, on "Environment." In addition to legal assistance to the MENR in drafting laws and bylaws that approximate those of the EU, the support aims to improve the capacity of MENR and raise public awareness.

Project website: <http://www.env-approx.org/index.php/en>

### **Finnish Embassy**

Priorities of the Embassy of Finland with relevance to biodiversity conservation in Ukraine include democracy and good governance, the reform process of Ukraine, and rule of law and anti-corruption, and environmental protection, especially conservation of biodiversity.

<http://www.finland.org.ua/public/default.aspx?nodeid=31733&contentlan=37&culture=uk-UA>

### **Fondation Ensemble, France**

The Foundation's four focus sectors (Sustainable Agriculture, Sustainable Fishing, Biodiversity Conservation, Sustainable Technologies) + The conservation of threatened animal species.

<http://www.fondationensemble.org/en/submit-proposal/threatened-animal-species-fund/intro-calendar/>

### **Friedrich Naumann Fund, Germany**

Dialogue within civil society and between civil society and government institutions, including in Germany, in order to highlight topics that could promote radical reforms.

<http://ukrajina.fnst.org/>

### **Heinrich Boell Fund, Germany**

Promotion of democracy and civil society (promoting the active participation of citizens in government, critical rethinking of history and support the green movement and carriers left-liberal ideas); Environment, climate and energy (promotion of energy efficiency, climate protection, support for the anti-nuclear movement, ecological modernization of society).

<http://ua.boell.org/uk>

### **Matra/Netherlands Embassy Kyiv**

Matra programme 2017 will support initiatives of civil society organizations aimed at assisting and monitoring of the implementation of reforms, both at the central and local levels, promoting transparency and accountability of government structures through social dialogue, capacity building and monitoring.

[http://www.netherlands-embassy.com.ua/matra\\_information.html](http://www.netherlands-embassy.com.ua/matra_information.html)

### **National Endowment for Democracy, USA**

Strengthening democratic idea and values; strengthening CSO; strengthening democratic political processes and institutions; promoting civic education.

<http://www.ned.org/apply-for-grant/en/>

### **Norwegian Agency for Development Cooperation (NORAD)**

Priorities for NORAD include the environment and vulnerability to climate change, including climate and forest projects to reduce greenhouse gas emissions resulting from deforestation and forest degradation.

<https://www.norad.no/en/front/funding/>

### **Organization for Security and Co-operation in Europe (OSCE)**

The OSCE assists with projects to improve co-operation on adapting the Dniester basin to the challenges of climate change, and to reduce environmental risks for border guard personnel in the Chernobyl Exclusion Zone.

<http://www.osce.org/project-coordinator-in-ukraine/environmental-activities>

### **Polish Embassy Kyiv**

1) Development of national and regional systems of crisis management, capacity building of state and local government and improving operational capabilities in preventing and responding to emergencies arising from human activities; 2) development of business using innovative tools and technologies, including renewable energy; 3) improvement of services and infrastructure in professional training centers.

[http://www.kijow.msz.gov.pl/uk/wspolpraca\\_dwustronna/pomoc\\_i\\_granty/konkurs\\_malych\\_grantow\\_2017\\_ogloszenie\\_ua](http://www.kijow.msz.gov.pl/uk/wspolpraca_dwustronna/pomoc_i_granty/konkurs_malych_grantow_2017_ogloszenie_ua)

### **SIDA (Swedish Embassy Kyiv)**

A Better Environment, Reduced Climate Impact and Enhanced Resilience to Environmental Impact and Climate Change. SIDA's support in Ukraine is focused in three main areas: 1) economic integration and market economy, 2) democratic governance and human rights and 3) natural resources and environment.

<http://www.swedenabroad.com/en-GB/Embassies/Kyiv/Development-Cooperation/Development-Cooperation-with-Ukraine/>

### **Swiss Agency for Development and Cooperation/ Swiss Cooperation Office**

Sustainable Energy Management and Urban Development (sustainable and efficient energy management and gradual emergence of greener and more sustainable cities, factoring in climate change risks and vulnerabilities); Governance and Peacebuilding; Sustainable Economic Development. <https://www.eda.admin.ch/countries/ukraine/en/home/international-cooperation/projects.html>

### **United Nations Development Program (UNDP)**

Environment & Energy (Environmental and energy policy reform for innovative green and clean economic growth).

[http://www.ua.undp.org/content/ukraine/en/home/operations/projects/environment\\_and\\_energy.html](http://www.ua.undp.org/content/ukraine/en/home/operations/projects/environment_and_energy.html)

### **US Agency for International Development**

### **World Bank Group**

Priorities in Ukraine for the World Bank include environment and natural resources management, biodiversity, climate change, environmental policies and institutions, land administration and management, and water management.

<http://projects.worldbank.org/theme?lang=en&page=>

## ANNEX H SUMMARY OF THREATS, CAUSES AND ACTIONS NEEDED

Specific Threat	Cause(s)	Actions Needed
Loss or degradation of natural forest from logging or conversion to plantation forest	<ul style="list-style-type: none"> <li>• Illegal logging of natural forests</li> <li>• Legal logging of natural forests</li> <li>• Legal conversion of natural forests to plantation forests, or other forest management practices that reduce forest biodiversity</li> </ul>	<ul style="list-style-type: none"> <li>• Reduce illegal logging of natural forest through public awareness (media, NGO campaigns, government agencies), transparency (media, NGO campaigns, government agencies), and enforcement (government).</li> <li>• Reduce legal logging of natural forest through public awareness, transparency, and government policies, laws, and regulations (same suite of actors)</li> <li>• Reduce conversion of natural forest to plantation forest or degradation of biodiversity caused by forest management practices through public awareness, transparency, and government policies, laws, and regulations</li> <li>• Reform the State Forestry Agency to enable natural forest conservation and management and reduce overemphasis on plantations and wood production (NGO advocacy, international standards and agreements, government policy and institutional reform)</li> </ul>
Loss or degradation of wetlands from draining for agriculture, or water extraction for irrigation, hydropower, navigation, or thermal power-plant cooling	<ul style="list-style-type: none"> <li>• Lack of adequate national strategy, policy, laws, and regulations for integrated water resources management, valuing and conserving ecohydrological ecosystem services, and protecting “environmental flows” needed to safeguard aquatic species and habitats (e.g., deltas, fish spawning habitats, water birds)</li> <li>• Lack of transboundary water management with Belarus to protect ecological flows needed in Pripjat River system</li> </ul>	<ul style="list-style-type: none"> <li>• Develop a national integrated water resources management (IWRM) strategy (including irrigation component) that recognizes the value of protecting forests and wetlands in upstream watersheds, and environmental flows (NGO advocacy, international standards and agreements, government policy and institutional reform)</li> <li>• Reform the State Water Agency to enable IWRM (institutional reform)</li> </ul>

Specific Threat	Cause(s)	Actions Needed
Loss of fish habitat from hydropower dams	<ul style="list-style-type: none"> <li>• Siting of dams based on inadequate scientific information and environmental impact assessments (EIAs)</li> <li>• Lack of transparency, corruption, and illegal siting of dams</li> <li>• Lack of functioning fish passages and fish protection measures at dams, which are required by law</li> </ul>	<ul style="list-style-type: none"> <li>• Engage the Institute of Hydrobiology or other scientific institutes for scientific studies and EIAs to guarantee environmental flows needed for species and ecosystems (government agencies, NGO advocacy)</li> <li>• Increase public awareness and participation and transparency, and reduce corruption in siting of small and medium hydropower dams (media, NGO campaigns, government agencies)</li> <li>• Enforce current laws requiring functioning fish passages and fish protection measures (NGO campaigns, government agencies)</li> </ul>
Loss of natural steppe from conversion to agriculture	<ul style="list-style-type: none"> <li>• Lack of legal protection for areas of natural steppe that remain outside of protected areas</li> <li>• Illegal plowing of steppe that may be nominally protected in protected areas</li> </ul>	<ul style="list-style-type: none"> <li>• Identify and map all areas of remaining natural steppe and promote protection of any remaining unprotected steppe (government agencies, NGO campaigns)</li> <li>• Increase public awareness, participation, and transparency regarding steppe protection (media, NGO campaigns, government agencies)</li> <li>• Enforce protected area laws and regulations (government agencies)</li> </ul>
Degradation of steppe and forest from physical and chemical effects of warfare in Donbass conflict zone	<ul style="list-style-type: none"> <li>• Surface cratering from explosions of bombs, shells, missiles</li> <li>• Forest fires started by explosions or deliberately set for tactical reasons</li> </ul>	<ul style="list-style-type: none"> <li>• Monitor water quality in rivers transiting and exiting the conflict zone (government agencies)</li> <li>• Resolve the conflict (GOU, international partners)</li> <li>• Clean up and restore natural habitats in the conflict zone that were damaged by war (GOU, international donor aid)</li> </ul>
Decreasing sturgeon populations from illegal catch for caviar production	<ul style="list-style-type: none"> <li>• Lack of adequate enforcement of sturgeon catch, imports from Russia, and corruption that drives it</li> </ul>	<ul style="list-style-type: none"> <li>• Reduce illegal sturgeon catch and corruption that drives it (media, NGO campaigns, government agencies)</li> <li>• Control and reduce and illegal export of caviar (GOU)</li> </ul>
Decreasing large mammal populations (e.g., moose, red deer) from illegal hunting	<ul style="list-style-type: none"> <li>• Lack of scientific quota-setting and management of hunted species</li> <li>• Lack of adequate enforcement of hunting laws and regulations, and corruption that drives illegal hunting</li> </ul>	<ul style="list-style-type: none"> <li>• State Agency of Forest Resources (SAFR) should engage Institute of Zoology or other scientific institutes for scientific studies to set hunting quotas and develop management plans for target species (government agencies, NGO advocacy)</li> <li>• Enforce hunting laws and control corruption that enables illegal hunting (GOU)</li> </ul>
Decreasing populations of waterfowl (e.g., ducks, geese) from hunting	<ul style="list-style-type: none"> <li>• Lack of scientific quota-setting and management of hunted species</li> <li>• Lack of adequate enforcement of hunting laws and regulations, and corruption that drives it</li> </ul>	<ul style="list-style-type: none"> <li>• SAFR should engage Institute of Zoology or other scientific institutes for scientific studies to set hunting quotas and develop management plans for target species (government agencies, NGO advocacy)</li> <li>• Enforce hunting laws and control corruption that enables illegal hunting (GOU)</li> </ul>



Specific Threat	Cause(s)	Actions Needed
Decreasing populations of food fish species from fishing	<ul style="list-style-type: none"> <li>Inadequate scientific quota-setting and fisheries management</li> <li>Lack of adequate enforcement of fishing laws and regulations, and corruption that drives it</li> </ul>	<ul style="list-style-type: none"> <li>State Agency of Fisheries should engage Institute of Zoology or other scientific institutes for scientific studies to set hunting quotas and develop management plans for target species</li> <li>Enforce hunting laws and control corruption that enables illegal hunting (GOU)</li> </ul>
Decreasing populations of fish species from construction and operation of hydropower dams	<ul style="list-style-type: none"> <li>Siting of dams based on inadequate scientific information and environmental impact assessments</li> <li>Lack of transparency, corruption, and illegal siting of dams</li> <li>Lack of functioning fish passages and fish protection measures at dams, which are required by law</li> </ul>	<ul style="list-style-type: none"> <li>Engage the Institute of Hydrobiology or other scientific institutes for scientific studies and EIAs to guarantee environmental flows needed for species and ecosystems (government agencies, NGO advocacy)</li> <li>Increase public awareness and participation and transparency, and reduce corruption in siting of small and medium hydropower dams (media, NGO campaigns, government agencies)</li> <li>Enforce current laws requiring functioning fish passages and fish protection measures (GOU)</li> </ul>
Nutrient loading of aquatic ecosystems from fertilizer runoff from agriculture	<ul style="list-style-type: none"> <li>Chemical fertilizers used on crops</li> <li>Livestock waste</li> </ul>	<ul style="list-style-type: none"> <li>Increase use of soil testing to minimize use of chemical fertilizers (government agencies, private sector)</li> <li>Promote minimum tillage agriculture to retain humus and soil nutrients (government agencies, private sector)</li> <li>Promote riparian buffer strips to retain soil and nutrients on fields (NGO advocacy, government agencies, private sector)</li> <li>Promote livestock waste management techniques that reduce/prevent nutrient runoff to streams and rivers (NGOs, government agencies, private sector)</li> </ul>
Pesticide contamination of terrestrial and aquatic ecosystems from agriculture	<ul style="list-style-type: none"> <li>Use of old/illegal pesticides</li> <li>Lack of awareness and practice of integrated pest management (IPM)</li> <li>Increased use of neonicotinoid pesticides (e.g., for seed treatment)</li> </ul>	<ul style="list-style-type: none"> <li>Identify and dispose of stocks of old/illegal pesticides (government agencies)</li> <li>Promote awareness and train farmers in IPM to minimize pesticide use (private sector, government agencies, NGOs)</li> <li>Regulate uses of neonicotinoid pesticides to minimize unnecessary/uneconomical uses (GOU)</li> <li>Monitor water and aquatic ecosystems and conduct scientific studies downstream from agricultural areas to detect ecological impacts (government agencies)</li> <li>Monitor pollinator populations (e.g., wild bees and domesticated honeybees) to detect unwanted impacts of pesticides (scientific institutes, government agencies, NGOs)</li> </ul>

Specific Threat	Cause(s)	Actions Needed
Potential contamination from effects of conflict in Donbass	<ul style="list-style-type: none"> <li>Chemical contamination of soil and water from explosives and metals in munitions</li> <li>Contaminated water from abandoned and flooded coal mines flowing into rivers and Sea of Azov</li> </ul>	<ul style="list-style-type: none"> <li>Monitor water quality in rivers transiting and exiting the conflict zone (GOU)</li> </ul>
Introduced invasive plants degrading native vegetation and outcompeting native species (e.g., Russian Olive, <i>Elaeagnus angustifolia</i> ; cow parsnip)	<ul style="list-style-type: none"> <li>Inadequate monitoring and control or eradication strategies for introduced invasive plant species</li> </ul>	<ul style="list-style-type: none"> <li>Develop monitoring and control plan for invasive species with participation of relevant ministries and agencies (GOU)</li> </ul>
Introduced American mink ( <i>Neovison vison</i> ) supplanting the European mink ( <i>Mustela lutreola</i> )	<ul style="list-style-type: none"> <li>Inadequate monitoring and control or eradication strategies for introduced invasive animal species</li> </ul>	<ul style="list-style-type: none"> <li>Develop monitoring and control plan for invasive species with participation of relevant ministries and agencies (e.g., MENR, State Forestry Agency, fisheries?, transportation?, Ministry of Agriculture)</li> </ul>
Drying of wetlands, bogs, and peatlands	<ul style="list-style-type: none"> <li>Higher temperatures, more droughts, increased evapotranspiration</li> </ul>	<ul style="list-style-type: none"> <li>Develop plans to modify water and protected areas management to improve climate resilience of wetlands, bogs, and peatlands based on climate change models/scenarios (government agencies, NGO advocacy, private sector)</li> </ul>
Reduction of water flow needed by aquatic species and ecosystems in rivers and deltas (partly from increased use for irrigation)	<ul style="list-style-type: none"> <li>Reduced precipitation and higher temperatures, increased evapotranspiration in natural and agricultural ecosystems</li> </ul>	<ul style="list-style-type: none"> <li>Incorporate climate change scenarios into national IWRM strategy and action plan (GOU)</li> </ul>
Drying/stress on forests, increasing pine bark beetle ( <i>Dendroctonus</i> sp.) attacks on pine forests	<ul style="list-style-type: none"> <li>Higher temperatures, increasing droughts, increased evapotranspiration</li> </ul>	<ul style="list-style-type: none"> <li>Develop plans to modify forest and protected areas management to improve climate resilience of forests based on climate change models/scenarios (government agencies)</li> </ul>

