



FINAL REPORT

**Supporting the recovery
and sustainable
management of Ukrainian
forests and Ukraine's
forest sector**



**Supporting the
Ukrainian forests**

FORESTEUROPE - Liaison Unit Bonn
Rapid Response Mechanism
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PREFACE

This report has been prepared by the **Liaison Unit Bonn of Forest Europe (LUBo)** with the support of Liubov Poliakova, a Ukrainian expert, as a contribution to implement the Ministerial Decision (see Annex 1) that was endorsed at the High-Level Policy Dialogue on 30 August 2022. The content of the report was reviewed and discussed with the FOREST EUROPE Ukraine network of experts at the FOREST EUROPE workshop on 6 June 2023.

The report summarises the work carried out by LUBo between August 2022 and June 2023. It presents an overview of the status of the Ukrainian forest sector and the Ukrainian forests before and during the war, analyses the existing support projects in place, and provides a short list of recommendations about future steps to be taken for the recovery and strengthening of SFM in Ukraine.

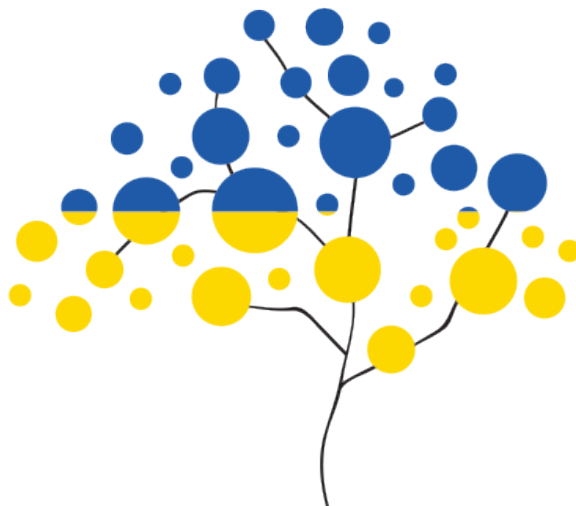
We appreciated all the support provided by our partners and experts for this report and for the support provided to the Ukrainian forest sector. We could not ensure that all information is up to date or complete. Therefore, we would also appreciate receiving new information after this report has been released..

We hope that this report will help the Ukrainian authorities in the difficult and long-lasting recovery process for the forest sector and forests in the Ukraine.

Thomas Haußmann

Head of the Liaison Unit Bonn

Bonn, June 21 2023

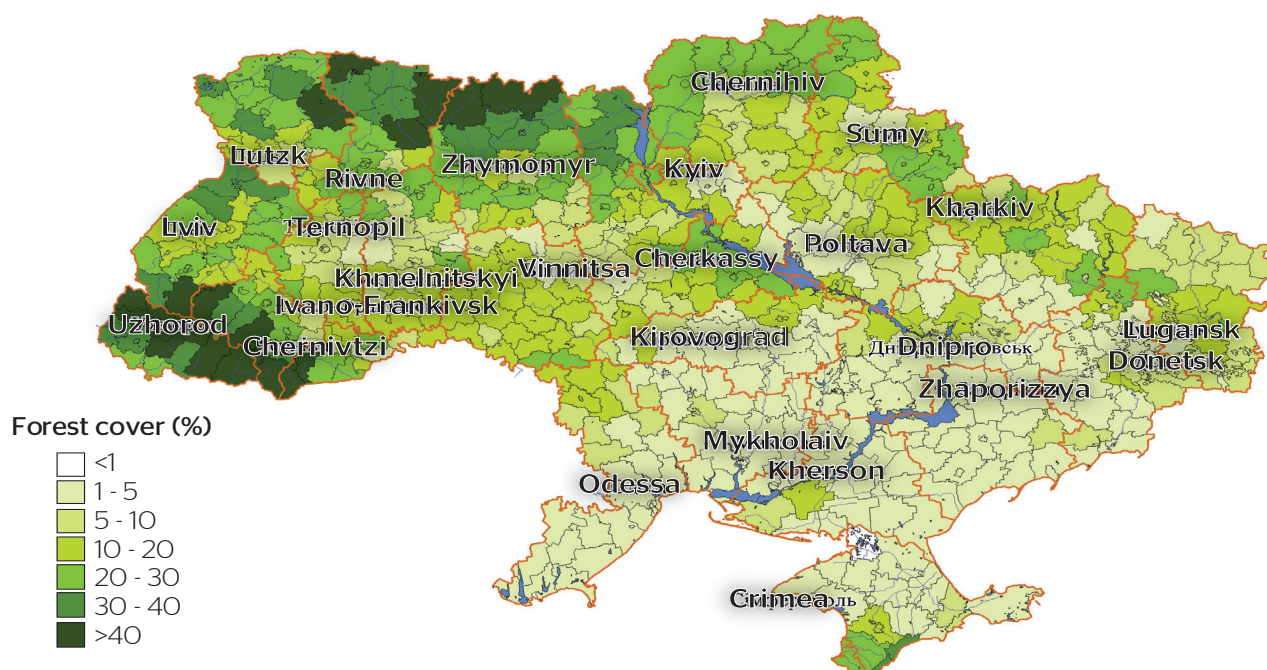


CHAPTER 1: BRIEF OVERVIEW OF THE FOREST'S STATUS IN UKRAINE (BEFORE 24 FEBRUARY 2022)

1.1 Forest data

Ukraine has a total area of 10.4 million hectares designated for sustainable forest management (SFM), incl. 9.6 million hectares of forest land, corresponding to a total of 15,9% of land cover.

Figure 1: Forest cover of administrative-territorial units in Ukraine



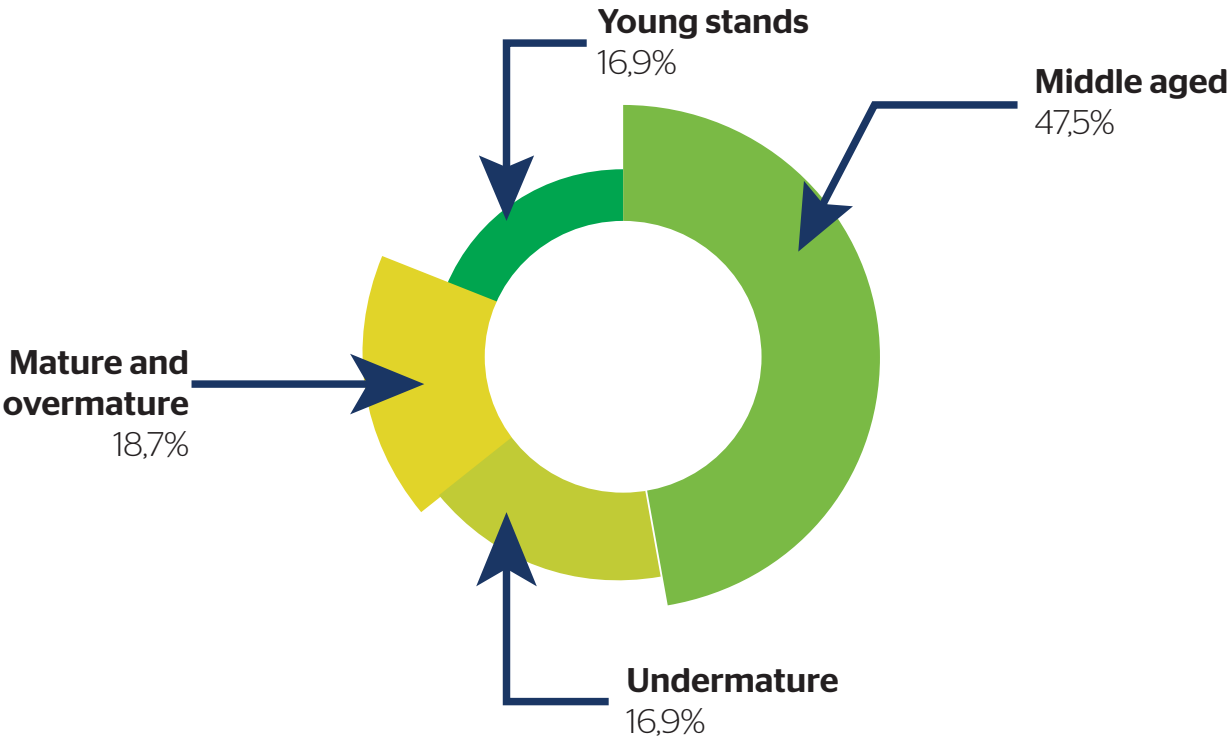
Source: L.Poliakova, 2022, based on State Forest Resources Agency forest survey data in 2011.

Forests are distributed very unevenly within the country and the highest forest cover is in Polissya (26,8%) and the Ukrainian Carpathians (42%) (see figure 1). Different climatic, geomorphological conditions and anthropogenic impact have caused varied forest covers, ranging from 3% to more than 50%, and also shaped different ecosystem types. The area of forest lands and forests growing stock increase every year. Since 1961, the forest cover has increased up to 1.5 times. The growing stock is estimated to be 2.1 billion cubic metres, with an annual increment of around 35 million cubic metres.

The gradual increase of growing stock illustrates the significant economic and environmental potential of forests in Ukraine. It should be mentioned that the last national forest survey¹ was conducted in 1996. The State Forest Resource Agency of Ukraine conducted two forests surveys in 2001 and 2011, covering 73% of the total forest area in the whole country (see chapter 1.2). The first circle of National Forest Inventory started in 2021 (see chapter 1.4.2).



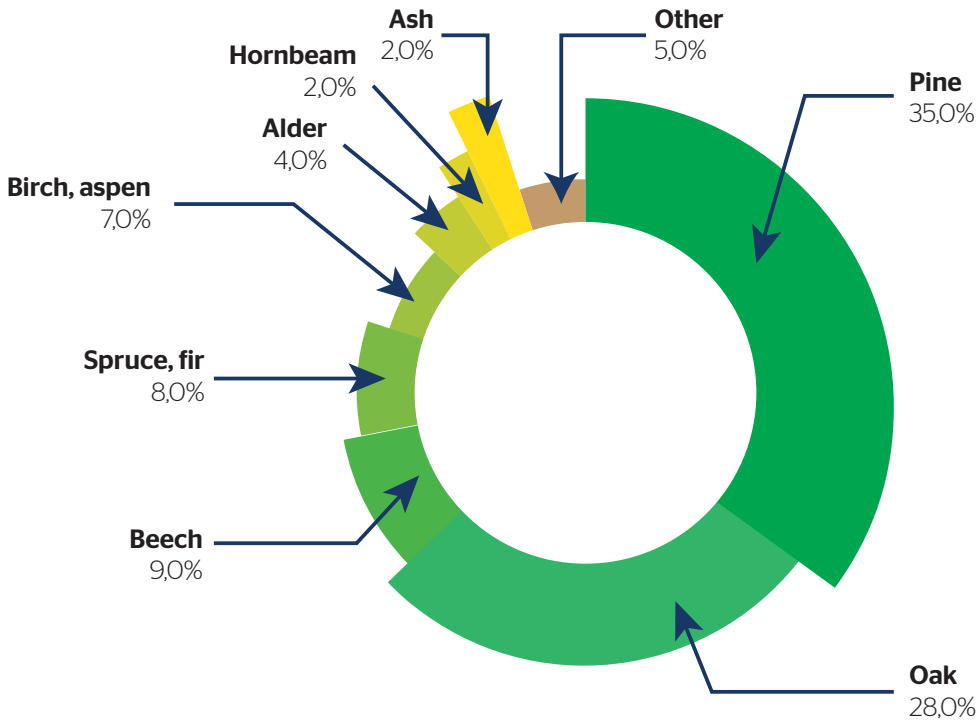
Figure 2: Distribution of forested lands by age groups



Source: L.Poliakova, 2022, based on State Forest Resources Agency forest survey data in 2011.

In Ukraine, the forest age-group distribution was strongly influenced by reforestation on large clear-cut areas after the Second World War. As a result, middle aged stands have the largest share in age structure, i.e. 47.5% (see figure 2). The average age of forests is more than 60 years².

Figure 3: Species distribution in Ukrainian forest



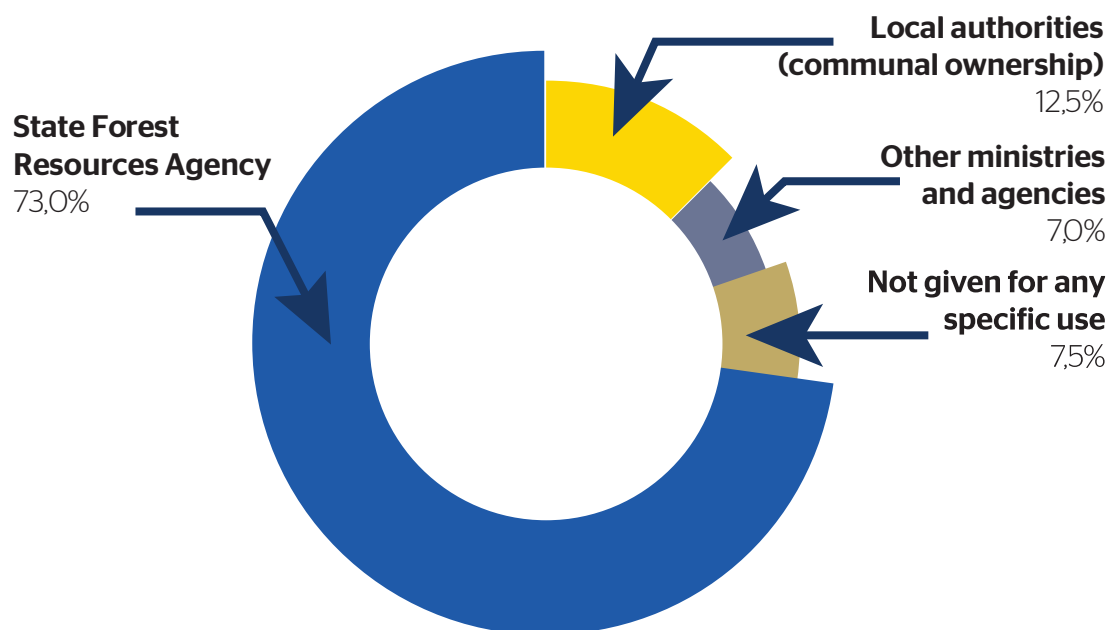
Source: L.Poliakova, 2022, based on State Forest Resources Agency forest survey data in 2011.

Ukrainian forests are composed of more than 30 tree species. The prevailing species are pine, oak, beech, spruce, birch, alder, ash, and hornbeam (see figure 3). The occurrence of species varies by region.

1.2. Forest ownership and institutional structure

According to the Land Code of Ukraine and Forest Code of Ukraine (the main legislative document for forest related issues in place), forests are characterized by state, communal or private ownership³.

Figure 4: Forest ownership structure



Source: L.Poliakova, 2022, based on State Forest Resources Agency forest survey data in 2011.

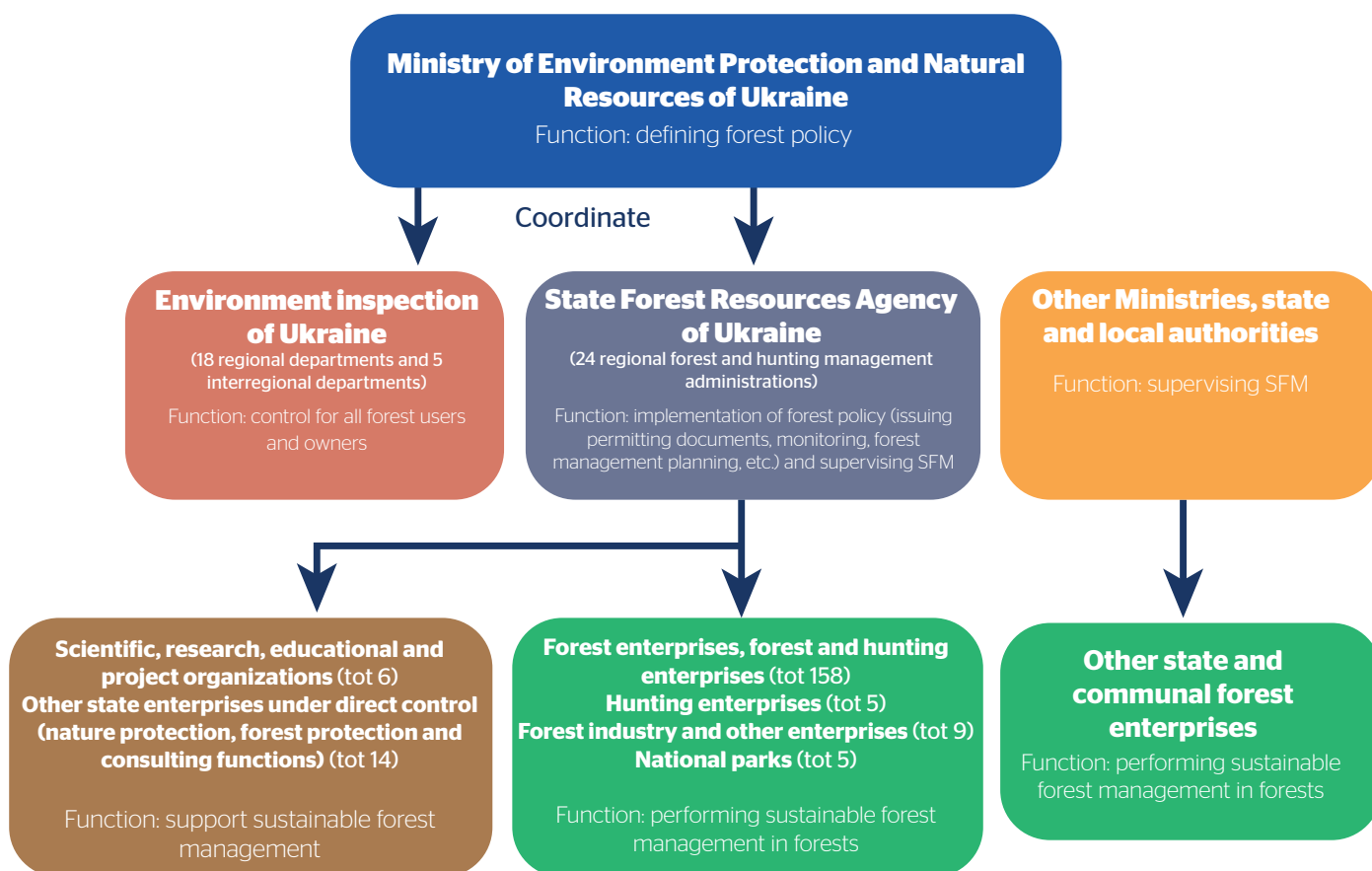
87% of the entire national forest area is state-owned. Of this, the State Forest Resource Agency is responsible for 7.6 million hectares, corresponding to 73% of the total forest area (see figure 4). The Ministry of Education and Science, the Ministry of Defense, the Ministry of Environmental Protection and Natural Resources, the Ministry of the Infrastructure of Ukraine and other state authorities are responsible for 7% of state forests (corresponding to 0.7 million hectares). Nearly 7.5% (corresponding to 0.8 million ha) of state-owned forest lands are not designated as belonging any specific forest user.

Communal ownership accounts for 12.5% of the total forest area, and less than 0.1% of forests are privately owned. The Ministry of Environment Protection and Natural Resources of Ukraine performs a normative function and is responsible for the preparation of official documents (see figure 5). The Environmental Inspection of Ukraine (independent authority under responsibility of the mentioned above Ministry) has a controlling function in all Ukrainian forest.



Forest in the
Kyiv region.
Source: State Forest
Resources Agency of
Ukraine

Figure 5: Institutional structure of Ukrainian forestry before the war



Source: L.Poliakova, 2022.

The Ministry of Environmental Protection and Natural Resources of Ukraine performs a normative function and is responsible for the preparation of official documents (see figure 5). The State Environmental Inspection of Ukraine (an independent authority under responsibility of the above-mentioned Ministry) has a controlling function in all Ukrainian forests.

The State Forest Resources Agency of Ukraine is responsible for the implementation of the state forest policy and supervises SFM in 73% of Ukrainian forests. Beside of State Forest Resources Agency of Ukraine, other state and local authorities are responsible for supervising SFM (e.g. the Ministry of Education and Science, the Ministry of Defence, the Ministry of Environmental Protection and Natural Resources, etc).

The state forest enterprises carry out all forest-related tasks, such as planting, managing, cutting and selling timber. Some state forest enterprises have wood processing facilities.

1.3. Forest research and education

The G.M.Vysotskiy Ukrainian Research Institute of Forestry and Forest Melioration (URIF&FM), is the leading national forestry research center in Ukraine, and the P.S.Pasternak Ukrainian Mountain Forestry Research Institute (UMFRI), is the national research center for mountain forest management. These are the two national scientific institutes responsible for forest-related research and are subordinated to the State Forest Resources Agency of Ukraine (see figure 5).

The research network composed of URIF&FM and UMFRI covers natural ecosystems and forest research plots, some of which were identified over 150 years ago. Nowadays, the network is well-balanced and reflects the whole range of aspects related to the natural, economic and social traits of Ukrainian forests with high-level research programs and outputs. Research at URIF&FM and UMFRI focuses on the following priority areas: development and improvement of forest management; reforestation and afforestation; forest protection; forest breeding, research and conservation of forest genetic resources and forest biodiversity; forest ecology and monitoring

of forest ecosystems; agroforestry and forest restoration; forest radiology; game management; economics, organization and management of forestry; and information technology and digitalization in forestry.

Other forest-related research projects are conducted by forest science universities across the country.

In general, in Ukraine, there is a full-fledged multi-level training system for forest specialists of all levels, from forest workers to academics. Educational institutions are located throughout the territory of Ukraine. At the same time, theoretical and practical training largely considers the regional features of forests and forestry.

The most common method of vocational training is the involvement of secondary-school pupils in forest-related work. A total of about 500 so-called forest school units operates at state forest enterprises throughout Ukraine.

In relation to forest education, there are 50 educational institutions consisting of 23 universities, 22 forest-related colleges and 5 forest training schools⁴. 13 educational entities provide master's degrees and 24 offer bachelor's degrees. The largest forest faculties are based in Kyiv, Lviv and Kharkiv.



Carpathian forests.

Source: State Forest Resources Agency of Ukraine

Considerable attention is paid to improving the qualifications of managers and specialists in the forestry sector. Advanced training is carried out at the Ukrainian Center for Training and Advanced Training of Forestry Personnel (Ukrcentrkadrylis)⁵. Every year, about 1,500 managers and specialists undergo training in professional programs and occupational safety at Ukrcentrkadrylis. There is also a possibility to improve qualifications at the Carpathian Regional Training Center, which is a branch of Ukrcentrkadrylis. Advanced training of forest workers in the central and south-eastern regions of Ukraine is organized at the Chornolis Forestry School branch of Ukrcentrkadrylis.

1.4 Overview of the recent developments in Sustainable Forest Management before the war

1.4.1 Institutional structure

"The State Strategy of Forest Management in Ukraine up to 2035" (hereafter – State Forest Strategy) was adopted by Governmental Decree 1777-p on 29.12.2021⁶. The State Strategy was elaborated after a stakeholder consultation, and it is a comprehensive document which considers several actions aiming to improve all three SFM pillars (ecological, economic and social).

The State Strategy has among others the goal to improve the institutional structure in forestry, aiming to separate forest-related functions performed by different institutions (each function might be performed by a different institution) to guarantee the full implementation of forest policies at the national level.

In 2021, before the State Strategy was adopted, the State Forest Resources Agency of Ukraine started the process of "optimization" (meaning reduction) of the number of state forest enterprises. Before the start of this process 398 forest enterprises, responsible for forest and hunting management, and others forest-related organizations were conducting forest research, nature and forest protection, forest management planning etc. After this process, the state forest enterprises number was reduced to 211.

1.4.2 National Forest Inventory

On 21 April 2021, after a long coordination process with interested ministries the procedure for conducting a National Forest Inventory (NFI) was approved.

The government's approval created a regulatory basis for the actual preparation of NFI work. Practical training and field work started in 2021. The NFI circle was defined as 5 years of field work and 1 year of report preparation.

1.4.3. Wood market

In November 2021, the Parliament of Ukraine approved a first reading (not adopted yet, still under revision) of the Law "Concerning the Timber Market"⁷, which aimed to regulate the functioning of the timber market, including the export of raw timber.

Without waiting for its approval, the State Forest Resources Agency of Ukraine introduced some criteria to apply open market instruments. Since 2021 almost 100% of timber has been sold through electronic auctions according to the requirements of the Laws of Ukraine on capital markets and organized commodity markets



Carpathian forests.

Source: State Forest Resources Agency of Ukraine

and on commodity exchanges to avoid any possible corruption. In 2021, only approximately 1 % of round timber was not sold through electronic auctions, and this was mainly for social purposes (schools, hospitals etc)⁸.

The State Forest Resources Agency of Ukraine introduced online tools to check and verify the legality of harvested timber (<http://www.lk.ukrforest.com/>) and to conduct online verification of legality of transported timber (<https://open.ukrforest.com/>). For this verification, the tag number, consignment document and transport number are considered.

1.4.4 Digitalization

Aiming to ensure transparency of activities and access to forest related information, the State Forest Resources Agency of Ukraine introduced and/or started work on the following activities:

- administrative online services (e.g. logging permits, certificates of timber origin)
- advanced GIS technologies aiming to digitize the processes of forest management and the allocation of forest plots
- the concept of creating a "Ukrainian Forest Fire Protection Network" with the possibility to monitor online the status and development of planted stands
- Unified Internet Portal, where all services, registers and data are systematized
- first telegram bot⁹ which can be used by all citizens, for example, to report the exact location of a fire or illegal logging and hunting activities and make requests for urgent interventions to the State Forest Resources Agency.

1.4.5 Implementation of the "Green Country" presidential campaign

In June 2021, Presidential Order 228/2021¹⁰ was issued in order to substantially increase forest cover in Ukraine. It is foreseen to plant 3 billion trees within 3 years and 1 more million hectares within the next 10 years. The "Green Country" presidential campaign was developed based on the Presidential Order (see more information at zelenakraina.gov.ua).

State forestry enterprises were obliged to increase the collection of seeds and strengthen the relevant infrastructure (e.g. nurseries, seed centres) to increase the volume of restored land. In 2021, 2 factories for growing containerized seedlings were opened.

CHAPTER 2: GENERAL DESCRIPTION OF PROTECTED FOREST AREAS

According to a national law about the Nature Reserve Fund, all protected territories in Ukraine are included in it¹¹. The Law of Ukraine on the Nature Reserve Fund not only provides definitions of different protected territories and objects but also defines the management regimes in place.

Based on data provided by the Ministry of Environmental Protection and Natural Resources (1st January 2022), the Nature Reserve Fund in Ukraine includes 8.796 different territories of national and local significance with a total area of 4.501 million hectares.

The map of all categories of the Nature Reserve Fund can be found at <https://pzf.land.kiev.ua/>.

The percentage of the actual area covered by the Nature Reserve Fund is 6.82% of the total state area ("the reserve index"). Forests cover 60% of the total Nature Reserve Fund area.

There are also 50 Ramsar sites¹² covering 930,559 ha¹³. The vast majority of Ramsar sites are concentrated in three regions of the country: in its south-eastern part along the coast of the Black and Azov Seas, in the Polesie region, and in the Carpathians.

In addition to the areas of the Nature Reserve Fund, there are 377 forest landscapes included in the Emerald network¹⁴. The actual area consists of 8.1 million hectares, corresponding to the 13.42% of the country's territory (01.01.2022). The map below shows the Emerald network areas in Ukraine, both terrestrial and aquatic¹⁵ (see area in light blue).



Pulsatilla patens, Polissia national reserve.
Source: Sergiy Kanzurenko

Figure 6: Map of Emerald network areas listed in cadastre map of Ukraine



Source: Ukrainian Nature Conservation Group, <https://uncg.org.ua/smarahdova-merezha-na-publichnij-kadastrovij-karti/>

Detailed view of protected forest areas

In general, the National Academy of Science and the Ministry of Environment Protection and Natural Resources are responsible for supervising the most valuable protected forest territories and objects of national significance listed in the Nature Reserve Fund. The State Forest Resources Agency of Ukraine is responsible for around 1.3 million hectares of protected forests, corresponding to 17% of the total amount of forests under its responsibility. The percentages of protected forests in the country vary from 34% in Donetsk region to 5.5% in Cherkassy region, showing a diverse distribution.

Table 1: Categories of protected forest areas under responsibility of the State Forest Resources Agency of Ukraine (01.01.2023 including occupied territories)

Type of protected territory	Number	Area, thousand hectares
Biosphere reserve	2	29.6
National Park	7	451.1
Natural reserve	1539	610.8
Monuments of Nature	1188	25.6
Regional landscape parks	50	181.8
Dendropark	17	0.4
Parks-monuments of horticultural art	46	3.4
Protected landscape	541	78.2
Total¹⁷	3423	1.300,5

Source: State Forest Resources Agency of Ukraine, 01.01.2023

Since 1979, the number of protected areas in forests has increased more than 3-fold (see fig. 7). The process of increasing forest protection in national territories is ongoing. In 2022, several national decrees¹⁶ by the President of Ukraine created new protected areas, expanding the boundaries of existing natural reserves and parks.

The special conservation value of Ukrainian forests is recognized internationally. The mountain conifer pine forests of the Ukrainian Carpathians and the Crimean sub-Mediterranean forests are included in the list of the 200 global ecoregions of the Worldwide Fund for Nature (WWF). 12 parts of the UNESCO world natural heritage are situated in the Ukraine and classified as "Primary beech forests and ancient forests of the Carpathians and other regions of Europe". The total area is around 29 thousand hectares, and the buffer zone corresponds to 43 thousand hectares around the UNESCO heritage sites¹⁸. In addition, The International Union for Conservation of Nature (IUCN) recognized the Crimean Mountains as one of the world centers of plants diversity¹⁹. The conservation value of forests located in the flat areas is limited due to intensive exploitation over the past centuries (i.e., almost all lowland forests have been clear-cut several times since the Second World War.

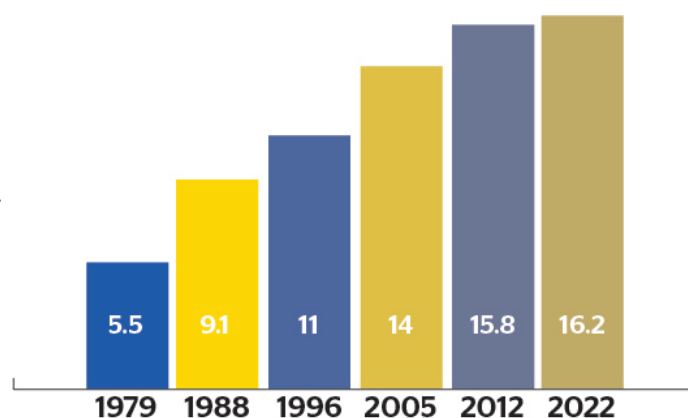
The concept and identification of virgin, quasi-virgin and natural forests

The concept of virgin, quasi-virgin forest, and natural forests appeared in the Forest Code of Ukraine²⁰, regulating the identification process and protection regime²¹ in accordance with the work done under the Carpathian Convention, including the adoption of the "Criteria and Indicators for identification of virgin forests in the Carpathians"²² and on the initiative of WWF-Ukraine in 2017. The Forest Code defined the environmental limitations for SFM practices in conducting fellings and establishing buffer zones around the core areas where the virgin, quasi-virgin or natural forests are located.

The Law of Ukraine on the Nature Reserve Fund was also modified with an additional subcategory for primeval natural monuments in 2017²³. The methodology for identifying forest areas as primeval forests, quasi-primeval forests, and natural forests was adopted by the Ministry of Environmental Protection in 2018²⁴.

In Ukraine, the identification of potential virgin, quasi-virgin and natural forests was carried out by WWF-Ukraine and other NGOs in the Zakarpattia, Lviv, Ivano-Frankivsk, Chernivtsi, Volyn, Rivne, and Zhytomyr

Figure 7: Percentage of forest protection territories in forests



Source: L.Poliakova, 2022, State Forest Resources Agency of Ukraine data

regions, this process was followed by the state authorities' approval. The areas proposed by non-governmental organizations (NGOs) include almost 100,000 hectares of forests managed by state forest enterprises, and existing territories included in the Nature Reserve Fund, supervised by the Ministry of Environmental Protection and Natural Resources. These forests are almost untouched by humans. In the Carpathians, they are mainly high-altitude forests or forests on steep slopes, in Polissia, these forests are mainly situated in swampy areas.

Currently, the approval process for the identified areas, carried out by the state authorities, is still ongoing. 7.3 thousand hectares of virgin and 4.8 thousand hectares of quasi-virgin forests managed by state forest enterprises have been identified and approved. In addition, 16.1 thousand hectares of virgin forests have been identified and approved as part of the Carpathian Biosphere Reserve and Uzansky National Park²⁵.

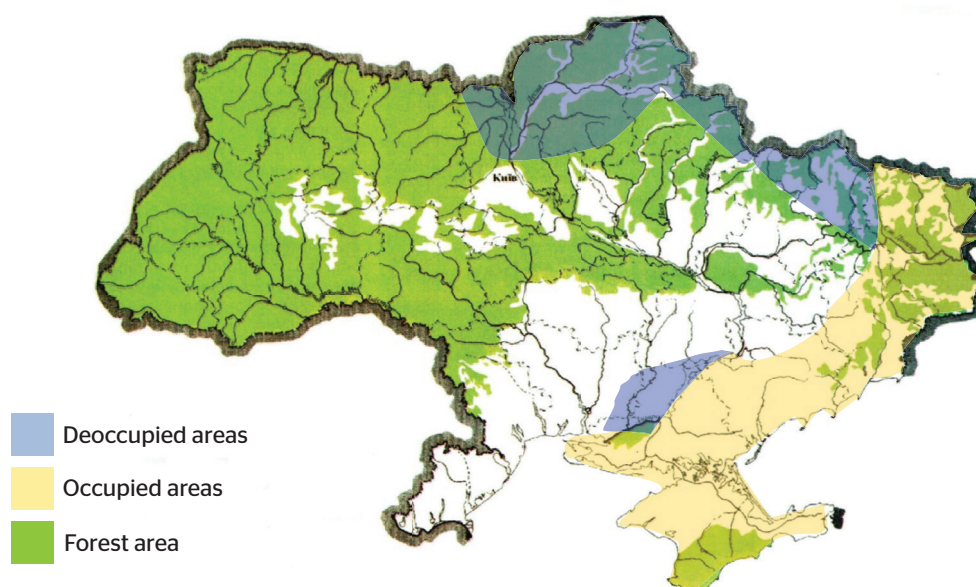
Ukraine as a Party of the Carpathian Convention²⁶ has provided official data on the location of identified areas of virgin forests to the Carpathian Convention Secretariat aiming to facilitate monitoring and protection efforts. Currently there are ongoing discussions to potentially expand the Carpathian Inventory and include natural forests.



CHAPTER 3: WAR IMPLICATION ON THE UKRAINIAN FORESTS AND FOREST SECTOR

The war in Ukraine is threatening the ecological safety of thousands of people every day. It also creates significant damage to forests and other natural landscapes, compromising the possibility of carrying out forestry activities in the country (see figure 8 below). The map shows areas freed from occupation in blue and occupied areas or areas where military activities are taking place in yellow as of May 2023.

Figure 8: Schematic position of occupied and deoccupied areas (May 2023)



Source: L. Poliakova, May 2023. Based on data from <https://deepstatemap.live/en#6/49.438/32.053>

3.1 Forest area

In total, around 2.9 million hectares of forest have been affected by military activities since 24th February 2022. It should be remembered that since 2014, the forest of the Autonomous Republic of Crimea, the city of Sevastopol, part of the Donetsk and Luhansk regions, with a total area of 497.4 thousand hectares of forests, have been under temporary Russian occupation. Occupied forest areas and forest areas on the front line correspond as of May 2023 to more than 1 million ha of areas designated for sustainable forest management.

It should be highlighted that in occupied and deoccupied forests heavy military equipment is moved across forest areas, military units are located in forests and military actions have taken place or are still ongoing. This leads to heavy disturbance of aboveground ecosystems (such as forests, grassland, and scrubland), soils (i.e., contamination, removal, tillage) and water systems (i.e., water pollution, disturbances water bodies). Forest landscapes are also affected by contamination (i.e., due to radionuclides, heavy metals and other released toxic substances). Therefore, the accumulation of solid waste, military equipment (e.g. ammunition) and the bodies of humans and animals, which have negative environmental impacts, is recorded by deoccupied state forest enterprises.



A full assessment of forest losses in deoccupied areas is not possible due to forest contamination and potential risks for forest workers. Table 2 below shows a preliminary assessment made by the state forest enterprises that are subordinated to the State Forest Resources Agency of Ukraine. The data provided might change when fieldwork for forest management planning is conducted. Looking at the recent events in the country the ruination of Kachovka dump resulted to damaging 55 thou ha of forests, 47 thou ha of on occupied territory²⁷ (not included in the table below).

Table 2: Preliminary assesment of destroyed/damaged forest area

Region	Total area of state forest enterprises affected by the war (thou ha)	Affected/damaged area of forests (thou ha)		Area of deoccupied territories (thou ha)	Area of occupied territories (thou ha)
		Total	Including protected areas		
Dnipropetrovsk	49,3	4,2	N/A	-	-
Donetsk	36,7	33,5	N/A	27,1	6,3
Zhytomyr	204,0	25,1	0,0	15,9	-
Zaporizhzhia	76,8	66,1	N/A	-	66,1
Kyiv	256,5	188,0	4,7	184,2	-
Luhansk	239,2	239,2	N/A	-	239,2
Mykolaiv	47,9	22,1	9,5	10,6	11,4
Rivne	268,0	0,0	-	-	-
Sumy	286,2	195,4	2,1	195,4	-
Kharkiv	291,7	176,0	23,9	129,8	27,2
Kherson	177,0	177,1	32,5	12,5	164,6
Cherkassy	67,6	0,6	0	-	-
Chernihiv	420,1	262,8	0	262,8	-
Crimea	212,2	N/A	N/A	-	212,2
Other occupied areas before 24.02.2022	146,4	N/A	N/A	-	146,4
Total	2779,7	1 390,1	72,7	838,3	873,4

Source: State Forest Resources Agency data only, January 2023.

3.2 Forest contamination by mines and explosive objects

The impact of mines and explosive objects in the forest landscape is quite challenging. The demining process will first take place in settlements, roads and agricultural fields etc, while forests are currently not a priority.

In general, all deoccupied territories are potentially mined. From the total amount of potentially mined territories, it is necessary to distinguish which territories are mined, and require demining, and which are not. Conducting SFM is possible only after special confirmation that territory is accessible. The State Forest Resources Agency of Ukraine reported the necessity of demining 690 thou hectares of forests (February 2023). 72.3 thou ha of forest area have already been demined (i.e., 49.9 thou ha in the Kyiv region, 12.7 thou ha in the Chernihiv region, 2.5 thou ha in the Mykholaiv region, 0.1 thou ha in the Sumy region, 0.4 thou ha in the Kharkiv region, 6.5 thou ha in the



Deoccupied area in Kyiv region
Source: Aurica Malinovska

vicinity of scientific stations). The total areas requiring demining actions will increase, not only due to further deoccupation but also due to the current mining process taking place across the borders with Belarus.

According to experiences in the Chernigiv and Kharkiv regions demining in forests is more difficult than in other territories, and the speed of demining in forests is around 12 m² per day. So, special procedures are needed. The pace of demining is affected by the weather conditions, for example with low temperatures, the process becomes much more complicated. Also, in the forests, the possibility of using special machines for the disposal of explosive devices is limited. Another element to be considered is mined bogs in forests. Most of Ukraine's peatlands are located in the northern part of the country. Here, the additional problem is the depth of the unexploded ordnance (UXO); as soon as a UXO sinks deeper in the bogs, it becomes very complex to detect it²⁸.

According to a national law²⁹, demining must be conducted only by special licensed authorities (national and international). The legislation also specifies that practical demining activities in Ukraine are to be coordinated by the Mine Action Centre of the Ministry of Defence of Ukraine (as part of the State Special Transport Service) and Centre for Humanitarian Demining of the State Service of Emergency Situation.

Ukraine receives international support for demining (e.g., from the United Nations Development Programme - UNDP), and the State Service for the Emergency Situation launched a webpage where citizens could see the contamination areas and the amount of demining work done in the country. Created interactive map (figure 9 below) is showing potentially dangerous territories in the country³⁰.

- The government in 2022 has conducted two types of trainings in accordance with a national legislation to involve foresters in the demining process, and to raise awareness among foresters about land-contamination risks, these are: lessons on the possible types of mines and safety requirements for forest workers in each enterprise in a deoccupied area.
- Licensed training for 50 foresters to identify mines in forests.

More training activities are foreseen in 2023.

The actual legislation does not have special procedures and regulations for the demining process in forests, and there are no regulatory acts for the management of forests contaminated with unexploded ordnance (e.g., demining orders, procedures, lists of documentation for including / excluding areas from the list of dangerous locations). It should be also taken into consideration that there is a lack of experienced staff and proper equipment for forest demining in the country.

To overcome the above challenges and for reasons of forest worker safety, the State Forest Resources Agency of Ukraine elaborated a list of detailed recommendations which should be mandatory and applied on deoccupied territory. It contains recommendations about how to behave in case of: crossing road checkpoints, finding UXO, bombing, provisioning of first aid etc. It is also specified that any work in forest ecosystems should be conducted only after clearance by the authority responsible for demining.

Figure 9: Interactive map of territories potential contaminated by UXO



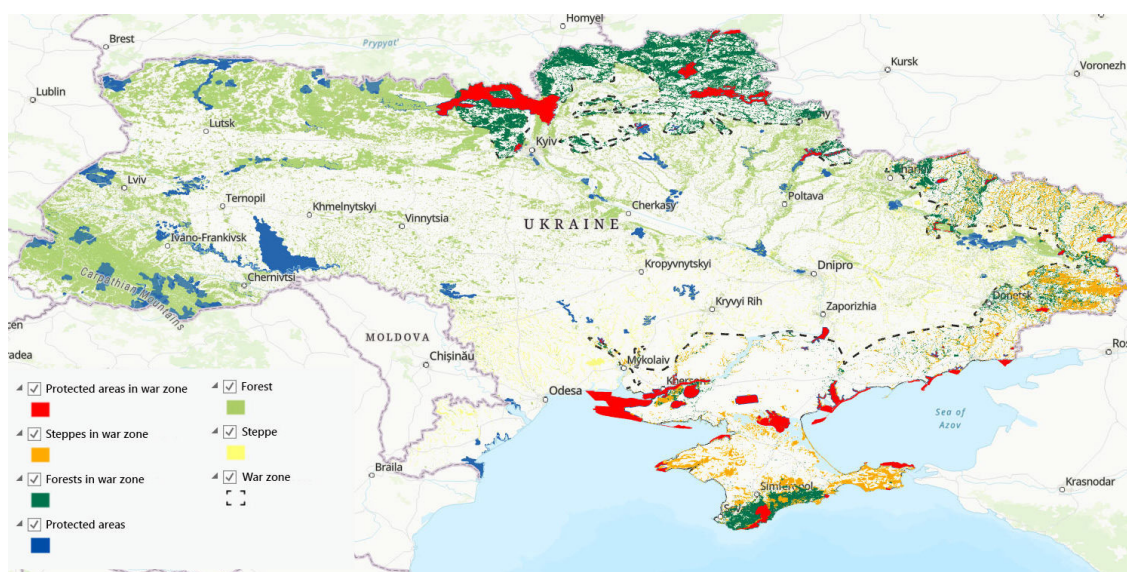
Source: Service of mine countermeasures of the State Emergency Service (<https://mine.dsns.gov.ua/>).

3.3 Protected areas including forest ecosystems

According to data from the Ministry of Environmental Protection and Natural Resources of Ukraine, 20% of natural conservation areas in Ukraine have been affected by the war, which corresponds to almost 1 million hectares, including occupied and deoccupied territories. Some occupied territories that are of international significance are still under threat, such as 16 Ramsar Sites (600,000 hectares of wetlands of international importance and rare species of plants and animals are under threat of destruction in Ukraine, 600 species of animals and 750 species of plants and mushrooms)³¹, 160 territories of the Emerald Network (corresponding to 2.9 million ha of land area)³².

Russian invaders still occupy 10 national parks, 8 nature reserves and 2 biosphere reserves across Ukraine³³. Figure 10 below, prepared by the Ukrainian Nature Conservation Group, shows protected areas affected by the war. Following February 24, 2022, a shelter for over 60,000 temporarily displaced persons was organized in nature conservation areas³⁴.

Figure 10: Protected areas affected by the war



Source: Ukrainian Nature Conservation Group (<https://uncg.org.ua/en/most-valuable-natural-areas-of-ukraine-covered-by-war/>).

According to research carried out by the Ukraine War Environmental Consequences Work Group³⁵ at least 100 thou ha of the Emerald Network has been damaged by fires. Also, the concentration of heavy metals in soils in the zone of military activities is over 15-30 times as high as the background values.

The Ministry of Environmental Protection and Natural Resources of Ukraine reported data on the critical situation for National Parks. It listed the following critical situations resulting directly from the war³⁶.

- “Meotida” National Park, in Donetsk region: “Beketov’s rake” (rare plant) may disappear as well as colonies of the Caspian martin, curled pelican, and long-legged wader which are now also under threat of extinction.
- “Kamianska Sich” National Park: the administration building has been destroyed, causing fires across 635 hectares of valuable area³⁷.
- “Nizhnyodniprovskiy” National Park is unique and the largest natural floodplain-littoral complex in Europe. The floodplain and left bank areas of the national park are still occupied, and the central part is on the front line. A negative impact for nests of migratory birds was registered.

The Ministry of Environmental Protection and Natural Resources of Ukraine launched an official web and mobile application “EkoZagroza” (ekozagroza.gov.ua) to find and provide reliable information about environmental contamination, fires, radiation, and the quality of air, water and soil. As of December 2022 the “EkoZagroza” mobile application has been part of a “EkoSystema³⁸”, a nationwide ecological automated information and analytical system. It is designed to provide access to environmental information, open the maximum number of environmental registers³⁹ and transfer administrative services in the field of environmental protection online.

The consequences of the war for protected areas in Ukraine was mentioned at international level. For example, during the COP14 of the Ramsar Convention Resolution XIV.20⁴⁰ was adopted, which requests the affected

Ramsar sites in Ukraine to be assessed, advise to be solicited on appropriate mitigation and restoration efforts, and a report to be submitted to COP15.

The recent Carpathian Ministerial Conference, held on 22 November 2022 in Rzeszow, Poland, adopted the Ministerial Declaration of the Carpathian Convention on the impact of war in Ukraine on the environment and the need for cooperation and assistance⁴¹, which gives the Convention a mandate to engage in and develop an assistance process. There is an ongoing consultation process for the implementation of the Declaration provisions in close cooperation with the Convention Parties, relevant stakeholders and partners, looking at the needs of the protected areas in the Ukrainian Carpathians range.

Protected forest areas in detail

It is not possible to have a clear and full estimation of damage caused to protected forest areas due to the current circumstances. Part of the protected territories and objects areas still located in the combat zone or in the temporarily occupied territory, where economic activities have been suspended (e.g., the “Kreminski lisy” National Park in the Lugansk region⁴²) and there is no possibility of conducting inspections (i.e., in the Donetsk, Luhansk, Zaporizka, Mykolaiv, Kherson, and Kharkiv regions).



Deoccupied area.

Source: REUTERS/Vladyslav Musiienko

In deoccupied areas the extent of the damage to protected forest areas (e.g., in the Zhytomyr, Kyiv, Sumy, Chernihiv, and Kharkiv regions) will only be able to be determined after the areas have been demined. The State Forest Resources Agency of Ukraine recently reported on the damage/destruction of 72.7 thou ha in protected forest areas under its responsibility.

The reported cases below shows disturbances and/or damages and/or destruction in protected forest areas within the responsibility of the State Forest Resources Agency of Ukraine and/or Ministry of Environmental Protection and National Resources of Ukraine, which are connected to:

- **forest fires** due to shelling and bombing of precious relict forests, such as:
 - » in Kingburn Spit, in the Mykholaiv region 4780 hectares of relict forest were destroyed⁴³ with devastating consequences on the habitats of approximately 100 species of bird and on animals' wellbeing due to explosions, flashes of light, the passage of heavy equipment, etc.
 - » in Drevlyanskiy reserve, in the Zhitomyr region⁴⁴ more than 2.000 hectares of quasi virgin forest were destroyed by fires. Meanwhile, in the Balabanivskiy protected landscape, specifically in Mykholaiv region, 10 ha of forest have, for example, been lost to fire⁴⁵.
- **movement of military equipment which** destroyed littoral embankments in Getmanskyyi National Park, in the Sumy region, Ascania Nova National Park and many others. In the affected areas contamination with fuel, lubricants, heavy metals and reagents was also reported (e.g., in the “Biloberezhya Sviatoslava” National Park, in the Mykholaiv region);
- **destruction and theft of equipment**, for example, in the “Svyaty gory” National Park, in the Donetsk region⁴⁶. 80% of the park 's infrastructure has been destroyed or stolen (e.g., vehicles, office equipment etc). Also, forest has been burnt exposing the burnt soils. The same situation in the “Oleschkiivski pisky” National Park⁴⁷;
- **direct consequences on local flora and fauna**, e.g., loss of birds in the Shatsk National Park due to military exercises in Belarus or loss of animals due to impossibility of buying food for feeding purposes in occupied areas in the Kherson region⁴⁸;
- **construction of fortifications in the region** of Volyn, Kyiv, Rivne, Chernihiv;
- **mining of the border with Belarus** may further increase pressure to protected forest areas in the northern part of the country.

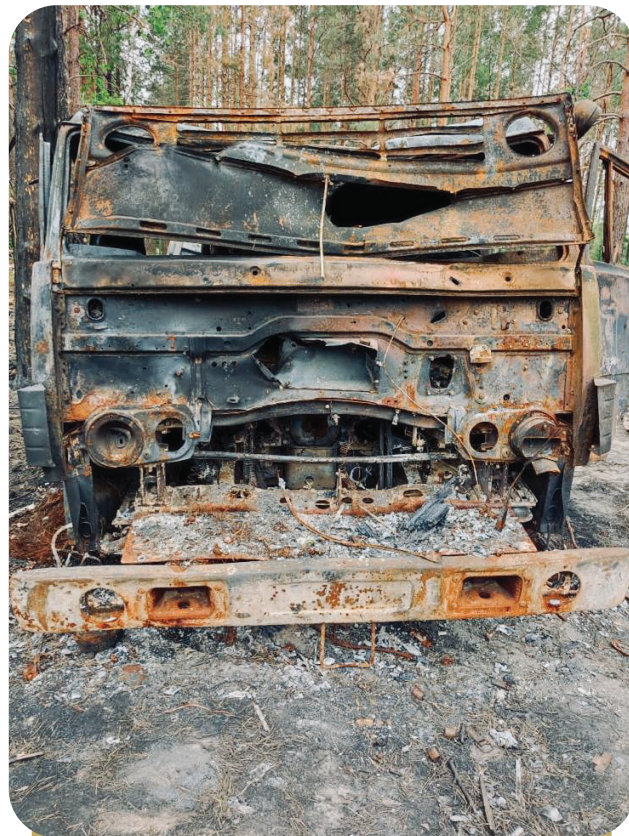
In the western part of Ukraine apart from staff mobilization and personnel losses, protected area managers must face and cope with the lack of basic supplies and materials. The decreasing funding results in budget cuts, and the rapid decrease of operational capacities, partly due to the transfer of vehicles and other equipment for military purposes. Regardless of the decreased capacities, protected area managers must face and cope with the expected increase in the scale of pressures on the extraction of natural resources (e.g. firewood, coming from the Carpathian forests) and the wave of internally displaced people (IDPs) seeking a refuge in protected areas⁴⁹.

Chernobyl radiation and ecological biosphere reserve

The nuclear radiation issue is due to the Russian troops driving their armoured vehicles without radiation protection through the Red Forest (the most radiated area in Chernobyl) and raising radioactive dust. The radiation content in the atmospheric layers increased and moved to other areas through air masses. In addition, radioactive dust settled on the Russians' equipment and vehicles and was transported to other zones. The Russian military began to build fortifications on the territory of the Red Forest thereby increasing the risk to people and the environment due to the highly radioactive dust in the soil's deeper layers⁵⁰.

It was reported that Russian troops destroyed the laboratory, taking away the expensive equipment in the Chernobyl radiation and ecological biosphere reserve. This has stopped and run the risk of disrupting research that has been conducted for many years⁵¹. The administrative office was looted, and the staff number decreased, with a consequent change in the work regime. People are currently still working, adapting their programs of research⁵².

Forest fires are another issue in the Chernobyl exclusion zone, affecting more than 22,000 hectares in 2022, leading to an increased amount of radioactive dust in the air⁵³. Part of the fires occurred in March while occupation took place, and after deoccupation the protection of the forest against fires was complicated due to mines contamination⁵⁴.



Deoccupied area in Kyiv region

Source: Aurica Malinovska

3.4 Forest staff

At the start of the reform mentioned in chapter 1.4.1 there were 42.3 thousand people working in forestry, including 7.8 thousand women. By 10 April 2023 numbers had declined to 34.7 thousand employees. The State Forest Resource Agency (March 2023) reported that 2,045 people had been mobilized to join the army and 2,716 volunteers had been helping to keep order in the country, with every seventh forester being involved in a war activity. In April 2023 68 workers were killed in the war, 113 injured and 80 are missing. Furthermore, 1,823 workers have been forced to change their place of residence.

3.5 Forest fires

Since the beginning of the war and due to intensive military activities, such as shelling and mine explosions, the amount of forest fire areas increased by a factor of 53 compared with the data available from 2021 (01.01.2023, the State Forest Resource Agency data). The areas of large forest fires have drastically increased (see table 3, next page) due to the impossibility of accessing the forest, the absence of aviation support and the lack of proper equipment. Table 3 shows the occurrence of wildfire in Ukraine comparing data from 2021 and 2022. According to data provided by the State Forest Agency of Ukraine the total area of forests affected by fires in 2022 was 15,3 thousand ha (ground data in occupied territories, such as Zaporizhzhia, Luhansk, Donetsk regions and Crimea are missing, information on the Kherson and Kharkiv region is incomplete).

Table 3: Occurrence of forest fires in Ukraine (01.01.2023)

Item	2021	2022	Increase rate (%)
Number of forest fires	659	1.003	52
Area of ground and crown fire (ha)	288,9	15.306,20	5.198
Only crown fire (ha)	1,4	1.244,30	88.776
Number of big-scale fires (more than 5 ha)	1	197	19.600
Area of big forest fires, ha	6	14.178,40	236.207

Source: State Forest Resources Agency of Ukraine, responsible for 73% of forest cover in the country.

The regions where most of the forest fires occurred are as follows:

- occupied areas of Kherson: 8.2 thousand hectares of forest area affected, 8.1 thousand hectares of large forest fires
- partly occupied Mykolaiv: 2.3 thousand hectares affected, 2.2 thousand hectares of big forest fires
- partly occupied Kharkiv 1.2 thousand hectares affected, 1.1 thousand hectares of large forest fires
- deoccupied areas of Kyiv: 2.3 thousand hectares affected, 2.1 thousand hectares of large forest fires.

According to the satellite data of the Regional Eastern Europe Fire Monitoring Centre (REEFMC) the total area of forest wildfires (covering all forest in the country) is 56.7 thou ha including 25.4 thou ha at the Emerald network sites⁵⁵. The map (Figure 11, next page) shows the spatial distribution of forest fires occurred in 2022 (red dots) (data from the Regional Eastern Europe Fire Monitoring Centre, 2022)⁵⁶.

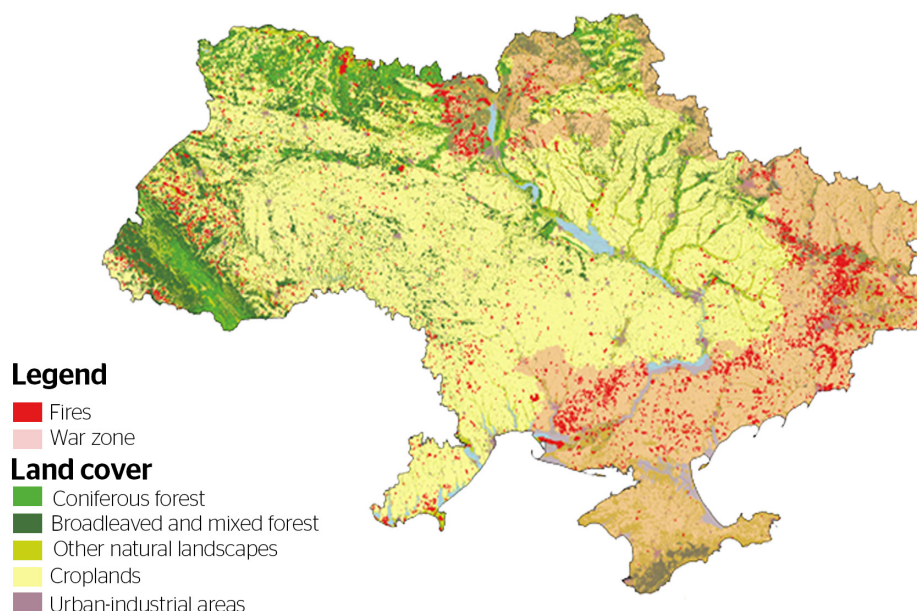
According to a second Rapid Damage and Needs Assessment made by the World Bank for the period February 2022 – February 2023 the fire damage covers 183.181 ha, mostly in the Donetsk, Kharkiv, and Luhansk regions.

The differences in the above data shared by the State Forest Resources Agency and REEFMC and World Bank showing the number of forest fires in 2022, are due to impossibilities in compiling and comparing the forest fires statistics between different actors due to different techniques (e.g. satellite vs ground data).



The State Forest Resources Agency of Ukraine launched the “Pozhezhi” pilot project⁵⁷ which aims to create a single electronic database for forest fires. The main tasks of this work are optimize the entry and transfer of information about forest fires, to keep records of forest fires with their visualization on the map, to obtain operational information about the state, controlling dynamics and duration of fires based on satellite images that aim to forecast the situation and to develop effective preventive measures. The public currently has limited access to the data.

Figure 11: Fires occurred in 2022



Source: Regional Eastern Europe Fire Monitoring Center.

3.6 Pests and diseases in forests

The amount of forest dying due to climate change effects, pests and diseases amounts to 202 thousand ha (December 31, 2022). In more details, this comprises 79 thou ha of pine forests, 62 thou ha of oak forests, 13 thous ha of spruce forests, and 48 thou ha of other species. This data does not include information about the Luhansk, and Donetsk regions or Crimea.

In 2022, 17.3 thou ha was destroyed due to natural hazards (e.g. storm). Pest and disease outbreaks affected an area of 137 thou ha⁵⁸ in 2022 (no information about the Luhansk or Donetsk regions or Crimea).

Due to the Russian Federation's military aggression, the measures to combat pest and diseases were not carried out properly (e.g the release of biological material in the fields affected). The current situation regarding the outbreak of Emerald ash borer in the Lugansk region, and of needle-eating insects in the Kherson region was not able to be reported due to the military occupation of these territories.

3.7. Damages to property and equipment

A full picture of the damage to infrastructure and property could be provided after the war. The preliminary estimation given by state forest enterprises that were freed from occupation, reported that real estate objects worth \$24.5 million have been destroyed. Furthermore, real estate worth \$18.3 million had been damaged.

According to the preliminary assessment the war has impacted 629 real estate objects (e.g. buildings, nurseries, wood processing facilities, garages). Table 4 (next page) shows preliminary information on destroyed facilities per region: meanwhile, table 5 (page 20) reports on the damage to forest related equipment (State Forest Resources Agency, 2023). Beside the damages and destroyed equipment in the western part of the country, 648 different types of vehicles including cars and tracks were transferred by forest enterprises to the Armed Forces.





Building of Forest Management Planning Association, May 2022.

Source: Victor Melnichenko
Example 1

These pictures show two important examples from across the country. Example 1 shows one of the Forest Management Planning Association's building in Irpin (in the Kyiv region). It is the only entity responsible for forest management planning and the national forest inventory in Ukraine. Example 2 shows the new Forest Seedling Centre in Liman, in the Donetsk region. This centre was set up in December 2021 to grow containerized seedlings for south-eastern enterprises. Now, it has been destroyed and is not functioning anymore.

Forest seedling centre, Liman, Donetsk region, October 2022.

Source: Victor Melnichenko
Example 2



Table 4: Preliminary number of destroyed facilities*

Region	N° of offices	Wood processing facilities	Household premises, warehouses	Seed storage buildings, greenhouses	Other ⁵⁹	Total
Dnipropetrovsk	2	1	7	2	1	13
Zhytomir	4		7	2	44	57
Zaporizhzhia	2	1	7	2	1	13
Kyiv	24	8	50	1	243	326
Lviv	0	2	2	1	2	7
Mykholaiv	4		10	2	3	19
Odessa	1					1
Sumu	9	1	2		6	18
Kharkiv	15	3	61	7	59	145
Kherson	3		6			9
Chernigiv	1		10		10	21
Total	65	16	162	17	369	629

Source: State Forest Resources Agency of Ukraine, 10.01.2023.

*Information on the Kherson, Zaporizhzhia and Kharkiv regions is incomplete, data on Lugansk, and Donetsk is missing due to military activities.

Table 5: Information on forest-related equipment that has been captured, destroyed or damaged since 24 February 2022

Type of property	Captured	Destroyed	Damaged
Passenger car with increased cross-country ability	24	2	17
Passenger car	5	1	8
Cargo-passenger car with increased cross-country ability	26	7	19
Pickup truck	2	3	6
Timber transport	13	4	46
Tractor	27	3	25
Passenger minibus, bus	6	1	3
Fire truck, tank	25	5	6
Excavator	3		4
Truck	9	3	6
Truck crane	2		2
Truck loader	3		1
Timber trailer	15	2	14
Soil processing equipment	25	10	Not applicable
Office computer equipment, furniture	46	12	34
Equipment for wood processing	10	14	10
Chainsaws	38	17	Not applicable
Quadcopters	16	5	Not applicable
Generators	12	2	5
ATV quad	Not applicable	Not applicable	Not applicable

Source: State Forest National Agency, October 2022

3.8 Forest certification⁶⁰

For more than 20 years, certification according to the principles of the **Forest Stewardship Council (FSC)** has remained an important tool to promote responsible forest management and act as a benchmark for developing the forest sector in Ukraine. Russia's military aggression against Ukraine in the face of a transforming society and ongoing reforms has escalated the existing challenges to sustainable forest management. The operation of the forest sector is becoming more difficult, raising risks to the integrity of the FSC system.

Maintaining the FSC certification has been possible due to the active position of the FSC international members from Ukraine and other actors' commitment to the core system values. The comprehensive update of the FSC normative framework was adopted in response to the situation in Ukraine. It allows continued responsible forest management in areas not affected by military conflict and ensures the integrity of the supply chain.

As of March 12, 2023, 4,19 million hectares of forests in 92 enterprises were FSC-certified. Despite the suspension of certificates in the military conflict zones, the certified area did not decrease but even increased by 5% due to the extension of the scope of certificates for united state forest management enterprises to include the territory that was not subject to FSC national standard requirements before. The number of custody certificates, primarily related to the wood business, amounted to 373, down 7% year-on-year.

The new forest reform phase in response to current challenges required communication to be strengthened between stakeholders, including state forestry authorities, certificate holders and certification bodies. FSC's constructive and open position on forest reform contributed to a deeper understanding of the role that each actor in the forest certification scheme plays in achieving the goals of responsible forest management. Decision makers agreed that the existing certification model should be maintained, whereby branches of the "Forest of Ukraine" state enterprise (see 3.12.2 for more details) should be certificate holders, but not the whole newly established state specialized forest enterprise or its regional offices. Such a model mitigates the risks of non-compliance with the FSC national standard and increases the responsibility of certificate holders to nature and society. So far, 15 recently registered branches have received updated certificates. This is part of 84 branches certified as separate state forestry enterprises within the responsibility of the State Forest Resources Agency.

The focus on generating support for responsible forest management during and after the war periods resulted in the launching of a project that aim to develop the national indicators regarding the removal of contaminated areas from the scope of FSC certification. As recognized by stakeholders representing a balance of environmental, social, and economic interests, this should be an effective solution for the part of Ukraine in which it is impossible to ensure compliance with the FSC national standard due to contamination with explosive ordnance.

In 2021, the **Programme for the Endorsement of Forest Certification Schemes (PEFC)** was introduced in Ukraine. Currently, there are 5 PEFC-certified state forest enterprises with an area of 120.9 thousand hectares. These enterprises are situated in western Ukraine and are not affected by war operations. Considering their remote location, the enterprises maintained their status as PEFC certified and are currently already undergoing field or remote audits as branches of the "Forests of Ukraine" state enterprise (see 3.12.2 for more details).

Also, as of February 24, 2022, eleven business entities had PEFC supply-chain of custody certificates. One of

these enterprises refused to continue PEFC certification due to economic problems, while the others passed audits and confirmed their PEFC certified status.

One of the important problems for PEFC certification was that all forestry enterprises and part of the supply chains were certified by Legallis LLC, the Ukrainian certification body, but under the license of a Russian auditing company. The PEFC national office made maximum efforts to accredit and attract BM certification, a Latvian company, to Ukraine, and the transfer of certificate holders took place without loss.

PEFC is actively involved in preparing a standard for plantations and forest stands that are not within forests (e.g., field protection strips, energy plantations, naturally afforested stands, green spaces in cities). It is also important that the owners of these stands receive compensation for the ecosystem services provided, through certification.

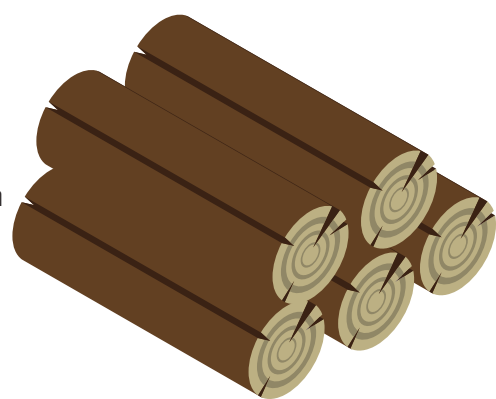
3.9 Illegal logging

According to the State Forest Resources Agency of Ukraine, 3,406 cases of illegal logging with a volume of 20.6 thousand cubic metres were registered in non-occupied areas in 2022. This number is 20% lower than the total amount registered in 2021 in the entire country (25.8 thousand cubic metres)⁶¹. The largest volumes of illegal logging were found in the following regions: Dnipropetrovsk: 6,840 cubic metres (33.2% of the total volume); Kharkiv: 3,496 cubic metres (17% of the total volume); Zakarpattia: 2,343 cubic metres (11.4% of the total volume); Kyiv region: 1,856 cubic metres (9% of the total volume). More detailed information about illegal logging in deoccupied areas will be available after demining.

In deoccupied areas reachable by the local communities an increased number of illegal loggings for firewood use has been reported and confirmed by the forest workers after permission to access the more dangerous areas.

In deoccupied areas contaminated by mines there is no exhaustive data about illegal loggings conducted by Russian troops – the only data available reports about 1,95 thou m3 of illegally logged wood in the Kyiv region. Reports of illegal fellings and the export of timber by the Russian troops could not be substantiated by this report.

There is no information from part of the temporarily occupied



territories in the Zaporizhzhia, Luhansk, Mykolaiv, Donetsk, and Kherson regions or from Crimea. In these territories, numerous violations of forest legislation, including illegal logging, have taken place.

A potential problem after the war could be the absence of a regulation/law referring to fellings carried out by the armed forces directly in the places of deployment, for example, to set up fortifications or for firewood purposes. The respective Governmental order (draft version), which regulates these fellings was developed, but not adopted. It could be possible that these types of fellings are considered/classified as illegal ones due to the lack of regulatory measures in the country.

3.10 Damage to forest monitoring processes

The work on forest monitoring was stopped in 2016 due to the absence of related financing. Currently none of the related monitoring processes can be conducted either in occupied or in deoccupied areas due to either lack of financing and/or contamination of forests by UXO. This limitation will cause further problems for the forest-related international reporting for Ukraine due to complete absence of reliable data (e.g., FOREST EUROPE/FAO/UNECE assessment cycle or FRA).

3.11 Forest economy

Despite the war and its consequences, the forest sector in Ukraine is continuing to fulfill its obligations to the national economy and society.

In January 2023, 20 state forest enterprises were fully or partly under occupation and suspended their activities⁶². More details about the forest areas under occupation are given in table 2 on page 12.

It is important to highlight the impossibility of conducting SFM on 20% of Ukrainian forests due to military activities and contamination by UXO. The following achievements and challenges were reported by the State Forest Resources Agency of Ukraine:

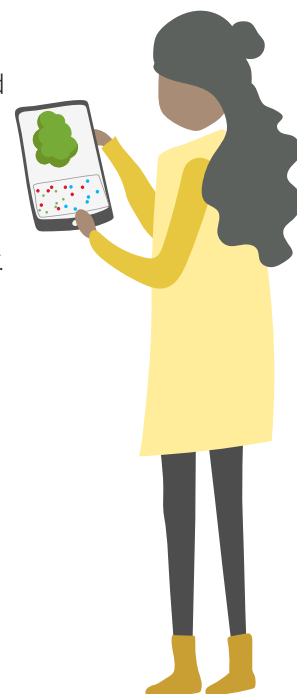
Achievements:

- In 2022, around **200 million trees were planted** but, since the beginning of the war, information on the locations of planting has no longer been available to the public (zelenakraina.gov.ua).
- Despite the war, there is **continuity in establishing facilities for growing containerized seedlings**. Three of them were set up in 2022 in the Zhytomyr, Ivano-Frankivsk and Kirovograd regions. The already existing plant in the Khmelnytskyi region was expanded.

- In 2022 an administrative decision was issued on **transferring 1.8 thousand ha of naturally afforested agricultural fields to state forest enterprises**. In this area, 193 land management or technical documentation projects were developed relating to a total area of 3136.07 hectares; cadastral numbers were assigned for 3122.27 hectares.
- All **timber on the domestic market is still sold through electronic auctions**, including timber processed by state forest enterprises.
- **In the field of digitalization**, a pilot project focusing on electronic submission of the documents required to obtain and issue logging permits was included in the framework of the “EkoSystema” analytical system (more details are given in chapter 3.3). Additionally, information about sanitary logging is currently available and accessible to the interested public. Since January 2022, all documents accompanying sanitary fellings have been collected on the official website of the State Forest Resources Agency.

Challenges:

- **Ukrainian exporters faced significant problems**. The blockade of the Black Sea ports led to the closure of Asian markets for Ukrainian exporters, and the logistics of sending timber to Asia via other channels has proved to be unprofitable. Other challenges are due to the ban for roundwood export (still in place in the Ukraine since 2015), and logistical problems in exporting processed timber and timber products. This has led to **decreasing prices for raw wood** (e.g. the price for pine wood decreased in the second half of 2022 by 20-30%)⁶³. However, in the first quarter of 2023 the prices situation has slowly started to improve both for firewood and for some species/assortments of roundwood⁶⁴.
- In 2022 **the volume of harvested timber was 10% less than in 2021** (15.9 million m³ in 2022 compared to 17.6 million (3 in 2021)⁶⁵). In contrast, the amount of firewood harvested increased by 15% (from 4 million m³ in 2021 to 4.6 million m³ in 2022). In deoccupied territories, the decrease in the total volume of harvested timber is even higher. The Kharkiv region reduced timber harvesting by 48%, the Chernihiv region by 30% and the Kyiv region by 33%.
- Overall, in 2022, the total **volume of sales of timber decreased** by 1.813 million m³ and as a result the revenue of state forest enterprises declined by 80 million Euro. Considering



the decrease in the prices of timber sold, the total amount of **unreceived income from timber sales** amounted to 142 million Euro. This resulted in 57.5 million Euro in lost taxes, from the forestry sector⁶⁶.

- According to the results of last year, as evidenced by the data of the Association of Woodworking Enterprises of Ukraine, the **drop in wood processing was between 35 and 55%**, depending on the type of wood. **About 40-50% of Ukrainian processors have closed their production.** Frequent power outages, which destabilize the work of processing enterprises and increase the cost of production, mobilization and a drop in demand for processed timber on the internal market due to the war should be added to the negative factors⁶⁷.
- In the 2022/2023 hunting season, **hunting in Ukraine was not carried out due to the restrictions** by the regional administrations for the period of the war, leading to a loss of income for holders of hunting grounds.

Special case: Firewood

Firewood harvesting played a crucial role in 2022 as a principal energy source due to the energy crisis. The State Forest Resources Agency of Ukraine has developed a "Firewood is⁶⁸" special online tool that aims to simplify access to firewood for society. The main purpose of "Firewood is" is to limit the purchase per person to 15 m³ of firewood for each heating season. It is mandatory to use the bank's user authorization system, which is a 3-level administration system to guarantee a high level of legality. Starting from December 2022, the "Firewood is" mobile application is part of a unified nationwide ecological automated information and analytical system⁶⁹. In February 2023, 58 thousand people were registered as users.

In the meantime, in 2022, the Government of Ukraine has allocated more than half a billion hryvnias (13.5 million euros) to 8 regions to purchase firewood to be distributed to the population in the frontline territories for free (e.g. in the deoccupied communities in the Donetsk, Dnipropetrovsk, Chernihiv, Kharkiv, Sumy, Kherson, Mykolaiv and Zaporizhzhia regions)⁷⁰.

In the 2022-2023 season, 2.75 million m³ firewood was shipped for the population, and 533 thousand m³ of firewood for social purposes⁷¹.

According to data from the State Forest Resources Agency of Ukraine, the state forest enterprises have handed over firewood (62 thousand cubic meters), round wood for building fortifications (142 thousand cubic metres) and processed timber (27.8 thousand cubic metres) to the Army since the beginning of the war.

3.12 Governance issues

3.12.1 Governmental decisions and plans for the national recovery process

The first national Recovery Plan was presented by the Ukrainian Government at the conference in Lugano on July 4-5, 2022⁷². The detailed document reflects the main directions for the recovery of the national economy post-war and also contains necessary legislative changes.

The plan covers a time range of ten years and covers 15 areas⁷³. Its implementation requires a total of more than 750 billion dollars; approximately 250-300 billion are expected to be sourced by partnership grants, 200-300 billion through loans or equity capital, and 250 billion through private investments⁷⁴.

Forest-related priorities are included in the chapter on ecological safety in the Recovery Plan of Ukraine (2022)⁷⁵. The term of implementation of forest-related priorities in the first national Recovery Plan is until 2032. According to governmental estimations, implementation will require 427.19 million Euro. Among other forest-related priorities, the following measures are provided for:

- Development methodology and assessment of damages and losses caused to forest nurseries and damage caused to bioresources.
- Development of the plan of implementation measures for the State Forest Strategy and the implementation of forest restoration projects in the area affected as a result of Russian military aggression.
- Development of ecological tourism, and recreational use of forests.
- Restoration of the work of the Forest Management Planning Institute and amendment of forest management plans in affected territories.
- Improving the existing system of forest protection against fires.
- Improving forest infrastructure.
- Transition to a mechanized system of timber harvesting.
- Restoration of forest related protected areas affected by the war.
- Implementation of projects aimed at adaptation of forests to climate change and transition to close to nature forestry with the formation of forests of natural composition and structures.



3.12.2 Forest strategy implementation

After the adoption of the “The State Strategy of Forest Management in Ukraine up to 2035” (see chapter 1.4.1) in December 2021, an action plan was elaborated, focusing on its implementation, but due to the ongoing war the work has been postponed. Now the Ministry of Environmental Protection and Natural Resources of Ukraine is in a process of preparing amendments to the above-mentioned strategy.

In parallel, appropriate ways were considered to efficiently reform the institutional structure in the forestry field based on the requirements of the State Strategy. After long debates, the Government of Ukraine adopted a Decree on 7 September 2022, N1003⁷⁶.

In accordance with this Decree, regional departments of the State Forest Resources Agency of Ukraine have been closed, and interregional departments (new format) have been established. In total, the number of departments with policy implementation functions has decreased from 24 to 9. As of February 2023, all interregional departments (new format) are already operational. It is worth mentioning that Forest Reserves, National Parks and other forest protection entities which were under the responsibility of regional departments have been placed under the direct responsibility of the State Forest Resources Agency of Ukraine.

In the course of implementing the above-mentioned Decree, a new state specialized forest enterprise, entitled “Forests of Ukraine”, has been established under the responsibility of the State Forest Resources Agency of Ukraine. It now consists of 9 interregional offices coordinating the practical activities of 145 forest branches (former state forest enterprises)⁷⁷. The total number of branches expected to be functional is 164. This work has still not been completed due to the occupation of part of the territory⁷⁸. The newly established enterprise carries out all forest-related tasks, such as planting, tending the forest, cutting and selling timber.

The Decree foresees that “Forests of Ukraine” (the state forest specialized enterprise that has now been established), will be further converted into a joint-stock company with 100 percent of its share's belonging to the state. The respective draft law has already been drawn up⁷⁹.

3.12.3. Normative and legal changes

Listed below are other decisions that have been approved since the war started:

- Law dated 20 June 2022 N2321-IX, provides amendments to several already existing laws, and

aims to protect naturally afforested land (which were previously abandoned agricultural land)⁸⁰. In Ukraine, according to the estimates of various experts, there are approximately 500,000 hectares of forests that are not officially considered as such. The following actions are ongoing: identification of such areas, communication with local authorities to support the changing of the primary purpose of land use from agriculture to forest land and definition of future management arrangements.

- Presidential Order No. 675/2022 according to the decision of the National Security and Defence Council of Ukraine dated 29 September 2022 on the protection, use and restoration of forests of Ukraine in a specific period⁸¹. Concrete changes in the legislation are expected within the next 6 months after its adoption; this will aim to improve the ecological stability of forests in the country, and to improve the financial stability of forest enterprises.
- Law dated 15 March 2022 N2132-IX suspended the silent period for cutting from 15 April until 15 June 2022⁸².
- Order of the Ministry of Environmental Protection and Natural Resources of Ukraine dated 05.10.2022 N 414 on the approval of the methodology to determine damages and losses caused to the forest because of the armed aggression of the Russian Federation⁸³. Experts will assess the damage caused to forest land plots, forest stands, protected forest stands, forest nurseries and hunting grounds. It will also consider the losses from damaged harvested forest products, the unearned income of forest users, the loss of hunting grounds, the destruction of or damage to biotechnical facilities, hunting animals, the destruction of or damage to nests, burrows, and other animal habitats
- Governmental Order dated 20.12.2022 N1410⁸⁴ on amendments of rules of reforestation. This order establishes *inter alia* a) prohibitions on restoring forests using invasive tree species; b) uniform requirements for the cycle of forest restoration; c) an expanded list of planting material for reforestation, which provides for the possibility of using containerized planting material.
- Governmental Order dated 25.11.2022 N1339⁸⁵ banned the export of fuelwood in the form of log, brushwood, branches, wood chips or shavings; this aims to contribute to the accumulation of wood in Ukraine (until 1 March 2023).
- Order of the Ministry of Environmental Protection and Natural Resources of Ukraine dated 21.11.2022 N 499 on the approval of the Procedure for Issuing Hunter's Licenses and Annual Control Cards for Record of Hunted Game and Violations of Hunting Rules. It is foreseen, *inter alia*, that Ukrainian citizens will be able to receive administrative services in the field of hunting regardless of their registered place

of residence.

- Governmental Order dated 04.02.2023 N105⁸⁶ set out a procedure to conduct fellings, and use the timber extracted from cases relating to land-use changes.
- Governmental Order dated 06.02.2023 N112⁸⁷ on approving rules for forest management planning. It is planned to introduce, *inter alia*, a new provision to establish an electronic database, to involve civil society in forest management plan preparations, taking into consideration the environmental impact assessment.
- Law dated 24 February 2023 N° 2952 IX on making changes to some legislative acts of Ukraine regarding the protection of the forest located near the state's borders⁸⁸. According to the Law certain part of forests along the borders will not be considered as forest ecosystems (areas 30-50 m from the borders). At the borders of Russia and Belarus, areas of 2 km will be transferred to defence purpose instead of forestry ones. It is evident that the implementation of this Law will lead to a decrease in forest area.
- Law dated 20 March 2023 N° 2973-IX on Amendments to Certain Legislative Acts of Ukraine Regarding the State Environmental Monitoring System, Information on the State of the Environment (Environmental Information) and Information Support for Environmental Management. The law provides common requirements for different types of environmental monitoring. The law will enter into force 6 months after the war has ended.
- Governmental Order dated 25.04.2023 N388⁸⁹ focusing on changes in the procedure for conducting a national forest inventory during the war (e.g. better use of satellite images).
- Order of the Ministry of Environmental Protection and Natural Resources of Ukraine dated 05.05.2023 N 695/39751 designating 13 invasive species which are not allowed to use for reforestation⁹⁰.
- Governmental Order dated 12.05.2023 N499⁹¹ on the procedure for the creation of protective zones for the preservation of biodiversity in forests and the Procedure for the creation of protective zones for the preservation of objects of the Red Book of Ukraine.
- Governmental Order dated 12.05.2023 N483⁹² on the implementation of an experimental project on the issuance of a felling permit (logging ticket) and a certificate of origin of timber in electronic form.

western part of the country or abroad. Due to mine contamination, it is not possible to conduct field work on sample plots that had been designated for research by URIF&FM (such as in Kyiv, Sumy, Chernihiv, Kharkiv and other regions). There is also limited access to necessary scientific equipment and the data base, especially for those who have been forced to change their place of residence.



Forest scientific station, Sumy region

Source: Krasnotrostryanetz

URIF&FM (situated in the eastern part of Ukraine) has three subordinated deoccupied entities. One in the Sumy region, which was destroyed together with the laboratories (see picture 17 of the Krasnotrostryanetz forest scientific station above). A unique scientific library and valuable archival materials related to the results of scientific research over a period of almost 90 years were destroyed. The other two subordinated deoccupied entities in the Kyiv and Kharkiv regions were damaged and forest-related equipment was destroyed (based on data from URIF&FM on 02 February 2023). The scientific activities of the deoccupied entities are limited due to the ongoing demining process.

Three branches of URIF&FM are still situated in occupied territory and have suspended their activities as well as one in Crimea.

The UMFRI (situated in the western part of Ukraine) has not reported any significant impact on its facilities or its research work, other than the budget constraints imposed by the Government on conducting research.

From the beginning of the war, all educational courses in the 2022 academic year were transferred to an online format. Most educational institutions were forced to take a break in 2022, except for universities in the western regions.

3.13 Forest research and education

Forest education and research has been significantly influenced by the war. Most researchers from URIF&FM, situated in Kharkiv, were forced to move to the

In the 2023 academic year, some in-person courses have been restored. In detail:

- the available number of students in classes should correspond to the number of places available in shelters
- each educational entity defines the length and format on a weekly basis, according to the security situation in the region.

In general, the implementation of the educational activities by the institutions, along with the possibility of students to visit educational buildings in the occupied regions and/or close to the front lines, is still very complicated due to the instability of communication and the danger of attacks. Therefore, students in occupied regions can join classes face-to-face only on an irregular basis.

Currently, male students are not subject to mobilization, but many, male and female students, joined the armed forces on a voluntary basis.

In the case of advanced training in forestry, the consequences are the same, including. decreased frequency of training due to mobilization, all training being conducted online and problems with electricity potentially causing major obstacles.



CHAPTER 4: DEFINED PRIORITY AND NEEDS FOR RESTORING AND SUSTAINABLY MANAGING UKRAINIAN FORESTS

The list of priority needs necessary to restore the forests and forestry in Ukraine in the short and medium term was defined by the Ministry of Environment Protection and Natural Resources of Ukraine as a response to the request of Mr. Özdemir, Federal Minister of Food and Agriculture of Germany (letter dated 03.11.2022 N 25/1-34/14960-22, attached as Annex 2).

Short-term priorities are mostly directed at restoring the infrastructures and facilities damaged and/or destroyed by the war. Medium-term priorities are directed mostly at improving and strengthening sustainable forest management in Ukraine; this will be influenced by the ongoing war which will lead to limitations and a lack of funds.

One of the main obstacles to sustainable forest management in deoccupied areas is the necessity of demining, which is not fully emphasized in the letter, but which has been repeatedly mentioned by State Forest Resources Agency and Ministry of Environment representatives during the FOREST EUROPE experts' workshops (e.g. 23rd March 2023).

Note: the work on demining is not a responsibility of the Ministry of Environmental Protection and Natural Resources of Ukraine.

Short term priorities include five subcomponents:

A.1 Restoration of the Ukrainian Forest Management Planning Association.

This priority is complex and includes three subcomponents related to:

1. Supporting restoration of damaged and destroyed capacities of the Ukrainian Forest Management Planning Association.
2. Identification of contaminated forest areas that pose a threat to human life and biodiversity.
3. Digitalization of Forest Management and creation of a Unified Geoinformation System and Analytical System of Forest Management.

A.2 Support for forest protection against fires.

This priority requires concrete support through the provision of different equipment which should be restored.

A.3 Restoration of capacities for growing planting forest material and of forests that have been damaged by the war.

This priority is complex, and the concrete amount of support needed cannot be defined until military activities are concluded and the overall war damage have been assessed. However, the preliminary concrete provision regards the necessity of restoring the Forest Seedling Centre in Liman, Donetsk region.

A.4 Reconstruction and development of forest infrastructure.

This priority contains three subcomponents related to:

1. The inventory of destroyed and damaged objects of forest transport infrastructure.
2. The development of normative legal acts on the design, construction and maintenance of forest highways.
3. The construction of 1,500 km of forest highways.

A.5 Restoration of destroyed forest related equipment and machinery of the state forest enterprises.

It provides a concrete list of damaged and destroyed equipment as of October 2022 (with the exception of the damaged/destroyed equipment for protecting forests against fires mentioned in point A.2).

Medium-term priorities include six subcomponents:

B.1 Strengthening forestry capacities in the field of protecting forests against fires, pest and diseases.

Restoring damaged and destroyed equipment for protecting forests against fire in the short term, will require capacity-building and measures to strengthen the existing system in this field.

The priorities on protecting forests against pest and diseases are described in greater detail and underline the necessity of implementing actions (see Annex 2).

B.2 Development of a comprehensive forest monitoring system in Ukraine.

B.3 Implementation in Ukraine of modern methods of assessment and establishment of conformity for forest reproductive material.

This priority corresponds to requirements to adapt Ukrainian legislation to EU legislation, namely to Council Directive 1999/105/EC dated 22.12.1999.

B.4 Facilitation of the transition to mechanized methods of timber harvesting using harvesters and forwarders.

B.5 Development of practical recommendations for the implementation of rational methods of planning and constructing forest roads in mountainous areas.

B.6 Development of hunting management.

Note: the priority needs for the restoration of forestry in Ukraine in the short and medium term defined by the Ministry of Environmental Protection and Natural Resources of Ukraine are in line with the priorities and provisions of the first national recovery plan presented by the Ukrainian Government at the conference in Lugano on July 4-5, 2022 (see chapter 3.12.1).



CHAPTER 5: DESCRIPTION OF EXISTING BILATERAL AND MULTILATERAL PROJECTS AND IN-KIND CONTRIBUTIONS

5.1 Bilateral and multilateral projects

According to a review carried out of existing forest-related international projects in 2023, there are 13 ongoing international projects.

These ongoing projects can be classifying as follows: 4 focus on nature protection and conservation or on supporting the nature protection administration in Ukraine, 4 on capacity building and education-related projects, 1 infrastructural project in the Carpathian region, 1 project on the national forest inventory, 1 project on forest resilience, 1 on the value chain and 1 on ecosystem services and livelihood.

The EC is funding five projects in Ukraine through different funding schemes (I.g. GCP/UKR/012/EC, HUSKROUA/1701/LIP/009, EU4Environment and 2 HORIZON project – see Annex 3 for more details).

Meanwhile, NGOs seem to be some of the key actors in the field of project implementation to support the recovery of the Ukrainian forest and forest sector (e.g. WWF-Ukraine, FORZA, Frankfurt Zoological Society etc).

More detailed information about the international projects aimed at supporting forests and forestry in Ukraine are summarized in Annex 3.

5.2 In-kind contributions⁹³

After the start of the war humanitarian support was provided by German, Polish and Latvian foresters. Several countries have shown their support for restoring the forest sector and forests in Ukraine since the very beginning of the war. For instance, a Czech forest-related magazine called “Lesnická práce” conducted a fundraising campaign which aimed to support the restoration of the Forest Management Planning Association (i.e. a donation of 50 thou Euros). Also, PEFC Germany provided funds (i.e. 50 thou Euros) for restoring some damaged facilities in Kyiv, the Sumy Chernihiv region and the Forest Management Planning Association.

After adoption of the FOREST EUROPE Ministerial Decision, the FOREST EUROPE Secretariat, in collaboration with signatories, observers and the external experts that formed part of the Ukraine initiative group, steered possible support actions for Ukrainian forests and Ukraine’s forestry sector. The following activities and/or actions were developed:

- Free-of-charge membership in forest-related institutions and programs (by EUSTAFOR and EUFORGEN)
- Organizing and conducting training (e.g. by Austria, Portugal, Global Fire Monitoring Center (GFMC))
- Increased financial support of existing projects (e.g. by Germany, EU)
- Fundraising process (e.g. by WWF)
- Delivery of special equipment (e.g. by Estonia, Lithuania, Poland, Latvia, Italy)
- Exchange of experience, capacity building (e.g. by Lithuania, Bern University of Applied Sciences, Portugal, Finland, Canada)
- Road map developed to support Ukraine’s recovery within the scope of activities under the Carpathian Convention
- Development of a forest strategy to support the recovery process in Ukraine (by FAO Ukraine regional office)
- Strengthened scientific cooperation (e.g. by Bern University of Applied Sciences, Eberswalde University,

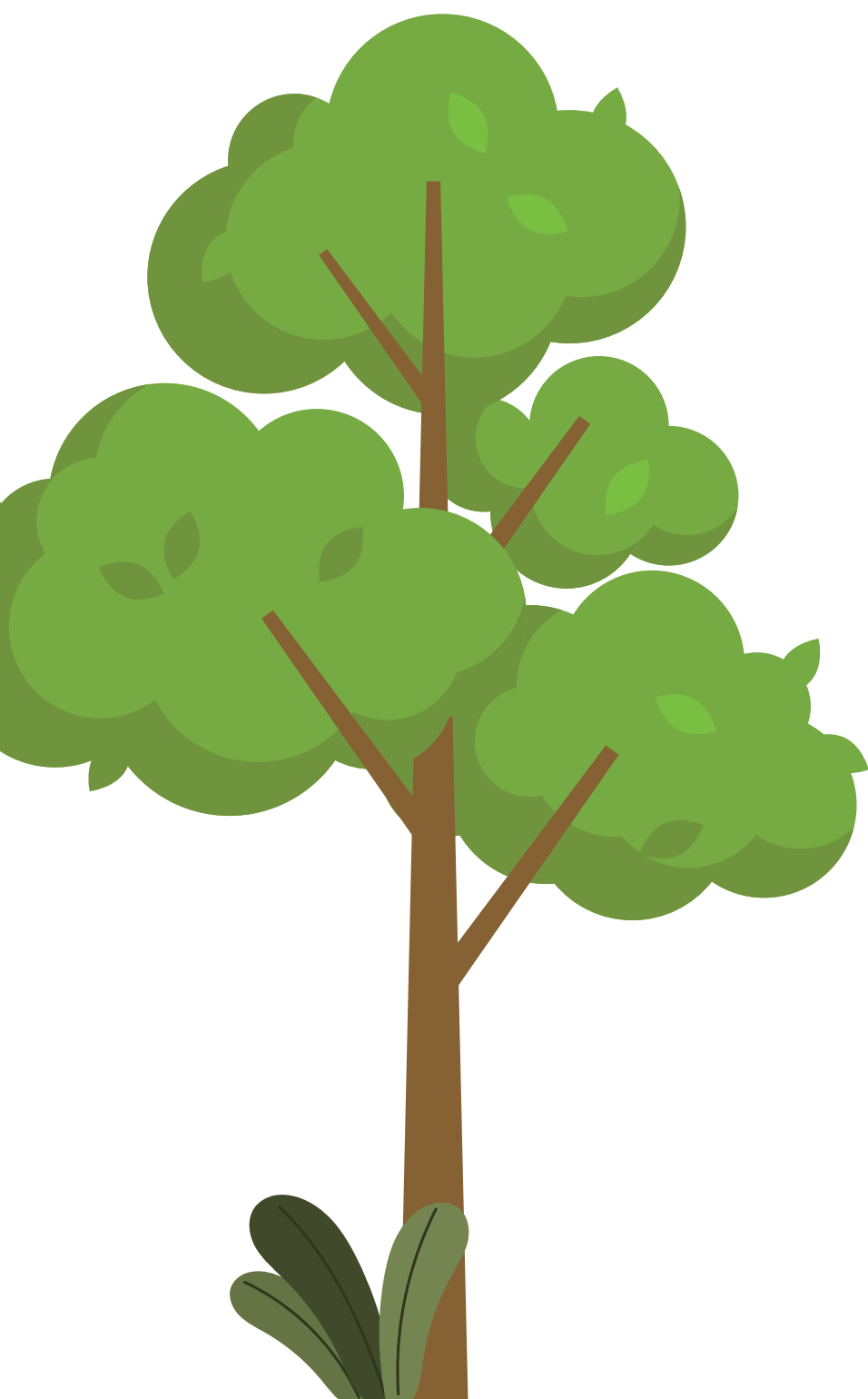
University of Angers, EFI, IAASA, IUFRO).

- Organizing international events (e.g. by IUFRO/IAASA, GFMC).
- Designing new project proposals (e.g. by Sweden, Czech Republic, Tartu University, Bern University of Applied Sciences).

Several countries (e.g., Sweden, Latvia, Switzerland, Ireland, Italy, Slovakia) and international forest-related organizations and NGOs (e.g., CEPF, "Greening of Ukraine") expressed their willingness to actively support and some initiated direct exchanges with the Ukrainian authorities to further identify the areas and extent of support. IUCN is currently considering the option to support the post-war recovery with a particular focus on species conservation, protected areas and habitat restoration.

More detailed information about the in-kind contribution provided is listed in Annex 4 to this report.

FOREST EUROPE Secretariat underlines that this overview is based on information available at the time of writing and might not be complete or accurate.



CHAPTER 6: GAP ANALYSIS

COMPARING EXISTING BILATERAL AND MULTILATERAL SUPPORT AND PRIORITY NEEDS

Table 6 shows the comparison between the priority list of short and medium term needs presented by the Ukrainian Government (see chapter 4) and the current projects and ongoing in-kind contributions (see chapter 5), and project proposals.

It can be concluded that:

1. Despite several projects and activities currently available, none of the defined priority needs are receiving full support to completely fulfil the demands listed by the national authorities.
2. Most of the priority needs require sufficient investments to restore/reconstruct damaged and destroyed facilities and infrastructure. Several projects implemented by international forest-related organizations, NGO and other actors focus on providing consultancy services on forest-related issues with scarce investment possibilities.
3. Providing sufficient support to the Ukrainian forestry sector and its forests is subject to coordination between different state authorities (nationally and internationally). In most cases, it can be noted that forestry is not considered as a primary priority by the Governments of European countries, while focusing on humanitarian support and food security is felt to be more urgent. Therefore, there is a need to facilitate and even better coordinate support between and within the respective countries, to include forestry as a priority in their support programs (e.g. a demining program or reconstruction of destroyed buildings and other infrastructure).
4. In 2023, the number of in-kind contributions, and interactions between international actors and the Ukrainian Government to support forests and the forestry sector steadily increased; the discussions were based on the list of priorities and facilitated by FOREST EUROPE Secretariat. This positive trend should be intensified and continuously supported by FOREST EUROPE Secretariat and other interested actors such as international organizations (e.g. FAO).



Table 6: Comparison between the priority list, ongoing projects, in-kind contributions and project proposals

N	Priority needs (listed in Annex 2)	Projects and support: existing and under evaluation		Priority needs implementation (addressed, mostly addressed, partially addressed, not addressed) and comments
		Title in brief	Direction of existing support	
A. Short term priorities				
A1	Restoration of Ukrainian Forest Management Planning Association including			
	A.1.1 restoration of the damaged and destroyed Ukrainian Forest Management Planning Association capacities	Ukrainian-German project W-UKR21-01	Partially restoring damaged NFI equipment and providing resources	<u>Partially addressed</u> To fulfil this priority, significant financing is necessary for restoring damaged/destroyed office buildings and equipment.
		In kind contributions by: Czech forest magazine and PEFC Germany	Focus on material losses	
	A.1.2 Identify contaminated forest areas	none	none	<u>Not addressed</u> Rough estimations are conducted by state forest enterprises, but the level of work is insufficient to obtain an exhaustive picture.
	A.1.3 digitalization of forest management and creation of a Unified Geoinformation System and Analytical System for Forest Management	FAO project GCP/UKR/012/EC Project proposals: Sweden	Improving electronic timber tracking	<u>Partially addressed</u> . Concerning improvement of forest management planning – necessary further work on amendments of existing procedure for preparing forest management plans, keeping in mind deoccupied areas contaminated by UXO (safety of work/new methodologies in place vs lack of capacity and sufficient financing of field work) Concerning digitalization – several project proposals are on the way, but additional financing will be needed to fulfill the needs for digitalization. .
		Czechia	Preparation of a complex forest management plan including issues of using non-wood forest products	
			Networking and experience exchange in digital technologies	
		Tartu University	Possible support on evaluation of the forest related-damage by remote sensing and possible support in evaluation of the situation on areas contaminated by UXO in the framework of the forest management planning.	
A.2	Support forest protection against fires	In kind contribution by:	5 firefighting moduls from Poland, 5 forest fire fighting trucks, 5 firefighting cars and 300 sets of firefighting clothes from Lithuania, and 2 firefighting trucks and other equipment by city of Ramplmaa	<u>Partially addressed</u> The equipment and training provided are insufficient. Implementation of this priority requires investmments (e.g. used equipment can be transferred to the country).
		Poland, Lithuania, Latvia, City of Ramplmaa (Estonia)		
		Italy	Italy (tbc)	
		Global Fire Monitoring Center (GFMC), and Portugal	Trainings and capacity building activities	
A.3	Restoration of capacities for growing planting forest material, and restoration of damaged forests	Partial support by Polish state forest company	Delivery of equipment for soil preparation and planting (51 pieces of special equipment and 55 200 containers)	<u>Not addressed</u> Implementation of this priority requires investmments and damage assessment post-war. There is currently insufficient information about the amount of work necessary to restore forests and facilities (e.g. restoring nurseries and physical work on forest restoration). A preliminary financial estimate is that restoring the Forest Seedling Centre in Liman, in the Donetsk region would require funds totalling 767 thou Euro.

N	Priority needs (listed in Annex 2)	Projects and support: existing and under evaluation		Priority needs implementation (addressed, mostly addressed, partially addressed, not addressed) and comments
		Title in brief	Direction of existing support	
A.4	Reconstruction and development of forest infrastructure including			
	A.4.1. - inventory of destroyed and damaged objects of forest transport infrastructure	none	none	<u>Not addressed</u> Implementation of this priority requires investments.
	A.4.2. - development of normative legal acts on the design, construction and maintenance of forest highways	none	none	<u>Not addressed</u>
	A.4.3. - construction of 1,500 km of forest highways	none	none	<u>Not addressed</u> Implementation of this priority requires investments and planning.
A.5	Restore destroyed capacity of state forest enterprises in forest related equipment and machinery	none	none	<u>Not addressed</u> Implementation of this priority requires investments and planning.
B. Medium-term priorities				
B.1	Strengthening the capacity of forestry in the field to protect forests against fires, pest and diseases including:			
	B.1.1. - strengthening forest protection against fires	101003890 – FirEURisk Project proposal under the Solution-oriented research for development (SOR4D)	Scientific recommendations are expected on reducing the risks of forest fires for settlements and increasing the resistance of pine forests to fires and climate change	<u>Partially addressed</u> FirEURisk's main geographical area compromise the Chernobyl zone; there is a possibility to obtain additional financing to extend the areas of interest. Note: there is a strong need for capacity building and renovation of related equipment for firefighting.
	B.1.2 - improving and strengthening forest protection against pests and diseases by biological means	none	none	<u>Not addressed</u> Implementation of this priority requires investments.
	B.1.3 - development of a national strategy to combat the spread of invasive organisms in the forests of Ukraine	TCP/RER/ 3801	Preparation of three contingency national plans for different invasive species	<u>Mostly addressed</u> Work is ongoing, additional support might consider the challenging of spreading pest and diseases in contaminated areas
	B.1.4. - modernize laboratories of state forest protection enterprises for mycological and genetic research	none	none	<u>Not addressed</u> Implementation of this priority requires investments and planning.
	B.1.5 - improve the level of early diagnosis and detection of foci of mass reproduction of dangerous pests and diseases by using remote monitoring methods	none	none	<u>Not addressed</u> Implementation of this priority requires investments and planning.

N	Priority needs (listed in Annex 2)	Projects and support: existing and under evaluation		Priority needs implementation (addressed, mostly addressed, partially addressed, not addressed) and comments
		Title in brief	Direction of existing support	
B.2	Development of a comprehensive forest monitoring system for Ukraine.	none	none	<u>Not addressed</u>
B.3	Implement modern methods of assessment and establishment of conformity for forest reproductive material	none	none	<u>Not addressed</u> Implementation of this priority requires investments and planning. Preliminary assessment estimates that this will require 250 thou Euro.
B.4	Facilitate the transition to a mechanized method of timber harvesting using harvesters and forwarders	none	none	<u>Not addressed</u> Implementation of this priority requires investments and planning. Preliminary assessment of investments needed in detail: - 150 harvesters (80 million Euro); 450 forwarders (140 million Euro); 30 skidders (4 million Euro); 50 air logging systems (2 million Euro).
B.5	Develop a practical recommendation for the implementation of methodology to plan and construct mountain forest roads	none	none	<u>Not addressed</u> Implementation of this priority requires investments and planning.
B.6	Development of hunting management	none	none	<u>Not addressed</u> Implementation of this priority requires investments and planning.

CHAPTER 7: RECOMMENDATIONS ON A RECOVERY PLAN TO GUARANTEE THE SUSTAINABLE MANAGEMENT AND RECOVERY OF THE FORESTRY SECTOR IN THE LONG TERM

7.1. Overview of other international organizations reports and assessment

7.1.1. Assessments of environmental war-related damage

After the start of the war international financial institutions and non-governmental policy and research organizations started developing economic reconstruction plans with varying degrees of detail. Also, the estimates of the required funding vary. The most relevant reports are:

- The World Bank publication⁹⁴ (21st April 2022) about the Ukraine's short-term relief and longer-term reconstruction needs, with a subsequent estimate of funds required of \$349 billion.
- The London-based Centre for Economic Policy Research (CEPR) published a Blueprint for the Reconstruction of Ukraine⁹⁵ (5th April 2022) providing an estimated cost between €200 billion and €500 billion, increasing as the war continues. In August 2022, CEPR issued Macroeconomic Policies for Wartime Ukraine⁹⁶, which outlined policies necessary to put the Ukrainian economy on a sustainable trajectory for the duration of the war.

Environmental consequences of the war were assessed and studied by several international institutions in 2022 and 2023.

- **World Bank.** The World Bank published a report “Ukraine rapid damage and needs assessment” in August 2022. The report was prepared in cooperation with the Government of Ukraine and the European Commission⁹⁷ and presented the first comprehensive evaluation of war impacts across twenty different sectors following the Russian invasion (period February 24 - June 1, 2022). It also lays out the financial needs for resilient, inclusive, and sustainable recovery and reconstruction, providing a roadmap for planning. Regarding forestry, the main challenges mentioned comprise land contamination and an increased risk of forest fires.
 - According to an updated assessment by the **World Bank** on “Rapid Damage and Needs Assessment” (February 2022 - February 2023)⁹⁸, the damage in the forestry sector is estimated to be over US\$ 1.5 billion, and losses are estimated at US\$ 523 million. The estimation about the total area contaminated by UXO is 1.8 million ha, leading to 62 % of estimated total losses due to the inability of the forests to deliver their ecosystem services.
 - **WWF-Ukraine** together the **Regional Eastern Europe Fire Monitoring Center and Global Fire Monitoring Centre (GPMC)** published a report on “Forest Management on Territories Contaminated with Unexploded Ordnance”⁹⁹. It contains background information necessary to understand principles and procedures when dealing with forest contaminations with UXO, recommendations on adapting SFM practices in contaminated areas and evaluation of damage in protected natural territories.

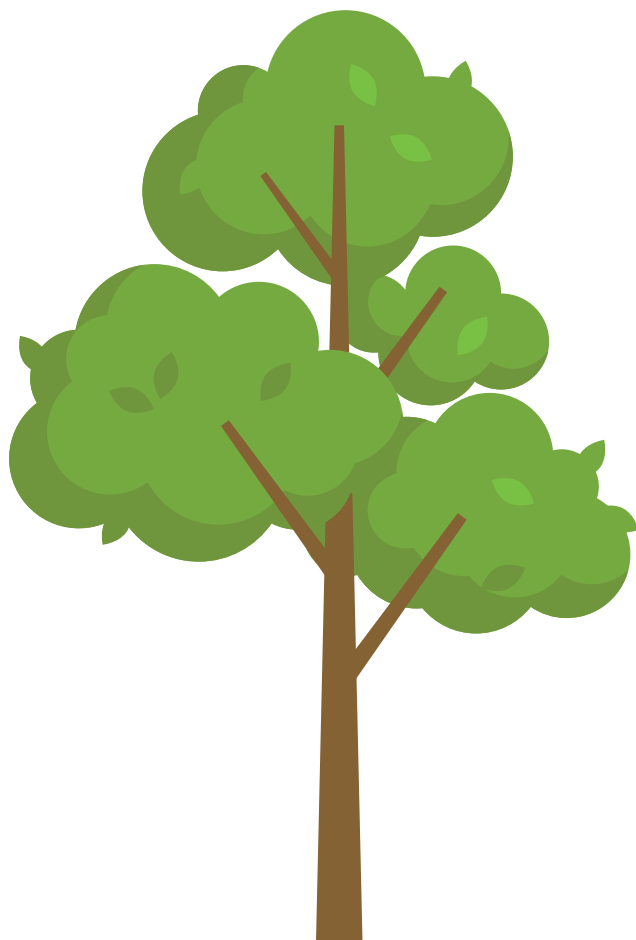


- **The Carpathian Convention** presented a study about the “Impact of war on the natural environment of the Carpathians in Ukraine” (October 2022). This report provides a brief overview of the natural environment of Ukraine and progress made in protecting it while focusing on the Carpathian region of Ukraine. It also describes environmental damage and losses of nature protection services. The main consequences for protected natural territories are related to staff mobilization and personnel losses, lack of basic supplies and materials, decreasing funding, as well as the rapid decrease in operational capacities, partly due to the transfer of vehicles and other equipment for military purposes.
- **UNEP** produced a preliminary review of the environmental impact of the war in 2022¹⁰⁰. In the case of forestry, it mentions the increase in deliberate forest fires due to military actions which have led to the destruction of ecosystems.
- **The OECD**¹⁰¹ published their first assessment entitled “OECD Policy Responses on the Impacts of the War in Ukraine” (1st July 2022). It contains general observations about environmental damage, with no specific reference to forestry.
- **The OSCE** started its work on the assessment of Environmental Impacts of the War against Ukraine and Options for Remediation (final date foreseen in 2025, no online resource available) in October 2022.
- **The FAO** prepared several assessments of the war-related damage in its sectors of competence (e.g. agriculture, fisheries). In the case of forestry, the current methodology is being prepared and discussed with responsible forestry experts in Ukraine. This will be the first assessment focusing only on the effects of war on the forestry sector and forests (e.g. wood and NWFP).
- **The German-Ukrainian project on “Technical Support to Forest Policy Development and National Forest Inventory Implementation”** conducted a brief analysis of the expected impacts of the current war and post war implications for state forestry and Ukraine’s forest resources. The analyses were made in July 2022.
- **Ecodozor** (an information platform) is disseminating information on environmental consequences and risks related to the war in Ukraine¹⁰² through detailed monthly maps, showing the environmental risk status across the country. The development and maintenance of the information system is supported by the Zoi Environment Network (Switzerland), the OSCE Project Coordinator in Ukraine, the REACH humanitarian initiative, and the UN Environment Programme. Besides the provision of maps, an analytical bulletin is also published¹⁰³.
- The **“ForestCom” team (NGO)** conducted a public survey to gain experts’ input from five stakeholder groups, (public activists, environmental protection experts, forestry workers, wood processing industry workers and conservationists of various institutions) on the war consequences (period December 1-13, 2022, in total 51 responses¹⁰⁴ were received).

Furthermore, to support the environmental assessment in Ukraine, the **government of Sweden and the UNDP office in Ukraine** announced in March 2023 the establishment of a Coordination Centre for Environmental Damage Assessment, with an initial investment of USD\$ 6.7 million during 2023-2025. The Centre will be responsible for monitoring and recording the character, magnitude and significance of related environmental impacts¹⁰⁵. UNECE set up an inter-agency group to coordinate the assessment of environmental damage in Ukraine¹⁰⁶.

71.2. Existing recommendations on the recovery process in forestry and related fields

- **World Bank.** The report on “Ukraine rapid damage and needs assessment” (see above) recommends a functional review of the institutions in the sector, with a focus on modernized planning, and on applying best afforestation and reforestation methods for climate-smart forestry. It suggests establishing a study aimed at creating investor-ready carbon projects, and creating the potential for mass employment in afforestation and reforestation. The RDNA2 assessment indicates a) estimates to restore nurseries and plants for growing containerized seedlings and b) restoring Forest Management Planning capacities and demining as a priority (in total 11.6 million \$). The total reconstruction needs for forestry correspond to 1,453.3 million \$.



- **WWF** published their recommendations on forest recovery in two reports. The first report on “Forest Management on Territories Contaminated with Unexploded Ordnance”¹⁰⁷ mentioned the need to draw up a special standard for SFM in contaminated areas and special methodology for forest demining. The second report on “Ukraine - a sustainable economic recovery for peoples and nature”¹⁰⁸ (in cooperation with the Boston Consulting Group) contains specific recommendations on forest restoration. It recommends *inter alia* a) preparing a strategy for managing forest areas damaged or destroyed by the war, including the issues of demining; b) improving digitalization of forest-related operations; c) improving forest protection against illegal loggings; d) preparing a forest restoration and afforestation strategy; and e) improving forest-related value chains.

7.2. Recommendations by FOREST EUROPE’s Ukraine network of experts

The recommendations listed below should be considered as a preliminary list to tackle the current challenges in the Ukraine, considering that the war is still ongoing and making it impossible to perform a complete damage assessment in the country.

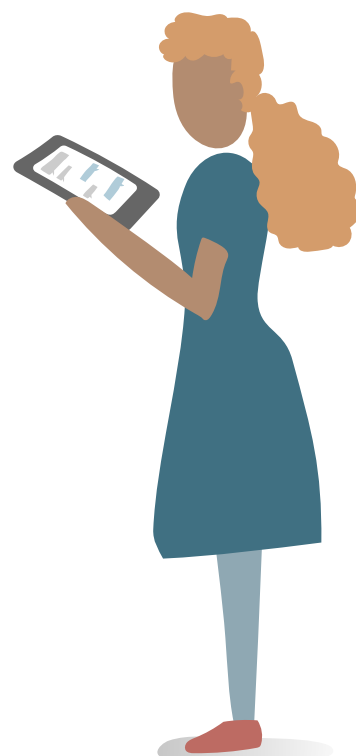
The priorities which need to be considered urgently are:

- **Assessing and demining of forest areas** keeping in mind the necessity of special procedures, special equipment and clear mapping of contaminated forests (e.g. by unexploded ordnance (UXO) based on available information from preliminary surveys. The provision of special training for forest-related staff should be regarded as a priority.
- **Conducting forest management in areas affected by the war based on improved forest management plans** including safety rules for forest workers, requirements for measures and a special procedure to obtain permissions for conducting forest fellings, including sanitary cuttings.

The following general recommendations are important to further strengthen sustainable forest management in Ukraine and to recover damaged and destroyed forests.

Strengthening forest planning

- **Improving and/or amending approaches and procedures for forest management planning.** The damage to the Forest Management Planning Association makes it difficult to fulfill all obligations regarding the preparation and amendment of the forest management plans. Changes in forest management planning approaches should be considered, including better possibilities provided by using satellite images, laser scanning and digital solutions for combining forest management with forest management planning. As well for damaged areas it is necessary not only to have concrete provisions for forest restoration, based on current situation, but also certain action plan for its achievement. While preparing recommendations it is advisable to take into account the EU Guidelines on Biodiversity-Friendly Afforestation, Reforestation and Tree Planting which is still under discussion¹⁰⁹.
- **Assessing and restoring forests in Ukraine.** This was one of the main priorities of Ukrainian forestry before the war in full compliance with Presidential Decree 228/2021¹¹⁰. Precise assessments of affected areas should be carried out and a strategy and detailed national road map developed (e.g. including necessary sanitary fellings and restoration of damaged nurseries, needs in terms of plant nurseries, equipment and human capacities).
- **Close-to-nature forest management and the introduction of environmentally friendly methodologies.** The provision of close-to-nature forestry, which is applied only in the Carpathian regions, should be extended to include Ukraine’s plains where appropriate, and this should be included in the respective standard. Further introduction of environmentally friendly methodologies, especially in timber harvesting, is essential and requires substantial financing for new equipment. Additionally, special focus should be given to the protection of ancient and old growth forests in according with the above-mentioned EU Guidelines on Biodiversity.
- **Climate change adaptation and mitigation should be included in SFM plans.** Even before the war, there were insufficient basic regulatory requirements and insufficient implementation of measures aimed at mitigating and adapting forestry to climate change. Scientific recommendations have been drawn up;



implementation of these recommendations will require consistent work and changes to current legislation and SFM practices. It is recommended to strengthen work in this regard using best practices from other European countries and integrating these practices into the Ukraine SFM plans. It should be considered to work towards including forests and green infrastructure in national planning for improving natural capital and climate resilience.

- **National forest inventory (NFI) improvement.** Work on the national forest inventory was started in 2021, but in 2022 it was only possible to carry out part of the work due to the war. Substantial changes need to be made to the methodology (e.g. assessing contaminated areas) aimed at concluding the NFI on the whole territory. It is necessary to face the financial issue to guarantee efficient fieldwork and overcome the lack of inventory equipment.

Forest governance

- **Strengthening institutional structure in forestry and completing the process of separating functions.** All necessary preparatory steps have been conducted by the Ukrainian Government – revising the functions of the State Forest Resources Agency of Ukraine, establishing the SE “Forests of Ukraine” instead of having a large number of small forest enterprises. The State Forest Resources Agency of Ukraine has prepared an amendment to existing legislation, which aims to distinguish the responsibility of state forest guards and forest guards for all permanent forest users and forest owners. The proposal is still pending.

Forest protection

- **Further strengthening the system of forest protection against fires, pests and diseases.** Detailed recommendations to support fire management in UXO areas were provided by related experts under a workshop on “Ukraine forest fires prevention in times of war” (see Annex 5 to this report). It is necessary to further implement this document. In relation to pests and disease it is advised to establish a proper system of biological means of protection, and further development of national strategies to combat the spread of invasive organisms. It should improve the level of early diagnosis and detection of foci of the mass reproduction of dangerous pests and diseases in forests, for instance, by using remote monitoring methods.
- **Nature protection in deoccupied territories and biodiversity assessment.** After the end of the war and after demining of the forest stands, special assessment of the biodiversity loss including species, habitats, and ecosystem functionality of each of the protected territories will be required. In the cases where there have been losses or a decrease in the biodiversity status in protected areas, a procedure should be using the pre-war protection status as backmark for restoration or modify the protective status (if not possible to restore pre-war conditions). The protected territories will require substantial investments for restoring the damage and rebuilding destroyed offices and equipment. In this case, it is recommended to strengthen international assistance in deoccupied protected natural areas.
- **Creating functional linkages to address cross-cutting issues** in biodiversity conservation, flood and drought management, water quality and carbon storage. A better management of forests should ensure the balanced provision of the various ecosystem services and to support climate change adaptation and mitigation efforts. Being a signatory to the Sendai Framework on Disaster Risk Reduction, Ukraine should also further explore the potential and roles of forest ecosystems maintenance and restoration for building resilience to climate-related disasters.



Forest economic and financial aspects

- **Improving financial stability in forestry and SFM.** Full recovery of Ukrainian forestry and improvement of SFM in Ukraine requires substantial investments. It is recommended to use a system of incentives (e.g. tax exemptions and subsidies) especially for forest enterprises aiming to improve financial stability and facilitate the use of environmentally friendly methodologies. Also, one of the solutions could be the establishment of **a system of payment for ecosystem services**. Ecosystem services in Ukraine are evaluated but there is no established mechanism for payment schemes. The options for carbon offsets and green bonds should be explored.
- **Timber market post war actions.** It is recommended to elaborate a procedure and an analysis to evaluate

timber and NFWP demands and supplies in post-war conditions for policy decision-making and market fluctuation.

- **Transport infrastructure.** The density of forest roads in Ukraine is very low (from 3.0 km/1000 ha to 13.5 km/1000 ha, depending on the forest vegetation zone)¹¹¹. This does not allow an effective use of forest resources and constitutes a limitation for forest protection. It is necessary to conduct an inventory of destroyed and damaged objects of forest transport infrastructure, and develop standards for the design, reconstruction and maintenance of forest roads.

Digitalization

- **Public relations and digitalization.** During the last few years several digital solutions aiming to simplify forest operations and provide society with transparency and better access to forest-related information were implemented. This work requires additional financing to guarantee continuation of these efforts. It is recommended to continue work on the creation of a “Unified Geoinformation System and Analytical System of Forest Management” as a unified solution for managing processes, services, registers and information about forestry in Ukraine and international organizations are urged to support this work in the long term.

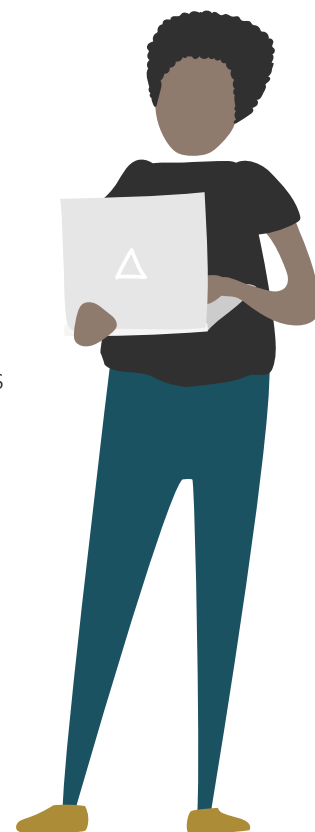
Forest education and research

- **Improving forest-related science.** Keeping in mind the experience of other European countries, it is recommended to improve approaches regarding forest science in Ukraine, *inter alia*:
 - » To improve and strengthen the interrelation between forest-related science and forest management practices (e.g. the timely definition of research topics, better use of results for decision making, a quality review of research results and the corresponding payments).
 - » To strengthen the capacity of forest related research (e.g. further building the capacity of Ukrainian researchers in the use of modern technologies, cooperating with international research institutions and applying for international projects) and create the conditions necessary for improving investment attractiveness in science and education.
- **Strengthening forest-related education.** Over recent decades, the number of educational institutions that provide forest-related education in Ukraine has increased; this pattern has led to a decrease in the quality of the education, and to an excessive demand for jobs from graduates¹¹². In this case, it is recommended to strengthen the requirements for a high quality of educational programs by accommodating new methodologies in SFM and best practices, to improve cooperation between educational institutions, also across the country and among forest management practitioners.
- **Capacity building and experience exchange.** Capacity building is needed in different SFM areas, especially keeping in mind the implementation of all recommendations above. Special attention should be given to organizing off-line trainings in Ukraine for foresters *inter alia* in:
 - » Forest protection against fires (e.g. fire management, Incident Commanders training, long-term planning)
 - » Innovative and digital solutions in forest management (e.g. using satellite images and lidar scanning)
 - » Biodiversity and conservation, and nature-based solutions¹¹³.

It is necessary to establish exchanges of experts and inter-regional learning processes about best practices from different pan-European and international forest-related experts (e.g. adaptation to climate change, nature-based solutions, payment for ecosystem services etc). Therefore, an active participation of Ukrainian experts in the various international processes and initiatives is important.

7.3. Proposed future steps for the Ukrainian authorities

The FOREST EUROPE Secretariat elaborated the following suggestions which might be helpful for Ukrainian authorities to assist in further restoring and strengthening SFM in Ukraine.



7.3.1 EU accession

Ukraine applied for EU membership in February 2022 and was granted an EU candidate status in June 2022. Since 2017, an association agreement has been in force and the partners have been continuously working on its implementation. The aim is to further deepen Ukraine's political association and economic integration with the EU. In relation to forestry, the following items should be considered and implemented fully:



1. Forest reproductive material

Council Directive 1999/105/EC of 22 December 1999 on the marketing of forest reproductive material would need to be transposed into national legislation. Now a national draft law on forest reproductive resources has been drawn up and is being considered by the Ukrainian Parliament¹⁴.

2. Forest law enforcement and governance

- Implementation of Article 294 of the EU-Ukraine Association Agreement¹⁵. This article demands cooperation to improve forest law enforcement and governance and promote trade in legal and sustainable forest products. The main issues covered are: separation of forest functions of different state authorities, transparency of the timber market, a national forest inventory and an electronic timber tracking system.
- Implementation of Regulation EU/995/2010¹⁶ laying down the obligations of operators placing timber and timber products on the market. According to this Regulation timber and timber products placed on the EU market must go through the due diligence procedure. It is currently adopted a new Regulation 2023/1115 of the European Parliament and the Council on the making available on the Union market as well as export from the Union of certain commodities and products associated with deforestation and forest degradation and repealing Regulation (EU) No 995/2010¹⁷. Comparing the new Regulation to the Regulation EU/995/2010, the following items can be highlighted:

- » Scope of the Regulation is not only timber, but also other commodities that can be obtained as a result of deforestation and forest degradation, including also cattle and soy that can be relevant for Ukraine.
- » Besides imported and domestically produced commodities, it applies also to exported commodities.
- » Operators and large traders must not only exercise due diligence but also to enter the required information into the relevant Information System.
- » There is a difference in the procedure for large and small operators and traders to run due diligence and traceability exercise, and to use the Information System in this regard.
- » Geolocation of production sites is required, among other documents that must be submitted. In addition, it is necessary to prove that neither deforestation nor forest degradation occur after timber harvesting.

All requirements of the above-mentioned new regulation will be entered into force on 30 December 2024 (30 June 2025 for micro and small enterprises). Regulation (EU) No 995/2010 is repealed with effect from 30 December 2024. However, Regulation (EU) No 995/2010 shall continue to apply until 31 December 2027 to timber and timber products that were produced before 29 June 2023 and placed on the market from 30 December 2024.

- Council Regulation EC/2173/2005 on Forest Law Enforcement, Governance and Trade (FLEGT)¹⁸. This Regulation establishes the rules for a FLEGT licensing scheme for imports of timber into the European Community. This licensing scheme shall be implemented through Voluntary Partnership Agreements with timber producing countries. Now Voluntary Partnership Agreements are concluded between EC and some third countries.
- ### 3. Nature protection and climate neutrality including Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds; Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora; LULUCF Regulation. Implementation of the above-mentioned legislative acts are the responsibility of the Ministry of Environmental Protection and Natural Resources and might have further consequences for forestry.

7.3.2 Cooperation with forest-related international organizations, environmental NGO, research institutes and other relevant stakeholders

During LUBo's initiative, we experienced the importance of collaborating with partners active in the environmental and forest related field and listening to their voices.

Therefore, our suggestion is, in the cause of the recovery process, to maintain and strengthen cooperation with forest-related international organizations, environmental NGOs, research institutions and other relevant stakeholders, aiming to cooperate and/or create joint projects and activities to receive further support for the work on the recovery and development of sustainable forest management in Ukraine.

FAO and UNECE are key players in the forestry field, and UNEP, including its Carpathian Convention Secretariat and IUCN, are among the key international organizations in the field of environmental protection. Interaction with them should be strengthened in the short, medium and long term to guarantee a full recovery. WWF-Ukraine and Frankfurt Zoological Society (FZS) are relevant stakeholders in the field of nature protection and biodiversity conservation.

UNDP, World Bank, and EUSTAFOR are active actors and could provide fruitful consultation and guidance for future support upon request. IUFRO, IASAA, EFI, EUFORGEN and European universities are essential collaborators in the field of education and research.

With regard to other important actors working in the country, mention should be made of FORZA, GFMC, FSC, PEFC, ForestCom, with whom active exchanges and collaborations should be maintained and continued.

7.3.3 Access to Official Development Assistance (ODA) and international forest related funds and mechanisms

Ukraine according to its status has no access to many international forest-related funds such as GCF¹¹⁹, REDD+¹²⁰, Adaptation fund¹²¹ etc. One possibility to receive forest related financing from international financial institutions is GEF¹²². However more possibilities might be accessible if the website of the UNFF Clearing House on Forest Financing¹²³ were checked regularly.

At European level a couple of possibilities are provided by the EU, namely:

- **European Neighbourhood Policy**¹²⁴. The Neighbourhood, Development and International Cooperation Instrument (NDICI) came into force in 2021 and is valid until 2027. NDICI-G ENP is dedicated to supporting issues of policy formulation and implementation, digitalization and strengthening technologies in line with EU legislation and best practices, through the long-term policy objectives of the Eastern Partnership. Bilateral assistance and regional programmes are possible under this instrument.
- **Cross Border Cooperation**¹²⁵. Cross Border Cooperation (CBC) is a key element of the EU policy towards its neighbours. European Cross-Border cooperation, known as Interreg A, supports cooperation between regions from at least two different Member States that directly border each other or are adjacent to them. It aims to tackle common challenges identified jointly in the border regions and to exploit the untapped growth potential in border areas, while enhancing the cooperation process for the purposes of the overall harmonious development of the EU. These cross-border programmes are made up of 49 internal programmes, 24 external (10 IPA and 14 NEXT) and the PEACE + programme. Theoretically cooperation in forestry and related areas could be covered by the following programs:
 - » Interreg VI-A NEXT Programme - Hungary-Slovakia-Romania-Ukraine¹²⁶. Adopted in November 2022. Valid for 3 regions in Ukraine (Zakarpatska, Ivano-Frankivska, Chernivetska). Call for Proposals within Hungary-Slovakia-Romania-Ukraine Interreg VI-A NEXT Programme 2021-2027 is foreseen at the beginning of next year.
 - » Interreg VI-A NEXT Programme - Poland Belarus Ukraine¹²⁷. Valid for 6 regions in Ukraine (Volynska, Rivnenska, Lvivska, Ternopilska, Zakarpatska, Ivano-Frankivska). The first call for proposals for the Interreg NEXT Programme Poland-Ukraine 2021-2027 started in May and run until the end of July 2023.
 - » Interreg VI-A NEXT Programme - Romania Ukraine¹²⁸. Valid for 4 regions in Ukraine (Zakarpatska, Ivano-Frankivska, Chernivetska, Odessa). The first call for proposals for the Interreg NEXT Programme Poland-Ukraine 2021-2027 started in May and run until the end of July 2023.

- » Interreg VI-B Programme - Danube¹²⁹. Valid for 4 regions in Ukraine (Zakarpatska, Ivano-Frankivska, Chernivetska, Odessa). There is insufficient information about the availability of the call.
- » Interreg VI-B NEXT Programme - Black Sea Basin¹³⁰. Valid for 5 regions in Ukraine (Donetska, Zaporizska, Mykolaivska, Khersonska, Odessa). The first call launched in March 2023 (with a duration of 3 months), whereas the second call is scheduled for 2024.
- **LIFE programme**¹³¹ is an important European instrument for the development and implementation of European nature and environmental policy. Ukraine acceded LIFE in June 2021. LIFE focusses specifically on governments, research organizations, companies and non-governmental organisations (NGOs).
- **European Union programmes** supporting researchers and educational entities¹³². For example, Erasmus+ (EU programme for education, training, youth and sport), the Horizon Europe programme for research and innovation; the Euratom Research and Training programme; and the Creative Europe programme supporting the cultural, creative and audio-visual sectors.

The Multi-agency Donor Coordination Platform was launched in January 2023 to coordinate short and longer-term support by international donors and financial institutions in support of the Ukrainian economy¹³³.

Additional informational sources and communities were created to support Ukrainian researchers:

- **ERA4Ukraine**¹³⁴. This portal accumulates all existing sources for supporting Ukrainian researchers both from official EU sources and individual EU members and associated members.
- **#ScienceForUkraine**¹³⁵ is a community group of volunteer researchers and students from academic institutions in Europe and around the world. It works as a platform for those who need help and those who can provide help. For example, the German-Ukrainian Academic Society¹³⁶ (a non-profit organization) also has on its website a list of useful links to support Ukrainian researchers in financing their research.

The above list might have missed some financial sources as they are not known to the authors.



CHAPTER 8: CONCLUSION

The war in Ukraine is having significant negative impacts on the environment and natural resources, leading to long-term consequences in the recovery process of the forests and forestry sector. The major challenges are related to:

- The **impossibility of carrying out sustainable forest management** in a significant part of the forest areas. Currently, more than 10% of the Ukrainian forests are still occupied by the Russian invasion, and in the already deoccupied areas forest management is difficult due to contamination from unexploded ordnances (UXO) and inaccessible areas.
- The **volume of timber harvested** has been reduced due to land contamination in a significant part of Ukrainian forests by UXO and the impossibility of carrying out measures to prevent forest fires and protect against pests and diseases.
- A significant percentage of **wood processing entities in war zones have already been closed** due to military activities and occupation. Some entrepreneurs have relocated their production, some have re-opened since deoccupation but most of them are still closed¹³⁷. Other negative impacts are mobilization, unstable electricity supply and a decrease in demand for wood products on the internal market.
- The **drastic damage and destruction of real estate and equipment** limits the reconstruction of the forest sector in the medium and long term, due to limited financial means in the state budget. Furthermore, this situation will affect possible achievements in digitalization and in strengthening transparency in forestry.
- The **destruction of the Forest Management Planning Association** and related problems has made it impossible to make timely amendments to forest management plans and to assess related damage, which is essential to initiate the recovery process.
- The **loss of biodiversity and forest ecosystem services** have already been reported, and require complex restoration and rehabilitation processes. In some cases, they cannot be restored (e.g. burned relict forests, lost nestling places or rare species). A detailed assessment of deoccupied areas of high biodiversity value is necessary.
- The **decline in forest-related research and education quality** due to the challenges faced during the war (e.g. no access to educational facilities, absence of training and limited resources) especially in deoccupied areas.
- Ukrainian forestry has **very limited access to external financial sources** due to eligibility issues, language barriers, a heavy administrative and bureaucratic burden, limited personnel and limited capacity to work on this matter. Therefore, it is important to overcome these challenges.

Ukraine, as a country, and the Ukrainian forest-related administration specific cannot fully solve the challenges mentioned above in the short, medium or long term. The sector recovery is also dependent on the demining process and safe access to the lands which will require significant time and resources.

Significant international humanitarian and military support to Ukraine and Ukrainian citizens but this support will be necessary for a long time. One limitation is that forestry is not considered as a priority in this phase in the recovery process either at national or at international level but requires investments.

The brief overview of the priority list provided by the Ukrainian Government and the existing support available in chapter 6 regarding forests and forest sector shows that there is insufficient support to address the country's needs in this matter.

The destruction of certain elements of SFM creates the opportunity of building the sector back better, focusing on experience exchange and bilateral cooperation. New and modern practices in forest management planning and monitoring, use of digital solutions, strengthen biodiversity conservation, evaluate ecosystem services and apply climate change adaptation and mitigation measures are some of the examples which could be further developed in the country.

Also, due to the extent of environmental damages, forest management and restoration should be considered as cross-cutting issue involving different agencies (e.g. responsible for water and agriculture) ensuring a comprehensive landscape approach and financial incentives for the forest sector and beyond.

Monitoring and coordinating the support at international level for the Ukrainian forests and forest sector, avoiding duplication of efforts and making efficient use of resources available is a key aspect. This is one of the main inputs of the FOREST EUROPE Ministerial decision. The Liaison Unit Bonn focused its extensive work from August 2022 to connect national and international actors to strengthen their knowledge, comprehend the actual situation in detail and exchange expertise between the partners to build back better the Ukrainian forest sector and forests during and after the war. It is expected that international forest-related organizations and partners will continue coordinated work to support Ukrainian forest sector.

The FAO regional office in Kyiv is actively carrying out an investigation and drawing up a forest strategy to support the recovery process of the forest sector in Ukraine in close contact with national authorities and FOREST EUROPE experts. Additionally, a damage and loss assessment are under discussion between FAO experts and local authorities, as well as a project proposal to improve the forest administrative system in the country.

The coordination and implementation of all international support and internal coordination requires a greater involvement by all relevant International Organisations, countries and interested stakeholders in actively taking actions for Ukrainian forests and beyond.



CHAPTER 9: ANNEXES

Annex 1. Ministerial Decision “Supporting the recovery and sustainable management of Ukrainian forests and its forest sector”. Page 46.

Annex 2. List of priorities for forest sector recovery defined by the Ministry of Environmental Protection and Natural Resources of Ukraine. Page 48.

Annex 3. Short description of related international projects aimed at supporting forestry in Ukraine. Page 50.

Annex 4. Short description of related in-kind contributions and proposals to support forestry in Ukraine. Page 55.

Annex 5. Take-home messages by FOREST EUROPE Secretariat after the capacity-building and knowledge exchange workshop on “Ukraine forest fires prevention in times of war”. Page 60.



Ministerial Decision

endorsed at the High-Level Policy Dialogue, 30 August 2022, Bonn, Germany

Supporting the recovery and sustainable management of Ukrainian forests and its forest sector

We, the Ministers of the FOREST EUROPE signatories¹, responsible for forests, forestry and forest related issues, in solidarity with Ukraine and the whole forest sector in Ukraine:

1. recall the FOREST EUROPE Helsinki Resolutions No. 1 on a Pan-European commitment to sustainable forest management in Europe, and No. 3 on Forestry Cooperation with Countries with Economies in Transition and emphasize the urgent need of Ukraine for broadly-based bilateral and multilateral cooperation in the forestry sector, while noting with appreciation the already existing cooperation and activities of signatories and international organisations.
2. express our willingness to support Ukraine in building back better its forest sector along with necessary reforms after the war-related breakdown in order to conserve, restore and sustainably manage its forests.

¹ The Republic of Belarus was not involved in this Ministerial Decision.

3. decide to apply the Rapid Response Mechanism in line with the current FOREST EUROPE Work Programme,
4. ask the Liaison Unit Bonn of FOREST EUROPE to organise the elaboration of a draft strategy document "Supporting the recovery and sustainable management of Ukrainian forests and its forest sector" and present this document for adoption at a FOREST EUROPE Expert Level Meeting in 2023.
5. ask the Expert Level Meeting at its meeting on 31 August 2022 to provide further technical guidance for the work towards elaborating the strategy document while ensuring the active participation of the relevant Ukrainian authorities on the basis of recommendations by Ukraine as well as FOREST EUROPE signatories and observer organizations.
6. invite all signatories, that are able to do so, to consider providing voluntary financial contributions in support of this work and subsequent implementation of the strategy.
7. invite international organisations such as UNECE, FAO or UNEP to participate in the preparations and support the implementation of the strategy within their respective mandates.

Annex 2

List of priorities for forest sector recovery defined by the Ministry of Environmental Protection and Natural Resources of Ukraine:

1) Restoration of the Ukrainian Forest Management Planning Association and full digitization of forest management. During hostilities, the Ukrainian Forest Management Planning Association - the organization responsible for conducting the national forest inventory and forest management planning (preparing forest management plans), suffered significant material losses (destroyed administrative building, special equipment and vehicles used for national forest inventory and forest management work were lost). Thus, in the implementation of this block of issues, both capital investments for the restoration of the destroyed/lost and the transition to more modern methods of forest management planning are needed, given the impossibility of ground survey of mined forest areas. It is necessary to ensure the identification of forest areas that pose threats to human life and health and forest biodiversity.

Digitization of forest management and national forest inventory should become an integral part of the creation and implementation of the Unified Geoinformation System and Analytical System of Forest Management as a unified solution for managing processes, services, registers and information about forestry in Ukraine. The above-mentioned works require financial and technological support.

2) Support of the forest protection forest against fires . As a result of military activities, the area of forest fires increased almost 100 times compared to the same period last year, which has a critical negative impact on the ecosystem and leads to a decrease in forest cover both in the country and in Europe as a whole. This problem is particularly acute and requires support in the southern and northeastern regions of Ukraine.

It is necessary to strengthen the technical and human potential for the prevention and extinguishing of forest fires in the conditions of war and climate change. As a result of the war, forestry in Donetsk, Zaporizhzhya, Luhansk, Mykolaiv, Kyiv, Sumy, Chernihiv, Kharkiv and Kherson regions lost a large amount of firefighting equipment. To restore forest protection against fires in the de-occupied territories, it is necessary to restore 104 forest fire stations, purchase and install 294 fire observation towers equipped with television surveillance systems, purchase 252 fire engines (including those with a supply of fire extinguishing substances from 4 to 8 tons - 73 units and 179 units with a supply of fire-extinguishing substances from 0.7 to 1 ton and fire equipment and inventory), 310 fire engine pumps, 3 thousand knapsack forest sprayers, 394 tractors with tillage equipment, 47 quadcopters and 500 sets of firefighter protective clothing. Taking into account the need for firefighting, including in the territories adjacent to mined areas, it is necessary to provide for the possibility of providing fire tanks.

3) Restoration of capacities for growing planting forest material, restoration of forests that were damaged as a result of military operations, taking into account that about 40% of the territories of forest ecosystems were affected by military operations, 20% of the forest is not available for conducting SFM in a full amount as a result of military activities and mining. The implementation of this component requires a complex solution of issues and significant capital investments. A full assessment of lost planting capacity and reforestation/afforestation needs can be made after hostilities end. We will inform about the required scope of work as appropriate information is received on the assessment of the consequences of military actions for forestry. For example, we already could underline the need to restore the seed growing complex in the city of Lyman, Donetsk region.

4) Restoration and development of forest infrastructure . It is necessary to conduct an inventory of destroyed and damaged objects of forest transport infrastructure, develop and approve normative legal acts on the design, construction and maintenance of forest highways, construction of 1,500 km of forest highways.

5) Restore destroyed capacity of state forest enterprises in forest related equipment and machinery. The list of destroyed and damaged equipment is attached.

The needs of forestry in Ukraine in the medium term:

1. Strengthening the capacity of forestry in the field of protection forest against fires, pest and diseases. It is necessary to establish the production of biological preparations for the protection of forests from pests and diseases, to develop a national strategy to combat the spread of invasive organisms in the forests of Ukraine, to equip the laboratories of state forest protection enterprises with modern devices for mycological and genetic research, to improve the level of early diagnosis and detection of foci of mass reproduction of dangerous pests and diseases forest by using remote monitoring methods.

2. Development of a comprehensive forest monitoring system of Ukraine. Forest monitoring activities in Ukraine have stopped since 2016 due to lack of financial support. The lack of monitoring data makes it much more difficult to make informed and timely management decisions in the conditions of the growing impact of climate change and military operations on forests.

3. Implementation in Ukraine modern methods of assessment and establishment of conformity for forest reproductive material, forest base material through molecular genetic identification of seeds, planting material of forest tree species and assessment of conformity by origin based on the implementation of the provisions of Council Directive 1999/105/EC of December 22, 1999. For the implementation of this component, it is necessary to establish two zonal laboratories for molecular genetic identification of forest reproductive material in order to comply with the regionalization of its circulation, taking into account the assessment of the conformity of its categories and origin and conducting relevant training. Implementation of this component is a component of adaptation of forest legislation to EU requirements. The draft legislative act in this regard is under consideration by the Parliament of Ukraine.

4. Facilitation of the transition to a mechanized method of timber harvesting using harvesters and forwarders, to ensure 100% mechanized timber harvesting, taking into account the technical feasibility of such harvesting (breeding composition of plantations, terrain and growing conditions);

5. Development practical recommendations of implementation rational methods planning and construction of mountain forest roads. The goal is to strengthen protective and hydrological functions forests in Carpathian region that includes development corresponding documentation, use various modern devices and methods remote land surveying for analysis efficiency creation of mountain forest roads by different methods.

6. Development of hunting management. To improve the hunting management it is necessary to resolve the issue of the functioning of the state hunting protection service (thermal imagers, quadcopters, drones, GPS trackers, cars low - level traffic etc).

Annex 3

Short description of related international projects aimed at supporting forestry in Ukraine

The tables below show the list of ongoing projects in Ukraine aiming to support the recovery of the forest sector and Ukrainian forests in the medium and long term.

Project title	Strengthen the resilience of pine forests to bark beetle outbreaks and associated dieback
Commissioned by/ partners	Forest and Agriculture Organization (FAO), TCP/RER/3801
Main goals	National forest health systems and procedures are in place in Belarus and Ukraine to respond to pest outbreaks and associated dieback.
Related outputs	- National surveillance and monitoring systems were revised to develop functional early warning systems. - National contingency plans for forest pest outbreaks were developed and validated with regional and district forest managers. - Guidelines developed for improving the resilience of forest stands about forest health and enhancing drought mitigation.
Status	In progress until 2024.
Scope (geographical and thematic)	Nationwide project on forest resilience.
Sources	https://www.fao.org/europe/news/detail/Action-plan-combats-dieback-of-pine-forests-in-Belarus-and-Ukraine-en

Project title	Inclusive, competitive and sustainable value chain development in agriculture, fisheries and forestry
Commissioned by/ partners	FAO program in the Ukraine, financed by European Commission. GCP/UKR/012/EU
Main goals	Development and adoption of a Forestry Strategy/ Programme (2021-2030) and Action Plan and implementation of forestry institutional reform (2.1). Existing transparent e-tracking system for wood products (2.2). Multipurpose Forest Management Plan for pilots in Carpathians Region (2.3).
Related outputs	- Existing transparent e-tracking system for wood products, from at least felling to sawmills, further developed, supported and scaled up to the national level. - Multipurpose Forest Management Plan for pilots in the Carpathians region (MPFMP), developed and implemented for the local forestry authorities and forestry-based value chains, promoted within the scope of the MPFMP.
Status	In progress until 2025 (in 2022, the project, was suspended, and started again in 2023).
Scope (geographical and thematic)	Nationwide project on forest planning and value chain.
Sources	© UNFAO FAO Project GCP/UKR/012/EU OSRO/ UKR/200/CHA TCP/UKR/3901FAO Humanitarian Response Supporting agricultural production to bolster food availability and access in Ukraine

Project title	Technical Support to Forest Policy Development and National Forest Inventory Implementation in Ukraine
Commissioned by/ partners	Germany, W-UKR21-01.
Main goals	A) Improved forest policies and forest management procedures, based on reliable forest information, are supported by the Ministry of Environmental Protection and Natural Resources for countrywide approval. B) Supports the ongoing National Forest inventory implementation.
Related outputs	Implement National Forest Inventory and improve forest policy recommendations and normative documents.
Status	In progress until 2025.
Scope (geographical and thematic)	Nationwide project on national forest inventory.
Sources	About project – Sustainable Forestry

Project title	Roads to healthy forests: resilient, adaptive, diverse and sustainable forests in cross-border region of Ukraine and Slovakia
Commissioned by/ partners	Project lead partners State Enterprise “Uzhhorod Forest Enterprise”. Implemented within the Hungary-Slovakia-Romania-Ukraine ENI Cross- border Cooperation. Co-financed by the European Union. (HUSKROUA/1701/LIP/009)
Main goals	Increase stability and adaptability of Carpathian Forest ecosystems to climate change impacts in the Slovak Ukrainian the cross-border region.
Related outputs	• Build new forest roads. • Build up a facility for growing containerized seedlings.
Status	In progress until 2024.
Scope (geographical and thematic)	Infrastructural project in the Carpathian region.
Source	Roads to Healthy Forests: Resilient, Adaptive, Diverse and Sustainable Forests in Cross-border Region of Ukraine and Slovakia HUSKROUA ENI CBC (huskroua-cbc.eu)

Project title	FIRERURISK - Developing a holistic, risk-wise strategy for European wildfire management
Commissioned by/ partners	Coordinated by Associacao para o desenvolvimento da aerodinamica industrial (Portugal), the Ukrainian side responsible is the Regional Eastern Europe Fire Monitoring Center, and Chornobyl Radiation and Ecological Biosphere Reserve.
Main goals	• Implemented within the HORIZON 2020. • Develop, assess, and promote a science-based integrated strategy to improve existing wildland fire risk assessment, create efficient methods to reduce fire risk and adapt management strategies for future climate and socioeconomic changes.
Related outputs	Organize demonstration events for capacity-building purposes.
Status	In progress until March 2025.
Scope (geographical and thematic)	Capacity-building in different European countries.
Source	Developing a holistic, risk-wise strategy for European wildfire management

Project title	Satellites for Wilderness Inspection and Forest Threat Tracking
Commissioned by/ partners	Coordinated by WILDSENSE (France)
Main goals	• From the Ukrainian side: Space Research Institute of the National Academy of Sciences of Ukraine and the National Space Agency of Ukraine. • Implemented within the HORIZON EUROPE. • Elaborate possible solutions that will provide a scientifically sound and technically feasible way to help monitor and manage forest risks as a monthly health monitoring service using Copernicus satellite imagery to detect and map the various risks to which forests and their managers are exposed.
Related outputs	Remote sensing tools to improve the system of forest risks monitoring.
Status	In progress until March 2025.
Scope (geographical and thematical)	Knowledge sharing and capacity building cross-regional.
Source	https://www.euspa.europa.eu/satellites-wilderness-inspection-and-forest-threat-tracking#tab-details

Project title	Conservation of highly valuable primeval and old-growth forests in selected national parks in the Ukrainian Carpathians
Commissioned by/ partners	Zoologische Gesellschaft Frankfurt von 1858 e.V (ZGF) funded by International Climate initiative (IKI)
Main goals	The project supports the expansion of five existing protected areas,
Related outputs	The five protected areas will be provided with modern equipment, training, and technical assistance such as developing modern biodiversity monitoring systems and management plans.
Status	In progress until 2025.
Scope (geographical and thematical)	Supporting nature protection administrations in the Carpathian region.
Source	Conservation of highly valuable primeval and old-growth forests in selected national parks in the Ukrainian Carpathians

Project title	Joint teaching and learning for empowerment and resilience of Ukrainian academia
Commissioned by/ partners	Eberswalde University for Sustainable Development and Ukrainian National Forestry University in Lviv. Project funded by the German Academic Exchange Service (DAAD).
Main goals	Support to the internationalization of Ukrainian universities: Shaping the Digital Future Together.
Related outputs	Expansion and use of innovative digital solutions in scientific research, teaching and management.
Status	In progress until December 2023.
Scope (geographical and thematical)	Education-related project cross-countries.
Source	Joint teaching and learning for empowerment and resilience of Ukrainian academia

Project title	USFS Water Quality BMPs in the Ukraine
Commissioned by/ partners	FORZA, under support of the USA Forest Service
Main goals	The project's main goal is to deliver technical and practical knowledge on the watershed condition classification and best management practices related to forest management to Ukrainian counterparts, namely researchers, forest inventory specialists, forest engineers, forest roads engineers, chief foresters and forest managers.
Related outputs	Improvement capacities in forest management planning.
Status	In progress until September 2023.
Scope (geographical and thematic)	Capacity building.
Source	USFS Water quality BMPs for Ukraine FORZA

Project title	Ukraine - EU4ENVIRONMENT
Commissioned by/ partners	World Bank, funded by European Commission
Main goals	The general objective of EU4Environment is to help the partner countries preserve their natural capital and increase people's environmental well-being by supporting environment-related action, demonstrating, and unlocking opportunities for greener growth, and setting mechanisms to manage environmental risks and impacts better. Result 4: Ecosystem services and livelihoods focus on forestry, and World Bank implements it.
Related outputs	Still under revision.
Status	Implementation of forest-related issues still under revision.
Scope (geographical and thematic)	Still under revision.
Source	EU4Environment Country Profile 2021-2022 -

Project title	Cooperation in forest research between Federal Institute for Forests, Snow and Landscape Research (WSL) and Ukraine
Commissioned by/ partners	Financially supported by the Swiss State Secretariat for Education, Research, Innovation (SBFI). Partner: Federal Institute for Forests, Snow and Land (WSL).
Main goals	Build on existing cooperation between Swiss and Ukrainian forest researchers. It focuses on primeval forest research, focusing on the Uholka-Shyrokyi Luh beech forest (Carpathians), and includes research on the sustainable use of resources in the energy wood sector.
Related outputs	Improving the system of protection.
Status	In progress until 2024.
Scope (geographical and thematic)	Supporting nature protection administrations in the Ukrainian Carpathians.
Source	Kooperation in der Waldforschung zwischen der WSL und der Ukraine - WSL

Project title	Support of Nature Protected Areas in Ukraine
Commissioned by/ partners	KFW development bank on behalf of the German Federal Ministry for Economic Development and Cooperation (BMZ).
Main goals	Invest in the elaboration of planning documents (e.g., management plans), infrastructure (e.g., administration buildings), equipment (e.g., cars, uniforms, computers, communications), and training of personnel primarily in already existing protection.
Related outputs	Provision of modern equipment, training, and technical assistance.
Status	In progress until 05.2025.
Scope (geographical and thematical)	Supporting nature protection administrations in the Ukrainian Carpathians.
Source	http://snpa.in.ua/en/

Project title	Old-growth and High Conservation Value Forests in the Carpathian Mountains
Commissioned by/ partners	WWF Ukraine
Main goals	WWF-Ukraine initiated the establishment of 68 natural forest monuments to ensure the protection of the oldest Ukrainian Carpathian forests.
Related outputs	Support the establishment of nature protection areas.
Status	Ongoing.
Scope (geographical and thematical)	Support nature conservation in the Carpathian region.
Source	WWF - Ukraine (wwf.org.uk)

Annex 4

Short description of related in-kind contributions and proposals to support forestry in Ukraine

Part 1: in-kind contributions

The tables below show the list of ongoing in-kind contributions in Ukraine by FOREST EUROPE signatories, observers, and other international organizations aiming to support the recovery of the forest sector and Ukrainian forests in the medium and long term.

Note: the list is based on direct exchanges with the parties and/or information available online.

Commissioned by/ parties involved	The Austrian Federal Ministry of Agriculture, Forestry, Regions and Water Management
Main goals	Training 6 Ukrainian experts on forest road construction.
Status	The first training was conducted in November 2022, and the second is scheduled for summer 2023.

Commissioned by/ parties involved	Food and Agriculture Organization (FAO)
Main goals	• Assessment of the war consequences on forestry, • Preparing Forest Strategy to support the recovery process in Ukraine, • Planned a fundraising campaign.
Status	In progress.

Commissioned by/ parties involved	Carpathian Convention Secretariat
Main goals	• Adoption of the Ministerial Declaration of the Carpathian Convention on the impact of war in Ukraine on the environment and the need for cooperation and assistance. • The Carpathian Convention Secretariat prepared a draft plan to support Ukraine's needs which needs to be further implemented by the competent authorities. The Working Group on Sustainable Forest Management is also involved in explore further possibilities for supporting the Ukrainian experts and scientists.
Status	In progress.

Commissioned by/ parties involved	European Forest Institute (EFI)
Main goals	Offer grants to develop capacities of Ukrainian researchers in the field of forest monitoring and explore the suitability and robustness of different monitoring procedures in the context of Ukraine.
Status	In progress.

Commissioned by/ parties involved	Bern University of Applied Sciences
Main goals	• Digitalization in forestry for improved decision-making (for policy use) and fostering close-to-nature-forestry (to use by practitioners), • Mobility program for Ukrainian researchers (January-February 2023), • The study program "Rebuilding Ukraine" for Ukraine citizens living in Switzerland, it aims to improve housing and circular economy principles.
Status	In progress.

Commissioned by/ parties involved	European State Forest Organisation (EUSTAFOR)
Main goals	Granted an EUSTAFOR observer status for 2 years.
Status	Documents signed, in progress.

Commissioned by/ parties involved	European Forest Genetic Resources Programme (EUFORGEN)
Main goals	Granted full status within the EUFOREGEN current and next face.
Status	Documents signed, in progress.

Commissioned by/ parties involved	Forest Stewardship Council (FSC)
Main goals	Preservation of FSC certification outside military conflict zones, as well as developing and implementing of additional tools to reduce the risks of non-compliance with the requirements of the FSC standard in Ukraine.
Status	In progress.

Commissioned by/ parties involved	Polish State Forest
Main goals	Equipment necessary for forest restoration especially for soil preparation and seedlings production was successfully transferred.
Status	Finalised.

Commissioned by/ parties involved	Civil Protection Mafra region, Portugal
Main goals	Forest fire prevention training for Ukrainian experts (15 people in Lviv region, Ukraine).
Status	Finalised.

Commissioned by/ parties involved	Global Forest Monitoring Centre (GFMC)
Main goals	- Capacity building and firefighting training for Ukrainian experts, - Fundraising, - Preparation of special session "Managing Safety and Resilience of Forests and Forestry affected by Armed Conflicts and the Climate Crisis: Past and Future Contribution of Forest Science" at the World IUFRO Congress in Stockholm in 2024.
Status	In progress.

Commissioned by/ parties involved	NGO "Greening of Ukraine" and Association of Ukrainian in Luxemburg
Main goals	Firefighting equipment (e.g., 100 firefighting cars in 2-3 years, 20 for forestry).
Status	Ongoing.

Commissioned by/ parties involved	International Union of Forest Organization (IUFRO) and International Institute for Applied Systems Analysis (IAASA)
Main goals	An international conference will take place in November. Key scientists, main stakeholders from national/international organizations and NGOs will be invited to discuss the best ways forward to support the forest research sector and education in Ukraine.
Status	In progress.

Commissioned by/ parties involved	Lithuania
Main goals	• 5 firefighting cars and 300 sets of firefighting clothing, • Support with equipment for Ukrainian firefighting nature protection administrations, • Consultations for Ukrainian authorities about reforming forest institutional structure improving, • Other types of support are under consideration.
Status	Equipment has been delivered in 2023, finalised.

Commissioned by/ parties involved	Finland
Main goals	Webinars with Finnish experts. Suggested themes now are: • Current National Forest Inventory Scheme in Finland, • Satellite imaginary-based forest use declaration enforcement/identifying undeclared loggings (FFC, VTT).
Status	Planned in 2023.

Commissioned by/ parties involved	Estonia, city of Raplamaa
Main goals	Firefighting equipment (two fully equipped fire trucks)
Status	Finalised.

Commissioned by/ parties involved	Programme for Endorsement of Forest Certification (PEFC)
Main goals	Providing free training about certification, and financial support (by PEFC Germany) to forestry enterprises Sumy, Chernihiv, Kyiv and US State Project FM Production Unit.
Status	Finalised.

Commissioned by/ parties involved	Corpo Nazionale dei Vigili del Fuoco (Italian firefighters)
Main goals	Provides 45 firefighting vehicles to the Ukraine colleagues. The number of vehicles for forests not available.
Status	Finalised.

Commissioned by/ parties involved	Czech Republic
Main goals	• Fundraising campaign aiming to restore the Ukrainian Forest Management Planning Association. • The funds (50 thou Euro) are spent on equipment for forest management planning for the related Ukrainian institute.
Status	Finalised.

Part 2: project proposals prepared in 2023

The tables below show the list of project proposals aiming to support the Ukraine forest sectors and forests by FOREST EUROPE signatories, observers, and other international organizations.

Note: the list is based on direct exchanges with the parties and/or available online information.

Commissioned by/ parties involved	Estonia, Tartu University
Title	Implementation of remote sensing and communication support into Ukrainian forest and water monitoring systems.
Main goals	• Crowdsourcing solution for smartphones, • Implement airborne laser scanning methods for forest carbon inventories as useful components for Ukraine's integrated environmental monitoring system.
Donor	The Environmental Investment Centre (EIC), Estonian Ministry of the Environment.
Thematic focus	Capacity building - improving forest management planning.
Status	Submitted.

Commissioned by/ parties involved	Executive Forest Agency, Bulgaria
Title	ForestConnect-Towards a Climate-smart Forest Connectivity for Large Carnivores in the Balkan-Carpathian Region.
Main goals	• Secure climate-resilient forest corridors for large carnivores to move across borders in the Balkan-Carpathian region through dynamic conservation planning tools for transnational monitoring of the species in response to climate change, • Engage stakeholders in piloting climate adaptation measures reducing the human-wildlife conflicts and building the capacity of nature, and management professionals to apply forest management practices facilitating large carnivores range shifts.
Donor	EU Interreg Danube Region Programme 2021-2027.
Thematic focus	Nature protection.
Status	Submitted.

Commissioned by/ parties involved	Bern University of Applied Sciences
Title	TBD
Main goals	Better management of the natural resources and their adaptation to climate change at landscape level.
Donor	Solution-oriented research for the development SOR4D programme.
Thematic focus	Risk management.
Status	In the process of preparation.

Commissioned by/ parties involved	IFER and the Forest Management Institute, Czech Republic
Title	TBD
Main goals	• Further adapting and using field maps in forest management planning. • Using satellite images for assessing forests in contaminated areas.
Donor	Ministry of Foreign Affairs, Czech Republic.
Thematic focus	Improving forest management planning.
Status	Approved.

Commissioned by/ parties involved	Swedish Forest Agency (lead partner)
Title	DigiFor, Digitalization and Benefit to our forests
Main goals	Networking and experience exchange in digital solutions in forest management.
Donor	Baltic Sea Neighborhood Programme.
Thematic focus	Capacity building.
Status	Approved.

Annex 5

Take-home messages by FOREST EUROPE Secretariat after the capacity-building and knowledge exchange workshop on “Ukraine forest fires prevention in times of war”

The FOREST EUROPE capacity-building workshop on “Ukraine forest fires prevention in times of war” on March 1st was successful with 100 guests online during the entire event. This workshop was organised by the Liaison Unit Bonn in the framework of the [Ministerial decision to support the Ukrainian forest sector](#).

Renowned experts in the field of fire management from different pan-European countries shared their experiences in dealing with landscape fires on contaminated by UXO terrains, and the Ukrainian experts presented their needs and challenges in times of war, also amplified by climate change. The Ukrainian authorities mentioned the following issues in the upcoming fire seasons as:

- Large areas of forests contaminated by UXO with a high level of risk and danger for forest workers and civilians
- 80% of the fire suppression equipment is at least 30 years old and requires updating and replacement of damaged and destroyed ones due to military activities
- Strengthening of capacity building (i.e. basic fire management trainings (for 6000 employee) and Incident Commanders training) and long-term planning
- Lack of resources and equipment such as 2 thousand sets of firefighting clothes are still needed

The intensive discussion led to the following key recommendation about how to prevent forest fires in season 2023:

- **Agree on a “common” definition** of landscape fires as an umbrella for unwanted fires in natural landscapes (forest fires, fires in protected areas, grass fires on abandoned lands) and in cultural landscapes (fires on agricultural lands), and prescribe burning as controlled planned fires applicable in Ukraine and beyond as starting point for further collaboration and exchanges
- **Improve coordination** among different agencies in the country to enable a multidisciplinary approach (e.g. integrated landscape fire management), better access to equipment and methodology also in other sectors, and combined intelligence is necessary
- **Improve knowledge exchange** among different national and international actors, building on the existing knowledge produced (i.e. Regional Eastern European Fire Monitoring Center (REEFMC) in Kyiv in continuing cooperation with the Global Fire Monitoring Center – GFMC and beyond). Creating a dedicated scholarship program could be a possibility.
- Take into consideration for developing **prevention measures** during the 2023 seasons the following elements:
 - » Rely on solid and complete meteorological data and risk assessments with clear data transfer (e.g. maps)
 - » Consider the landscape approach (e.g. agricultural land prone to wildfire), and further develop and implement an Integrated National Landscape Fires Preparedness Plan
 - » Ensure good forest roads networks (i.e. able to enter with heavy machinery) and to fight fires from a safe place
 - » Create safe prescribe burning and backfire protocols approved officially based on meteorological, geographical conditions, distances from the upcoming fire, the existence of evacuation possibility in case of need) and implement them into curriculum of the National Firefighters Training Center and others
 - » Formulate principles and criteria for establishing fuel breaks as a tool of better control of large fires (corresponding to clean areas), through prescribed burning for example
 - » Formulate scientifically proven methodology of increasing resilience of landscapes via application of silvicultural measures to increase share of hardwoods in pure pine stands and forests edges bordering with fire prone agricultural lands and settlements
 - » Improve a complete comprehensive national system of fire detection and beyond on fire prone landscape via installation of surveillance cameras for detecting fires on early stage (10 minutes) and detect illegal logging, for instance, supported by forest maps and routing services, and trained personnel
 - » Increase interagency preparedness for fires of level of complex incidents (level of emergency by State emergency services of Ukraine (SESU))

- **In contaminated areas by UXO** the following additional actions would be required:
 - » Developing maps of UXO contaminated terrains based on available information from no-technical survey teams of SESU, FSD and others and making them available to all interested parties (e.g. local population, agencies, local authorities) via modern web-technologies, booklets and risk awareness seminars
 - » Early detection of fires on UXO contaminated terrains via drone reconnaissance in cooperation with territorial defence units or via patrolling of safe hard roads along the borders of the contaminated zones
 - » Develop regulation for forestry to use of safe distance in the case when a fire occurs, and rely on hard roads (see point above)
 - » Ensure the protection of houses and the safety of rural citizens from large forest fires via reduction of fuel load inside and outside of settlements located near pine forests
 - » Consider the possibility to use airplanes to extinguish the wildfire, in combination with ground actions, and guarantee efficient use of resources available in case of permission of security and military authorities
 - » Use special robotic equipment to ensure backfires on borders with UXO contaminated zones
- it is recommended to set up **trainings** for firefighters focusing on
 - » Prevention in contaminated areas
 - » Suppression in contaminated areas
 - » Learning how to act in and outside UXO areas
 - » Incident commander (IC) training in the short term, and in the long-term (i.e. 3-5 years) adaptation system like Incident Command System for Ukraine

Notes: State emergency services of Ukraine (SESU) currently perform firefighting in Ukrainian cities, meanwhile, in forests the forest service is responsible for prevention, initial attack and leading fire suppression operations. During the workshop hints for support were made by Portugal, Italy, DOK-ING (private company), Croatia and BWI which will be subject for additional coordination as a follow up by LUBo and exchanges between the potential donor and the respective Ukrainian authorities.

Recommendations with recording material, presentations and background information will be distributed among participants and presented to the next FOREST EUROPE network meeting on 23rd March 2023 (see session below). The role of LUBo in this context is to facilitate the support work and to bring potential donors and relevant Ukrainian authorities into contact.

Additional learning material:

- [Presentations in English](#) and [Presentations in Ukrainian](#)
- [Decree-Law No. 82/2021 establishing the Integrated Management System for Rural Fires in continental territory and defining its operating rules. | UNEP Law and Environment Assistance Platform \(by Carlos Trindade\)](#)
- Website of GFMC, supported by REEFMC / Kyiv, on fire management on contaminated terrain: https://gfmc.online/globalnetworks/SEEurope/SEEurope_1_radio.html
- Website on fire management on UXO terrain in Germany: <https://gfmc.online/programmes/natcon/gfmc-fire-management-uxo-terrain-2006-2014.html>
- Publication on use of prescribed fire on UXO terrain: <https://gfmc.online/wp-content/uploads/GFMC-Publication-RX-Burning-UXO-Terrain-2016.pdf>
- Guidelines: <https://gfmc.online/globalnetworks/seeurope/OSCE-GFMC-Report-Fire-Management-Contaminated-Terrain-2014-ENG.pdf>
- Training examples of REEFMC and GFMC, specific case 2019: <https://gfmc.online/globalnetworks/balticregion/ukrainefiremanagementweek2019.html>
- Website with prescribed burning training in forestry in Ukraine: <https://gfmc.online/globalnetworks/balticregion/UkraineFireManagementWeek2015.html>
- GFMC OPERATIONS: Detailed scientific-technical evaluation of prescribe burning in Ukraine: <https://gfmc.online/intro/2015/update-1010/REEFMC-Fire-Experiment-Boyarka-Ukraine-2014.pdf>
- RESILPINE project web page: <https://gfmc.online/programmes/natcon/gfmc-ukraine-resilpine-2021.html>
- Here is GFMC toolbox for integrated fire management: <https://gfmc.online/iwpm/tools-3.html> mirrored by UN (UNEP/OCHA): <https://www.eecentre.org/?s=GFMC>

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- 39 Order of the Cabinet of Ministers of Ukraine dated 04.02.2023 N105 “On conducting fellings and using obtained timber in cases related to deforestation or establishing an easement for the purpose not related to forestry management”, available at: <https://www.kmu.gov.ua/npas/pro-zatverdzhennia-poriadku-vyrubuvannia-derev-i-a105>

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- 45 Recommendations on using Field-Map technologies, available at: <https://www.ifer.cz/download/TechInLes.pdf>
- 46 Representativeness assessment of the protected areas network in Ukraine (botanical view) - Scientific Figure on ResearchGate. Available from: https://www.researchgate.net/figure/High-level-protected-areas-on-the-map-of-geobotanical-zoning-of-Ukraine_fig1_310625427
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- 48 IUCN Global Standard for Nature-based Solutions available at: <https://portals.iucn.org/library/sites/library/files/documents/2020-020-En.pdf>
- 49 The London-based Centre for Economic Policy Research (CEPR) offered A Blueprint for the Reconstruction of UkraineA Blueprint for the Reconstruction of Ukraine, also in April, . In August, CEPR issued Macroeconomic Policies for Wartime Ukraine, which outlined policies to put the Ukrainian economy on a sustainable trajectory for the duration of the war.
- 50 The European Commission in May issued its RebuildUkraine Jointly with the World Bank, it later estimated costs of reconstruction, as of June 1, at \$349 billion and rising.

ENDNOTES

- 1 Field data was collected in each region using the same indicators to develop a forest management plan
in a centralised system. The Forest Management Planning Institute that unified the data using a specific
software and shared the data internationally/nationally.
- 2 [https://forest.gov.ua/storage/app/
sites/8/%D0%BF%D1%83%D0%B1%D0%BB%D1%96%D1%87%D0%BD%D1%96%20
%D0%B7%D0%B2%D1%96%D1%82%D0%B8/publichniy-zvit-za-2021.pdf](https://forest.gov.ua/storage/app/sites/8/%D0%BF%D1%83%D0%B1%D0%BB%D1%96%D1%87%D0%BD%D1%96%20%D0%B7%D0%B2%D1%96%D1%82%D0%B8/publichniy-zvit-za-2021.pdf)
- 3 Article 56 of the Land Code of Ukraine <https://zakon.rada.gov.ua/laws/show/2768-14#Text>; Article 7 of Forest
Code of Ukraine (<https://zakon.rada.gov.ua/laws/show/3852-12#Text>)
- 4 More information is available in state register here [https://info.edbo.gov.ua/
http://kadrlis.com.ua](https://info.edbo.gov.ua/http://kadrlis.com.ua)
- 5 <https://zakon.rada.gov.ua/laws/show/1777-2021-%D1%80#Text>
- 6 http://w1.c1.rada.gov.ua/pls/zweb2/webproc4_2?id=&pf3516=4197-%D0%B4&skl=10
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sites/8/%D0%BF%D1%83%D0%B1%D0%BB%D1%96%D1%87%D0%BD%D1%96%20
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- 8 Telegram bot available here https://t.me/ukrforest_bot
- 9 Presidential Order 228/2021 available at <https://www.president.gov.ua/documents/2282021-39089>
- 10 In accordance with Article 3 of the Law of Ukraine on Nature Reserve Fund (NRF). The NRF includes:
- 11 1) natural territories and objects – including: nature reserves, biosphere reserves, national nature
parks, regional landscape parks, protected landscapes, monuments of nature, protected tracts.
2) artificially created objects – including botanical gardens, dendrological parks, zoological parks, natural
monuments, parks-monuments of horticultural art (available at: [https://zakon.rada.gov.ua/laws/show/2456-
12#Text](https://zakon.rada.gov.ua/laws/show/2456-12#Text)).
- 12 A Ramsar site is a wetland site designated to be of international importance under the Ramsar Convention
- 13 https://rsis.ramsar.org/ris-search/?solrsort=ramсарid%20asc&f%5B0%5D=regionCountry_en_ss%3AUkraine
- 14 The Emerald network is a network of areas of special conservation interest, which is to be established
according to requirements of the Bern Convention. At the moment the national law which determines the
normative as basis for the definition and protection of the Emerald network sites is under consideration by
the Parliament.
- 15 Data from cadaster map of Ukraine [https://uncg.org.ua/smarahdova-merezha-na-publichniy-kadastrovij-
karti/https://map.land.gov.ua/](https://uncg.org.ua/smarahdova-merezha-na-publichniy-kadastrovij-karti/https://map.land.gov.ua/)).
- 16 Relevant national decrees available here: <https://www.president.gov.ua/documents/42022-41113>; <https://www.president.gov.ua/documents/32022-41117>; <https://www.president.gov.ua/documents/22022-41109>;
<https://www.president.gov.ua/documents/52022-41129>; [https://www.president.gov.ua/
documents/62022-41121](https://www.president.gov.ua/documents/62022-41121).
- 17 The total area includes: protected areas with national significance (541.7 thousand ha) and protected areas
with regional significance (758.7 thousand ha).
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- 20 More details available in the Article 1 of the Forest Code of Ukraine ([https://zakon.rada.gov.ua/laws/
show/3852-12#Text](https://zakon.rada.gov.ua/laws/show/3852-12#Text)).
- 21 Please check Article 39 prim of the Forest Code of Ukraine for more information ([https://zakon.rada.gov.ua/
laws/show/3852-12#Text](https://zakon.rada.gov.ua/laws/show/3852-12#Text))
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COP/2014_COP4_Mikulov/Follow%20Up/DOC13_Criteria_Indicators_virginforests_FINAL_26SEP.pdf](http://www.carpathianconvention.org/tl_files/carpathiancon/Downloads/O3%20Meetings%20and%20Events/COP/2014_COP4_Mikulov/Follow%20Up/DOC13_Criteria_Indicators_virginforests_FINAL_26SEP.pdf)
- 23 <https://zakon.rada.gov.ua/laws/show/2063-19#n47>
- 24 <https://zakon.rada.gov.ua/laws/show/z0707-18#Text>
- 25 Data of the Ministry of Environment Protection and Natural Resources of Ukraine
- 26 <http://www.carpathianconvention.org/>
- 27 [https://eco.rayon.in.ua/news/605113-pidriv-kakhovskoi-ges-mayzhe-55-tisyach-gektariv-lisiv-mozhe-buti-
zatopleno-vodoyu-na-khersonshchini](https://eco.rayon.in.ua/news/605113-pidriv-kakhovskoi-ges-mayzhe-55-tisyach-gektariv-lisiv-mozhe-buti-zatopleno-vodoyu-na-khersonshchini)
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 formation of the National Body on mine actions”, “On the approval of the Rules for marking hazards
 related to mines and explosive objects - consequences of war” and others
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 Register of waste declarations
 Register of objects that have a harmful effect
 Register of issued certificates on the values of background concentrations
 The single state register of environmental impact assessment
 List of pesticides and agrochemicals approved for use
 Register of issued licenses for conducting economic activities for the management of hazardous waste
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 constraction and buildings in forests, boiler rooms, garages etc.
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 PEFC-Ukraine in 2023
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 Donetsk region and Crimea is not available.
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