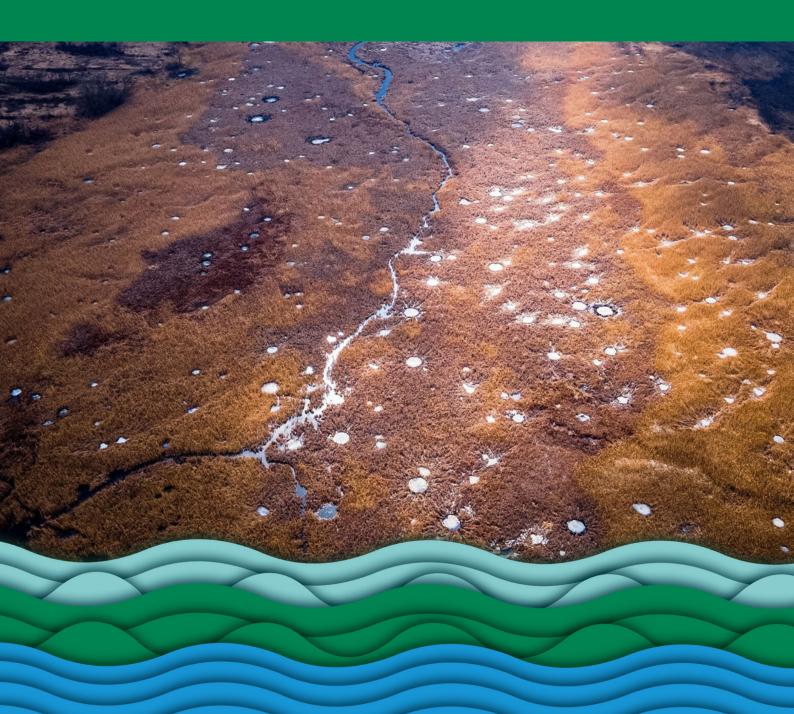


The environment is a silent victim of the war in Ukraine without effective legal protection mechanisms

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During 9 years of the russian federation's war in Ukraine, the war brought not only direct threats to lives and health of Ukrainian citizens caused by explosions, destruction, shelling, detonation of mines and other types of hostile actions. As a result of military actions, there is destruction of industrial facilities - oil depots, plants, factories, warehouses, mines, infrastructure facilities - water pipelines, gas pipelines, water purification stations, water supply stations, the destruction of numerous buildings, which is accompanied by powerful fires, emissions of dangerous substances into the atmosphere, spills of fuel and lubricants, entry of untreated sewage into rivers, which leads to pollution of water, atmosphere, soil, and has become and will become the cause of numerous diseases and poisonings, as well as penetration of carcinogenic elements into human body.

Numerous missiles, bombs, projectiles of various types, mines and bullets also pose a threat to natural ecosystems. These objects carry not only a direct mortal threat, but also cause chemical pollution of the environment. Environmentalists and public interest environmental lawyers in Ukraine faced the problem of determining the composition of explosive mixtures that pollute the environment during projectile explosions, producing various explosive gases, as well as contaminating the soil with various elements. Thousands of shell craters on the territory of Ukraine are a potential site of environmental contamination with heavy metals and other hazardous substances. Also, a very toxic substance is rocket fuel, which enters the environment if a missile falls without explosion. In this case, the rocket's fuel tank breaks, and its contents spill onto the ground. Phosphorus ammunition is also particularly dangerous because it contains white phosphorous, an extremely toxic substance.

According to the State Emergency Service of Ukraine, 30% of the territory of Ukraine is contaminated with explosive objects and needs demining measures. This is 176 thousand square kilometers. For comparison, the area of Poland is 322,575 square kilometers. Explosive objects are unexploded shells, various types of mines, bombs and others. They pose a deadly threat to soldiers, civilians, and domestic and wild animals. Unfortunately, numerous cases of detonation of such objects have been recorded in Ukraine. In order to clear all areas, including roads, settlements, agricultural lands, forests, steppe areas, demining work will take decades.

According to the experts, currently the following areas are in the war zone or under the temporary occupation of russian troops:

- 16 Ramsar sites with an area of almost 0,6 million hectares, or 81.6 % of all Ramsar sites in Ukraine:
- 160 territories of the Emerald Network with an area of 2.9 million hectares, or 35.8 % of all Emerald Network in Ukraine;
- \bullet 900 protected areas of national or local importance with an area of 1.24 million hectares, or 29.7 %.

The massive use of artillery and aviation in the battlegrounds leads to numerous fires and damage to vegetation. However, the animal world is under even greater threat, because in addition to fires, they are also threatened by poaching by the military, noise of military transport and battles. Small animals (insects, etc.), which are in anabiosis during this period, burn together with vegetation. These impacts look especially dangerous now in view of the beginning of the spring migration of birds. Many species

will fly to nest on the Azov-Black Sea coast, where hostilities continue and will not be able to give birth to a new generation due to the disturbance factor. Another part of the birds will return to their nesting places in Polissia, where not only hostilities continue, but also forest fires of incredible strength. And finally, millions of birds of various species will have to fly through Ukraine in transit and return to their nesting places in Northern Europe. But whether they will be able to fly over the zone of hostilities and fires is difficult to predict at this time. Thus, for many species of birds, hostilities can cause a global reduction in numbers at the level of whole Europe. This also applies to globally endangered species.

In occupied nature reserves and national parks, where a significant number of animals are kept (such as the Biosphere Reserve "Askania-Nova"), as well as in zoos, there is a real threat of mass death of these animals due to problems with the purchase and delivery of feed, as well as with veterinary care.

Construction of fortifications, explosions of ammunition and passage of tanks within nature conservation areas also leads to destruction of natural ecosystems.

Spills of fuel and lubricants from damaged machinery pose a lasting threat to biodiversity. This also applies to rivers and seas, where downed planes, helicopters, and sinking warships also fall.

The war caused significant damage to Ukrainian forests, in particular to forest biodiversity. The main factors of negative impact on forest ecosystems, which were caused by military actions, include: destruction of natural habitats in a large area due to explosions of various artillery and aviation ammunition, death of a large number of animals, loss of breeding places and traditional migration routes due to severe stress caused by constant explosions, poisoning of forest soils and water bodies with toxic substances from the remains of ammunition, explosives, destroyed equipment and rocket fuel. However, the greatest damage to Ukrainian forests was caused by a significant increase in the area of forest fires, which reached a record level last year. According to Serhiy Zibtsev, director of the Regional East European Fire Monitoring Center, based on the analysis of space imagery it was determined that in 2022 in Ukraine at least 330 thousand hectares of forests were affected by fires (https://bit.ly/3llmoqY). At the same time, due to the contamination of a large area of forests with explosive objects, large-scale fires may continue this year and in the following years, even in liberated territories because rescuers and forest guards cannot ensure effective fire extinguishing actions due to the risks caused by mines. Therefore, the above number is far from the final area of fires that were caused by russia's full-scale war against Ukraine.

It will take at least several decades to restore the environment. In order to restore it, it is vital to perform careful monitoring, to bring to justice those responsible for its destruction, and to receive full compensation for its restoration.

Legal dimension of the war in Ukraine also creates many issues regarding documenting war-driven environmental crimes and bringing the aggressor to responsibility for these crimes.

Russian aggression demonstrates that international humanitarian law is not effective. Detailed analyses of international conventions and treaties show that most of them are not applicable to relations arising during war. Therefore, many issues related to the environment are not regulated by international law in the conditions of war. Unfortunately, we are now talking about the complete inability of international law to respond to russian aggression, absence of mechanisms of bringing the aggressor to justice and making it compensate for environmental damage.

Therefore, it is time to develop mechanisms to bring russia to justice and improve existing international law. Only responsible decisions and changes in international law can prevent the same wars in the future.

When speaking about environmental consequences of the war, the term of ecocide is extremely important. The Rome Statute should be supplemented with the crime of ecocide. The corresponding article must contain a definition of the concept of ecocide. Every person who has committed ecocide must be brought before an international tribunal, regardless of whether it happened in wartime or in peacetime. However, international consensus is needed to adopt these changes.

We must understand that the damage caused to the environment is huge and must be compensated for. However, such compensation must correspond to the extent of the damage. Putin's regime must be punished for all crimes committed in Ukraine. We are talking, among other things, about the responsibility of putin's regime for ecocide in Ukraine. Ukraine expects from its international partners an appropriate reaction to such barbaric crimes of Russia that violates all possible requirements and principles of international law, so the civilized world must defend itself, including in the legal field.