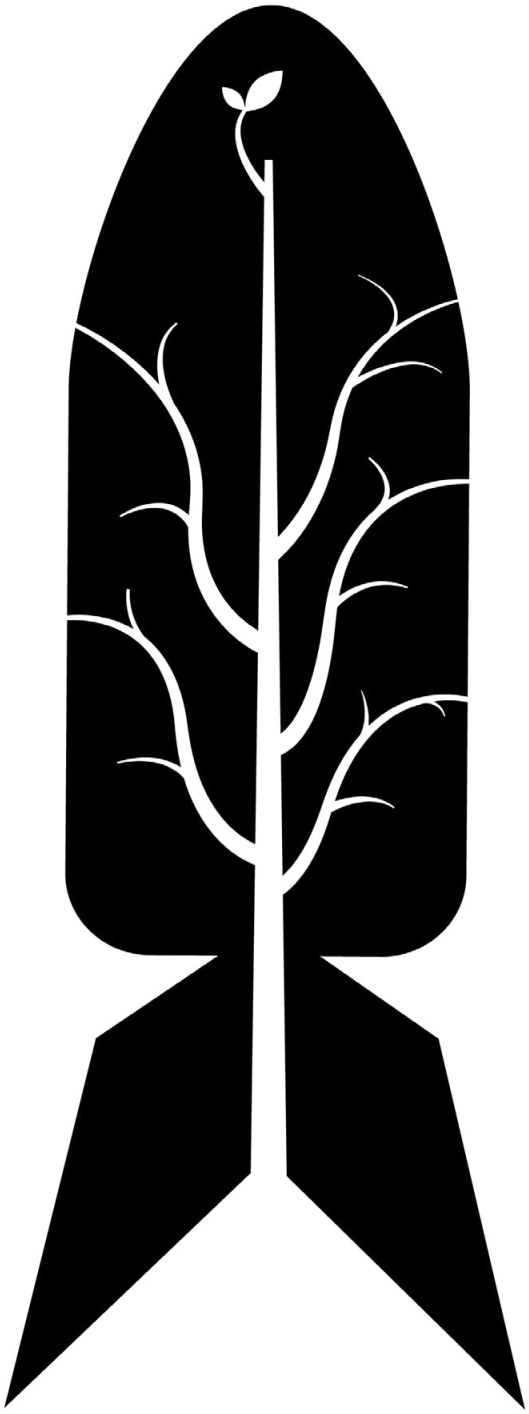


UWEC

Ukraine War Environmental Consequences Work Group

Issue #29

July 2025, UWEC work group

Dear Friends!

Excluding combat, military operations around the world today account for 5.5% of global emissions. As Nina Lakhani wrote in an article published in the Guardian, if the world's militaries were a separate country, their total carbon footprint would exceed Russia's total emissions. Calculating the total emissions caused by wars and armed conflicts is currently impossible. After all, this not only includes combat operations, but infrastructure restoration. At the same time, new sources of pollution are constantly appearing, such as the fiber optics used by FPV drones. Read more about this and much more in our review:

- **Environmental consequences of the war in Ukraine: May – June 2025 review**

Armed conflicts also have indirect consequences. One of the most high-profile this year was the Decemvber 2024 fuel oil spill in the Black Sea when river fuel tankers servicing a Russian "shadow fleet" vessel sank. The UWEC Work Group previously analyzed in detail both the environmental consequences of the disaster and its causes. A new study by UWEC experts explores the international response. Ukrainian lands were significantly polluted due to the accident, in both occupied and free areas. Ukraine's representatives have demanded that the Russian government be held accountable and punished, but the reaction of international organizations has been underwhelming. At the same time, the spill's instigator has received international support to eliminate the consequences of the disaster.

- **International reaction to the Kerch Strait oil spill**

Another example of pollution not directly related to military action is the improper closure of coal mines in the Donbas region, most of which is occupied by Russian troops. Water fills the mines, not only causing heavy metal pollution, but also severe drought in the Donetsk region. Contributor Inha Pavliy investigates how the Ukrainian coal industry has been affected by the war and the consequences for the environment.

- **Black legacy: How war is turning Ukraine's coal mines into time bombs**

Evidence that the occupied territories are facing an ecological catastrophe appears almost every day. For example, this summer the Black Sea Biosphere Reserve burned, with a devastating fire in Yahorlytsky Kut, a unique steppe ecosystem home to rare steppe bird species.

Founded in 1927, the reserve is a combination of high conservation value steppe, wetlands, forests, water areas and islands. It was one of the first in the Soviet Union to be included in the international UNESCO network of biosphere reserves in 1979. Russian forces occupied the reserve in the first months of its full-scale invasion. The largest fire there to date occurred recently, a few days after the Russian Federation announced the creation of the Federal State Budgetary Institution Black Sea Reserve, a "Russian" analogue of the Ukrainian nature reserve.

- **Biosphere reserve burns at the start of the occupation administration's work**

Despite the many challenges (including environmental ones) in "controlled" territories, Russia continues its international demarche. On July 22, Russia's State Duma (representative body of the Russian government) denounced the Ramsar Convention on Wetlands. The Convention on Wetlands was adopted in 1971 in Ramsar, Iran to protect wetlands and the habitats of migratory waterfowl. The USSR ratified it in 1979. Withdrawal from the convention threatens 35 nature conservation areas covering an area of over 10 million hectares that were protected by this agreement. Expert Eugene Simonov studies the possible reasons for withdrawal and the consequences for the environment:

- **Russia exits Ramsar Convention on Wetlands**

War deals crushing blows to nature every day, and political crises only worsen the situation. The term "ecocide" is increasingly frequently mentioned in both the media and everyday conversation. What does ecocide mean for Ukrainians? Is it only a legal term or something more? It can also be a personal and collective experience that contemplates the destruction of native nature. UWEC Work Group reviewed Darya Tsymbalyuk's book "Ecocide in Ukraine: Ecological Price of War in Russia":

- **Review: Ecocide in Ukraine. The Environmental Cost of Russia's War**

Meanwhile, Ukraine continues planning the nation's "green recovery" when the war ends. On June 30, the Ministry of Environment and Natural Resources presented the first draft of a legislative bill "On the Fundamentals of the Green Recovery of Ukraine.Ukraine's green recovery: legislative step toward eco-integration in reconstructio".

- **Ukraine's green recovery: legislative step toward eco-integration in reconstruction**

Ukraine's "green recovery" will be a long journey. In addition to external factors, there are also internal ones, in particular, the government moved to restructure and effectively abolish the Ministry of Environment and Natural Resources in July. UWEC Work Group will be tracking these developments and how they may affect environmental problem-solving in both Ukraine and the larger region and what opportunities environmental organizations may identify. Find updates on our website and in social networks: Facebook, X (Twitter), Telegram, BlueSky.

Friends, we publish our research and materials at no cost in the public domain so that everyone can read about the environmental consequences of Russia's full-scale invasion of Ukraine. We also actively work with journalists and other media. The Guardian recently interviewed our experts in an article about the prospects for Velyky Luh's environmental

recovery following the Kakhovka dam's destruction. This allows us to disseminate information about the environmental consequences of war as widely as possible to a global audience, which is our mission.

We need your support to continue our high-quality publications. We invite you to make a one-time or recurring contribution to our work.
Support UWEC Work Group
We wish you strength, peace and good news!

Alexej Ovchinnikov, editor in chief, UWEC Work Group
We wish you strength and peace!
Alexei Ovchinnikov, editor of UWEC Work Group

Environmental consequences of the war in Ukraine: **May – June 2025 review**

Alexei Ovchinnikov

Each month, the UWEC editorial team shares highlights of recent media coverage and analysis of the Ukraine war's environmental consequences with our readers. As always, we welcome reader feedback, which you can leave by commenting on texts, writing to us (editor@uwecworkgroup.info) or contacting us via social networks.

Fiber optic drones: a new source of pollution

Russia's war in Ukraine has led to advances in military technologies, including drones. As with any technology aimed at destruction, advances in drone design have also led to new types of pollution. More and more videos and photos are appearing showing scenes that look like something from a science-fiction movie—fields or forests covered with a web of thin wires. This is the result of using drones guided by fiber optic cables.

Drones have become a key element of combat operations, not only performing reconnaissance tasks but also playing an active role in offensive actions. They can be used both on the frontline and deep in the rear, as Kyiv's recent operation to destroy Russian strategic bombers in the Irkutsk

region (Siberia) demonstrated so clearly. This all contributes to the development and modernization of this technology, making it deadlier and more effective—which also makes it more dangerous to the environment.

Meanwhile, methods are also being developed to combat drones, including electronic warfare (EW) systems. These work by jamming drones' communication with operators or disabling the devices. Of course, this pushes developers to look for new solutions, one of which is fiber-optic EW drones. These avoid signal suppression and are fairly effective on the frontline. The signal is transmitted via a fiber-optic cable, which unspools behind the drone as it flies, making it more difficult to suppress. However, this type of drone can have catastrophic environmental consequences in the form of a "web" of wires.

As the Conflict and Environmental Observatory (CEOBS) notes in an article, Russia was the first country to actively use fiber optic drones. Ukraine quickly adapted the technology to its needs and today about 10% of drones produced in the country use optic fibers to operate. These drones use one of two types of fiber: glass optical fiber (GOF) or polymer optical fiber (POF). Polymer is more suitable for frontline conditions, being less fragile, more flexible and not as heavy as GOF. As the name suggests, the lines are made of synthetic polymers; a single drone can carry up to 20 km of line in a reel. At this level of technological development, reusing these cables is unrealistic and is complicated, among other things, by military action. Inevitably, then, frontline areas are now being polluted on a large scale with plastic waste. Optical fiber ends up in the ground as a result of fires, the movement of equipment or other actions, leading to both soil and groundwater becoming seriously contaminated with microplastics. For now there are no detailed studies on the decomposition of fiber optic lines used in new-generation drones, but preliminary analysis shows that they can stay in the ground for up to 600 years.

Stretched optical fiber also poses a threat to plants, animals and birds, which can become fatally entangled in it. When lines get wrapped around the limbs or neck, they often result in death and strangling. There are no comprehensive studies on this issue yet, since these types of drones have appeared on the battlefield only recently, and the war remains in an active phase, making field research impossible.

There have also been documented cases of nature trying to adapt to this new pollutant. For example, Ukrainian soldiers from the 12th Azov Brigade of the National Guard of Ukraine found a nest made partially from optic fibers.

There are plans to increase production of fiber-based drones or first-person-view (FPV) drones (FPV) in both Russia

and Ukraine. Ukraine's parliament, the Verkhovna Rada, has adopted a law lifting taxes on the import of components for fiber-optic drones as a stimulus for production.

In view of the new threat to nature posed by military fiber optic pollution, UWEC experts have begun work on an article focusing on pollution as a result of the use of FPV drones. Keep an eye on our publications.

How can we protect the environment amid growing military conflicts?

There is a sense that humanity has entered a new phase of conflict, in which it is opposing its own interests. Whether in the form of hot wars or frozen conflicts, military confrontations are currently taking place all over the planet. At the same time, wars have an increasingly negative impact on the environment, which Russia's full-scale invasion of Ukraine has clearly shown. A way to end the war has yet to be found, but discussion of what is perhaps the key modern problem (climate change aside) facing global society continues.

On May 14-15, 2025, the Center for Earth Ethics (CEE) ran a webinar titled "The Environmental Costs of War," held in partnership with CEOBS, the Arava Institute for Environmental Studies, and the Diocese of San Diego.

The first day of the event featured a panel discussion with four participants: Doug Weir (director of CEOBS), Dr. Christina Bagaglio Slentz (director of Care for Creation at the Life, Peace and Justice office in the Diocese of San Diego), Dr. Olena Melnyk (a research associate at the Bern University of Applied Sciences) and Elaine Donderer (a project manager at Israel's Arava Institute).

On the second day, Weir was joined by Helen Obregón Gieseken, Legal Adviser to the International Committee of the Red Cross (ICRC) and Gilles Carbonnier, Academic Advisor to the Executive Course on Nature-Positive Economy, for an online discussion titled "Conflict and Nature: How to Protect the Environment?"

The meeting addressed the impact of armed conflict on the environment and the need for more effective law enforcement, data collection and multilateral governance in order to protect natural resources. The participants were unequivocal in their position that armed conflicts are inherently harmful to the environment, causing damage that is exacerbated by climate change and pollution crises. We are therefore facing a series of growing crises, and it is crucial to find solutions to them as soon as possible.

The environmental impacts of military conflicts and their consequences are an issue that is being increasingly recognized, especially in Ukraine. While legal frameworks for the protection of the environment in conflict situations exist (including international ones), their implementation remains insufficient. At the same time, there are liability mechanisms for damage caused to the environment during armed conflicts, based on international humanitarian law, which classifies such actions as war crimes.

Experts say that effective data collection and coordination are crucial for assessing environmental impacts in conflict zones, and multilateral governance involving international researchers and organizations can improve transparency and cooperation

in natural resource management, both during and after conflicts. At the same time, it is worth considering the mechanisms for solving the problem on a larger scale—this could include economic practices on top of environmental ones. Diversifying the economy will allow the country to recover more quickly after the war and thus find the necessary resources to restore the environment.

Events like this, with their high level of expertise, show that interest in the topic remains. However, it is still unclear what exactly international organizations can do to protect the environment from human military conflicts. For now, while we frequently hear recommendations and proposals, there are no specific mechanisms for action on the horizon.

Ukraine plans to sign high seas treaty that Russia refuses to join

Russia refuses to sign an international treaty on marine diversity, a decision that may well be related to its interest in resource extraction in the Arctic. The Agreement on Marine Biodiversity of Areas Beyond National Jurisdiction, or the High Seas Treaty aims to establish an international mechanism for environmental protection in marine areas that are not under state control. Such areas are now growing in size in the Arctic, and Russia is keen to exploit their resources, refusing to recognize them as de jure international waters.

According to Natalya Hozak, director of Greenpeace Ukraine, Kyiv should sign the agreement in order to have a legal mechanism of influence over Russia and prevent Moscow from profiting from the extraction of new natural resources. It also demonstrates Ukraine's interest in preserving the biodiversity of the world ocean, which is essentially the duty of any civilized society.

At the conference in Nice, Ukraine declared its support for the agreement. This was reported on social networks by Svitlana Hrynchuk, Ukraine's minister of the environment. Greenpeace Ukraine highlighted the importance of this decision. "*Even in the context of war and the fight for its own independence, Ukraine has demonstrated its commitment to European priorities and the global goals of sustainable development,*" said Natalya Hozak.

It remains to implement these intentions. The agreement is open for signing until September 20, and the Ukrainian government has declared its intention to ratify by that deadline.

At present, the agreement has already been signed by 139 countries and ratified by 50. 60 countries must ratify the agreement for the agreement to enter into force. Ukraine's voice in this matter is thus important. Readers can follow developments regarding the agreement's adoption at a tracking website.

The agreement is de jure an instrument for managing the protection and sensible

consumption of biodiversity in marine areas located outside national waters. Today, about 64% of the world's oceans fall into this category. However, as the Arctic and Antarctic icecaps melt, such areas are only going to increase in size.

This agreement is also being described as a new legal document to combat three planetary crises: climate change, the loss of biodiversity and environmental pollution. The protection of neutral waters will create a legal instrument that should help to reduce negative impacts on the world's oceans. After all, neutral waters, where national legal instruments have no force, are the most exposed and suffer from overexploitation. Illegal fishing can be carried out in these areas with relative impunity — according to the International Maritime Organization data, 26 million tons of fish are caught in these waters every year. International waters also suffer significantly from plastic pollution, as well as storms and hurricanes caused by climate change. In addition, they are vulnerable to being used for uncontrolled resource extraction, as we have noted in reference to the Arctic.

Russian missile attacks contribute to CO2 emissions and accelerate climate change

In an online speech to the OSCE Chairpersonship Conference on Climate and Security, held in Finland on June 11, Minister of Environment and Natural Resources of Ukraine Svitlana Hrynchuk drew attention to the environmental toll of Russia's continued bombardments of Ukraine. Hrynchuk cited data on the "climate footprint" of the recent missile and drone attacks on Ukraine.

Odesa was subjected to 10 days of missile attacks in early June, resulting in the emission of 344 tons of harmful substances, while the large-scale bombardment of Kyiv in the evening of June 9 produced 1,902 tons of emissions. In three years of war, total emissions indicators have already exceeded 230 million tons of CO2. Just one year of military action in Ukraine produces CO2 emissions equal to those of a country like Belgium. And this ignores emissions associated with the manufacture of military equipment, logistics and other indicators—without even taking military action itself into account.

More than 8,000 cases of negative impact on the environment have been recorded during the full-scale Russian invasion, with the cost of the damage running at an estimated $94 billion. With every day the invasion goes on, the world is further delayed from achieving climate neutrality calling the green future of both Europe and the world as a whole into question.

Concluding her speech, Svitlana Hrynchuk warned that Ukraine cannot afford to wait for the end of hostilities to begin the task of environmental restoration. *"The world is changing rapidly, but there is an*

urgent need for unity around environmental issues. Only together can we achieve our sustainable green future," she said.

As the environmental NGO Covering Climate Now reports in its newsletter, recent studies show that military operations, including troop transportation, weapons testing, and the maintenance of military bases—of which the US alone has over 700 around the world—are one of the key sources of greenhouse gas emissions globally.

Excluding combat, military operations account for 5.5% of the world's annual CO2 emissions. *"If the world's militaries were a country, this figure would represent the fourth largest national carbon footprint in the world – higher than Russia,"* writes Nina Lakhani in The Guardian.

These figures are now being supplemented by the growing volumes of greenhouse gas emissions caused by fighting. A 2023 study found that the annual carbon footprint of Russia's full-scale invasion of Ukraine amounted to 230 million tons, just under Spain's annual emissions total of 270 million. And 15 months of Israeli military action in Gaza, as another study shows, have exceeded the combined emissions of 36 countries. Rebuilding destroyed homes in Gaza and Lebanon would produce emissions exceeding those of a country like Croatia. It is abundantly clear that wars are exacerbating the climate crisis. But by carrying out thorough analysis and publishing information, we can play an important part in bringing an end to wars, redistributing resources and beginning the path toward green recovery. If you are able, please do what you can to support the UWEC Work Group so that we can continue our work. •

Translated by Alastair Gill

International reaction to the Kerch Strait oil spill

Oleh Lystopad and Eugene Simonov

Although Ukraine has appealed to many international bodies to establish control over the cleanup of the catastrophic oil spill in the Kerch Strait, no significant assistance has been forthcoming. At the same time, the Russian side regularly receives international cleanup assistance. This article explores potential next steps available to Ukraine and the international community. Sanctions against Russia's shadow fleet have become a relatively effective measure to reduce the environmental risks of oil transportation.

Ukraine demands violators be punished

Russia blocks Ukrainian and international observer access to its territories and Ukrainian territories it currently occupies, including Crimea and the Sea of Azov coastline. For now, Ukraine's only options for assessing the scale of the tanker wreck in the Kerch Strait and tracking the effectiveness of Russian emergency response and other

services in the aftermath are satellite imagery and social media.

So, following the accident on December 15, 2025, the Ministry of Environmental Protection and Natural Resources of Ukraine (commonly known as "Mindovkillya") submitted appeals to the Black Sea Commission, the secretariats of UN conventions UNEP, UNESCO, the European Union and the International Maritime Organization (IMO). The newspaper "Svit" received these letters from the ministry and published excerpts, provided below.

The Ministry's appeals note that "the incident occurred due to the Russian side's failure to comply with technical requirements for navigation safety, in particular, the use of river vessels on high seas in stormy weather. This situation reflects a broader trend of the Russian Federation's failure to comply with international safety standards, typical behavior for an aggressor state."

Mindovkillya Minister Svetlana Grinchuk, who signed the appeals, also insisted that "*the incident requires increased international oversight of compliance with maritime safety standards and increased pressure on the Russian Federation to prevent further pollution of the marine environment. In addition, it is imperative that Russia be held accountable and be obliged to compensate for the damage caused to the environment.*" To this end, Ukraine demanded that a meeting of the Black Sea Commission be convened.

The Black Sea Commission is an intergovernmental body for the implementation of the Convention on the Protection of the Black Sea from Pollution (Bucharest Convention), its Protocols and the Strategic Action Plan for the Restoration and Protection of the Black Sea. The convention was signed in 1992 by representatives of Bulgaria, Georgia, Russia, Turkey, Romania and Ukraine. In October 2024, Ukraine blocked transfer of the chairmanship of this convention's secretariat to the Russian Federation.

Ukraine's Mindovkillya also had demands for the International Maritime Organization:

1. *"Initiate an international assessment to determine the extent of damage caused to the Black Sea marine environment as a result of the fuel oil spill.*
2. *Promote measures to strengthen international oversight of compliance with environmental standards for maritime transport and technical requirements for ships.*
3. *Support efforts to restore the marine ecosystems affected by this pollution in cooperation with relevant regional organizations.*
4. *Formally condemn the Russian Federation's actions that contradict its international environmental obligations."*

The IMO is a specialized intergovernmental agency of the United Nations responsible for setting global

standards for shipping safety, preventing pollution from ships and promoting the efficiency of international maritime transport.

The Minister of Mindovkillya also held a number of bilateral meetings, including with Türkiye's Ambassador to Ukraine Mustafa Levent Bilgen. The Turkish Ambassador confirmed that he supports Ukraine's initiatives and will inform the Turkish side about the accident's consequences and Mindovkillya's position.

However, despite these statements, no restrictions followed on the passage of old Russian ships through the Black Sea's western straits controlled by Türkiye. No experts from Türkiye qualified to assess the damage caused to the Black Sea spoke out about the disaster. No statements, demands, or claims were made.

More about the catastrophe: Military oil spill: How the Kerch Strait tanker disaster is linked to Russia's 'shadow fleet' oil exports

International institutions slow to aid

On January 31, an extraordinary 45th meeting of the Black Sea Commission, convened at Ukraine's request, was held with the participation of representatives from Romania, Bulgaria, Turkey, Georgia, Ukraine, and Russia. The Ukrainian delegation attended the meeting led by Mindovkillya Minister Svetlana Hrinchuk.

The Ministry reported the results of this meeting on its website: "After four hours of discussion, the parties failed to reach a consensus on the final resolution. Realizing that the Commission would inevitably recognize that Russia violates the Federation's requirements of Articles 3 and 4 of the Protocol, representatives of the aggressor country resorted to their usual tactics of manipulation and distortion of facts, trying to impose their own interpretation of events, rules and procedures. The results of this meeting once again demonstrated institutional problems in the Commission's work. Ukraine has repeatedly drawn attention to this fact in the past."

In other words, the meeting failed to produce any results.

The 12th meeting of the IMO's Pollution Prevention and Response (PPR) Subcommittee took place January 27-31, 2025.

Chaired by Finland's representative, the session was attended by delegations from IMO member and associate member governments, representatives of UN programs, specialized agencies and other intergovernmental observers.

"During the subcommittee session, one of the key items on the agenda was the discussion of the consequences of the fuel oil spill near the Kerch Strait in the Black Sea. Ukraine's delegation released a statement on the incident, noting that:

- Widespread negative environmental impacts resulted from the fuel oil spill, with over 700 seabirds and 61 dolphins killed as a result of direct exposure to toxic fuel oil.
- These incidents are a violation of international law, as the Russian Federation permitted the use of vessels unfit for maritime operations and refused to notify Ukraine of the pollution incident," Mindovkillya's press office reported.

At the same time, it was noted that member states should strengthen measures to combat the "shadow fleet" and ensure compliance with IMO Resolution A.1192(33), calling on member states and all relevant stakeholders to cooperate in actions to prevent illegal operations of the "shadow fleet" at sea.

During the PPR Subcommittee's meeting, Ukraine was supported by delegations from Australia, Canada, Japan, Norway, Poland (on behalf of all EU member states and the European Commission), Great Britain and the United States.

Despite that support, no general resolution was adopted which would require Russia to scrap dangerous vessels and ban countries from purchasing oil delivered using those vessels. Nor was there a demand to allow international experts to travel to the polluted coastline and sea areas to assess the damage, etc.

Also at the end of January, Mindovkillya received a response from the United Nations Environment Program (UNEP).

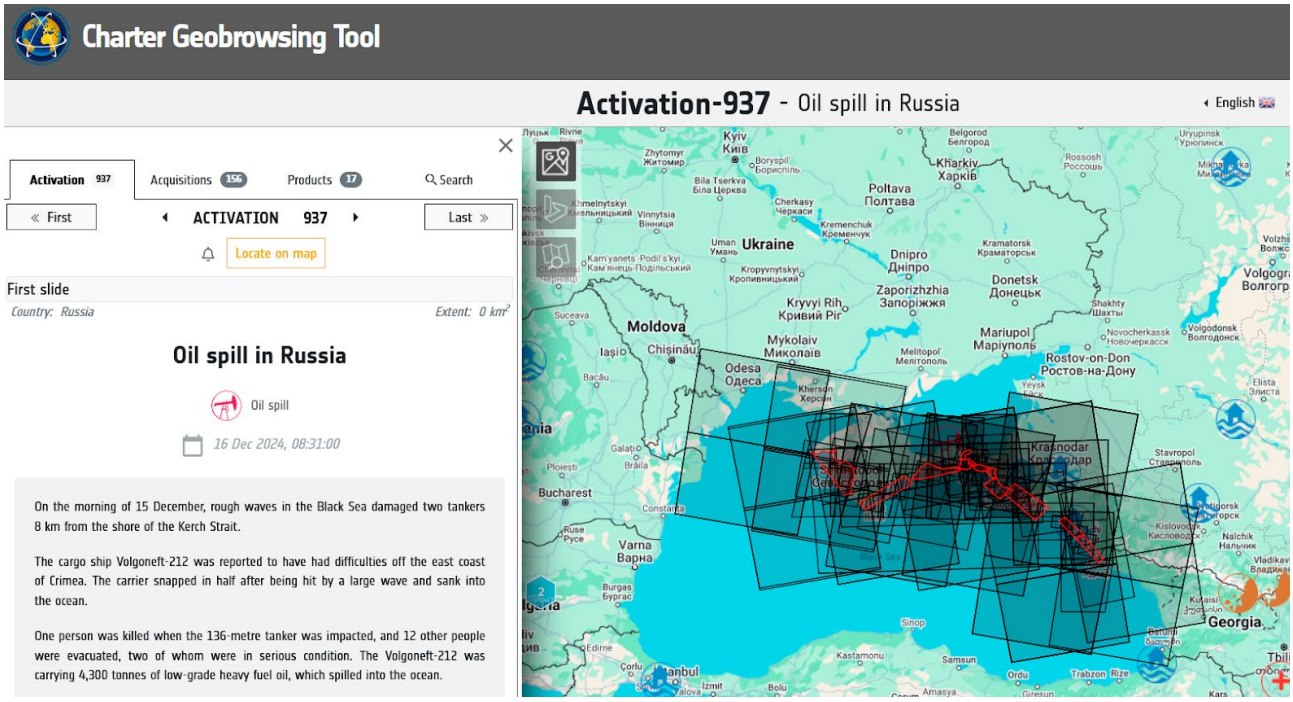
"On the eve of the UN Ocean Conference, UNEP is ready to provide Ukraine with technical assistance in assessing the damage this disaster caused to the Black Sea ecosystem. This will be an important step in overcoming the consequences of the accident," the Ministry's press service highlighted the response's points.

The UNEP also emphasizes that this work should be carried out in close cooperation with the Black Sea Commission, which has the relevant mandate. In addition, the UNEP Secretariat is prepared to cooperate with the IMO to strengthen international control of environmental standards compliance for sea vessels. In other words, with the same Black Sea Commission and the same IMO that have already demonstrated their inability to adopt effective decisions and measures.

There is no publicly available information about any further assistance from UNEP, while in 2007 the agency played a key role in analyzing the consequences for Ukraine of a similar oil spill committed by the Russians.

Meanwhile, Russia receives international aid

The very next day after the disaster, Russia promptly requested international assistance in obtaining remote sensing data using the "International Charter:



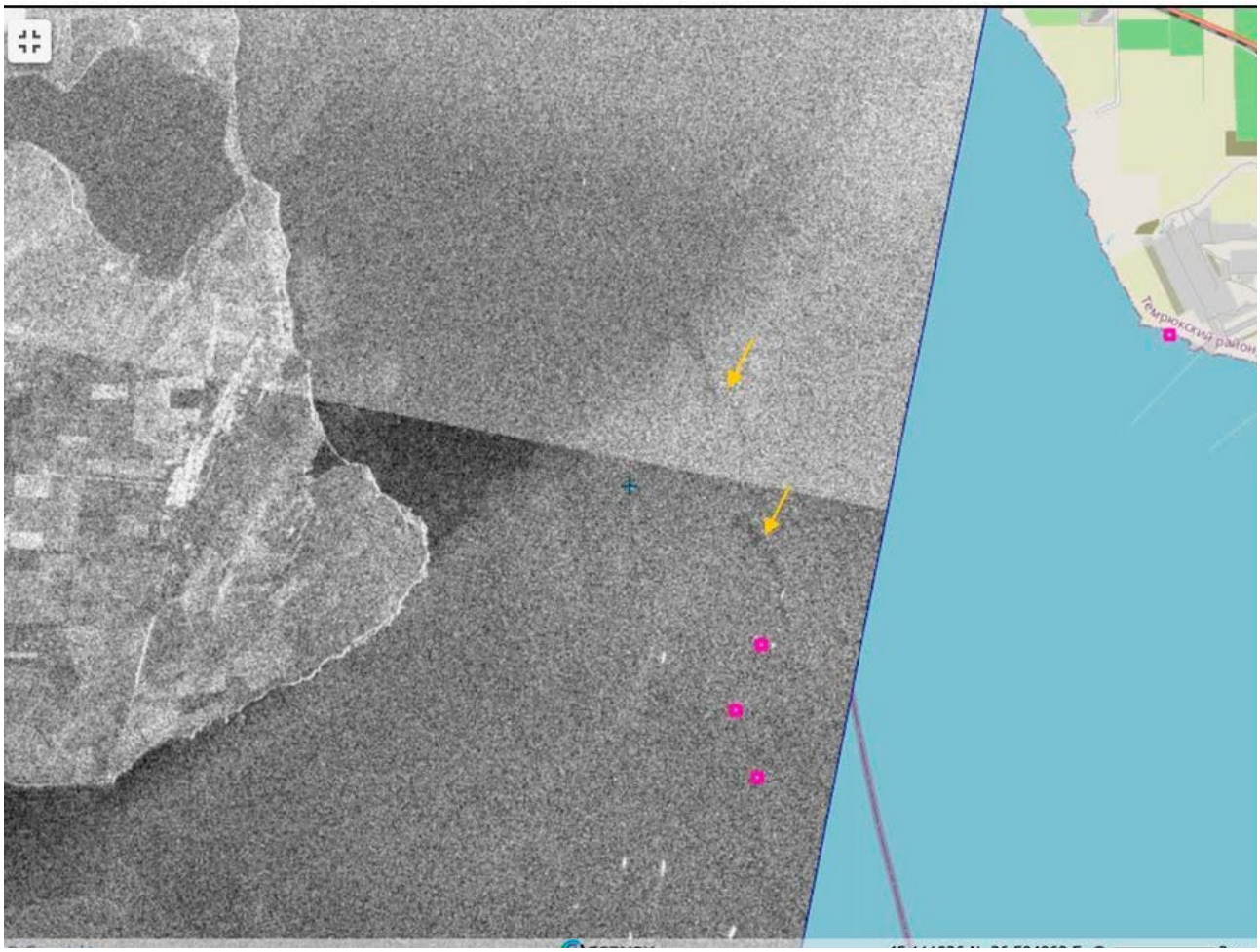
Information portal dedicated to the December oil spill. Source: "International Charter: Space and Major Disasters"

Space and Major Disasters" framework. This assistance was immediately provided by the space agencies of half a dozen "unfriendly countries" that published daily information between December 17, 2023 and February 7, 2024 on a special website about the consequences of the fuel oil spill in the Black Sea (the specific page with these materials on their site is now unavailable). On the Charter's website, the disaster was simply called "Oil spill in Russia" despite the obvious fact that at least half of the pollution was observed directly in occupied lands belonging to Ukraine.

More on the impacted areas: Military oil spill (2): Scale and consequences of the catastrophe for flora and fauna and the region's ecosystems

According to Deputy Director for Science at the Ukrainian Institute of Hydrometeorology Yuriy Ilyin, international cooperation in the Black Sea after Crimea's occupation was partially paralyzed. Consequently, monitoring carried out by international organizations was also disrupted. This freeze conveniently enables international entities to view this incident as a domestic issue in Russia, unrelated to the war and occupation.

In April 2025, oil leaks from the wreckage in Ukrainian territorial waters were again visible on satellite images. Russia is planning a highly questionable operation to create sarcophagus-cofferdams to isolate the three pieces of tankers in shallow waters, then extract the oil products, and then raise the



A fragment of a Sentinel-1A image (April 22, 2025) that shows the source of fuel oil pollution (bow of Volgoneft-212) and its spill (purple dots – three fragments of tankers). Pollution is drifting into the Kerch Strait. Source: ScanEx

remains of the ships together with the cofferdams as early as 2026. There are very few successful precedents for such operations anywhere in the world. There are many more successful examples of pumping out the oil without constructing additional casing, but their design and implementation is less expensive, while the Russian government prefers to conduct oil spill cleanup using the most capital-intensive methods. The operation to design, manufacture and install cofferdams alone will cost more than 100 million US dollars. In any case, the adopted plan assumes that fragments of the disintegrating tankers full of oil products will continue to threaten further oil spills until at least 2026. The absence of any international monitoring mechanism or even an assessment of this plan by independent international experts is of great concern.

As one of 126 member countries today, Russia can also seek international insurance payments from the International Oil Pollution Compensation Fund (IOPC Fund). During a Fund meeting in late April, a special document on the

prospects for paying compensation was considered under the heading "Incidents in the Russian Federation." The document discusses a spill in the "Kerch Strait, Anapa and Temryuk regions of the Russian Federation" and notes that in January 2025 "oil pollution was also noted in Sevastopol on the Crimean Peninsula." The country in which the peninsula is located is tactfully left unnamed. The Fund Director "held informal discussions" with the Russian delegation, while the Fund "has yet to receive a formal request for assistance from the Russian Federation." The document also states that, according to the Fund's rules, the civil liability limit for a spill for convention participants is 4.51 million conventional units (around 6 million US dollars), and the liability limit, as a portion of the Fund's resources, is 203 million conventional units (280 million US dollars). (That is, the Russian party responsible for the accident will pay 6 million, and the international insurance fund will add 274 million dollars).

Rosprirodnadzor has already declared damages in the amount of one billion US dollars, and additional funds to compensate for cleanup costs will be claimed through the courts by local municipalities and the Russian Marine Rescue Service. These expenses do not include the highly costly operation with cofferdams. Russia could potentially collect roughly 270 million dollars in IOPC funds for polluting Ukrainian waters and the shores of occupied Crimea.

What is Ukraine to do?

Just two days after the accident on December 17, Ukraine's Minister of Environmental Protection said that the damage from the accident exceeded 14 billion US dollars and the country will try to force the Russian Federation to compensate Ukraine. In the current situation, it is unclear how this compensation could be achieved.

"Ukraine should not only address this situation more actively, but it should also consistently and systematically seek to take action. Specifically by investigating companies that buy oil and demanding that the EU tighten sanctions," former head of the Verkhovna Rada Committee on Foreign Affairs Anna Hopko told Svit. *"Then we need to contact each of the democratic member states of the UN Security Council with proposals to consider this issue… This should be done via the Ministry of Foreign Affairs, using its full potential, one which is much stronger than Mindovkillya's influence at the international level. The Committee on Environmental Policy and the Committee on Foreign Policy of the Verkhovna Rada of Ukraine should also have their say."*

Under international law, Russia's pollution of the Black Sea is not considered the result of military action. Therefore, Directive 2004/35/EC of the European Parliament and of the Council on environmental liability for the prevention and remedying of environmental damage should come into play.

"The purpose of the Directive is to establish limits on environmental liability. These limits are based on the 'polluter pays' principle," notes a study by the NGO Ecology-People-Law (EPL).

EPL experts write that this directive applies when damage is caused to protected species and habitats, water resources or soil.

The following expenses are subject to compensation: damage assessment, data collection, implementation of preventive and recovery measures; and administrative, judicial and enforcement costs, including oversight and monitoring.

The Black Sea spill falls precisely under this directive. The issue is that there are many discrepancies in Ukrainian law as it relates to the directive. Much work needs to be done in order for Ukraine to speak the same "language" as Europeans. Either a special law must be adopted or changes need to be made to the framework law ("On Environmental Protection") as well as in other regulatory acts.

"In order to count on compensation for environmental damage, our methods of calculating damage must comply with best international practices," says international environmental management expert Andrey Demidenko. "Ukraine's approaches to assessing damage must be reformed in order to adopt such 'best international practices'. Because Soviet-era evaluation of environmental damage remains in practice here, a process where law-breaking damages the state and not the environment or ecosystems. Such practice is corrupt by design. The government can change the assessment of the amount of environmental damage hundreds of times with a single decision. Of course, no sane international court will recognize this."

Even the best-calculated damage will be difficult to recover without an international investigation of all the mechanisms that caused it as a means of showing that it is the fault of the Russian Federation and not a force majeure. An investigation into the disaster's causes will also help to determine measures to prevent such accidents in the future. To do this, Ukraine (or an international body conducting the investigation) should not only use satellite imagery, but also request the results of all of Russia's ongoing investigations and inspections regarding the state of the country's shipping fleet.

Carried out without external monitoring, the results of the Russian Federation's oversight activities raise questions. After inspecting 1,333 small tankers, Russia announced in early May 2025 that it had prohibited the use of just 29 of them. Given the retirement age and the state of the fleet, such a cosmetic half-measure raises concerns that the tragedy could reoccur in the near future. Russia is also threatening to conduct safety inspections of 139 of its own large tankers with capacity of over 5,000 metric tons, but clearly does not intend to do

the same with the 1,000 "shadow fleet" vessels under its control while sailing under foreign flags.

Ukraine also needs to finalize and adopt (or rewrite) its law on state environmental oversight and the law on the Emerald Network, both of which have been stuck in the Verkhovna Rada for four years. It must also adopt a number of other laws and subordinate laws to enable more accurate assessment of environmental damage. In particular, the "Procedure for Monitoring Biological and Landscape Diversity," which was recently approved by the Cabinet of Ministers of Ukraine, requires improvement. This work cannot wait for the war to end, as suggested by a resolution of the Cabinet of Ministers; implementation should begin immediately.

Sanctions as a tool of wartime environmental policy

In a conversation with the Prime Minister of the United Kingdom on December 23, Ukrainian President Volodymyr Zelensky outlined the priorities of fighting both pollution and Russia's financing of the war: "*… we discussed the pressure on Russia because of the war, and that we especially value sanctions against Russian tankers and the shadow fleet that finances the war. All such tankers should be sanctioned, and it is not only European ports that need protection from them. Everyone sees the consequences of the disaster in the Black Sea – fuel oil polluting the coast. Russia uses very old ships, 50 years old, anything it can to make money. This is a full-scale threat both in terms of financing the war and in terms of harm to nature. Not a single sea in the world deserves all this damage created by Russia's actions,*" Zelensky said.

Indeed, work in the months of December through February resulted in sanctions imposed by the UK, US and EU on member-vessels in Russia's "shadow fleet". Up to 45% of those ships were decommissioned and replaced with more reliable and less dangerous tankers covered by Western insurance policies, mainly transporting oil under contracts that comply with the price cap of $60 per barrel for Russian oil. The risk of accidents with oil spills decreased, as did the Russian Federation's income from oil sales. Thanks to the tariff war unleashed by Trump, by April the international price of oil itself fell below the sanctions price cap, which made almost any transportation of Russian oil "unpunishable" and created more incentives for its transportation by non-shadow vessels.

On May 6, 2025, the International Working Group on Russian Sanctions published "Sanctions Plan No. 4" on the Stanford University website, in which it recommended the following measures for G7 countries and their allies:

– Impose sanctions on the majority of shadow fleet vessels not yet affected by

them in order to finally shift the balance in favor of "legal" tankers insured by reputable Western associations;

– Sanction all Russian oil and gas companies and organizations that in any way enable Russian oil exports to bypass the price cap (for example, using non-Western insurers);

– Lower the price cap on Russian oil and fuel oil a further 15 US dollars;

– Add premium surcharges to tariffs on the transportation of Russian oil by "Western" tankers and transfer that revenue to the Ukrainian assistance fund;

– Sanction Russia's non-oil loading terminals instead of adding companies to the sanctions list. Given that export volume is determined by the capacity of the Russian Federation's 18 main port terminals, such a scheme is no less effective and its implementation is easier to monitor.

Overall, the sanctions working group believes that summer-autumn 2025 is the best time to apply sanctions-based economic pressure on Russia as leverage to force the country to agree to a full ceasefire and ultimately a just peace agreement.

The European Union and the United Kingdom are seriously considering maximally tightening sanctions related to the trade in Russian oil. It also seems that they have heard the sanctions working group's recommendations. On May 9, the United Kingdom added another 110 shadow fleet tankers to the sanctions list. Russian companies trying to insure shadow fleet vessels with policies that purportedly meet international standards were also sanctioned. On May 20, the list was supplemented with yet another 14 tankers and one British citizen, John Michael Ormerod, who was caught organizing the sale of 25 old tankers to meet Russia's needs.

On May 20, the EU used its 17th sanctions package to sanction another 190 tankers and Russian insurer VSK and Dubai-based Eiger Shipping, as well as companies in Turkey, the UAE, Hong Kong and Vietnam that facilitate shadow fleet operations. In total, 342 tankers are currently under EU sanctions.

According to Lloyd's List Intelligence, as of May 21, 2025, more than 700 vessels—10% of the world's tanker fleet—are currently under anti-Russian sanctions.

Announcing the new sanctions, EU foreign policy chief Kaja Kallas stressed that since the EU introduced oil price caps and sanctions on the shadow fleet, Russia's corresponding revenues have fallen by 38 billion euros (42.8 billion US dollars). Russia's revenues in March 2025 were 13.7% lower than in March 2023 and 20.3% lower than in March 2022.

At the same time, European officials increasingly justify sanctions not by compliance with the oil price cap, but as combating violations of shipping rules and the environmental safety of oil transportation. However, sanctioned

tankers are still permitted to sail European waters. The European Commission previously required that all tankers in EU waters provide proof of reliable insurance, but the means of forcing them to do so are limited.

At the next G7 meeting, European officials are preparing to discuss further lowering of the price cap on Russian oil from $60 to $50 per barrel, likely as an element of the 18th sanctions package.

Earlier, the US Congress prepared similar measures to increase sanctions, but after Trump lost interest in forcing Russia to implement a ceasefire in Ukraine, their introduction is uncertain. Some analysts believe that without US participation, Europe will be unable to effectively enforce its own sanctions.

***

It is unsurprising, although quite unfortunate, that international environmental protection mechanisms that are not always effective in times of peace have largely ceased to function in wartime—at least as it regards the pollution of international waters in the Black and Azov Seas. This is partly due to desperate geopolitical competition/ polarization in all international institutions, and partly due to the inability of Ukraine's government and civil society to pay sufficient attention to these complex "non-military" international environmental mechanisms in the midst of a war.

Today, the most dynamically developing mechanisms are "dual-use", aimed firstly at reducing Russia's ability to finance the war, and secondly at reducing the risk of oil spills. While earlier sanctions packages and the price cap did not account for potential environmental consequences, partly contributing to the growth of the shadow fleet and its associated environmental risks, recent new sanctions often include more obvious environmental precautions. In addition, increased attention to the shadow fleet's real risks following the Kerch Strait disaster has energized the development of effective mechanisms that force all vessels, regardless of jurisdiction and actual affiliation, to comply with basic environmental safety measures during maritime transportation, and it is likely that these mechanisms will probably continue to improve after the war. •

Written by Eugene Simonov, UWEC Expert, and Oleh Listopad, National Interests Advocacy Network
Translated by Jennifer Castner
Main image source: 24tv.ua

Black legacy:

How war is turning Ukraine's coal mines into time bombs

Inha Pavliy. Translated by Alastair Gill

One of Ukraine's largest sectors – the coal industry – is currently in stagnation. Russian missile attacks on energy infrastructure, the occupation and flooding of coal mines in the east of the country are collectively depriving Ukraine of an energy resource – but could also lead to yet another environmental catastrophe. Inha Pavliy examines the impact of the war on Ukraine's coal industry and the potential consequences of failing to address the hazards of flooded mines.

***The publication of this article does not necessarily represent an endorsement of the Ukrainian coal industry by UWEC Work Group. Coal,**

Graph showing annual use of Ukrainian coal (mln metric tons, green – energy; purple – coking). Source: Energy Map

like other fossil fuel-based sources of energy, is one of the causes of climate change and cannot be considered as a sustainable resource for the future. However, many countries continue to use coal to generate power.

For decades the coal industry was one of independent Ukraine's strategic sectors: it was a stable resource with great potential that was used in various fields. Ukraine had sufficient reserves to ensure the country's energy security and also provide fuel for its metallurgical and chemical industries. As Volodymyr Bondarenko, a doctor of technical sciences and an Honored Scientist and Technician of Ukraine, pointed out in a study titled "Energy: Past, Present and Future," while globally coal makes up 67% of organic fuel reserves, in Ukraine the figure is 95.45%.

However, the share of coal in Ukraine's fuel and energy balance has been gradually decreasing for decades. In 1998 the share was 26.6%, almost half that of 1975, when it was 47.4%. This clearly shows the gradual erosion of coal mining's status as one of Ukraine's key industries over the years. While 82 million tons were mined in 2011, by 2021 this figure had fallen to just 29.39 million tons (though these statistics only include mining on territory under Ukrainian control).

After the Revolution of Dignity and the subsequent war in the Donbas, control over coal mining was partially lost. From 2014 onward, Russian military aggression, the occupation of coal-mining centers in the Donetsk and Luhansk regions and the abandoning of mines in areas under Russian occupation only deepened the problems for Ukraine's coal industry. This prompted Kyiv to begin a transition to more sustainable energy sources by launching "just transition"

programs in single-industry coal towns.

The full-scale Russian invasion in 2022 hit the coal industry very hard, though it remained one of the largest energy sectors in Ukraine. But little has been said about the environmental consequences of the ongoing war, including groundwater pollution resulting from the flooding of mines and the development of uncontrolled spontaneous coal mining.

Consequences of the full-scale invasion for the coal sector

In 2013, 37.5 million tons of coal were extracted by coal-mining enterprises in the Donetsk region, which made up almost 60% of Ukraine's national coal output. At that time there were over 60 coal mines operating in the Donetsk region.

Tatyana Taranenko, director of the Department for Development of Base Industries in the Donetsk regional military administration, explains that after Russia began its military incursion in 2014 the majority of mines ended up in territory that was no longer controlled by the Ukrainian authorities.

"Thirty-six of these were functioning mines and 43 were mines under reconstruction (changes in structure and production with the aim of increasing efficiency). From November 28, 2014, state enterprises ceased production and financial and economic activities in the zone of the counterterrorist operation," she says, referring to the Ukrainian army's initial campaign to recapture territory controlled by Russian proxies. She adds that in spite of these shutdowns, the region's enterprises still managed to mine 26.5 million tons of coal in the course of 2014.

In 2015 the share of coal production in Ukrainian-controlled parts of the Donetsk region was 51.1% of the national total, but by 2021 it had already fallen to 40.5%. As Taranenko explains, there were a number of reasons for this drop in production: the absence of a clear state program for the development of coal industry enterprises, the chronic underfunding of the industry, the fact that a military operation was underway in the region and the outbreak of the coronavirus pandemic.

After Russia began fomenting civil unrest and providing "separatists" in the Donetsk and Luhansk regions with military support in 2014, pro-Russian fighters from the self-proclaimed DNR and LNR (Donetsk People's Republic and Luhansk People's Republic) began to "nationalize" Ukrainian mines so that their profits could be used to support the economy of the breakaway "republics." It is unclear exactly how many mines are currently operating in Ukraine's occupied eastern regions. Some sources report that before 2022 around 2.8 million tons of coal was exported to Russia from the DNR and LNR annually with a value of $288 million.

According to Pavlo Kirilenko, formerly

Graph showing annual use of Ukrainian coal (mln metric tons, green – energy; purple – coking). Source: Energy Map

head of the Donetsk regional military administration, mines in the occupied eastern territories were almost 100% non-functional even before Russia's full-scale invasion. But even in cases where mines sat idle, water still needed to be pumped out of the galleries in order to prevent potential local flooding, which the invaders did not do, thus establishing the conditions for an environmental disaster.

How does water get into the shafts and why does it need to be pumped out?

A mine is a complex system of vertical and horizontal underground tunnels, sometimes located at a depth of hundreds of meters. It is here that miners extract coal. Water—rainwater, groundwater, river water—always seeps into mines through cracks in the ground. For this reason, every functioning mine is

The Zolote mine. Source: miningwiki.ru

fitted with powerful pumps, which work around the clock to pump out the water that has accumulated underground. Without this, the mine will simply be flooded – the water will cut off access to the coal and lead to collapses.

When water rises from the depths of the mine, it leaches the bedrock of heavy metals, radioactive elements and oil products. Water that should have remained deep underground ends up on the surface—in rivers, soils and wells. This leads to the pollution of rivers, the flooding of settlements and the poisoning of soils. Another threat is the build-up of methane, an explosive gas that forms when organic matter—which turns into coal over millions of years—decomposes under pressure. Not only can methane cause poisoning when it reaches the surface, but it can also explode underground.

Despite the importance of pumping water out of mines, there are cases when a deliberate choice is legally made not to pump it out. In countries where it is used, this is called the "wet method" of conservation.

Wet conservation involves a range of actions and safety measures designed to ensure the preservation of inactive coal mines over an extended period of time. This conservation includes temporary and permanent protective or structural measures that prevent the destruction of a mine, including the temporary flooding of mine shafts with groundwater until the resumption of operations.

In other words, the mines are flooded, but the water is not pumped out. Wet conservation is cheaper, but is not environmentally friendly. After all, the water accumulates, rises and floods

nearby settlements. It also increases the risk of methane explosions, as a rising water table inside a mine leads to a build-up in gas pressure above the water level.

The cost of war and water

Tetyana Kukushkina, acting director of the Department of Municipal Property, Land, Property Relations, Ecology and Natural Resources of the Luhansk Regional Military Administration, says that the rapid flooding and closure of mines as a result of military action can have potentially serious environmental consequences.

"Neglecting industrial and environmental safety requirements during the closure of mines can result in substantial changes in the quality of groundwater and surface water, the flooding and waterlogging of territories, the salinization and pollution of rivers, subsidence, etc.," she explains.

"There are acute problems with waste management from mining enterprises; there is an imbalance between developed and reclaimed lands at mining enterprises, closed mines are flooded, and this means that industrial facilities, residential buildings and communications in nearby areas are at increased risk of physical destruction."

Before the full-scale invasion, four mines owned by Lysychanskugol and four mines owned by Pervomaiskugol were operating in parts of the Luhansk region under Ukrainian government control. According to the enterprises, after the introduction of martial law in Ukraine on February 24, 2022, the mines were essentially operating in life-support mode. Military action and enemy advances led to mines being cut off from the power grid, shafts began to flood uncontrollably, and ventilation systems stopped working. All the mines in the Luhansk region are now occupied, and the likelihood is that they are all flooded.

There have been reports of the flooding of the Zolote and Toshkovska mines, as well as the partial flooding of the Karbonita mine. Since access to these sites is impossible, there is no way of assessing their current condition.

According to Tatyana Kukushkina, the lack of information about the coal mines in Russian-occupied territory, which are considered potentially dangerous, is alarming. If the pumping units of these mines cease to expel water from underground, the hydrological balance may be disrupted, threatening industrial accidents and environmental catastrophes.

"The consequences of groundwater rising to the surface could include the flooding of large areas and nearby settlements, subsidence affecting built-up areas, railways, highways and bridges, as well as the contamination of surface and underground water intakes as a result of uncontrolled leaks of contaminated water," explains Kukushkina.

When the Luhansk region has been

liberated and security measures are implemented, it will be important to carry out a study of mines. Functioning mines will need comprehensive hydrological protection, as well as the efficient use and demineralization of mine waters.

"Today there's no up-to-date information about coal mines that are damaged or which flood uncontrollably," says Kukushkina. "We know nothing about their hydrological state, about the volumes and speed of water inflow (most mines in the region have underground hydrological interconnections), as well as the extent of damage, areas subject to flooding, and so on.

"Since we have no access to the mines, it's impossible to evaluate their viability and the cost of resurrecting or closing them. It will only be possible to assess the condition of the mines and work out whether it's worth reopening them after the deoccupation of the territories of the Luhansk region and a thorough examination by the relevant specialists," she says.

Long-term coal mining (over 150 years), large areas where the subsoil balance has been disrupted (up to 15,000 sq. km), large volumes of coal and rock extraction (9.5–10 billion cubic meters) and leaks of explosive methane (up to 6 billion cubic meters per year) have created an unstable geosystem in the Donbas. The uncontrolled closure and flooding of a large number of mines pushes a geosystem like this into an even more unstable, unbalanced state with a whole range of dangerous processes and critical changes to its environmental condition, as Doctor of Technical Sciences Yevhen Yakovlev has mentioned in his research.

As far back as 2021, Yakovlev warned that uncontrolled shutdowns of mine dewatering in conditions of armed conflict would increase the areas at risk from dangerous geological processes. In particular, the surface will begin to subside, which could lead to the collapse of residential and industrial buildings, as well as damage to critical infrastructure facilities (utility networks; railways; gas pipelines). Floods will become more widespread, and landslides will become more common.

Atomic legacy

In addition, there is one mine in the Donetsk region that may pose a far greater environmental risk than any other mine in the country. After all, it was the site of the world's first industrial underground nuclear explosion.

In 1979, for the first time in history, an underground nuclear explosion equivalent to 300 metric tons of TNT was carried out at a depth of 903 meters in the Yunkom mine. Located in the city of Bunhe in the Donetsk region, which has been under Russian occupation since 2014, the mine lies in a densely populated and intensively exploited coal region. The goal of the test was to evaluate whether such an approach would be effective

The name of the Yunkom mine in relief. Source: UNIAN

in reducing the frequency of sudden coal bursts and methane gas explosions during the development of coal seams, explains Yakovlev.

In his studies, Yakovlev talks about the presence of certain "barriers" to the spread of radiation. The rocks around the site of the explosion are dense and poorly permeable. A "lens" of molten rock has formed around the chamber, effectively sealing in the radioactive remains. The rocks themselves are capable of absorbing and "storing" radioactive substances, preventing them from being transported by water. Ninety-five percent of the radioactive substances remained at the center of the blast zone and, according to observations made in 1991, have not been detected outside the mine.

In 2018, the leadership of the self-proclaimed DNR decided to flood the Yunkom mine, in spite of the fact that it was contaminated with radioactive waste. At the same time, the separatists removed some of the pumps from the mine, which resulted in uncontrolled flooding.

As of 2020, the mine was already completely flooded, as reported by the International Human Rights Community – Special Monitoring Mission. The total concentration of radionuclides in nearby aquifers, when measured at a distance of 5 kilometers from the site, was 20-34*103 Bq/kg. This signified that low-level radioactive water had already entered the drinking water horizon, the name given to a layer of porous rock that can provide water for a well.

It is worth noting, however, that this information was obtained through unofficial channels from the occupied territories and from tests carried out by anonymous independent experts. However, given the very real nature

The Kamyshevakha river, 2021, into which water was pumped from the Zolote mine. The Kamyshevakha feeds into the Luhan, the Luhan into the Siverskyi Donets, the Siverskyi Donets into the Don, and the Don into the Sea of Azov. Source: BBC

of the flooding, it is quite reasonable to assume that radioactive water may have penetrated the drinking water supply.

Sitting on a time bomb?

The environmental and geological danger caused by military action in the Donbas is only aggravated by the dense population of its cities and villages, especially in Russian-occupied areas. And now, given the devastation wreaked on cities and villages under Ukrainian control by Russian shelling, there is a serious risk that the Donetsk and Luhansk regions will be largely abandoned. After all, the complete destruction of many settlements, coupled with the environmental threats caused by the war and the toxic consequences of malpractice in the coal industry, will lead to an exodus of the population.

The situation has now reached a stalemate, with the mines of the Donetsk and Luhansk regions being continuously flooded. No one monitors contaminated mine water levels, either in government-controlled territory or in Russian-occupied areas. As a result, they will leach into drinking water sources, such as the Siverskyi Donets, Luhan and Kalmius rivers, and may even lead to the gradual pollution of the Sea of Azov. This is a slow process and could take centuries. But if no action is taken, the entire region is at risk of pollution.

In the meantime, uncontrolled flooding will cause landslides, flooding of settlements and methane explosions. The likelihood is that such events will become increasingly common both in territories under Ukrainian control and Russian-occupied areas of the Donbas. •

Main image source: opendemocracy.net

Biosphere reserve burns at the start of the occupation administration's work

Oleksiy Vasyliuk

On July 5, 2025, a large-scale fire broke out in the steppes of the Black Sea Biosphere Reserve (BSBR). For the first time in the reserve's three-year occupation, the Yagorlitsky Kut area of the reserve burned. It is the only part of the reserve on Ukraine's mainland and had miraculously managed to avoid fire until now. The Ivano-Rybalchansky area, the reserve's highest conservation value area, burned as well.

A few days earlier, the Russian occupation administration officially announced the "creation" of the federal budgetary institution Black Sea Reserve—a Russian version of the Ukrainian nature conservation institution that had managed the reserve for over a century. The first event in the biography of the newly formed "administration" was the fiery destruction of its steppe ecosystem.

NASA satellite images show active fire in the reserve. Source: FIRMS

Fire in Yagorlitsky Kut

Since the start of the full-scale invasion in 2022, fire has repeatedly engulfed the mainland parts of the Black Sea Biosphere Reserve. All but one: Yagorlitsky Kut area remained largely unscathed.

Established by Ukraine's government in 1927, today's Black Sea (Chernomorsky) Biosphere Nature Reserve reserve consists of mainland areas, 20 islands, and two bays — Tendrivska and Yagorlytsky Kut. The reserve is home to about 3,500 species. Protecting high conservation value steppe, wetlands, and forests, the protected area is a critical stopover and breeding ground for over 300 species of birds. It is located in Ukraine's Kherson and Mykolaiv regions and has been occupied by Russia since 2022.

Yagorlitsky Kut is one of the most valuable parts of the reserve. It covers a unique massif of untouched Black Sea steppe, untouched by agricultural use since the 1980s. This grassland is very level and an integrated and extraordinary natural mosaic—from dry sandy areas to low-lying alkali soil depressions. Rare steppe bird species live in this area. Thanks to its remote location and isolation, the site has long remained the least affected part of the reserve and is why a fire here is an exceptional and extremely threatening event. Bird monitoring data for this site is published in the public domain.

It was not possible to save the steppe this summer. The fire burned for at least two days and covered a significant area of the dry grasslands.

Russian army's defensive fortifications within the boundaries of BSBR. Source: Google Maps

Fire also raged in the reserve's Ivano-Rybalchansky area, the oldest (1927) and most valuable territory of the BSBR. Astonishingly, both fires coincided with the formal beginning of the "Russian" administration of the reserve.

Three years waiting for Ukraine's counterstrike

Although the Black Sea Reserve was occupied by the invaders in the first hours of Russia's full-scale invasion (February 2022), they only established their own administration in June 2025—over three years later. This is much later than in the case of the Askania-Nova Reserve, which the Russians began to "manage" in 2023.

Read more:

- **Askania Nova Biosphere Reserve captured by invaders**

Ukraine has had virtually no contact with the Black Sea Reserve since the war's beginning. Some workers, including Ukrainian administration staff, were captured or went missing. Gradually, the Russian media began publishing colorful reports about the reserve's operations.

The reserve is located directly across the water from the city of Ochakov, at the line of the war's conventional naval counter-offensive. Consequently, the occupiers have built a dense system of defensive fortifications nearby: trenches, foxholes, firing positions. Their location can be seen on satellite images.

As a result, the area around the reserve has become very militarized, and the Russians are unlikely to stay in place for very long. Accordingly, they were in no hurry to add the reserve as an asset, even for the sake of appearances.

UNESCO changes focus

The Black Sea Biosphere Reserve is one of the first protected areas in the world to be awarded biosphere reserve status. It was included in the international network of UNESCO biosphere reserves in 1979, along with the first eight Soviet reserves, and it is one of the first hundred sites around the world. This status confirms its unique natural value not only on a national but also on a global scale. UNESCO retains an interest in the fate of reserves under its jurisdiction.

At the same time, Russia is increasingly isolated in the international nature conservation community. There have also been calls to force Russia out of UNESCO.

Notably, the Russian occupiers chose to demonstrate their "concern" for biosphere reserves just a few days before the scheduled annual session of the UNESCO World Heritage Committee that took place in Paris from July 6-16, 2025.

At a time when the country is being excluded from conferences and governing bodies, Russia may view the UNESCO meeting as an "opportunity" to legitimize itself in these occupied territories.

Reserve boundaries: a claim to annex another region of Ukraine

Speaking on July 1, 2025 at a round table on the "Development of Russia's protected areas network: problems and challenges" at the Public Chamber of the Russian Federation, Deputy Head of the Department of Nature Protection of Russia's Ministry of Natural Resources Artur Chertov gave a florid answer to the delicate question of why the vast Russian Federation is currently creating so few protected areas. The official, in particular, boasted that "… literally just last week, the Black Sea Reserve was created in the Kherson and part of Nikolaev regions." Then he tried convincing the assembled experts that the plans for the next five years include the creation of another 20 protected areas, half of which are in "new" territories. That is, these are long-time protected Ukrainian areas that are currently under Russian occupation. Interestingly, the BSBR was created "for growth," in the part of Nikolaev region that, even according to Russia's crooked modern "laws", belongs to Ukraine.

Given the lack of access to the occupied reserve, it is important to closely examine the few available documents to glean information about the environmental situation there. For example, the decree establishing the Russian "clone" reserve states the size of the reserve as 109,131 hectares. Contrary to customary practice, the boundary coordinates for the "new"

protected area are not contained in the decree. The official area of the Black Sea Biosphere Reserve is 109,254 hectares—the occupation administration has "lost" 123 hectares at the outset, their fate unknown.

Were they "excluded" because they are now military facilities? Or perhaps the lands were transferred for other "economic" uses? There is no answer, but the trend is familiar, for example in the case of similarly occupied Askania-Nova Nature Reserve, the occupation authorities also recalculated its area in their favor.

So, on the heels of establishing a Russian "clone" reserve, its most valuable areas were severely burned; a loss of 120 hectares was declared in an official document; and the establishment of the "new" reserve took place against the backdrop of the disappearance or captivity of the reserve's Ukrainian staff. This is the reality. Instead of covering the true story, the Russian media is again trying to create a different perspective for the world community. •

Translated by Jennifer Castner

Main image source: Yu Moskalenko CC-BY

Russia exits Ramsar Convention on Wetlands

Eugene Simonov, UWEC

The Russian Parliament (State Duma) unanimously approved a law withdrawing from the Ramsar Convention on Wetlands. The justification of the draft law submitted by the Government states "in the foreseeable future it is not possible to use the mechanisms of the Convention for the protection of Russian waterfowl, and Russia's participation in the work from a political point of view will have exclusively negative consequences due to the extreme politicization of the Convention."

The Convention on Wetlands (Ramsar Convention) was adopted in 1971 in Ramsar, Iran to protect wetlands and habitats for migratory waterfowl. It is the oldest global conservation convention. The USSR ratified the document in 1977, and in 1994 Russia inscribed in the List of Wetlands of International Importance 35 territories with a total area of about 10 million hectares. Under the protection of the convention in Russia there were 16 nature reserves, one national park, ten federal wildlife refuges and 47 other protected areas, as well as more than 6 million hectares of wetlands with no

legal protection other than the Ramsar Convention listing.

172 states participate in the convention. In November 2022, at the 14th Meeting of the Parties to the Convention (COP), the participating countries signed a resolution on "The Ramsar Convention's response to environmental emergency in Ukraine relating to the damage of its Wetlands of International Importance (Ramsar Sites) stemming from the Russian Federation's aggression". It requests that the Contracting Parties consider exerting pressure on Russia to prevent further damage to or the degradation of Ukraine's wetlands. Furthermore, the Resolution emphasises that when States undertake such determinations, they must ensure that the best interests of the Convention and the preservation of wetlands remain unaffected. The vote was far from unanimous, with a vote of 50 in favor, seven against, and 49 abstentions. (Wang, 2023).

In June 2023, the Ministry of Foreign Affairs of the Russian Federation announced Russia's intention to withdraw from the convention. This decision was opposed by scientists, who appealed to Russian Foreign Minister Sergey Lavrov with a request to preserve Russia's membership in the agreement, as it is aimed at preserving the country's unique ecosystems.

UNESCO serves as the depository of the Convention and "*any Contracting Party may denounce this Convention after a period of five years from the date on which it entered into force for that Party by giving written notice thereto to the Depository*".

The renunciation happened a day before the XV Conference of Parties started in Zimbabwe on July 23, 2025. With this move, Russia is likely expressing its opposition to the findings of the "Final assessment report of environmental damage on Wetlands of International Importance in Ukraine stemming from the Russian Federation's aggression" which was commissioned at the previous COP and is scheduled to be discussed on July 27.

During the parliamentary session it was stated that Russia cannot be a member of international agreements, whose members question its jurisdiction over natural territories in the "new regions" acquired as a result of Russia's war in Ukraine. Any agreements within the UN framework easily fall under this definition, and the Ramsar Convention was apparently chosen to demonstrate Russia's determination.

The areas losing international protection as a result of Russia's withdrawal from the Convention are the size of two Belgiums (60,000 km2) and their resources may be of interest to extractive industries: bogs are rich in peat and often hydrocarbons; shallow waters are an important source of fish and other aquatic bioresources; and bird concentrations attract the hunting industry.

The Convention also prevents damage to Ramsar Sites in neighboring countries, and its denunciation impairs Russia's ability to negotiate with Mongolia to prevent the construction of dams that could affect the Selenga Delta or the Daursky Nature Reserve. It will also worsen mutual understanding with China in the framework of the joint "Strategy for the Development of a Transboundary Network of Protected Areas in the Amur River Basin" and other joint conservation endeavours. China adopted a comprehensive Wetland Protection Law in 2022 and has already taken about 1000 "wetland parks" under protection, many of those along the common border with Russia.

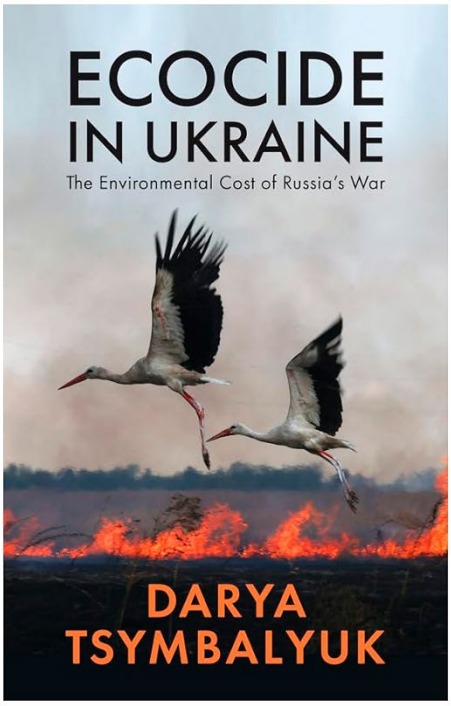
Withdrawal from the convention may also be perceived as an unfriendly step towards Iran, as it is the only global environmental convention signed under leadership of that country.

Russia has the most extensive wetlands in the world. Within the country there are about 2 million lakes (excepting the Caspian Sea) with a total area of 370,000 sq km, 120,000 rivers with a length of about 2.3 million km. Peat bogs occupy 1.8 million sq km; sea coasts span tens of thousands of kilometers, etc. One of the key types of the planet's ecosystems, Russia's wetlands determine the water cycle and a number of important ecosystem services throughout Eurasia, shape the global climate, and support biodiversity conservation.

As a result of withdrawal from the convention, it is highly likely that the very concept of wetlands will gradually cease to exist in Russia's legal and management system, as there is no national legislation on the protection of wetlands. It is this class of ecosystems that faces the greatest threats and losses. International ties linked to the Ramsar Convention that allowed for the exchange of important information and the adoption of best practices will also be lost.

To compensate for damage caused by its withdrawal from the convention, the Russian Federation could develop and adopt its own legislation on the protection and monitoring of previously internationally recognized important wetlands, including mechanisms for international cooperation, but, likely, this is not a priority in the current political context. At the State Duma meeting, the Ministry of Natural Resources and Ecology stated that it is thinking of preparing laws that would protect the wetlands remaining unprotected after Russia's renunciation but the ministry did not present clear plans for realization of this intention. •

Also see academic analysis: Wang, M. The Unprecedented Ramsar Resolution: Ukrainian Wetlands Protection in Armed Conflict. Neth Int Law Rev 70, 323–357 (2023). https://doi.org/10.1007/s40802-024-00246-8



Ecocide in Ukraine. The Environmental Cost of Russia's War. Book review

Alexander Vorbrugg

Ecocide in Ukraine is an outstanding testimony to the environmental costs of Russia's war, a moving tribute to humans, ecosystems, animals, and plants in Ukraine, and a thoughtful reflection on the various ways they and their inter-relationships are affected during the war. Tracing ecocide in the "most intimate and everyday realities", Darya Tsymbalyuk sheds light on the war's complex impacts on various aspects of life.

The book takes the reader on a journey across Ukraine's rich and diverse landscapes, with a particular focus on the country's south and its steppes, rivers and coasts. We learn about unique species and ecosystems, environmental sciences and arts and environmental movements and organizations. The

book avoids romanticizing the state of environmental affairs before Russia's 2014 invasion and full-scale 2022 war. Tsymbalyuk recalls the lengthy history of ecocidal and genocidal wars "that have ravaged the lands of Ukraine and the lives of its diverse inhabitants" as well as the history of environmental neglect and degradation caused by polluting industries, industrial agriculture, dams and other large infrastructure projects (issues that have accelerated since the Soviet era) and the impacts of market capitalism.

Chapters visit different sites of destruction and resilience as indicated in their headings: "Water", "Zemlia" (land/soil in Ukrainian), "Air", "Plants", "Bodies", "Energy". Each chapter describes a complex and interconnected world affected in complex and interrelated ways. In "Zemlia", Tsymbalyuk writes:

"In times of war, soil and land ask deeply existential questions. Land lies at the center of experiences of war and occupation. [T]he violence of occupation, the displacement of people and other species, as well as the contamination and destruction of soil exposes the life connections of people and other living creatures to land as a shelter, a home, and a living world".

In this spirit, the book tells stories grounded in cohabitation and the partially shared experience of the war; stories of bodily existence and fragility that one must consider to better understand how attacks on various environments and infrastructures, from soils to energy, are simultaneously attacks on the bodies that depend on them. It demonstrates how war reveals vulnerabilities and dependencies shared, to some degree, by humans and animals exposed to the same land mines, rockets, and floods. Tsymbalyuk also traces new examples of solidarity and cooperation between humans and other creatures that emerge in the face of these threats.

The book covers an impressive range of issues. What stands out more than its scope, however, is how it narrates these issues, connects them, and proposes new ways of understanding them. More than focusing on the juridical aspects or scientific facts of ecocide, Tsymbalyuk sets out to track "how experiences of witnessing and living through ecocide change one's understanding of environments and one's home(land)". One concept central to this is what Tsymbalyuk calls the "episteme of death", which "becomes the dominant morbid frame of learning about one's homeland, when we only find out about the existence of someone or something when they are gone". Tsymbalyuk reflects on how this morbid frame of learning became central to how she noticed, researched, documented and related to the living worlds threatened by the war, but also identifies it in the stories of others, in the work of researchers and artists and on social media. While death links "everything and everyone" in war,

the episteme of death is at the same time an episteme of life because, as the book demonstrates, it creates new kinds of attention to aspects of life and to the existence of species or parts of nature that most people didn't notice earlier.

The author's narrative is deeply personal and place-based, informed by experience, remote and near research, and commitment to the lives and worlds she describes. The book also witnesses stories on the ground, scientists' measurements, historians' and artists' works, and clips shared and re-interpreted on social media and woven into multi-layered accounts that reflect the complexity of their subjects and connection. The book is populated by many heroines and heroes with names, characters and their own ways of relating, residents and workers, soldiers and rescue workers, experts and nature stewards, animals and plants.

Although Tsymbalyuk's writing is dedicated to conveying the war's cruel violence and pain, she nevertheless connects to humans and other creatures with a sense of love, concern and curiosity and maintains ease and clarity. The book asks many questions that reveal new perspectives. How does a bird flying over war-torn lands perceive what they see? What does a military pilot see while dropping the bombs that cause this destruction? Combining carefully researched analysis with more anecdotes and questions, it provides a wealth of insights and new understanding while acknowledging that it is "impossible to make sense of war", provide a complete picture, or fully grasp what it means to live through it. This is writing with and against the limits of comprehension, approaching again and again, and in different ways, what at some level inevitably remains impossible to comprehend. Tsymbalyuk's writing is poetic, adding depth and, in some sense, even clarity to interpretation and analysis.

The book relates to several broader debates and makes original conceptual contributions. It connects the story of ongoing environmental degradation to the history of Soviet extractivism. While focused on intimate and everyday realities, it also speaks to the planet's overall environmental condition and links the war to the climate crisis. Tsymbalyuk touches upon the debates of imperialism and colonialism, ecocide and genocide, and post-war recovery. Further, she theorizes on the interconnectedness of violence, space and time, exploring how some temporalities implode and spatial patterns collapse while new connections emerge.

Ecocide in Ukraine demonstrates that an environmental lens is necessary to "begin to comprehend the scale and anguish of the devastation, the loss of whole worlds". It is an account that remains necessarily unfinished as Russia continues to wage war. The war's environmental impacts will prevail long

after fighting has stopped, and, as the book shows, there are so many ways of addressing the subject and so many stories to be told.

Tsymbalyuk offers inspiration, sense of place, and an invitation to continue such engagement into the future. To a general readership interested in the topic, this book provides a comprehensive, timely and highly accessible overview of environmental issues in present-day wartime Ukraine. Experts will be inspired by her weaving of a wide range of sources and stories into original interpretations. An outspoken account of a brutal war, Tsymbalyuk also tells invigorating stories of beauty, love, commitment, and dignity in defiance of violence. Her sincere appreciation gives hope for the living world alongside the life and work of the environmentalists, soldiers, residents and the many non-human characters and companions as they together endure, defend and create.

Tsymbalyuk, Darya (2025): Ecocide in Ukraine. The Environmental Cost of Russia's War: Polity. ISBN: 978-1-509-56250-3 •

Ukraine's green recovery: legislative step toward eco-integration in reconstruction

Oleksiy Vasyliuk

On June 30 in Kyiv, the Ministry of Environmental Protection and Natural Resources of Ukraine presented the first version of the draft bill "On the Fundamentals of Green Recovery of Ukraine". The presentation event was announced as the beginning of a national discussion of key instruments for "green" post-war reconstruction.

According to the Ministry's Department of Environmental Assessment, the new law is meant to become a framework for integrating sustainable development principles in recovery processes. In particular, the bill is based on the European Union's "green

taxonomy" principles – a classification that determines which types of economic activity are environmentally sustainable.

First legal definitions relating to sustainable recovery

The bill introduces for the first time a number of important terms into national legislation: "green economy", "recovery" in the context of post-war reconstruction, "sustainable (green) recovery measures", and the "state policy of green recovery".

A fundamental provision is that all activities relating to recovery must contribute to the transition to a green economy. The draft law stipulates that recovery actors (government, communities, investors) operate in accordance with the principles of "green recovery", including:

- EU environmental policy principles,
- consideration of climate reference points and
- environmental orientation.

By way of definition, green recovery goals include:

- climate change mitigation and adaptation,
- sustainable water use,
- biodiversity conservation,
- pollution prevention and monitoring and
- transition to a circular economy.

Instruments to evaluate sustainability

A separate innovation is the introduction of a sustainability assessment procedure that must precede the approval of any restoration measures. It is carried out by an authorized state entity and with public participation. At the same time, it is not yet clear how this procedure relates to existing instruments and in particular strategic environmental assessments (SEA) and environmental impact assessments (EIA). This is one of the issues that requires clarification during the process of finalizing the bill.

It is also noteworthy that a number of critical infrastructure facilities that were planned before the law's passage may not be covered by it, potentially creating a loophole for "old" environmentally hazardous projects.

Speeches: between inspiration and warning

Minister for Environmental Protection **Svitlana Hrinchuk** opened the event. During her speech she emphasized the need to establish a legal basis for a balanced green recovery and called on the expert community to actively participate in work on the bill in order to finalize the text in the fall.

Oleh Bondarenko, chairperson of the Verkhovna Rada's Committee on Environmental Policy, highlighted the

risks: business and some government authorities are seeking further derogation of SEA, EIA and other environmental standards, but the green recovery must not be used to satisfy special interests.

Swedish ambassador **Martin Oberg** supported the initiative, emphasizing: *"We see Ukraine's shared future with the EU. This law will contribute not only to Ukraine's sustainable development but also to increasing biodiversity across Europe."*

Representative of the Office of the President **Mykola Brusenko** admitted that in the first years of the full-scale invasion, environmental policy was not a priority and acknowledged that after human lives, losses to the environment are Ukraine's next largest loss. This bill is an attempt to compensate for the war's damage and is a logical continuation of the Sustainable Development Goals approved by the President.

Are nature reserves and ecosystems actually being protected?

Dedicated to the subject of natural sites and protected areas, Article 31 of the bill on the one hand guarantees that the sizes of protected areas will not be reduced, while lacking ambitious goals for expansion or restoration of protected areas. There is no mention of Europe's "Nature Restoration Regulation" law, an instrument which is already setting guidelines in EU countries.

On the positive side, the bill mentions achieving favorable statuses for species and their habitats, remediation of contaminated areas, restoration of marine and terrestrial ecosystems and sustainable agricultural practices and forest management.

What needs more work

The draft law barely mentions war as a context, meaning that it bypasses reconstruction issues in the context of military actions, demining, and landscape restoration stemming from human-caused impacts.

International experience is also not considered, in particular the findings of IUCN's "Conflict and Conservation" report (2021). The analysis shows that the main environmental threats after wars are not in the destruction itself, but in the mass displacement of people, conventional construction of housing and infrastructure, and hasty restoration without environmental assessments.

The section on ecosystems and protected areas needs specifics—the law must not only protect existing nature, but also provide for the active restoration of protected areas. After all, it is obvious that the war means that there are fewer high conservation value areas and those areas that remain are smaller in size.

The bill's presentation was an important signal, however. It indicates that the state is prepared to create a systemic framework for sustainable development during the post-war recovery. The law

will only work when it becomes legally specific, considers the entire spectrum of international experience and is supported by civil society.

Public comment and discussion is the next step, and environmental experts and organizations must engage. It is only deep professional refinements that will advance "green recovery" from slogan to reality. The author of this article also spoke during the bill's presentation event and called on its authors to ensure that the law guarantees a true "green recovery" and does not harm Ukraine's environment beyond the harm done by the full-scale war.•

Main image source: Presentation by the minister of Environmental Protection and Natural Resources Svitlana Hrinchuk – photo by Oleksiy Vasyliuk

UWEC
Ukraine War Environmental Consequences Work Group