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# Crime of ecocide in Ukraine – environmental consequences of Russian military aggression

Zbrodnia ekobójstwa w Ukrainie – skutki środowiskowe rosyjskiej agresji zbrojnej

Преступление экоцида в Украине – последствия российской военной агрессии для окружающей среды

Злочин екоциду в Україні – наслідки російської збройної агресії для навколишнього середовища

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**Summary:** Even though the definition of the crime of ecocide was proposed by the Independent Expert Panel in 2021 it has not been incorporated into any international agreement yet. The Russian military aggression in Ukraine has demonstrated that the concept of ecocide is still relevant. The aim of the article is to analyse the concept of ecocide and to show that certain actions of the Russian army directed against the natural environment in Ukraine meet the criteria of the crime of ecocide, and therefore that these actions were unlawful, intentional, and committed with the awareness that they may result in serious and long-term or widespread damage to the environment.

**Key words:** crime of ecocide, Russian military aggression, Ukraine, environmental damage

**Streszczenie:** Mimo że definicja zbrodni ekobójstwa została opracowana przez Niezależny Panel Ekspertów w 2021 r., nie została jeszcze przyjęta w żadnym dokumencie międzynarodowym. Rosyjska agresja zbrojna pokazała, że pojęcie ekobójstwa jest nadal aktualne. Celem artykułu jest analiza pojęcia ekobójstwa i pokazanie, że poszczególne działania armii rosyjskiej skierowane przeciwko środowisku naturalnemu na Ukrainie wypełniają przesłanki zbrodni ekobójstwa, a zatem działania te były bezprawne, umyślne i popełnione ze świadomością, że mogą skutkować poważnymi i długotrwałymi lub rozległymi szkodami w środowisku.

**Słowa kluczowe:** zbrodnia ekobójstwa, rosyjska agresja zbrojna, Ukraina, szkody w środowisku naturalnym

**Резюме:** Несмотря на то, что определение преступления экоцида было разработано группой независимых экспертов в 2021 году, оно до сих пор не было принято ни в одном международном документе. Российская военная агрессия показала, что понятие экоцида по-прежнему актуально. Цель данной статьи – проанализировать понятие экоцида и показать что отдельные действия российской армии против окружающей среды в Украине отвечают предпосылкам преступления экоцида, и поэтому эти действия были противоправными, умышленными и совершенными с осознанием того, что они могут привести к серьезному и долгосрочному или масштабному нанесению ущерба окружающей среде.

**Ключевые слова:** преступление экоцида, российская военная агрессия, Украина, ущерб окружающей среде

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**Резюме:** Хоча визначення злочину екоциду було розроблено Незалежною групою експертів у 2021 році, воно досі не прийняте в жодному міжнародному документі. Російська військова агресія показала, що концепція екоциду досі актуальна. Метою статті є аналіз поняття екоциду та показання того, що окремі дії російської армії, спрямовані проти навколишнього природного середовища в Україні, відповідають вимогам злочину екоциду, а тому ці дії були протиправними, умисними та вчиненими з усвідомленням того, що вони можуть призвести до серйозної та довгострокової або широкомасштабної шкоди навколишньому середовищу.

**Ключові слова:** злочин екоциду, російська збройна агресія, Україна, шкода навколишньому природному середовищу

## Introduction

The full-scale Russian military aggression in Ukraine leads not only to the death and suffering of people, but also to the destruction of infrastructure, cultural and material objects, and, consequently, to the deterioration of Ukraine's economic situation.[1] The loss of people and the destruction of infrastructure always go along with the damage to the natural environment. Unfortunately, the question of the damage that the Russian military aggression in Ukraine causes to the natural environment, which may constitute ecocide, remains unexplored because the crime of ecocide has not been adopted in any international agreement yet. Meanwhile, this enables the potential prosecution of individuals responsible for committing that crime. Such crimes are therefore out of international "reach" due to the lack of inclusion of the term ecocide (from Greek *οικος* – 'habitat' and Latin *caedo* – 'to kill') into relevant documents of international law.

The aim of this article was to analyse the concept of ecocide proposed by the Independent Experts Panel and to identify, referring to specific examples of acts committed by the Russian armed forces in Ukraine, which were aimed not only at the exclusive destruction of environment, but also at the deterioration of living conditions of Ukrainians, whether these acts may constitute the crime of ecocide. In order to accomplish the aforementioned aim the legal and dogmatic method was applied. Relevant data on the extent of the environmental damage on the Ukrainian territory was presented.

[1] See more: T. Cak, I. Bìl'o, Û. Tkačuk, *Ekologo-ekonomìčnì naslìdki rosìjs'ko-ukraïns'koï vìjni*, Ekonomìka ta suspìl'stvo 2022, vol. 38.

## 1. The concept of ecocide in international law

The concept of crimes against the natural environment has not evolved recently,[2] but was proposed after the Vietnam War.[3] The term 'ecocide' is a new legal term, whose definition is currently subject to international discussion as a result of several acts that may fulfill the most basic criteria of crimes against the natural environment, which has a destructive impact on the people residing in the area. The first attempt to establish a legal definition of crime against the environment was made by the United Nations International Law Commission, which proposed in its report to add to the Rome Statute of International Criminal Court the following "willful and severe damage to the environment" as one of the most serious crimes of international character.[4] The core of the proposed definition was "[…] widespread, long-term and severe damage to the natural environment […],"[5] therefore emphasising the long-term character of the damage, which may influence not only the living generation but also the future generations. Despite a long discuse sion during the conference, the proposed definition was not adopted into the text of the Rome Statute of the International Criminal Court.[6] The only explicit reference to the crimes against the natural environment in the Rome Statute is the Article 8 (2) b (iv), which contains a definition of a war crime in the form of "intentionally launching an attack in the knowledge that such attack will cause incidental loss of life or injury to civilians or damage to civilian objects or widespread, long-term and severe damage to the natural environment which would be clearly excessive in relation to the concrete and direct overall military advantage anticipated."[7] Consequently, the international criminal law establishes criminal liability for an individual who commits a crime against the natural environment based on Article 8 (2) b (iv) of the Rome Statute.

The term 'ecocide' was presented to the United Nations International Law Commission in 2010, where it was defined as "extensive weakening, destruction or loss

2 A. Bustami, M.-Ch. Hecken, *Perspectives for a New International Crime against the Environment: International Criminal Responsibility for Environmental Degradation under the Rome Statute*, Goettingen Journal of International Law 2021, vol. 11, no. 1, pp. 154–155.

3 L. Minkova, *The Fifth International Crime: Reflections on the Definition of "Ecocide"*, Journal of Genocide Research 2023, vol. 25, no. 1, p. 69.

4 Report of the ILC on the work of its 47th session, UN Doc. A/50/10, 21 July 1995, Article 26, §§ 119–121.

5 Ibidem.

6 The Statute of the International Criminal Court, adopted on 17 July 1998, 2187 U.N.T.S. 3 (hereinafter: the Rome Statute).

7 Article 8 (2) b (iv) of the Rome Statute.

of the ecosystem of a given territory, whether as a result of human activity or other causes, which led to the possibility of the peaceful use of a given territory being severely diminished."[8] This definition refers not only to the time of armed activities or military conflict but also to the time of peace, which has opened a new perspective to the circumstances, in which this crime may be committed.

The most recent definition of ecocide, which was elaborated by the Independent Experts Panel "Stop Ecocide International," was presented in 2021 to the international community with the view to having it adopted and introduced to the Rome Statute. The panel proposed the whole "art. 8 ter" that may be directly adopted and incorporated to the Rome Statute. The proposed article reads as follows:

1) For the purpose of this Statute, ecocide means unlawful or wanton acts committed with the knowledge that there is a substantial likelihood of severe and either widespread or long-term damage to the environment being caused by those acts.
2) For the purpose of paragraph 1. "Wanton" means with reckless disregard for damage which would be clearly excessive in relation to the social and economic benefits anticipated; 2. "Severe" means damage which involves very serious adverse changes, disruption or harm to any element of the environment, including grave impacts on human life or natural, cultural or economic resources; 3. "Widespread" means damage which extends beyond a limited geographic area, crosses state boundaries, or is suffered by an entire ecosystem or species or a large number of human beings; 4. "Long-term" means damage which is irreversible or which cannot be redressed through natural recovery within a reasonable period of time; 5. "Environment" means the earth, its biosphere, cryosphere, lithosphere, hydrosphere and atmosphere, as well as outer space.[9]

According to the commentary published by the Panel, the first threshold requires that "there must exist a substantial likelihood that the conduct (act or omission) will cause severe and either widespread or long-term damage to the environment", while the second threshold requires "proof that the acts are unlawful or wanton."[10]

In the meantime, the issue of criminal liability for crimes against the natural environment was raised at the Council of Europe. In 1998, the Committee of Ministers of the Council of Europe adopted the Convention on the Protection of the

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8 A. Greene, *The Campaign to Make Ecocide an International Crime: Quixotic Quest or Moral Imperative?*, Fordham Environmental Law Review 2019, vol. 30, no. 3, pp. 2–3.

9 The text of the definition is available on the following website: https://www.stopecocide.earth/legal-definition [access: 12.10.2023].

10 Stop Ecocide Foundation, *Independent Expert Panel for the Legal Definition of Ecocide. Commentary and Core Text*, Amsterdam 2021.

Environment through Criminal Law.[11] The Convention established in Article 2 that "each Party shall adopt such appropriate measures as may be necessary to establish as criminal offenses under its domestic law." Ukraine is a Member State of the Council of Europe. The crimes against the environment were defined in Article 2 of the Convention as follows:

> (a) the discharge, emission or introduction of a quantity of substances or ionizing radiation into air, soil or water which: (i) causes death or serious injury to any person, or (ii) creates a significant risk of causing death or serious injury to any person; (b) the unlawful discharge, emission or introduction of a quantity of substances or ionizing radiation into air, soil or water which causes or is likely to cause their lasting deterioration or death or serious injury to any person or substantial damage to protected monuments, other protected objects, property, animals or plants; (c) the unlawful disposal, treatment, storage, transport, export or import of hazardous waste which causes or is likely to cause death or serious injury to any person or substantial damage to the quality of air, soil, water, animals or plants; (d) the unlawful operation of a plant in which a dangerous activity is carried out and which causes or is likely to cause death or serious injury to any person or substantial damage to the quality of air, soil, water, animals or plants; (e) the unlawful manufacture, treatment, storage, use, transport, export or import of nuclear materials or other hazardous radioactive substances which causes or is likely to cause death or serious injury to any person or substantial damage to the quality of air, soil, water, animals or plants, when committed intentionally.[12]

Even if the Convention is not universally binding and does not introduce individual criminal liability at the international level, it suggests what actions may cause severe damage to the environment and establishes fundamental standards for environmental protection.

For the purpose of this article it may be useful to analyse, in order to identify similarities with other, the definition of crimes against the natural environment that are established in the Criminal Code of Ukraine. Chapter 7 of the Code establishes criminal liability for those, who commit crimes against the environment on the territory of Ukraine.[13] According to the Criminal Code of Ukraine the following, among others, constitute a crime against the environment: violation of environmental safety rules, failure to take measures to eliminate the consequences of environmental pollution, concealment or misrepresentation of information about

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11 Convention on the Protection of the Environment through Criminal Law, adopted on 4 November 1998, European Treaty Series no. 172 (hereinafter: the Convention on the Protection of the Environment).

12 Article 2 of the Convention on the Protection of the Environment.

13 Кримінальний кодекс України, Відомості Верховної Ради України (ВВР), 2001, no. 25–26, p. 131.

the environmental status or morbidity of the population, contamination or damage to land, air pollution, sea pollution, destruction or damage to flora and fauna. Additionally, according to Article 441 of the Criminal Code of Ukraine 'ecocide' means "mass destruction of flora or fauna, poisoning of the atmosphere or water resources, as well as other actions that may cause an environmental disaster." It is therefore clear that the definition of ecocide established in the Ukrainian Criminal Code does not provide for widespread or long-term damage and does not explicitly provide for the intentions of committing such a crime. The full-scale Russian military aggression influenced the perception of ecological issues in Ukraine, which currently are considered to be among the elements of Ukrainian national security.[14]

## 2. Acts committed by Russians on the territory of Ukraine that may constitute the crime of ecocide

Based on the definition of ecocide formulated by the Independent Experts Panel "Stop Ecocide International" in "art. 8 ter" it becomes clear that there are strong grounds to consider Russia's crimes committed against the environment in Ukraine as ecocide.[15] Back in 2022, some researchers (taking into account the deliberate nature of the criminal actions of the Russian occupiers and the scale of the environmental damage caused) considered the environmental crimes of the Russian military forces as large-scale ecocide.[16] As of May 2022, there were 245 documented eco-crimes committed by the Russian army against the natural environment in Ukraine.[17] As of November 2022, more than 700 cases of crimes against the environment in Ukraine were recorded.

Currently, according to the collected data, there can be 1421 identified cases of crimes against the environment in Ukraine. If we try to establish the elements of ecocide in relation to individual components of environmental protection, among the cases of crimes against the environment in Ukraine established as of September

14 V. Ukolova, Ê. Ukolova, *Problema ekocidu âk ekologìčnogo zločinu: ukraïns'kij ta mìžnarodnij dosvìd*, Ûridičnij naukovije elektronnij žurnal 2021, no. 10, p. 355.

15 L. Minkova, *The Fifth International Crime: Reflections on the Definition of Ecocide*, Journal of Genocide Research 2023, vol. 25, no. 1, p. 67.

16 K. Gnedìna, P. Nagornij, *Zagrozi ekologìčnìj bezpecì: realìï voênnogo času ta ekonomìčne stimulûvannâ povoênnogo ekologìčnogo vìdnovlennâ Ukraïni*, Problemiì perspektivi ekonomìki ta upravlìnnâ, teoretičnì problemi rozvitkunacìonal'noï ekonomìki 2022, vol. 4, no. 32, pp. 41–43.

17 H. Bazhenova, *The War in Ukraine: Crimes against the Environment (Part 1)*, Instytut Europy Środkowej – IEŚ Commentaries 2022, no. 605 (117).

2023, it can be observed that the largest number of these crimes were committed in relation to the following components of environmental protection: damage to industrial facilities (528 cases – 37.2%), energy security (426 cases – 30.0%), direct impact on ecosystems (384 cases – 27.0%), nuclear safety (48 cases – 3.4%), others (35 cases – 2.4%).[18]

Based on the definition of ecocide elaborated by the Independent Experts Panel as of September 2023, the territorial distribution of ecocide evidence was quite heterogeneous. Thus, regions that suffered environmental damage from the actions of the occupiers included the following: Dnipropetrovsk (330 cases), Mykolaiv (247), Kharkiv (189), Zaporizhzhya (100), Sumy (99), Donetsk (84), Luhansk (57), Kyiv (40), Odesa (76), Kherson (59), Chernihiv (27), Khmelnitsky (20), Zhytomyr (17), Poltava (12), Lviv (11), Vinnytsia (10), Cherkasy (10), and other. The greatest numbers of cases that can be classified as acts of ecocide were recorded in the eastern and southern regions.[19] Published statistical data reveal the large scale of ecocide of the Russian army in Ukraine.[20]

As of 5 May 2022, the destruction of ecosystems in particular regions of Ukraine, an increase in the area of forest fires compared to 2021, and the destruction of protected areas of Ukraine (e.g. national parks) are the damages that Ukrainian researchers, such as T.V. Sak, I. O. Bilyo, and Y.E. Tkachuk, list as the most long-lasting damages to the environment as a result of the Russian military aggression.[21]

Among the most severe crimes against the environment committed by the Russian army in Ukraine as of 5 May 2022, are the following:

i. ammonia leak caused by the shelling of the Sumykhimprom enterprise;
ii. a projectile hitting a warehouse with polyurethane foam in the village of Chayki near Kyiv;
iii. shelling of the treatment facilities of the Vasylkivsk water supply and drainage department;
iv. shelling of the industrial enterprises of the Avdiyiv coke-chemical plant and the oil refinery in the Luhansk region.

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18 The materials are available on the following website: https://ecoaction.org.ua/warmap.html [access: 12.10.2023].

19 Ibidem.

20 The materials are available on the following websites: https://armyinform.com.ua/2022/06/20/ekoczyd-ukrayinyta-zagroza-golodu-u-sviti-yak-rosijska-agresiya-vplyvaye-na-klimatychni-zminy [access: 12.10.2023]; https://eco.rayon.in.ua/topics/506221-ekotsid-naslidki-itsina-rosiyskoi-agresii [access: 15.10.2023].

21 https://economyandsociety.in.ua/index.php/journal/article/view/1261 [access: 15.10.2023].

All of the abovementioned acts were wanton and caused severe and long-term damage to the environment, natural ecosystems, and biodiversity in the region. Additionally, all of them violated international agreements.[22]

According to the Ecodozor organisation, which publishes monthly damage records that may constitute the crime of ecocide, in March 2022, 240 industrial or critical infrastructure facilities in Ukraine were damaged or disrupted by Russian aggressive military actions, whose exclusive aim was to cause damage and suffering to the Ukrainians. During the following months the number of damaged facilities was as follows: April 2022 – 156, May 2022 – 60, June 2022 – 65, July 2022 – 71, August 2022 – 55, September 2022 – 50, October 2022 – 137, November 2022 – 68, December 2022 – 48, January 2023 – 39, February 2023 – 39, March 2023 – 42, April 2023 – 37, May 2023 – 66, June 2023 – 252, July 2023 – 48, August 2023 – 57, September 2023 – 51. Starting from 24 February 2022 until the end of September 2023, the average monthly number of damaged facilities was 83.[23]

Among facilities targeted by the Russian army during the military aggression the following may be identified as those that are more environmentally sensitive and therefore unsafe, since the consequences in case of their severe damage may be irreversible: the Chornobyl Nuclear Power Plant, the Zaporizhzhia Nuclear Power Plant, the Kyiv Hydropower Plant, the Experimental nuclear subcritical installation "Neutron source," the Skadovsk Sea Trading Port, the Kakhovsk Hydropower Plant, Toretsk Phenol Plant, the Avdiivka Coke and Chemical Plant, the Azovstal Metallurgical Plant, Toretsk Mine, the South Ukraine Nuclear Power Plant, the Severodonetsk "Skloplastik," the Polohivsky Chemical Plant "Coagulant," the Vuhlehirsk Thermal Power Plant, the Slovyansk Filtration Station, the Kharkiv TPP-3, the Terminal-UPSS, the Kharkiv TPP-5, the Dnipro Hydropower Plant, the Kremenchuk Hydropower Plant, the Khmelnytsk Nuclear Power Plant, the Rivne Nuclear Power Plant, the Ochakiv Port, the TS "Kreminska" – 500/220/35 KV, the Institute for Nuclear Research of the National Academy of Sciences of Ukraine, the O.O. Skochynskyi Mine, the Galychyna Oil Refinery, the Pivdennodonbas No. 1 Mine, the Beryslav Machine-Building Plant, the Crimean Titan, the Nikopol Ferroalloy Plant, the International Airport "Kyiv," the Ilyich Iron and Steel Works of Mariupol, the Port Point "Buhaz," the Reni Sea Trade Port, the Izmail Sea Trade Port.[24] Their en-

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22 Ministry of the Foreign Affairs of Ukraine, https://mfa.gov.ua/en/searchresult?site_id=1&key=statements+geneva+conventions [access: 13.10.2023]; *Geneva Conventions: How Does Russia Violate Them And Blame Ukraine? Explains VoxCheck* (in Ukrainian), https://voxukraine.org/zhenevski-konventsiyi-yak-yih-po-rushuye-rosiya-a-zvynuvachuye-v-tsomu-ukrayinu [access: 13.10.2023].

23 Ecodozor. Інформаційна платформа, https://ecodozor.org/ [access: 12.10.2023].

24 Ibidem.

tire list is presented in chronological order. The consequences of any damage to the abovementioned facilities are severe and long-term, influencing the lives of residents of the region. If any damage was done to the Chornobyl Nuclear Power Plant or the Zaporizhzhia Nuclear Power Plant in March 2022, its effects would have been felt until now and in the future. This applies especially to radiation.

Due to the limited length of the article, it is not possible to analyse every instance of damage caused by the Russian military aggression to the environment in Ukraine and establish if the criteria for potential ecocide are met. By the end of 2022, the Office of the Prosecutor General conducted procedural management in more than 190 criminal proceedings regarding crimes against the environment. One of the most significant pre-trial criminal investigations concerns violation of the laws and customs of war and potential ecocide caused by the detonation by the Russian army of the dam on Kakhovska HPP in the Kherson region, which, as the evidence has confirmed, will have long-term environmental and health impacts on the residents in the region.[25]

Kakhovska HPP Dam is currently controlled by the Russian army, which has full access to the internal underground gallery of the power plant. Having full access to all the facilities on the dam, the Russian army deliberately and intentionally provoked an explosion on 8 June 2023, which released a rising wall of water. It reached a peak of 5.6 m in Kherson on June 8 and swept through the river valley below the hydroelectric power station to the Black Sea over a distance of more than 200 km. Water supplies were cut off for extensive agricultural areas, several large cities and towns, and major power stations, including the Zaporizhzhya nuclear power plant.[26] More than 80 towns and villages downstream from the dam were flooded on the right bank of the river (52 people died as a result). The ecocide caused by the Russians' detonation of the Kakhovska HPP dam has many dimensions. Severe and long-term damage to the environment caused by the destruction of the Kakhovska dam implies:

1) the loss of irrigation water for households and farms and the drying of the landscape (according to the Ministry of Agriculture of Ukraine, the destruction of the dam will leave 584,000 hectares of land without irrigation, turning them into a "desert");

25 G. Leclerc, *Russia's War on Ukraine: High Environmental Toll*, European Parliamentary Research Service, PE 751.427 – July 2023, p. 1.

26 V. Vyshnevsky, S. Shevchuk, V. Komorin, Y. Oleynik, P. Gleick, *The Destruction of the Kakhovka dam and Its Consequences*, Water International 2023, vol. 48, no. 5, pp. 633–634.

2) the loss of water supply and drainage services in cities and other settlements (the reservoir provided drinking water to more than 700,000 residents of southern Ukraine);
3) health problems due to cholera and other diseases related to environmental pollution that may develop over time.

However, above all, this is a massive loss of habitats in the ecosystem (at least 43 species of fish lived in the reservoir, 20 of which were of industrial importance) and long-term degradation of ecosystems and reduction in the number of aquatic species and biodiversity. The condition of the benthos, which is of crucial importance not only for the river food chain but also for achieving the desired "good" ecology ical status of all water bodies in the Kakhovsky Reservoir and downstream (which Ukraine must achieve under the transposed EU Water Framework Directive) has been catastrophically disturbed.[27] Fish spawning, birds nesting, feeding and resting places of large flocks of migratory waterfowl have been irreversibly damaged. Several very important habitats at the mouth of the Dnipro River, which are protected under the Ramsar Convention on Wetlands of International Importance, including the Black Sea Biosphere Reserve (UNESCO Biosphere Reserve), have been seriously degraded and highly polluted.

The water from the reservoir carried with it agricultural fertilisers and pesticides from the fields. This will further prolong the period of unfavorable ecological conditions for the flora and fauna of the Black Sea coast, in particular for migratory species of fish and birds that depend on the Dnipro River marshes as places of rest and feeding. An additional potential problem is that the water has washed, mixed, and carried downstream radionuclides from the Chernobyl accident that have been buried in the bottom sediment layers of the Kakhovsky Reservoir for the past 37 years. They are now redeposited in estuarine marshes and pose a threat by accumulating in food chains.[28] The above-mentioned damage to the environment is not only severe, long-term, and widespread but also irreversible.

Signs of committing ecocide can be also established regarding the Biosphere Reserve of the National Academy of Agrarian Sciences of Ukraine "Askania-Nova," which was created by Friedrich Falz-Fein in 1898 and later was the first to receive the legal status of a reserve in 1919. The reserve was awarded a UNESCO certificate in 1985. This is the largest area of virgin steppes that has never been plowed

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27 Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy, OJ L 327, 22.12.2000, pp. 1–73.

28 Є. Стахів, А. Демиденко, *Екоцид: катастрофічні наслідки руйнування дамби Каховського водосховища*, Аналітика Суспільство 2023, https://voxukraine.org/ekotsyd-katastrofichni-naslidky-rujnuvannya-damby-kahovskogo-vodoshovyshha [access: 12.10.2023].

in Ukraine. Since October 2022, when the Russian occupation armed forces were deployed in the area of the "Askania-Nova," stressful conditions have been created for the animals living in the reserve due to overflights of aviation, which causes panic in wild animals and may even lead to their death. More than 1,500 ungulates living here are the descendants of animals brought to the Black Sea steppes during the time of Friedrich Falz-Fein. These are acclimatised animals that are adapted to the climate and landscapes of the Ukrainian steppes. Due to the wanton and deliberate acts of the Russian soldiers in 2022, three fires broke out on the territory of "Askania-Nova" on a total area of almost 1.4 thousand hectares. What is more, many trenches were dug on the territory of the Reserve. As reported by the Ministry of Environmental Protection, "Askania-Nova" will continue to suffer from fires. The Russian occupiers set up their training ground on the territory of the reserve. Part of the reserve was mined and dug up.[29]

In total, more than 800,000 hectares of legally protected areas of Ukraine are under Russian occupation. The damage to biodiversity is difficult to estimate, however, its consequences will be seen in the near future and will not be possible to reverse until full control over the area is restored.

Another crime against the environment that may constitute ecocide was committed on the territory of "Kinburn Split,"[30] which belongs to the Black Sea Biosphere Reserve. The Russian aggression and military activities intentionally caused long-term damage to the flora and fauna in that region. The damage was caused by the movement of wheeled transport, and most of all by the fires in the forests breaking out as a result of the shelling of the occupiers and other armed activities.[31] The Kinburn Spit has a unique biodiversity, with dozens of species listed in the Ukrainian Red Book, and subject to protection. For example, there is a rare species of red-book ant Tapinoma kinburni (*Tapinoma kinburni*),[32] the area is covered with a unique rare steppe species of plants listed in the Red Book of the International Union for Conservation of Nature and the Red Book of Ukraine.[33]

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29 Біосферний заповідник "Асканія-Нова" захоплений окупантами – Ukraine War Environmental Consequences Work Group, https://uwecworkgroup.info/uk/askania-nova-biosphere-reserve-captured-by-invaders/ [access: 13.10.2023].

30 In Ukrainian: Кінбурнська коса.

31 Кінбурнський півострів, https://suspilne.media/260281-kinburnskij-pivostriv-sob-vidnoviti-spaleni-zacotiri-misaci-lisi-potribni-desatilitta-direktor-parku/ [access: 14.10.2023].

32 Червона книга України. 2010–2023, https://redbook-ua.org/item/tapinoma-kinburni-karawajew/ [access: 13.10.2023].

33 C.B. Tarasûk, G.V. Kolomiêc', O.M. Derkač, Â.I. Movčai, I.I. Mojsiênko, M.M. Parafilo, O.C. Abduloyêva, *Kînburn: Perspektivi zbalansovanogo rozvitku*, Kïïv 2008, p. 50.

The most terrible and severe in terms of the consequences for the environment and residents of the area could be any potential direct damage to a nuclear plant. One of the greatest threats to Ukraine's environmental security is related to the radioactive facilities located in the area of military activities or territory temporarily occupied by the aggressor state and its troops. Indications of radiation safety violations during the Russian aggression are associated with the Chernobyl Nuclear Power Plant and the Zaporizhzhia NPP. On 24 February 2022, the Chernobyl NPP was occupied and Russian troops turned this facility into a war arena. The Chernobyl zone is the storage of spent nuclear fuel. The Russian occupiers destroyed the laboratory in the "Ecocenter" and also broke into the storage of ionising radiation sources, which stored sample radioactive solutions and calibration sources. The Russian army stole and damaged 133 sources of ionising radiation with an activity of approximately 7 million Becquerels, which is comparable to 700 kg of radioactive waste with the presence of beta and gamma radiation. More than 95% of the territory of the exclusion zone of the Chernobyl NPP can be mined by the Russian army, which poses a threat to animals and people, who may step on a mine or are under the influence of the spread radiation.[34]

Zaporizhzhya NPP is another example of deliberate actions of the Russian army, that threatens the lives of Ukrainian people and pose a severe threat to the environment. As of October 2023, Zaporizhzhya NPP has remained under the control of the occupiers from 4 March 2022. Before it was shelled with artillery, the building of the reactor department of the power unit and the site of spent nuclear fuel were damaged. The international community warned about the threat of the "second Chornobyl," while the President of Ukraine Volodymyr Zelenskyy denounced the actions of the Russians as "nuclear terrorism." The Russian troops placed equipment with explosives next to four power units of the nuclear power plant (the Zaporizhzhya NPP is the largest and most powerful nuclear power plant in Europe).[35] There was evidence that proved cases of non-compliance with safety regulations by the occupiers, as spare parts and other consumables were practically absent at the station, individual cooling pools were being drained, etc.[36] At the same time, any accident at the Zaporizhzhya NPP could lead to the greatest nuclear disaster in the recent history.

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34 *Понад 95% ЧАЕС може бути заміновано – Крамаренко*, https://suspilne.media/461144-ponad-95-caes-moze-buti-zaminovano-kramarenko/ [access: 12.10.2023].

35 P. Pereira, F. Bašić, I. Bogunovic, D. Barcelo, *Russian-Ukrainian War Impacts the Total Environment*, Science of the Total Environment 2022, vol. 837, pp. 155–865.

36 *Росіяни замінували ЗАЕС. Які можуть бути наслідки аварії та що каже влада*, https://suspilne.media/515545-rosiani-zaminuvali-zaes-aki-mozut-buti-naslidki-avarii-ta-so-kaze-vlada/ [access: 15.10.2023].

It is important to mention that the abovementioned facilities were destroyed or partially destroyed and the consequences of this prove that those acts committed by Russian army may constitute a crime of ecocide. Nevertheless, there are numerous objects that have been partially destroyed and mined by the Russian troops. These acts should be regarded as threats to the natural environment and residents of the areas concerned. The "Crimean Titan" is the largest manufacturer of titanium dioxide pigment in Eastern Europe. The city of Armyansk, where Titan is located, lies in the red risk zone. Due to the destruction of the Kakhovskaya HPP and as a result of the lack of water in the North Crimean Canal, production processes at the "Crimean Titan" facility have been disrupted to a critical level. The Russians have brought explosives to the chemical factory and are mining it along with the surrounding area. The Secretary of the National Security and Defense Council of Ukraine O. Danilov stated that the "Crimean Titan" and the Zaporizhzhya NPP are the main facilities which the Russians may attack with the aim of causing severe damage in the area. Almost 200 tons of technological ammonia are used in the "Crimean Titan" for refrigerating equipment. In case of an explosion at that facility, depending on the direction of the wind, the ammonia cloud , may contaminate the surrounding areas. Thus, not only the Crimean Peninsula but also the neighbouring southern regions of the Kherson Oblast will be under threat and may suffer severe and long-term damage to their environment. This would mean a man-made catastrophe, with severe consequences.[37] According to Arthur H. Westing, a pioneer in the field of research on the relationship between war and the environment, the consequences of targeted military destruction and modification of ecosystems on agricultural lands are more noticeable, especially in those regions where a significant number of the population is involved in agriculture and depends on its development.[38] Ukraine has a high level of agricultural land use (60% compared to the level of 20–30% in the EU countries), which further intensifies the effects of Russia's ecocide on the lands and landscapes of Ukraine.[39]

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37 Russia is preparing a "man-made catastrophe" at the *Titan* chemical *plant* in annexed Crimea, Kyiv's military intelligence agency, https://www.newsweek.com/russia-man-made-catastrophe-crimea-titan-chemical-plant-1805977 [access: 12.10.2023].

38 A. Westing, *Arms Control and the Environment: Proscription of Ecocide*, Bulletin of the Atomic Scientists 1974, vol. 30, no. 1, pp. 24–27.

39 M. Solokha, P. Pereira, L. Symochko, N. Vynokurova, O. Demyanyuk, K. Sementsova, M. Inacio, D. Barcelo, *Russian-Ukrainian War Impacts on the Environment. Evidence from the Field on Soil Properties and Remote Sensing*, Science of The Total Environment 2023, vol. 902, pp. 166–122.

In Ukraine, agriculture plays a significant role in economic well-being and food security.[40] However, due to the Russian aggression, the crops were uprooted, and many agricultural lands are in the war zone or are targeted with mines and intense shelling by the Russian army. According to Arthur H. Westing, such actions meet the criteria of ecocide, when the object of destruction is the environment itself. This situation is combined with the Russian naval blockade, which disrupts the export of Ukrainian grain, as well as the theft of grain stocks from warehouses and vegetable crops located on the temporarily occupied territories of Ukraine,[41] destruction of granaries, and massive destruction of granaries in Ukrainian ports.

It is worth emphasising that there is an obvious relation between ecocide and genocide, where the latter is defined as an "intent to destroy, in whole or in part, a national, ethnic, racial or religious group" by *inter alia* deliberately "inflicting on the group conditions of life calculated to bring about its physical destruction in whole or in part."[42]

## Conclusion

Based on the analysis conducted above, it can be concluded that the Russians are responsible not only for committing most serious international crimes specified in the Rome Statute, but also for committing crimes against the natural environment in Ukraine, which, at least in cases analysed in this article, meet the criteria of and therefore may constitute the crime of ecocide as defined by the Independent Expert Panel in the proposed "art. 8 ter." However, in order to effectively prosecute individuals for committing crimes of ecocide in Ukraine at the international level, the definition of ecocide requires a formal approval and has to be incorporated into the Rome Statute, which unfortunately may take time and may depend on the "political" consensus.

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40 See more: P.R. Chowdhury, H. Medhi, K.G. Bhattacharyya, Ch.M. Hussain, *Severe Deterioration in Food-Energy-Ecosystem nexus Due to Ongoing Russia-Ukraine War: A Critical Review*, Science of the Total Environment 2023, vol. 902.

41 T. Gardashuk, *Is Russian Aggression in Ukraine Ecocide?*, Envigogika 2022, vol. 17, no. 1; D. Rawtani, G. Gupta, N. Khatri, P.K. Rao, C.M. Hussain, *Environmental Damages Due to War in Ukraine: A Perspective*, Science of the Total Environment 2022, vol. 850, pp. 157–932.

42 Convention on the Prevention and Punishment of the Crime of Genocide, adopted on 9 December 1948, 78 U.N.T.S. 277.

As was demonstrated in this article, the Russian aggression in Ukraine bears clear signs of ecocide. According to the definition proposed by the Independent Expert Panel in 2021, the term ecocide means unlawful or wanton acts committed with the knowledge that there is a substantial likelihood of severe and either widespread or long-term damage to the environment being caused by those acts. It has to be emphasised that the cases of potential ecocide committed by Russian troops in Ukraine, that were analysed in this article, were unlawful, and therefore constituted violations of both Ukrainian and international law, especially humanitarian law. All facilities that were targeted by the Russian armed forces were not military facilities or facilities used for military purposes. Finally, it must be remembered that the Russian army is the army of the state which, according to the international law, is an aggressor state. What is more, incidents analysed in this article were wanton and committed with the knowledge that there is a substantial likelihood of severe and long-term damage to the environment. If the Russian occupiers effectively controlled Kakhovska NPP Dam and detonated explosives on the Dam, it is not possible to argue that they were not aware of the severe and long-term damage to the environment caused by their actions. Other examples of potential cases of ecocide were also committed deliberately in similar circumstances, with the full awareness of severe and either widespread or long-term damage to the environment.

## Bibliography

Bazhenova H., *The War in Ukraine: Crimes against the Environment (part 1)*, Instytut Europy Środkowej – IEŚ Commentaries 2022, no. 605 (117).

Bustami A., Hecken M.-Ch., *Perspectives for a New International Crime against the Environment: International Criminal Responsibility for Environmental Degradation under the Rome Statute*, Goettingen Journal of International Law 2021, vol. 11, no. 1.

Cak T., Bìl'o I., Tkačuk Û., *Ekologo-ekonomìčnì naslìdkirosìjs'ko-ukraïns'koï vìjni*, Ekonomìka ta suspìl'stvo 2022, vol. 38.

Chowdhury P.R., Medhi H., Bhattacharyya K.G., Hussain Ch.M., *Severe Deterioration in Food-Energy-Ecosystem nexus Due to Ongoing Russia-Ukraine War: A Critical Review*, Science of the Total Environment 2023, vol. 902.

Gardashuk T., *Is Russian Aggression in Ukraine Ecocide?*, Envigogika 2022, vol. 17, no. 1.

Gnedìna K., Nagornij P., *Zagrozi ekologìčnìj bezpecì: realìï voênnogo času ta ekonomìčne stimulûvannâ povoênnogo ekologìčnogo vìdnovlennâ Ukraïni*, Problemiì perspektivi ekonomìki ta upravlìnnâ, teoretičnì problemi rozvitkunacìonal'noï ekonomìki 2022, no. 4 (32).

Greene A., *The Campaign to Make Ecocide an International Crime: Quixotic Quest or Moral Imperative?*, Fordham Environmental Law Review 2019, vol. 30, no. 3.

Leclerc G., *Russia's War on Ukraine: High Environmental Toll*, European Parliamentary Research Service, PE 751.427 – July 2023.

Minkova L., *The Fifth International Crime: Reflections on the Definition of Ecocide*, Journal of Genocide Research 2023, vol. 25, no. 1.

Pereira P., Bašić F., Bogunovic I., Barcelo D., *Russian-Ukrainian War Impacts the Total Environment*, Science of the Total Environment 2022, vol. 837.

Rawtani D., Gupta G., Khatri N., Rao P.K., Hussain Ch.M., *Environmental Damages Due to War in Ukraine: A Perspective*, Science of the Total Environment 2022, vol. 850.

Report of the ILC on the work of its 47th session, UN Doc. A/50/10, 21 July 1995.

Solokha M., Pereira P., Symochko L., Vynokurova N., Demyanyuk O., Sementsova K., Inacio M., Barcelo D., *Russian-Ukrainian War Impacts on the Environment. Evidence from the Field on Soil Properties and Remote Sensing*, Science of the Total Environment 2023, vol. 902.

Stop Ecocide Foundation, *Independent Expert Panel for the Legal Definition of Ecocide. Commentary and Core Text*, Amsterdam 2021.

Tarasûk C.B., Kolomiêc' G.V., Derkač O.M., Movčai Â.I., Mojsiênko I.I., Parafilo M.M., Abduloyêva O.C., *Kìnburn: Perspektivi zbalansovanogo rozvitku*, Kiïv 2008.

Ukolova V., Ukolova Ê., *Problema ekocidu âk ekologìčnogo zločinu: ukraïns'kij ta mìžnarodnij dosvìd*, Ûridičnij naukovije elektronnij žurnal 2021, no. 10.

Vyshnevsky V., Shevchuk S., Komorin V., Oleynik Y., Gleick P., *The Destruction of the Kakhovka dam and Its Consequences*, Water International 2023, vol. 48, no. 5.

Westing A.H., *Arms Control and the Environment: Proscription of Ecocide*, Bulletin of the Atomic Scientists 1974, vol. 30, no. 1.