

## UKRAINIAN FACILITIES OF THE NATURE RESERVE FUND IN THE CONDITIONS OF WAR AND RUSSIAN OCCUPATION

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### Abstract:

In the article, the team of authors conducted a study of the threats to the nature conservation objects of Ukraine that have arisen due to the Russian military invasion, the consequences of the war, and proposed a number of measures for the effective preservation of protected objects in the future. A characteristic feature of the work is the use of qualitative sociological methods. In order to analyze security measures, the interaction of nature protection zone teams with the government and the public, the problem of collaborationism, damage assessment methods and other related issues, the authors conducted a series of in-depth interviews with employees of 12 Ukrainian nature reserves, national nature parks and other natural objects - a reserve fund that was directly affected by the war and occupation in 2014-2022 with an emphasis on the consequences of the full-scale Russian invasion in Ukraine. The authors proposed recommendations for nature conservation facilities on how to make the work of nature protection facility teams more efficient, safe and effective in the restoration of damaged ecosystems in protected areas. A lot of attention is paid to current and prospective methods of assessing damage caused to nature. This is especially important in the context of Ukraine's lawsuits in international courts against the aggressor state in order to prepare a legally convincing argument for compensation for environmental damages. New principles of care for nature conservation areas are also being considered. In particular, instead of artificial ecosystems that require constant human intervention, a return to a natural landscape that reproduces itself is proposed.

**Key words:** nature reserves, national parks, Russian war in Ukraine, organization of security measures, damage assessment.

## УКРАЇНСЬКІ ОБ'ЄКТИ ПРИРОДО-ЗАПОВІДНОГО ФОНДУ В УМОВАХ ВІЙНИ ТА РОСІЙСЬКОЇ ОКУПАЦІЇ

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### Анотація:

В науковій розвідці колектив авторів провів дослідження загроз, що виникли перед природоохоронними об'єктами через російське військове вторгнення та запропонував низку заходів задля їх ефективного захисту. Характерною рисою роботи є використання якісних соціологічних методів. Для того, щоби проаналізувати заходи безпеки, взаємодію колективів природоохоронних зон із урядом та громадськістю, проблему колабораціонізму і решту дотичних питань автори провели серію глибоких інтерв'ю з працівниками 12 українських заповідників, національних природних парків та інших об'єктів природо-заповідного фонду, що зазнали безпосереднього впливу війни та/або окупації. В статті були запропоновані рекомендації, як зробити роботу природоохоронних колективів більш ефективною, безпечною і такою, що сприятиме відновленню пошкоджених екосистем. Окрема увага була приділена тому, як оцінити шкоду, що була завдана природі через бойові дії та окупацію. Справа в тому, що затверджені постановами Кабінету міністрів так звані такси по виплатах за заподіяну шкоду вимагають оперативної та дуже прискіпливої фіксації кожного окремого випадку – буквально, кожного знищеного дерева чи тварини. В умовах війни це є майже нездійсненим. Масштаби руйнувань та неможливість безпосередньої оцінки «на місці» через бойові дії і мінування природних заповідників вимагають затвердження нових методик та способів оцінки шкоди, що була заподіяна природі. Особливо це є важливим в контексті судових позовів України до міжнародних судів проти держави-агресора з метою підготовки юридично переконливої аргументації щодо компенсації завданих екологічних збитків. Також розглядаються нові принципи роботи з природоохоронними зонами. Зокрема, замість підтримки штучних екосистем, які вимагають постійного втручання людини, пропонується повернення до природних ландшафтів, що відтворюють самі себе.

**Ключові слова:** природні заповідники, національні парки, російська війна в Україні, організація безпекових заходів, оцінка завданої шкоди.

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## Introduction

Russian military aggression on the territory of Ukraine had a devastating impact not only on people's lives, but also on those nature-reserve objects in the war zone. Thousands of hectares of forests were destroyed. Huge areas of protected lands were mined and became dangerous to visit in the following decades. Flora and fauna suffered significant damage due to direct destruction, emissions of toxic substances, poaching, uncontrolled fishing. Employees of many objects of the Nature Protected Reserves (NPR) of national and local importance have lost the opportunity to take care of the territories under their control and conduct scientific research.

However, at the same time, this negative experience provided a unique body of knowledge regarding the operation and safety of nature-reserve objects in the conditions of war and occupation. Clarifying the issue of how hostilities in the region and occupation affected the work of Ukrainian NPR facilities was the aim of the study. The generalization of such information and its wide distribution in the world will allow to increase the state of preparedness of NRF objects for various catastrophic events not only in Ukraine, but also on our planet as a whole.

## Methodology

It was decided to conduct an appropriate study using sociological methods. In general, between July and November 2022, 14 in-depth interviews were conducted in 12 Ukrainian nature reserves, national natural parks and other objects of the Nature Reserve Fund that were directly affected by the war and the Russian occupation. The research was carried out by the Kherson regional department of Sociological Association of Ukraine as part of the project "Together for ecological democracy, justice and the rule of law in Ukraine" (TEDJusticeROL) with the financial support of the International Charity Organization "Ecology - Law - Human" and the US Government.

The main topics for discussion were, in fact, the objects of the Nature Reserve Fund, their work during hostilities and under occupation, damage assessment, security measures, interaction with the government and the public, issues of contacts with the Russian occupation authorities. The team of authors of the study included specialists in nature protection, ecologists and sociologists.

Employees of the following NRF facilities participated in the survey: Falz-Fein Biosphere Reserve "Askania-Nova", "Biloberezhzhia Sviatoslava" National Nature Park, Luhansk Nature Reserve, Hetmanskyyi National Nature Park, "Dvorichanskyi" National Nature Park, "Nizhniodniprovskyyi" National Natural Park, "Kinburnska Kosa" Regional Landscape Park, Ukrainian Steppe Natural Reserve, Black Sea Biosphere Reserve, "Kamiani Mohyly" Nature Reserve, Chernobyl Radiation and Ecological Biosphere Reserve and Mykolaiv Zoological Park. Among the research participants are

managers and deputies of NPR facilities, researchers and rangers. All respondents were safe and in Ukrainian-controlled territory during the interview. For security reasons, all quotes from research participants are anonymized.

## The world experience of researching reserves in the conditions of conflicts and man-made disasters

The topic of the Nature Protected Reserves in the conditions of the war has repeatedly attracted the attention of scientists. Actually, one of the respondents mentioned that he had already read about similar circumstances in the books of the famous biologist Felix Shtilmark. It should be noted that these studies were about the damages that the reserves suffered during the Second World War and the German occupation of 1941-1943. We can also add a view from the other side to the opinions of the national historiography. In 1941-1943, the New Ukrainian Word publication published a series of articles by the director of the Zoological Museum, Serhiy Paramonov, in which the responsibility for the decline of nature reserves rested on the Soviet government (Paramonov, 1942).

Of course, world science used a much wider source base and considered the issue through the prism of a huge number of conflicts in different eras, on different continents. In particular, in the collection "War and the Environment: Military Destruction in the New Age" (War, 2009), a series of essays on the peculiarities of war's "relationship" with nature was published using examples of military conflicts in the United States, Europe, and the Philippines. The classic work of University of California professor Roderick Nash, "Wild Nature and the American Mind" (Nash, 1967) examines the history of Americans' relationship with native nature and, among other things, touches on how wars and conflicts have affected reserves and natural areas in the United States.

The topic of war on the territory of a nature reserve is often used by researchers as an illustrative example to explain larger events or concepts. Thus, the American journalist Alan Weisman (Weisman, 2007) paid great attention to this, in his book "The World Without Us" the future revival of nature is considered in detail if humanity suddenly disappears. For relevant illustrations, the author refers to the practical experience of the Korean demilitarized zone (the territory of which, after the end of the war, has not been touched by a human hand since 1953), the abandoned tourist zone of western Cyprus (after the invasion of Turkish troops in 1974), and the Ukrainian Chernobyl exclusion zone after accident of 1986.

Various aspects of the problem were discussed in detail in a special issue of the magazine "Parks" "War and conservation areas" (War..., 2004). All seven scientific articles in this issue were devoted to effective strategies for preserving natural heritage during armed conflicts, international support for the reserves caught in the line of fire, and post-war revival of nature conservation zones in various countries of the world. The International Council for Conservation of Nature (ICCN) has also repeatedly addressed this topic, publishing a kind of "road map" on

the protection of the environment and nature conservation zones during wars (IUCN, 2021).

Similar in format, but even more informative and useful in its practical recommendations, was the collective research of Lund University in Sweden, made under the patronage of the International Red Cross and Red Crescent, as well as a kind of “road map” on environmental protection and nature conservation zones during wars (Guidelines, 2020). We also tried to focus mainly on practical aspects so that the research could become a basis for the development of instructions, recommendations, trainings that actually save lives and allow more effective care of the objects of the nature reserve fund.

### **Ukrainian NPR facilities in the conditions of a full-scale invasion of the Russian Federation in Ukraine.**

#### **What to do? The dilemma of the first days of the war**

All respondents in one way or another thought about whether it was possible to better prepare the NPR facilities and their employees before the start of the war. The previous experience turned out to be useless in the new conditions.

It is characteristic that a significant part of the reserves was located close to the front line, their employees were witnesses of quite active hostilities in 2014-2015, a special control regime operated there all the time, there were government recommendations on working in the border zone, but even such specific knowledge and skills did not come in handy. The war turned out to be different:

*“Despite the fact that we suffered certain losses and already had such experience, we turned out to be completely unprepared. It was quite unexpected. Why? We are used to being in these conditions... In Stanytsia Luhanska, in general, there were regular periods of escalation, they were quite frequent, and some informational attacks were even more frequent than the events themselves. They constantly declared that tomorrow they will advance - something like that was always heard from that side. We reacted to such statements in the same way as to all previous ones that have been heard many times. We didn't pay attention to them at all.”*

*“When the first rocket strikes began before our eyes, the first explosions in the port, the planes - it was all perceived, frankly, as some bad movie.”*

*“I have not experienced such shelling in my life, I have not even seen it on TV, when war films were shown. It seemed to me that they were not as dense there as they were during the shelling of our villages.”*

In the conditions of shock and confusion that accompanied the first days of the war, the reserve staff wanted to simply “open the envelope and see what to do”. Instead, they found themselves alone, facing very difficult challenges, when their own lives, as well as the lives of loved ones and colleagues, depended on certain decisions.

Without instructions and orders from the leadership, people acted intuitively, according to their own patriotic beliefs, as well as ideas about rightness and justice - sometimes without considering the great risk of such a reaction. Thus, many employees of NPR facilities considered it their duty to destroy material assets, damage vehicles, ruin the passage ways of enemy vehicles, hide weapons in the occupied territory (it should be noted separately that the security service of many nature reserves has firearms and lacks direct instructions, what to do with weapons in the conditions of hostilities and occupation, which can have the most tragic consequences):

*“We just destroyed a lot of things. In particular, I left a blank computer behind when I left the preserve. I downloaded all information, took it with me and then destroyed it.”*

*“Perhaps it would be useful for us to know what to do with the property? Do we destroy it or do we give it away? I understand that it was not registered to my name, this property, but I could have sunk the boat.”*

*“They asked me where I hid the weapon, but I said: ‘What weapon?’ I told them (Ed. Russians) that my work weapon (provided by state) was taken away. And I actually hid my personal weapon.”*

*“Theoretically, it would be possible to participate in the creation of some obstacles for the movement of enemy troops, to establish surveillance of the movement of enemy vehicles.”*

Some tried to fulfill their official duties by going out to put out fires during active hostilities, stopping to do so only after an accident of cars being blown up on mines:

*“In the beginning, there was a period when we went to fires and worked as volunteer firefighters. But later everything became complicated. The summer generally became a critical period. The steppe has burned out, the pine burns like a candle, and the invaders have become, let's say, very frequent guests on the territory of the reserve. Roads were mined, people were dying.”*

Often employees had different ideas about what should be done in such a situation, and this led to conflicts (and could have led to much worse consequences):

*“The management accused me that by our actions we led to the rummage of their homes. This was in relation to us reposting the message of the Ministry of Environment: ‘Don't burn dead leaves, burn the occupiers.’ Well, yes, maybe we didn't think very well... The deputy director told me that now I will post only what is confirmed with him personally. But now I just post whether I want without thinking if someone will be searched or not. I simply removed the management from my friends list and they stopped seeing what I was posting on the website.”*

The safety of employees largely depended on the actions of the management of the nature reserve fund, his authority in the team and internal politics. In turn,

the management, depending on their own beliefs, could implement different strategies, from focusing on the safety of people to trying to save the reserve at any cost as “their life’s work” Some, on the contrary, distanced themselves from active actions and did not take responsibility for leading the team in conditions of danger:

*“I always instructed our employees: ‘It should be said that we are ordinary botanists, we preserve nature.’ All in order to avoid conflicts. Foremost, it is the safety of people which is important.”*

*“The very first thing that is correct is what we told our employees: ‘Keep to the reserve. Don’t run away. The reserve is a landmark institution known in the world. And they (Ukrainian authorities) won’t leave us, they won’t forget us.” It paid off. Imagine if the people ran away, who would feed these animals?”*

*“We had such a strange lull in March because we did not communicate with our management. It did not consider it possible to inform us. What are we doing? How do we do it? What’s going on?”*

#### **Knowledge and skills that can save lives**

One of the respondents shared the common opinion, “we didn’t have any instructions, everyone did something to the extent of their, let’s say, capabilities.”

The problems they had to face revealed a lack of specialist knowledge in areas such as first aid and the handling of explosives:

*“Military knowledge is very lacking, not everyone has completed the military training. Especially in the part of distinguishing the types of explosive objects. For example, how to notice a tripwire bomb. What are the types of explosive objects. What to do in case of shelling.*

*Of course, it is necessary to conduct seminars on tactical medicine so that people have at least basic knowledge of how to provide aid. If something happens in the forest, and in general, this knowledge will not hurt anyone. Therefore, there should be not only a seminar, but also practical classes. It’s not enough to hear, you have to do it with your own hands and see how it’s done.”*

This kind of preparation was given undeservedly modest attention. Due to the lack of more modern knowledge, the civil defense classes of the Cold War era turned out to be more adequate to the situation (as noted by respondents of a respectable age who started their careers back in the 70s and 80s):

*“Anyone who was trained in civil defense during the Soviet era, when there was a threat of nuclear war, knows what should be done. And I went through it all. Therefore, it was not a surprise to me what should be done. Which rooms should be used first (Ed. as bomb shelters). What to put there. We have basements directly under the laboratories, it was necessary to quickly remove everything superfluous from there, bring in benches, water, and lanterns.*

*And to predict where and in what case things should be moved, if there is a real threat...”*

*“You know, we often criticize the Soviet era, but at that time certain instructions regarding what to do in the event of a nuclear attack were not poorly developed. I think that such an instruction should be made even now.”*

In fact, similar trainings already exist, although they are unlikely to have reached a significant number of specialists. Only 1 out of 14 interviewees talked about participating in a one-week mine safety course:

*“We were simply sent to a one-week mine safety course at the State Emergency Service. We were sitting there on the base near Kyiv. All these things were covered, from grenades and mines to what to do and what not to do if you found an artillery shell or an element of a volley fire system. We went to the forest on the tactical field to see how it works in real life. All these tripwire bombs and so on.”*

Respondents also consider wider use of remote work as a promising step in order to increase the stability of NRF facilities and the safety of their employees. In their opinion, not only familiar formats can be used, such as conferences, trainings, educational programs, but also monitoring reserves and assessing the damage caused by hostilities:

*“We could work from home for some time. We already had such experience during the COVID lockdown, it is possible to work remotely quite comfortably.”*

*“The remote work mode has already become so popular, we have already mastered Zoom, have already learned to communicate online, arranging round tables and conferences is not an issue at all now...”*

*“I understand, for example, that researchers cannot work directly in the field now, but they take part in trainings. They write articles. Something is added to the registers. Those who remained are preparing lecture material. It would be easier for us if the ministry would give some advice or offer relevant courses.”*

#### **“Grey zone”: life and work under the conditions of occupation**

The sudden and unexpected nature of the Russian military aggression did not give the reserves and their teams time to prepare and evacuate people, equipment or documents. A significant number of the studied objects were already in the combat zone in the first day of the war. Most of the respondents lived in the occupation for quite a long time.

Probably, this experience should be studied by psychologists. At least, eyewitnesses say that it is the most difficult thing to endure, to overcome a depressed psychological state. “Extremely perceptible psychological trauma”, “morale state is extremely depressed”, “you just don’t understand why and how you can be deprived of your health or life”, - the interviews with employees of reserves are full of such testimonies.

The continuation of work “under the Ukrainian flag” in the conditions of occupation was perhaps a bigger problem than direct military threats (shelling, mines). In the first days, the invaders did not pay much attention to the activities of the reserves. They were mainly focused on issues of control over the captured territories:

*“They had a lot of other problems. With education, police, fire department, other institutions such as communal utilities. As one of the lower-ranking collaborators said: “Just wait, we’ll deal with you a little later.”*

In retrospect, we know that in reality it was meant to happen “a little later” in any case, and Ukrainian specialists in the zone of hostilities or occupation were left with a choice either to wait for the liberation of the territory by the Ukrainian army, or to get out to safe territory as soon as possible. Attempts to maintain the usual work and at the same time not to cooperate with the enemy could not be successful in practice. Nevertheless, this is exactly the way the employees of the collectives tried to go, finding themselves in the conditions of occupation.

The peculiarity of the work of individual nature reserves implies a certain autonomy and the ability to function independently for quite a long time. However, the NRF object is not a completely self-sufficient structure, although it requires interaction with the outside world to a lesser extent than, for example, an industrial enterprise, a school or a communal institution. Thus, the purely technical capabilities of the objects coincided with the desire of the employees to continue working without coming into contact with the invaders:

*“You see, our reserve was always ready for autonomous operation. Since the nineties. Our stocks were almost enough for the month of March. There was a resource of strength that allowed in a critical situation to continue feeding the animals and taking care of the plants of the arboretum. We still had about six or eight tons of diesel fuel. And diesel fuel is needed for our power plants, to get water.”*

The “parallel” existence of nature reserves under the Ukrainian flag and with the occupation authorities lasted for quite a long time - for more than a year at some sites. The employees continued to perform their duties, carried out scientific and environmental protection activities, and extinguished fires on the territory. At the same time, they did not interact with the invaders. Although the institutions could not make purchases from their accounts, they continued to accrue salaries, which could be transferred from a Ukrainian bank card to cash with the help of enterprising “dealers”<sup>1</sup>:

*“Money was paid late, but everyone got paid late. The main thing is that the income was stable. This encouraged people not to take those 10,000 rubles or the Russian humanitarian aid.”*

In these difficult times, support and charitable assistance from private individuals and international

organizations played a huge role. For example, only the European Association of Zoos and Aquariums transferred more than 1.7 million euros to the specially created account “Ukrzoo” (part of these funds went, in particular, to support nature reserves in the occupied territories). People from many countries of the world bought online tickets to closed Ukrainian zoos, arboretums and nature reserves in order to support institutions in difficult times:

*“Then there is only one option left - using only private credit cards. The only way to get the funds and use them where needed. It all started with my card. I remember, it was already late at night, and the card received more and more donations... Moreover, they were provided by both familiar people and those who I had never met. People who just knew about Askania. “Askania” worked on its name for a hundred years, and now the name worked on “Askania”. As a result, approximately 7.5 million hryvnias were donated to us.”*

*“We turned to our environmental protection organizations and the Ukrainian environmental protection group provided help. Plus, they allocated funds for gasoline for trips to the territory.”*

*“In one day, I think, they collected up to 50 thousand UAH to buy fuel. Thanks to such a public initiative, a fund was formed that supported the fire department’s activities.”*

Incidentally, we note that contacts with foreign partners were extremely useful not only in terms of immediate assistance to the NRF objects, but also in terms of their further prospects. Thanks to this, the heads of Ukrainian nature reserves became more active in seeking help and in their readiness for international cooperation:

*“The search continues, a constant search in the grant direction. At our level, it is not always possible, but at the level of the Ministry, a Memorandum was signed with Lithuania. It gives us hope. Our employee’s internship is already underway. Perhaps there will also be, as they say, material assistance, with God’s help.”*

While we highly appreciate the true heroism of Ukrainian environmentalists who fought to the last for the preservation of nature reserves and parks, nevertheless, it is hardly worth recommending such actions to employees of the industry during the war and occupation. Being in the thick of events, they were hardly fully aware of all the risks and consequences. However, they were led by a sense of moral obligation:

*“My task is to keep the institution afloat as much as possible in order to preserve this asset, which took more than a dozen years to create, more than a century. My task is to keep the institution afloat, but I will do it exclusively in the Ukrainian format. Of course, the situation is life-threatening, this is an occupied territory*

<sup>1</sup> For more detailed information on the functioning of the financial system on the occupied territories see: Homanyuk, Mykola. (2023). Unter Besatzung Eine Chronik aus Cherson. *Osteurope*, 1–2, 69-96.

*after all, and no one could guarantee my safety. But as long as I could work within my functional authority, I felt it necessary to do so.*

*“Everyone did their work at home, and we submitted the prepared, completed and bound “Chronicle of Nature” to the Ministry in time for May 1st. This was our main task during the occupation. I will say more: “Chronicle of Nature” was published this year in our country under conditions of occupation. It is written so in the preface.”*

In the end, everything was leading to the situation, in which any activity independent of the invaders would be severely suppressed. One of the respondents briefly described his own experience of being in the basement of the occupiers: “I got there for a stupid reason. They were beating me constantly. I haven’t eaten for several days.”

A targeted search for people with pro-Ukrainian views began in the occupied territories, and the activities of collectives that refused the offer to come under Russian jurisdiction were under suspicion:

*“We have a man, he took part in the ATO (Ed. Antiterrorist operation (later Joint Forces Operation) - military operation taking place in the Eastern regions of Ukraine in 2014-2022.). They took him before the month of April and still nothing is known about him.”*

*“There were already several facts that prove that even going outdoors was dangerous. They (Russians) can grab you, and it’s a question whether you will return home. Best case scenario, you’ll return in a few weeks or even a few months.*

*“They conducted a search and found a pixel shape uniform. We bought one for our employees. We, as the state protection service for NRF facilities, are required to follow the uniform requirements. So, they found this uniform. And the guard got into real trouble for this. Their (Russian) version was that we were hiding a serviceman of the Armed Forces of Ukraine.”*

Sooner or later a choice had to be made. The employees felt offended that we would to suspect that their sincere desire to save their life’s work might have something to do with collaborationism. Nevertheless, the following question arose:

*“There was a call from the National Academy of Agrarian Sciences. I was advised to leave this area. Strongly recommended. They warned that there was danger etc. They even said directly that there could be questions about collaborationism. That is, if a person stays in this territory, then questions may arise.”*

*“I understand that the head of the branch remained there. He somehow tries to save the estate there. I look at it from a different position. If the invaders*

*come, you have to fight them. And serving both sides, ours and yours, to protect nature... this sounds a lot like collaboration”.*

### **Collaborationism and contacts with the occupation authorities**

The stories of respondents who lived in the occupation for a certain time are full of references to collaborationism and collaborators. But it is interesting that the scale of this phenomenon in the collectives of the reserves is assessed very differently - from “almost none” to “more than half”. Perhaps such a spread is related not only to real differences in regions and teams, but also to a subjective assessment of what exactly people understand as collaborationism<sup>2</sup>:

*“Sometimes, for example, they leave to get diesel fuel, for instance. Of course, somewhere they get that diesel fuel, they pass some block posts, they are not stopped there, they still say something. Can it be considered collaborationism? Or the man who keeps the Kinbourn Scythe from burning down?”*

*“I know many enthusiasts who find themselves in this predicament, they cannot leave their life’s work. And they work, unfortunately, not for Ukraine, but definitely not for Russia. They work for the preservation of those objects to which they dedicated their lives.”*

Of course, in addition to such conventionally “borderline” cases, many cases of deliberate betrayal due to ideological, career or other considerations have been recorded:

*“Of course, I know these people. I think they are quietly clapping their hands with joy. They continue to work there. I know who has already frankly turned (Ed. to the Russian side). And family members who turned. I think there will be around 20-25 percent of people who agreed to serve Russia.”*

*“Luckily for me, I did not come into contact with any occupier. But we had to deal with our leadership. I will now speak only for the deputy director. He never hid his views, he was always annoyed by vyshyvankas, he spoke badly about the events that took place on the Maidan. When I left, he called me a traitor because we are such Ukrainians, we wear embroidered jackets, and when it gets hot, we drop everything and go to Western Ukraine. And later we saw his wife in the list of collaborators, she became the director of a kindergarten.”*

*“Some of our workers began to cooperate with the occupation authorities, to organize the work of the reserve. They found the right moment to, so to speak, settle personal accounts, to implement their ambitious plans. We have such people, they are all known now, statements to the police have already been written, they are all under investigation, so it is not a secret.”*

<sup>2</sup> For more details on common and legal interpretation of collaborationism, see: Homanyuk, M., Danylenko, I., Antoshchuk, Y., & Tsaryuk, G. (2022). A specialist under occupation: a report based on the results of a sociological study. Kherson, BF “Union” - 54 p. <https://www.fundunion.org/2022/11/ks-occupation.html>.

Obviously, the issue of collaboration split teams and affected not only professional, but also personal relationships between colleagues. Meanwhile, this does not mean that any contacts between workers loyal to Ukraine and collaborators have completely stopped. Some respondents admitted that they have maintained relations with their former colleagues in the protected areas of Luhansk and Donetsk since 2014, and they keep them informed about their work and further plans for environmental protection activities in the occupied territories. Betrayal of former colleagues is certainly condemned, but its reasoning is often rational rather than morally-evaluative:

*“They are under pressure in such a way that now you have to make this decision, and if you don’t make it now, then tomorrow you will be left without a salary. Of course, people are different, but the majority still cooperated.”*

When speaking about the motives of collaborationism, one cannot ignore banal adaptability as well. Far from every one of those who found themselves in the occupied territory had the determination to make one or another choice, and secretly dreamed that the situation would somehow resolve itself. An example can be provided for this statement, when the employees of the reserve, due to the conspiratorial strategy of their director, did not even know for sure whether the institution continues to work within the framework of Ukrainian jurisdiction or not:

*“The director remains silent. I get the feeling that he is just waiting to see which way the wind will blow and then he will decide. Although we report to the ministry in Ukrainian. I understand that if we reported to a different structure, they would probably have different requirements.”*

### **Consequences of war and occupation for the objects of the Nature Protected Reserves**

Oddly enough, NRF objects were the fields of large battles with the massive use of powerful weapons and equipment less often and to a much smaller extent than, for example, neighboring cities. This could be caused by the fact that nature reserves are areas of unspoiled nature without roads that could withstand heavy military equipment.

An employee of one of the reserves joked about the incident when they assisted a Ukrainian military air defense escort vehicle in passing through an off-road passage on the first day of the war: “You see, guys, how we followed the reserve regime, even the military got stuck, they couldn’t pass through so easily, and had to be pulled by a tractor”.

Thus, some protected objects managed to avoid military presence on the territory altogether:

*“There was no direct intervention in the nuclear ecosystem, the arboretum and the zoo. While I was there, I can say that none of the Orks [Russians] went inside. There was only one visit to the arboretum. The director met at their request. He said that there are no troops here and that’s all.”*

However, this did not save the objects from the effects of other harmful factors, the influence of which the Ukrainian objects of the nature reserve fund will suffer, unfortunately, for decades to come.

Perhaps, in the long term, the most terrible consequence of the war for Ukrainian nature reserves will be the total mining of hundreds of thousands of hectares of protected areas. The respondents admitted that they purposefully visited the mined area for conducting scientific research: “Thanking, so to speak, God and the fishermen, as we followed their paths”. But these risky acts are unlikely to be repeated. It must be recognized that these territories have been closed for recreation and in general for human intervention for many years:

*“Military men place the mines, but civilians are dying, you understand. So, a family was driving, trying to escape from Heroiske [a village in the Kherson region] - two men got killed, third was wounded. In fact, they even mine the shore, where there is a recreational area, which puts further activities at risk. I very much doubt that we could find these data of minefields, ours or theirs.”*

*“We have had several cases where people simply blew themselves up. Drove to the side of the road and blew up.”*

*“My precinct is now completely mined. A volunteer with a woman and a child got blown up, not far from their house... Even if the war stops tomorrow, access to nature reserves will not be open. It will take a long time for the demining process to be completed in the area. No one will immediately undertake the demining of such a territory.»*

*“Even a soldier passing by told us: ‘Don’t go, because a trip-wire bomb can explode.’ Which ones, they themselves do not know. The rotation also takes place between them, and not all of them can know where, in which places the explosives are planted.”*

Another long-term scar left by the war is thousands of hectares of burnt forests. Additionally, secondary factors contribute to the extent of the damage caused by fires. This is the impossibility of going out to fight fires due to mining, lack of diesel fuel, or even a fire truck being stolen by the invaders. In the «gray zone» of the occupation, laws ceased to apply and the number of grass burnings started by farmers, which often spread to protected areas, increased significantly:

*“The biggest damage is still caused by fires. Out of 3,200 hectares, 460 hectares were burned in our country. Mainly, the reedbed complexes. These are Vasylivka plavni. As for Kinburn, more than 2,000 hectares of forest have burned there to date. All of the pine forest has burned. There is no pine on Kinburn now. In fact, there is no forest before Hola Prystan.”*

*“To what extent will farmers now comply with the legislation and those restrictions that were in effect in the zone of anthropogenic landscapes? They burned the remains of the harvest so impiously that*

*the whole of Askania was in smoke. Before the war, we used to pursue and hold them accountable with the help of the State Emergency Service. However, now there is a legal vacuum. The laws do not apply. Of course, no one is going to contact the Russian administration, and Ukrainian laws do not apply there.”*

*“We always had arson attacks, but this year they were more massive, their area was larger.”*

*“Pine forests were the most affected, they are most prone to fire. Since it was impossible to put them out, they burned out as much as they could. Of course, the most valuable aspect is the safety of people. As for the forests, they will eventually recover, especially the pine forests, which are man-planted.”*

Fortunately, the least valuable biotope - artificial pine plantations - suffers much more from fires than Red Book's forests. However, over the past fifty years, pine has already become a common landscape of our natural parks. In addition, a fire in any forest causes enormous damage to the environment, destroys the biological diversity of not only indigenous flora, but also fauna.

Biologists state that because of hostilities, migratory birds are forced to change their usual migration routes, in the “gray zone” of occupation, fish are caught uncontrollably, wild animals suffer and die from daily flights of aircraft directly over the tops of trees:

*“My graduate student reported that there was no migration of the tern through Askania-Nova. This was possibly caused by planes. Meanwhile, this is already a transcontinental corridor. And what will happen to cranes and other birds when their migration begins?”*

*“Noise pollution was a very significant factor. Airplanes fly at low altitudes, helicopters at extremely low altitudes - they flew almost over the meadows, just above the trees. In peacetime, we could watch roe deer, wild boars, and hares feeding in the morning and in the middle of the day. Every time we went, we met an animal there. And now there are only trails, but we did not notice any mammals. Numbers of birds also decreased, especially predators. The number of marmots in colonies has decreased, as far as we can see.”*

*“We were especially impressed by the large number of fish on the market stalls in April-May, when there was a spawning period. Kherson was flooding with fish. Beryslav was filled with fish. On the website they wrote: “What is going on? The rivers are full of nets, no control, nobody does anything!” I understand that in this situation it is impossible to control anything. Especially if it is done by people with weapons, or it happens under their protection. However, there were complaints, I read these posts and appeals: “Do at least something, because everything is fenced off with nets!”*

Illegal hunting also took place, the invaders repeatedly boasted of killed roe deer and wild boar, but in

fairness it should be noted that other consequences of the war were also recorded. Recently poaching in all nature reserves (both occupied and in Ukrainian controlled territories) has sharply declined. In addition to the fact that the forests turned into minefields, a person with a weapon in his hands while hunting during a full-scale war risks finding himself in such trouble, compared to which article 249 of the Criminal Code of Ukraine on illegal fishing seems a very humane prospect. Actually, a decline in poaching has been noticeable since the very beginning of the Ukrainian-Russian war in 2014:

*“When the annexation of Crimea began and the ban on hunting started automatically, then, as they say, the nature breathed with relief to a certain extent. Because our people used to inventively violate environmental protection legislation, arranging incredible hunting orgies on the lands of the Kherson region. I know this personally. And in 2014, when it became dangerous to walk somewhere on the steppes with weapons, the hunting stopped.”*

*“There was no serious poaching in the occupied territory, because the poachers were afraid. The invaders first gave candy to the children, and then they were beating everyone...”*

Despite all the losses and problems of the nature protection industry, respondents look to the future not without optimism. So, obviously, Ukrainian nature reserves will not be able to return to the past “before the war” state. Burnt forests will not be planted artificially. The routes to mined areas are closed for many years in advance. The big question is whether there will ever be zebra, saiga and buffalo safari tours in Askania-Nova. Dendrological parks with artificial irrigation. All this is impossible. Instead, it is now quite realistic to provide the conditions for the natural restoration of protected areas:

*“Nature will restore itself. There will be groves at the lower reaches, in some places the pine will remain, it reproduces perfectly by self-sowing. Fighting nature is very expensive and in the end, we will get what we get. Although people were already used to forests, because they were also the decoration of Kinbourn. Mushrooms, oxygen, pine aroma - all this, unfortunately, is unlikely to be restored after the war. Because it is very expensive. It was all planted in Soviet times for oil dollars. Then the budget allowed us to fight with nature, today we will hope that everything will be restored naturally.”*

Instead of artificial ecosystems that require constant human intervention, we have a chance to return to a natural landscape that reproduces by itself. As one of the respondents said:

*“Biosphere in Askania-Nova is only steppe. Everything else has nothing to do with biosphericity at all. Although the zebra has conservation status there, this status is relevant in Africa. And here it is not much different from the non-indigenous species. From the point of view of biosphericity, it is much more important for us to protect not even Red Book species, but native weeds.”*



In fact, this joke is only partially a joke, and the rest is a rethinking of the very mission of environmental protection activities, a change in the priorities of the work of the entire industry:

*“At one time, I was a strong supporter of controlled burnings. They were inspired by the Canadian National Parks, which were in general set fire to 10,000 hectares at a time, because they believed that the dominance of one species displaces other plants and makes them impoverished. We were not fortunate, but misfortune ended up being helpful.”*

### **Damage assessment**

After the first days of the invasion, when it already became clear that the damage caused to the nature reserves needed to be assessed, the State Protection Service of the Nature Reserve Fund sent orders to the management of the objects, “so that we are engaged in photo-fixation, recording the damage into an Excel table, and sending it to the Ministry “. It was done in the following format: coordinates, a brief description of the damage, and a few photos.

Despite the danger of such a task in the occupied territory, the employees tried to conscientiously fulfill the task set before them:

*“I say, ‘Boys and girls, write it down!’ Record all these war episodes, no comments!” There is no need to mention anyone there, because of course, if you write “orcs”, then of course there is a threat that it will be found and these orcs will show you where the crayfish spend the winter.”*

Unfortunately, the existing methods of calculating the caused damage are not at all adapted to the conditions of wartime. For example, in order to assess the losses of forestry, it is necessary to calculate the number of destroyed trees and the diameter of the trunks (the amount of the fine depends on this). The death of animals or birds must also be confirmed visually. This methodology is based on the resolutions of the Cabinet of Ministers of Ukraine “On the approval of special fees for calculating the amount of damage caused by the violation of the legislation on the Nature Reserve Fund” dated May 10, 2022 (Decree of 2022) and “On the amount of compensation for illegal extraction, destruction or damage to species of animal and plant life, listed in the Red Book of Ukraine” dated November 7, 2012” (Decree of 2012):

*“The main drawback is that it is all tied to specific cases. If there is plant death, you must measure and count everything. It was difficult to do even in the pre-war period, and now it is impossible.”*

*“In order to calculate something, first you need to get directly to the territory. And for this, it needs to be checked by sappers.”*

*“The legal perspective is still unclear, because without proper documentation of the caused damage, no court will consider anything. And time is running out. In the places where there were fires, grass has already grown. Trees will start growing there tomorrow.”*

The next logical question asked by the respondents: “To what extent do the fees approved by us correspond to the real cost of damages caused to nature?” For example, in one of the reserves, where 460 hectares of floodplain complexes were burned, the environmental inspection calculated emissions into the atmosphere at UAH 5 billion, and the damage for all this destroyed floodplain vegetation is estimated at up to UAH 600,000. The inconsistency of the estimates suggests that the calculation methods are far from optimal.

Obviously, the existing methods were developed for other circumstances and scales of assessments. For the current conditions, they require, if not radical changes, then significant adaptation. The active use of distance assessment methods seems logical here. In particular, satellite images make it possible to accurately calculate the area of fires or other damage to the protected fund. It is unlikely that, even after demining, it will be possible to count the number of destroyed trees, measure the diameters of the trunks or search for the skeletons of wild animals that died in the fire. That is, approximate quantitative indicators should be normatively fixed:

*“A fine is a conditional figure. Depending on the area and biotope, we can easily calculate it. Moreover, the satellite gives us the area very clearly. Just to secure it with the relevant documents. If we understand that in this biotope per unit area there is such and such a number of red book species of plants or animals, then we will estimate the total damage. Conventionally speaking, this bug “costs” 40 UAH according to the rate, we know approximately how many of these bugs are on the square, accordingly, we have the opportunity to provide clear and concrete arguments in the summons demands to the aggressor state in court.”*

*“We know the density of rare and endangered species on the territory of the protected core. In the same way, according to the area, last year we issued fines for destroyed birds, in particular, cranes. Our farmers who poisoned these birds were fined by millions.”*

New methods should also be developed to calculate other types of damage caused to nature reserves. For example, it is hardly possible to keep track of the number of low-altitude aircraft flights over the reserve or to measure the decibels of noise pollution, but the absence of a pelican on the territory (and in the previous year, in turn, the presence of one hundred birds was recorded), is a fact. The main requirement of environmentalists is that the methodology be clear, easy to use and convincing from a legal point of view:

*“If we want to become the first country to receive compensation for environmental damage as reparations, we need to clearly define the methodology here. Conduct training for those who will be engaged in this. Create documents so that the international courts take these documents into account.”*

Of course, the entire range of consequences of the “second order” cannot be predicted, thus, it would be even harder to calculate the damages. How many tons of construction debris will end up on the territory of nearby national natural parks during the restoration of destroyed buildings? How many hectares of border lands will be removed from the nature protection format of work and turned into a line of defense? What is the impact of military action on biodiversity? On recreational potential? On the possibility of local residents to obtain food or medicinal plants? On the ability of ecosystems to clean the air? So far, these are unanswered questions.

On the other hand, the opinion of the respondents seems to be quite promising, that in this area it is worth focusing on quite concrete damages, which can be easily calculated in terms of area or quantity of “economic” damage, such as destroyed plants, missing animals and birds, damaged soils, and craters which appeared from shelling:

*“Again, the stock of forest per hectare in cubes is known. The fauna can be calculated in the same way. Make a research trip and see what’s left.”*

### **Conclusions and recommendations**

As you can see, the Russian military invasion caused a whole cascade of negative, interconnected and mutually determined consequences for the objects of the Nature Protected Reserves of Ukraine.

The first and most obvious one is environmental damage. Military actions led to the damage and destruction of ecosystems, destruction of forests, damage and reduction of vegetation cover, environmental pollution, large fires, reduction in the number of animal populations, changes in the seasonal migration routes of birds that previously transited through Ukrainian Nature Reserves, etc. The next wave included the consequences of the established occupation regime. In particular, in the occupied territories, poaching of fish increased and illegal burning of grass by unscrupulous farmers, with whom the Ukrainian authorities usually fought, became more frequent.

The second set of negative factors is related to total mining of protected areas. For many decades, protected objects have become dangerous to visit. Many tragic cases show that even leaving the main road for the side roads poses a deadly threat. There is no possibility of visiting these territories or conducting scientific research directly on the spot.

The third is a whole group of aspects that influenced the activity of the working teams of Ukrainian Nature Reserves. Living in a war zone with danger to life and health. Evacuation, loss of housing and property. Threats, persecution and torture in the occupation. Compulsion to collaborationism. Uncertain financial situation. Psychological injuries. This is a far from complete list of problems faced by Ukrainian environmentalists after the Russian military invasion. Obviously, the answers to the above-mentioned challenges must consider security issues, environmental restoration, and the prospects of international cooperation.

Based on the survey data, we can offer the following recommendations regarding the operation of NRF facilities during hostilities and occupation:

1. The collectives of NPR facilities must be ready for emergency situations. Such readiness involves:

- knowledge and skills in handling explosive objects, as well as the ability to provide both first and extended medical aid;
- storage of documentation, including accounting and personnel documents, in cloud environments;
- the existence of contractual relations with nature protection institutions of different regions of Ukraine regarding the possible partial relocation of personnel and park equipment.

2. In the event of hostilities or occupation, clear and pre-approved protocols automatically come into force, the unconditional priority of which is the life and safety of people. In particular, they should include the following steps:

- in case of hostilities or occupation, monitoring of nature conservation areas is carried out exclusively using remote methods;
- constant contact with employees of the nature reserve is maintained in person or by means of remote communication;
- informational silence is ensured regarding any activity of the nature protection institution (publications on social networks are temporarily suspended);
- the evacuation to safe territories of Ukraine (to the territories of other NNPs and nature reserves) of personnel accounting documentation, non-digitized databases, “Chronicles of Nature”, old archival prints, the most valuable parts of collections, weapons is organized;
- disabling equipment (vehicles, boats, weapons, etc.) that cannot be evacuated, but which can be used by the invaders to conduct military operations;
- a warning to the management staff of the institution, as well as to all persons and their family members who took part in hostilities or worked in law enforcement institutions, to immediately leave for the safe territory of Ukraine.

3. It is necessary to develop new methods of assessing the damage caused to nature. The existing procedures do not consider either the scale or the nature of the consequences of hostilities. The criteria that authors should focus on are, on the one hand, a convenient and safe method of assessment for the performer, and on the other hand, legal integrity. The latter is extremely important, considering the prospects of lawsuits against the aggressor state in international courts.

4. Changing the principles of work and the very philosophy of care for nature protection zones. Instead of artificial ecosystems that require constant human intervention, it is necessary to return to a natural landscape that reproduces itself.

5. Collectives of nature reserves should introduce remote forms of work (except for the structures under which zoos are subordinated), as well as provide a remote format of access to the territories - using satellite images, etc.

The development of the stated theses and the practical implementation of the proposed measures will make the work of nature protection teams more effective and safer, and will also help restore damaged ecosystems, forests, and animal populations in protected areas.

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