PHOTO: DENYS VYSHNEVSKIY

CHORNOBYL IN THE WAR ZONE

by **Denys Vyshnevskiy**

abstract

The first news from Chornobyl was about gunfire near the Buriakivka radioactive waste storage facility. By noon there were images: Russian tanks near the Administrative Building No. 1 of the plant. Denys Vyshnevskyi, the Head of Department at Chornobyl Radiation and Ecological Biosphere Reserve writes here about the occupation and how life changed in the Exclusion Zone. For many research groups, 2022 became the year of accepting a bitter truth – Chornobyl research was being suspended indefinitely.

KEYWORDS: Chornobyl, Exclusion Zone, Russo-Ukrainian war.

Over 25 years of working in the Exclusion Zone, the one lesson I have learned is this: never be surprised by anything. Changes can come unexpectedly – and quite radically. Against the backdrop of stability, slow routines, and the long-standing regularity of Chornobyl's working life, they appear as catastrophes and a reversal of the universe itself. To describe this dynamic, the theory of punctuated equilibrium by Eldredge and Gould or Nassim Taleb's Black Swan theory fits best. Under such conditions, a Chornobyl expert must resist the feeling of sufficient competence and self-confidence – because they amount to the sin of pride.

The full-scale invasion on February 24, 2022 radically changed the design of activities in the Exclusion Zone. Occupation, de-occupation, restoration of operations, strengthening of border defense – these are the terms used to describe the Zone since the beginning of the war. Yet they do not reveal the complexity of the situation, which lies in balancing the changes brought by occupation and martial law with the continued fulfillment of the functions assigned to the Zone and its institutions, as well as the ways human activity adapts to new conditions.

Zero mark, or baseline indicators

The Dytiatky checkpoint is the main gateway to the Zone from Kyiv. The primary flow of people and cargo passes through it. In the 1990s and 2000s, to the left of the radiation control building stood a board listing the main objectives of state policy implemented in the Exclusion Zone. There was no mention of national security, defense, or border protection.

The Zone is located in the very north of Kyiv region, along the border with the Republic of Belarus. Four hundred and eleven kilometers of state border form the Zone's northern boundary. No matter how many times I encountered it, I always felt its ephemeral nature. It existed on the map, but not in the landscape. There were no engineering structures, no watchtowers, no barbed wire, no control strips. Only occasionally did small signposts indicate that the state border of Ukraine passed here. Roads across the border were mostly open. If you didn't look at your GPS, you would only realize you had left the country upon seeing the sign "Gomel Region."

The Exclusion Zone. MAP: WIKIMEDIA COMMONS

FROM THE BELARUSIAN side, the attitude toward the border was different. In the 1990s there were cases when Belarusian border guards detained our foresters and confiscated vehicles. It was easy to do – a single road could run partly through Ukrainian and partly through Belarusian territory. The most troublesome section was a wedge of Belarusian land between the Zone and Chernihiv region. Transportation arteries from the Zone to the satellite city of the Chornobyl NPP, Slavutych – the Semikhody-Slavutych railway and the highway – passed through it. On the highway stood a Belarusian customs and border checkpoint serving exclusively vehicles traveling from Ukraine to Ukraine through 30 kilometers of Belarus.

"EUROPEAN BISON WERE RECORDED NEAR THE BORDER, AS WERE THE FIRST OBSERVATIONS OF BROWN BEARS."

From a professional point of view, the border was fascinating. It contained the most valuable areas for biodiversity conservation. A vast, wild floodplain of the Prypiat River with a meandering channel and numerous oxbow lakes. From the Chornobyl NPP to the town of Chornobyl, the Prypiat is merely an artificial canal – diverted during construction of the cooling pond. The true Polesian Amazon could only be seen there and partially between Chornobyl and the Kyiv Reservoir. Along the border lie old deciduous forests and wetlands. On the left bank, sandy dunes remain from the 1992 fires that cleared artificial pine plantations. European bison were recorded near the border, as were the first observations of brown bears.

THE PROCESS OF establishing a true state border was underway, but proceeded slowly. In the 2010s, delimitation began to be discussed. At the end of 2014, a radiological survey of the border was conducted. Staff from the field department of EcoCenter walked the entire Chornobyl border section with dosimeters and sampling equipment. In 2019, geodetic demarcation began. Specialists from both countries determined border points and placed markers in the ground. The Reserve also participated in this work. Our employee, Stas Humenyuk, received a Belarusian border guard patch as a gift. Six years later, Chief Sergeant Humenyuk would be killed by a missile strike on the Kherson front.

Units of the State Border Guard Service of Ukraine were not directly stationed in the Zone, though they were present. The nearest command post was located 7 kilometers beyond the Dytiatky checkpoint. Border guards patrolled the southern perimeter of the Zone from the outside and called it the "rear boundary."

It would be wrong to say everyone was satisfied with this situation, especially after 2014. Once, I attended a discussion among experts who clearly outlined the problem of the border's transparency. The Exclusion Zone contains numerous radiological facilities requiring physical protection: the decommissioned Chornobyl NPP, spent nuclear fuel storage facilities, fuel transportation operations, radioactive waste repositories, and more. None of this was protected from the border side.

Signs of tension

The first time the border became an actual threat was in 2016. That summer, Russian-Belarusian military exercises were underway. At the Paryshiv checkpoint, police officers told us that an unmanned aerial vehicle had been recorded over the village of Teremtsi.

In autumn 2019, we were working on the northern left bank right along the border. The only road toward Belarus was blocked by concrete slabs painted white with the word "Ukraine." Stas Humenyuk suggested we go on a "foreign business trip." Why not? Our drone had detected no activity on the other side. We drove around the blocks and followed a road running above a flooded drainage system. Fifty meters in stood

a sign of the Polesie State Radiation-Ecological Reserve. This was already Belarusian territory. The road looked neat: no fallen trees, good surface condition, generally maintained. Humenyuk didn't like it.

> **Why spend resources maintaining a road with no functional purpose? That's suspicious.**

For him, that line of thinking was normal. He was a veteran of the Anti-Terrorist Operation.

AT THE END OF 2021, Belarus began provocations along the EU border – better known as the migration crisis. To secure the Belarusian border, Ukraine's Ministry of Internal Affairs launched Operation Polissia. National Police, Border Guard Service, and National Guard units reinforced border areas. Judging by press releases, the main threat was seen as provocations and the arrival of illegal migrants.

Russian-Belarusian exercises began again. Few in the country wanted to believe in a possible war and an offensive from the north. Personally, what struck me as suspicious was the presence of Kadyrov's forces. Deploying Rosgvardiia's Chechen units into the Polesian forests seemed excessive for mere exercises. It looked serious.

Then, like in chess, a symmetrical move from our side: exercises in the city of Prypiat – armored personnel carriers, mortar fire, tactical drills. The images were impressive, but these were Interior Ministry forces – essentially light infantry. In February, police units were reinforced by the military regiments in charge. Personnel exchanged shortened AKS-74U rifles for AKM rifles.

On February 16, Russian troops deployed pontoon bridges across the Prypiat River in the Belarusian Zone. On February 17, the Exclusion Zone was closed to tourist visits. Zone employees traveling to Slavutych saw large concentrations of Russian military equipment at the Komarin border checkpoint. Russian troops stood openly, demonstrating strength and superiority.

Everything froze in a dense fog of uncertainty.

War

It began like it did for everyone – early Thursday morning. A call from Boryspil at 4 a.m.: missile strikes on the airport. I called Serhii Paskevych, Deputy Director of the Institute for Safety Problems of Nuclear Power Plants in Chornobyl. His response was brief:

> **No time – I'm evacuating Institute staff.**

The first news from Chornobyl was about gunfire near the Buriakivka radioactive waste storage facility. By noon there were images: Russian tanks near the Administrative Building No. 1 of the plant. Between these reports came information about the deployment of a crisis headquarters of the State Agency for Exclusion Zone Management in Ivankiv.

A colleague posted briefly on Facebook: "The CEZ (Chornobyl Exclusion Zone) is over." And that's how it felt.

I called Yevhen Fedorovych, a self-settler living in Chornobyl. He had decided to stay. He said explosions could be heard across the Prypiat River and helicopters were flying. He had already survived one occupation as a child in 1941–1943. Over the next two days we spoke several times. Then communication was lost. The Exclusion Zone turned into a black hole from which no information emerged.

A short news video showed our special forces burning a Russian military column at the Ivankiv roundabout near the "Egg" monument. I had driven through that circle countless times going to and from the Zone. Interrogations of the first prisoners captured near Kyiv revealed a consistent story: they entered through the Zone, first stop – the Chornobyl NPP, then toward Ivankiv, from there to Vyshhorod or Makariv.

ONE INTERROGATION stayed with me – a completely disoriented colonel from the Russian Special Police Force. Watching him, I understood that his unit would have operated after full control of the territory was established: clearing neighborhoods, working through lists of "unreliable" individuals, enforcing occupation order.

"RUSSIAN TROOPS STOOD OPENLY, DEMONSTRATING STRENGTH AND SUPERIORITY. EVERYTHING FROZE IN A DENSE FOG OF UNCERTAINTY."

The first weeks of the war were entirely remote work. We looked at the Zone only through satellite services. In March we detected a major fire that way.

By late March, once a week I could take the city electric train from Kyiv's left bank to the right bank office. The seizure of the Zaporizhzhia NPP shocked me – especially tank fire directed at station buildings. At that moment came the realization that we might have no understanding at all of how the enemy thinks. That thought unsettled me so deeply that I pulled Ruth Benedict's *The Chrysanthemum and the Sword* from my shelf and reread the first chapter, "The Assignment: Japan." It describes how US military leadership tasked anthropologists with studying Japanese mentality for wartime strategy. We needed a similar research program.

During multi-day curfews and transport restrictions, Zoom became the primary means of communication. A crisis radioecological forum took place there – an informal, spontaneous meeting of Chornobyl specialists from Fukushima, Germany, Kyiv, and western Ukraine. We discussed the situation, expectations, and necessary actions. There was no information from Chornobyl itself, so regional meteorological stations outside the occupation and front-line areas were oriented toward detecting potential radiation releases. Primary data were transmitted to computing centers in Kyiv, Japan, and Germany to assess possible sources and magnitude of contamination.

Burned conifer forest.

PHOTO: DENYS VYSHNEVSKIY

Destroyed bridge on the road to Chornobyl.

PHOTO: DENYS VYSHNEVSKIY


Trace of WW2.


February 2022. Kyiv.


North checkpoint Benivka.


Drone.

PHOTO: DENYS VYSHNEVSKIY

Another activity was participation in a working group of the Environmental Inspectorate assessing environmental damage from the war. My deputy worked in the forestry section; I focused on Chornobyl. I immersed myself in various cases of evaluating and compensating for radiological damage: hydrogen bomb testing on Pacific atolls, depleted uranium munitions in the Gulf War, and more.

FROM TIME TO TIME I gave interviews. Once, while arranging a meeting with a journalist via chat, I suddenly saw breaking news that the same journalist had just been killed by a second MLRS strike in the Vinohradar district of Kyiv. I expressed condolences.

That was the rhythm of those weeks. In the background: multi-day curfews, the first reopening of the metro, restoration of railway connections, the rumble of artillery during the destruction of an occupier column near Brovary.

De-occupation

The liberation of Kyiv region unfolded quickly – like spring itself. First came news of destroyed enemy columns, then the freeing of the Kyiv agglomeration. Abandoned equipment and positions, countless trophies; the presence of the Russian army melted like snow in sunlight.

On April 1, according to information from the plant, the last Russian tank left the Zone. Then our airborne troops entered. The Ukrainian flag was raised over the sanitary inspection building of the Chornobyl NPP.

I reached the Zone two weeks later.

On April 14 in the morning, key Zone figures gathered in the parking lot near the Karavan shopping center: heads of different organizations established in the Zone and specialists of the State Agency for Exclusion Zone Management. We warmly greeted each other – we hadn't seen one another since the start of the war. Everyone alive and well – already a blessing. A caravan of journalists joined us. Once assembled, we formed a convoy under police escort. That mattered – there were countless checkpoints along the way, and with escort we passed without stopping.

The first obvious signs of war appeared in Kazarovychi: bullet and shrapnel marks on the dam that had played a decisive role in defending the capital, destroyed houses in a dacha cooperative. All bridges toward Chornobyl had been destroyed; we traveled over temporary crossings. Burned Russian airborne fighting vehicles lay near the Dymer cemetery.

At the Dytiatky checkpoint, the InfoCenter building had been looted. Bullet holes in the glass. Spent shells from an automatic cannon scattered on the ground.

Access was coordinated with the military. Eventually, we entered.

The Zone landscapes outside the window looked unchanged – forests, fallow fields, abandoned villages. War's traces appeared near the Uzh River. The bridge was destroyed; one span

lay in the water. On the bank stood a fortified area: gabions, field fortifications, dugouts carved into the slope. I immediately called it "rat town."

CHORNOBYL TOWN greeted us with the destroyed structure of the Water Protection Complex at the entrance – struck by one of our missiles. Across from the bus station, a civilian car crushed by a tank. In the center of town, several LAZ buses blocked the road – likely an attempt to organize defense.

The remaining population gathered near the church, where humanitarian aid was distributed. We delivered food as well. In the crowd, I saw Yevhen Fedorovych. We greeted each other. Despite his age and circumstances, he remained as confident and energetic as ever.

Return to work

My next visit to Chornobyl was in May. Writer Jonathan Littell contacted me – he was in Ukraine, traveling from Kharkiv to Kyiv, and had already planned to visit the Exclusion Zone. We met in the morning in the lobby of a hotel on Bohdan Khmelnytsky Street. He gave me a signed Ukrainian edition of *The Kindly Ones*.

Under the new conditions, I had nowhere to stay. The dormitory had been given to the military; our belongings were piled up in the commandant's office. I called Serhii Gashchak – a liquidator, a guru of Chornobyl science, deputy director of the Chornobyl Center. They had a field office in Chornobyl, a private house used for living and working in the Zone. I asked to stay overnight – he agreed.

Over those two days, I arranged for sappers to inspect our office and did initial cleaning. The worst part was the story with the mouse carcasses from the Red Forest. They had been stored in a freezer that the occupiers stole. But in some strange act – entertainment or ritual – they had scattered the carcasses throughout the office in various places. I located them by smell.

Another problem was replacing the broken window glass. For a week we prowled through abandoned buildings in Chornobyl like predators, searching for panes of suitable size. Eventually, we found what we needed.

IN JUNE, THE CORE Chornobyl staff of our department resumed work – four people including myself. That was exactly how many the service vehicle could hold, exactly how many could live in the private house Gashchak kindly provided, and exactly how many we could evacuate on our own if necessary.

The first task was to understand where we had ended up – to draw a new map of the territory.

The first category of land: inaccessible areas – the left bank and the northern part of the Zone beyond the railway. The situation in the western direction was unclear. There were reports of numerous mines and unexploded ordnance around the town of Poliske due to fighting. So the western sector of the Reserve was also excluded. These areas became a space of memory and photographs on a hard drive – we did not know when, or if, we would return.

The second category was the "Green Zone" – safe lands between the Prypiat River and the Dytiatky-Chornobyl road. Russians had not entered there, and the Armed Forces had no critical need to use it for maneuvering. Fieldwork was possible.

Between these two lay the "gray zone" – territory with unclear mine safety status, numerous checkpoints, and restrictions.

THE FIRST OPERATIONAL task was to retrieve winter camera traps used for predator monitoring. They were supposed to be collected in March-April, but the war delayed everything. We coordinated with the Armed Forces, who assigned reconnaissance personnel and a sapper. We drove as close as possible to each camera trap location. The military cleared the route to the point; then our specialists approached and retrieved the equipment. In this way, we saved part of it. Other traps remain somewhere near the border.

The second task was to complete our cooperation project with Fukushima University. In 2018, together with Japanese colleagues, we began studying small rodents on the drained sections of the Chornobyl NPP cooling pond. The project had progressed normally – Reserve specialists, the Institute for Nuclear Research of the National Academy of Sciences of Ukraine, and Fukushima University organized a large joint expedition annually.

"FOR MANY RESEARCH GROUPS, 2022 BECAME THE YEAR OF ACCEPTING A BITTER TRUTH — CHORNOBYL RESEARCH WAS BEING SUSPENDED INDEFINITELY."

COVID-19 was the first blow – Japanese colleagues could not come, but we managed. The war should have ended the research – but it did not.

I remember the joy and surprise when, after de-occupation, I found boxes of Sherman traps in storage. The occupiers had not recognized their value. Visits to the near Zone showed that our main field sites – the Red Forest and the cooling pond – were accessible and safe. The first wartime field season began, and results were obtained. In October 2022, at the project's final conference in Warsaw, we presented our findings.

We did it.

For many research groups, 2022 became the year of accepting a bitter truth – Chornobyl research was being suspended indefinitely. We, however, continued routine programs, adding assessment of occupation consequences. We established a test plot on former Russian positions to study vegetation recovery. We examined recent forest fire sites. We attempted to analyze the military impact on ecosystems from an ecological perspective.

Between 2023 and 2025, scientific activity gradually reactivated. National research groups returned; new projects appeared. Together with the Frankfurt Zoological Society, we launched

Wild horse near barbed wire. PHOTO: DENYS VYSHNEVSKIY

a project to restore the drainage system in the Uzh River floodplain. In addition to biodiversity restoration, fire safety, water conservation, and climate adaptation, a new objective was established: improving the tactical defensive properties of the terrain along the border.

AFTER THE DESTRUCTION of the Kakhovka Reservoir dam, questions arose about the development of terrestrial ecosystems on drained areas. Some answers could be found by studying the drained sections of the Chornobyl cooling pond. Specialists from the Institute of Botany of the National Academy of Sciences began this work in 2023. A related study examined abandoned agricultural lands in the Zone to forecast the development of neglected agro-landscapes in combat zones. In 2024, colleagues from the Nuclear Institute joined, and we began involving students.

We seemed to approach normalcy – but the atmosphere had changed.

In the forest, you hear a woodpecker's tapping intertwining with the distant rhythm of machine-gun fire. By sound alone, you can distinguish whether a sniper or a rifle squad is training at the range. Walking along a forest quarter line, you may suddenly see a drone appear overhead and follow you for a time. You see certain austere aesthetic in the work of mobile air-defense fire groups at night. It no longer surprises you when the Zone fills overnight with military equipment and personnel because suspicious activity has been recorded across the border. Finding a UAV in the bushes sparks only technical curiosity.

Interim conclusions

Round anniversaries of the 1986 accident have traditionally served as milestones for describing the state of the Zone and society's attitude toward it. They are points at which one can pause and attempt to reflect on the period that has passed. On the 40th anniversary, the condition of the Zone differs significantly from what it was five or ten years ago. The main reason is the war. Let us try to identify these differences.

CHORNOBYL TOURISM has disappeared. It existed for fifteen years. It became the only activity in the Zone that generated substantial profit and did not carry a corrupt or criminal undertone. Five years ago, it seemed that tourism would become the primary form of presenting the Exclusion Zone to the world – a "tourist magnet," as they wrote. Projects, plans, and development strategies were drafted. All of that is now in the past.

There is a logistical rupture between the city of Slavutych and the Chornobyl NPP. The direct connection that once allowed personnel to reach the plant in less than an hour by rail or road has been destroyed. Staff from Slavutych now travel to the Zone by bus, detouring around the entire Kyiv Reservoir, which takes nearly half a day. The work schedule has shifted from daily commuting to rotational shifts. A separate issue is the fate of Slavutych itself, now cut off from the Zone and increasingly subjected to UAV attacks.

Personnel optimization has taken place. Under new conditions, enterprises have reduced the number of staff working directly inside the Zone, either through layoffs or by relocating divisions outside its boundaries.

The return of spent nuclear fuel from the Chornobyl NPP that had been sent to Russia for storage or reprocessing has been put on hold – possibly forever.

"WALKING ALONG A FOREST QUARTER LINE, A DRONE MAY SUDDENLY APPEAR OVERHEAD AND FOLLOW YOU FOR A TIME."

Militarization. Defense has become a new priority function of the Zone. Border fortification, field defenses, deployment of military equipment and personnel, patrols, and training using the full range of weaponry.

At the same time, some tasks and responsibilities continue to be fulfilled despite martial law:

- Decommissioning of the Chornobyl NPP
- Management of radioactive waste
- Radiation and environmental monitoring
- Maintaining fire safety across the territory
- Development of the Reserve

ALL OF THE ABOVE defines the point at which the Exclusion Zone currently stands. It could be described as stable – but I would hesitate to do so. At any moment, the territory of the Zone could transform into a battle zone, once again overturning the Chornobyl chessboard.

Denys Vyshnevskiy is the Head of Department at Chornobyl Radiation and Ecological Biosphere Reserve.

Roadkill.

PHOTO: DENYS VYSHNEVSKIY

Minefield in the Red Forest.

PHOTO: DENYS VYSHNEVSKIY