

Project Title

Assessment of wildfire-driven forest loss following prolonged warfare impact in the Chernobyl Radiation and Ecological Biosphere Reserve, Ukraine, and development and identification of post-fire management and nature restoration approaches

Project Data

Duration	Funding	Project location/ Region
12 months	4 585 €	Ukraine, Kyiv region, Chernobyl Radiation and Ecological Biosphere Reserve

Project Partners

Who are the project partners?

- Chernobyl Radiation and Ecological Biosphere Reserve

What does each partner specifically contribute to the project?

- Logistical support (car, assistance in surveying fire sites)
- Providing statistics on fires in the reserve
- Assistance in organizing webinars/seminars for employees

About the Project

What is the problem – and what do you want to change about it?

The project addresses the growing frequency and severity of fires in the Chernobyl Radiation and Ecological Biosphere Reserve, exacerbated by military activities, unexploded ordnance, and restricted access for firefighting. In Ukraine,

What are you doing specifically to achieve this goal?

particularly in de-occupied territories, such as Chornobyl Exclusion Zone, forest ecosystems have suffered extensive damage from war-induced wildfires.

The aim of the project is to quantify forest loss and map burned areas caused directly or indirectly by the war within the Reserve, determine species composition and post-fire vegetation condition through combined remote sensing and field surveys, evaluate territorial drivers and constraints for restoration, and deliver a set of validated, implementable management and rehabilitation approaches ready for integration into the Reserve's long-term management plan.

The assessment of forest loss is conducted using satellite-derived data, which enables large-scale and timely monitoring of affected areas. Two widely used spectral indices - the Normalized Burn Ratio (NBR) and the Normalized Difference Vegetation Index (NDVI), are used. The delineated boundaries of damaged and dead forest stands will be integrated with existing forest maps of the Chornobyl Reserve. This data will then be analyzed and synthesized to support the development of a conceptual framework for fire management and forest rehabilitation approaches within the Reserve.

What is special or new about your approach?

For the first time, this project assesses the long-term impact of the war on landscape-level fire regimes and their consequences for forest ecosystems within the Chornobyl Radiation and Ecological Biosphere Reserve. It will identify the extent and characteristics of forest loss and develop evidence-based fire management approach tailored to the unique conditions of the Reserve.

The figure: What does the project actually do?

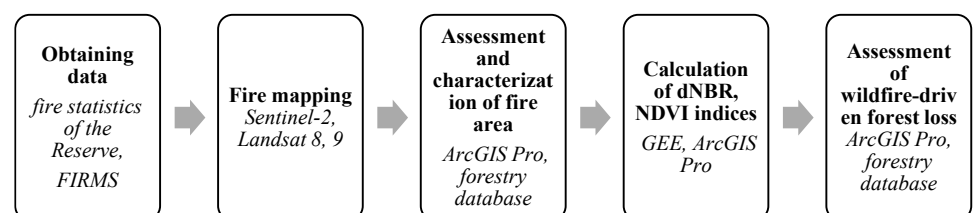


Figure 1. Workflow of receiving and processing information about fires in the Chornobyl Reserve

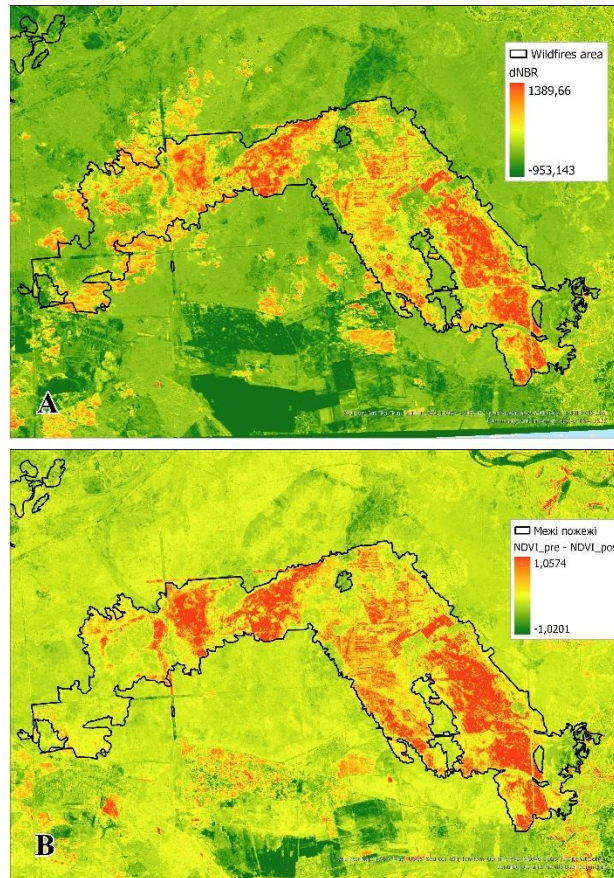


Figure 2. Values of the dNBR (A) and dNDVI (B) indexes within the fire area in May 2022

What remains? What concrete results are achieved, and who can use them in the future?

Expected results:

- Conduct a comprehensive literature review to identify and evaluate optimal methodologies for assessing forest loss using satellite monitoring data.
- Quantify the extent of wildfires and characterize the affected areas within the Chornobyl Reserve for the period 2022–2025.
- Estimate the area of lost forest stands using satellite-derived spectral indices such as NBR, dNBR, and NDVI.
- Analyze the ecological characteristics of lost forests through forest inventory data and, where feasible, field surveys.
- Develop conceptual approaches for the management and nature restoration of burned forest areas.
- Formulate actionable recommendations for integrating fire-related forest management strategies into the Reserve's management plan.
- Prepare and present research findings through conference participation, including the submission of report abstracts.

- Publish a peer-reviewed scientific article based on the project's findings.
- Organize seminars or webinars for Reserve staff and stakeholders focused on satellite-based fire monitoring, war induced forest loss and its implications for forest management.
- Prepare and publish printed dissemination materials to raise awareness on wildfires management.

The data and detailed forest information obtained through this project will help to conduct fire management planning, by identifying high-risk areas and informing prevention and response strategies; restoration planning for dead forests, based on species composition, burn severity, and ecological context; support for forest inventories and the development or revision of the Reserve's management plans, ensuring evidence-based decision-making; biodiversity research, by providing spatially explicit data on habitat changes and biodiversity impacts.

See the project images

on the following pages



Project photographs

Photograph 1 of 2



Forest damaged by wildfire in 2026.

Photo: © Denys Vyshnevskiy, Chornobyl Radiation and Ecological Biosphere Reserve

Project photographs

Photograph 2 of 2



Forest area burned two times in 2020 and 2026 after russian drone landing.

Photo: © Denys Vyshnevskiy, Chornobyl Radiation and Ecological Biosphere Reserve