Project Title

Remote sensing and modeling of war-damaged landscapes in Ukraine to support post-war restoration and nature conservation planning

Project Data

Duration	Funding	Project location/ Region
12 months (01.03.2026 – 28.02.2027)	DBU Ukraine Funding Initiative (Az: 30025/114-46)	Kherson Oblast, Ukraine

Project Partners

Who are the project partners?	What does each partner specifically contribute to the project?
• Kherson State University *(Department of Geography and Ecology)*	• Project leadership, processing satellite time-series data, GIS spatial modeling of landscape damage, and integrating results into regional environmental monitoring frameworks.
• Deutsche Bundesstiftung Umwelt (DBU)	• Project funding, fellowship support, and integration into the European environmental research network.

About the Project

What is the problem – and what do you want to change about it?	Active combat operations and the destruction of the Kakhovka HPP dam have caused severe environmental degradation, groundwater level drops, and forest desiccation in Southern Ukraine. Direct field monitoring is obstructed by mine contamination and safety risks. The project uses multi-sensor

What are you doing specifically to achieve this goal?	Earth Observation (Landsat 8/9, Sentinel-1/2) and GIS spatial algebra to remotely assess war-induced landscape damage, track natural recovery, and identify candidate priority zones for post-war conservation.
What is special or new about your approach?	The approach integrates multi-temporal winter satellite imagery with dual-index raster masking (NDVI and NDWI) to isolate pine forest dehydration stress from seasonal understory dynamics. This provides an objective, reproducible diagnostic method for inaccessible and war-affected frontline landscapes without requiring hazardous field access.
The figure: What does the project actually do?	Delineated and mapped **2,544.6 hectares (113,094 pixels)** of post-Kakhovka pine forest dieback across the Kozachi Laheri sand arena using sub-pixel 15 m resampled satellite raster algebra. https://gj.journal.kspu.edu/index.php/gj/uk/article/view/399/378
What remains? What concrete results are achieved, and who can use them in the future?	An open-access geospatial database, predictive GIS restoration models, and spatial candidate maps for post-war nature reserve expansion. These deliverables will serve regional environmental protection authorities, Kherson State University, and spatial planning institutions for post-war nature conservation.

See the project images
on the following pages
↓

Project images

Image 1 of 2

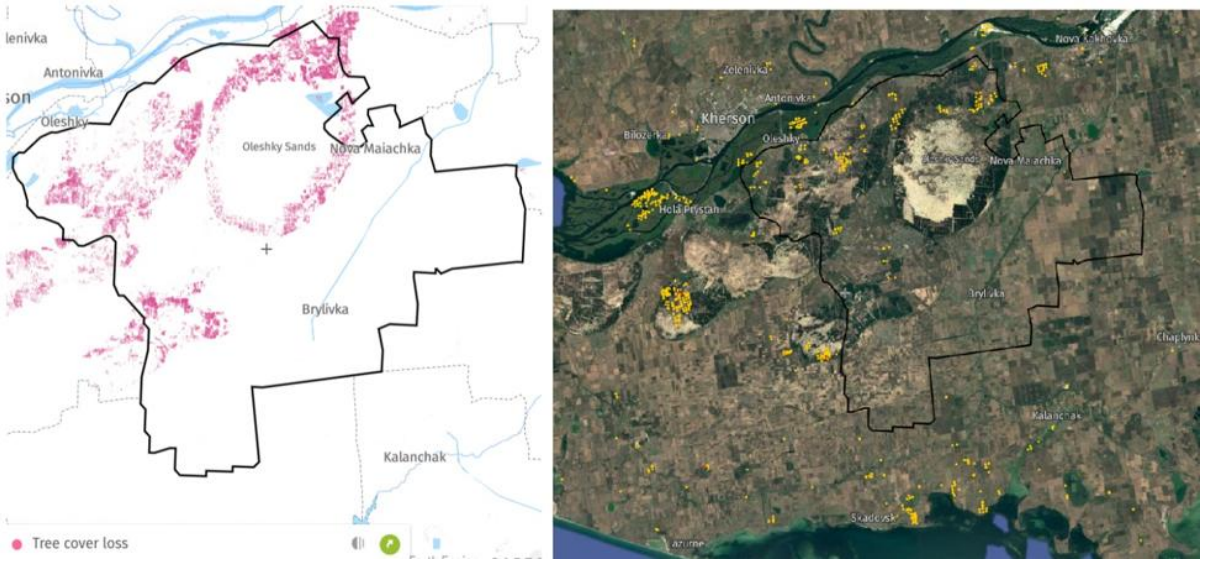


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Project images

Image 2 of 2

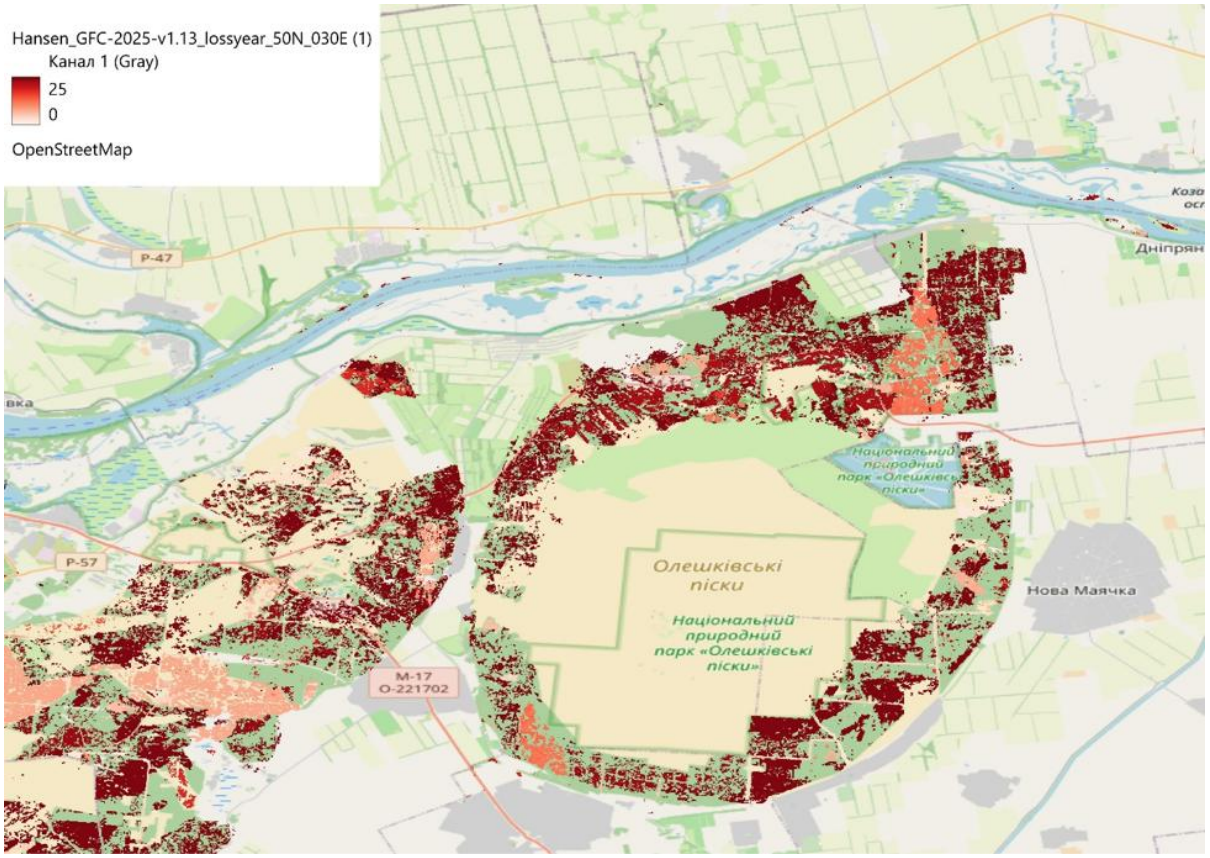


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