Evaluating and aiding wildfire recovery
in Portugal's Serra da Estrela National Park

"To meet end user requirements regarding data content and quality, Copernicus Services need access to up-to-date, and harmonised geospatial information across Europe. Data produced by National Mapping, Cadastral and Land Registration Authorities, the members of EuroGeographics, is therefore key to its success.

Typically, geospatial data is relevant for all the different services, but we have identified three key services which require geospatial data: the Copernicus Emergency Management Service and its rapid mapping, and risk and recovery mapping; the Copernicus Land Monitoring Service; and the Copernicus Security Service which supports, inter alia, the EU External Action Service.

By working closely together, we can improve the use of authoritative data and services by Copernicus and ensure National Mapping, Cadastral and Land Registration Authorities are recognised for their essential contributions."

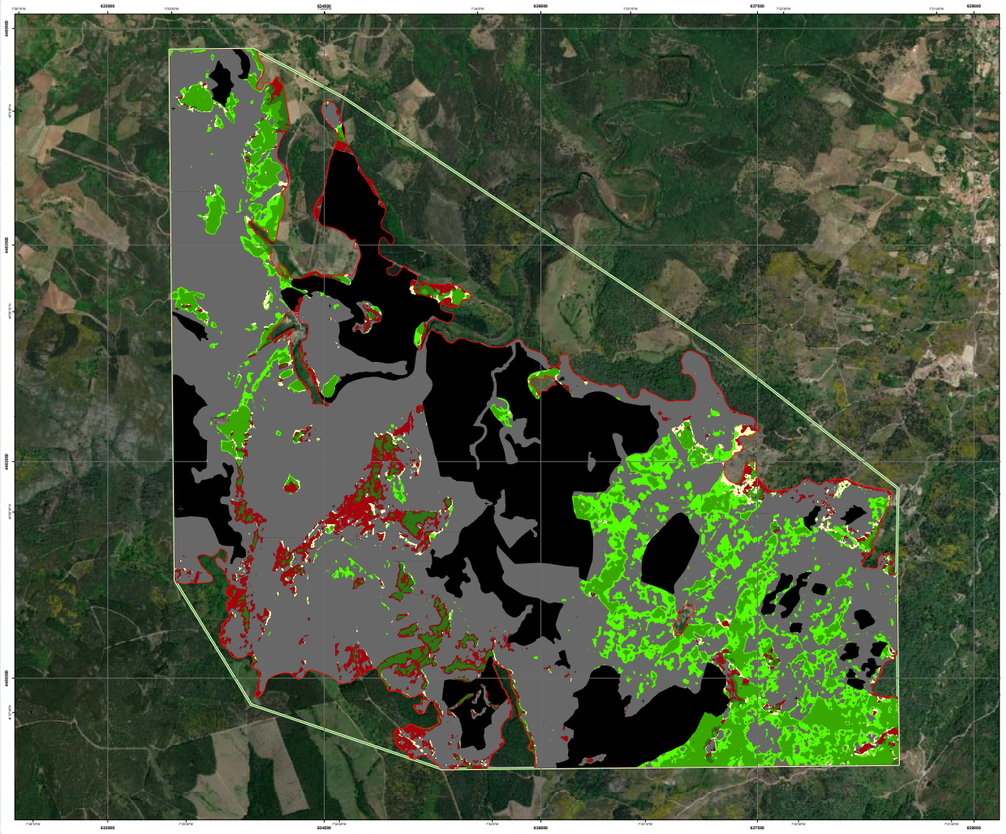
Jose Miguel Rubio Iglesias
Copernicus In-Situ Component,
European Environment Agency (EEA)

Introduction

National landscape data was provided by the Directorate General for the Territory to enable insights into the impact of one of Portugal's biggest ever wildfires.

Challenge

Portugal's largest wildfire in 50 years swept through 25,000 hectares of the Serra da Estrela National Park in August 2022. Exacerbated by strong winds and high temperatures, the massive blaze forced local communities to evacuate and caused significant ecological damage. Heavy rainfall on the burnt ground then led to catastrophic floods, causing further destruction to the environment, property and infrastructure. Accurate data was required to monitor vegetation damage and recovery, as well as impact on the road network and the risk of erosion and landslides.



Serra da Estrela, Portugal:
Monitoring areas damaged by forest fires - Assessment of vegetation recovery

Benefits

- Provides reliable, up-to-date, detailed data for monitoring post-disaster recovery.
- Enables targeting and evaluation of the effectiveness of mitigation and recovery measures.
- Delivers a visual, easy to understand overview of the current situation to support statistical analysis and reporting.
- Identifies areas most susceptible to landslides as a result of soil erosion, enabling action to be focused on high-risk areas.
- Demonstrates value of cooperation between EEA and European National Mapping, Cadastral and Land Registration Authorities.

Solution

"By providing trusted authoritative geospatial data, Directorate General for the Territory is committed to enabling insights that promote a better knowledge of Portugal. Accurate information about land cover and land use is essential for managing the landscape but also to support ecological recovery in the aftermath of disasters such as wildfires and floods."

Fernanda do Carmo
General Director, Directorate General for the Territory, Portugal

National data for land use and cover was provided by the Directorate General for the Territory to enable insights into the impact on the landscape.

The highly-detailed land use and land cover data was used in conjunction with geological, Digital Terrain and Surface Models (DTM and DSM) as well as other field data to monitor damage and evaluate risk.

To assess the recovery of vegetation and the accessibility of the infrastructure in the aftermath of the blaze and subsequent flooding, satellite images were used to compare the before and after situation in the national park. Analysis revealed that more than 50 per cent of the agricultural areas had either recovered, were recovering or were classified as living by March 2023.

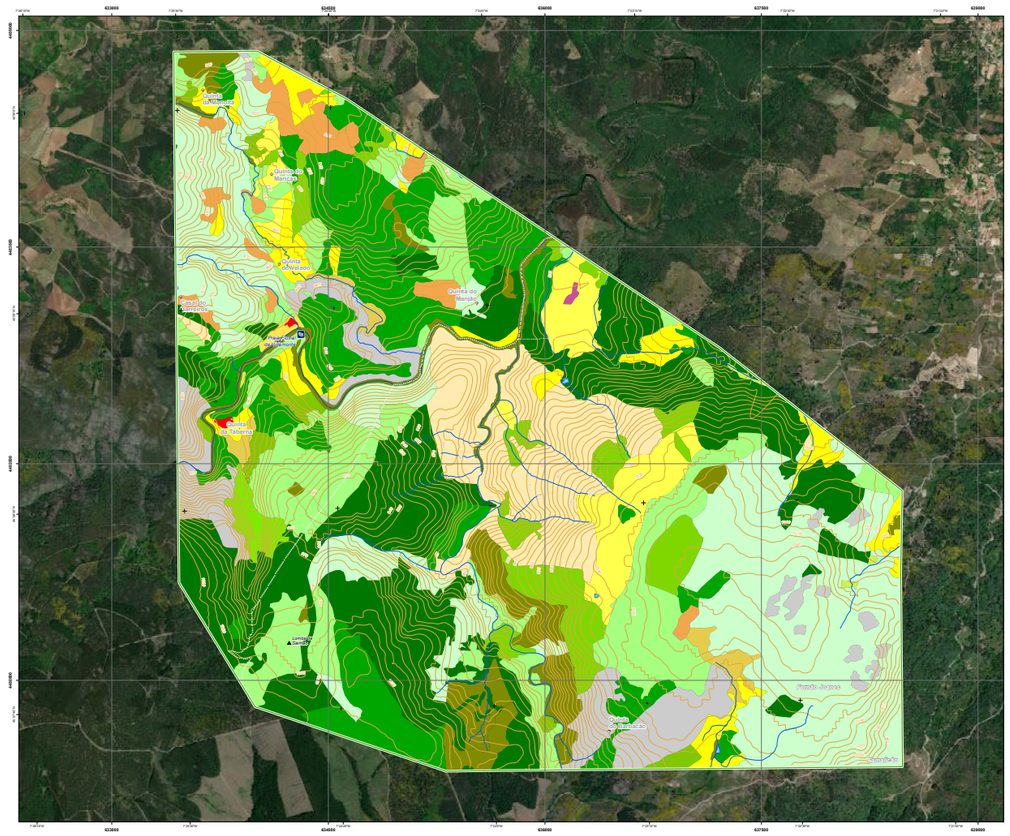
Furthermore, just over half of the national park's roads was evaluated as being easy to access, with around 40 per cent deemed as possibly difficult and 7.5 per cent classed as difficult.

Soil erosion risk was produced for three scenarios: the situation following the fire; after the implementation of recovery and mitigation measures; and the long-term effect, which showed a marked increase in areas at very low risk. These insights also enabled evaluation of the effectiveness of each soil loss measure, including planting of trees and removal of burnt vegetation.

National geospatial data from the Directorate General for the Territory was provided via the Copernicus Framework Licence agreement between the European Environment Agency (EEA) and not-for-profit organisation, EuroGeographics which represents Europe's National Mapping, Cadastral and Land Registry Authorities.

As a result of the Agreement, EuroGeographics is simplifying access to official pan-European geospatial data from its members and in doing so, is increasing the number of datasets available via the Copernicus Reference Data Access (CORDA) database. In addition, the partnership is exploring solutions for providing full, free, and open access to geospatial data for the Copernicus programme, including the geospatial data component of the CLC+ System, the CLC+ Backbone, and is improving Copernicus services' access to pan-European datasets and services available through the Open Maps for Europe interface.

The activation of the Copernicus Emergency Management Service Risk and Recovery Mapping was activated by the Portuguese National Authority for Emergency and Civil Protection.



Serra da Estrela, Portugal:
Monitoring areas damaged by forest fires - Land use land cover

MORE INFORMATION
http://www.dgterritorio.pt

ACTIVATION
https://emergency.copernicus.eu/mapping/list-of-components/EMSN149