Wildland-Urban Interface Fire Touristic Infrastructure Protection Solutions

WUITIPS

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Snapshot of Project Results

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Abstract	This document provides a concise overview of the WUITIPS project outcomes, summarising its main objectives, tools developed, activities in the pilot regions, and potential for replication across the EU. It is intended as a snapshot for the Union Civil Protection Knowledge Network platform, showcasing how the project supports wildfire risk reduction in tourist areas located within the Wildland–Urban Interface.

(1) Draft / Final

(2) Public / Restricted / Internal

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1. Project Summary

The WUITIPS project addressed the growing threat of wildfires to tourist infrastructure located in the Wildland–Urban Interface, with a focus on transboundary areas in southern Europe. As climate change intensifies wildfire frequency and severity, tourism infrastructures—often situated in high-risk landscapes—require tailored strategies for preparedness, prevention, and response. The project developed a harmonized, operational toolkit to support public and private stakeholders in mitigating wildfire risk in touristic contexts.

2. Objectives

- Develop interoperable tools and methodologies for wildfire risk assessment and preparedness in tourist areas.
- Harmonize criteria for vulnerability assessment across borders.
- Provide practical guidance for public authorities, emergency services, and private infrastructure owners.
- Test and demonstrate tools in real-world conditions.

3. Key results

WUITIPS produced the WUITIPS Toolkit (Figure 1), a set of validated and scalable tools, including:

- Hotspot Mapping Method: GIS-based tool to identify areas where tourist infrastructure is most exposed to wildfire hazard.
- TourSafe App: For municipalities to assess the preparedness of tourist populations.
- TourGuard: Self-assessment tool for tourist establishment owners to evaluate structural vulnerability and identify mitigation actions.
- Evacuation Modelling Toolbox: Guidelines and simulation models reflecting tourist-specific behaviours.
- Performance-Based Design Guidance: Fire safety engineering methods adapted to tourist infrastructures using CFD simulation.

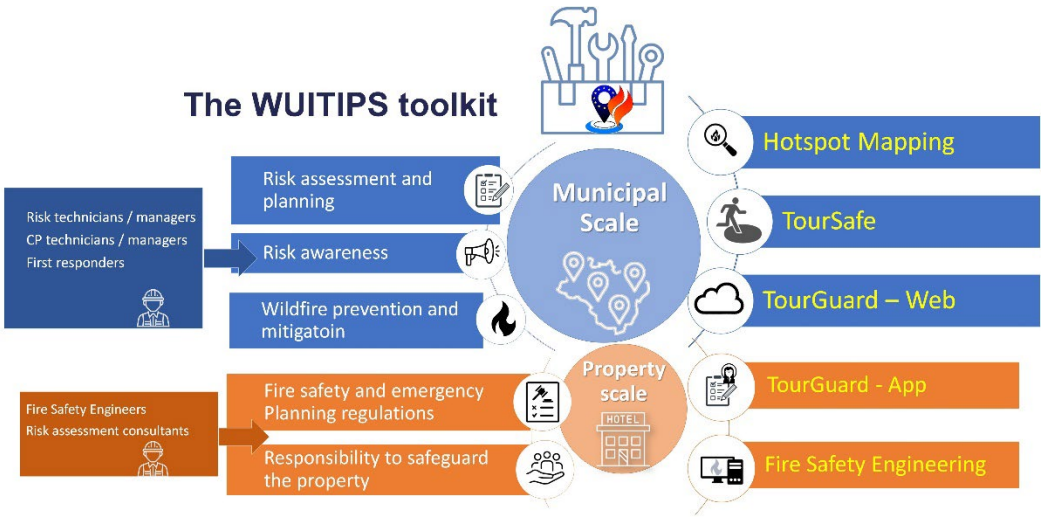

Figure 1. The WUITIPS toolkit

4. Pilot regions and implementation

The toolkit was tested in Alt Empordà (Spain) and Pyrénées-Orientales (France), including field assessments, simulations, and stakeholder co-creation. The tools were applied in various establishments such as campsites, villas, and hotels. Two study tours allowed for on-site engagement with local tourism operators. Two thematic workshops—in Barcelona and Brussels—facilitated knowledge exchange and presented final results to EU audiences.

Figure 2. Co-creation process with hotel owners in Alt Empordà (Girona).

Figure 3. Consortium partners and French stakeholders.

5. Impact and future use

The WUITIPS toolkit has already improved wildfire preparedness in the pilot regions. It has fostered stronger collaboration between civil protection agencies, fire services, and tourism stakeholders. The harmonized approach allows for replication across other EU regions exposed to WUI fire risk. The tools and methods are freely available and can be integrated into local and regional risk planning.

6. Access to resources

- Tools and deliverables are available on the **WUITIPS page of the Civil Protection Knowledge Network platform**.
- Technical annexes, simulation models, and case study materials support transferability.

https://civil-protection-knowledge-network.europa.eu/projects/wuitips

WUITIPS products

Tourist hotspot mapping

A harmonized method for identifying zones highly vulnerable to wildfires in relation to tourist infrastructure at the municipal level. This approach integrates information on wildfire hazards and tourist activities, utilizing cross-referenced GIS data layers.

TourSafe

Tourist Vulnerability Assessment Tool

TourSafe evaluates the vulnerability of tourist populations in municipalities or tourist areas. Designed for emergency managers, civil protection agencies, and fire departments, it provides vital information to enhance community safety. Using a user-friendly questionnaire, the tool categorizes vulnerability levels and offers tailored best-practice guidelines to address identified issues.

Lefteris Damianidis | AP

TourGuard

Tourist Infrastructure Vulnerability Assessment and Resilience Development tool

This service is built as a web application to help managers of tourist infrastructures evaluate their vulnerability through a questionnaire that examines the key aspects of the property such as its surroundings, structure, and preparedness. The responses are processed to generate an index and actionable recommendations for improving resilience. It can be integrated into platforms used by management agencies.

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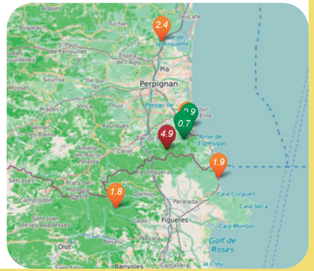
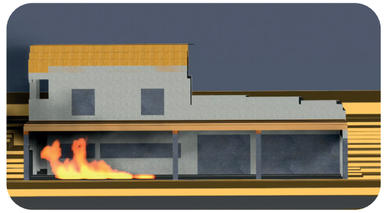
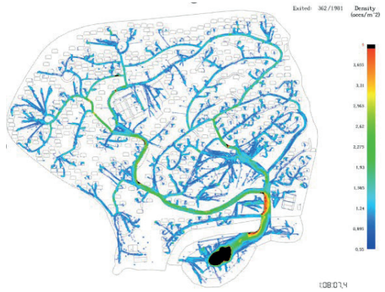


Enhanced Fire Safety Engineering Methodologies

WUITIPS refines key fire safety engineering methodologies for scenarios involving wildfires and tourist infrastructure. This includes evacuation modelling, developing new tourist archetypes for human behaviour models that introduce variables such as attachment to property, experience, and safety culture. For performance-based design (PBD), WUITIPS has created guidelines for detailed building analyses. This includes advanced CFD modelling tools to assess fire exposure scenarios and evaluate the performance of building envelopes in preventing fire entry.





Beyond the project: Implementation and scalability

To integrate these tools, fire prevention agencies must collaborate with tourism associations. Local municipalities can use Tourist Hotspot Mapping, TourGuard and TourSafe to assess risks and strengthen resilience, while regional collaboration fosters consistent wildfire management.

For examples of implementation in Girona and Pyrénées-Orientales, contact **Diputació de Girona** (mpipio@ddgi.cat) and **Entente Pour la Forêt Méditerranéenne** (p.meresse@valabre.com), respectively.

For further information, visit the **Union Civil Protection Knowledge Network** or contact the project coordinator **Elsa Pastor** (elsa.pastor@upc.edu).

WUITIPS

Wildland-Urban-Interface
Fire
Touristic
Infrastructures
Protection
Solutions

A novel wildfire risk management framework for the tourist sector

Co-funded by the European Union

Background

Wildfires pose an increasing **threat to tourist destinations:**

Unawareness
Tourists are generally unaware of the risks associated with wildfires.

Unreadiness
Tourism-oriented facilities often lack preparedness for wildfire impacts.

Wildfire complexity
Fire events often result in large-scale evacuations, fatalities, extensive damage to tourist facilities and long-lasting economic impacts.

Climate change
Risk will worsen further under new climate scenarios.

Wildfire in Le Lavandou (France, 2017).
Source: AP Photo / Claude Paris

Wildfire in Colera (Spain, 2023).
Source: Colera municipality

Consortium

UNIVERSITAT POLITÈCNICA DE CATALUNYA
BARCELONATECH
Centre for Technological Risk Studies

Diputació de Girona

Efectis

VALABRE
ANTICIPER VOTRE PRÉSENT

LUNDS UNIVERSITET

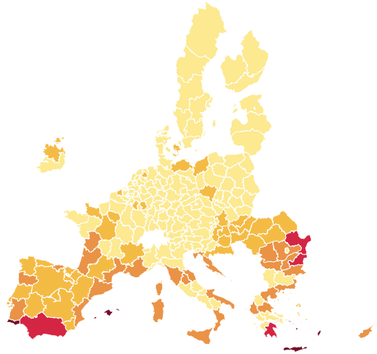
Gaps and needs

The wildfire risk management challenge in the tourism sector is recognized and identified at the EU regional level, but there is still a significant need to enhance resilience at the municipal and property levels:

01 **No harmonized approach or actions for wildfire risk management in tourist areas is shared between neighbouring Member States.**

02 **Specific, science-based tools for wildfire risk management are lacking.**

03 **Common and coherent messages and recommendations for good practices in prevention and protection are absent.**



NUTS-2 regions of the EU with more tourism exposed to wildfire hazard.
Source: Neger et al. 2024, https://doi.org/10.1016/j.tourman.2024.104901

Aim and objectives

WUITIPS has developed an **innovative wildfire risk management framework for the tourism sector**, designed to be harmonized and applied across Europe. This framework will support risk managers, fire agencies, tourism infrastructure managers, and fire protection engineers in tackling risk management planning, risk analysis, and mitigation strategies.

Key objectives

- Develop standardized methodologies and tools for vulnerability and fire protection analysis.
- Create EU-harmonized guidelines.
- Provide end-users with practical examples of product applications at pilot sites (e.g., the French-Catalan border).
- Create a living lab of knowledge transfer with a complete ecosystem of stakeholders and end-users across EU.

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Co-funded by the European Union