



8<sup>TH</sup>  
INTERNATIONAL  
WILDLAND FIRE  
CONFERENCE

GOVERNANCE  
PRINCIPLES:  
Towards an  
International  
Framework

# Educating for preparedness: A review of wildfire educational material available worldwide

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Catarina Sequeira, Iryna Skulska, Conceição Colaço.

Porto May 17<sup>th</sup>, 2023

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INSTITUTO  
SUPERIOR DE  
AGRONOMIA  
*Universidade de Lisboa*



Centro  
Ecologia  
Aplicada  
"Prof. Baeta Neves"



InBIO  
RESEARCH NETWORK  
Biodiversity and Evolutionary Biology

## INTRODUCTION

In the context of **climate change**, **wildfires** are becoming one of the **main environmental concerns** in many parts of the **world**.

It is fundamental to **educate the population**, increasing their **wildfire preparedness** and also to **manage forests** making them more **wildfire-resilient**.

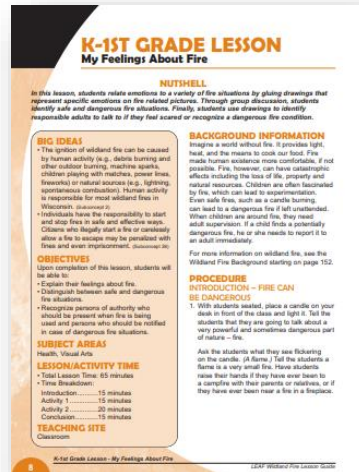


# INTRODUCTION

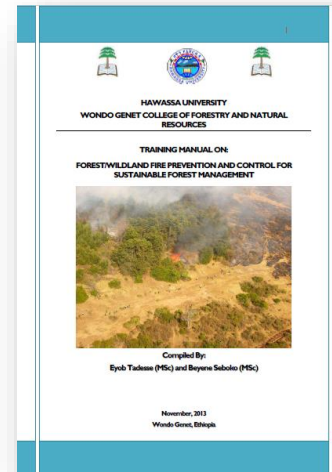
The present study is a **review** of **wildfire didactic materials** from around the globe.



Portugal



USA



Ethiopia



Brazil



The **aim** is to find which are the **main topics** and **concerns covered** by these materials and identify their **knowledge gaps**.



## MATERIALS AND METHODS

Online searches → **Google**



Between **July** and **September** 2022.

**Keywords:** “forest”, “fire”, “wildfire”, “educational”, “didactical”, “pyrology”, “forest fire guide”, “guide”, “manual” and “handbook”.

These **terms** were **combined in various** forms to **maximize the retrieved results**.

## MATERIALS AND METHODS

Searches were conducted in **21 languages**:

Bulgarian; Czech; English; Estonian; Finnish; French; German; Greek; Icelandic; Italian; Kazakh; Latvian; Mongolian; Polish; Portuguese; Roman; Russian; Spanish; Swedish; Turkish; and Ukrainian.

References were also found in:

Catalan and Galician.

Total of **23 languages**.



**Document analysis** → examine the educational material content.

# MATERIALS AND METHODS

TOPICS ANALYZED	CATEGORIES
Country	Country for which the content was developed.
Target audience	<ul style="list-style-type: none"> <li>• General public</li> <li>• Firefighters</li> <li>• Students*               <ul style="list-style-type: none"> <li>○ Pre-school (ages from 4 to 5)</li> <li>○ Elementary school (ages from 6 to 10)</li> <li>○ Middle school (ages from 11 to 16)</li> <li>○ High school (ages from 17 to 18)</li> <li>○ K-12 (ages from 4 and 18)</li> <li>○ College (over 18)</li> </ul> </li> <li>• Rural population</li> </ul>
Material format	<ul style="list-style-type: none"> <li>• Written documents</li> <li>• Video</li> <li>• Website</li> <li>• Activities</li> <li>• Slides</li> <li>• Book (written documents with an International Standard Book Number - ISBN)</li> <li>• Phone application (APP)</li> </ul>

# MATERIALS AND METHODS

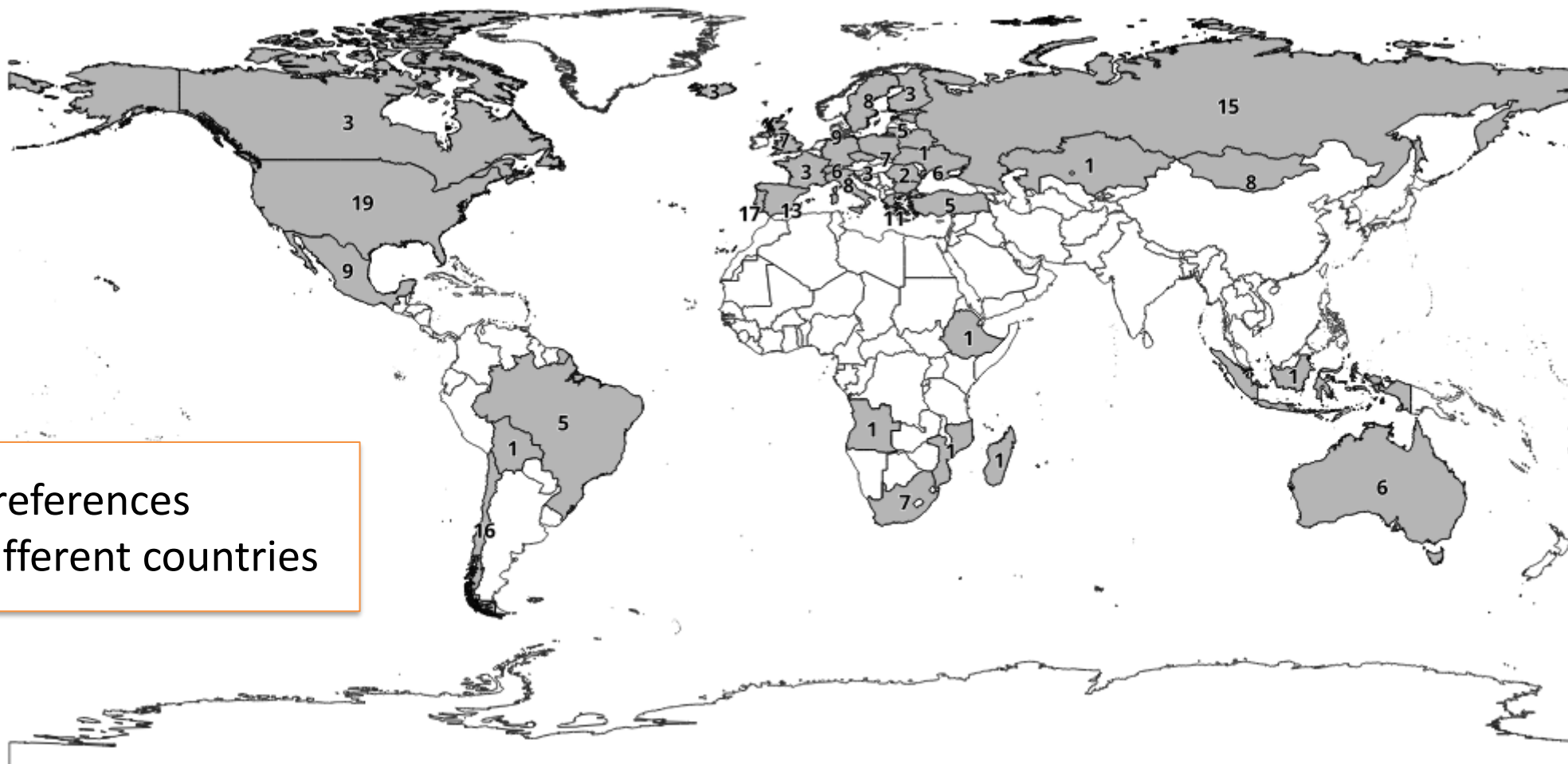
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TOPICS ANALYZED	CATEGORIES
Subjects	<ul style="list-style-type: none"><li>• Climate change</li><li>• Ecological Aspects of Wildland Fires</li><li>• Economic concerns</li><li>• Fire Effects</li><li>• Fire Management</li><li>• Fire Mitigation</li><li>• Fire Prevention</li><li>• Fire Regimes</li><li>• Fire Risk</li><li>• Fire Safety</li><li>• Fire Triangle</li><li>• Health concerns</li><li>• History of humans and fire</li><li>• Legislation/Policy</li><li>• Main fire concepts</li><li>• Recover</li><li>• Response</li><li>• Social concerns</li> <li>• Uncontrolled fire vs. Controlled Fire</li></ul>

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# RESULTS AND DISCUSSION

COUNTRY

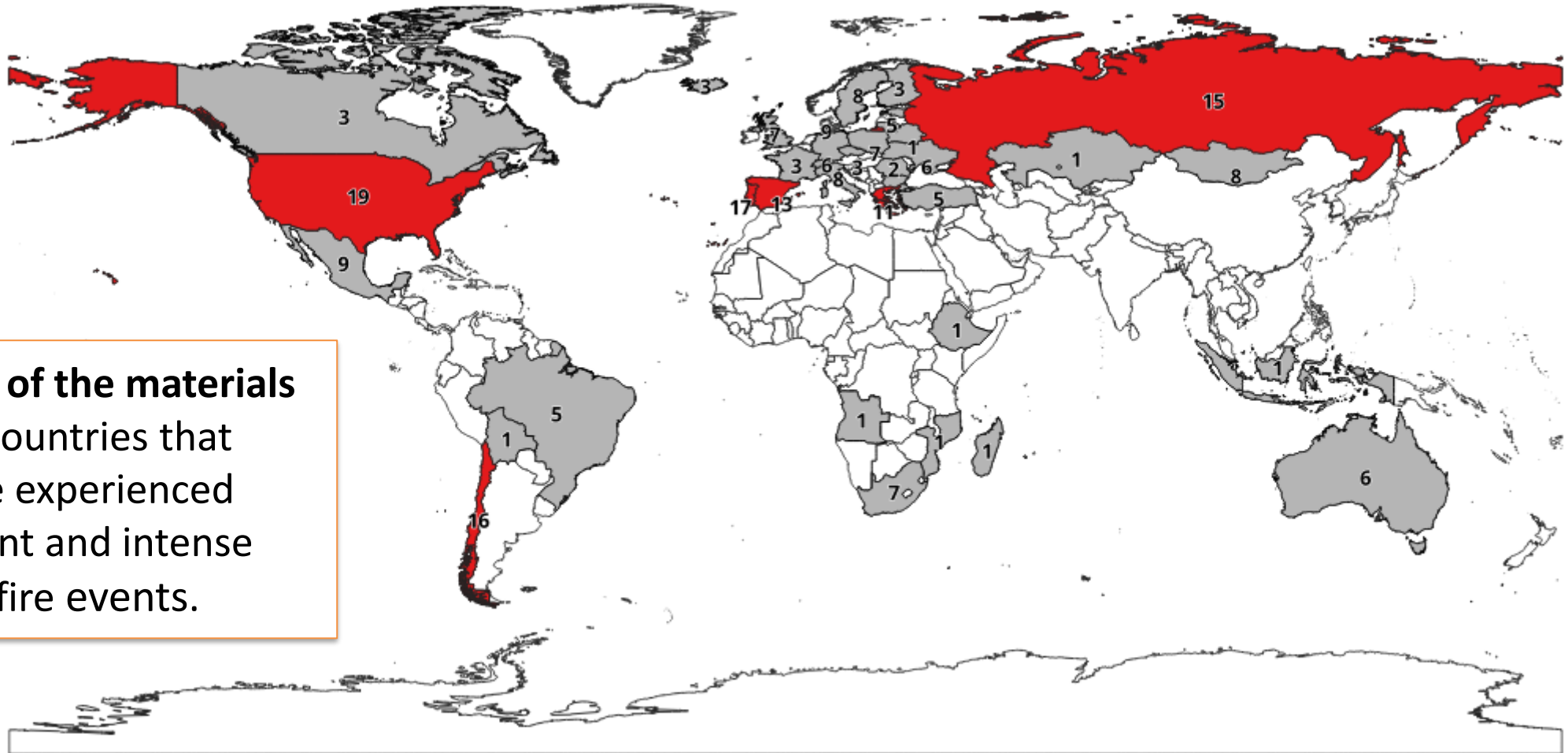


**225** references  
**36** different countries



# RESULTS AND DISCUSSION

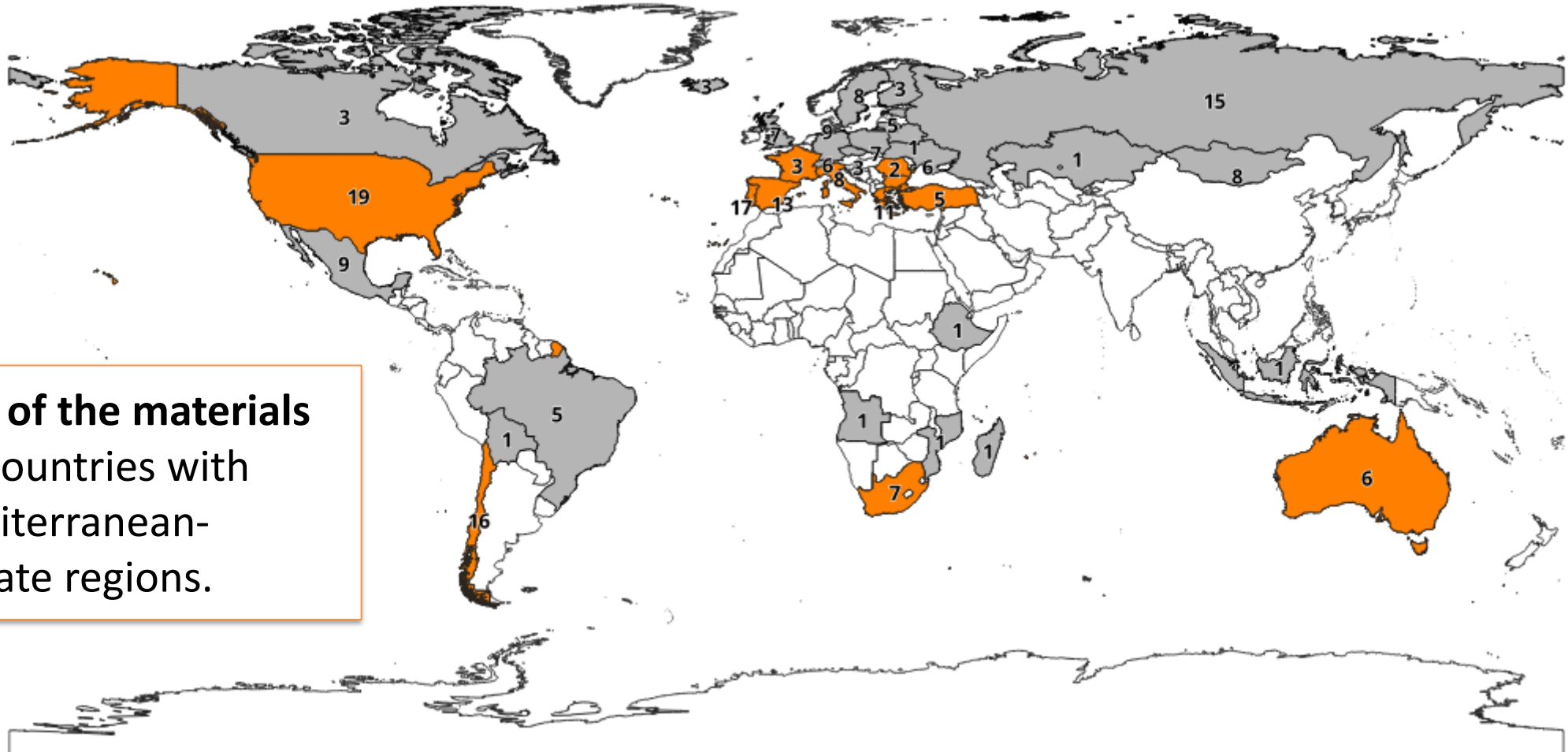
COUNTRY



**40% of the materials**  
→ Countries that have experienced recent and intense wildfire events.

# RESULTS AND DISCUSSION

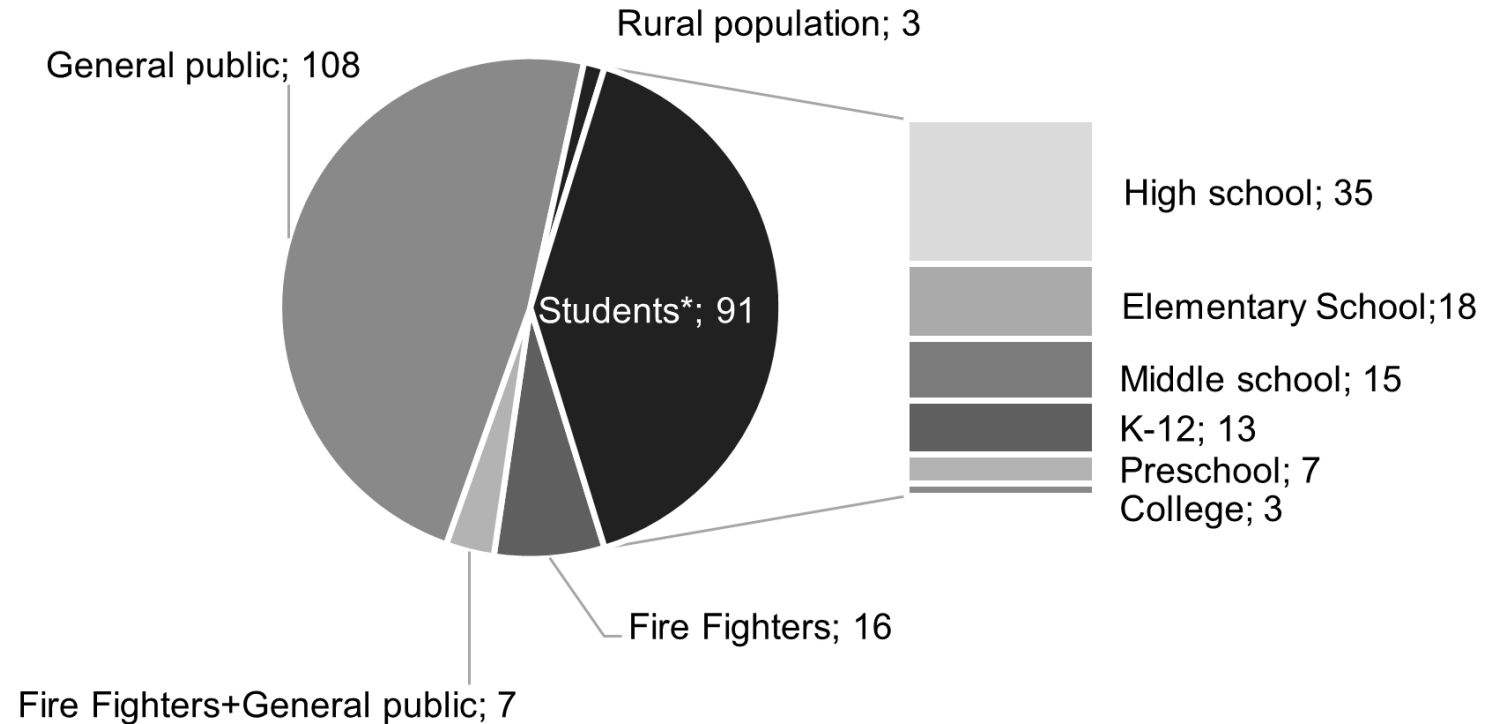
COUNTRY



**50% of the materials**  
➔ Countries with  
mediterranean-  
climate regions.

# RESULTS AND DISCUSSION

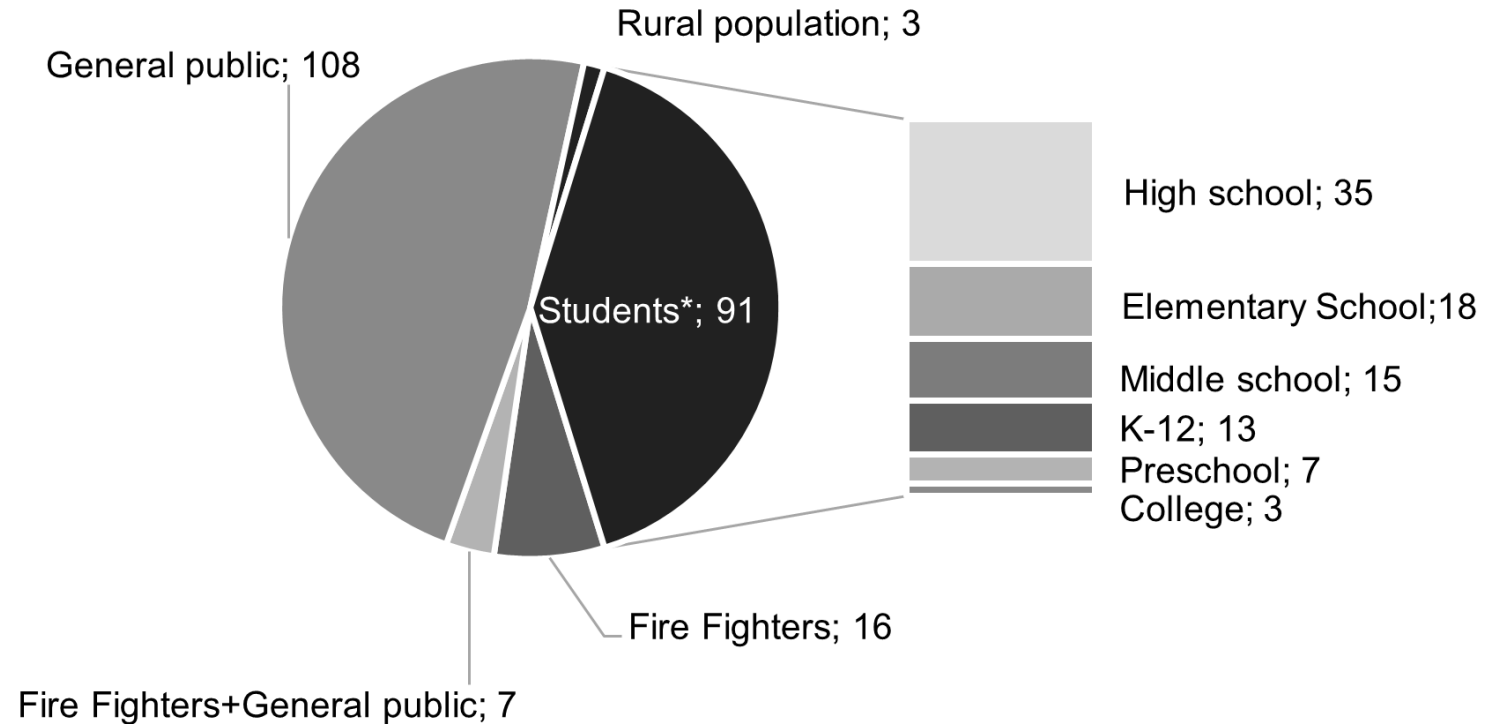
TARGET AUDIENCE



**48% → General Public  
Guides and Manuals.**

# RESULTS AND DISCUSSION

TARGET AUDIENCE

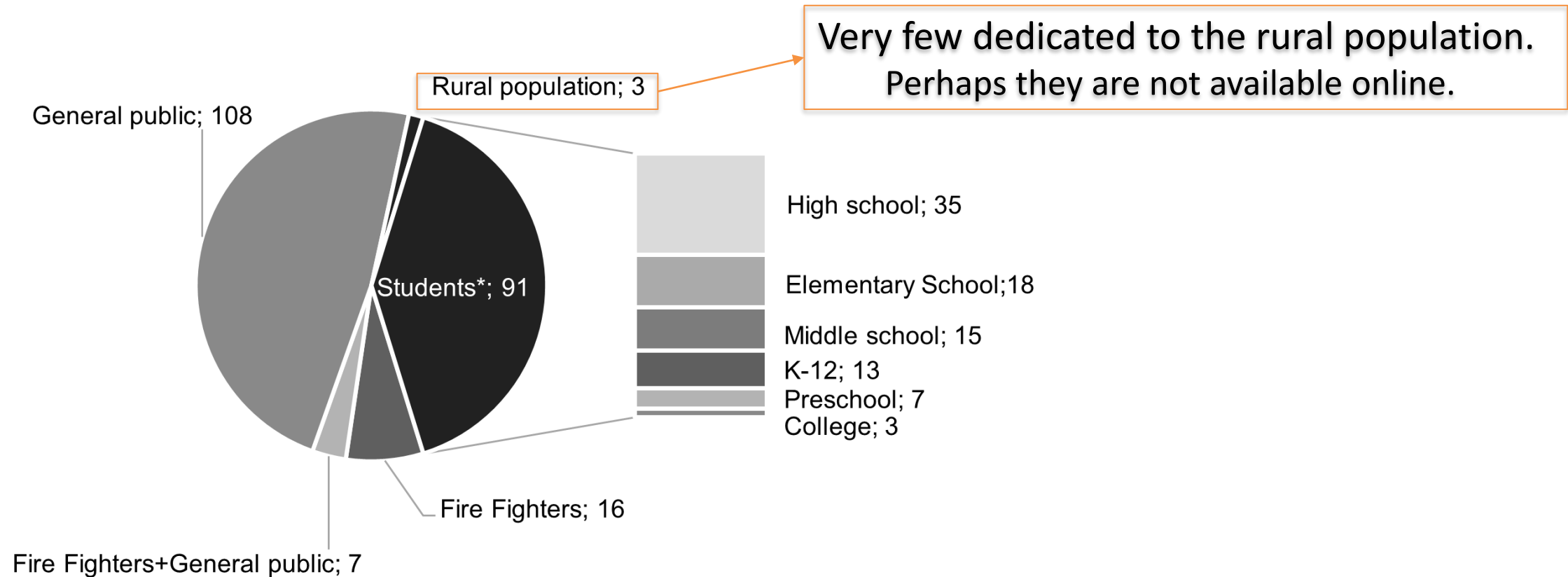


**40% → Students**

**Mostly for high school students.**

# RESULTS AND DISCUSSION

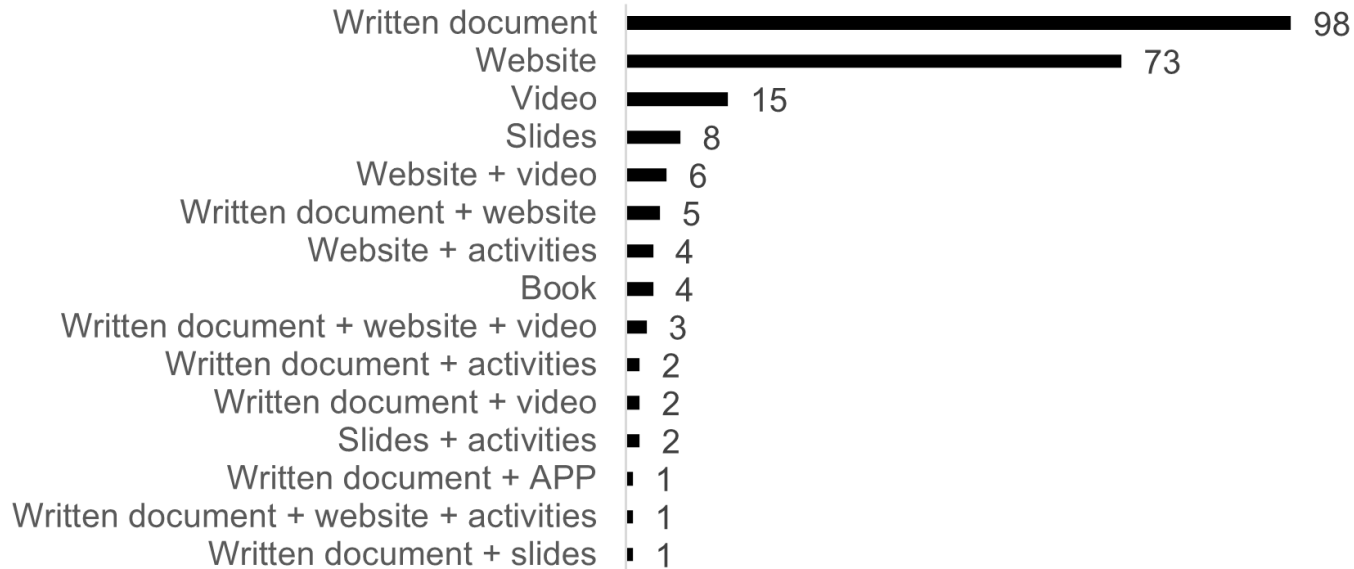
TARGET AUDIENCE





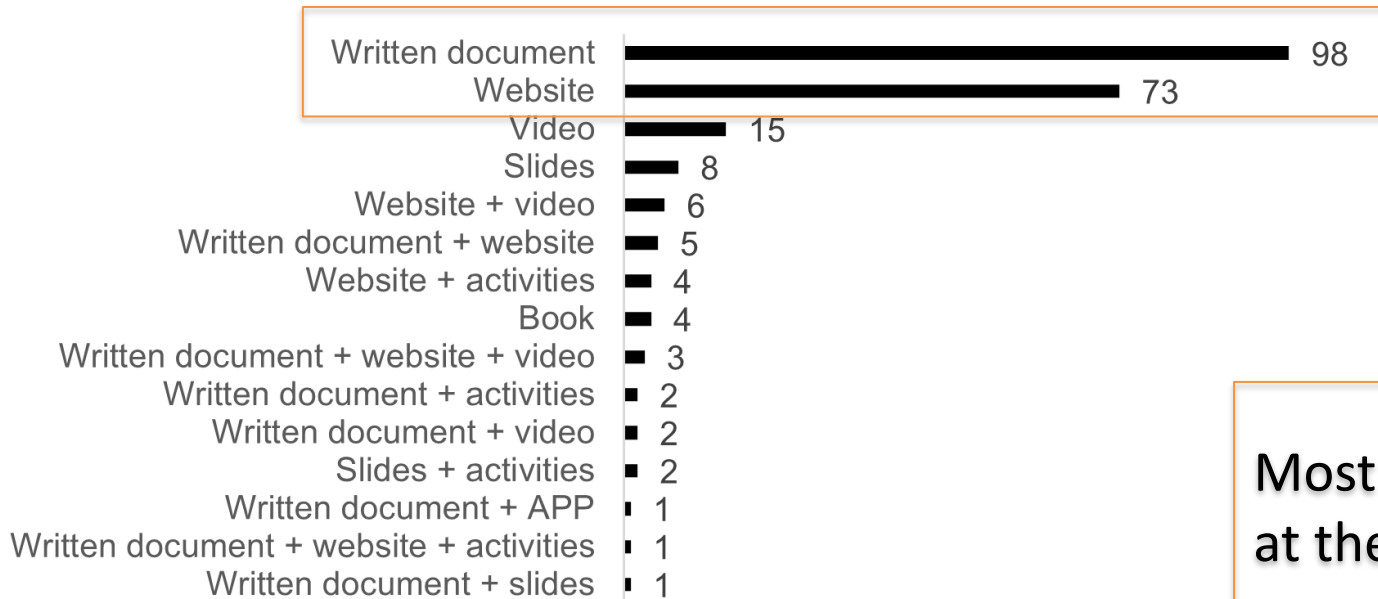
# RESULTS AND DISCUSSION

FORMAT



# RESULTS AND DISCUSSION

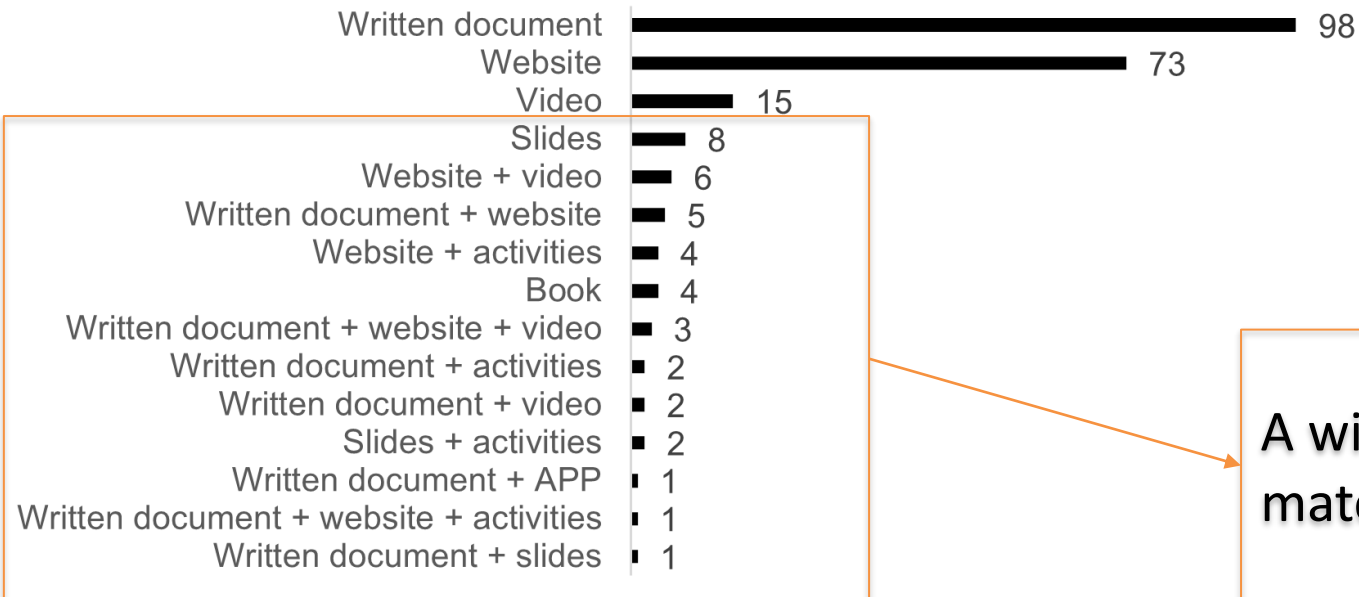
FORMAT



Most of the materials targeted at the General Public.

# RESULTS AND DISCUSSION

FORMAT



A wider variety of materials target students.

# RESULTS AND DISCUSSION

SUBJECTS



TOPICS	% OF REFERENCES
Main concepts	65%
Ecological Aspects of Wildland Fires	56%
Fire Safety	55%
Fire Prevention	53%
Fire Risk	53%
Fire Management	46%
Fire Regimes	38%
Response	32%
Fire Triangle	28%
Fire Effects	26%
Fire Mitigation	22%
Uncontrolled fire vs Controlled Fire	21%
Legislation/Policy	17%
Climate change	16%
Recover	14%
History of humans and fire	12%
Economic concerns	10%
Social concerns	9%
Health concerns	7%

# RESULTS AND DISCUSSION

SUBJECTS



TOPICS	% OF REFERENCES		
Main concepts	65%	Main concepts	65%
Ecological Aspects of Wildland Fires	56%	Ecological Aspects of Wildland Fires	56%
Fire Safety	55%	Fire Safety	55%
Fire Prevention	53%	Fire Prevention	53%
Fire Risk	53%	Fire Risk	53%
Fire Management	46%		
Fire Regimes	38%		
Response	32%		
Fire Triangle	28%		
Fire Effects	26%		
Fire Mitigation	22%		
Uncontrolled fire vs Controlled Fire	21%		
Legislation/Policy	17%	Legislation/Policy	17%
Climate change	16%	Climate change	16%
Recover	14%	Recover	14%
History of humans and fire	12%	History of humans and fire	12%
Economic concerns	10%	Economic concerns	10%
Social concerns	9%	Social concerns	9%
Health concerns	7%	Health concerns	7%



## CONCLUSIONS



- ✓ Overview of the current state-of-the-art of wildfire educational materials from 36 different countries.
- ✓ This study did not aim at analyzing the quality of the educational material.
- ✓ Wildfire is a concern in all five continents.
  - ✓ More materials are available in mediterranean-climate regions.
- ✓ Most innovative content formats were target at students.
- ✓ There is a lack of content regarding wildfire's socio-economic aspects, including health and trauma issues, as well as climate change.

## CONCLUSIONS



- ✓ Future educational material should include a multidisciplinary approach, and climate change links.
- ✓ This study can serve as a guide for future content creation → CEABN Projects

# MORE INFORMATION

BOOK CHAPTER



## Wildfire education: A review across the globe

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<sup>1</sup> Center for Applied Ecology Baeta Neves (CEABN-InBIO), School of Agriculture, University of Lisbon



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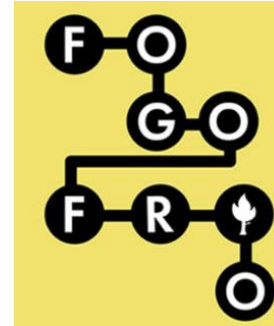
# OTHER RELATED PROJECTS



**EduFire Toolkit**



**FIRE-RES**



<http://www.isa.ulisboa.pt/ceabn>



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# EDUFIRE TOOLKIT

Educational Toolkit for Secondary Schools in Wildfires within a Climate Change Scenario

**Target audience:** Middle and high school students (12-16 years old) and teachers.

**Goal:** To supplement existing didactical materials to include climate change and wildfire risk issues.

**Tools and resources:** open access.

<https://www.edufiretoolkit.eu/>





# FIRE-RES

Innovative technologies & socio-ecological-economic solutions for fire resilient territories in Europe

**CEABN:** Coordinates the creation of a fire culture and wildfire education platform.



You can send information about fire culture from your locality to: **[ceabn@isa.ulisboa.pt](mailto:ceabn@isa.ulisboa.pt)**

<https://fire-res.eu/>



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# COLD FIRE

How to prevent fire with fire

“**Cold Fire**” is an exposition-game for kids, teens and adults about **wildfire prevention**.

This exposition shows that **burning** the vegetation on **winter** can be beneficial to **reduce wildfire intensity** protecting forests and houses in the **summer**.



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# COLD FIRE

How to prevent fire with fire



**Dates:** 6th April to 31st May

**Times:** Monday to Friday: 10am – 7pm

Saturdays, Sundays and holidays: 10am – 8pm

**Location:** Parque de Serralves - Sala Panorâmica



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<https://www.wildfire2023.pt/program/cultural-programme>



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<http://www.isa.ulisboa.pt/ceabn>



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# Thank you!

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