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**Building wildfire resilient territories through
social innovation: The case-study of ADFs in
Catalonia (Spain)**





Social Innovation in **M**arginalized Rural Areas

CTFC  → Case study in Catalonia



INTRODUCTION



- **Wildfires** are not new to Mediterranean areas

- Mediterranean ecosystems have been shaped and co-evolved with wildfires
- Unlike in other areas where we are seeing fires these days, like the Arctic, or the Amazon



However...

- Climate change and land use change are changing the scene
 - Wildfires are increasing in size, frequency and intensity
 - CC □ Higher average temperature and lower water availability
 - Climate change + changes in landscapes (land abandonment, WUI)
 - Megafires (>500 ha)



- We need to increase the **resilience** of our territories.



Social innovation can help!

CONCEPTUAL FRAMEWORK

2.1 – Social innovation

2.2 – Forested Territories as SES

2.3 – Wildfire Resilient Territories



2. 1 / SOCIAL INNOVATION

Polman et al. 2017



Moulaert et al., 2013



*The **reconfiguring of social practices**, in response to **societal challenges**, which seeks to **enhance outcomes on societal well-being** and necessarily includes the **engagement of civil society actors***
– Polman et al. 2017

***Changes in social relations**, political arrangements and/or governance processes that lead to **improvement in a social system**, identifying three main components; **Satisfaction of needs, reconfiguration of social relations, and empowerment**⁹ -*
Moulaert et al., 2013

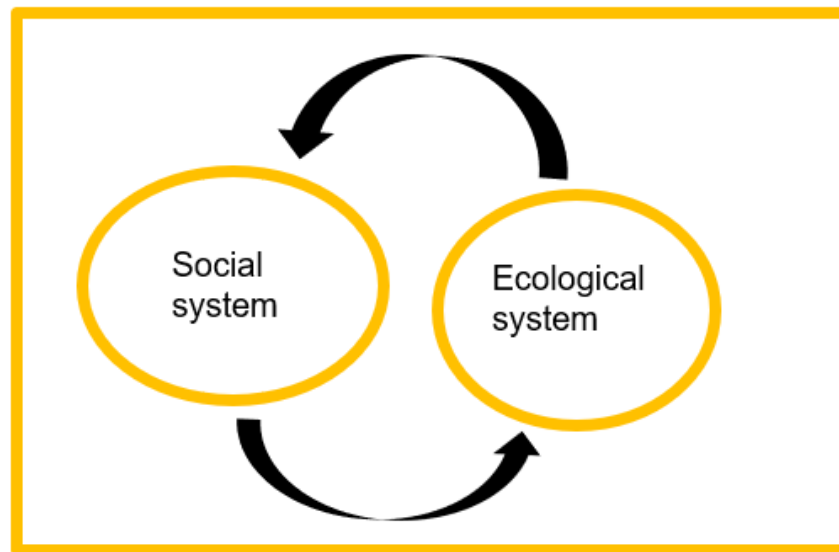
2. 1 / SOCIAL INNOVATION – Two things!

- Social innovation as a strongly territorialized process
- SI may emerge from multiple sources (not exclusively from the bottom-up)



- Bottom-linked processes link collective action from “below” to institutional strategies from “above”

2. 2 / Forested Mediterranean Territories as SES



Socio-ecological system (SES)



2. 2 / Forested Mediterranean Territories as SES

- Why as socio-ecological systems (SES)?
 1. Puts the spotlight on **feedback dynamics** between the social and ecological systems
 1. **Widely used** in academia to understand these inter-relationships
 1. Particularly **suitable in strongly anthropized environments**

2. 3 / Wildfire Resilient Territories

- Resilience of a SES: *“Ability (of SES) to absorb disturbances without collapsing” (Cote and Nightingale, 2012)*
- **Wildfire** resilient territories are based on the idea of “coexist with wildfire” in opposition to the traditional “zero-fire” paradigm.

METHODOLOGY



1. Literature review

- Newspapers
- Policy documents
- PhDs/MSc thesis
- Scientific literature (very limited)
- Other grey literature

2. Fieldwork

- 1 Focus Group
- 3 informal meetings
- 22 interviews (Structured and semi-structured questions)

CASE STUDY BACKGROUND



Forest Defence Groups (*Agrupacions de Defensa Forestal – ADFs*)



- ✓ Associations formed by forest owners, municipalities and volunteers.

- ✓ Tasks:
 - Wildfire prevention and surveillance
 - Support in the wildfire suppression
 - Extra activities; awareness raising, collaboration with civil protection bodies...

Location: Catalonia (NE Spain)

Regional scale: Catalonia

Mediterranean climate Fire prone landscapes

High forest cover (64%) 73% is privately owned

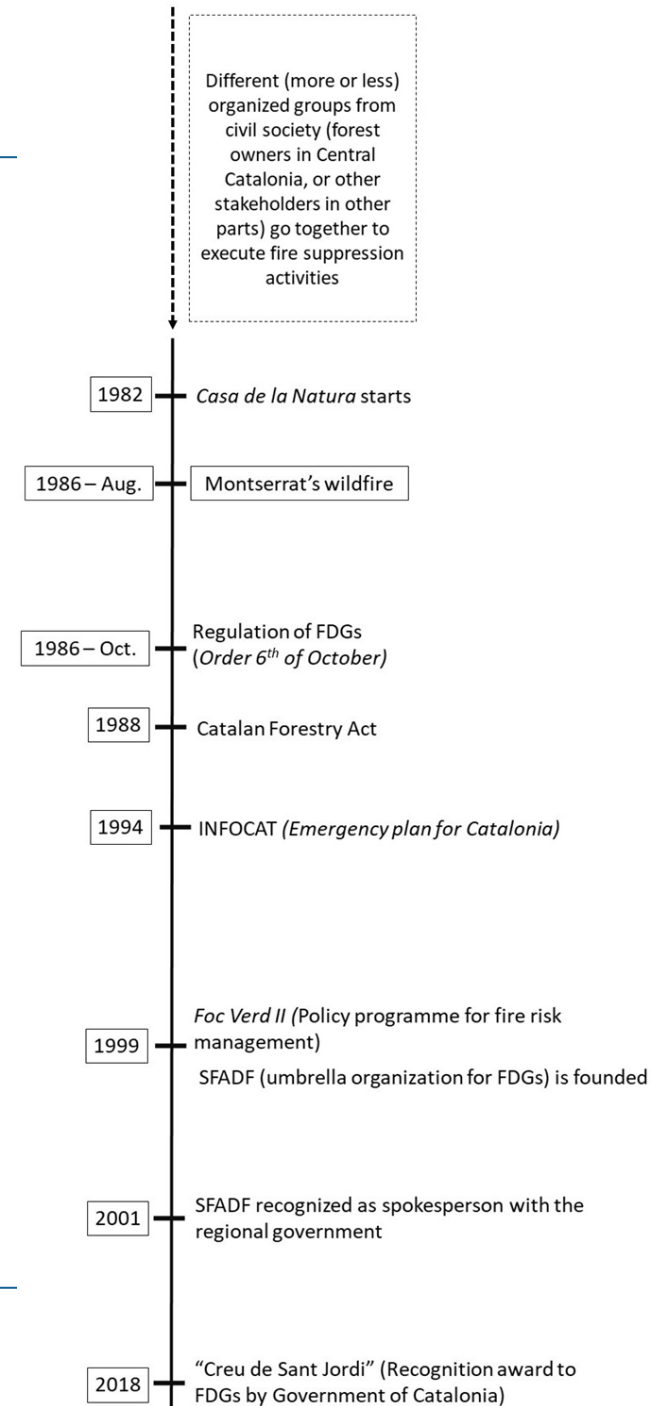


RESULTS – TIMELINE



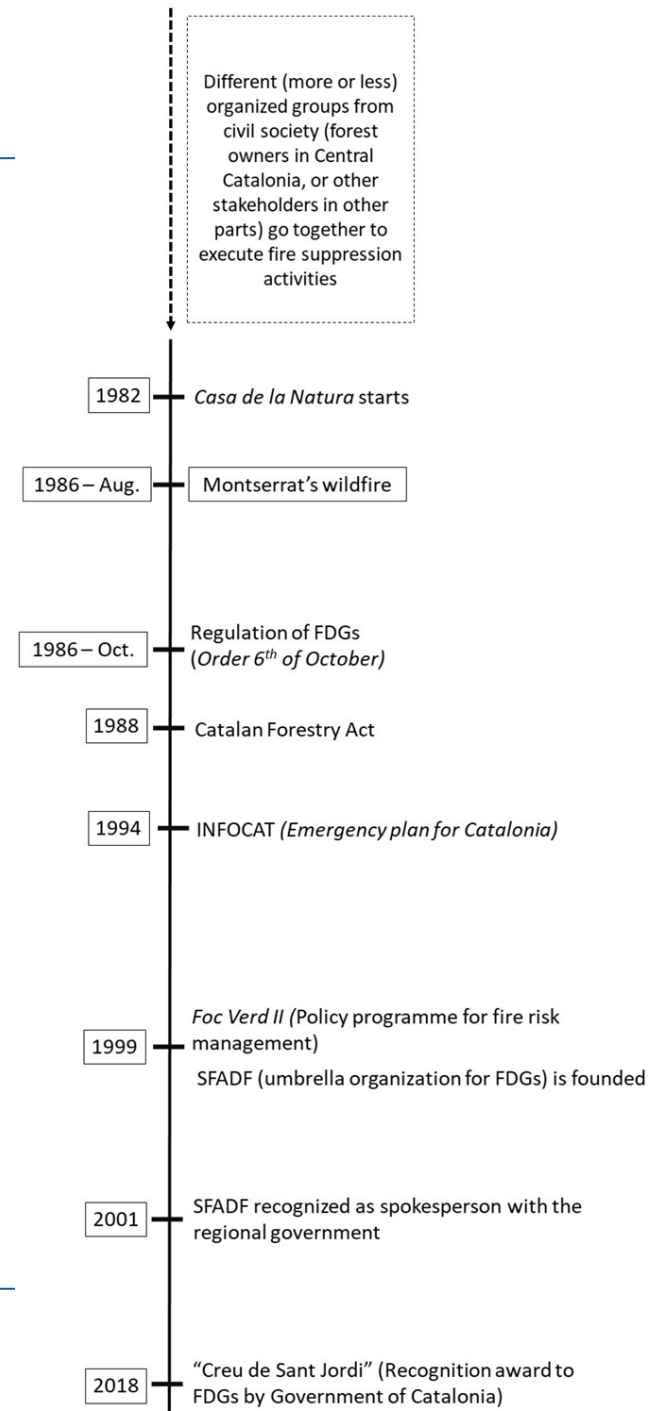
4. Results - Timeline

✓ **60s and 70's:** Firefighters not prepared. Self-organized "pagesos" in Central Catalonia




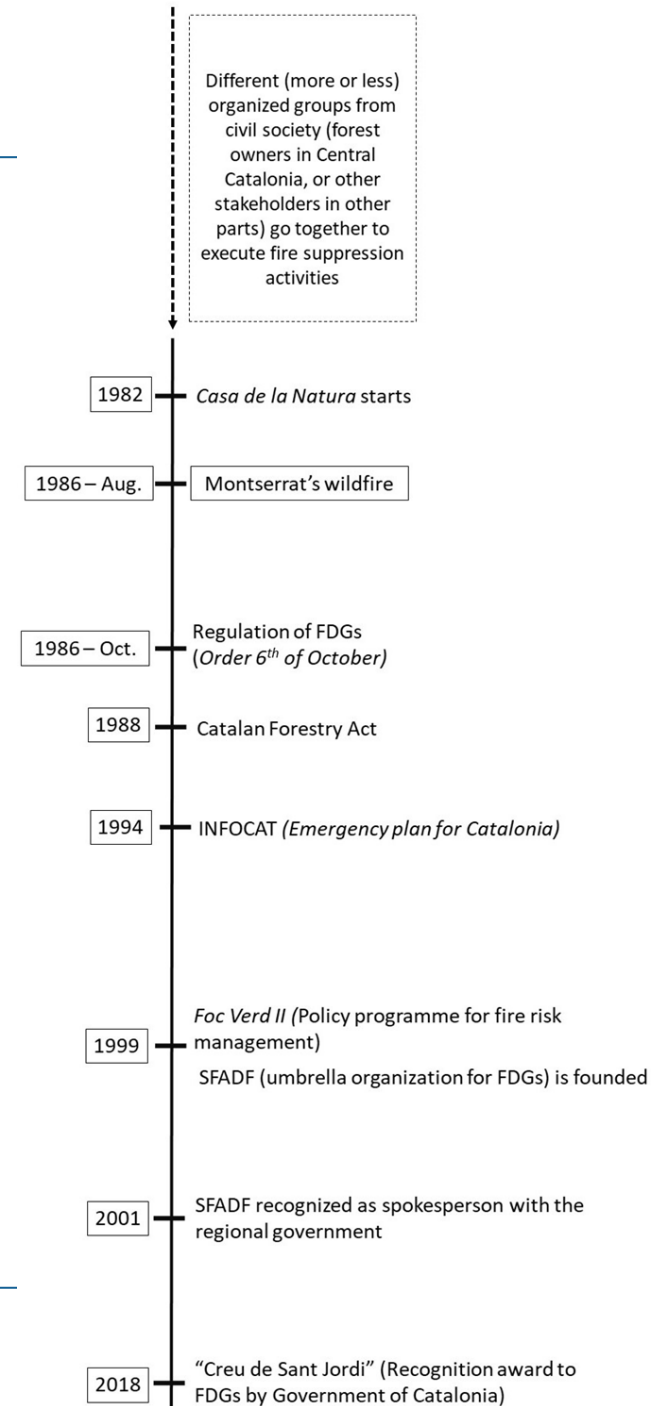
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Foc Verd I – creation of ADFs





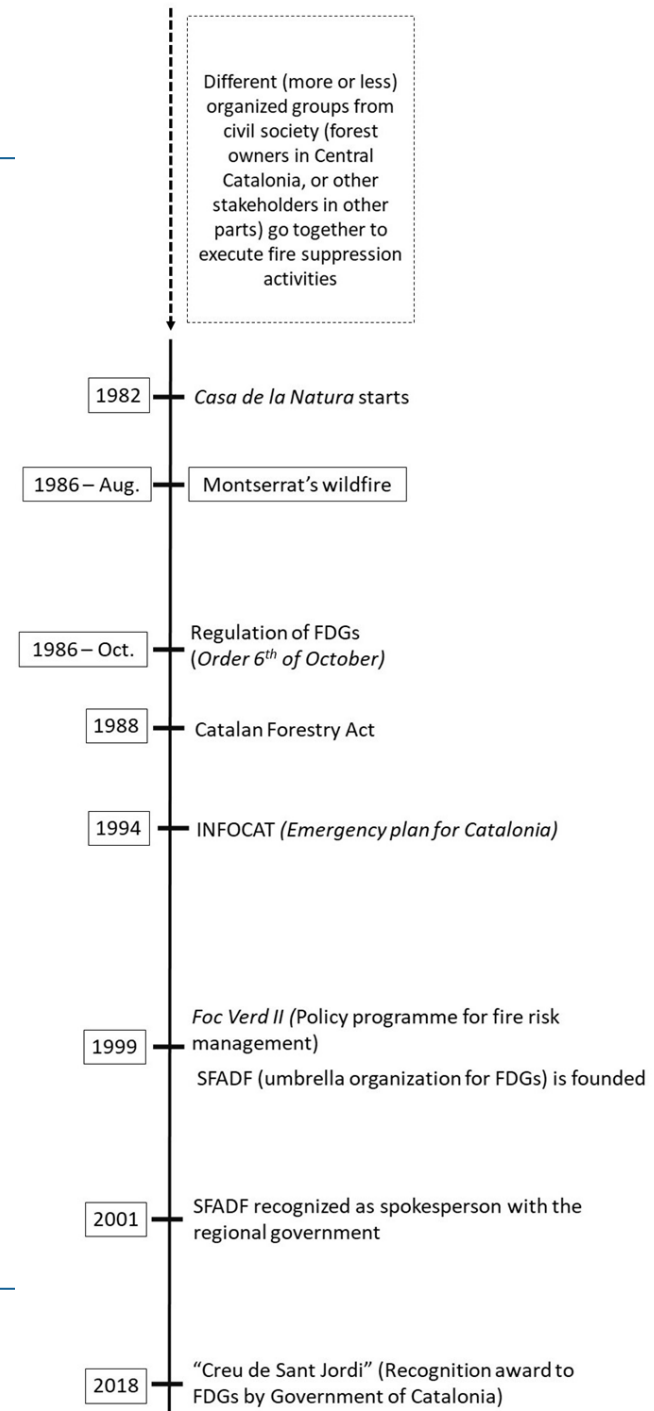
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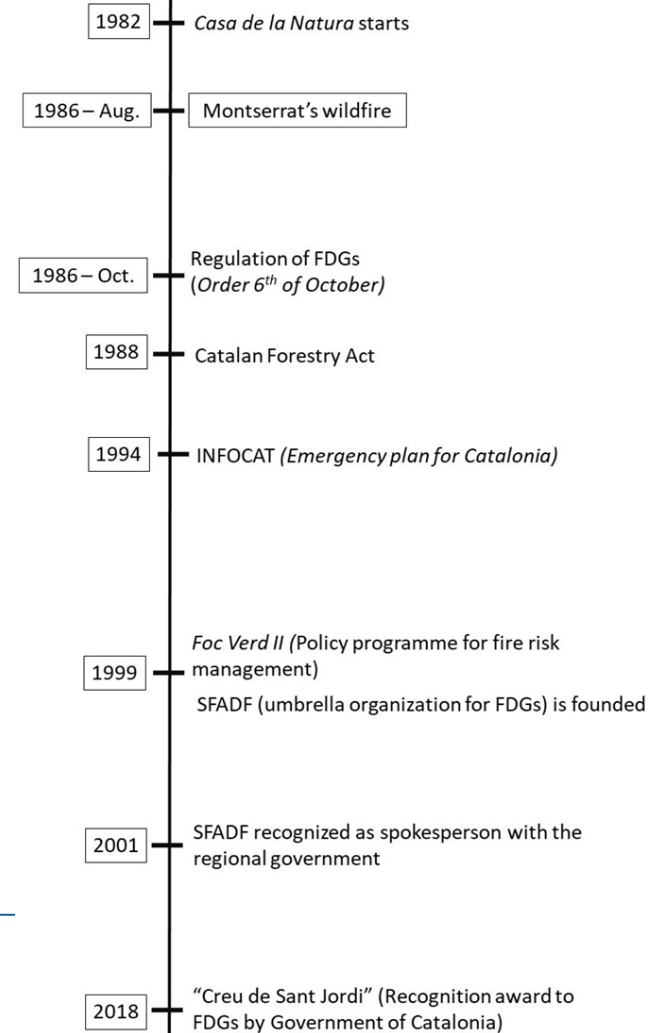
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- ✓ **1994:** 76.626 burnt ha in Central Catalonia
INFOCAT 






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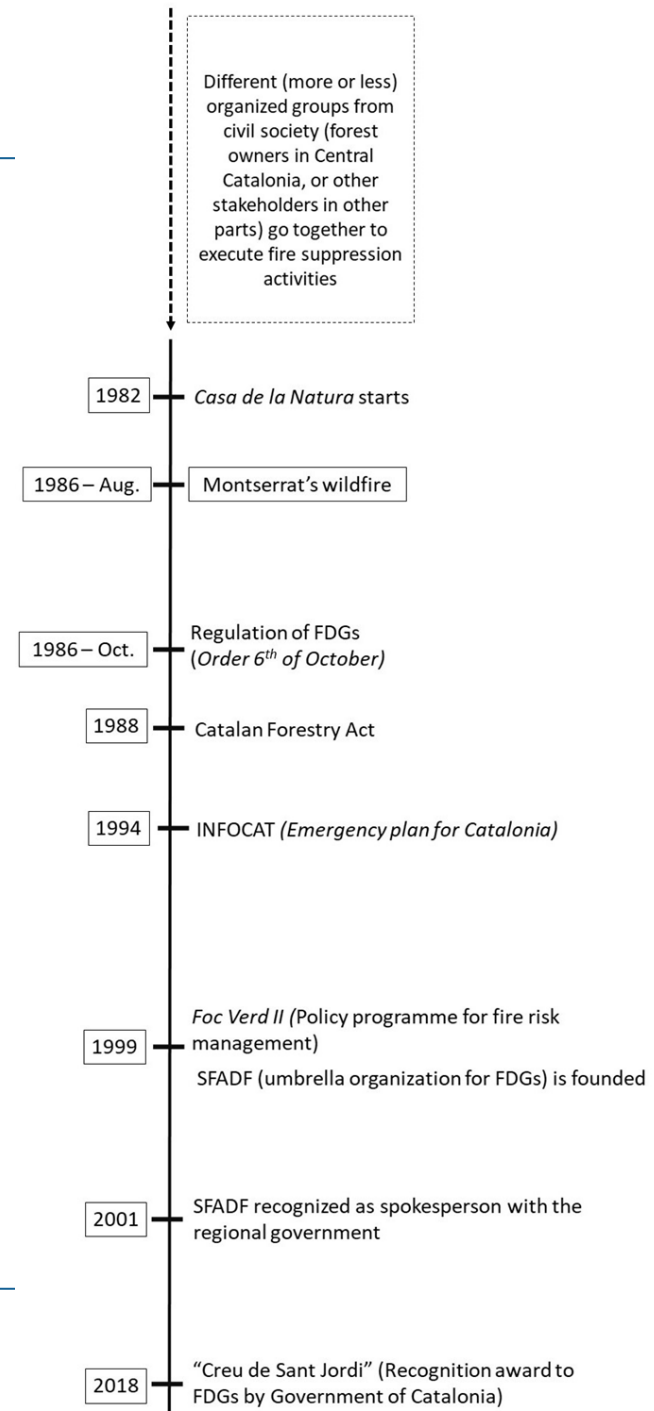
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- ✓ **1998:** Solsonès wildfire (27 000ha)
GRAF 

Different (more or less) organized groups from civil society (forest owners in Central Catalonia, or other stakeholders in other parts) go together to execute fire suppression activities




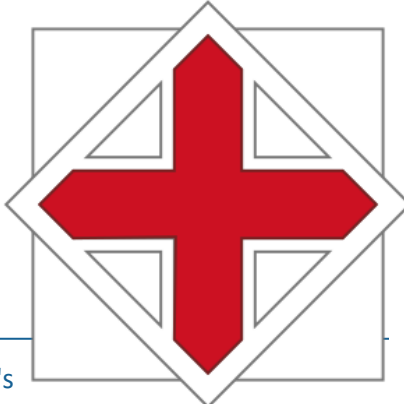


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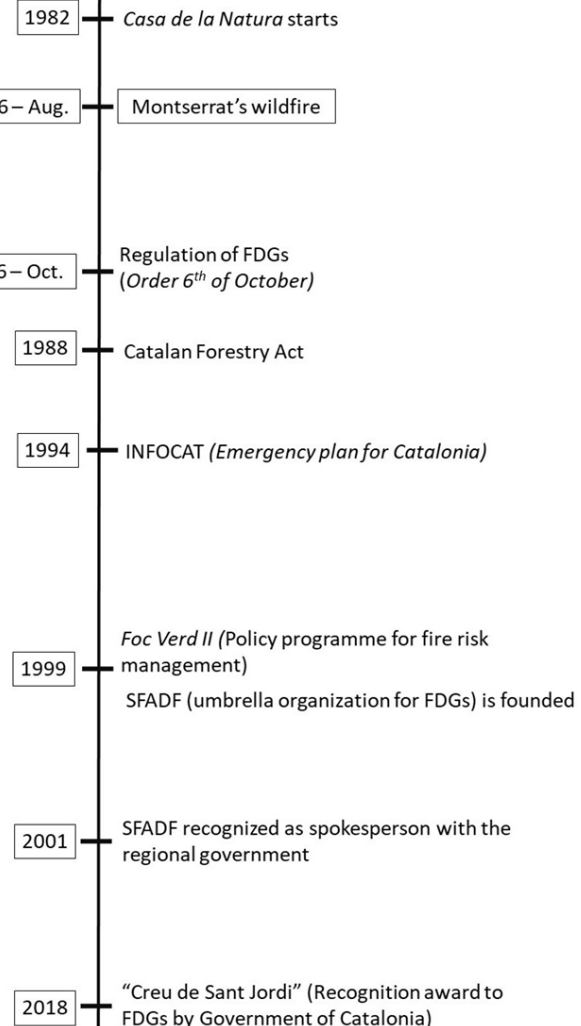
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- ✓ **2018:** Sant Jordi's Cross

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DISCUSSION

(Contributions to wildfire resilience)



Empowered community

- From scattered forest owners helping their neighbour...
... to a network of over 9000 volunteers
- Clear roles within the Catalan emergency protocol for wildfires
- Highly recognized by both, local population and public authorities.



So much success... How come?

1) Wildfire in Montserrat

- Affects deeply the Catalan identity, in a very particular historical moment
- Government creates the structure from a pre-existing social network and responds to an existing territorial demand.

SITE-SPECIFIC!



2) Continuous support.

- The Catalan government has been supporting them financially for over 30 years “non-stop”.
- Economic crisis (2008), Catalan government stop the funding for buying new equipment (only repairments)



**It also contributes to resilience
through...**

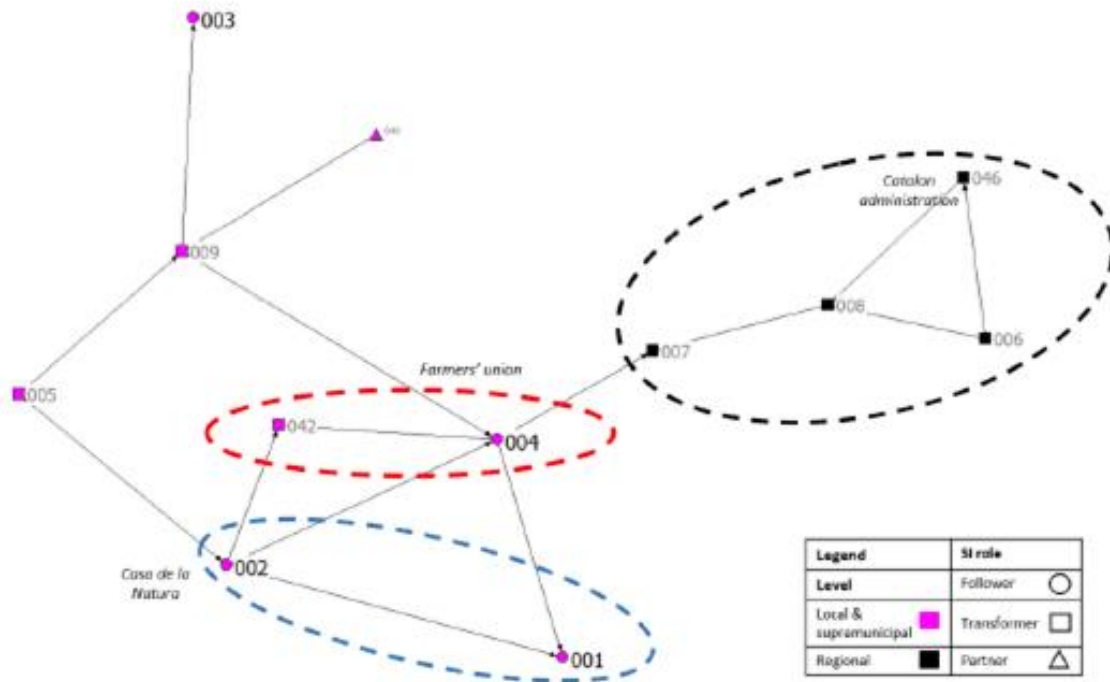
Cross-scale cooperation

- ADFs means the inclusion of civilians in wildfire prevention and suppression activities
- More direct contact from regional authorities to local stakeholders

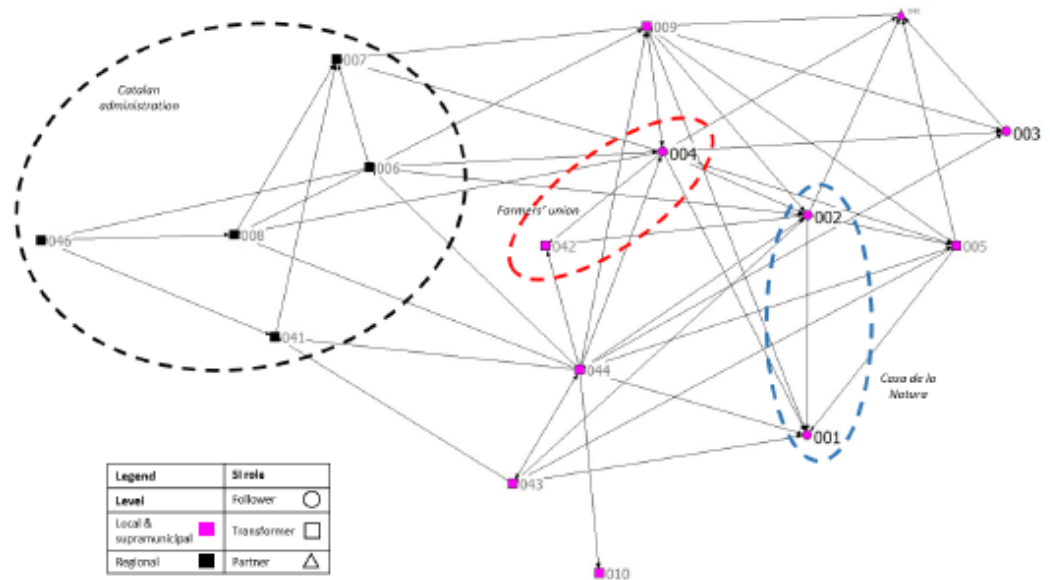
BOTTOM-LINKED!



Stronger social networks

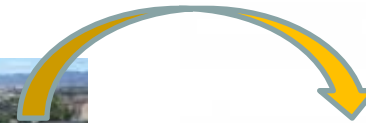


Years later 



Increased learning capacity

- The ADF network allows for the exchange of knowledge and ideas across regions within Catalonia



Some final thoughts

- They have definitely not SOLVED the problem of wildfires in Catalonia... But they are part of the solution.
- Possibly, the new wildfire context will call for a re-design of their roles (new times = new needs)



**THANKS FOR
LISTENING!**

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Questions?



2. 1 / SOCIAL INNOVATION

- **Process**
- **Of reconfiguring social practices** $\left\{ \begin{array}{l} \bullet \text{ Social relations} \\ \bullet \text{ Governance processes} \\ \bullet \text{ Political arrangements} \end{array} \right\}$
- **To satisfy unmet needs**
- **Civil society actors are key**
- **Aims to increased societal well-being**

Increased learning capacity

- The ADF network allows for the exchange of knowledge and ideas across regions within Catalonia
- Specialized firefighters train ADF volunteers regularly, providing them with the best knowledge available
- ADFs also carry out awareness raising activities, conveying to the wider public the knowledge they have acquired from both, forest owners, and firefighters



- The SIMRA project
 1. Introduction
 2. Conceptual framework
 3. Methodology
 4. Case study background
 5. Results
 6. Discussion
 7. Conclusion