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A Landscape Mediation on WUI fires to develop collective knowledge and prevention actions at the local community level

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Abstract

The WUI expansion and climate changes are causing an increasing number of dramatic consequences on the socio-ecosystem in Southern Europe. In France, to reduce the fire threat to infrastructure and human lives, a specific prevention policy provides for many regulatory measures to address forest fire risk in urban planning and forest management. This approach to assessing risk is highly technical and hazard-centred. The shortcomings are the difficulty in appropriating the issue for those who do not have this standardised approach and legitimise less attention paid to individual and collective practices having an effect on vulnerability.

Our research focuses on landscape as a means of analysing the representation of forest fire risk by local stakeholder groups. According to the European Landscape Convention, landscape is defined as 'an area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factors'. Landscape therefore has both a factual and a subjective value. As an intermediary tool, the landscape allows an inclusive dialogue between various stakeholders since it belongs to the common register and does not have an immediate scientific connotation (Dérioiz, 2008).

On this basis, we develop a landscape mediation on forest fire risk to analyse how can landscape help to build a shared knowledge of risk in local communities. Landscape mediation is an engineering of public involvement applied to the landscape which eases mobilising stakeholder experience and feelings in territorial diagnostic and spatial planning (Paradis, 2010). We experiment the benefits of landscape mediation to develop a local risk culture by using a case study in Martigues city in the southeast of France. The study site is subject to strong development pressure due to its proximity to the Aix-Marseille Provence metropolitan area, is located nearby two forested areas - Côte Bleue and Castillon forests -, which are regularly affected by fires, and has a scattered residential area and therefore a relatively large WUI zone.

The landscape mediation project consists of two stages. In spring 2022, residents of the study site are invited to participate in a walking tour through their living area. Using a booklet, the participants assess the characteristics of the landscape and describe the uses of the WUI and its associated fire risk attributes. A collective risk knowledge emerges from sharing contrasting feelings and opinions on WUI and ways to limit vulnerability individually and collectively. In a second stage, the participants present their landscape diagnostic and their views and concerns on forest fire risk prevention management to a group of local stakeholder representatives of spatial planning and forest fire risk experts. The diversity of thought reveals new ideas that benefit spatial planning initiatives. This landscape mediation is a collaborative approach to increase public acceptance of forest fire management placing the inhabitant in a collective consideration of vulnerability reduction in his living area. The research helps sharing residents' perceptions of forest fire with decision-makers and fire risk experts to better understand how the community influences action or inaction on forest fire risk prevention management.

1. French fire risk prevention is complex in its implementation and understanding

Public policies for wildfire risk management operate mainly in 32 departments in the south of France, with coordination of the local strategy at the regional level (articles L.133-1 and L.133-2, Forestry Code). Local government agencies are principally in charge of wildfire prevention policies. However, certain competences are shared with local territorial authorities in particular the maintenance of firefighter infrastructures in the forest, equipping neighbourhoods with fire hydrants, clearing regulation around houses and roads, public

information on the wildfire risk and ensuring that urban development considers natural hazards. Those local jurisdictions adopt regulatory wildfire prevention tools in different ways according to local political will, which creates variations in prevention strategy between territories.

As a result, residents have to deal with regulations that affect the design of their garden, their house and their development project. Resident common practice is to make comparisons with the neighbour's situation, but it hardly helps to understand the individual case. Requests for information to clarify the fire risk management measures are therefore inevitable. People then face with the complexity of the stakeholder network, each jurisdiction acting in line with its own competencies in reducing the vulnerability of wildland-urban interfaces (WUI) - the area where combustible vegetation intermingles with buildings -. Given the regulatory measures that affect residents, their involvement in wildfire prevention strategy is necessary. They are resident experts on local knowledge of the territory and are therefore a source of realistic solutions to reduce vulnerability.

How can we develop a local risk culture that could facilitate dialogue between residents and spatial planning stakeholders and encourage collective initiatives to reduce vulnerability in neighbourhoods prone to wildfire? In this respect, we propose to develop a local fire risk culture using a landscape mediation event.

2. Landscape mediation for wildfire risk prevention

2.1. What is a landscape mediation?

EU members signed the Landscape Convention in 2000. According to this act, "Landscape" means an area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factors. This definition gives recognition to all types of landscapes - including common everyday landscape -, a continuous temporal dynamic, but also a feeling dimension. The feeling dimension of the landscape corresponds to the description that the person makes of a place based on the experienced moments and feelings. When description of a place is shared, then certain aspects of the landscape are collectively valued (Bouisset & Degrémont, 2015). Thus, the landscape is subjective, and the transition from an individual representation to a collective culture depends on the degree of information sharing in the community (Devine-Wright, 2011; Raymond et al., 2015).

A landscape mediation is a public participation engineering applied to the landscape which eases mobilising stakeholder experiences and feelings in territorial diagnostic (Paradis, 2010). Spatial planning studies regularly employ this type of process (Labat & Donadieu, 2013). It was initially developed as an analysis tool for landscape enhancement, for example in the diagnostic of landscape charters. Also thereafter, landscape mediation has been used as a medium for analysing land-use management mainly in rural territories with environmental concerns (Dérioz, 2008; Ferrario, 2018), for example in regional natural park plans or in urban planning schemes. With regard to natural risk management, landscape mediation approaches serve to facilitate the development of a risk culture. They are not yet well developed and are mainly found in flood risk management (Wake, et al., 2020). We have not found any example of landscape mediation for wildfire risk prevention in the literature.

Thematic landscape mediation on wildfire risk has specific aspects. Generally, landscape analysis leads to imagining landscapes at their best value. For wildfire risk, we try to imagine the situation of a landscape on fire. The task could be therefore difficult, because the landscape valorisation only comes into play when visualizing the least critical crisis scenario for the territory. Moreover, in participatory approaches using landscape, participants are usually asked to imagine the territory at a fixed moment in the future (e.g in 2050). The temporal dimension is more complex for wildfire risk prospective; because the projected moment is not a date, but the next fire event, thus a phenomenon that occurs randomly in the forest and is not predictable. Furthermore, landscape is a common term and has no immediate scientific connotation. Conversely, wildfire risk is a complex concept that requires knowledge and a technical vocabulary for its management. Applying landscape mediation to the context of WUI materializes the wildfire risk to a known and shared place and makes the subject accessible to all for discussion.

2.2. Case study: the “walk-workshop” event on the WUI in Martigues

The study case is the city of Martigues (Bouches-du-Rhône), in southeastern France. This municipality is facing strong urban development pressure due to its inclusion in an attractive metropolitan area, the Aix-Marseille

Provence metropolis. The urban fringes are fragmented, which increases the length of the linear contact between the inhabited and the natural areas. Wildfires in Martigues often threaten dwellings, campsites and industrial areas. The issue of managing the WUI is a major concern and involves considering the consequences of wildfires from a landscape and ecological perspective as well as for community safety.

For the landscape mediation we develop, the landscape analysis focuses on the WUI (Calkin et al., 2014). Our research focuses on the use of landscape as a means of analysing and sharing the representation of fire risk by the inhabitants. Our objectives are i) to mobilise and interact between inhabitants and land management actors around the issue of fire risk ii) to carry out a shared diagnosis of the landscape focused on vulnerability to wildfire in WUI iii) to identify good planning practices at different spatial scales.

The main stakeholder in the project is the local authority of the Aix-Marseille Provence Metropolitan Area. To ensure the event's success, the local authority should support the landscape mediation. The Martigues City Council and the Metropolitan Council were interested in the project because they had ongoing spatial planning documents dealing with the wildfire risk and landscape management (the Metropolitan Landscape Plan and the Intercommunal Urban Planning Scheme). The local authorities and the researchers are jointly building the event to ensure that it corresponds to everyone's expectations. In our case, the event takes place in two stages, first a walk with the residents to examine the surrounding landscape and wildfire risk context in their neighbourhood, and then a workshop where the residents report on their landscape analysis and discuss it with a group of professionals responsible for the spatial planning and the wildfire risk (Figure 1).

To conduct the walk and the workshop, we have developed tools for analysing landscape atmospheres and for sharing opinions on landscape objects characterising wildfire risk management in the WUI. The tour walk first passes behind the houses to study the direct line of contact with the forest, then returns by the main road to study the landscape in the neighbourhood. It goes through different depths of view to investigate the context of the risk and its management at several spatial scales (e.g. the plot, the street, the neighbourhood). For the workshop, we set up inclusive communication medium (e.g. A0 map of the study site, video with a local goatherd, photos of the walk).

Landscape Mediation

Walk

+

Workshop



Figure 1- Concept of Landscape Mediation on wildfire risk in Martigues. A two-step process, a walk and a workshop.

3. Analysis of the results: many ideas are waiting to be realised

3.1. Using sociology to describe landscapes

The walk itinerary was close to a fire that had covered almost 1000 ha in 2020 and had caused the evacuation of 2,700 people and the destruction of two campsites. The recent memory of a fire with significant damage seemed to be a reason enough to mobilise the population to attend the event. Still we went door-to-door to distribute flyers and explain the approach to the inhabitants and to some shop owners, relatively few people

came to the landscape mediation event. One reason for the limited involvement is the location of the study area, which was in an attractive urban municipality (48,500 inhabitants) but in its rural part. It is middle-class neighbourhoods and the locals are mainly families who have lived there for a long time. There is not much traffic except from the local residents and they appreciate this privacy.

Consequently, the residents who took part were in their sixties and older, and had been living in the area for decades, or even had family members in the community of more than two generations. For example, one resident had experienced two wildfires on her lot, in 1989 and 2020. This resident profile provided an ideal opportunity to discuss landscape dynamics over time. Participants had already been involved in wildfire crisis with their neighbours, thus they were in a way the voice of the other locals. They proposed several actions, including having goats graze near the residential fringes and supporting original agricultural initiatives that could be established in abandoned agricultural lands. The residents' opinion was a fine expertise on local vulnerability issues (Figure 2).

The inhabitants appreciated to express to the local authorities their thoughts on wildfire treat and their ideas for actions to improve the situation in their neighbourhoods. All parties involved in the workshop shared the difficulty of identifying the different regulations on risk prevention and the complexity of the stakeholder network involved. We found the inhabitant's knowledge had equal legitimacy with the expertise of professionals in spatial planning and wildfire risk management.

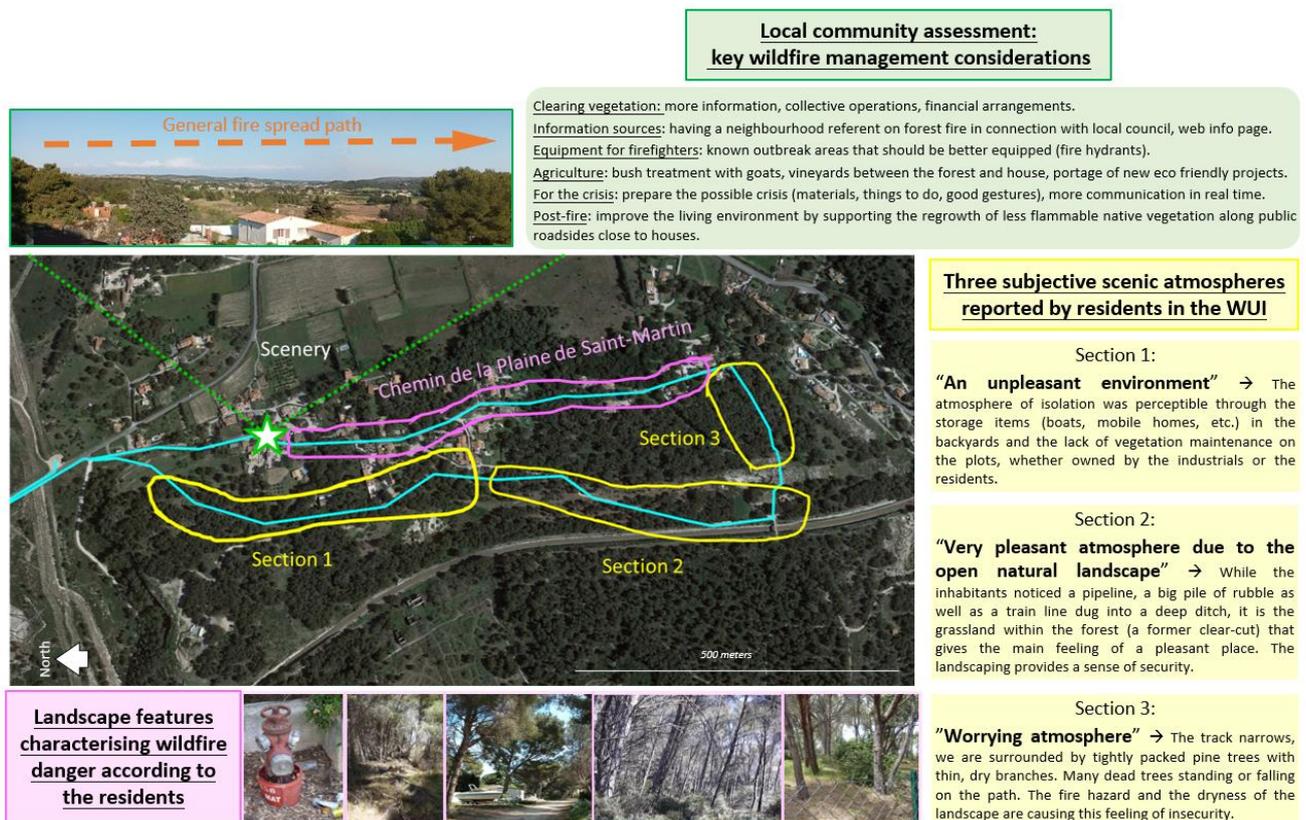


Figure 2- Analysis of WUI vulnerability produced during the walk with the residents. The walk itinerary is blue (3km).

3.2. The event is part of the ongoing process of wildfire risk culture

This exploratory research study shows the means for mobilizing stakeholders in a context where public services have limited capacities to take part in original wildfire risk management approach. Some of the essential spatial planners and wildfire risk managers were not represented in the workshop (e.g. the firefighters). They are brought back into the process afterwards by distributing the report and conducting an interview with them. Also, the strong involvement of the partners present and the quality of the experience sharing, opinions and initiative proposals are guarantees of the success of the mediation tools mobilized. A path has already been found in the Metropolitan Landscape Plan to conduct an action in Martigues with inhabitants. The landscape mediation could

be multiplied over several vulnerable districts and repeated each year, as an annual appointment for a walk and a workshop to discuss wildfire risk and its prevention management. The study case has proved its worth, and the perpetuation of landscape mediation is possible if the communities decide to take up the concept (Figure 3).

The suggested landscape mediation is punctual, whereas the risk culture is a permanent information to share over time. Therefore, organizing such an event around wildfire risk is an opportunity that only makes sense if the participants value together the ideas shared during this time. This communication (article in a local media, reports to stakeholders) contributes to the risk culture by marking the meeting between the local agencies and the population and disseminating the ideas exchanged to other potential interested parties.

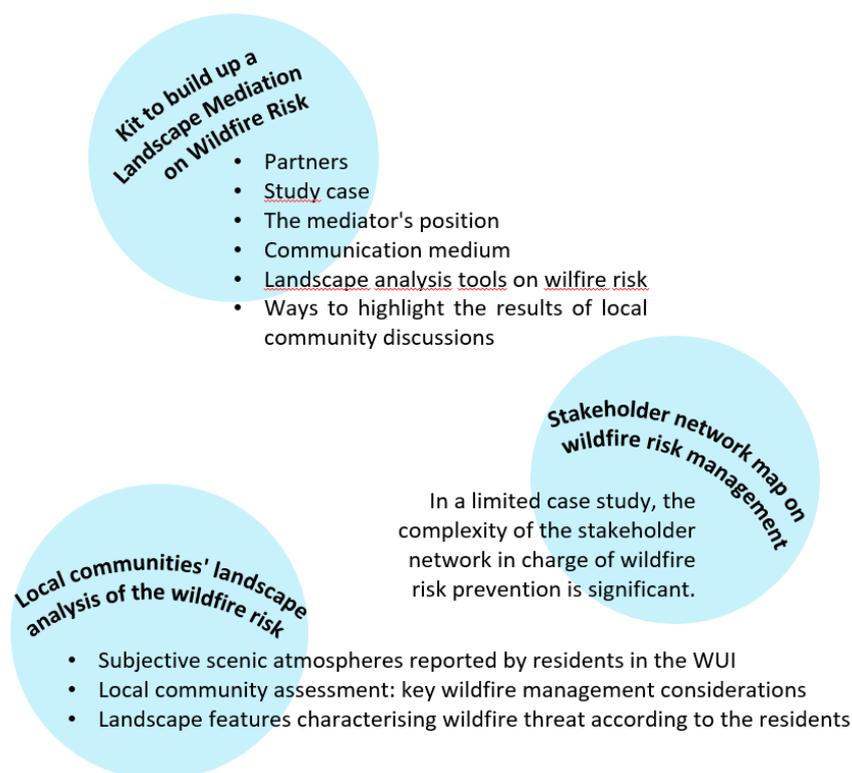


Figure 3- Outcomes from the exploratory research project on Landscape Mediation

4. Conclusion

We have described the benefits of landscape mediation on developing local wildfire risk culture. The landscape mediation event we assessed in the city of Martigues is a study case in line with participatory research actions. For local jurisdictions, it helps to share the risk perception in a collaborative approach, through constructive dialogues with the locals. Furthermore, while the stakeholder system for wildfire risk management is complex, the legislation and responsibilities are evolving, and parties directly in charge are sometimes struggling to define their own role. The landscape mediation clarify the comprehension of this set of functions and then favour the emergence of local and original initiatives. It encourages local authorities to consider residents' perspectives in their spatial planning strategies.

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