

Land Managers and fire

Scientific report from an online survey

Sébastien Caillault, Gabriel de Blic, Ludivine Eloy et Samuel Roturier

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Introduction

In this report, we present the raw results of an online questionnaire that was circulated over a 4-month period between summer and autumn 2021. Respondents were mainly contacted via existing research networks and collaborations between researchers and fire managers in different countries. In all, over 250 people took part in the questionnaire. In this report, we present the results based on 95 respondents who answered all the questions.

The questionnaire was structured around four chapters dealing with study areas, fire practices, fire knowledge and prescribed burns. It was drawn up as part of the BBQ project: “*To burn or not to burn, that is not the question*” (PEPS CNRS), with the help of S. Loret for technical aspects and with data processing support from G. Le Blic. We would like to thank all those who took part in this survey, for their responses, their relay to colleagues, their informal feedback. . .

As a reminder: This questionnaire is part of a research programme supported by the French National Centre for Scientific Research (CNRS/ FRANCE) and focuses on managing environments by fire. It is run by university researchers from various disciplines (ecology, geography, anthropology, etc.). It is being conducted in different types of territory and country to understand the diversity of situations in which fires are practiced and experienced. It aims to understand changes in fire management methods by understanding the people who use fires. This questionnaire is therefore intended for people with missions involving the issue of fires. Thank you for taking part.

contact : sebastien.caillault_at_institut-agro.fr

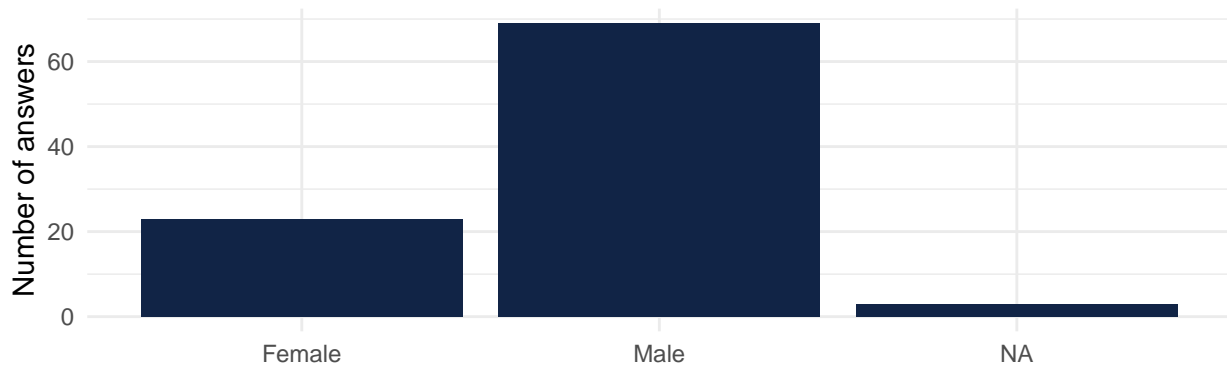
Chapter : Profiles Surveyed

In this part of the questionnaire, we present the participants (N = 95).

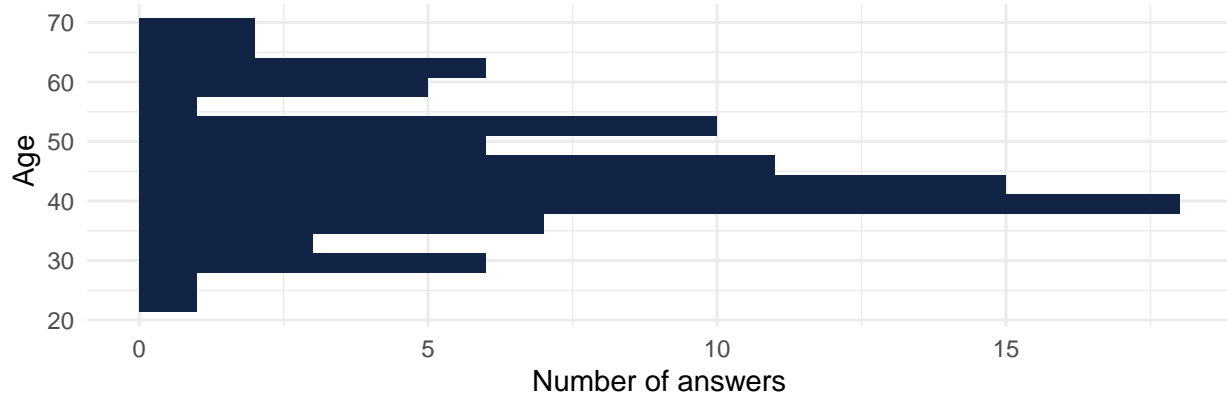
This section provides information on the profile of the managers. More than 2/3 of the managers are men, most of them born between 1970 and 1990, and most of them have studied up to Master's level, although some have gone on to Doctorate level. The majority of these managers live in the area where they work, so they live in the environments they manage, and may be directly concerned by fires outside their professional lives. 3/4 of these people have been working in the fire field for more than 10 years. In terms of training and career path, managers mainly come from the biophysical sciences and work for national public agencies, but only a minority are in civil protection (firefighters).

Results

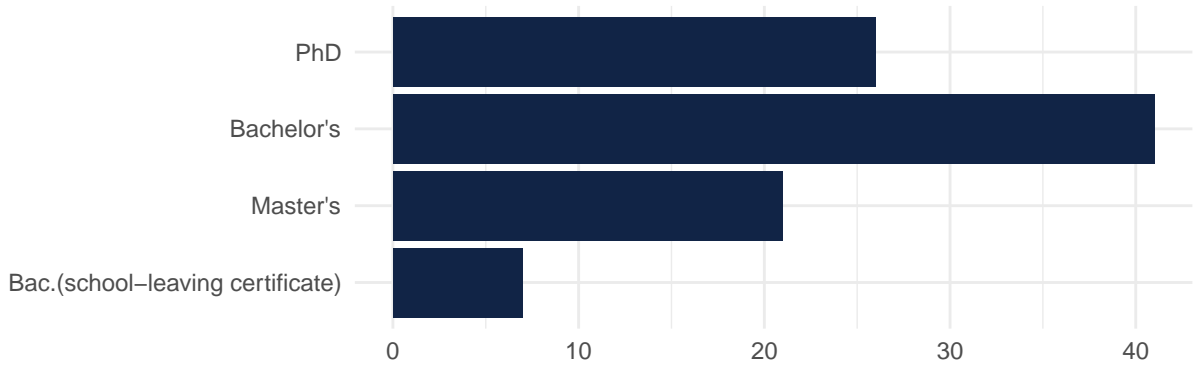
Gender



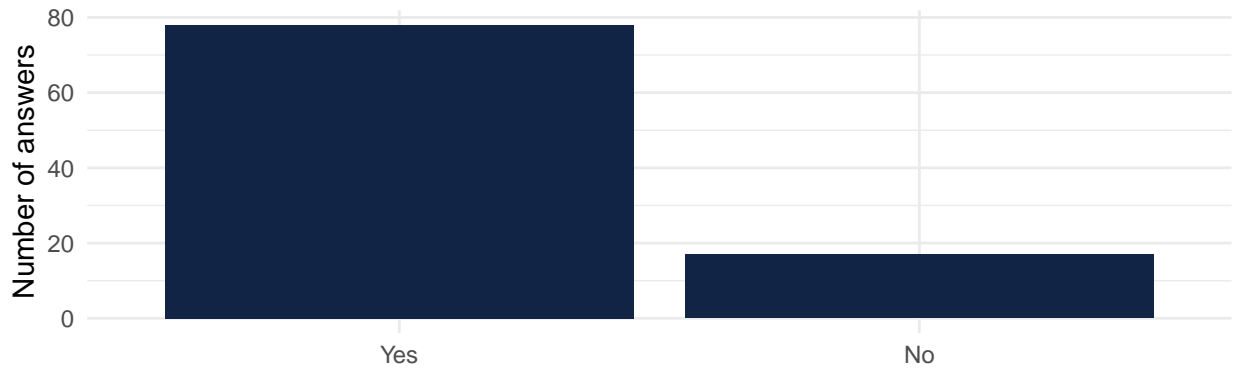
Age



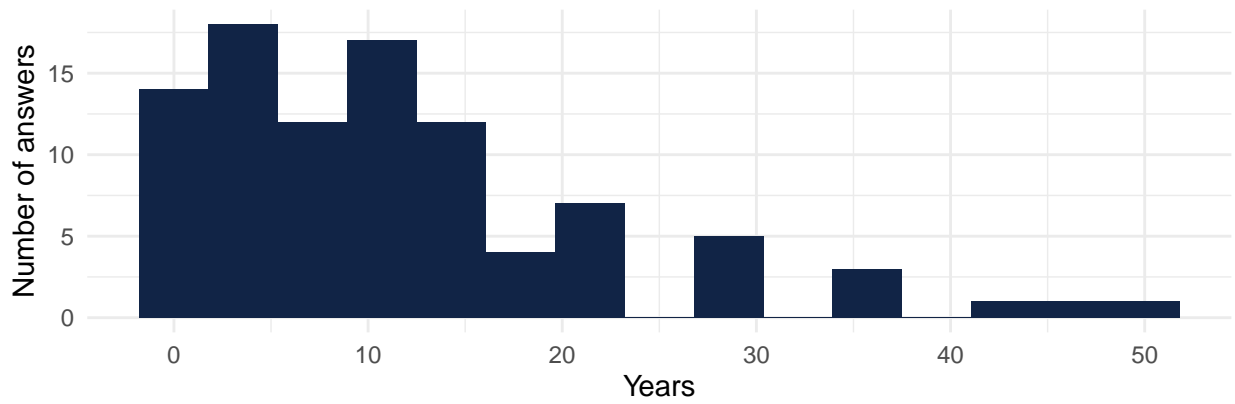
Level of education



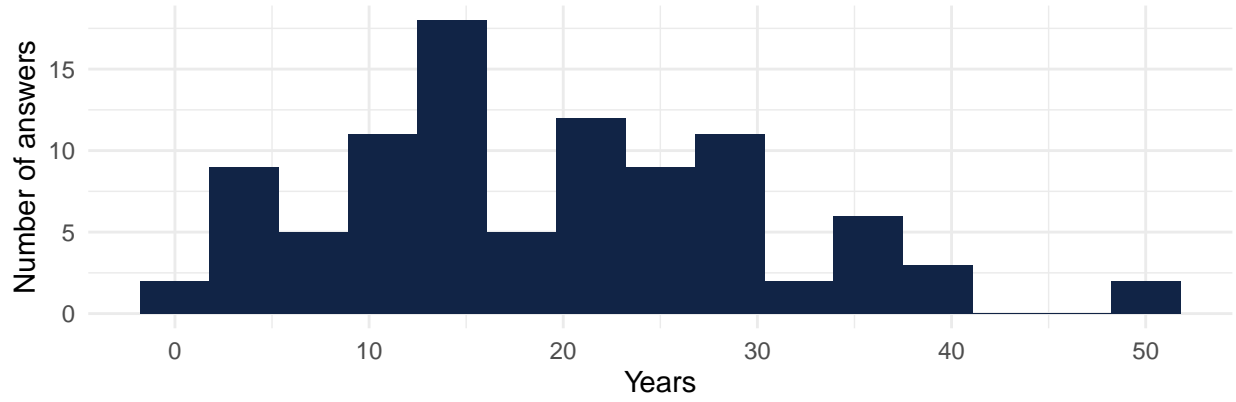
Do you live in the area you work in ?



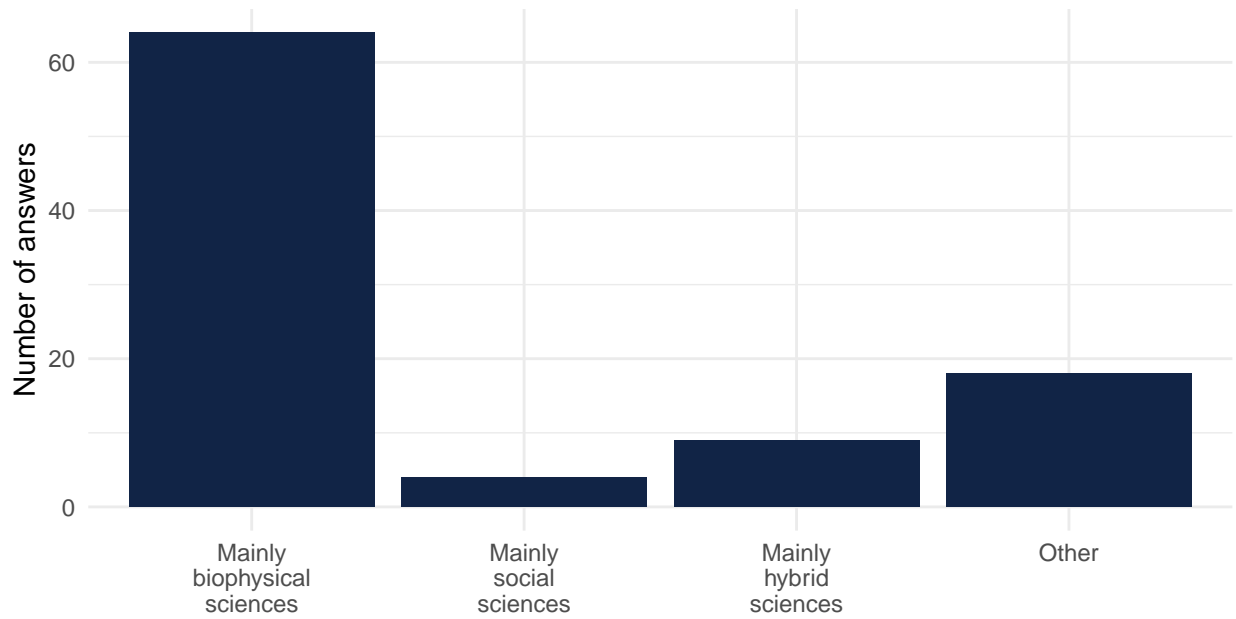
How long have you been in this post ?



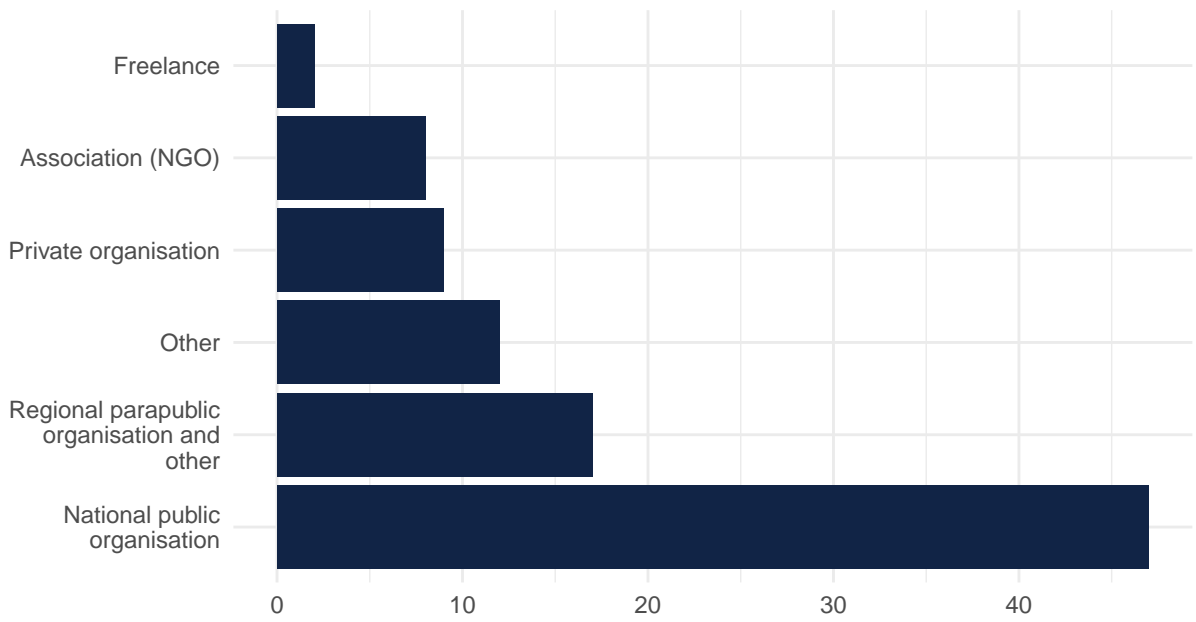
How long have you worked in this field (duration of your 'career') ?



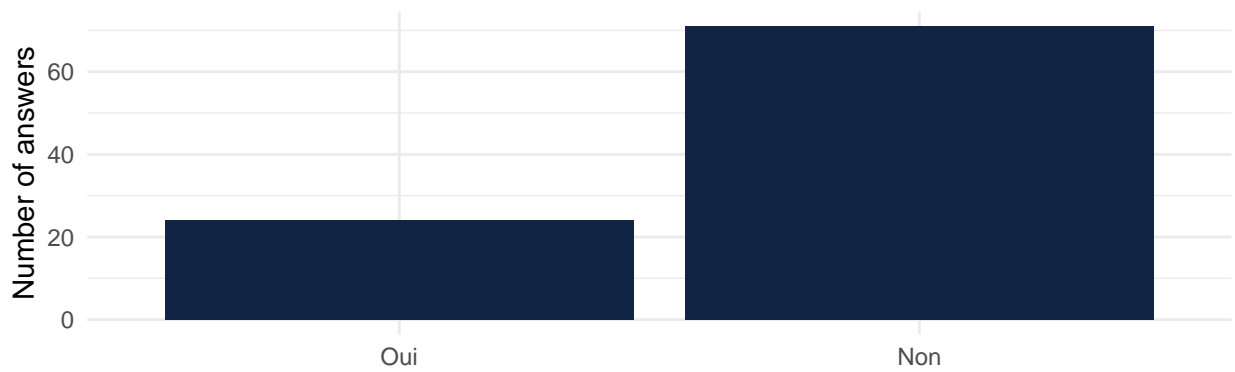
Field of initial training ?



Organisation you work in:



Is your organisation part of civil protection (fire fighters) ?



Chapter : Your working territory

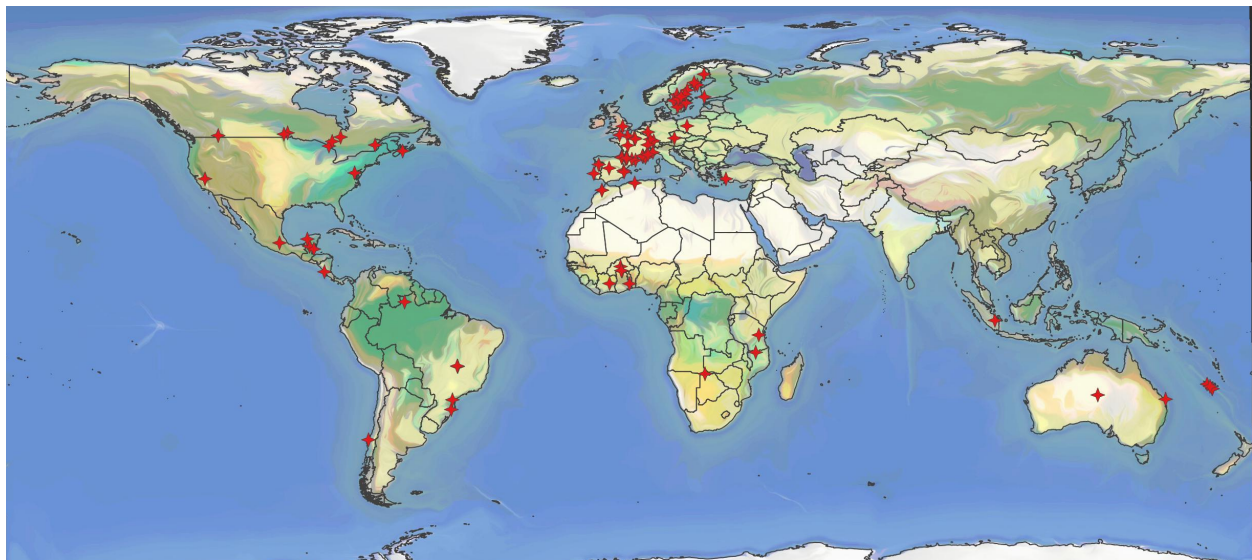
The aim of this chapter is to identify the territories in which the people interviewed work with fire, both their location and the bioclimatic factors characterizing them, as well as the relationship between these territories and fire. While the majority of managers interviewed work in European territories, we obtained responses from all continents, as well as from a wide variety of climates and plant formations. Most managers work in temperate climates (continental, oceanic or Mediterranean), and in forests. It should also be noted that a third of the responses we received concerned people working in tropical climates. We learn that respondents often work at sub-regional levels, with less than a quarter working at national levels. The territories managed are marked by the presence of both productive activities and protected areas.

Regarding the relationship between land and fire, we can see that the majority of the areas experience different types of fire, including problem fires. The causes of these problem fires are mainly associated with human factors (activities and pyro-crime). While a majority of managers described problematic fires, a majority nonetheless judged their control of these fires to be good, with a third of respondents judging their control to be insufficient, or even non-existent.

The questionnaire also revealed that the vast majority of respondents described a change in the fire regime over the last 30 years. The most frequently cited reason for these changes is climate change, although more than half the respondents do not consider climate change to be a cause of these developments.

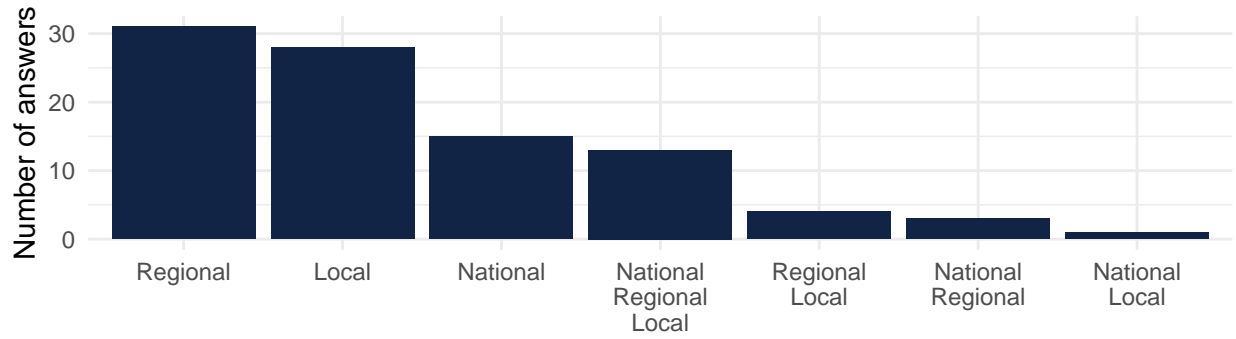
Results

Les territoires de travail des enquêtés

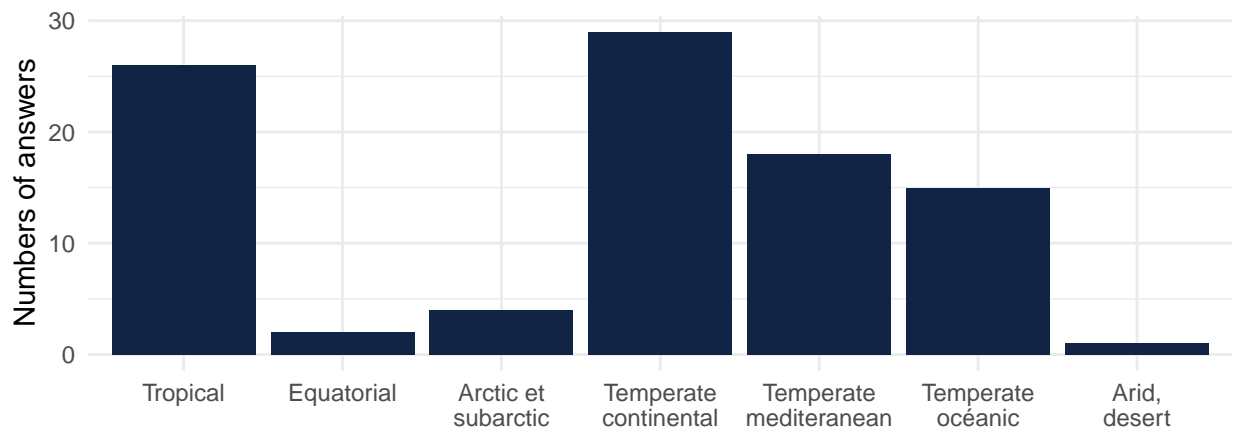


Locations fire managers'

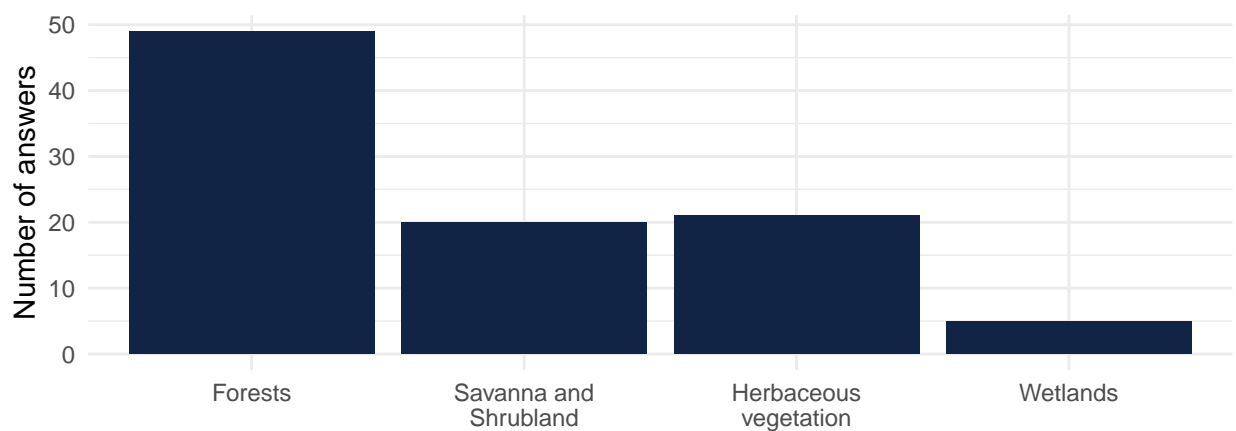
At what scale do you work ?



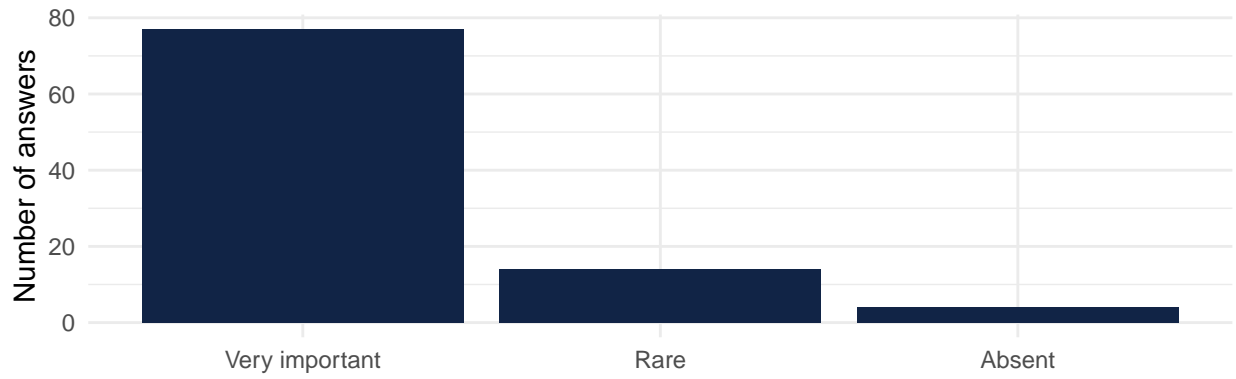
In what types of environment do you work [climate] ?



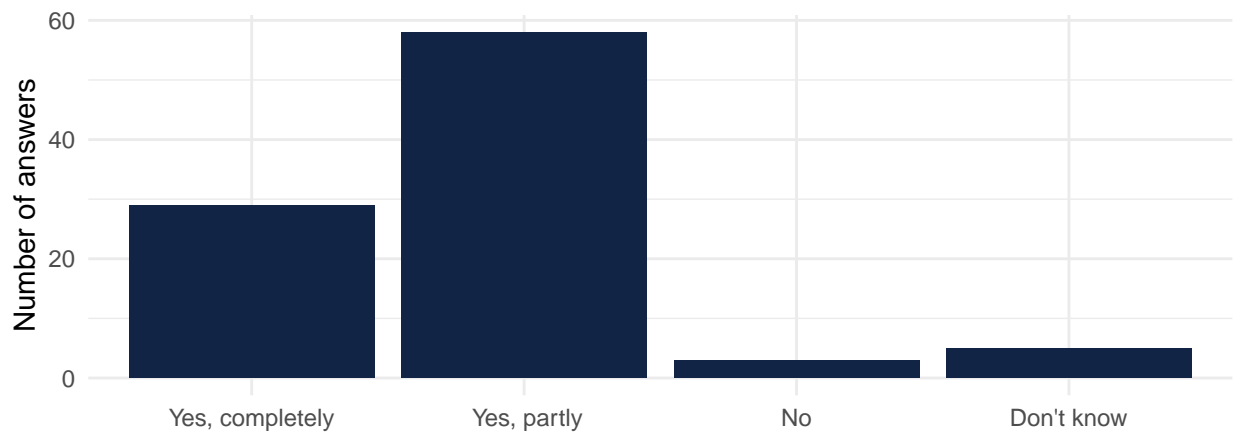
In what types of environment do you work [vegetation] ?



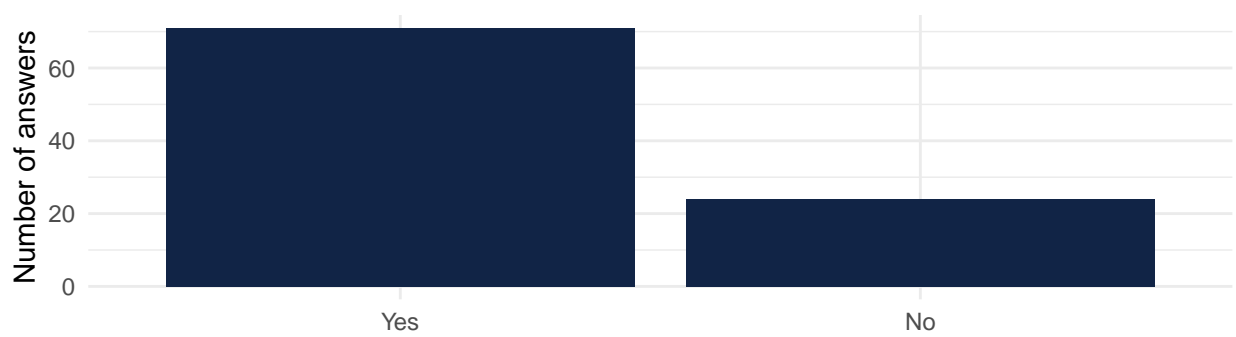
In the management of your territory, the productive activities (agriculture, forestry,...) are :



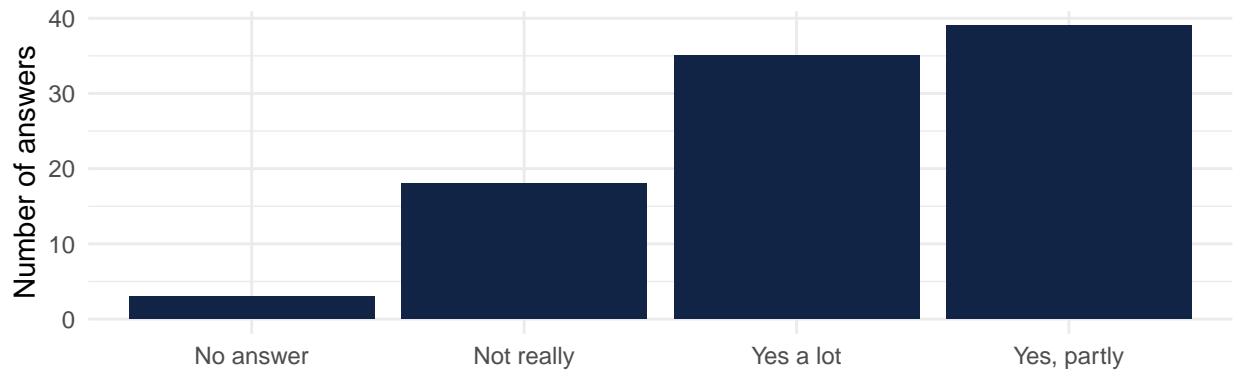
Le territoire sur lequel vous travaillez inclut-il des aires protégées ?



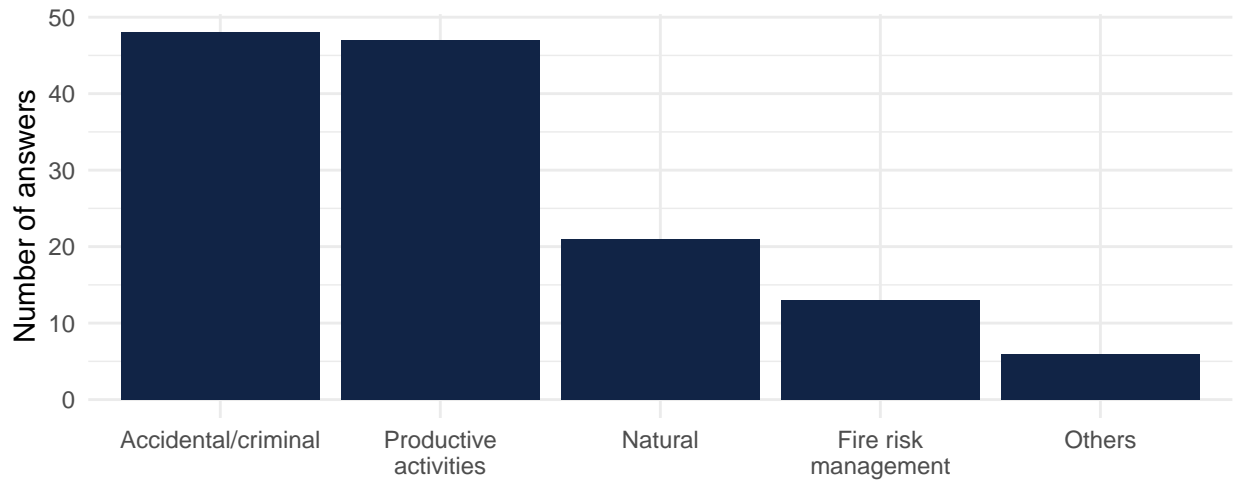
Do you distinguish between different types of fire in your territory ?



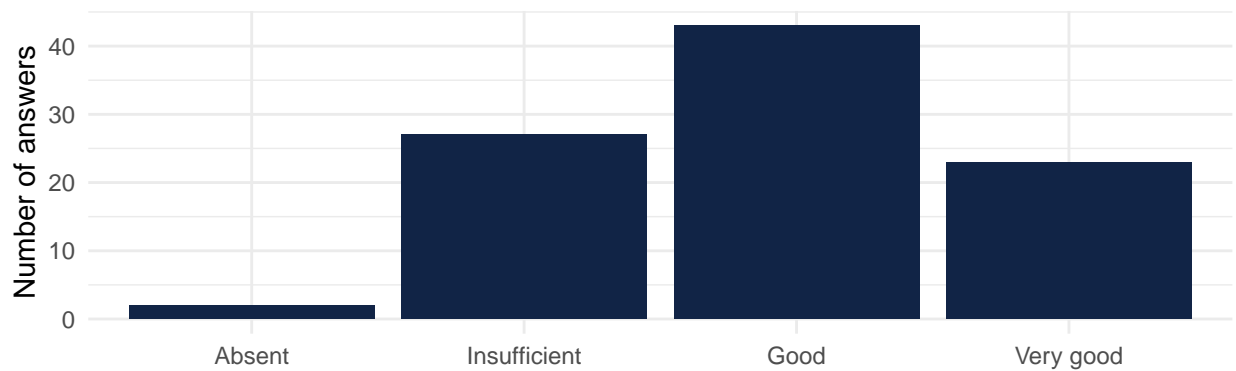
Are there any problematic fires in your area ?



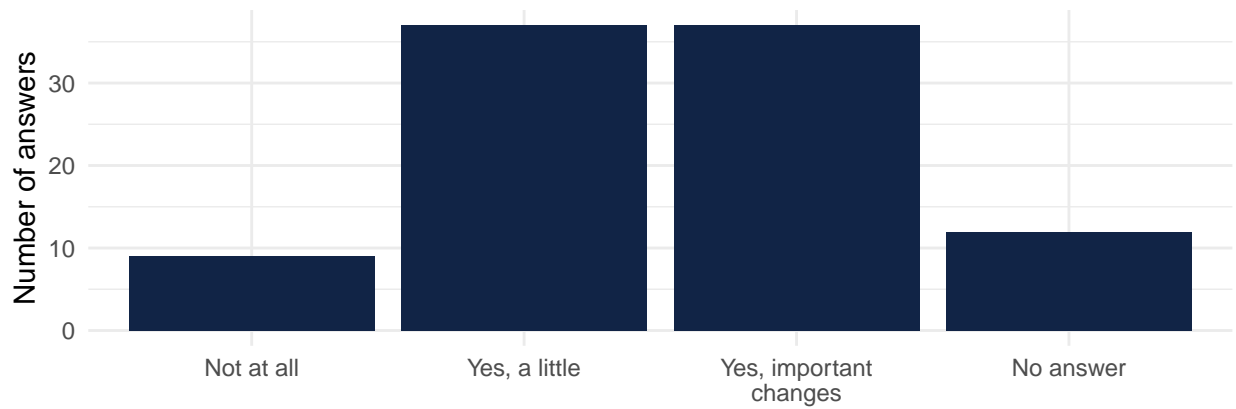
If there are problematic fires, what are the reasons/causes of these problematic fires?



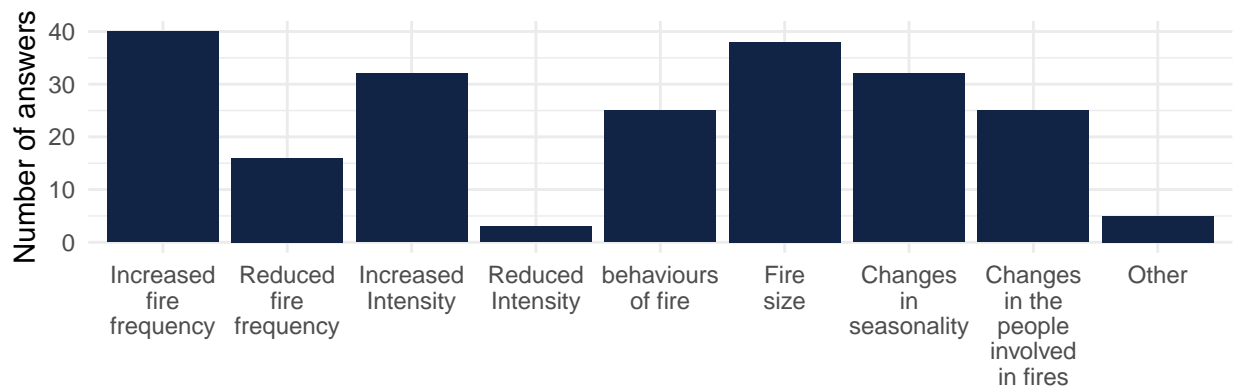
Considering the different types of fires observed, you consider that fire control is :



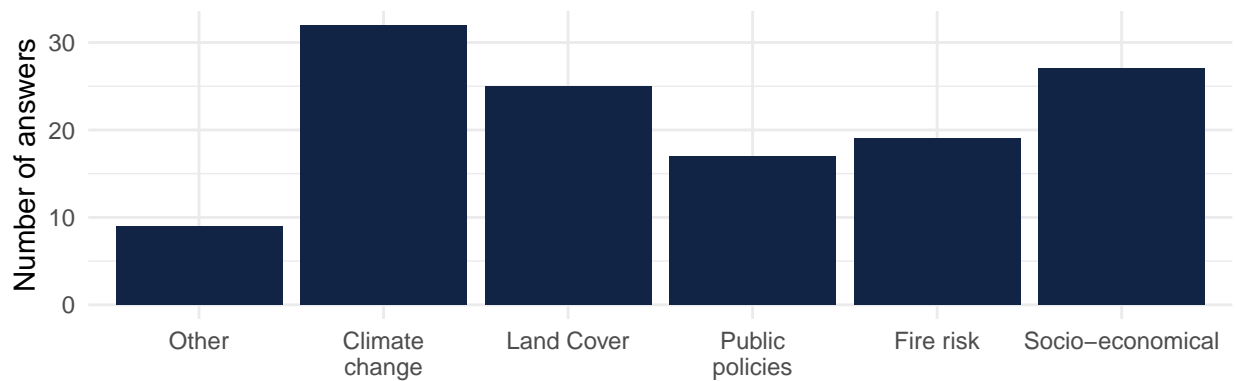
Would you say that fire behaviour has changed in your territory over the past 30 years :



If so, what changes have you seen?



In your opinion, what are the reasons for these changes?



Chapter : Fires practices

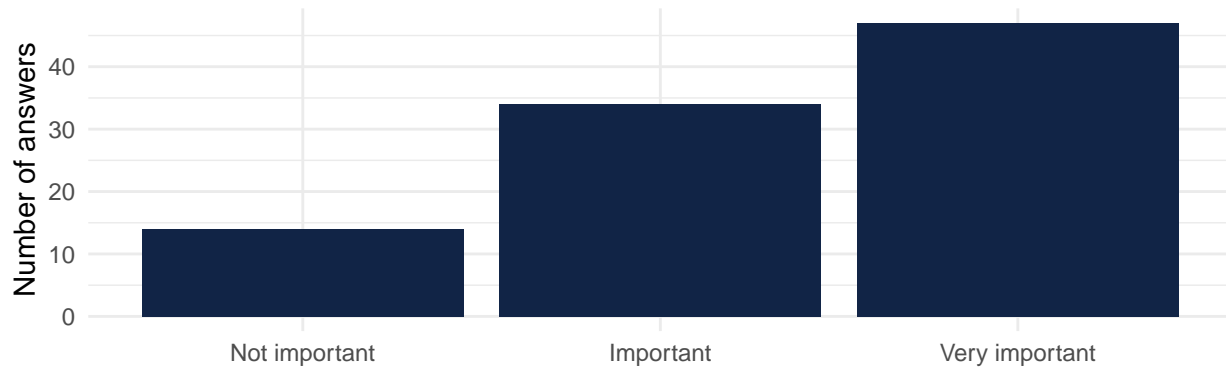
This chapter looks at the relationship between managers and the “fire” project, and thus questions their practices.

First of all, we learn that the main purposes of fire in managers’ missions are biodiversity management and fire-fighting, which are the main reasons for their missions; there is also the management of agricultural and forestry activities, but to a lesser extent. The majority of respondents agreed that fires are often a source of conflict, and a large majority felt that fires are currently a major risk factor. However, many consider fire management and control to be “a central issue for the region and its inhabitants”.

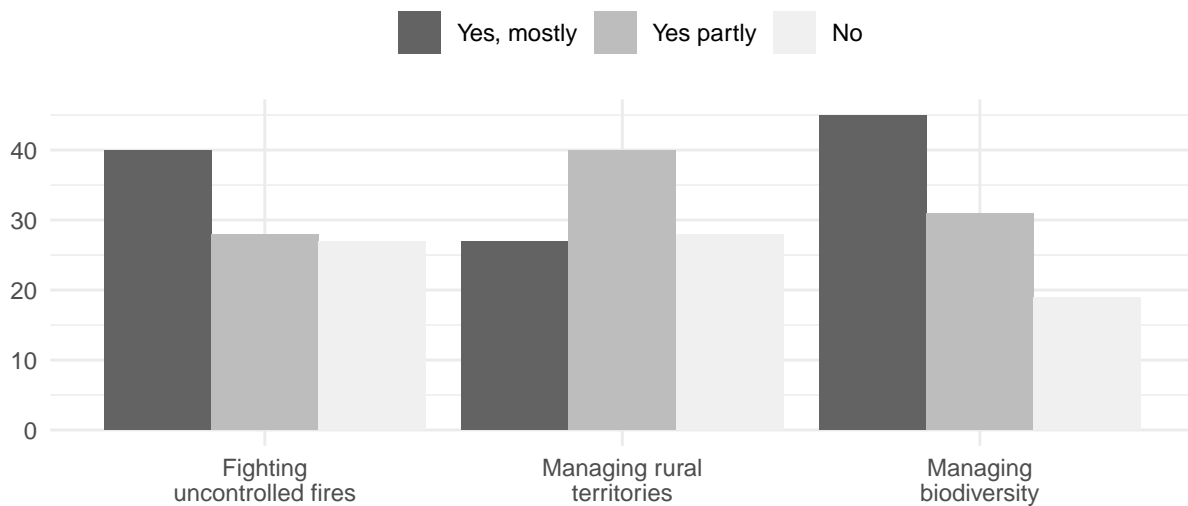
As far as fire management is concerned, communication is seen by the majority of managers as the main determinant of “good fire management”. When it comes to the use of fire by the inhabitants of managed areas, we can see that this practice is largely regular and subject to authorization, although it is formally prohibited in certain cases.

Results

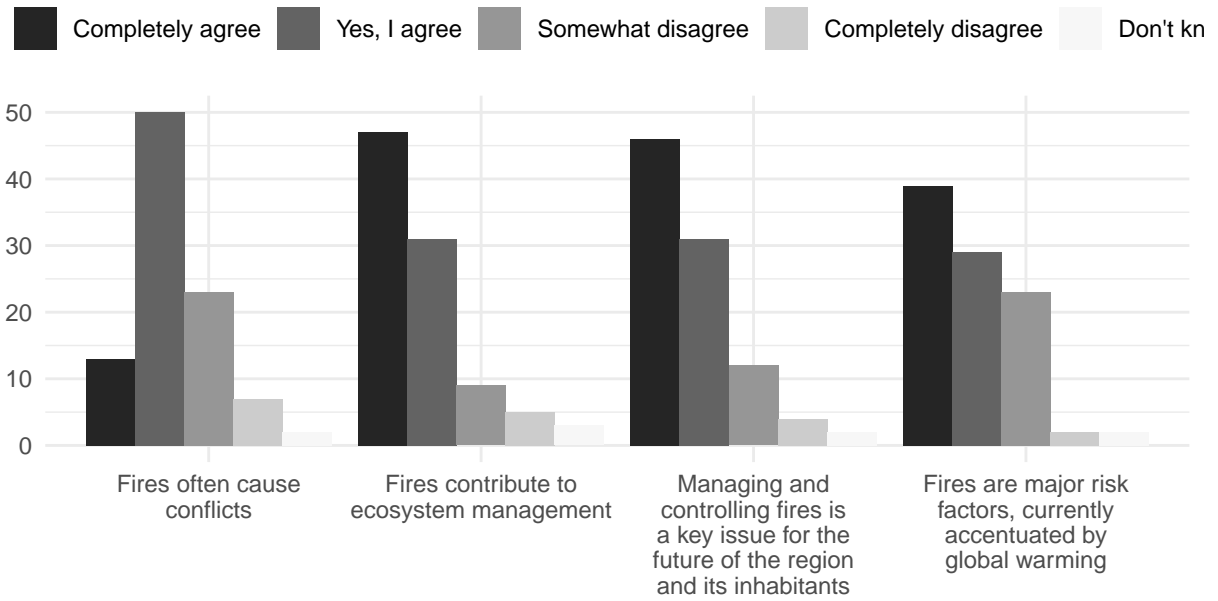
Would you say that the place of fire in your missions is:



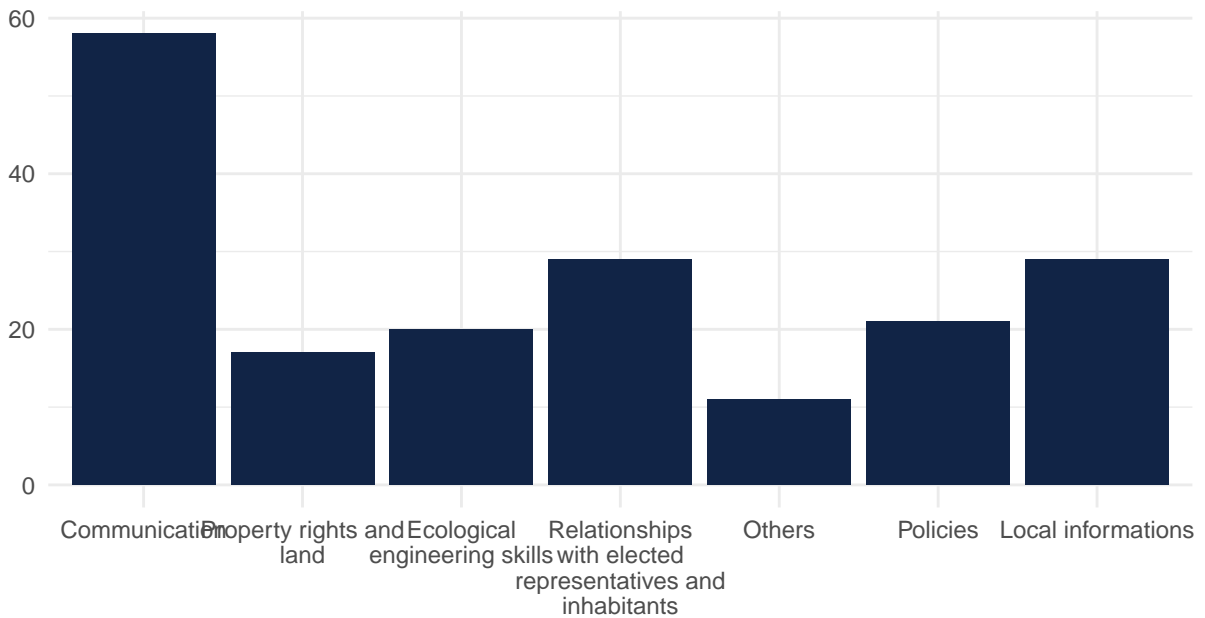
The issue of fire in you missions centres on:



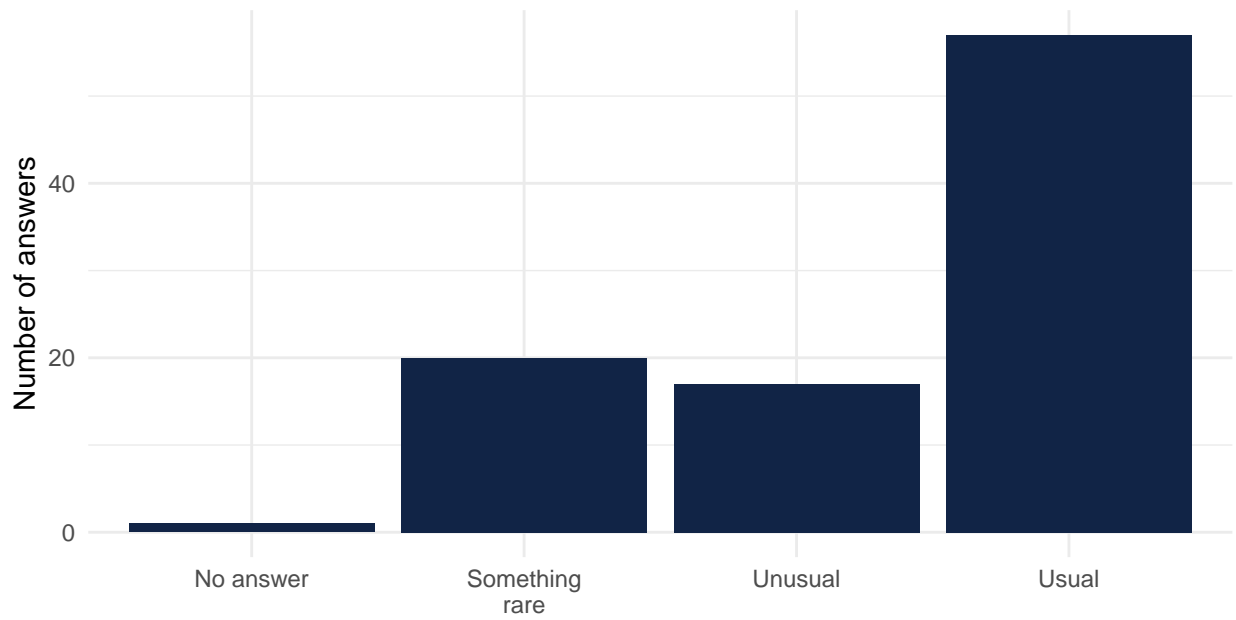
Based on your experience, what do you think of these various statements:



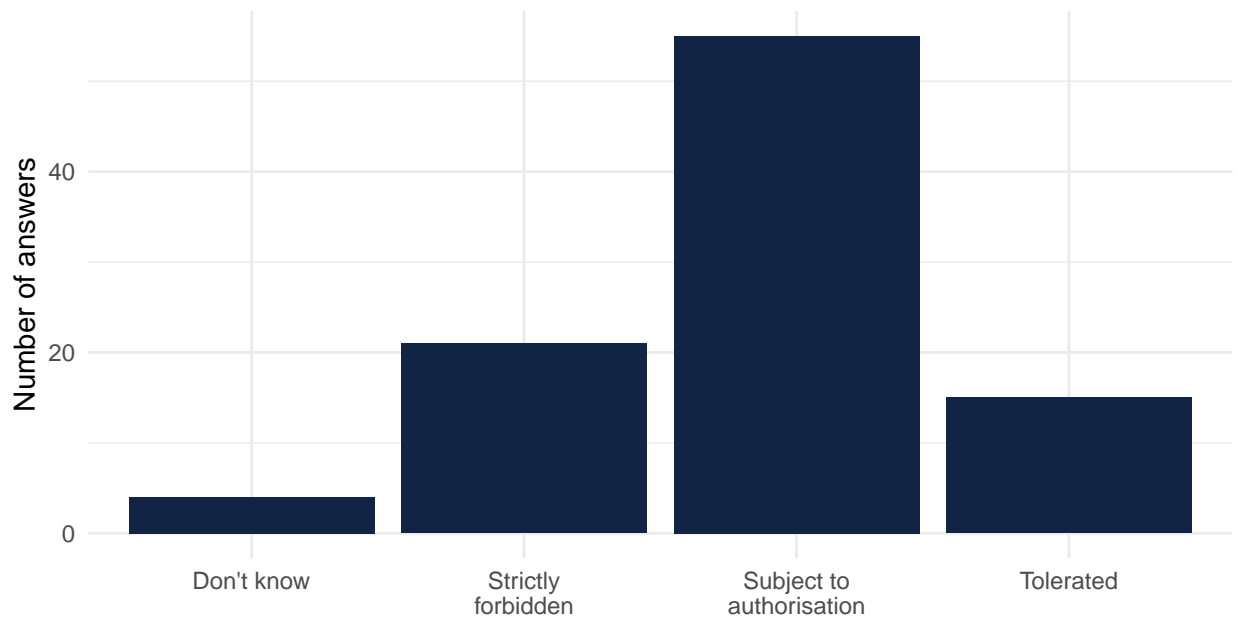
In your opinion, what are the main determining factors for successfully managing fire?



Starting fires in the territory where you work is generally perceived by inhabitants as:



From a regulatory perspective, in the territory where you work, starting fires by citizen is:



Chapter : knowledge of fires

This chapter focuses on the knowledge of fire managers. The aim of this chapter is not only to examine how fire is understood by those who practise it, but also how they produce and learn knowledge about fire. This chapter illustrates the relationships between practices and the mobilization of knowledge developed by fire managers.

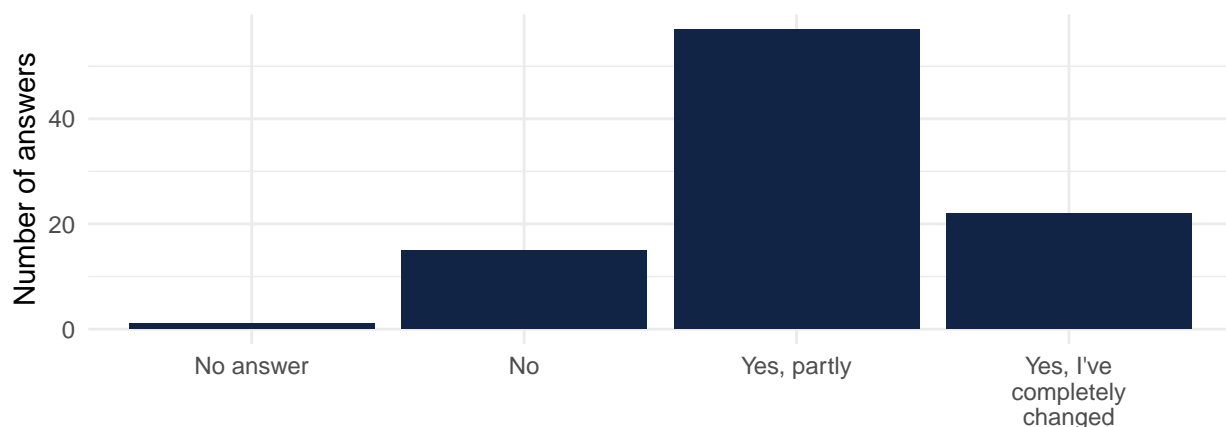
First, we see that the vast majority of managers have seen their understanding of fire change over the course of their careers. Thus, when in contact with fire, their understanding of it evolves. While the majority of managers have received additional training on fire, we can see that very few have received initial training on fire. The ranking of the factors essential to understanding fire is very evocative of the managers' knowledge of fire. The first factor in understanding fire is clearly identified as local practices. The second essential factor in understanding fire is vegetation, followed by meteorology and fire behavior, which are also cited as third essential factors. So these responses attest to an understanding of fire as an intersection between practices and a set of biophysical parameters. The sources of this understanding of fires were subsequently cited as being firstly empirical field observations, accessible data, then scientific publications and finally exchange with colleagues (i.e. an accumulation of knowledge). In this way, we can say that managers' knowledge of fires comes not only from scientific contributions, but above all from an understanding of the field and accessible data, through the contribution of colleagues' knowledge.

As far as knowledge of representations is concerned, we understand that images linked to fire risk are well known. For example, the inviting fire hazard sign is well known to a majority of managers, but the fact that a non-negligible number are unfamiliar with it suggests a link with the siting of this symbol in a certain territory. The North American risk sign is also well known. Most managers have seen images of the koala rescued from the Australian bushfires.

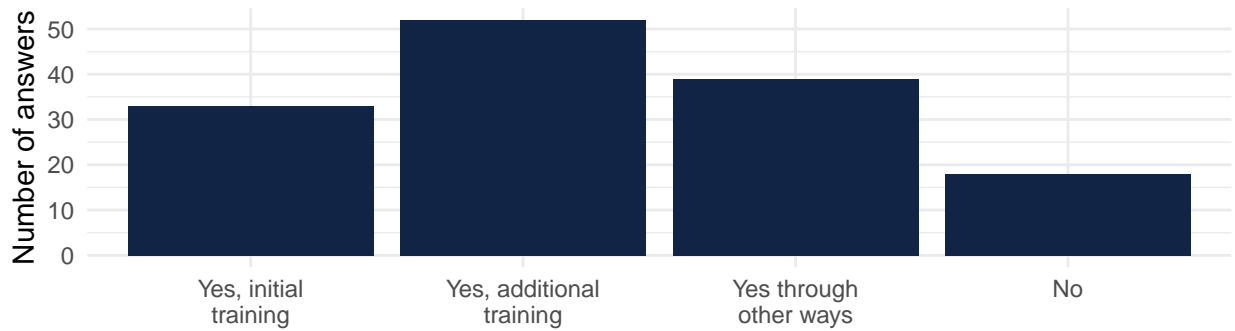
Finally, the American smokey bear character is well known to many, but a non-negligible number have never seen him. Less well known are the images associated with a more scientific approach to fire. For example, the triangular diagram representing integrated fire management is not well known; similarly, the image of the FIRMS interface is already seen by most managers, but is not well known. Finally, we observe the occasional participation of managers in fire-related research projects, which testifies to the loose links between the worlds of research and fire management.

Results

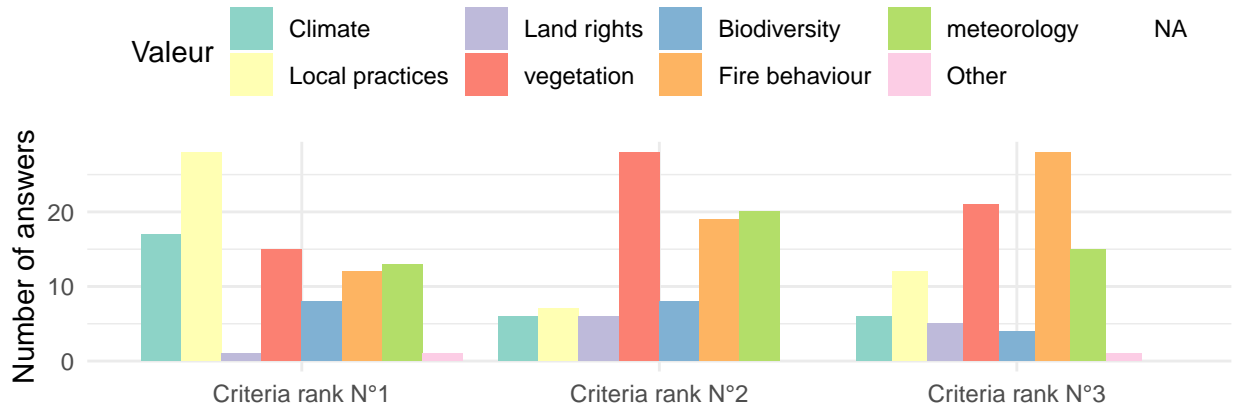
Has your understanding of fires changed over the past few years?



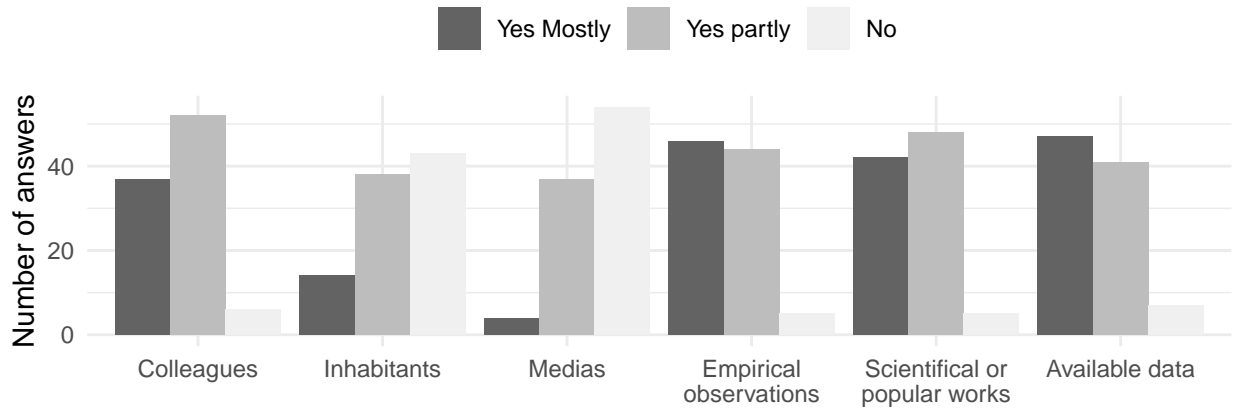
Have you had any training in fires and the environment?



In your opinion, to address the issue of fires it is essential to understand :



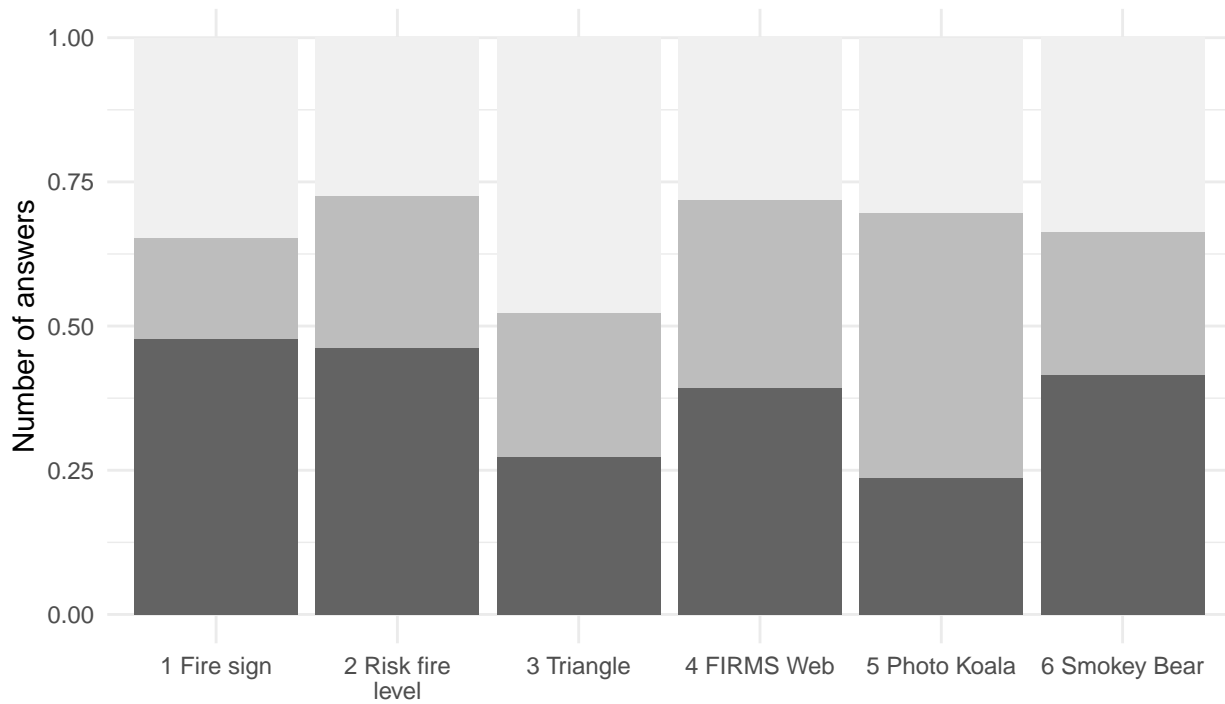
What are the sources that help you understand fires?



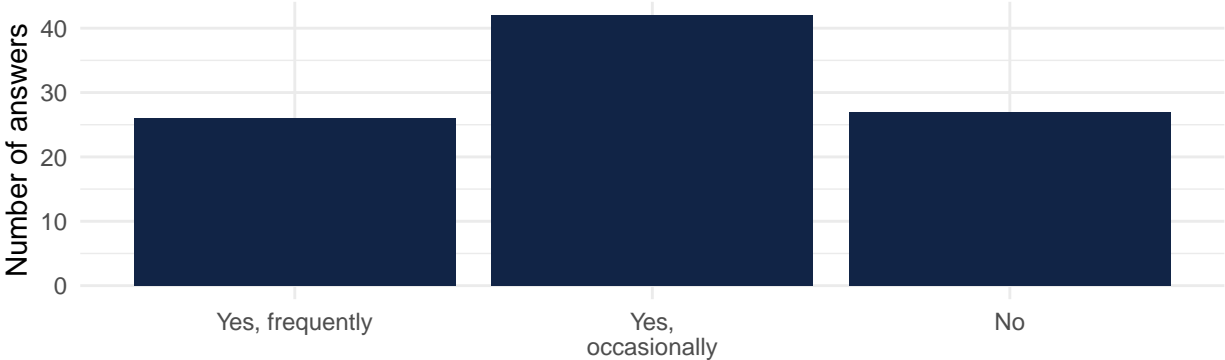
Do you know about these images relating to fires?



No, I don't know it
 OYes, I've already seen it
 Yes, I know it well



As a manager, are you involved in scientific projects (with universities, research centre...) on the issue of fires?



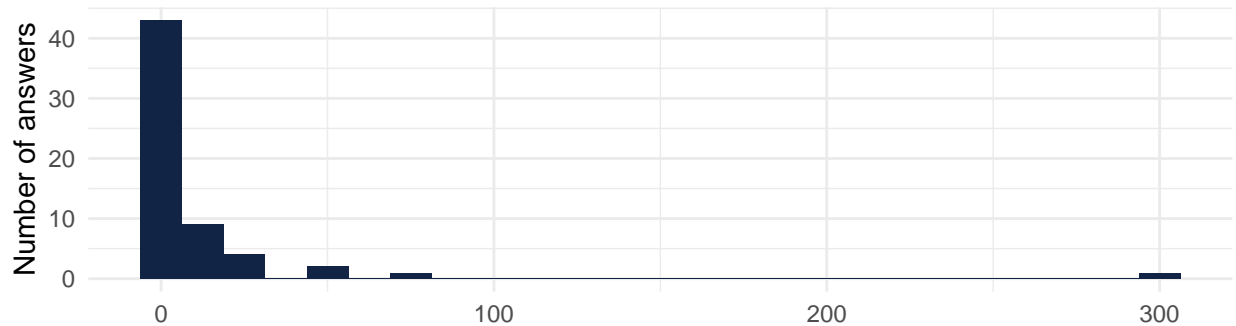
Chapter : Prescribed fires

In this chapter, we interviewed managers involved in prescribed burning operations. We thus obtained a population of 62 individuals who declared that they took part in this type of operation.

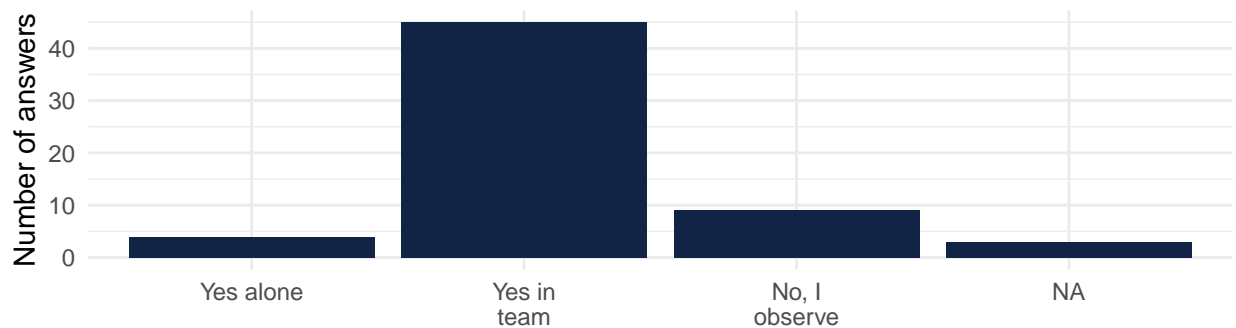
We note that the vast majority of managers take part in team fires, usually less than ten times a year. The most frequently cited category of participants is “nature managers”, followed by fire departments.

Results

Average number of burnings per year you take part in



Do you personally start the fires?



Which stakeholders take part in these fires ?

