

INVOLVING STAKEHOLDERS IN FOREST MANAGEMENT: THE CASE OF MONTEMURO MOUNTAIN SITE

Alexandra MARTA-COSTA*

* Corresponding author. University of Trás-os-Montes e Alto Douro (UTAD) and Centre for Transdisciplinary Development Studies (CETRAD); Quinta dos Prados, 5000-801 Vila Real, Portugal, www.utad.pt
amarta@utad.pt

Rui PINTO

University of Trás-os-Montes e Alto Douro (UTAD); Quinta dos Prados, 5000-801 Vila Real, Portugal, www.utad.pt,
rpinto@utad.pt

Filipa TORRES MANSO

University of Trás-os-Montes e Alto Douro (UTAD); formerly of the CIMO and currently a researcher at CETRAD; Quinta dos Prados, 5000-801 Vila Real, Portugal, www.utad.pt,
ftorres@utad.pt

Manuel Luís TIBÉRIO

University of Trás-os-Montes e Alto Douro (UTAD) and CETRAD; Quinta dos Prados, 5000-801 Vila Real, Portugal, www.utad.pt,
mtiberio@utad.pt

Inês CARNEIRO

Centre for Transdisciplinary Development Studies (CETRAD); Quinta dos Prados, 5000-801 Vila Real, Portugal,
ines.carneiro@gmail.com

José PORTELA

University of Trás-os-Montes e Alto Douro (UTAD) and CETRAD; Quinta dos Prados, 5000-801 Vila Real, Portugal, www.utad.pt,
jfgportela@gmail.com

Abstract

One of the main impediments to a correct forest management has to do with serious gaps in public participation and stakeholders' involvement in drawing up and carrying out public policies. The Natura 2000 Montemuro Mountain Site is paradigmatic of this situation. By looking at a set of interviews conducted to several entities with ties to the forest sector in that territory, this paper identifies their perception as regards the forest in Montemuro Mountain. Results show both the lack of participation and communication among the various stakeholders and the absenteeism of many forest owners as important factors conditioning forest management.

Keywords: Stakeholders, forest management, fires, citizen participation, territory.

JEL classification: Q23, Q28

Acknowledgements:

This work was supported by the European Regional Development Fund (ERDF), through the Competitiveness Operational Programme (COMPETE) and by national funds through the Foundation for Science and Technology (FCT) under Grant PTDC/AGRCFL/099970/2008.

1. Introduction

Portuguese forest occupies around 67% of the territory (3,154,800 ha of forest settlements and 1,500,157 ha of undergrowth, in 2010, Instituto da Conservação da Natureza e Florestas [Institute for Nature Conservation and Forest] – ICNF [15], reflecting the country’s forest aptitude. About 85% of the forest area is privately owned; as to the remaining 15%, only 3% is the State’s responsibility and 12% are common areas (Direção Geral dos Recursos Florestais [National Forest Services] - DGRF [9]). Eucalyptuses, cork oaks and Pines are the dominating species.

Forest products are especially important among Portuguese exports and involve a complex group of industries processing wood and non timber forest products, such as cork, rosin derivatives, mushrooms, honey and aromatic plants, among others. There are about 4,500 industrial units which employ circa 260,000 people, both directly and indirectly, turning the forest sector into a major sector of the Portuguese economy; it contributes with 3.2 % to the Gross domestic Product (GDP); it represents 12% of the industrial GDP; and it corresponds to 11% of all Portuguese exports (DGRF [9]).

At the environmental level, the forest plays an important role, for it is an ecosystem with unique natural habitats which ensure fauna and flora; it also contributes to soil formation while protecting water resources and is a natural carbon sink. It also plays an important role in climate regulation besides being a recreational and leisure space where other activities like pastoralism, hunting and green tourism can be developed.

Despite its great value and relevance to the country’s development, and although it has shared a common history with the populations from the beginning of times (Aguiar and Pinto [1]), the Portuguese forest still faces a series of constraints, such as the absence of a forest record, rural fires and the lack of forest management or the management of most wooded areas, which hinder its sustainable development. Several attempts have been made to cope with these constraints, but no strategy has been put forward to clearly and inclusively meet the needs and expectations of the populations, the environment and the forest sector. A serious gap in the citizens’ participation and in stakeholders’ involvement in designing and carrying out public policies is still an impediment to a suitable management of all wooded areas in Portugal (Santos et al. [31]).

The Montemuro Mountain Site (PT CON0025) reflects a scenery where most of the above mentioned problems are to be found (Azevedo et al. [4]). It is one of the 60 sites which compose the Natura 2000 Network National Site List, covering an area of approximately 39,000 ha, and it includes part of the municipalities of Cinfães (35%), Castro Daire (50%), Resende (17%), Lamego (15%) and Arouca (3%) (Instituto da Conservação da Natureza [Institute for Nature Conservation] - ICN [14]).

With a significant undergrowth area, this territory is characterized by its predominantly forestry use. It has several especially interesting areas as far as the biodiversity is concerned and is one of the most important habitats for the conservation of many fauna and flora species (ICN [14]). However, year after year it has been devastated by rural fires, and is currently threatened by a number of problems ensuing from people’s exodus from rural areas as well as the aging of the population. Therefore, it has been chosen as a case study within a research Project named “ForeStake: The role of local stakeholders to the success of forest policy in areas affected by fire in Portugal”, and financed by the European Regional Development Fund (ERDF), through the Competitiveness Operational Programme and by national funds through the Foundation for Science and Technology (FCT). The aim of this study was to propose an effective participation strategy of both stakeholders and their organizations and local populations so that it can lead to a sustainable forest management, focusing mainly on preventing and mitigating forest fires and recovering burnt areas.

This article presents the results of interviews to stakeholders operating in the forest area of the Montemuro mountain site which were conducted at the early stage of the ForeStake programme. The aim was to understand stakeholders’ perceptions of Montemuro forest and of how it has been managed, and, at a later stage, compare these views to the ones shared by local communities, making it possible to apply the knowledge thus obtained to new strategies of stakeholders’ involvement, negotiation and mediation in forest management.

2. Forest Fires and citizen participation

Forest fires are one of the biggest calamities threatening the Portuguese forest every year. According to recent data, in Portugal, the burnt area of forest settlements and undergrowth rose almost to 1,500,000 ha¹ in the last ten years (2001-2010) only. The increase of burnt areas and the growing number of forest fires are partly due to socio-economic factors related to the rural areas (Vélez [32]). In the Portuguese Plan for Prevention and Protection against Fires (Plano Nacional de Defesa da Floresta Contra Incêndios - PNDFCI, Presidência do Conselho de Ministros [27]), several factors are listed as direct and indirect causes of fire such as: the rural exodus, the giving up of traditional ways of land use – including pastoralism and other practices which contribute to the removal of wood and avoid fuel accumulation –, the burning of agricultural residues and the controlled fires to renew pastures and the carelessness and negligence of all those who use the forest for leisure and recreational purposes (hunters, shooters, hikers and fishermen) – either by throwing away burning cigarettes, by making bonfires in unsuitable places or having other risk behaviours.

Forest fires are at the basis of many problems and are definitely a serious obstacle to the development of this territory, either because of their negative impact on the environment and the landscape, or because of the destruction of wood material and other goods. This weakens local and regional economies that largely depend on the sector being healthy.

It is not possible to estimate the economic, social and environmental losses of forest fires either upstream or downstream. At best, one could obtain an approximate estimate, based on the amount of burnt wood sold and the annual costs of fire fighting. But it would not include other variables like burned undergrowth, the loss of soil and biodiversity, air and water pollution and the decrease of certain tourism-related activities like hunting, restaurants and hotels, among others.

Portugal's state of public calamity started by forest fires in 2003 caused a change in the legal and institutional regulation for the forest sector. In this context, several tools emerged for forest management and prevention against fires which must be put into use. If those tools are to be effective, communication and articulation among the various stakeholders are essential, as it is taking their views into consideration, when designing the policies and measures for the sector. Besides, this is in accordance with principle 10 of the 1992 Rio Declaration on environment and development (Organização das Nações Unidas [United Nations Organization] [25]), which upholds a better handling of environmental issues through the participation of all interested citizens. Similarly, Nohl [24] claims that social and emotional factors must be integrated with environmental issues so that a correct local planning can be achieved in the future, whereby all individuals should adequately be granted information as to the subject in question and have the opportunity to be part of the decision making process.

However, citizen participation can take many forms. Already in 1969, Sherry Arnstein [3] presented his ladder of citizen participation concept which includes different levels of public involvement. The bottom rungs of the ladder are “manipulation” (non-participation) and “therapy”, followed by “informing”, “consultation”, “placating”, “partnership” and “delegated power”, finally reaching the top rung, “citizen control”. In this scale, the further up the ladder the citizens are, the more they are capable of monitoring their involvement in participation procedures. Recently, André et al. [2] have summed up citizen participation in three levels: passive participation or receiving of information (a unidirectional form of participation); participation through consultation (e.g. public audiences and open meetings); and interactive participations (e.g. workshops, negotiation, mediation and even co management).

In this study, the authors departed from the notion of “citizen participation” as the affirmative or negative participation of individuals and groups in a project, a programme, a plan or a policy that is being proposed to them, involving a decision-making process (this

¹ Data available at ICNF portal on <http://www.icnf.pt/portal/florestas/dfci/inc/estatisticas>, November 2013.

definition was suggested by André et al. [2]); therefore, it is their belief the issue of forest fires, as well as other issues pertaining to forest management, can enlist local communities' participation in the designing and carrying out of public policies. There is, however, a drawback and that is the communities', especially local ones', lack of decision-making clout regarding the best strategy to follow in the matter of forest fires, which seems to impair their participation. That participation is basically passive and the indispensable collaboration of all stakeholders, so vital for deciding on a common path, does not take place. That means the whole process of citizen participation is shrouded in great complexity. In order to ensure that citizen participation has a greater probability of success, Buchy and Hoverman [5] have identified some basic principles that should be taken into account: first and foremost, communication must be adapted to the reality and specific circumstances it is being applied to; secondly, all participants must be granted suitable information; finally, it must be ensured that all interests are included in the proposals, namely the interests of the non- and under-represented groups.

In Portugal, stakeholders' participation in designing and carrying out forest programmes and policies capable of developing the sector are still a recent practice. Its former conception clearly shows a top-down logic that little by little has been being replaced by a bottom-up process in which the various stakeholders have a word to say. Yet, as regards forest management and prevention against fires, the legislation that has been passed more often than not goes against the local communities' interests, needs and expectations. This is what happened with the spaces included in the Natura 2000 Network, the Natural Parks Management Plans and the creation and functioning of Forest Intervention Zones (Zonas de Intervenção Florestal - ZIF). In this regard, it is essential that social representations on forest and forest policy be evaluated as well as stakeholders' role in reinforcing political measures for the sector, namely the prevention and mitigation of fires and the recovery of burnt areas, thus allowing a better understanding of the citizen's role in designing and implementing successful public policies for forest areas. The aim of this project was to do just that in the Montemuro Mountain Site.

Literature on participation or participatory processes stems mainly from two areas. The first is rooted in political sciences and in the discussion around democracy and citizenship, especially in the context of local and regional planning (Pateman [26], Munro-Clark [22], Davis [8]); the second is founded on the development theory, particularly as regards the sustainable use of the soil (Wignaraja et al. [35], Vettivel [34], Rahman [28], Nelson and Wright [23], Chambers [7]).

3. Methodology

The study's methodology was based on interviews to a group of Montemuro Mountain Site stakeholders, including the representatives of some entities and organizations, as well as individual people who work or carry out their business in the territory being studied and who were part of the Local Follow-up Group (Grupo de Acompanhamento Local - GAL) of the ForeStake Project in Montemuro Mountain (GAL Montemuro).

The GAL Montemuro was established during the Local Seminar of the Project that took place in Tendais, in the municipality of Cinfães, on September 10, 2010. The purpose of the seminar was to gather individuals and entity representatives that might act as interlocutors for the study on the field and actively participate in the project. The group proved to be dynamic over time and also included new stakeholders that were considered important for the territory as others, representing certain entities and organizations, were replaced, due to the normal restructuring and political transition that occurred in the meantime. In its final composition, the GAL Montemuro included 24 institutions, classified as follows (see Table 1).

Table 1: GAL Montemuro

Type of Institution	No.
Municipalities and <i>Gabinetes Técnicos Florestais</i> (GTFs, Technical Bureaus of Forestry)	4
<i>Juntas de Freguesia</i> (Portuguese territorial-administrative units)	5
<i>Autoridade Florestal Nacional</i> (AFN, National Forestry Authority)	2
<i>Organizações de Produtores Florestais</i> (OPF, Forest Producer Organizations)	3
Livestock associations	1
Hunting and Fishing Associations	1
Rural Development Associations	1
<i>Entidade Gestora de Baldio</i> (Common Land Managing Entity)	1
<i>Autoridade Nacional de Proteção Civil</i> (National Authority for Civil Protection)	1
<i>Guarda Nacional Republicana</i> (GNR, National Republican Guard)	1
Fire fighters	1
<i>Instituto de Conservação da Natureza e Biodiversidade</i> (ICNB, Institute for Nature and Biodiversity Conservation)	1
<i>Secretariado dos Baldios</i> (Secretariat for Common Land)	1
Firms	1
Total	24

Interviews were conducted face to face, lasting on average an hour and forty-five minutes, and they obeyed a questionnaire script with forty-two questions structured into six sections. The first and second sections of the questionnaire were designed to characterise both the respondent and the forest, respectively; section three included questions about forest management practices, the *Defesa da Floresta Contra Incêndios* (DFCI, forest defence against fires) and the recovery of burnt areas; section four referred the stakeholders' participation and cooperation relationships; section five was dedicated to future forest perspectives; and finally, section six mentioned the measures and techniques most used in the DFCI in Montemuro Mountain Site. The pre-test to the questionnaire and the interviews to GAL members that followed took place between 2011 and 2012 in the place of contact of each entity. Interviews were conducted by an interviewer accompanied by observers from UTAD's Project team. The anonymity of the respondents and the confidentiality of their statements were ensured at all times.

It was observed that respondents belonged mainly to "public" organizations (60%) with only 32% belonging to the "associative" sector. The groups with the highest representativeness were the GTFs within the purview of Municipalities (20%) and their corresponding *Juntas de Freguesia* (20%). Respondents were mostly male (68%), their average age was 43 (ranging from a minimum age of 28 to a maximum of 66) and had higher levels of qualification (72% of the respondents).

The collected data were treated with recourse to *Software Statistical Package for Social Sciences* (SPSS version 19) and subject to a frequency analysis (see the next sections), complemented with qualitative information gathered from the respondents. The respondents' most relevant opinions, reflections and stances are highlighted based on both the interviewer's and the observers' notes and records.²

4. Stakeholders and the Montemuro forest

4.1. Montemuro Mountain: a multifunctional space

According to the respondents (68%), "undergrowth areas" predominate in Montemuro Mountain Site, are basically used for extensive pastoralism and mostly confined to the highest zones. The "wooded areas" (referred by 16% of the respondents), namely eucalyptus plantations, are located in the municipalities of Arouca and Castro Daire (southern area) and associated with valleys and slopes in the vicinity of the Paiva basin. The remaining forest

² For more detailed information on interviews and the results of the analysis see Marta-Costa *et al.* [20].

areas are identified as agro-forest areas and pastures (16% of the responses). The 2005 Land Use and Land Cover Map (COS90 2005)³ issued by the Instituto Geográfico Português (Portuguese Geographic Institute [16]) largely confirms respondents' perception, showing that there are approximately 18,000 ha of undergrowth, 5,000 ha of wooded areas and 9,000 ha of farmland.

Also according to the respondents, “wood production” (20%) and “others” (23%) are the main function of wooded areas in Montemuro Mountain Site (see Fig. 1). Pastoralism stands out among the “other” functions, with some of the respondents having referred this activity as not properly valued, neither socially nor economically and ecologically. In the words of an association leader, “(...) it is important to value people's work, namely shepherd's and other stakeholders', for what they actually do on the mountain.” This aspect is also referred by several authors (Castro [6], Manso [19], Moreira [21], Rodriguez et al. [29], Santos [30], Vélez [33]).

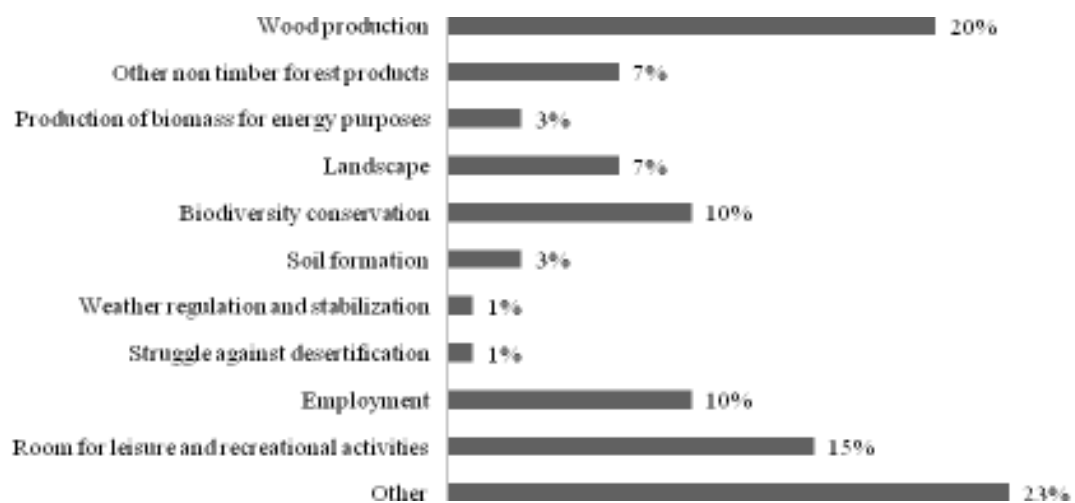


Figure 1: Forest areas' main functions in Montemuro Mountain Site

It is worth mentioning that the choice of “*aeolian energy*” is also referred as one of the “*other*” functions of forest areas in Montemuro Mountain Site. Respondents stress the presence of wind turbines for aeolian energy production on top of the mountain, which seems to have become a familiar landscape feature, despite opinions to the contrary that point out their excessive number and the noise they make, especially those closer to the villages.

When asked about the type of forest areas that are most suitable to the edaphoclimatic and orographic characteristics of the Montemuro Mountain Site, 28% of the respondents referred the “*pine production areas*” (see Fig. 2), despite the natural oak regeneration which can still be observed, although oak trees do not grow much at higher altitudes. This seems to partly reflect the strategic orientations from the four *Planos Regionais de Ordenamento Florestal* (PROF, Forest Management Regional Plans) that extend to the Montemuro Mountain Site. These official documents present certain areas that are suitable for pine growing, although the genus *Quercus* species are given particular attention, since they are considered to be the most suitable for the great majority of the territory's spaces (DGRF *et al.* [11], *Direção Geral de Agricultura do Entre Douro e Minho* [Agricultural Directorate of Entre Douro and Minho] *et al.* [12] [13]; *Ministério da Agricultura, do Desenvolvimento Rural e das Pescas* [Ministry of Agriculture, Rural Development and Fisheries] – MADRP and DGRF [18]).

³ The approximate values result from filtering information collected through looking into the COS90 legend.

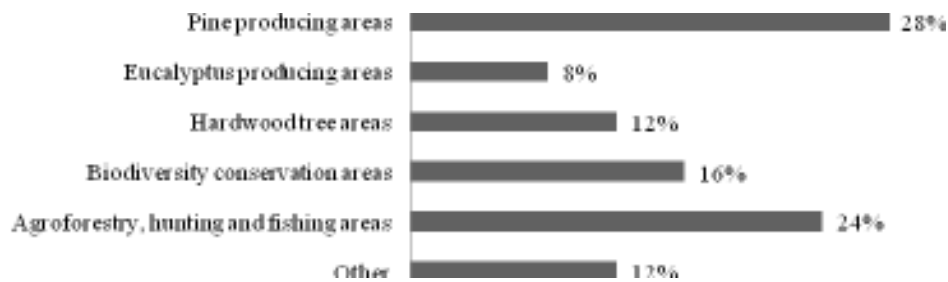


Figure 2: Most adequate types of forest areas in Montemuro Mountain Site

It should be pointed out that it was not easy for the respondents to identify which forest species were more suitable for the Montemuro Mountain. The president of one of the *Juntas de Freguesia* even stated that: “(...) when one looks at the plantations that were made 15 years ago, one sees there are different solutions depending on the locations in question. In fact, ..., in a field at 400m-600m high, in a plantation whose purpose was to provide shadow onto a picnic area, it is possible to find a ‘huge Linden tree’ and some good oak trees. ..., in an ample space at 800m high, also meant for providing shade, planting was ‘difficult’ and there are only a few trees left that nobody knows: ‘I don’t know what kind of a pine tree that is, it’s not a stone pine, and it’s not an umbrella pine, either. ..., at 1000m high, there is only an oak tree left, that ‘isn’t growing any taller’. There should be a study to help decide which trees to plant here!”

For 24% of the respondents, the Montemuro Mountain Site has the necessary conditions for the creation of spaces fit for “agro forestry, hunting and fishing,” as well as “leisure and recreational activities”. These activities were also mentioned by the four PROFs integrating the Montemuro Mountain as having a high development potential in several areas of the Site.

4.2. Montemuro Forest: a forest with problems

In the Montemuro Mountain Site zone, the forest faces several different problems. According to respondents, population aging, depopulation, lack of interest for the forest on the part of local communities and the giving up of both agricultural and pastoralist practices and forest management correspond to 37% of the problems that were listed, making the rural fires’ negative trend seem even more serious (see Fig. 3). “Other” bottlenecks (21%) affecting Montemuro Mountain Site forest were also referred, such as “too many wind turbines”, “few financial resources to invest on the forest”, “incipient common land management”, “surplus of goats”, “failure to value shepherds’ work” and “too many eucalyptuses and pines”.

Forest fires, at the top of the responses regarding Montemuro forest’s problems, may be caused by the controlled fires shepherds and hunters light in order to renew the pastures and scare away the game, respectively. Setting and causing fires is, naturally, a delicate subject. Identifying alleged arsonists was met with reserve and uncertainty among respondents and led to contradictory statements. In fact, while one President of a *Junta de Freguesia* remarked that “(...) it’s not the cow shepherds’ fault!”, the leader of a regional public entity immediately pointed out that “(...) goat shepherds are the main responsible for fires in that area. But it is understandable! What should be done was to contact them, gather them and make them aware of a correct use of fire.” Another respondent mentioned that in 2010, thirteen arsonists were detained on the Montemuro Mountain and none were shepherds. They were people with mental disorders, who “(...) enjoy watching the mountain burning, listening to the sirens and seeing the firemen and the helicopters in action” (GNR); or locals taking revenge on their neighbours; or even people suffering from alcoholism. According to some respondents, fire is important for pastoralism, which means that “(...) if controlled fires were used in articulation with shepherds, the latter would not feel the need to do it themselves.” (AFN).

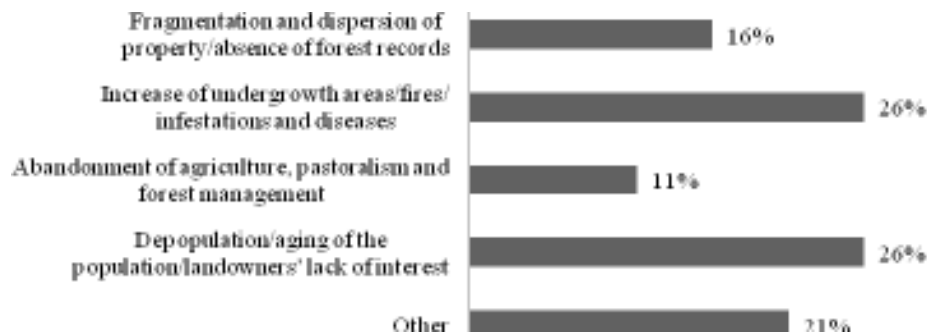


Figure 3: Main problems affecting Montemuro Mountain Site forest

Fires are a complex issue that can be linked to other aspects like fire permit periods being too short. For that reason, the responsible for two entities suggested an exceptional regime be created for specific zones of the country, namely for the Montemuro Mountain Site: “(...) we all know that on a particular day it may not be possible to light a fire near the stream but be perfectly alright to do a controlled fire on the mountain because of the fog and all on the same day. It does not make any sense to set up a uniform fire ban to be applied to such different zones” (the president of a *Junta de Freguesia*). Therefore, it is only necessary to ensure the right articulation between all interested parties and the entities in charge. In this regard, it was referred by the head of a state-owned entity that “(...) shepherds are willing to listen to the proposals about territory management they may be presented. However they do not like unfulfilled promises. In Portugal, things are often outlined and discussed and then left undone. This can be very frustrating even daunting.” Furthermore, people must go to the municipality to obtain the license to do a controlled fire instead of doing it locally, which can be an inconvenience not only as regards obtaining the license but also doing the fire under good safety conditions. As the president of one *Junta de Freguesia* pointed out, “Nobody is going to drive 30 km to go to Cinfães just to get a license to do a controlled fire. The document may even cost only one euro, but it will cost more to get there, not to mention the trouble of having to travel. If that were done locally, the neighbours would have a saying in the matter.”

Apparently, there seems to be a certain predisposition to accept fires naturally. Different respondents, namely from GTF and from one Forest Producers Organization stated that the entities that are competent to deal with rural fires often say “...it’s no use... the mountain will always burn”, in the sense that one should not mobilize the means to combat fires when the burnt areas are not worth it. Several respondents have also mentioned a whole range of “interests” around fires, expressing their firm belief that “there is a business underlying all this”. For some, these business interests are the very causes of fires. As one so expressively put it, the situation “(...) calls for measures that pull the plug on those interests”.

Let us now look into the main cause of fire propagation in Montemuro Mountain Site according to respondents (see Fig. 4). The failure to put in place forest management best practices, such as creating and maintaining buffer zones, the lack of compartmentalised wood areas, the absence of fuel management strips and forest firebreaks along with the presence of highly combustible forest species were the causes listed by 37% of the respondents. Additionally, the fact that “undergrowth is not cleared” is referred only by a little over 25% of the respondents. The “gunpowder barrels” – a very suggestive expression used by some respondents to refer to the abundance of fuel biomass – are the consequence of there being no cattle to graze the vegetation while it is still green. Besides acknowledging the deficit of “fire fighting cattle”, some respondents do not seem to value the importance of undergrowth for rural populations. That was very clear during one of our visits, when we witnessed a fire in an undergrowth area that had been active for three days and nothing was being done besides the effort to keep it under control. As mentioned above, the aerial firefighting resources management for Montemuro Mountain Site is much rationalised. When there is no risk for the populations, neither is there a significant loss of timber, it is assumed it is not worth using a

resource that has a high cost attached. Firefighters' inexperience is also pointed out as one of the reasons for forest fire propagation.

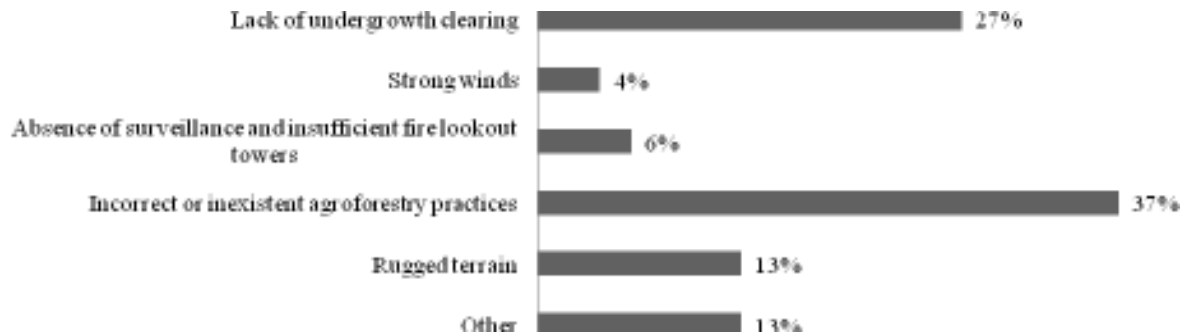


Figure 4: Causes of rural fire propagation in Montemuro Mountain Site

It is the respondents' view that the main fire impacts are "the increase of soil erosion and seepage", probably due to their visibility. "Water pollution" and "landscape degradation" are also important. The view one has of a burnt area after the first rains have fallen is a very distressing one and brings out the loss resulting from this calamity. This is too a familiar scenario, though, for local communities. "There seems to be no environmental or ecological awareness on the part of people. For them to understand they have lost something, they must feel it or have someone show it to them", said the head of a state-owned entity, a statement corroborated by the visual memories of most respondents. When they were asked to indicate the worst fires in Montemuro Mountain Site, they singled out the years 2003 and 2005. Those were also the worst years in terms of fires in the whole of Portugal.

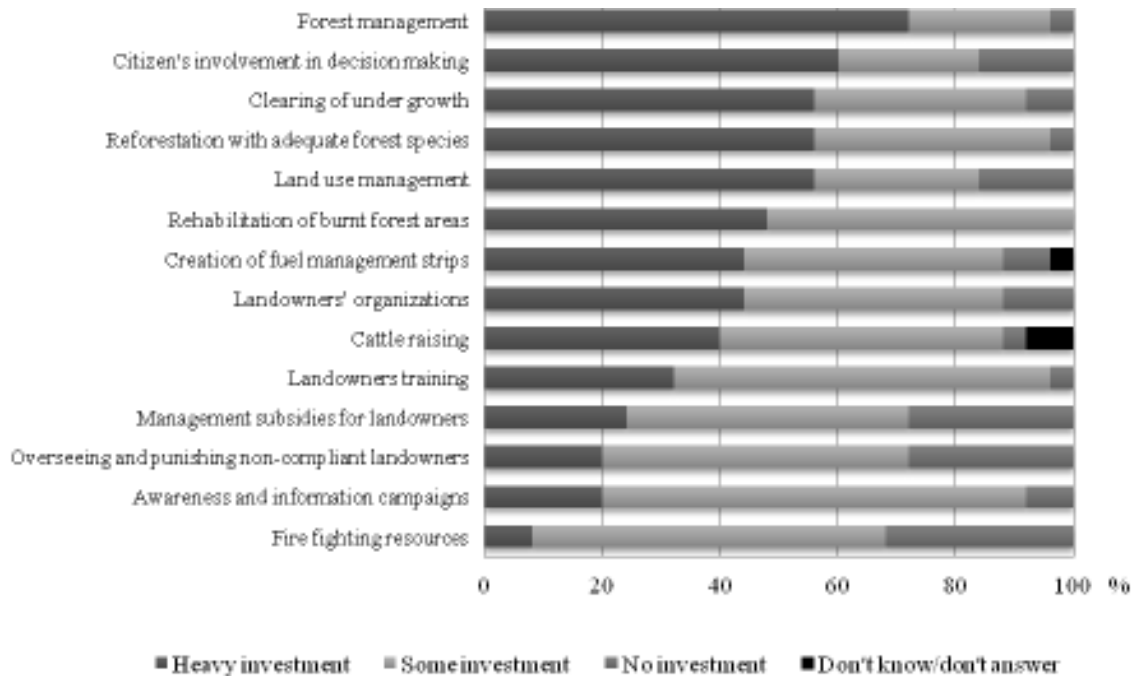


Figure 5: Level of investment on forest fire prevention in Montemuro Mountain Site

In figure 5, it is possible to look at the types of investment on fire prevention considered necessary by the respondents. In general, the answers indicate a local perception that is clearly different from the one held at other decision and action levels. The measures that have been implemented to fight rural fires have not proven to be the most suitable, according to respondents and so it is necessary to restructure investment, if a more effective prevention is

to be gained. “*Forest management*” is at the top of ‘great investments’, because it extends to many areas and involves many resources for its accomplishment. Then there is “*citizens’ involvement in the decisions*” regarding the forest. Contrarily, most respondents believe there should be no investment on “*firefighting resources*”. Also significant was the number of those who think that “*overseeing and punishing the ones who do not comply with regulations*” is not the solution to solve the problem of preventing rural fires. “*Awareness and information campaigns*” need ‘some investment’, considering what has been done in this field in recent years.

In what concerns DFCI measures, respondents think the most applied measure is the “*construction and maintenance of a forest roads network*” (30%), followed by “*surveillance-related activities*”, namely mobile surveillance (24%) and “*reduction of shrub density*” (15%). As to DFCI techniques, the most frequently pointed out by over two thirds of the respondents are the ones regarding the above mentioned measures, involving shrub density reduction and the use of “*mechanical, manual or motor-manual cutting of the vegetation*”.

Most respondents share the opinion that nothing has been done to recover burnt areas; a little over 25%, however, listed the “*new plantations*” as a way to cope with the situation.

Although there are no ZIFs⁴ in the Montemuro Mountain Site, these were, nevertheless, suggested as a solution for most of the problems that were listed, along with extraordinary measures to “*force*” landowners to “*do something*” about their land: “*The government should make people who own land cultivate it or otherwise sell it or rent it to whoever wanted to work it*” (the President of a *Junta de Freguesia*). Most respondents (around 80%), “*have already heard*” of ZIFs but 12% “*have no knowledge*” of this type of forest management model. 35% of them think the ZIFs’ main advantage is to “*increase forest areas’ economic return*”, while 18% chose “*decrease of forest risk*” and 15% the “*diversification of forest areas’ use and functions*”. The remaining 22% are of the opinion that ZIFs have nothing but disadvantages: they represent a management model that is not adapted to the reality of the country and one that generates conflicts; they are difficult to create and have too much bureaucracy; they require the outlining of a forest management plan even for those landowners who did not join the ZIF; ZIFs have to cover an area of at least 1000 ha.

Although 42% of the respondents totally agree with this management model, almost as many think the possibility of including common land – something which is not in place, yet – as well as the 1000 ha requirement should be reviewed or corrected. Besides, these are polemic issues and not only for the respondents. It seems to make no sense for some of them that the common areas are included in the ZIFs, since they were created to reduce the very fragmentation of private property. On the other hand, in many areas of the northern and central part of the country, continuous and contiguous areas that reach the required 1000 ha are not easy to find. The current law regarding ZIFs⁵ (MADRP [17]) already contemplates the possibility of common land being included in those spaces. In any case (regardless of it being included in the ZIFs or not), “*(...) ZIFs do not work because people cannot see any return there and they are afraid they will no longer own the land*”, said the head of an association. “*People were left out when ZIFs were created, that is, they had no saying in the process.*” Consequently, entities and organizations that are mostly concerned with forest issues find

⁴ The ZIF is a continuous and demarcated territorial area, consisting mostly of forestland under a Forest Management Plan and a Specific Forest Intervention Plan and run by an entity called Managing Body. The main purposes of ZIFs are: a) promoting the sustainable management of their forestland; b) coordinating the protection of forestland and natural areas in a planned manner; c) reducing fire ignition and propagation conditions; d) coordinating the recovery of forestland and natural areas when affected by fires; e) making the actions of central and local administration as well as other stakeholders intervening in forestland coherent and effective (under Decree-Law no 127/2005, August 5, MADRP [17]).

⁵ Decree-Law no 15/2009, January 14 altered Decree-Law no 127/2005, August 5, namely by introducing the possibility of exclusively state-owned land and common land being included in forest intervention zones (MADRP [17]).

themselves incapable of leading landowners to showing a more dynamic and more open attitude towards this type of management model.

4.3. Stakeholders' participation and cooperation relationships

Agents' participation and cooperation relationships, especially as regards a joint effort to implement DFCI policies, were studied according to the type of forestry-related initiatives that were developed by the entities being surveyed; their level of participation and the identification of the main groups to participate; the stakeholders that should design and carry out forest-targeted interventions; and the listing of the most conflicting stakeholders and the most frequent factors leading to conflict.

According to 60% of the respondents, the forestry-related initiatives taking place more often are the *"awareness seminars"* that, in the end, are too general and do not target specific groups. Other not so frequent events were also pointed out like gastronomic fairs promoting agro-forestry products, (the Montemuro goat kid, the Arouquesa beef, the wild boar), the organization of events related to the World Tree Day and summer mobile surveillance initiatives developed simultaneously. According to one OPF member, *"(...) one cannot expect people to gather up in a room just to have someone talk to them about forest fires. After ten minutes nobody is listening. One has to articulate this subject with others more interesting for both landowners and producers."*

The level of public support to different events can be high or low depending on the type of initiative being promoted and the entity responsible for it. It was generally considered *"reasonable"* by 56% of the respondents but 22% think it is *"good"*. Individual forest owners (47%), Governing Boards of Common Land (12%), *Juntas de Freguesia* (12%) and Municipalities (6%) are the entities that take part the most in forest-related initiatives in Montemuro Mountain Site. *"Other"* participants are distributed over central and regional administrative authorities and local organizations.

As regards stakeholders that should be responsible for deciding forms of forest intervention, 20% of the respondents referred the OPF, while 15% point out the municipalities, which have been assuming a protagonism they did not have ten years ago, thanks to the responsibility they have been assigned in matters like civil protection and forest fire prevention. The *"Common Land Governing Boards"* were referred by 13% of the respondents as one of the main authorities that should decide about forest intervention, which, actually, is already happening, according to 24% of the respondents, for they are responsible for forest land management more than any other entity. In some cases, however, common land is run by families who do not even report to their counterparts. Others like the head of an association protested their management leaves a lot to be desired. *"Common Land Governing Boards suck. They do not manage and when they do, it's badly done. They build 'a few things' that often were not a priority"*. Members of a public entity also added that *"(...) the very common land use plans [Planos de Utilização dos Baldios - PUB] have not much technical credibility and were drawn up in a manner that is little inclusive and technically inefficient."*

Apart from the above mentioned stakeholders, other were also listed by respondents as being responsible for forest management in Montemuro Mountain Site, such as Individual Forest Owners (21%), followed by *Juntas de Freguesia* (19%) and Central State Bodies (16%).

As a rule, entities claim they have *"good relationships"* among themselves, namely with GTFs and OPFs (e.g. Forest Firefighting Teams). The latter have both experience on the field and technical expertise, two important requirements to legally intervene in the municipalities. Forest firefighting teams are also an important link in certain areas like forest cleaning. Other respondents also mentioned other entities (e.g. members of a public entity and OPF leaders), with whom they have no or little institutional cooperation.

The term *"conflicting"* which was used in the questionnaire to single out agents or groups of entities likely to cause disagreements or disputes was frequently replaced by the expression *"lack of communication between entities"*. And it translates to contradictory interventions on the field and to the absence of a concerted strategy for the sector. Not only do entities not communicate among themselves, but also they do not communicate with local communities.

Underlying most conflicts are issues usually related to “*the priorities each entity has regarding land management*” and “*their perspectives on soil use*”, as it has already been described in other studies (Dimitrakopoulos *et al.* [10]).

According to some respondents, there are people and groups who clearly show “*distrust*” towards certain entities, especially public ones: “*People need locals to tell them what to do. With the proper technical backup, of course! But only someone who is reliable and politically exempt can encourage populations to participate and do what it takes to reach a common goal.*” Respondents referred the associations as the entities holding the capital of trust recognized by producers.

4.4. Forest in Montemuro: a boost to the local economy

Approximately 70% of the respondents consider the forest and its products to be a very positive contribution to Montemuro Mountain Site economy. In some parts of this territory, it “*gives many people jobs*” and attracts “*people from other places*”. This is a clear reference to the real and potential power Montemuro Mountain Site has or may have to attract tourists. One should not ignore that many initiatives are developed around the forest with the aim of promoting and developing some products that have their origin there. Good examples are the gastronomic fairs held to promote Montemuro goat kid and advertise the conferences on fire prevention

As regards future prospects, the information gathered was ambivalent, both optimist and pessimist. In the expected evolution of agroforestry activities for the next ten years (*see Fig. 6*), some aspects stand out like an increase in “*the demand for forest-related leisure and recreational activities*” and of “*undergrowth areas*”. Concurrently, “*agricultural*” and “*pine areas*” are expected to decrease. Finally, it is foreseeable that “*the reserves of game and fish*” will not undergo any change and neither will “*agroforestry areas*”. Most respondents also seem to share the view that agroforestry may be one of the most, if not the most important activity in this region, if set within the framework of a system of multiple use of forest lands, in which timber production may be seen as an important resource capable of generating wealth and social and ecological value-added.

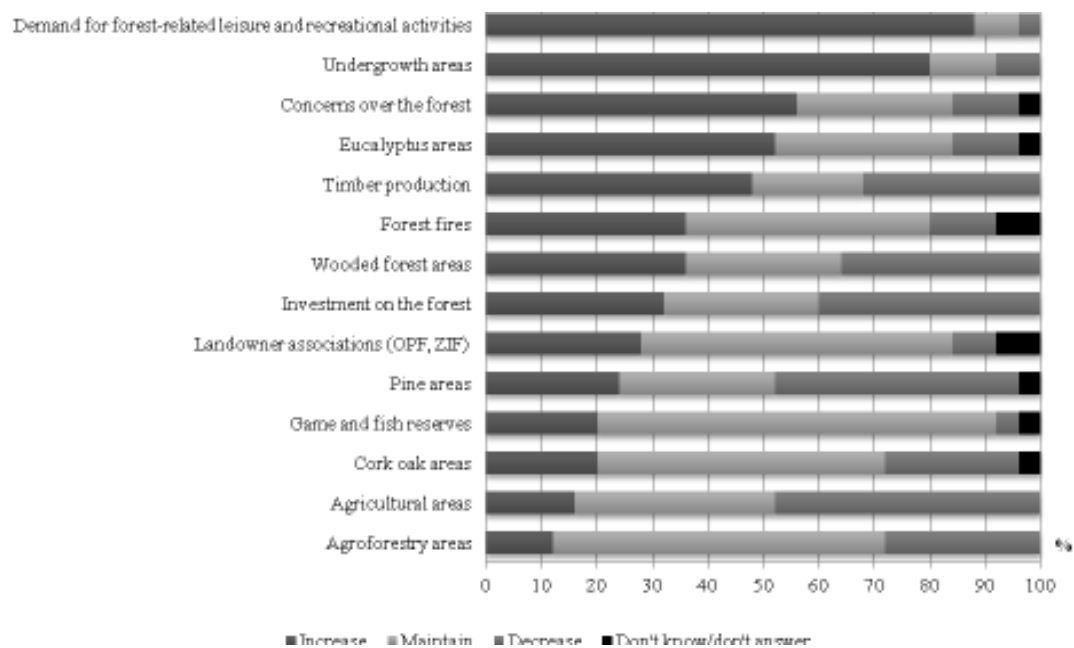


Figure 6: Future perspectives for Montemuro Mountain Site forest lands

When asked what the main challenges for Montemuro Mountain Site forest were, 20% of the respondents answered “*forest management*”. They also referred the need to make Montemuro Mountain Site forest more multifunctional (14%) to increase forest exploitation and productivity (14%) and to “*involve the various stakeholders*” (11%). As regards “*other*”

challenges, respondents (20%) made several suggestions: implementing forest certification, recovering burnt areas, reducing fires and even attempting to create ZIFs in the territory being studied.

5. Final remarks

Departing from the literature on participatory processes of debating forest fire issues in Portugal, the authors of this study argue that the lack of citizen participation in defining and implementing public policies and measures for the sector is one of the bottlenecks to a proper management of Portuguese forest land.

The fact that, in Portugal, local communities have no say in these matters seems to affect citizen participation, which has been rather passive or does not even exist, thus preventing all stakeholders from deciding on a common pathway. In fact, only recently have *stakeholders* begun to be involved in designing forest policies and programmes with the aim of adopting the right measures to develop the sector; but the process has been gaining a *bottom-up logic*. However, in matters regarding management in general, forest management and forest fire prevention, the legislation that has been passed often collides with the local communities' interests, needs and expectations.

In this context, within the research project "ForeStake: The role of local stakeholders to the success of forest policy in areas affected by fire in Portugal", a reflection was made on the prospects of Montemuro Mountain Site serving as the setting for proposals regarding an effective strategy leading to enlist stakeholders', their organizations' and local communities' participation in sustainably managing the forest. The strategy should add particular emphasis on forest fire prevention and mitigation and on the recovery of burnt areas.

Montemuro Mountain Site is a classified site within the Natura 2000 Network and is characterized by its predominantly agroforestry landscape, where the area of undergrowth is rather significant. But it is also a space faced with many difficulties caused by an aging population that has been leaving and devastated by fires year after year. These problems are interrelated and mutually strengthened by the socio-demographic and economic dynamics of the territory.

Using the interviews conducted to 24 Montemuro Mountain Site entities and organizations at an early stage of the ForeStake project, this study aimed at determining stakeholders' views and concerns regarding the reality of the forest in this territory, a task that is deemed essential for enlisting citizens' and stakeholders' participation in a sustainable strategy of forest management.

Respondents have a clear view of soil occupation in Montemuro Mountain Site. They recognize the many problems, namely fires, affecting the forest. They point the finger at shepherds and hunters as being the main causers of forest fires. In turn, forest owners are accused of neglecting to clean undergrowth, responsible for fire propagation. But they also mention a set of non-specified "interests" and "interested/favoured parties. Apparently, environmental issues deriving from fires are among the respondents' concerns; however, for reasons that have to do with the lack of initiative and/or financial resources, little or nothing has been done to recover burnt areas in Montemuro Mountain Site.

Respondents are also worried about the lack of forest management in their territory and they think Common Land Governing Boards should accept their responsibilities in this matter. This view is partly the result of the public attention Common Land Governing Boards drew on themselves when aeolian parks were installed on common land, since they were the entities that signed the contracts with the supplying companies. Paradoxically, respondents seem oblivious of the fact that almost 50% of forest land is privately owned.

Forest owners' lack of interest and participation in designing and carrying out suitable plans for the forestry sector are frequently brought up by respondents in connection with fire prevention. They demand that local communities be given the opportunity to actively take part in designing and carrying out these plans. They also wish the obvious lack of communication among stakeholders ended for it clearly hinders Montemuro Mountain Site land management, rendering the execution of plans, programmes and measures to prevent forest fires ineffective.

In the respondents' view, future strategies for the sustainable management of forest areas in Montemuro Mountain Site should contemplate aspects like making the most of common lands areas, afforesting with more suitable species, using forest spaces for multiple purposes (agroforestry, hunting, shooting and fishery) and implementing other economic activities (namely tourism, recreation and leisure), which will be complementary income sources besides providing the conditions for more dialogue and understanding among the various stakeholders.

It is necessary to stimulate the participation and commitment both of stakeholders, forest owners and local communities in the decision making process so that it effectively reflects on the designing and carrying out of sound strategies for the Montemuro Mountain Site forest.

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