QualiGouv

Projet cofinancé par le Fonds Européen de Développement Régional (FEDER)
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Improve governance and quality of the forest management in protected Mediterranean areas

Thematic enlightening n°6

The *martéloscope*, a practical and effective awareness-raising tool

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Sommaire

Región de Murcia · Parc naturel régional des Alpilles · Parc naturel régional du Luberon · Office National des Forêts · Generalitat Valenciana · WWF · Association Internationale Forêts Méditerranéennes

Introduction

The Mont Ventoux massif occupies a special place in Provence. In fact, this mountain which peaks at an altitude of nearly 2000 m is strongly marked by its bioclimatic characteristics and the imprint of its history, which present varied issues in terms of uses and development in the broad sense.

The diversity of natural environments, mostly forest, managed by the ONF is explained by the originality of this mountain which, despite a modest altitude (1909 m), presents very decisive characteristics according to a gradient of altitude between the typically Mediterranean plant formations (Holm oak) up to the grasses at high altitude with marked alpine affinities.

Taking account of the necessary multi-functional management of public forest areas of the Mont Ventoux pilot site, sparked a desire in the Office National des Forêts (National Forestry Office) to be able to have an educational tool to deal very specifically with the complexity of forest management. This tool exists: it is the *martéloscope*, an educational device allowing various audiences who are unaware of forest management to be informed and raise their awareness.

The need to integrate and prioritise the sometimes contradictory expectations is the basis of the approach to developing forest management that the manager is responsible for establishing and who has to decide as a last resort.

Such a diversity in the expression of the social demand with respect to these natural areas therefore requires the management of this territory to be able to be shared and understood by all audiences.

In fact, the French public has very little knowledge of the forest environment and its management. This lack of knowledge creates more or less justified concerns: 39% of the French consider the French forest to be under threat and 27% of this population see the cutting of a tree as an action of destroying the environment, and not as an action of managing a complex ecosystem. In a society where consultation is more and more highlighted than ever before, it seems crucial to inform the population, the various decision-making bodies (local authorities, territorial communities, etc.), the staff of management structures of natural areas or even students in training, of the forest environment and its management.

The tool preparation method must be transferable to other contexts encountered by the QUALIGOUV project partners.

Introducing the approach

A shared approach

The potential of the *martéloscope*, as an awareness-raising tool and discussion aid among stakeholders in a territory, has been tested for several years. First initiated by the foresters of the ONF, for the vocational training of field staff purposes, in order to promote forestry guides, it then evolved into a tool intended for a broader, non-forest public.

In the context of the territory of the massif of Mont Ventoux, a partnership with the Mixt syndicate for Mont Ventoux management and equipment (SMAEMV) resulted in the sharing the expectations of this innovative tool and enriching its ambitions due to the different sensitivities of the ONF manager and the territory organiser which is the Syndicate.

In fact, in addition to the initial concerns related to the renewal, improvement of stands, management of the wood capital, the proportion of mixtures of species and the control of vertical structures, taking into account a larger number of functions performed by the forest (analysed elsewhere and processed at the level of forest management plans) has been at the basis of a new generation of *martéloscopes*. Relatively numerous in the northern half of France, the "multi-purpose" *martéloscopes* were less represented in the south of the country. Several have been installed in the Man and Biosphere (MAB) reserves such as Luberon or even Cevennes.

In fact, the national "Forest" group of the MAB Reserves of France, currently runs the development of a network of new *martéloscopes*[1], but the difficulties in using this technical tool with a novice public have been raised.

Overview of the tool

Definition

A *martéloscope* is a teaching tool developed for the purpose of foresters improving the hammering action[2]. It materialised in the form of a plot of land in the middle of the forest with an area of between 3000 m² and one hectare, fenced off using paint (guides affixed to trees at a height of 2 m) or taut twine around the plot boundary. Within this plot, all the trees with a diameter over 12.5 cm and 1.30 m high are inventoried, map-

ped, numbered and described. For each tree, various data are identified: species, diameter, health status, quality, ecological value, etc.

Then, this delimited area is used for a pretend hammering exercise. The participants are divided into teams of two or three people. Equipped with a map and a list of trees, they can move freely around the plot choosing the trees that they feel should be harvested (or preserved if keeping them can be justified by a particular role) and specifying the reason/s for their choice.

Photo 1: Within the plot, the trees are marked with a number that identifies them in the grid distributed to participants (see Annex 1).

Implementation

The *martéloscope* exercise, notably performed on the occasion of the fifth Seminar of the project, is to allow participants to move around the plot freely by pointing out the trees that they feel the need to cut down and why. The data are then analysed using special computer software which lets the user view the medium-term impact of the choices made by the participants.

The analyses conducted for creating this *martéloscope* on the Mont Ventoux pilot site proved transferable to bio-geographical and/or socio-cultural contexts encountered in most countries of the partners of the QUALIGOUV project.

Evolution of the concept of the tool in the context of the QUALIGOUV project

This experimental device is, in the spirit of the European QUALIGOUV project, an educational support to stimulate, in a very practical way, through the hammering operation, discussions that may arise over the forest management choices. It therefore constitutes a special place to support the concept of shared governance.

So, the objective is, through the QUALIGOUV project, to reach a more diverse audience, while maintaining the professional training role and vocational training for the territories' staff managers.

From the findings of this first phase, it is then possible to offer:

- the indicators to address the multiple thematics to be taken into account;

- a progress of the exercise type programme;

- the creation of a *debriefing* of the exercise tool through the adaptation of computer software ("Capsis", see Annex 3) for processing data from sheets filled in by the participants, allowing the consequences of management choices made in the medium and long-term to be observed. This interpretation is interesting for both the organiser and for the target audience.

Photo 2: Participants are divided into groups of 2 or 3 and walk freely on the plot by establishing management choices, justified by a comprehensible strategy.

Installation method

The pooling of study approaches

A close collaboration has been able to take place between the QUALIGOUV project and the course completed by Marlène Gineste in 2010 within the fra-

mework of her end of Forest engineer studies dissertation entitled "*Martéloscope*: the development of a pedagogical interface for a non-specialist audience"[3].

The concomitance of this engineer training and the QUALIGOUV project has enabled a synergy to be promoted between the research work conducted at the Mont Ventoux site and those conducted on the National park of Cevennes in comparable ecological conditions.

This work is intended to broaden the use of the *martéloscope* among a non-forest audience, although its potential as a awareness-raising tool and discussion aid between stakeholders in a territory has been reaffirmed by the forest group of biosphere reserves.

The difficulties of using this technical tool with a novice audience have been raised, especially due to the specificity of vocabulary that the dendrometry or forest ecology aspects present and which requires an adaptation endeavour to be understood by a wider audience.

This project has, firstly, required a gathering of experiences, requirements and expectations of the stakeholders in the different territories, mainly from French MAB reserves, in terms of the thematics addressed and form. From the findings of this first phase, indicators have been proposed to address the multiple thematics of interest, a progress of the exercise type programme and an adaptation of the software for processing the tool (cf. Annex 3 page 7).

The collection of societal expectations

In order to better identify the diversity of social expectations in respect of forest management and to better seek to understand the themes to be focussed on during the use of the *martéloscope*, it was decided that a series of interviews should be conducted with a public representative of the territory and local stakeholders, in the different French forest MAB reserves and therefore, in particular, on the Mont Ventoux site.

This survey did not seek completeness. The latter would also need a much more careful study and a stricter stratification of the sample of people surveyed, as well as many more interviews.

Stakeholders from the various territories as well as the foresters or trainers were encountered:

- members of recreational associations;
- members of environmental education associations;
- local authorities, town councils or others;
- members of the technical teams of the Regional centres of forest ownership;
- ONF staff;

foresters employed in regional or national natural parks;

- naturalists;
- teachers and trainers from higher education and agricultural technology and general education (primary schools, colleges, secondary schools);
- hunters and farmers.

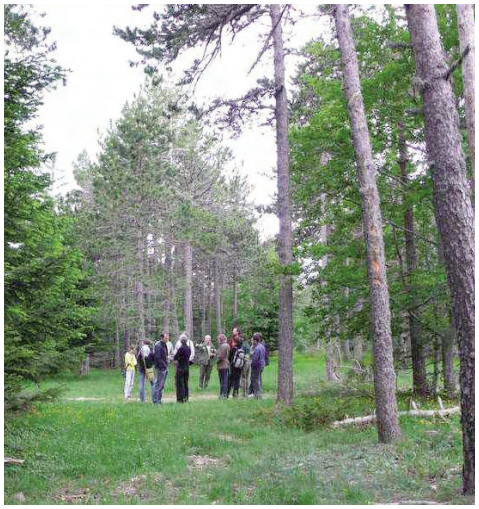


Photo 3: Visit of representatives of the Forest group of the French MAB Reserves, as part of the reflection on the establishment of a martéloscope on the Mont Ventoux.

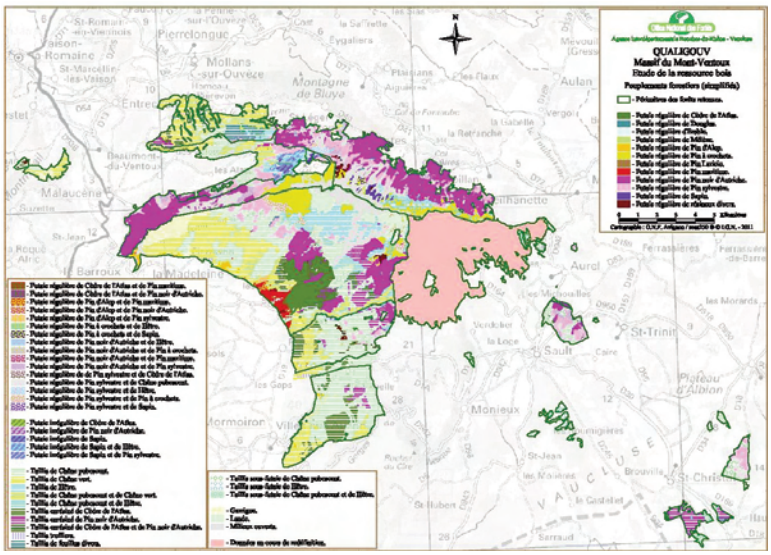
Thème	Echelle		Existence de données	Priorité suite aux entretiens	Thème retenu
	parcelle	massif			
Economie / débouchés du bois	x	x	x		oui
Exploitation des bois	x	x	+ ou -		non
Patrimoine bois futur (régénération, santé , qualité)	x	x	x		oui
Dangers pathogènes pour les arbres	x	x	x		non
Carbone	x	x	x		oui
Biodiversité		x	x		oui
Paysage	+ ou -	x	x		oui
Ressources comestibles pour l'homme	x		-		oui
Pastoralisme	+ ou -	x	+ ou -		oui
Grande faune	+ ou -	x	+ ou -		oui
Protection des sols		x	x		non
Incendies de forêts	+ ou -	X	+ ou -		non
Changements climatiques	x	x	+ ou -		oui
tempêtes	X		X		oui
Sécurité du public	X		X		
Conflits entre usagers		X	X		
Principes de gestion	X	X	X	X	x

Table 1: Interactions between the functions of the forest, the environmental factors affecting its growth, human uses and forest management.

The exploration of land

It was on the basis of the knowledge of the different types of stands and forest dynamics observed on the massif, that an initial selection of candidate sites was retained.

The documents prepared during the development of management plans, such as the mapping of the types of stands, have been used for a first location.



Carte 1 : Simplified map of forest stands of the Mont Ventoux. There is particular the dominance of mixed forest of Beech and Mountain Pine (light green), other resinous (Black Pine in purple, Atlas Cedar in dark green) and coppice (Quercus ilex at low altitude, in yellow, Beech at higher altitudes, in blue).

For the establishment of the *martéloscope*, places with divergent challenges among the most frequent on the massif in varying degrees were particularly studied, namely:

- protecting the land in the mountains;
- maintaining biodiversity (flora and fauna, interaction of habitats on the NATURA 2000 sites);
- timber production;
- the dynamic for a return of hardwoods and its possible support;
- the balance of species;
- the taking into account of climate change;
- receiving the public;
- pastoralism;
- hunting and large wildlife;
- in a more limited way in Piedmont of the South slope, forest wildfire defence.

The illustration of this diversity could only be effective in favour of a multiplication of the sites on the entire massif, an attractive but very expensive idea! The solution of a single site was initially preferred, for obvious economic reasons , satisfactory (if possible) simultaneously with the following conditions:

- The stepped vertical structure of the stand, which was desired to address the theme of stand structures.
- A mixture of forest trees.
- A clear situation of competition between tree stems justifying the next cut.
- Accessibility and easy parking (buses and light-duty vehicles), a walking approach less than 10 minutes away and easy circulation on the plot (not too dense understorey).
- The proximity of reception structures for a "debriefing" after the hammering exercise: in this regard the South slope seemed more suitable (especially the Bedoin municipality).
- A slight to moderate slope on the plot.
- The presence of "bio" trees allowing a reasoned decision into account of protection and maintenance of biodiversity aspects.
- The presence of trees with a large diameter to explain the concepts of age and diameter of potential for use and to address the yield or economic viability of the artificially hammered cut.

Several plots have been visited, and then rejected for reasons related to the structure of the stand, its mono-specific character, the absence of need for a cut, the length of the road access on the forest trail or even the existence of pastoral activities.

Conclusions - prospects

The *martéloscope* of Mont Ventoux illustrates, in the context of protected natural area of a MAB Reserve where a Regional natural park project is also being studied, the shared desire of the stakeholders in the territory to build a governance system capable of raising awareness and taking account of the expectations of the less knowledgeable stakeholders in the choice of the functional management of forest areas.

The recruitment of the greatest number in this shared management system comes down to better awareness, on the one hand, of Mediterranean forest ecosys-

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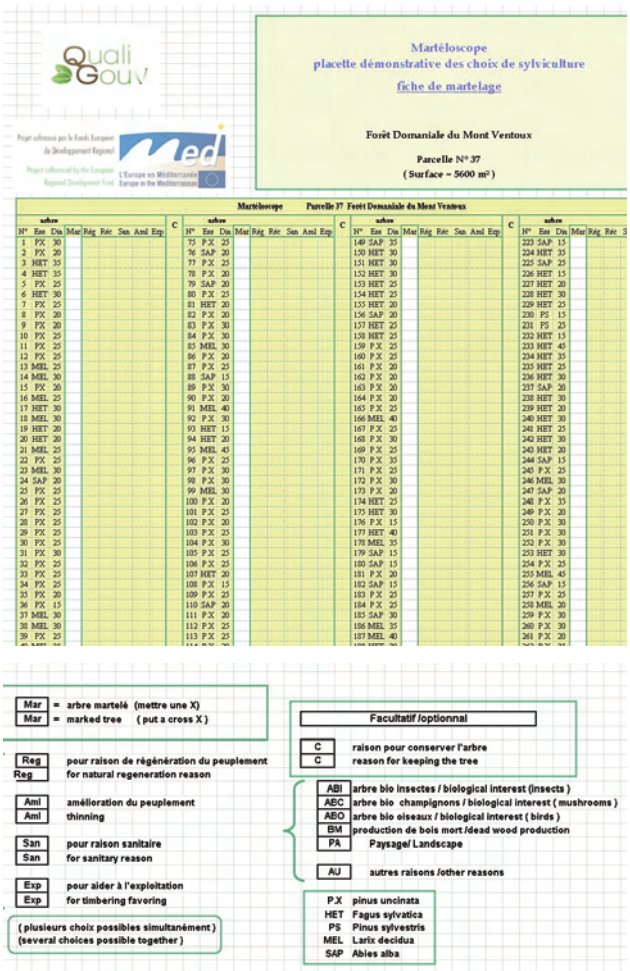
tems in their complexity and their operation, and on the other hand, a better understanding of the interactions between this complex natural environment and the human actions of an inhabited territory.

The *martéloscope* therefore feeds the series of questions during the test operations with the groups of trainees who reflect on the diversity of the social demand and societal expectations. It also serves as a support to establish, with the stakeholders of the territory, the consultation related to the concept of shared governance and the rules or options in the management of forest ecosystems, so as to better meet the social expectations using consistent arbitrations.

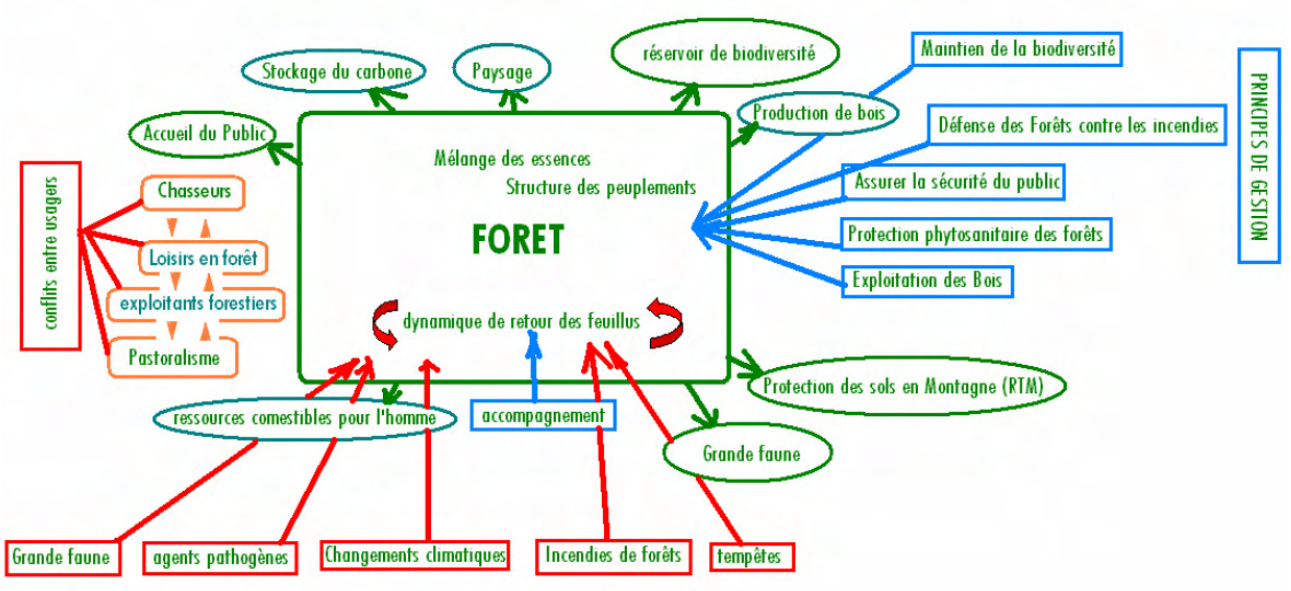
The diagram in **Annex 2** shows the interactions between environmental, social and environmental factors which are to be taken into account in the design of a *martéloscope*: the criteria must obviously be weighted according to local contexts.

The methods for preparing and implementing this *martéloscope* on the pilot site of the Mont Ventoux are transferable to other bio-geographical contexts and/or socio-cultural encounters in the country of the QUALIGOUV project partners. The Region of Murcia has shown particular interest. This type of tool already existed in other forest regions (Alsace, Switzerland, etc.). But, in the Mediterranean region more than anywhere else, it is an interesting idea to effectively extend. and in a pedagogical way, towards an improvement of the perception of forest work by the stakeholders and the local populations.

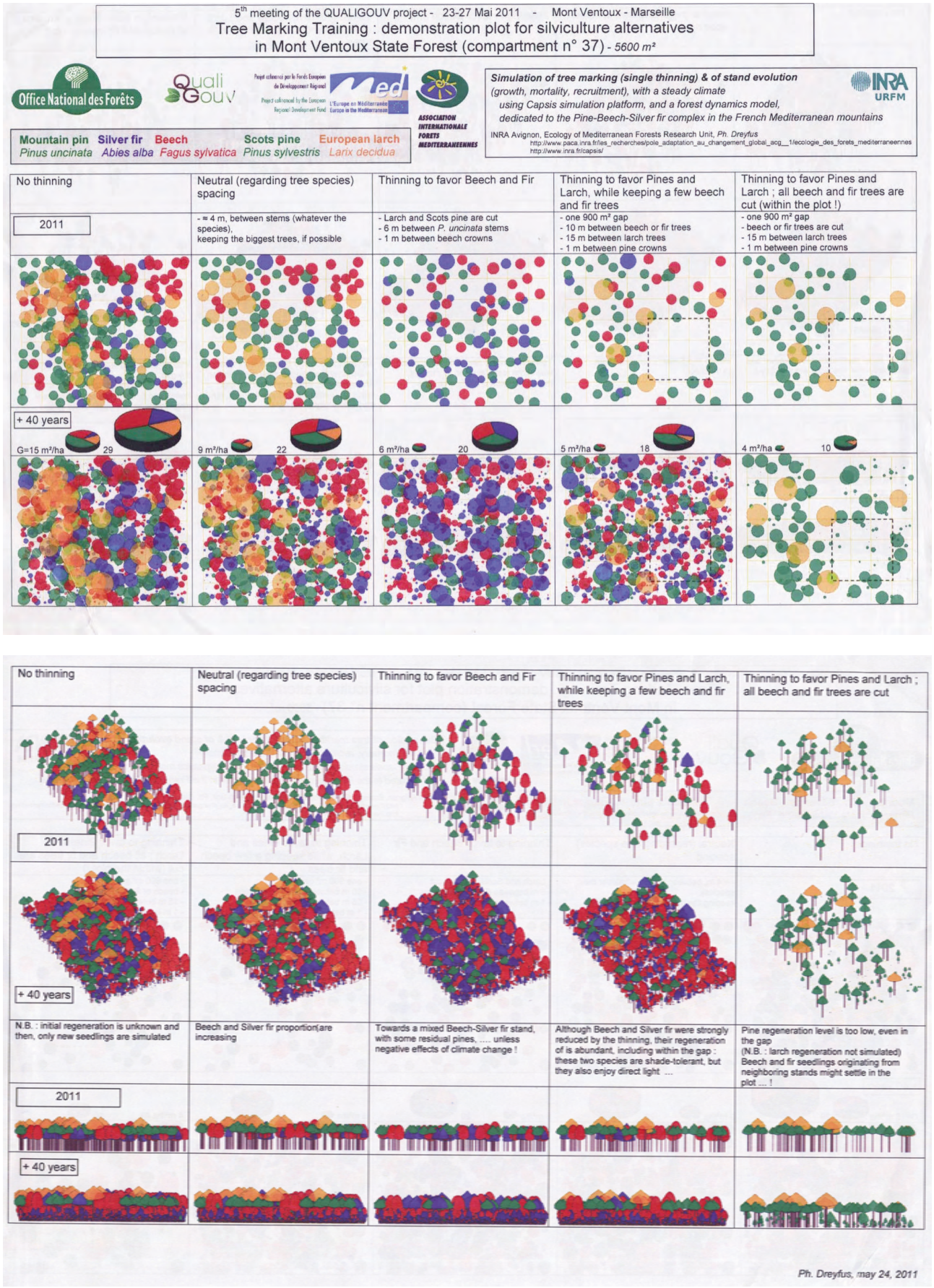
Annex 1: Participants grid. Each tree is identified and subject of a choice (cutting or not cutting)



Annex 2: Interactions between ecological, social and environmental considerations in designing a martéloscope



Annex 3: Valorisation of data from the martéloscope, using the program "Capsis" that allows to see the consequences of the choices at year n+40



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Notes :

1 - This network is on the mainland territory of the reserves of Fontainebleau-Gâtinais (Seine-et-Marne), the northern Vosges (Moselle, Bas-Rhin), the Fango Valley (Corsica), the Luberon (Vaucluse), the Cevennes (Gard, Lozère) and Mont Ventoux (Vaucluse). This forest group of MAB reserves met on 10 and 11 June 2010 at the pilot site of Mont Ventoux with, among other work topics, that of extending the martéloscope tool to other reserves.

2 - Hammering is the action of individual identification of trees which will be cut during the next forest exploitation. It is the result of a joint operation conducted by the forest and, by extension, the fact of marking "disused" trees, using a forest hammer or painting.

This act is the practical implementation in the field of management choices provided by the planning document that is forest management. Its application depends on the experience and sensitivity of the hammerer.

3 - This study was conducted within the framework of a partnership established under the supervision of Agro-Paris-Tech with the Institute of Life and Environmental Science (training of Forest engineers), the Forest group of MAB Reserves (Luberon, Cevennes, Fontainebleau, Fango, the Northern Vosges and Mont Ventoux), the SUPAGRO School of Florac (Lozère branch of the international centre for graduate studies in agronomic sciences in Montpellier) and the ONF. The Mont Ventoux site is part of study sites.

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