



## Sylv'éclair a decision support tool for thinning in pine plantation

### Introduction

Design and development of an application to trigger thinnings in maritime pine stands and development of a database through "participative silviculture" via the same application.

Thinnings help maintain the good growth of a forest stand, improve its quality and provide intermediate income. For the forest-timber sector, thinnings guarantee the qualities and quantities of wood that will be produced in the future. Finally, regular and well-performed thinnings, as well as careful planting and appropriate mechanical clearing, are the guarantee of good resistance of populations to climate change.

The Landes de Gascogne massif is at a very special moment in its history. After two major storms, Martin in 1999 and Klaus in 2009, the last decades have mainly been devoted to cleaning and then rebuilding the stands. In certain properties, there was a delay in carrying out thinnings. At the same time, maritime pine prices encourage the mobilization of wood. This sometimes results in cuts made to the detriment of the future of the population: By triggering thinning too early or too late on certain plots, or too intense on others.

In this context, each owner must be able to quickly diagnose each of their stands using simple tools to determine when and how to implement the next thinning.

### Presentation of the decision support tool Sylv'éclair

This decision support tool is based on the work of Jean-Paul Maugé carried out on the Maritime Pine in the 1980s. The limits defined by J.-P. Maugé correspond to a compromise between production maximum stand and individual growth of each tree. For a given circumference, these tables make it possible to determine a minimum density and a maximum density between which the population must be located. When the real density is greater than the maximum limit, it is necessary to clarify and bring this density to a value close to the minimum limit. These limits remain adapted to the maritime pine populations present today in the Landes de Gascogne Massif. The tool is suitable for all types of terrain. The only thing that changes is the age at which thinning occurs. Thus, the operation will be triggered later in plots installed on dry moors than for those located on more favorable moors. Current populations mostly benefit from genetic improvement and dynamic silviculture. They therefore arrive earlier at the thinning trigger circumferences.

A mobile tool on smartphones will soon be available. It will be very easy to use by as many people as possible. In the event that thinning must be initiated, the diagnosis will indicate the dendrometric characteristics of the stand and the number of stems to be sampled. The tool will also remind you of the instructions concerning the organization of cutting and marketing. If thinning has to wait, the application will indicate the recommended intervention date.

### Lessons learned

SYLV'ÉCLAIR and its database developed as part of the SPNA project are designed to collect data from stands made up mainly of maritime pine and provide advice adapted to them. However, the tool is designed so that any other forest species (Douglas fir, larch pine, Scots pine, etc.) managed in regular high stands can be integrated provided that it is equipped with forest standards and a growth model. Furthermore, if the first testing phases of this interface mainly take place in populations of the Massif des Landes de Gascogne, the tool is intended to be used throughout the national territory.

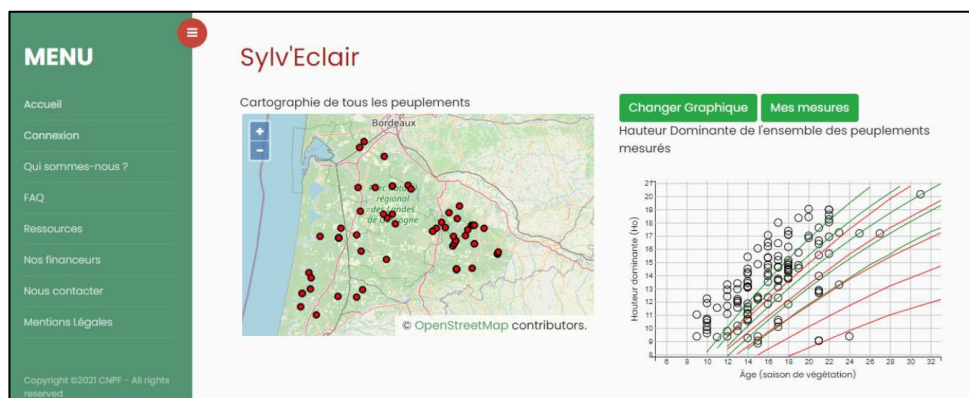





Figure 1. Screenshot of the “Sylv’éclair” demonstration web interface - SPNA prototype site © CNPF

The information presented in this factsheet was developed by the FOREST4EU partner, drawing on the innovations and knowledge generated by the indicated operational group with their explicit authorization.

### Further information

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 <p><b>Funded by the European Union</b></p> <p>Funded by the European Union (Grant n. 101086216). Views and opinions expressed are however those of the authors only and do not necessarily reflect those of the European Union or REA. Neither the European Union nor the granting authority can be held responsible for them.</p>		 <p>FOREST4EU Project          FOREST4EU Project          info@forest4eu.eu</p>	<p>Website</p> 
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