MONITORING FRENCH FOREST RESERVES TO BETTER UNDERSTAND DEADWOOD DYNAMICS

N. Debaive[1], N. Drapier[2], O. Gilg[1], L. Duchamp[3], M. Bruciamacchie[4]

Réserves Naturelles DE FRANCE

Office National des Forêts

Although the importance of deadwood for the conservation of forest dwelling species is now well-established by ecologists and increasingly acknowledged by policy makers, the natural dynamics of deadwood in temperate Western European forests remains poorly known. In this context and to answer a growing demand arising from the managers of forest reserves, a long-term monitoring protocol has been developed and implemented in both the National Nature Reserves and the Strict Biological Reserves networks in 2005.

A tool

To characterize natural dynamics

By precisely monitoring (on average on a 10-year time scale) living and dead wood in any forest stand greater than 5 ha, this protocol provides information on :

--> Stand structure : large trees, dead wood, standing biomass and regeneration ;
--> Distribution and origin of dead wood ;
--> Living and deadwood flows ;
--> Tree species composition.

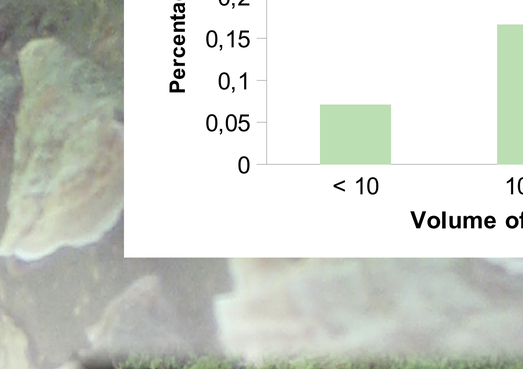
Furthermore, the use of permanent plots :

--> Enables a spatial and temporal monitoring of stand dynamics ;
--> Helps to assess the “state of conservation” of any given stand or forest.

An efficient method

Simple dendrometric measurements

Sampling is systematic (on a square grid) but the density of plots is adjusted to the reserve size, the habitat diversity and the management practices. Plots are of variable geometry depending on data to be collected

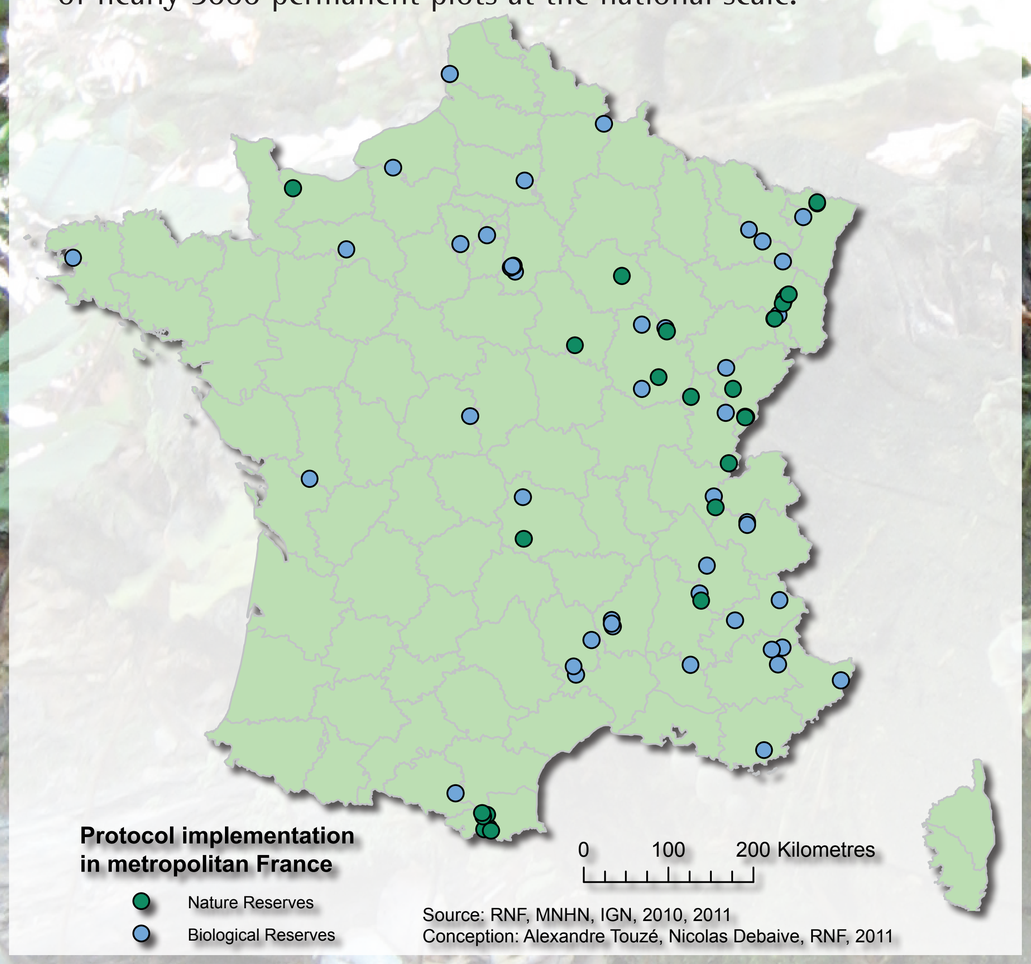


Living	DBH ≥ 30 cm	Relascopic angle
	7.5 ≤ DBH < 30 cm	Circle 10 m radius
	Diam < 7.5 cm	3 circles 1.5 m radius
Standing Deadwood	DBH ≥ 30 cm	Circle 20 m radius
	7.5 ≤ DBH < 30 cm	Circle 10 m radius
Fallen Deadwood	5 ≤ Diam < 30 cm	Line transect
	Diam ≥ 30 cm	Circle 20 m radius

A substantial operation

67 forest reserves implemented in 5 years

Covering all main forest stands and constituting to date a database of nearly 5000 permanent plots at the national scale.



Results

What next?

Pursuit of the implementation

The forest reserve network consists of nearly 300 Nature Reserves and Biological Reserves. Other status of French protected areas such as National Parks, Regional Natural Parks and Conservatories may be implemented as well. Foreign countries are welcome to join !

Prospective analysis

--> Describe differences in volume of deadwood according to forest stands and management;
--> Recovery of deadwood in forest reserves following harvest operations.

Second campaign

One of the main aim of this protocol is also to monitor the dynamics of deadwood and living biomass. A second campaign will start in 2012 on 5 to 10 forest reserves.

Partnerships

This protocol allows various taxonomic surveys to be implemented simultaneously. A project lead by Cemagref studies the impact of harvesting on biodiversity by comparing managed and non-managed forest stands.

[1]Réserves Naturelles de France, 6 bis rue de la Gouge, BP 100, 21803 Quétigny Cedex. [2]Office National des Forêts, avenue Saint Mandé, 75570 Paris cedex 12. [3]SYCOPARC - Le château Maison du Parc - BP 24 F-67290 La Petite Pierre, France. [4]Agroparistech – ENGREG, Laboratoire d’économie forestière, 14 rue Girardet, 54042 Nancy cedex. • Crédits photos : Nicolas Debaive
Contact : nicolas.debaive-rnf@espaces-naturels.fr