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A long-term experimental site in temperate oak-pine forest



Korboulewsky N., Balandier P., Ballon P., Boscardin Y., Dauffy-Richard E., Dumas Y., Ginisty C., Gosselin M., Hamard J.P., Laurent L., Mârell A., Menuet C., NDiaye A., Novara E., Pérot T., Perret S., Rocquencourt A., Seigner V., Vallet P.

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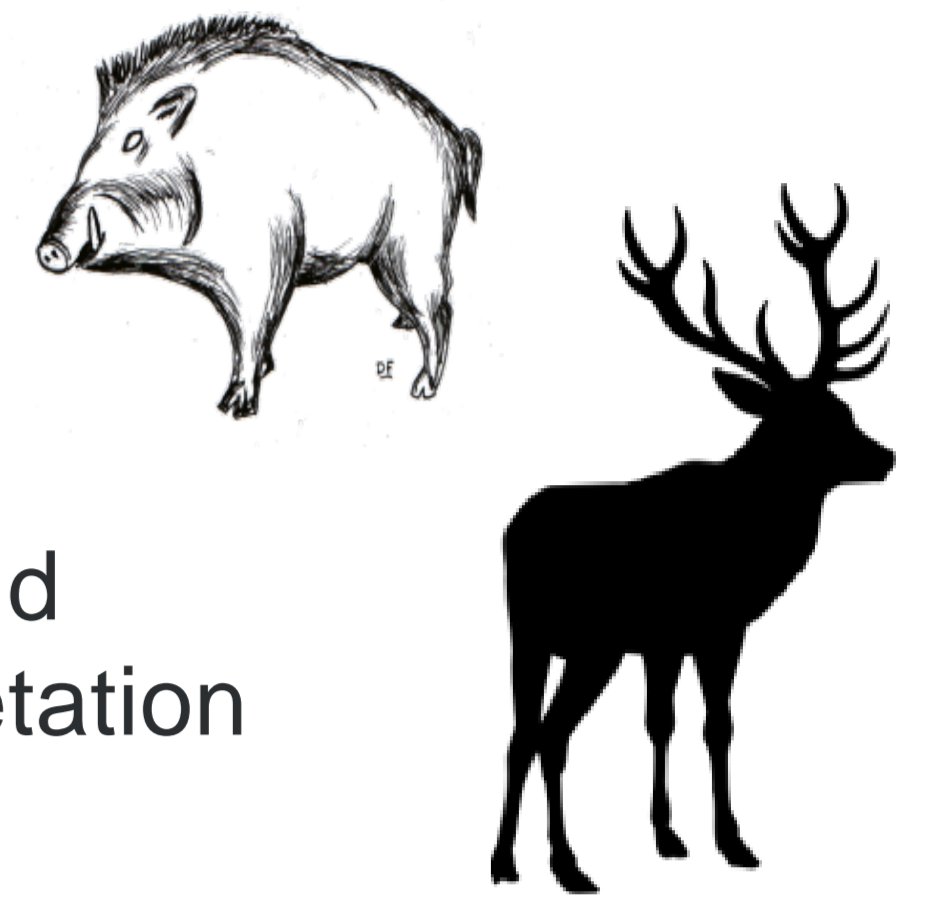
In the CONTEXT of

the climate change, increase of wood demand, and development of the populations of wild ungulates, management practices have to evolved.



THE OBJECTIVE IS TO STUDY the cross effects of

- **stand composition** (pure oak, pure pine, mixed pine-oak) and
 - **stand density** (number of trees/ha) combined with
 - **presence of wild ungulates** (roe deer, wild boar, red deer),
- on the ecosystem functioning** such as tree productivity, resource use and allocation (including water and nutrients), biodiversity and understory vegetation dynamics including regeneration.



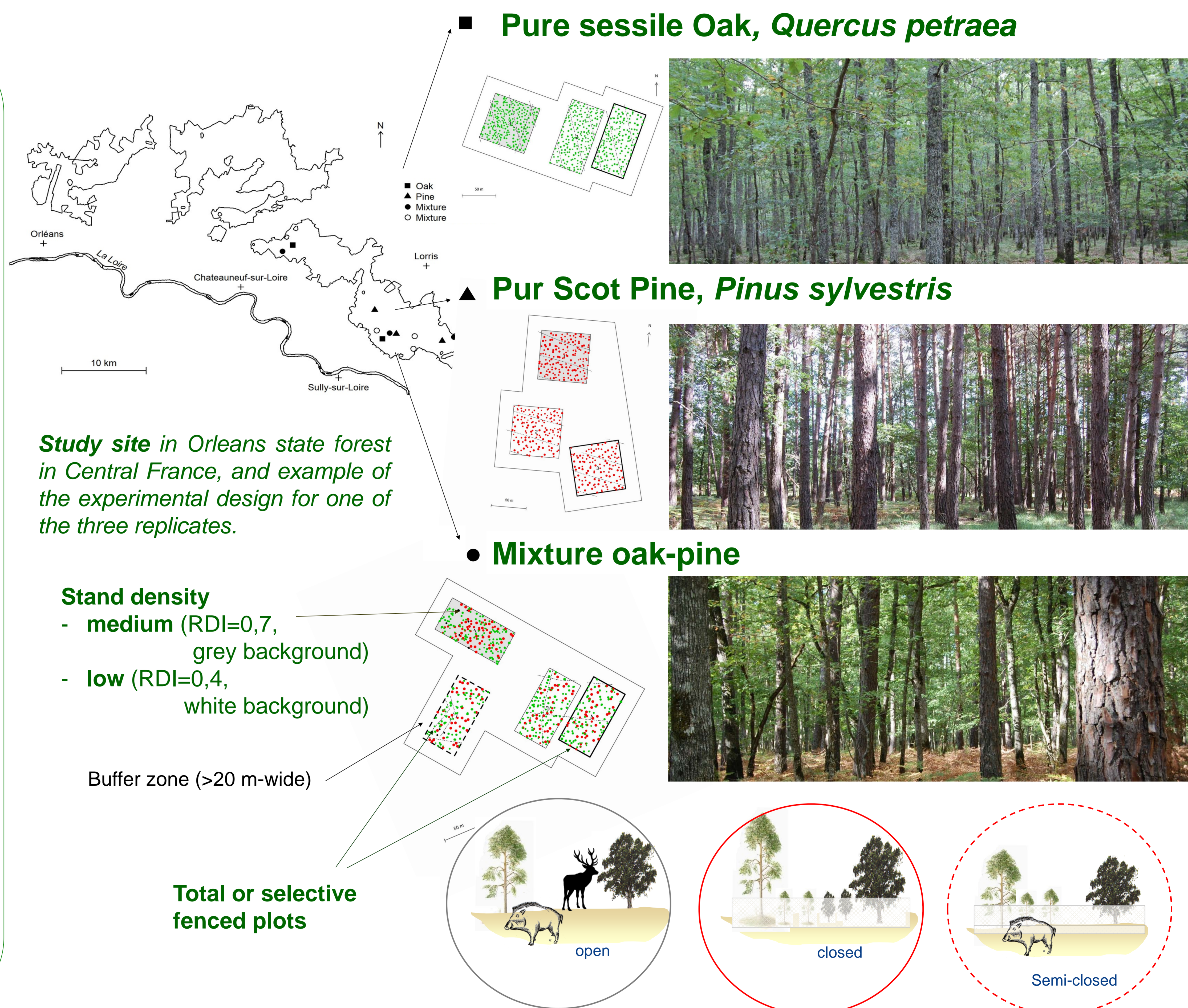
OPTMix is an experimental site

composed of 33 plots (of 0,5 ha) selected in even-aged lowland temperate forest stands of 60-80 years old (Orleans state forest in Central France, (47 ° 49 'N, 2 ° 29' E). The experiment consists of a partially **crossed factorial experiment**. Stand composition and tree density (low and medium) have a completely crossed factorial design, while the third factor, herbivory, is completely crossed with stand composition only for the low tree density. We added mixed control stands without any harvest (with the aim to study self-thinning process).

Each stand is equipped with a sensor network (temperature, light, relative humidity, rainfall, soil water content, soil water table depth) connected to a datalogger.



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We study various parameters on soil (physico-chemical parameters, water, nutrient cycle), plants (diversity, cover, litter quantity and chemistry) and animals (diversity, predation) in order to understand:

(i) the functioning of mixed stands vs monospecific stands, (ii) the role of biotic and abiotic factors on forest dynamic including biodiversity and tree regeneration, (iii) benefits and limits of managements practices to face the climate change and (iv) the vulnerability of forests towards global change.

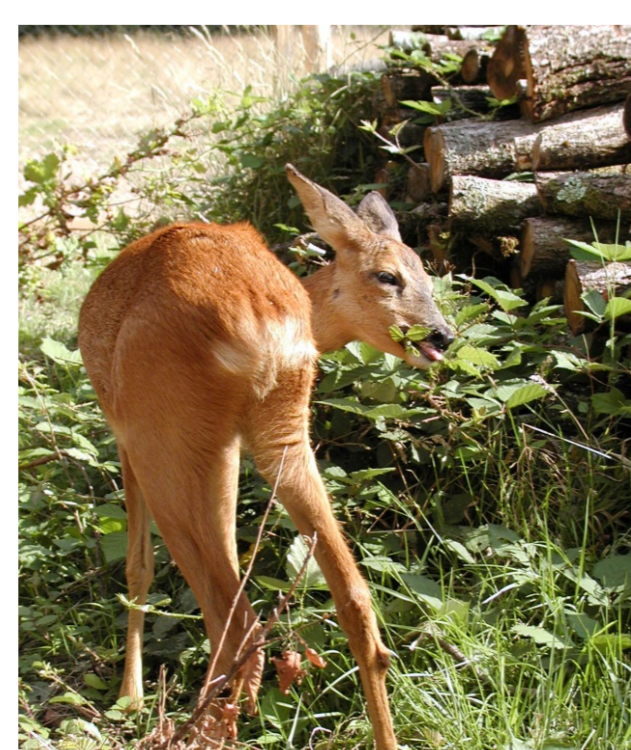
This experiment will benefit to forest managers and industry players to meet the socio-eco-environmental challenges



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More information on <http://optmix.irstea.fr> or scan the QR code

