

# Hydrological mechanisms and wetlands in hybrid poplar plantations

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## Wetlands created by MSP technique?

## Methodology and experimental design

MSP: Mechanical Soil Preparation used in hybrid *Populus* plantations

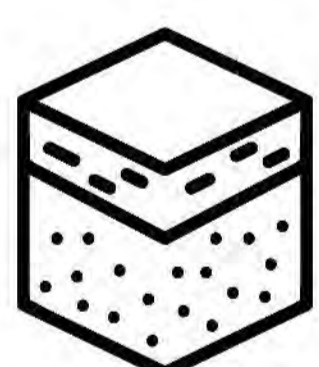
MSP creates a mound and a pit microtopography where water accumulates in the pits

The hydroperiod (i.e., time with standing water) in these pits is spatially and temporally variable

What are the underlying factors behind the water accumulation and its variability?

## Hydroperiod driving factors

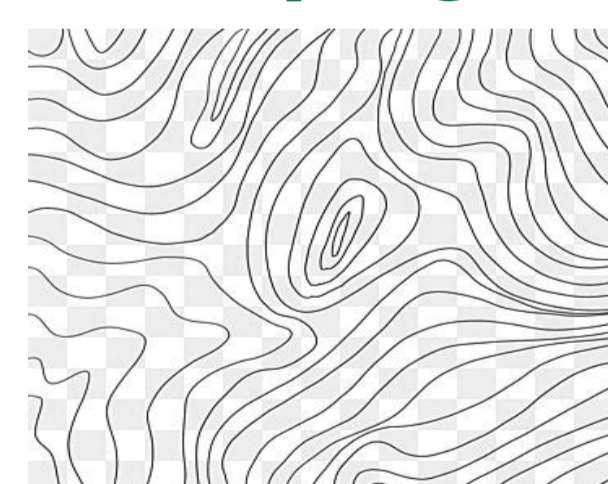
Soil



Vegetation



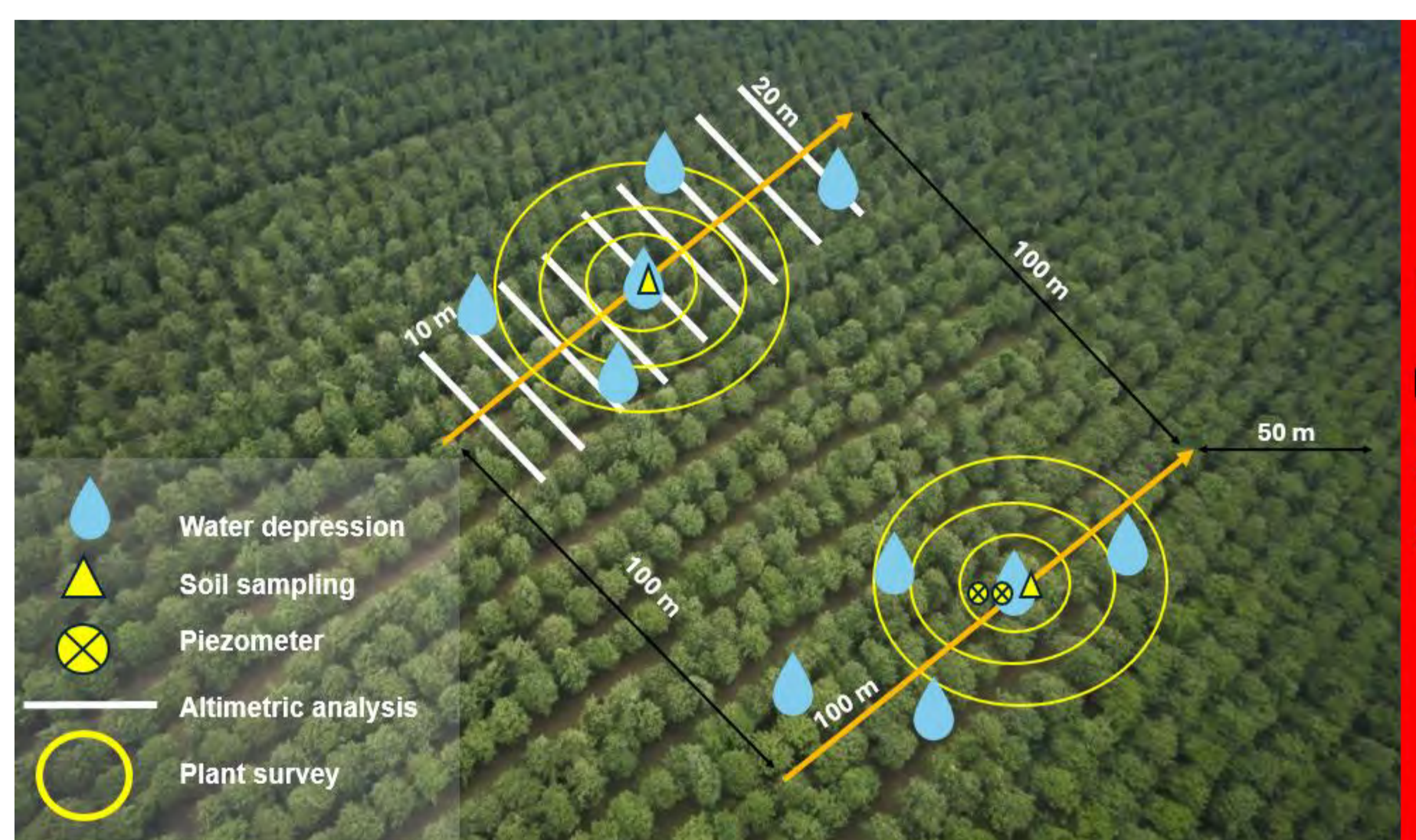
Microtopography



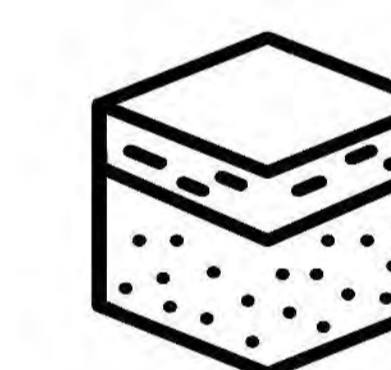
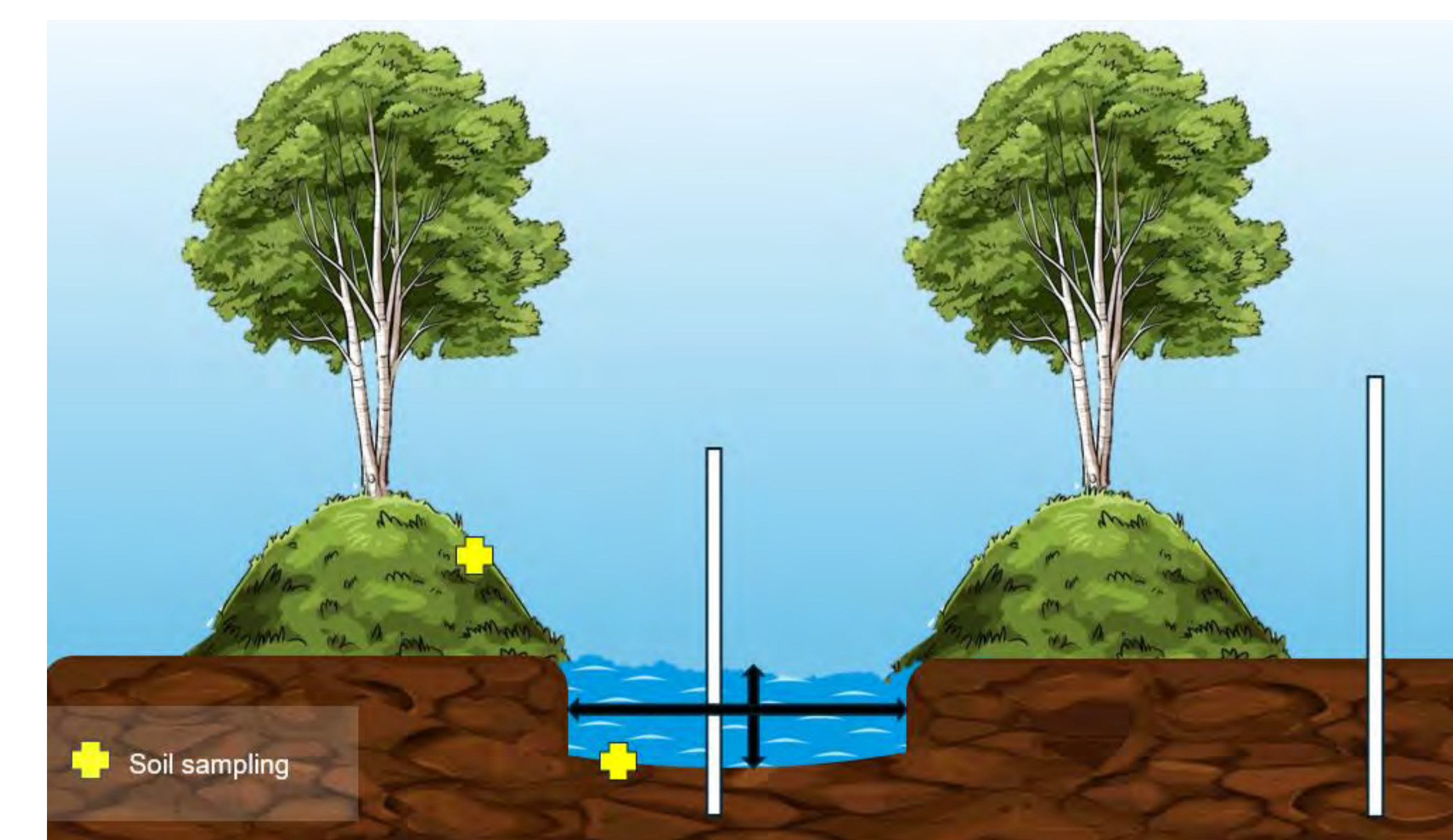
## Objectives

#1. Characterize drivers (soil, vegetation, microtopography) controlling the hydroperiod in wetlands in plantations versus managed forests

#2. Assess the influence of the hydroperiod on vegetation composition in plantation wetlands



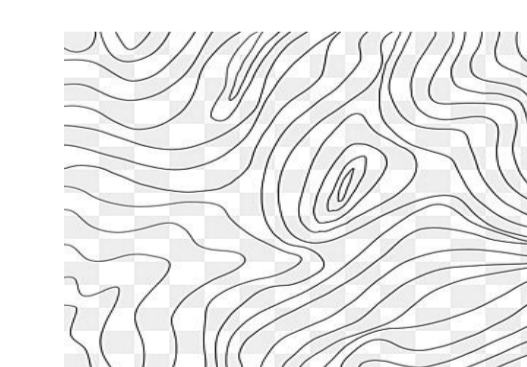
- Two sites located in Estrie and Beauce
- 18 poplars plantations (2 to 18 years)
- 6 deciduous forests (30% cut, *Acer dominated*)
- Continuous hydrological tracking of 8 water pits with piezometers, and a monthly tracking of 240 water pits



Soil characterisation, density and sedimentary sampling and analysis



Herbaceous, bush and tree characterization and follow up



Total station altimetric analysis (slope)

## Acknowledgements

Thank you to the partners!