

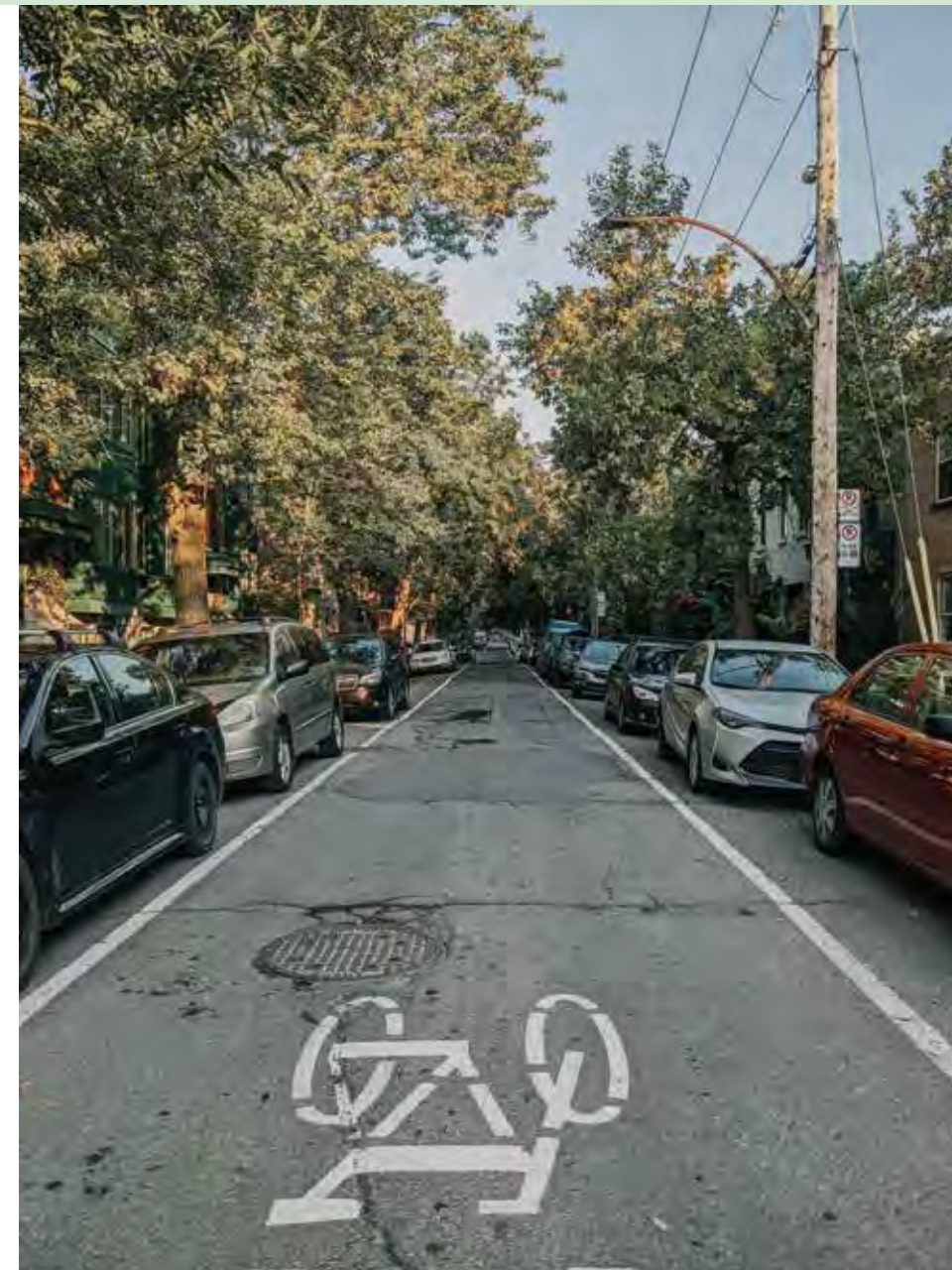
Influence of maintenance practices of urban trees on rainfall interception and stemflow production

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Introduction

Stormwater management is a major challenge for cities facing an increased occurrence of extreme weather events. The canopy of urban trees is known to have a beneficial impact on stormwater management as it can help reduce the amount of runoff. However, the influence of early crown control practices on the partitioning of rainfall into interception, stemflow and throughfall remains little known.

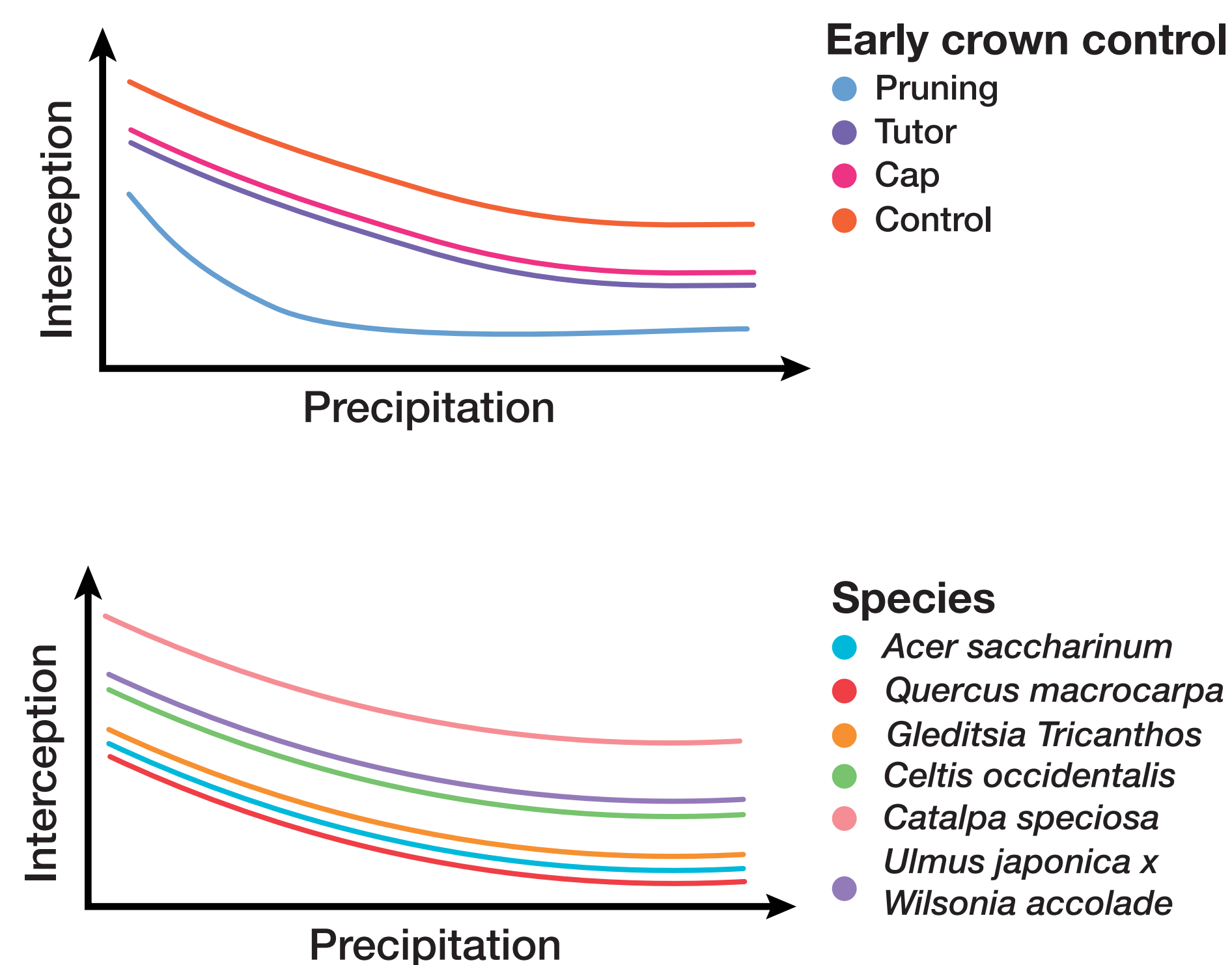


Objectives

This project aims to understand the relationship between early tree crown control techniques and the partitioning of precipitation into three possible pathways: evaporation of canopy-intercepted water, stemflow and throughfall.

- H1 The effect of early crown control techniques on interception varies according to the tree species and the intensity of the precipitation event.
- H2 The effect of early crown control techniques on stemflow varies according to the tree species and intensity of the precipitation event.

Predictions



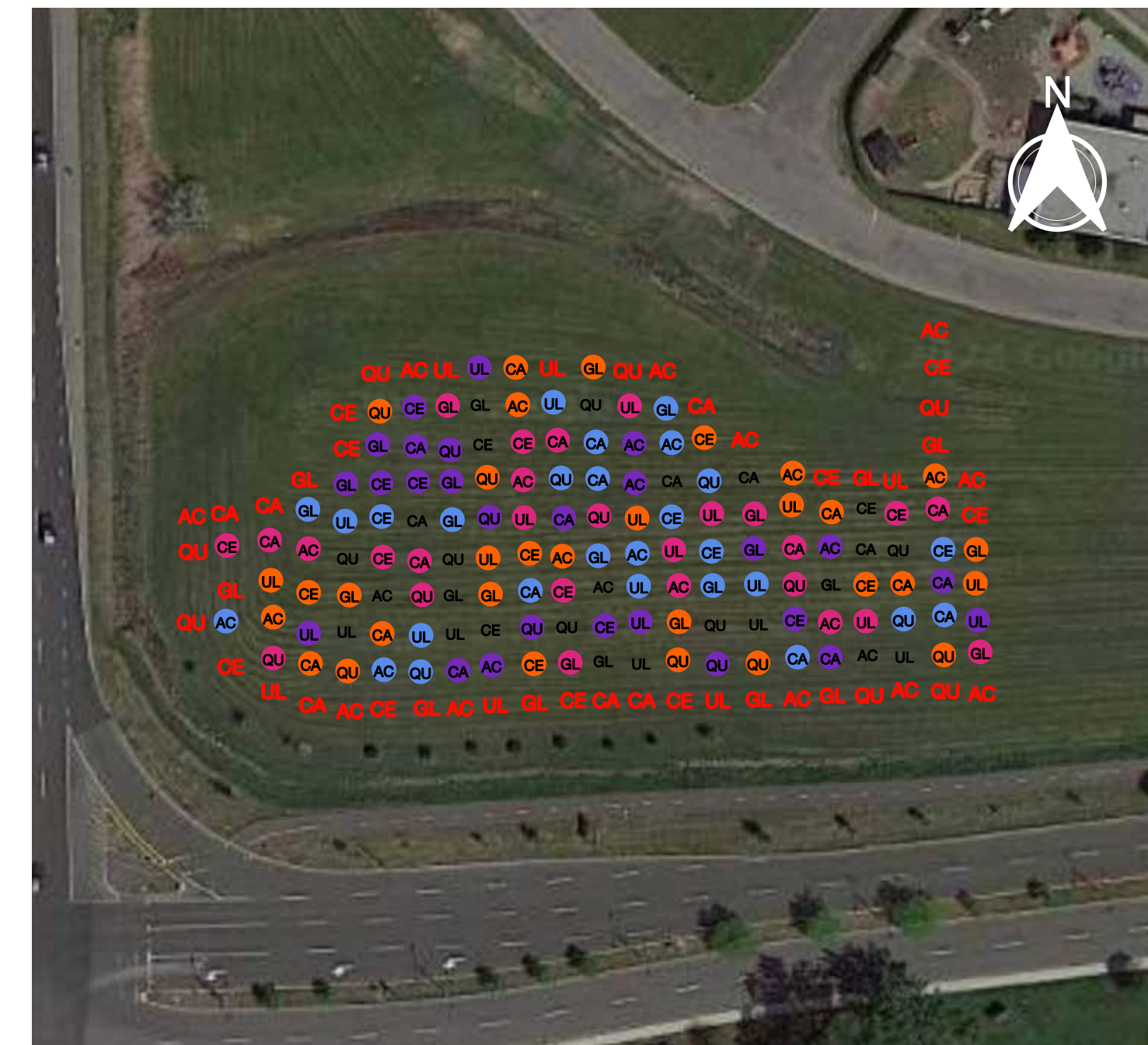
Methodology

Study area

The study site is located in Saint-Bruno-de-Montarville, on the south shore of Montreal (Quebec).

This area is characterized by a temperate climate, with an annual average air temperature of 6.2 °C and annual average precipitation of 1011 mm.

- Border species
 - AD ACSA
 - CA CASP
 - CE CEOC
 - GL GLTR
 - QU QUIMA
 - UL ULAC
- Species
 - AC ACSA
 - CA CASP
 - CE CEOC
 - GL GLTR
 - QU QUIMA
 - UL ULAC
- Early crown control treatment
 - Pruning
 - Tutor
 - Geotextile cap
 - Control

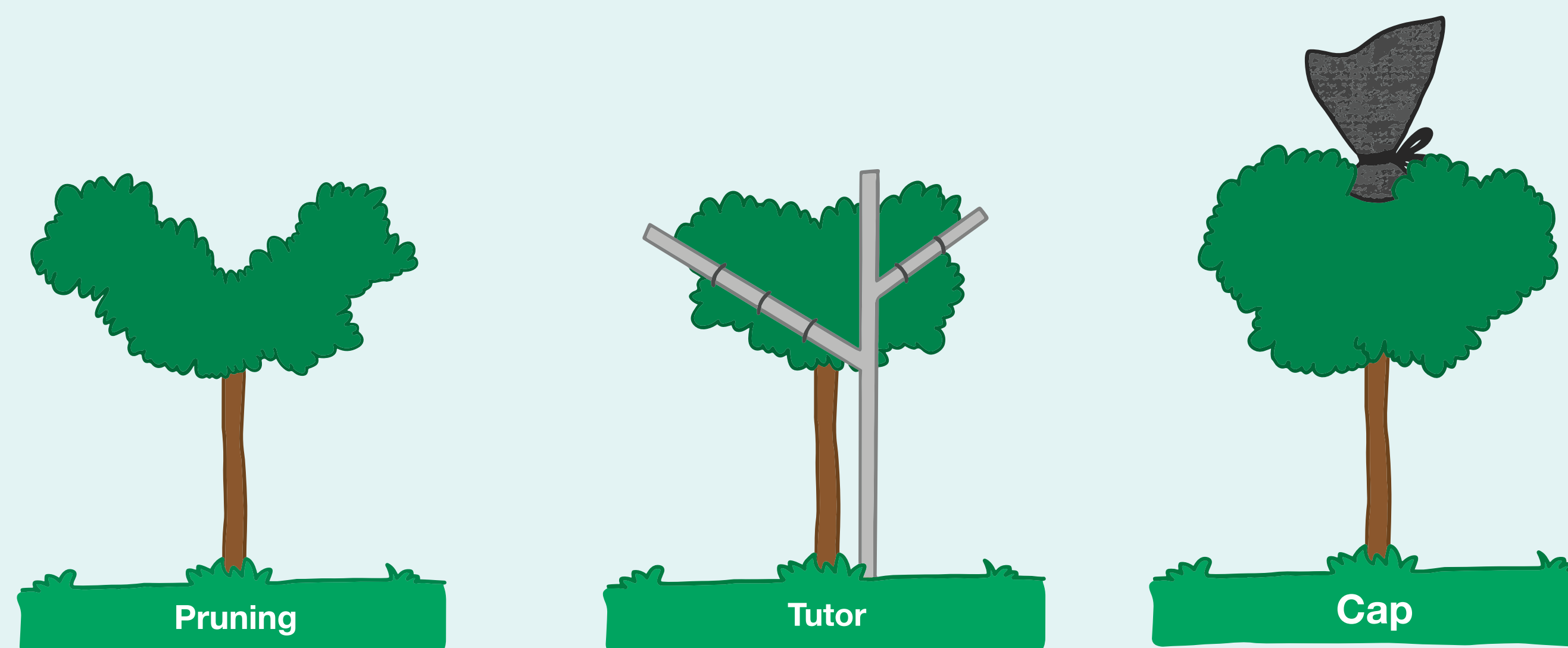


Tree species



Species selection was based on their abundance in the urban tree cover in southern Quebec and on information gaps about certain species that may be a wise choice in the face of climate change.

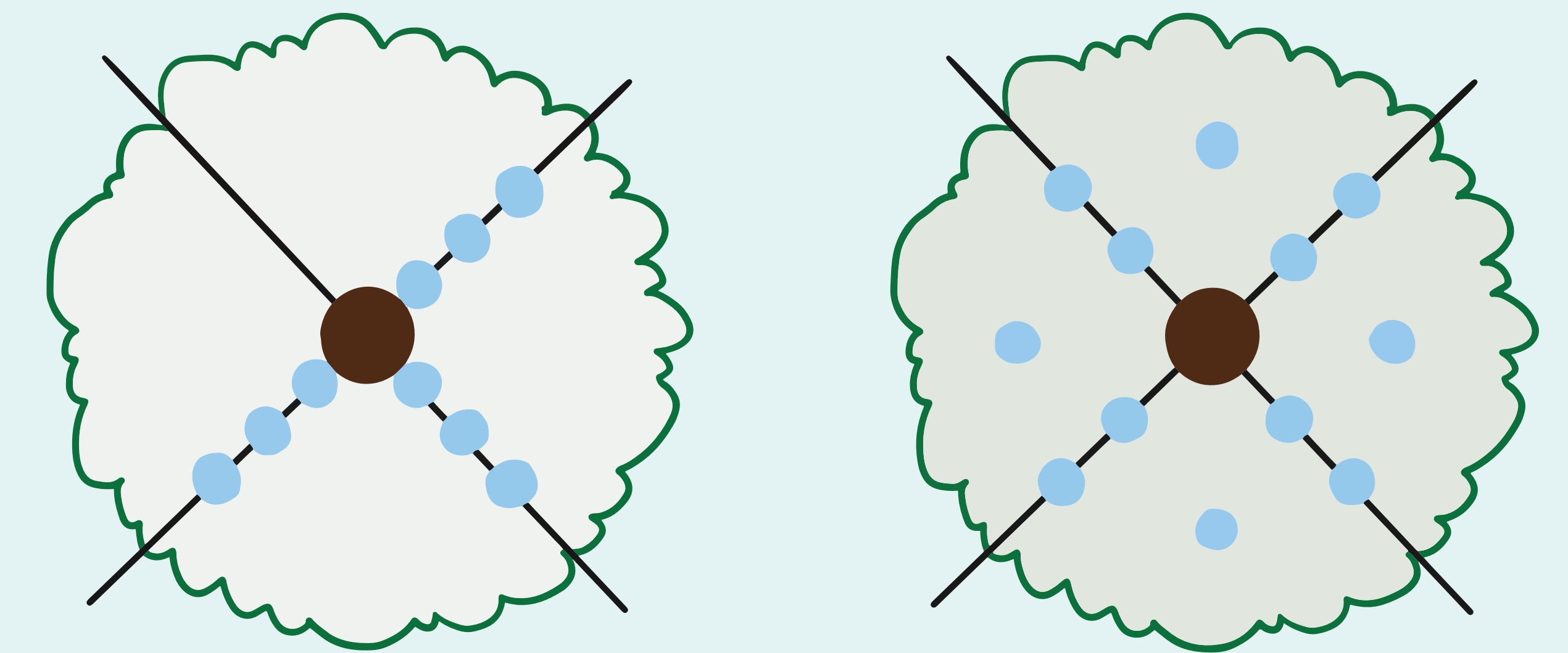
Treatments



Three early crown control treatments were carried out in addition to having individuals as controls.

Data collection | mid-June to September

Experimental design



* the system with 12 recipients is to maximize the data collection effort

- stem
- tree crown limits
- collection recipients

Meteorological conditions

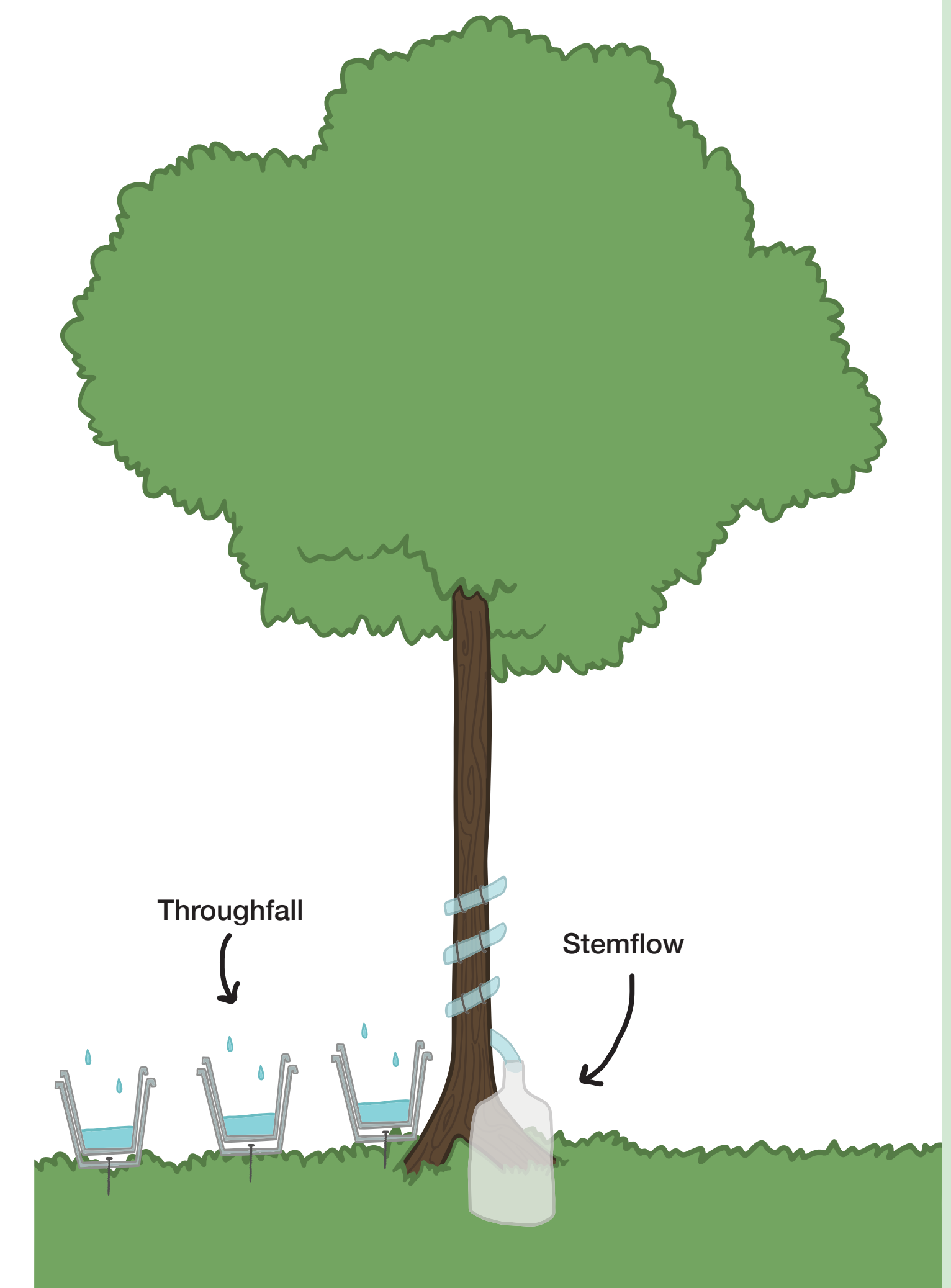
- Anemometer (speed and direction of the dominant wind)
- Air temperature and relative humidity

Functional traits of trees

- Leaf area index
- Crown measurements (diameter, base height)
- Diameter at breast height
- Branch inclination angle
- Bark texture

Precipitation

- Gross precipitation (rain gauge)
- Throughfall (containers on ground)
- Stemflow (bottle weight)



Acknowledgements

We would like to thank our partners :

