

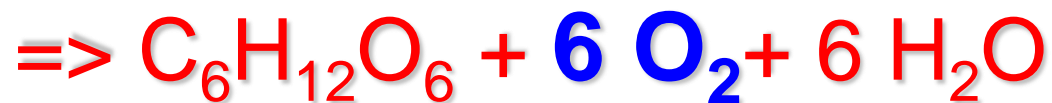
The role of forests in the mitigation of the climate change



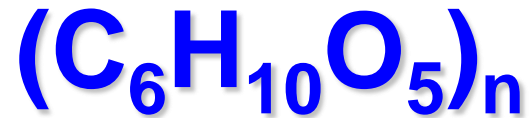
TOPtoTOP Climate Solution Award Expedition
Erico Kutchartt
Forestry Engineer
2014

Why the forests are important in the climate change?

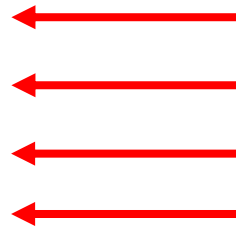
Air purifiers



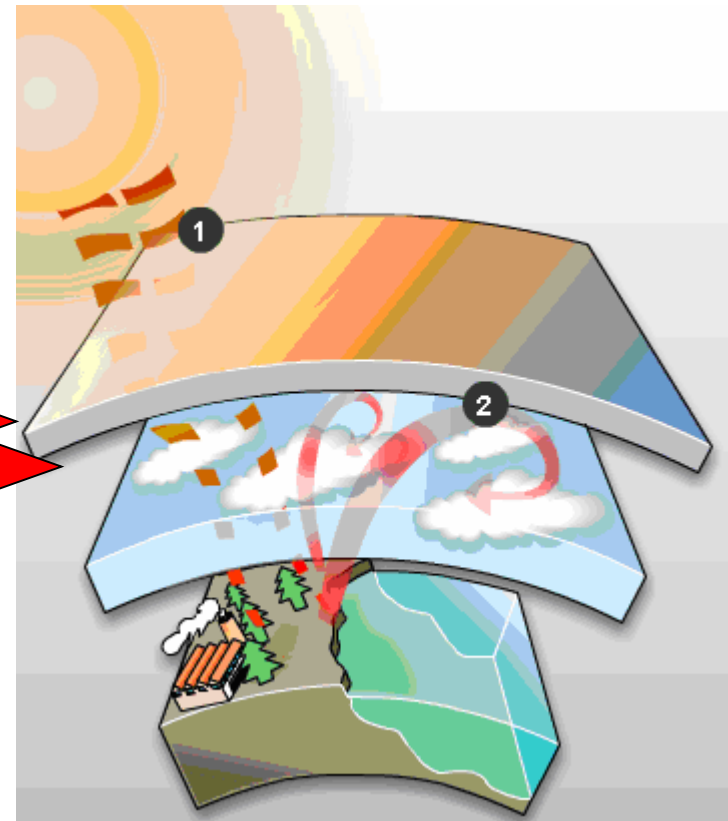
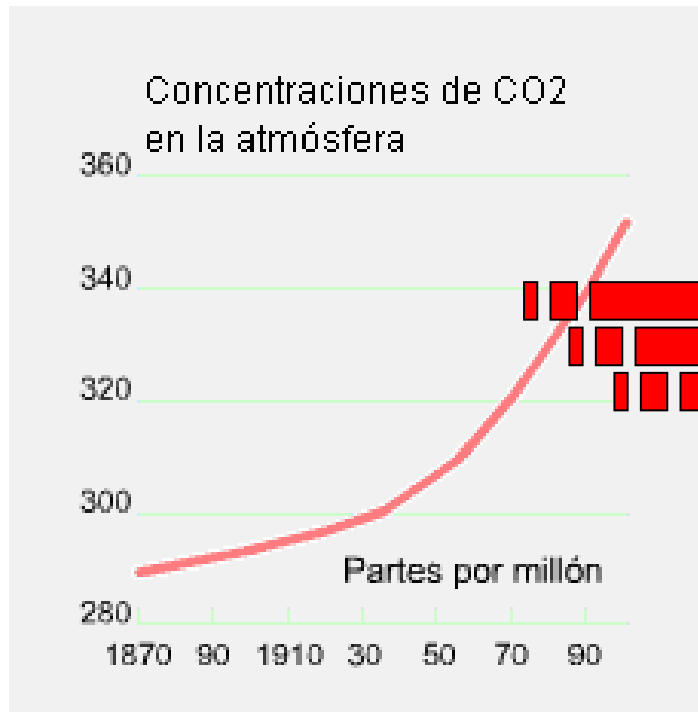
Carbon fixers



Millions of carbon
molecules retained



Forest help reduce global warming



Source: Journal Science, 2002

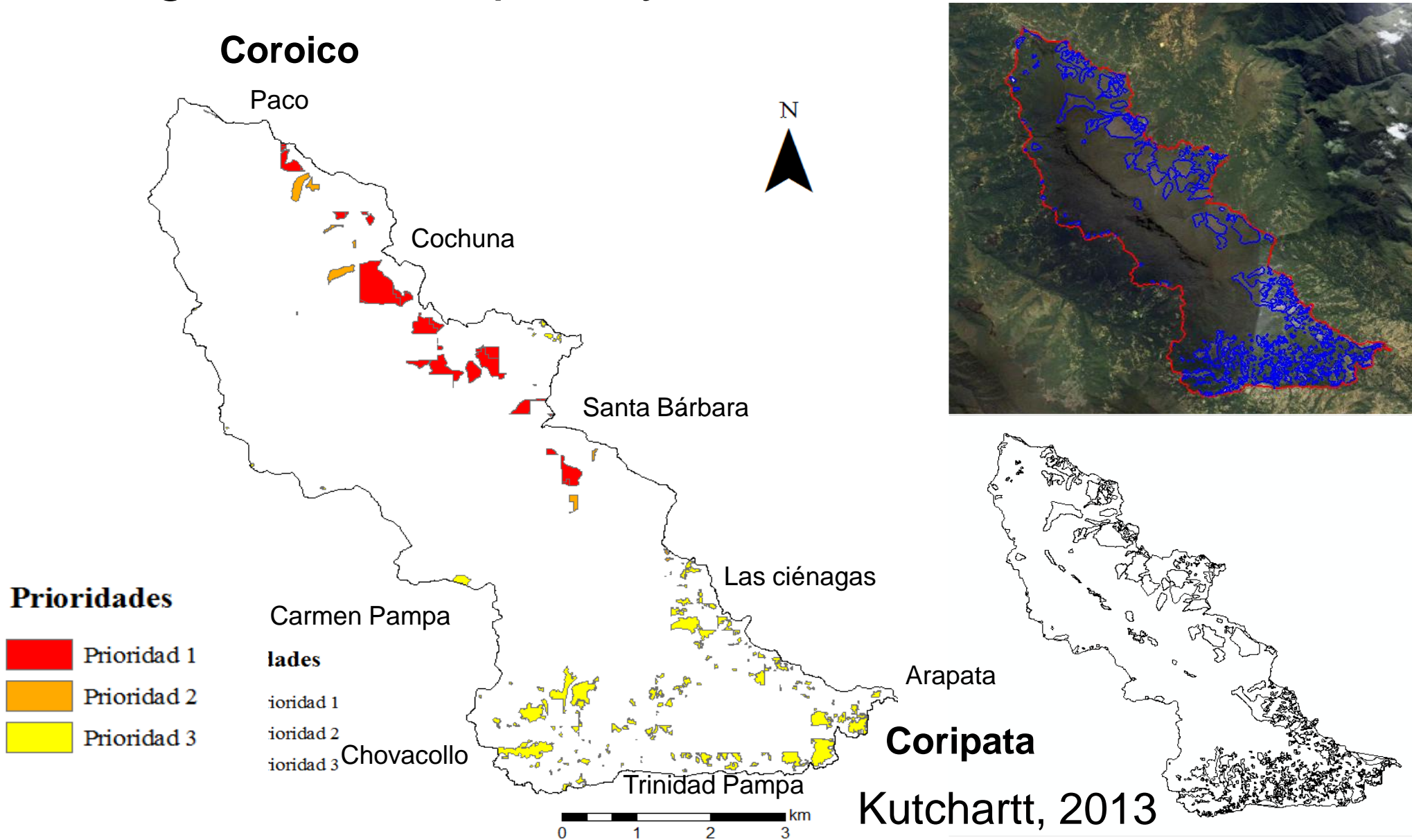
What to do in the forests field to mitigate the damage caused by climate changes?

- Tree planting
- Expanding the use of timber resources
- Recovery and restoration of degraded forests



Example of reforestation in the mountains of Uchumachi, Bolivia

Categorization of priority areas for reforestation

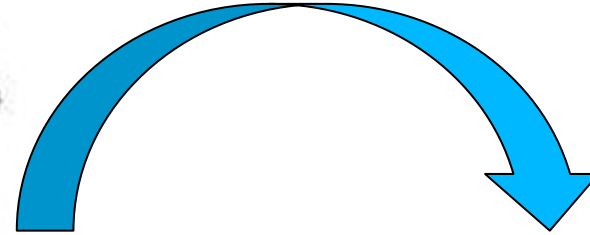
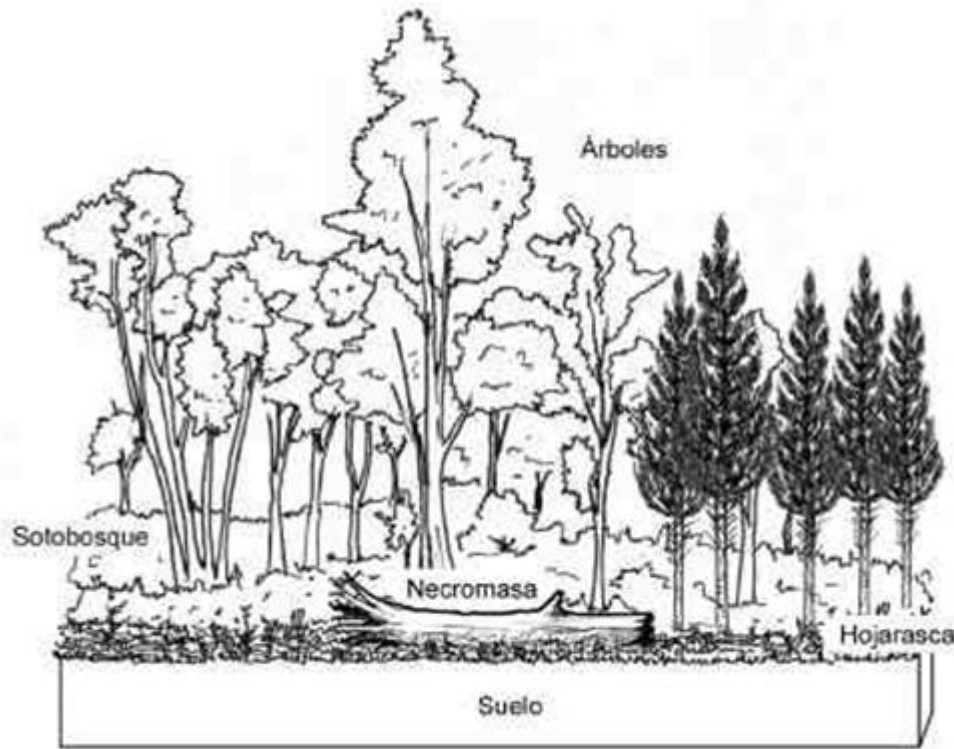


How to quantify the carbon in the forests ecosystems?

- Inventory planning
- Sampling design
- The simple random sampling, the systematic and stratified are the designs employed in forestry



Carbon accounting



Inventory of understory
Inventory of litter

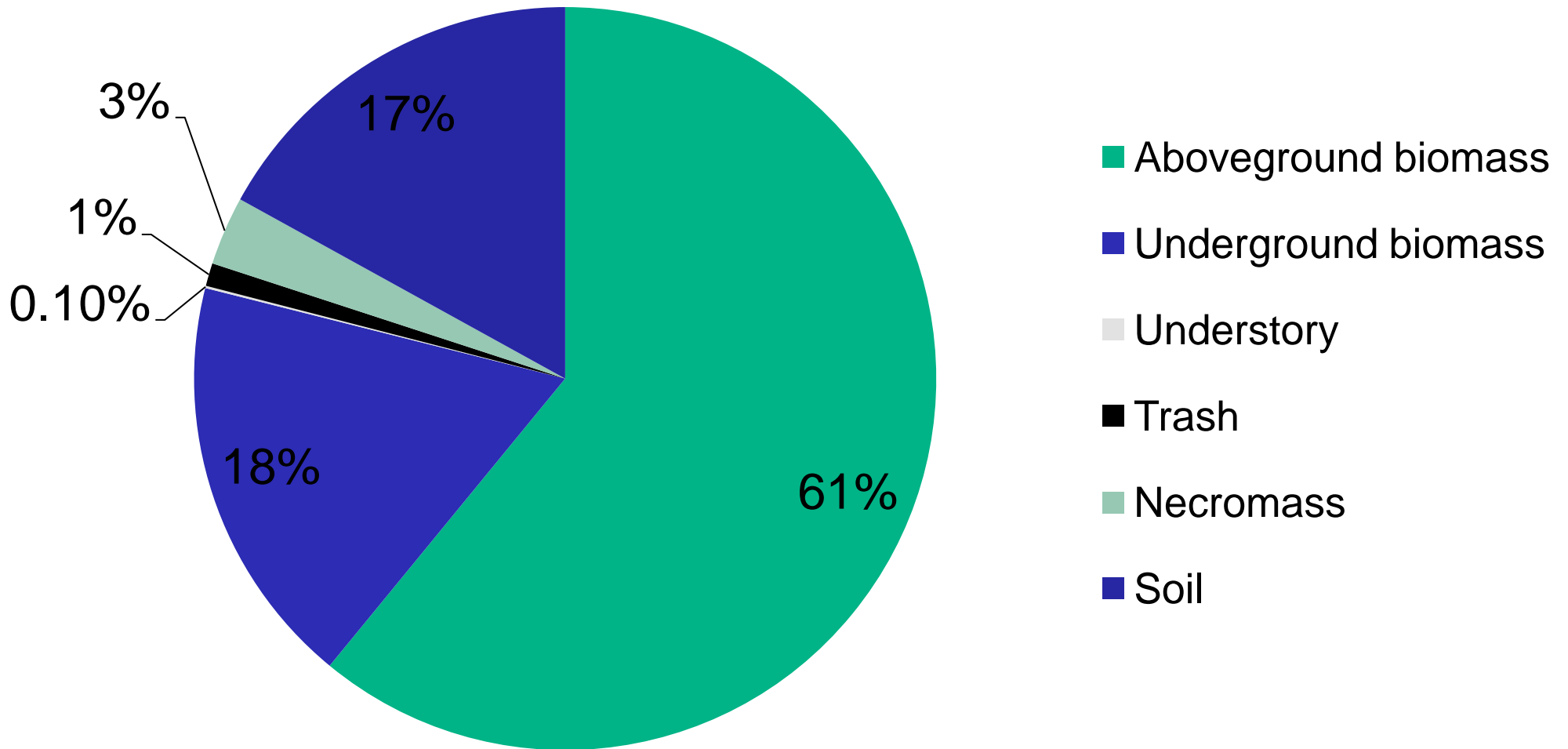


Inventory necromass

Soil sampling



Participation of each component of the ecosystem in the total carbon



Data were obtained in adult evergreen forest in the town of San Juan, Chile

Number of plots

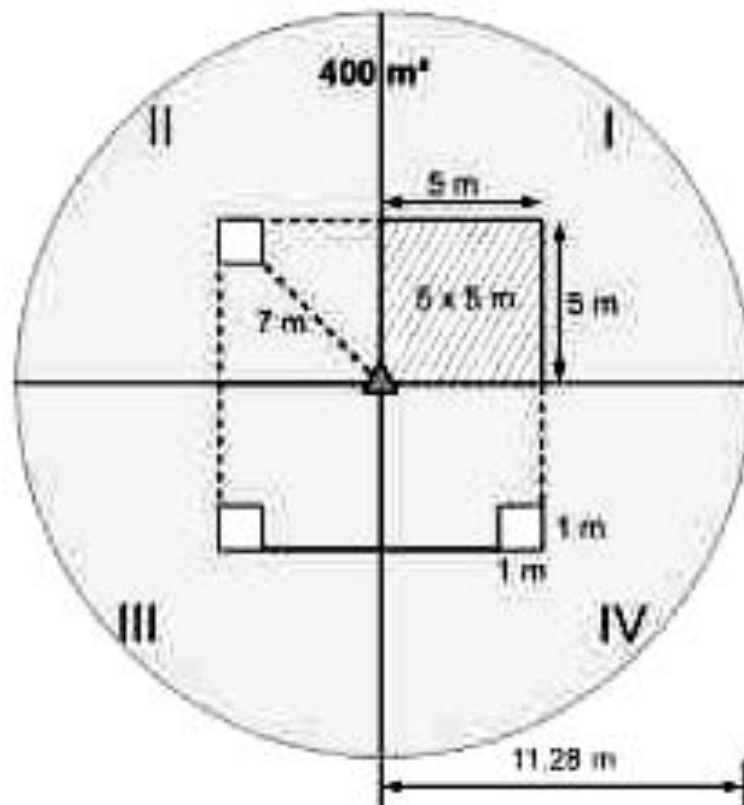
Having decided on the level of accuracy, between 5 and 20% generally determines the number of samples (plots) for each stratum and for each carbon pool

Formula to determine the number of plots with an estimation error given

$$n = \frac{1}{\left(\frac{E^2}{t^2 \cdot S^2} + \frac{1}{N} \right)}$$

Shape and size of the plots

For native forest plots recommended use circular sample plots with an area of 400 m². Plantations are used for smaller plots (250 m²).



- Inventario de árboles
- Muestreo de sotobosque
- ▨ Muestreo de necromasa
- ▲ Muestreo de suelo

Tree inventory

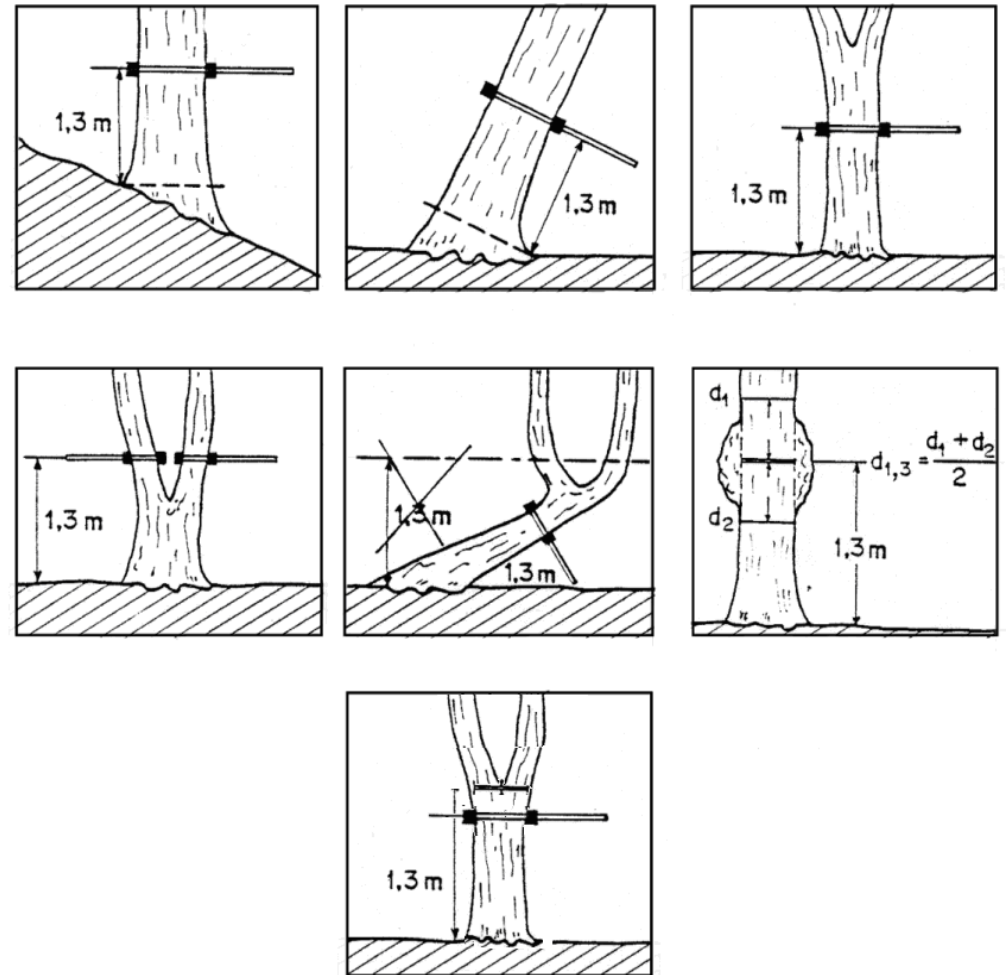
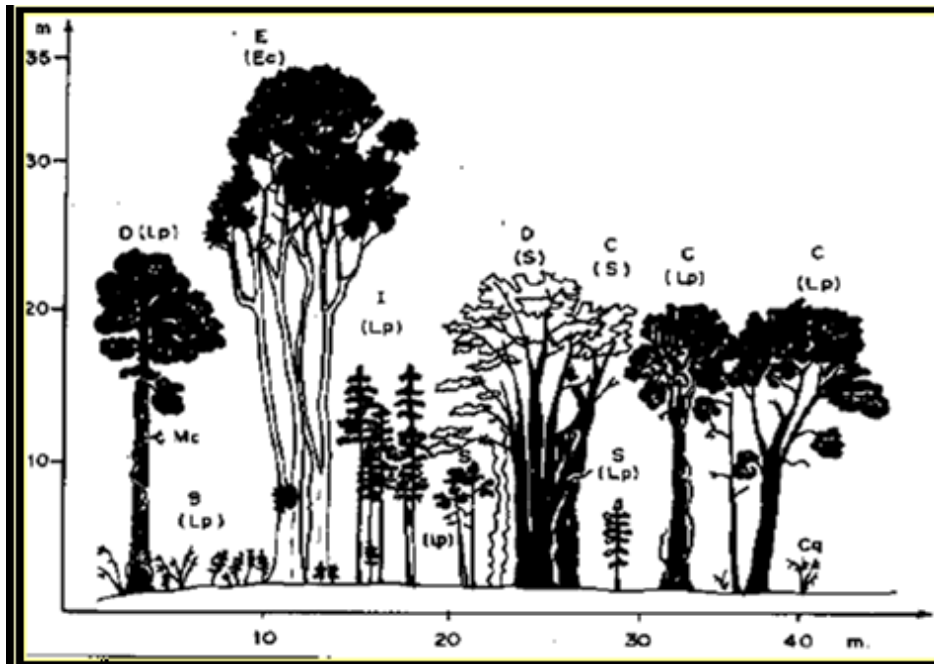
Identification of the species

Diameter

Height

Sociological position

Health and shape



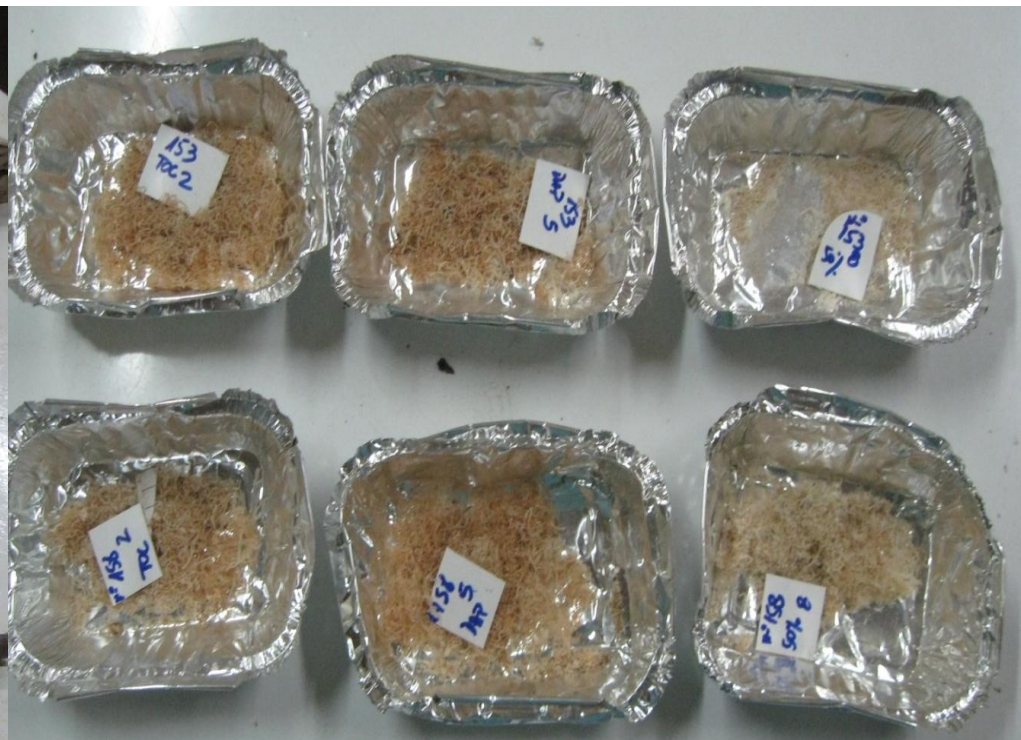
Determination of the basic density

Using the water displacement method to determine basic density for each of the species



Determination of the carbon content

The carbon content is determined by the combustion method is applied to each component of the tree



Thank you very much
for your attention



Ontario, Canada