CARBON STORAGE

Human activity has caused a rapid rise in the levels of carbon dioxide (CO_2) in the atmosphere, this is having huge impacts on the environment and threatening our planet. Trees take in carbon dioxide through photosynthesis, locking away carbon in their leaves, wood and roots. We can monitor the carbon stored in the Tiny Forest by measuring tree growth rate, via their height and diameter.

EQUIPMENT:

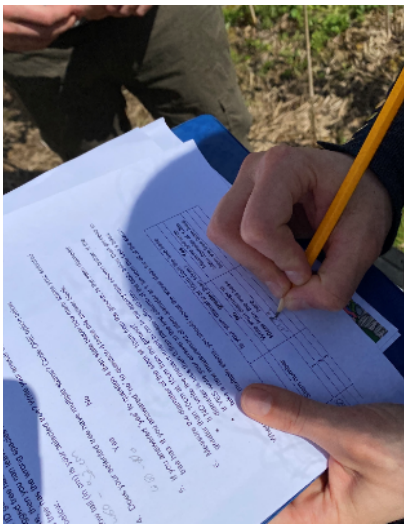
1 x Tape measure
1 x Digital callipers or ruler
1 x Tree species ID guide
1 x Tiny Forest tree species list
1 x Tablet/phone/printed field sheet
1 x sturdy pole, ideally extendable: this could include house hold items like a mop or extendable pole, or one from our monitoring kit.
1 x strong tape, such as duct tape

WHEN TO SURVEY

Any time of day, any time of year

INSTRUCTIONS

Record the below on your tablet, mobile device or field sheet. Find a tree that has a monitoring tag placed around the tree trunk or branch.



STEP 1: IDENTIFY TREE

- Record the tag number If the tag is around the trunk, please move this to a branch (if possible). This prevents the tag damaging the trunk as the tree grows.

- Record the tree species assigned to the tag number. If you are using a mobile device, this should be filled automatically. If you are using a paper form, check the tree species ID guide for your Tiny Forest and assign a species to your tag number.

- Check the tree species is correct. Using the Tree species ID guide, check the tree is the same species assigned to the tag number. If this is correct, or are not sure, leave this question blank. If you think the tree has the wrong species name, enter the correct species.

- Record the location of your tagged tree.
  Record your distance from the nearest edge in the Tiny Forest.
  Note that 1m is around one large stride of an adults, or see what 100cm(1m) looks like on a measuring tape for reference.

- Assess whether the tree is dead. If there isn't any obvious new growth, scrape a tiny bit of bark with your fingernail. If it is green beneath the surface then the tree is alive. If it is dry and brown beneath the surface, record this tree as dead and stop measuring.

Find another tagged tree and begin from the beginning of step 1.

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STEP 2: MEASURE HEIGHT

- Choose a tree height measurement method
  Choose one of three methods dependant on the tree height:
  Method 1: If you can measure the tree within standing height and your arm span
  Method 2: If the tree top is beyond your arm span, but within reach of the pole.
  Method 3: If the tree is taller than your pole will reach.

- Record the height of your tree
  Follow the instructions of the chosen measurement method.
  Measure tree height in cm to 1 decimal place, e.g. 10.2cm

Method 1: trees within standing height

- Identify the tallest part of the tree
- Measure along the stem, following any bends.
- Record the height from the tip of the tallest point down to the soil.
- Move the mulch out of the way to reach the soil, please replace after measuring.

Method 2: trees within pole height

- Tape the tip (from 0cm) of the tape measure to the top of the pole. If necessary, tape along at intervals, so the measuring tape is attached to the poles length.
- Standing as close to the trunk as possible, extend the top of the pole (where 0cm starts) to the highest point of the tree branches. Run the tape down to the base of tree and hold here (either with your foot or a handy helper), record measurement at the base.

Method 3: trees beyond pole height

- If a tree is beyond the height of your pole, record the maximum height your pole will reach.
- To do this, extend your pole as high as possible (see image to the right), run the tape measure to the ground and record the measurement at the base.
- This is useful, and tells us that tree is higher than the height you measured, e.g. taller than 545.0 cm.

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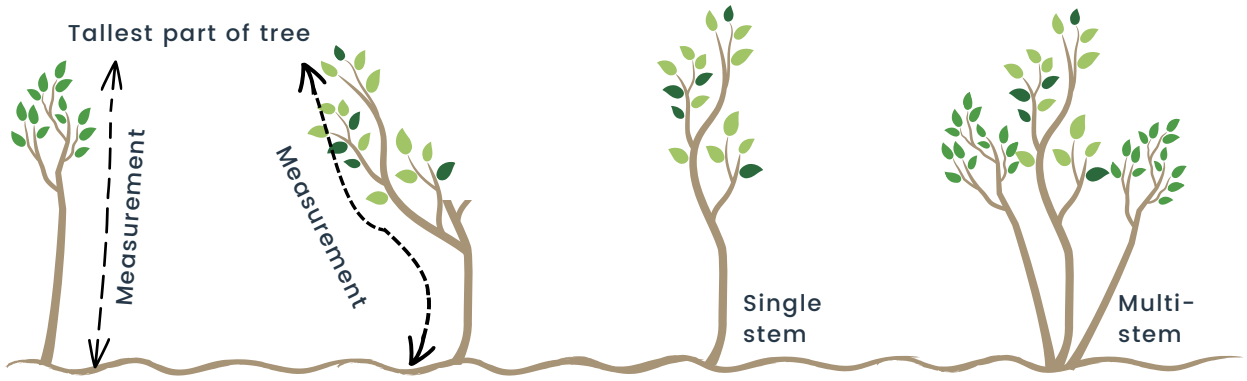

STEP 3: NUMBER OF STEMS

- Record the number of stems. A stem is the main body or stalk of the plant. In some cases, there will be lots of stems rising out of the soil from the base of the plant. For example, the multi-stem image in the diagram above has three stems.

STEP 4: MEASURE STEM WIDTH

- Measure the diameter of the stem. This is the width of the stem at 10cm from the base of the tree. Use your tape measure to find 10cm up the trunk from the soil, then line up your ruler against the stem at that point and record the diameter to the nearest mm.
    - If you have callipers you can use these instead of a ruler. Remember to check that they are in mm and set to zero before use, and hold them flat. The diameter is read off the display screen.
    - If your tree is multi-stemmed, please measure the diameter of a stem of medium thickness i.e. not the thickest or thinnest stem.
    - If stem diameter is more than 100mm, re-measure at 130cm from the trees base,

Once you have finished measuring and recording the data on your study tree, you can begin the steps again with a new tagged tree.