DIY Tree Measuring Kit

To produce these templates to scale this document needs to be printed in A3.
Make the tools more durable by gluing this sheet to card before cutting them out.

B

How to make the callipers

1. Cut out shapes A and B.
2. Cut the two slots near the bottom of B.
3. Thread the longer arm of A through the slots in B (the order should be over-under-over).

►Your calliper should look like Figure 1.

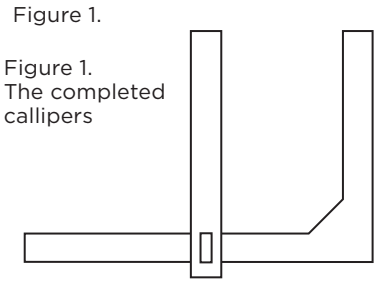

Figure 1.
The completed callipers

How to use the callipers

1. Open the 'jaws' and place on the tree at right-angles to the stem at a height of 1.3m (known as 'breast height').
2. Move the sliding arm until it touches the stem. Make sure the arm is at right-angles to the scale on the callipers.
3. Read off the diameter from the scale to the left of the sliding arm.
4. Take another reading at right-angles to the first reading (i.e. at 90 degrees around the tree) and work out the average of the two readings.

How to make the (Christen's) hypsometer

1. Cut out shape C.

►Your hypsometer is now ready to use.

How to use the hypsometer

1. Select the tree you want to measure for height.
2. Lean a 2 metre long stick vertically against the tree at its base. Alternatively, measure 2 metres up from the base of the tree and mark the point. Make sure it's clear – you need to be able to see it from a distance.
3. Walk far enough from the tree so that, when you look at the length of the tree through the hypsometer, the top of the tree is no more than 45 degrees up (see Figure 2).
4. Move backwards and forwards until the whole of the tree is within the 'I' of the hypsometer scale (see Figure 3).
5. Read off the scale the number nearest to the top of the 2 metre stick or mark.

►The number is the approximate height of the tree in metres.

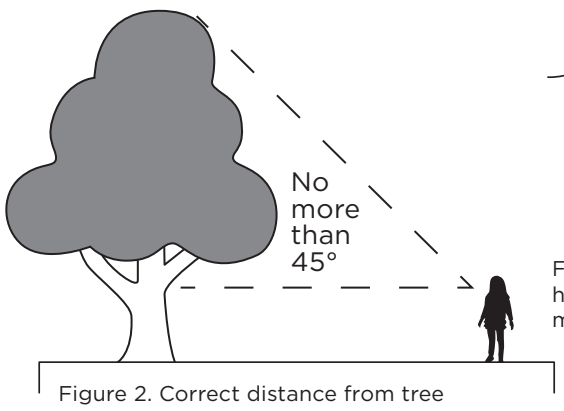

Figure 2. Correct distance from tree for hypsometer measurement.

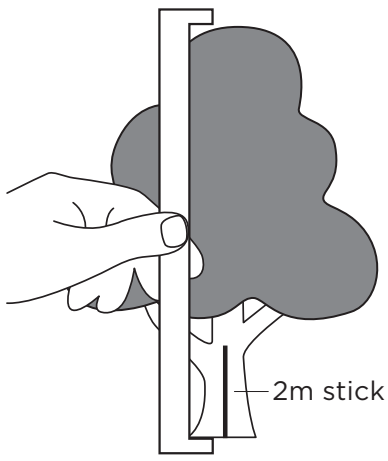

Figure 3. Lining up the hypsometer scale for measurement.

How to make the relascope

1. Cut out shape D.
2. Attach a piece of string, about 55cm long, by threading it through the hole (marked X) and tying a knot at both ends so it can't come out.

►Your relascope is now ready to use.

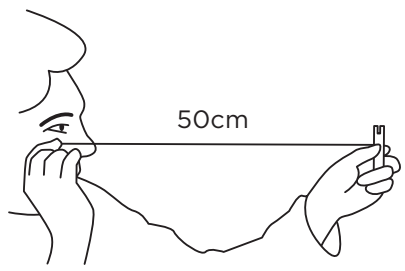

Figure 4. The correct way to hold the relascope (keep a distance of 50cm between the eye and relascope).

How to use the relascope

1. Walk into a group of trees and stand in one spot (this is your 'sampling point').
2. Hold the relascope at eye-level at the length of the attached string away from the eye (see Figure 4).
3. Move in a circle (360 degrees) on the spot and count or don't count the trees at 1.3 metres above the ground (breast height) depending on whether the tree is wider than the 'notch' of the relascope (count the tree) or narrower than the notch (don't count the tree). See Figure 5 for guidance. (Bigger trees near you are more likely to be counted as 'in'.) This action is known as a relascope sweep. If a tree is 'borderline' (see Figure 5) then count as 'in'.
4. Multiply the number of trees you have counted by the relascope factor (marked on the relascope). For example, if you counted 7 trees and the relascope facor is 2, the answer is 7 times 2 equals 14.

►Your answer is an estimate of the area of the cross-section of the trees (known as basal area) in square metres of tree stem area in a hectare. (1 hectare equals an area 100 by 100 metres or 10,000 square metres).

Figure 5. When to count/not count a tree.

X

D

RELASCOPE FACTOR 2

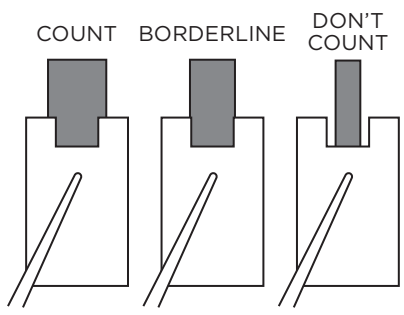

Figure 5. When to count/not to count a tree

Units = metres

HYPSOMETER

Height scale is based on a 2 metres high pole/mark on tree

2 3 4 5 6 7 8 9 10 12 1/2 25 17 1/2 20 25 30 35

C

Diameter (centimetres)

28 27 26 25 24 23 22 21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4

CALLIPERS

A