

S-10 MAPPING INSTRUCTIONS

Introduction

S-10s are 10m-wide strips which run the length of the “E” and “T” blocks (see Figure 3–1). Both the north and south boundaries of the S-10s are marked at 5m intervals by numbered red or orange flags. The numbering begins at 0 on the west side of the study area (3E1 & 3I3) and ends at 600 on the east side of the study area (8E2 & 8I4). Mapping is conducted from west to east.

Mapping S-10s allows us to better understand the dynamics of the forest, particularly the role of regeneration trees within the system. All regeneration (REG) trees ($DBH \geq 1.5\text{cm}$ and $< 9.5\text{cm}$) within the S-10 strips are mapped during selected years. Initially, all REG trees are mapped using direction and distance data from fixed points. In subsequent years “recruitment” trees (those that have grown into the REG size class) will be mapped and numbered, and all trees will be measured.

Crews consist of two people: a mapper and a locator. The mapper is responsible for recording data, reading angles, holding the 50m tape, and checking to see that all numbered trees are mapped. The locator is responsible for reading the tree number and distance, measuring DBH, determining species and condition, and giving the information to the mapper. Read “Timber Inventory Instructions” first.

Procedure

1. Record date, mapper, locator, weather, quadrat, mapping station, and page number on the data sheet (see Figure 3–4). A separate data sheet should be used for each quadrat. Record multiple stem or crotched trees so that the first stem (usually A) is recorded in the left column and the other lettered stems are in the right column. All single stem trees should be recorded in the left column only.
2. The mapper stands just south of the station flag. For most locations, setting up mapping stations at 10m intervals should allow the mapper to see all trees within the strip (e.g., from station 5 all trees between 0 to 10 should be located). It is preferable to establish stations on the south edge only. Care should be taken to avoid trampling the S-1 plot, which is located in the southernmost meter of the S-10. If a northern station must be used, be sure to record an N with the station number on the data sheet.

3. The locator moves from tree to tree within the strip, and first gives the tree number, species, and condition (live or dead) to the mapper who records the data and repeats them back to the locator to corroborate it. Species and condition number codes are listed in Table 3-1.
4. The locator then measures the DBH. DBH should be measured at the top edge of the breast height line and recorded to the nearest DBH class.
5. While the locator measures the DBH, the mapper reads the direction to the tree using a compass. The compass should be held directly over the flag and aimed at the base of the tree. The angle is recorded to the nearest half degree.
6. The distance from the station to the tree is measured with the mapper holding the zero end of the 50m tape and the locator holding the distance end at the tree. The distance is measured to the center of the tree and to the nearest tenth of a meter.
7. In subsequent years, only recruitment trees are mapped. For trees being remeasured, record all the data except direction and distance. An effort should also be made to locate dead and down trees.

Data Sheet Components

Sta—Station number where the mapper is located; if the north station must be used, be sure to record N next to the plot number.

Tree#—Number on the tag attached to the tree; record A, B, etc., for multiple-stem or crotched trees.

Spec—Number code for tree species, see TI Table 3-1.

DBH—Diameter at breast height. Record by DBH class (x) as calculated by $[(x-1) + 0.5 \text{ to } (x+0.49)]$; e.g., 5cm is 4.5 to 5.49.

Cond—Number code for tree condition. For REG trees, use live = 0 and dead = 1.

Direct—Compass direction from station to tree (nearest half degree).

Dist—Distance from station to tree (nearest tenth of a meter).

Equipment

Tape (50 m)

DBH tape or Tree fork

Clipboard

Pencils

Compass

Flashlight

Data sheets

Evaluation

This method is similar to the method used for tree mapping and was similarly successful. The mortality rate among these trees, however, is much higher, so the turnover and ingrowth rate are more rapid and subsequently more care must be used to ensure that all trees are mapped.

To make overlaying quadrat maps of TI trees and S-10 maps of REGEN trees more accurate, it might be useful to include 4–5 TI trees per quadrat in the S-10 inventory. This essentially would allow these trees to be used as reference points when overlaying the two maps.

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