

The Hypotenuser
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When delineating a square sample plot, protocols typically call for beginning measurement at one corner and proceeding to mark of each corner successively from that starting location. An example of this is in the protocol for EREN's permanent forest plot project. There are several problems with methods such as this.

1. They require more than one person to be done accurately
2. The most significant position within a survey plot is the center, which is the single set of coordinates that best describes the plot's location. The center is therefore a better starting point and the location to which all other points should be related.
3. Any error in measurement is compounded as successive corners are marked.

I was conducting a research project where I needed to set up plots along transects deep within a national forest, often by myself. I needed a way to delineate plots that did not require a second person and required minimal equipment. I used a walking stick with a pointy tip and a string affixed which was the length of the hypotenuse of my plot divided by two. For a twenty-meter square this string would be 14.14 meters. The stick (or "hypotenuser") is jabbed into the ground at the center of the plot. The first corner is sighted using a compass and the researcher walks in that direction (315 degrees for the north-west corner) to the end of the string and plants a flag. The researcher then returns to the center and repeats the walk in the northeast (45 degrees), southeast (135 degrees) and southwest (225 degrees) directions, creating a square with four sides facing in the four cardinal directions. This method can be done solo, requires only a walking stick, string and compass, and each measurement from the center is independent so error is not compounded.