Tree Density Estimation:
A Quick Field Method

In order to properly and efficiently treat nuisance brush (trees or shrubs) on your property, you must first find the number of live plants to be treated per acre called plant density. This procedure will help you find the number to use in the PESTMAN program to make the best possible recommendations for mechanical or chemical treatment and either individual plant treatment (IPT) or broadcast treatment with herbicides. Follow the method below to count the number of plants to be treated within a 1/16th acre sampling plot and then calculate the average tree density for the brush plants to be treated.

1. Find a point within the treatment area, and place a marker at your starting point that will be visible from at least 80 feet (figure 1).

2. Step off 52 feet or 17 steps (full length steps of approximately 36”) in a straight line. Use a measuring tape or the rule that 1 step ~ 3 feet. This is your second point. Place another marker here.

3. Next, face your first point and raise your arms together and straight out from the front of your body pointing to the first point. Keeping your left arm in place, radiate your right arm from your left arm to point straight out from the right side of your body creating a 90 degree angle (This is called the 90 degree angle sight and arm field procedure. See figure 2).

4. Look over your right arm and find a destination point in line with your arm to focus on and then step off 52 feet in your new direction toward that point. Step off 52 feet to your third point.

5. Place a marker at your third point and repeat the 90 degree angle sight and arm field procedure to find your fourth and final point.

6. Step off 52 feet in a straight line to your fourth point and place a marker there. You have formed a square in the dimension of 1/16th acre. You may repeat the 90 degree angle sight and arm field procedure to find your first point to be certain you have formed a square. If needed, make adjustments to your square.

7. Count the number of plants to be treated inside your 1/16th acre square. If there is a large number of plants, section your square off diagonally (from one corner across the square to the opposite corner) and count the number of trees in half of the 1/16th acre or 1/32nd acre.
8. Take the number of trees counted and multiply it by 16 for the entire 1/16th acre or 32 for half of the square.

9. Repeat the entire procedure at least 3 more times in different representative areas.

10. Find the average tree density per acre by adding up all estimates and dividing by the number of estimates calculated.

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Figure 1. Tree density estimation diagram. The dark green ellipses with brown dots = trees or shrubs. The blue dots connected by dashed lines = four corner point markers of the 1/16th acre sampling plot. Counting only the trees/shrubs with stems inside the dashed box a tree density of 256 trees per acre (16 trees per 1/16th acre multiplied by 16 = 256 trees per acre).
90 Degree Angle Sight and Arm Field Procedure

Figure 2. 90 degree angle sight and arm field procedure view from overhead. While standing at point 2, 3 or 4, face back to the previous point and raise your arms straight forward with hands together pointing at the previous point (right). Then, radiate your right arm away from your left arm until it is straight out from the right side of your body forming a 90 degree angle with your arms (left). Look over your right shoulder, arm and finger tips to your next point.