



STRATEGIES FOR DISTRIBUTING PLOTS ON SOLAR SITES

2023 EDITION



Strategies for Distributing Plots

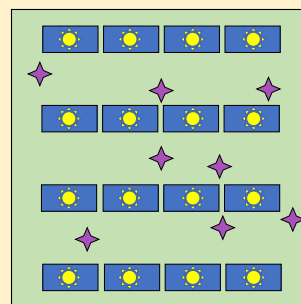
Two general strategies are available to you to distribute plots: (1) identify plot locations in advance (preferred) or (2) identify plot locations in the field. You can select either strategy or use both strategies. This document contains brief explanations of each strategy, along with rules for relocating plots during sampling. To determine the frequency or number of plots recommended in a given area of interest, please refer to the Number of Plots Calculation Worksheet.

1. Identify plot locations in advance

The preferred strategy is to identify plot locations in advance. You may either use: (A) GIS software to randomly generate plots, (B) numeric infrastructure selections to randomly generate plots, or (C) a method of systematic random sampling. In either instance, we encourage you to record your methods for plot distribution and identify areas of potential bias for future reference by others engaged in your monitoring program.

A. Use GIS to generate plots locations

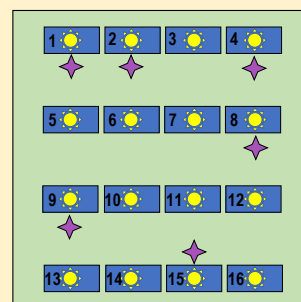
Using a GIS to identify plots in advance is least likely to introduce bias. If you have access to a GIS and have delineated the area of interest (and any strata if applicable), use a random point generation algorithm to generate coordinates that can serve as the plot corner. Use a spatially balanced random point generator, such as the Spatially Balanced Random Point Tool in Esri ArcGIS or this free, online tool provided by the Jornada Institute.



◆ Plot locations

B. Use infrastructure to generate plot locations

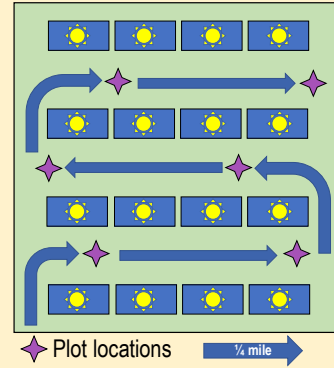
Consider that your area of interest includes a series of numbered infrastructure units. Using this inherent numbered list, you may randomly select a predetermined number of units next to which plots will be located. This strategy can be based on any type of infrastructure, assuming it is present throughout the area of interest. When using this strategy, ask if all potential plot locations have an equal probability of selection. If not, document any potential bias.



◆ Plot locations

C. Use a systematic random method to generate plot locations

With this strategy, instead of selecting from a list of infrastructure, simply select a starting point and a distance between plots. Instead of randomly selecting arrays by number, you might choose to start at one corner of the site and place a plot every ¼ mile between the arrays, alternating direction on each row. Choose a distance between plots that allows you to collect the right number of plots. This can be better than strictly random plot locations because it increases the spatial balance of the sample.



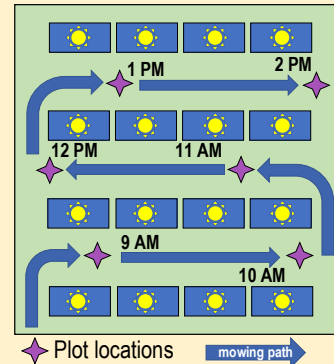
2. Selecting plots in the field

If plots cannot be selected at random in advance of sampling, there are strategies for identifying plot locations in the field. It is worth noting that field-based methods of selection have a higher chance of introducing undesirable bias. One strategy for selecting plot locations in the field is using a predetermined time random selection.

A. Use a time interval to generate plot locations

Select a time interval during which workers will stop and collect data on a plot in their current location. This method can reduce travel time required for sampling if other field work is already planned in the area of interest.

This method is ideal when work is evenly distributed across your area of interest. For example, if monitoring is conducted on a site where mowing is being implemented, the operator can establish plots at predetermined times in the areas mowed that day.



Rules for relocating plots

In some cases, plots may be located in places that are inaccessible or unsafe at the time of sampling. Plots that are inaccessible or unsafe should be discarded. Never attempt to collect data when doing so would be unsafe. Note the plot identifier and the reason for not collecting data from the plot for any plot that is not sampled. Go to an oversample plot instead. If an oversample plot is not available, you can move to the next available “benchmark” location or select a random compass bearing and distance to locate a replacement plot. Plots that are unvegetated, in whole or in part, should not be moved or discarded. Simply record a 0 where appropriate.

Acknowledgements

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