The Development of Quantitative Cover Estimates

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Quantitative or numerical estimates of cover are a mainstay of many ecological and botanical analyses. Estimates can be developed in a number of ways, but are typically based on either ocular estimates or field sample estimates. GRS maintains that the use of field sampling will nearly always generate results comparable or better than ocular estimates, if the proper sample design and procedures are implemented. The development of standarized and consistent estimates by different observers is critical to the issue of cover data accuracy.

GRS develops quantitative or numerical estimates of cover by implementing the linear-point transect sample design, and recording cover features at different sample points. The estimated cover of any feature that you sample is developed by simply dividing the number of points at which a certain feature was observed by the total number of points sampled.

For instance, I typical implement triangular shaped transects with point located 12 feet apart along the transect. At each point I record the characteristics of features that "cover" that particular point. I use the GRS Densitometer as a sampling tool to help all of our field personnel decide whether or not a particular feature in question is "over" or "off" the point. Let's say that after visiting the 50 points along the transect I have recorded Douglas-fir as a tree feature that covers 13 points, redwood as a tree feature that covers 19 points, and no other trees covered any of the points. My estimated cover for Douglas-fir is 26% (13/50) and for redwood it is 38% (19/50).

I choose what features I want to record and the characteristics of those features. For example I can record all vegetation and their sizes (dbh and crown diameter for trees, height for shrubs), their canopy position (top layer, over-topped layer, near ground, on-the-ground, surface condition, and so forth), and whatever characteristics I think are important. The estimates are always based on the number of points at which a feature is present divided by the number of points sampled.

What this means ... cover estimates are not based on standing at a single point and estimating the cover at that point. Rather cover estimates are based on a sampling method that visits different locations horizontally within the landscape area being sampled. This is unlike a spherical densiometer where you stand at a single point and count gridded squares that are covered or uncovered to make an estimate of cover at that point. The transect samples across the landscape whereas the single point sample does not.

Please see some of our papers on this matter under the "How is It Used" topic for sample design considerations.

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