SAMPLING: PILES VS. DISTIBUTED RESIDUE

In a far-away land, they sample for the amount of logging waste left behind. Most of it is not worth much, but needs to be accounted for. A lot of it has been piled up, perhaps before burning. There is a lot of material in piles, and some spread out over the landscape. These two problems were attacked by different sampling methods.

Sensibly, they decided to sample the "concentrated" and easily identified piles in one step (by disassembling some of them and expanding that to the unsampled piles).

The "distributed" pieces were sampled by a second method (large fixed plots). A problem came about when one of the fixed plots also included part or all of a pile. Suddenly, they had a big fixed plot volume (causing variability), along with the field work problem of measuring *part* of a pile. Not good.

Their response was predictable – they *moved the plots*. As always, moving plots caused a bias, but there is a correct way to solve the problem and it is even less work.

The Suggestion

They have a way to deal with the piles. *Consider that done*. Imagine for a moment that the piles have disappeared (or perhaps have been burned). The ground previously under the piles is now <u>bare</u> – and therefore pretty easy to sample. The problem is solved.

If you have a plot that overlaps a pile, any volume inside that pile is just *ignored* (because it has now vanished). Measure the residue on the rest of the fixed plot, and consider it the volume for the full plot. The total distributed residue is now [average plot volume per acre] times [entire acres of the harvest area]. There is no need to calculate or subtract the partial area under the piles in the harvest area. The paperwork is minimal.

You are sampling the entire land base with the plots – part of the area is just bare (the part under piles, which have been "removed" and accounted for by a separate method). The calculations and statistics were already correct, and no computer code was changed. The pile volume plus the distributed volume is an unbiased estimate of the total residue on the harvest area.

The process is (1) simpler than the original process (which calculated and subtracted the pile areas), (2) does not move plots - which is usually incorrect *and evil*, and (3) is less effort in the field. What's not to like?

<div align="center">K.I.</div>