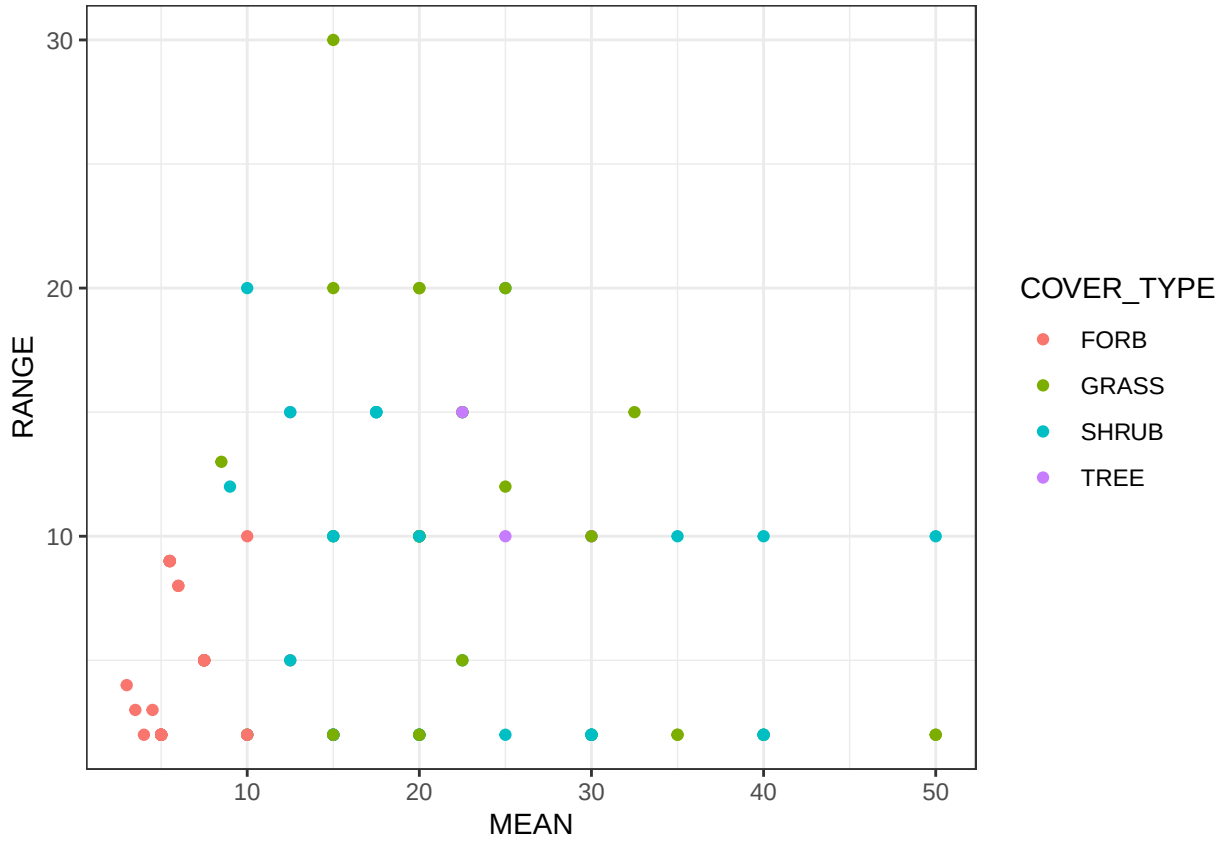
Increase Variation Around Narrow ESD Concepts

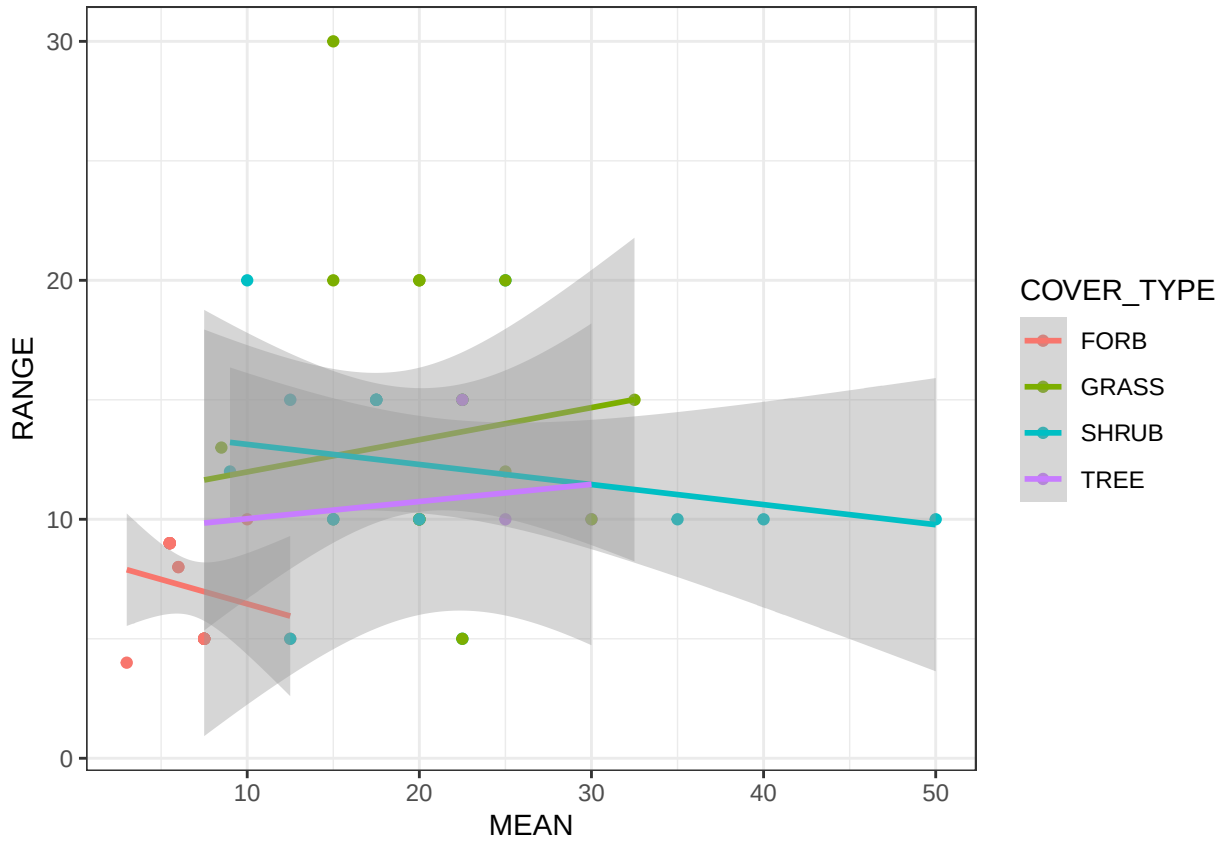
The quantitative benchmarks of ESDs are meant to capture the variation inherent in a state and phase under multiple conditions, from consecutive drought to surpluses of moisture, and under following multiple disturbances. They are intended to capture the variation that would be found in this state and phase combination across the geographic and climatic extents of the ESD in the relevant MLRA.

Some of the Quantitative Benchmarks for Ecological Sites which we collected from ESD's were very narrow. In many of these instances the reported values were more narrow than the uncertainty of the estimates of the true value of the population gleaned from a single AIM plot.

We seek to identify and broaden the estimates around these ESD's here.

Let's create 4 columns, forb - grass - shrub -tree, and then one panel for each with plot on the Y

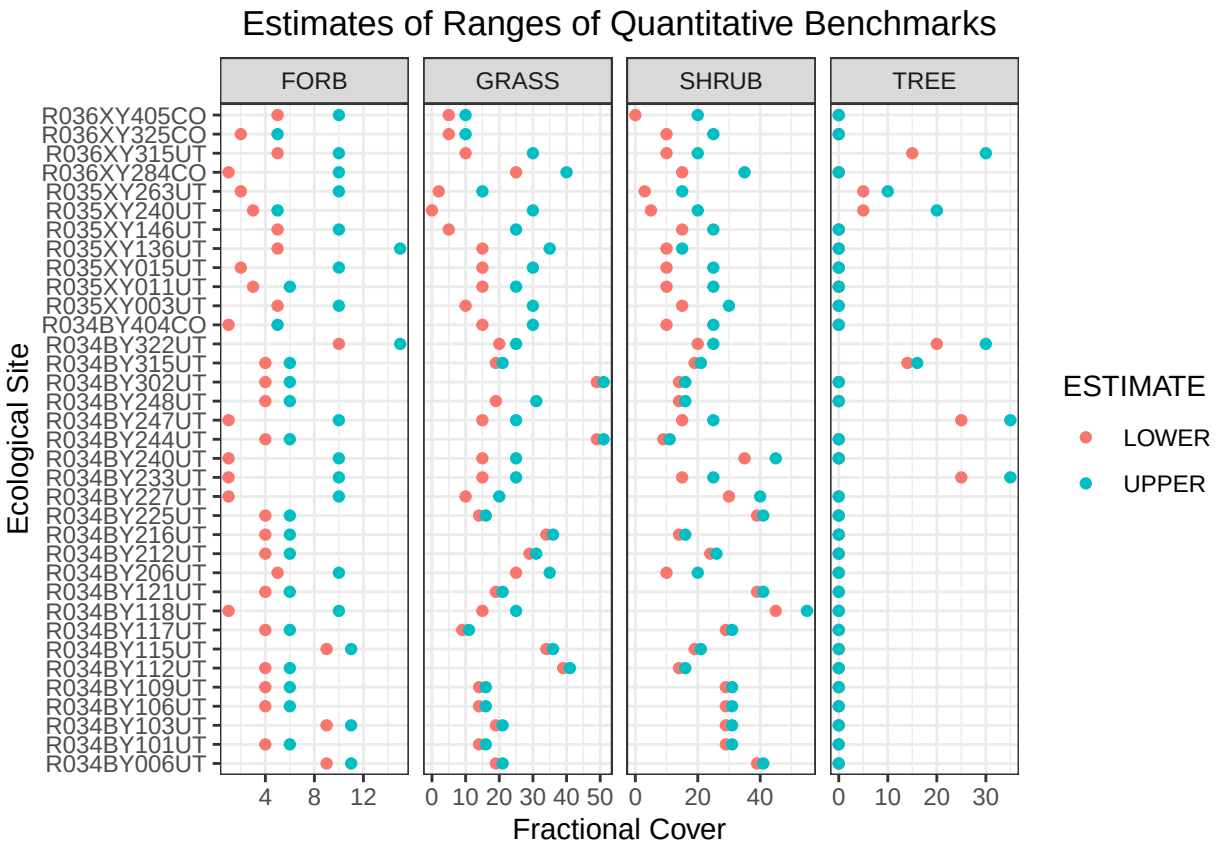





```
## Analysis of Variance Table
##
## Response: RANGE
##            Df  Sum Sq Mean Sq F value  Pr(>F)
## MEAN        1  116.05 116.046  5.4104 0.02366 *
## COVER_TYPE  3  253.41  84.470  3.9382 0.01278 *
## Residuals  56 1201.13  21.449
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

Narrow ranges of variation were defined as Parse ranges if the mean is less than 10, than variation $< 3\%$. If less than 20 $< 4\%$, if less than 30 $< 5\%$, if less than 50 $< 6\%$, if greater than 50 $< 7\%$.

Mean	Range
< 10	< 3
10 - 20	< 4
20 - 30	< 5
30 - 50	< 6
50 - 100	< 7


Estimates of Ranges of Quantitative Benchmarks
FORB
GRASS
SHRUB
TREE
Ecological Site
R036XY405CO
R036XY325CO
R036XY315UT
R036XY284CO
R035XY263UT
R035XY240UT
R035XY146UT
R035XY136UT
R035XY015UT
R035XY011UT
R035XY003UT
R034BY404CO
R034BY322UT
R034BY315UT
R034BY302UT
R034BY248UT
R034BY247UT
R034BY244UT
R034BY240UT
R034BY233UT
R034BY227UT
R034BY225UT
R034BY216UT
R034BY212UT
R034BY206UT
R034BY121UT
R034BY118UT
R034BY117UT
R034BY115UT
R034BY112UT
R034BY109UT
R034BY106UT
R034BY103UT
R034BY101UT
R034BY006UT
4 8 12
0 10 20 30 40 50
0 20 40
0 10 20 30
Fractional Cover
ESTIMATE
LOWER
UPPER