Supplemental Document S1. Spatial analysis procedures used to refine late seral structural characteristics west of the Cascade crest.

1. Clipped the Gradient Nearest Neighbor (GNN) data for Northwest Oregon and western Washington using Hydrologic Unit of Capability (HUC) 6 (watershed) boundaries.
2. Joined the clipped GNN data to vegetation series in the Simpson draft potential vegetation map.
3. Used the OGSI\_80 (Old Growth Structure Index at 80 years) threshold, calculated trees ≥ 30 inches and ≥ 20 inches into pre-determined trees per acre (TPA) density categories (1, 8, 10, 12, 15 TPA) and summarized by vegetation series.
4. For each density category we:
   1. Evaluated the success and success rate—looked at the degree of agreement between the various TPA thresholds and OGSI\_80, where both were absent and both were present.
   2. Looked at how much of the selection captured the area represented by the OGSI\_80 area
   3. Calculated error of commission (% area where the TPA bin density was met where the OGSI\_80 was not)
   4. Calculated error of omission (% area where the OGSI\_80 was met and the TPA bin density was not)

We developed a process using the following sequential screens. We found the >=20 inch dbh density groups to be most useful so only used those in our process. An evaluation of mountain hemlock data is presented here as an example (Supplemental Table S2):

1. Identify trees per acre categories within 5% of the bin with the highest success rate (yellow)
2. From this set, select the TPA categories that have ≥ 90% of the OGSI\_80 area covered (blue)
3. From this set, select the lowest sum of commission (t\_not\_0%) and omission (0\_not\_t%) disagreements. For ties, select the lowest TPA category (red)