

## Variable Retention (VR) or Alternate Harvesting System Definitions

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### SILVICULTURE ALTERNATE HARVEST SYSTEMS USED TO ACHIEVE “VR”

- **Group Retention:**
  - Clumps of trees ranging in size from 0.10 ha. to 2.0 ha or larger
  - Undisturbed forest floor within clumps
  - Minimum of 10% of gross area harvested retained
  - Clumps distributed throughout stand and capture the representation of ecological uniqueness.
  - Locate clumps around ecological anchors(wetlands, rock bluffs, creeks/lakes, snag patches, visual sensitive areas or as visual buffers, etc), and then as needed to meet VR definition above.
  
- **Dispersed Retention or Shelterwood Harvest:**
  - Single trees left standing
  - Individual trees spaced, on average, about one tree length apart, to a maximum of two tree lengths apart.
    - Tree length = average height of trees in stand being retained
  - Trees being retained should have some biological value, and may include old-growth residuals, larger trees of lesser value (“wolf trees”, wildlife trees, crooks, sweep), healthy understory with reasonable crowns, or co-dominants trees in the stand.
  - Will result in from 10 to 20 trees per ha being left standing
  
- **“Snakes and Blobs” ....the Golf Course Cut!:**
  - Long, narrow corridors harvested by ground based or cable systems
  - Maximum four tree lengths wide
    - Tree length = average height of co-dominant trees in stand being harvested
  - Keep sidelines irregular where possible to soften visual impacts
  - Leave small aggregates, clumps or dispersed trees within corridor where possible to soften visual impacts
  - Locate timber reserves or clumps around ecological anchors(wetlands, rock bluffs, creeks/lakes, snag patches, visual sensitive areas or as visual buffers, etc), and then as needed to meet VR definition above.

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- **Horizontal Corridors:**

- Used in visually sensitive areas
- Corridors should be no wider than necessary to protect visual landscape or ecological anchors, but a maximum of four tree lengths in any case.
- Yarding corridors should be five to 10 meters wide maximum and spaced about 30m to 50m apart on road system to access horizontal corridor.
- Maximum line pulling distance on horizontal corridor is about 30m

- **Group Selection:**

- Selected harvest groups should be 0.5 ha to 2.0 ha. in size.
- Dispersed across the landscape
- Goal is to maintain uneven age stand over time
- Size of opening dependent on shade tolerance of tree species to be regenerated.
- Plan for multiple entries over stand rotation (i.e. 8 entries over 80 years)
- Maintain connectedness of retained trees around harvested groups.
- For small openings, orientation of the harvest area with regard to the sun is very important (orient towards the south for maximum sun exposure to encourage regeneration)

- **Individual Tree Selection (ITS):**

- Remove individual trees, either dominants or co-dominants
- Usually remove between 7 to 10% of the volume each pass
- Enter the stand every ~10 years for volume removal
- Select specific species for markets (i.e. cedar poles)
- Understand tree species physiology to have plan for regeneration
- Can consider doing some group selection during ITS entries.

- **Commercial Thinning(CT):**

- Remove trees that are understory, not dominants or co-dominants
- Remove 35 to 45% of the stand volume
- Leave remaining stand until financial rotation (marketable trees)
- Classic CT is completed with a clear cut
- May consider doing dispersed retention (shelterwood) for final cut and then regenerate the area