



WITHIN-STAND RETENTION REFERENCE GUIDE

This information is provided as a summary of Within-Stand Retention Guidance (IC4110).

This document is designed to serve as a quick reference to the Department of Natural Resources' Within-Stand Retention Guidance-IC4110 (Guidance). The Guidance provides more detail about the rationale for retention, and also provides scientific literature citations that should be consulted when a more in-depth understanding of retention guidance is required.

Purpose for Retention: Post-harvest retention of live trees, snags, and down woody debris, is an important element in the protection of soils and riparian areas, conservation of wildlife habitat and biodiversity, and is an indicator of sustainability in forest management, especially when harvest patterns mimic natural disturbance regimes.

Amount to be Retained (page 3 of Guidance)

- 1) Forest managers should retain **3 to 10% of stand area or 3 to 10% of the basal area**, depending upon the silvicultural system being utilized. (Retention areas could also include groves of legacy trees, type 1 and type 2 old growth, riparian corridors, vernal ponds, trail corridors, etc.).

Forest managers should generally include within-stand retention in all harvests, especially regeneration harvests, unless a sound reason for “no retention” is identified and described.

See page 11 of Guidance for example prescriptions which include retention and an example prescription for no retention.

Note: In even-aged harvest systems, retention is specified as area-based, which can include individual trees or clumps (see page 29 of Guidance for specifics). Retention in uneven-aged systems and intermediate thinning retention is residual basal area-based (individual trees). Unharvested patches may contribute toward retention goals in uneven-aged systems.

- 2) **Area-Based Retention** (pages 29-31 of Guidance) has been recommended for even aged management. This can be accomplished by leaving a patch, patches, or individual trees or a combination of both.
 - a. Targets for the number of trees per acre with desirable wildlife characteristics can be easily imbedded in area-based retention provisions (e.g., 10% area retention can include 2 oaks per acre that serve as mast trees).
 - b. Area based retention guidelines should result in a greater tendency for forest managers to preserve patches rather than individual trees.

Targeted Retention Characteristics and Elements (pages 4-9 of Guidance)

1) Preferred Trees for Retention

- a. Retain snags that do not pose a safety risk (additional information in WBHG).
- b. Retain downed wood (additional information in WBHG).
- c. Retain legacy trees (page 10 of Guidance).
- d. Other trees preferred for retention:
 - Trees representative of the dominant species found on the site.
 - Under-represented species.

- Conifer/deciduous trees that promote diversity.
- Mast trees > 10" DBH where feasible (Hickory, Oak, American Beech, Black Cherry, Basswood and Ironwood are preferred in descending order).
- Large/super-canopy trees.
- Live cavity trees >10" DBH (preferred) where feasible.

2) Stand Structure

- Vertical Structure
 - Coarse woody debris.
 - Understory shrub and sapling layers.
 - Sub-canopy and mid-canopy layers.
 - Large and/or super canopy trees.
- Horizontal Structure
 - Including a broader range of opening sizes in stands primarily managed with the single tree selection system.
 - Leaving some residual trees in clumps in stands receiving a regeneration cut in the shelterwood system or in seed system harvests.
 - Leaving some scattered patches of residual overstory in removal cuts and clearcuts with retention.

3) Additional Considerations that Influence Retention

- Soil characteristics and susceptibility of trees to windthrow.
- Retention dynamics (page 6 of Guidance).
- Forest health factors (potential or present pests and diseases).
- Topographical constraints (steep slopes, ravines, etc.) and potential for soil erosion.
- Sensitive Areas
 - Riparian zones
 - Vernal pools
 - Intermittent streams
 - Spring seeps
- General Wildlife Considerations
 - Consult with wildlife biologists for specific recommendations that comply with the retention guidelines and will promote habitat beneficial to Featured Species Approach.
- General Aquatic Resource Considerations
 - Consult with fisheries biologists for specific recommendations that comply with the retention guidelines within stream corridors and will be beneficial to aquatic habitats.
- General Aesthetic Considerations
 - Vegetation groves for aesthetics can be considered as retention.
- Specific cover type considerations. See pages 12- 29 of Guidance.

General Guidance (pages 9-11 of Guidance)

1) General Retention Documentation (page 9 of Guidance)

- Retained trees or retention patches are intended to be left un-harvested until at least the next cutting cycle or rotation. In partial cut situations, this will usually be the next harvest entry, which is typically 10 to 20 years in northern hardwoods. For clearcuts, this will normally be until the next rotation of the new stand, which is 40 years or longer for most cover types. Retention in intermediate harvests such as seed tree or shelterwood harvests should be retained until the next rotation of the new stand.

- b. If there are sequential harvests in a parent stand, you have two options: 1) leave retention of an adequate size for the entire parent stand. You must ID and track this retention and it must be maintained throughout the rotation of the parent stand, or 2) leave retention in each treatment area.
- c. Stand-level decisions on retention should be site specific and comply with the Guidance and information specific to individual cover types.
- d. All harvests with retention should be designated as such (e.g. Clearcut with reserves), and, in cases where it is justified, harvests that do not meet retention Guidance should be coded accordingly (e.g., Clearcut).
- e. A description of the prescription for retention must be contained in the inventory notes section of the harvest prescription. This may contain all or a combination of the following information for retention: how much, what it is, general rationale for exceptions, location/distribution of larger patches, and special/unique features, if any. While the precise amount, type and location of retention may not be determined during the inventory, more detail should be added to the pre-sale checklist as the timber sale is prepared.

2) **Justification for No Retention** (page 9 of Guidance)

No retention is an option that may be prescribed for use on State Forest lands, but it must be justified and approved, as with any prescription, at the compartment review.

“No Retention” or retention less than 3% may be agreed upon at the Compartment Review for reasons including:

- a. Forest Health
- b. Small Size of Stand or Narrow Width (less than 10 acres and/or narrow stands that require full sunlight for regeneration)
- c. Wildlife Requirements
- d. Cover Type Conversion Concerns
- e. Safety Issues
- f. Silvicultural Rationale

3) Type 1 and Type 2 Old Growth: Stands or areas of forest meeting the Type 1 or Type 2 old growth criteria (see Work Instruction 1.4) may be located during the inventory and/or sale preparation process. They are tracked independently from retention. These areas may contribute to retention. Detailed direction for Type 1 and Type 2 old growth encountered during inventory and/or sale preparation is contained in Work Instruction 1.4 and page 10 of Guidance.

4) Legacy Tree: An individual tree of a long-lived species, usually mature or remnant of old growth, which provides a biological legacy. It is an individual old tree (or occasionally a small group of old trees) that function(s) as a refuge or provides other important structural habitat values. A more detailed definition and direction for legacy trees is contained in Work Instruction 1.4 and page 15 of Guidance. An individual or group of legacy trees may contribute toward retention. However, they will not be tracked in the inventory.