

Forest Management for Wildlife Habitat: Timber Harvesting

A *timber harvest* is a well-planned operation that removes trees from a forest. This informational sheet will cover a few common timber harvest techniques. Each technique may meet multiple management *objectives*, or desired outcomes for the forest. Here we consider the objective of wildlife habitat enhancement.

Shelterwood Harvest

A *shelterwood harvest* consists of a series of cuts that maintain a patchy canopy, allowing a new group of trees to establish under the protection of the old group. This technique encourages growth of more shade-tolerant species such as chestnut oak, beech, or mockernut hickory.

A *preparatory cut*, which removes about 20-25% of the mature overstory, is optional and not necessary in cases where the forest has already been thinned; the cut removes deformed trees or undesirable species. Within ten years, a second *establishment cut*, which also removes about 20-25% of the mature overstory, creates space in the canopy. This brings in sunlight and frees up soil nutrients while maintaining some shade. As the young trees age, they require more space to grow. A *removal cut* later harvests the remaining old trees.

Throughout the process, often spanning over 20 years, this harvest technique promotes structural and biological plant diversity. The balance between understory growth and canopy cover provides habitat for a variety of wildlife.

Selection Harvest

A *selection harvest* may remove either individual trees or small groups of trees randomly throughout the forest. This technique is complex and best suited for forests where the trees are different sizes and ages.



Shelterwood Harvest

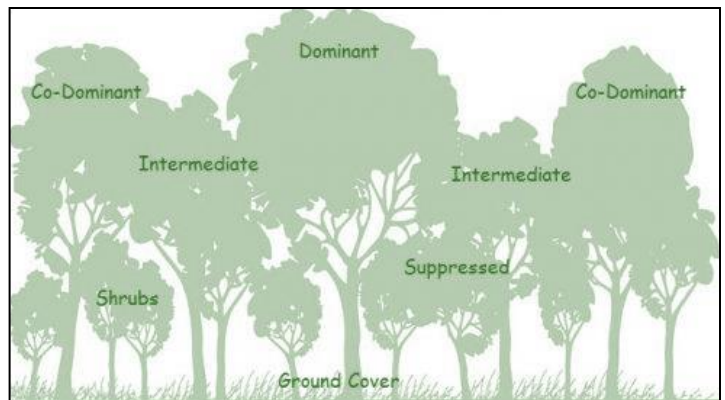


Selection Harvest

Selection Harvest, cont'd.

When planning a selection harvest, it's important to leave many of the dominant and codominant trees in the forest as a seed source. Harvesting only the best trees lessens the quality of timber and habitat in a forest over time.

The selection harvest technique benefits wildlife that require mature forests that have a high, closed canopy. For example, mature trees tend to have more *cavities*, or hollow sections, which can serve as shelter for critters such as owls or raccoons. Forest interior dwelling species (FIDS) — a name for the collection of birds which require large patches of mature forest — respond well to selection harvesting as a maintenance tool. Selection harvests ensure that regeneration continues to occur while maintaining the integrity of a mature forest.

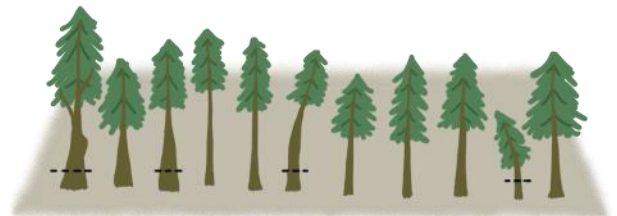


Graphic courtesy of Michigan State University Extension
A healthy forest is often composed of many structural layers. Dominant and co-dominant trees are targeted during a selection harvest.

Timber Stand Improvement

Timber stand improvement (TSI) refers to forest management practices that improve the productivity and quality of timber in a forest. Although typically focused on the objective of future income, these practices have the added benefit of improving forest health and wildlife habitat.

A pre-commercial thinning removes trees from a young forest in order to reduce competition. This allows the remaining trees to grow faster and stronger, giving them the space and resources to increase in height and diameter. Sometimes this technique also removes trees that are deformed or suppressed in the understory.



Pre-commercial Thinning

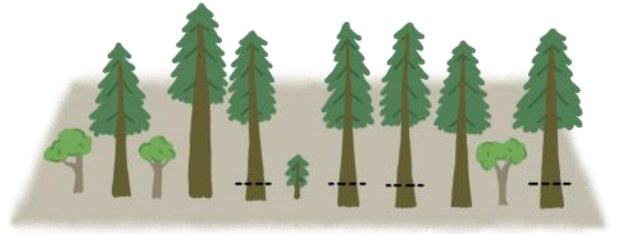
Crop tree release is a targeted harvest technique that removes the trees adjacent to or surrounding a selected crop tree. Reducing crown competition creates space for the selected crop tree and frees up resources like sunlight and nutrients. This encourages growth and seed production. Selection of a crop tree is often based on management objectives — what species of trees do we want to see in the future forest, and what kinds of wildlife are utilizing the forest?



Crop Tree Release

Commercial Thinning

A *commercial thinning* removes up to 50% of the lesser performing, merchantable trees in a forest. Similar to a pre-commercial thinning, this frees up sunlight, water, and nutrients and encourages growth in the remaining trees. Thinning operations are often paired with other forest management practices, such as prescribed fire.



Commercial Thinning

Choosing a Technique

Data collection is the first step in any timber harvest operation. A *forest inventory* or *timber cruise* tallies the species, age, and health of trees in a stand. Landscape conditions such as soil type, presence of wetlands or waterbodies, and topography are also noted. Once a land manager has a solid understanding of the land and its current conditions, they can brainstorm objectives. When the objective is enhancing wildlife habitat, it is important to consider the surrounding landscape. What types of habitat already exist nearby, and what types of habitat are lacking? Having a balanced mosaic of habitat types on a landscape promotes biodiversity and increases climate resilience. Wildlife objectives may also be driven by the presence of rare, threatened, or endangered species.

Spotlight On: *Delmarva Fox Squirrel*

Native to the Eastern Shore of Maryland, the Delmarva Fox Squirrel (*Sciurus niger cinereus*) prefers to inhabit open mature woodlands. Pre-commercial and commercial thinning operations that maintain or encourage a closed canopy of mature mixed hardwood and pine trees creates ideal conditions. Once listed as endangered, the Delmarva Fox Squirrel has made a great recovery.

Visit our Demonstration Network sites at Idylwild Wildlife Management Area to learn more.



Forest Management for Wildlife Habitat

For details on two other timber harvest techniques, regeneration harvest and seed tree harvest, refer to the Early Successional Habitat informational sheet under Links & Resources on our home page.

<https://dnr.maryland.gov/forests/Pages/default.aspx>