

Upland Wildlife Habitat Management - 645

Massachusetts Mast Tree Release Job Sheet

Client:	Farm #:	Tract #:
Planned By:	Date:	
Tree Species to be Released:		
Land Units:	# Trees to Release:	
	# Acres:	

DEFINITION

Mast is the fruit produced by trees and shrubs. It is often categorized as either hard or soft. Soft mast includes berries, fruits and catkins. Some important soft mast producing species in Massachusetts include cherries, serviceberry, apple and hawthorn. Hard mast refers to hard shelled seed and nuts and includes such tree species as oaks, beech, hickories, and butternut.

The term "mast tree release" refers to the removal of neighboring trees that are crowding out the mast tree, thus preventing it from expanding its crown and producing abundant seed or fruit.



Photos: Bugwood.org

PURPOSE

Mast is an important food source for many forest wildlife species. Hard mast is typically high in fat, protein and carbohydrates and is an important winter survival food for wildlife. Soft mast provides a high energy source in the form of sugars and carbohydrates but is generally more perishable and not available in high quantities during the winter.

TREE AND AREA SELECTION

- Primary species to target for release include disease-free beech, oaks, cherry, hickory and butternut.
- Secondary species to target for release include ash, birch, maple, pine, fir, hemlock, cedar and small trees such as serviceberry and pin cherry. Although these species are of secondary preference as a food source for wildlife, having a diversity of mast species under management is the best way to minimize the probability of a total mast crop failure (for example, some oaks only produce good seed crops every 5 years).

- If possible, choose productive sites with good soils. Sites where trees can grow tall and fast should be productive mast producers.
- Select trees that are a minimum of 25 feet tall and at least 5-8" DBH (most forest grown trees don't begin to bear seed until they've reached this diameter). A general exception to this rule is for smaller, shade intolerant species such as serviceberry, pin cherry and paper birch – they can produce seed in the 2-4" DBH size class.
- To help insure long term mast production, if possible, select crop trees with an expected longevity of at least 20 years.
- Focus attention on mast trees in stands with multiple individuals of the same species to maximize pollination and seed production. Trees spaced more than 150 feet apart in forest stands have little probability of pollination and good seed production. The goal is to have 20 regularly spaced trees per acre to ensure seed production. Ideal conditions would be to have groups of the targeted species in a concentrated area.
- Choose healthy trees with large crowns that are dominant or co-dominant (crown classes) in the canopy. The greatest mast production in a stand comes from dominant or co-dominant trees. Intermediate and suppressed trees produce very little mast because the crowns receive limited sunlight. See **Figure 1**.

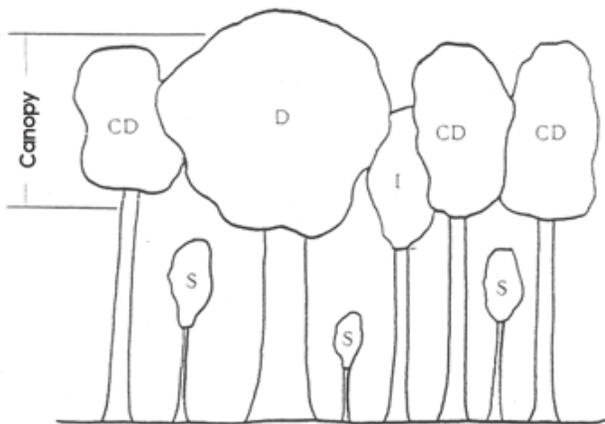


Figure 1 – Crown Classes (Maryland DNR Image)

Dominant (D) – Trees receive full sunlight from above and some from the sides, crown extends above canopy

Co Dominant (CD) – Trees receive full sunlight from above and partial sunlight from the sides, forms the general level of the canopy crown cover

Intermediate (I) – Shorter than D and CD, little direct sunlight from above and usually none from the sides

Suppressed (S) – (aka Overtopped), Crowns entirely below canopy, little to no direct sunlight

RELEASE TECHNIQUES AND GUIDELINES

1. To determine which competing trees must be cut to release a mast tree, simply look up into the prospective seed tree and picture it divided into four separate quadrants (**Figure 2**). Evaluate each quadrant for interference from neighboring crowns. Any crown that touches or is within 10 feet of the mast tree crown will compete with it for growth and should be cut.

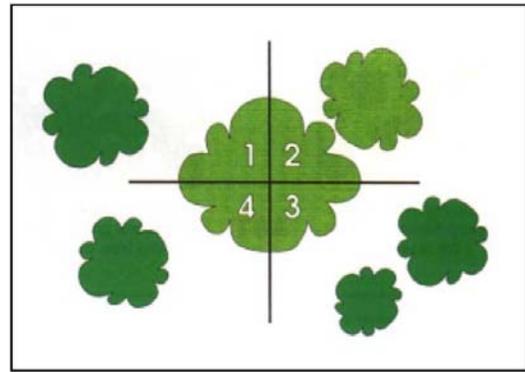


Figure 2: Mast tree crown divided into 4 sides. The only competition from neighboring trees is in side 2; therefore only the tree on side 2 needs to be cut. (Image-USFS Crop Tree Management in Eastern Forests)



Left - Dual Crown of mast trees that were released on all 4 sides (the two crowns were treated as one mast tree).

Right - Mast tree which is released on 2 sides; however it needs at least one of the co-dominant competing trees removed.
(Images- USFS)



2. Girdling is an alternative to complete removal of competing trees. Girdling involves the removal of bark and cambium from the target tree through the use of two cuts (usually done with a chainsaw). DO NOT girdle trees near power lines, roads/trails, structures, campsites, or other potential human hazard areas.
3. If competing trees are large, straight, saw timber sized trees, consider the monetary value before making a decision to cut. If the competing trees are live den or nest trees, do not cut or girdle them. Snags (dead or dying standing trees) should rarely need to be removed. In some cases, the best decision may be to select a different mast tree to release.
4. Released mast trees should have at least 10-20 feet of open area around them on at least 3 sides. Clumps of two or three similar species are ok.

REFERENCES/ACKNOWLEDGEMENTS

- Guide to Wildlife Tree Management in New England Northern Hardwoods-USFS GTR NE-118
- Crop Tree Management in Eastern Hardwoods – Forest Resource Management-USFS NA-TP-19-93
- NRCS-Vermont, Mast Tree Release Job Sheet

Massachusetts Mast Tree Release Job Sheet

Provide a map (may be attached) showing the location of the proposed practice and practice components.

Scale 1"=_____ ft. (NA indicates sketch not to scale: grid size=1/2" by 1/2")

RECORD OF COMPLETION AND CHECK OUT CERTIFICATION:

Treated Acres:	Date Completed by Client:	Date Inspected:	Inspector:
Notes:			

The United States Department of Agriculture (USDA) prohibits discrimination in its programs on the basis of race, color, national origin, sex, religion, age, disability, political beliefs and marital or familial status. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication program information (Braille, large print, audiotape, etc.) should contact the USDA Office of Communications (202) 720-2791.

To file a complaint of discrimination write USDA, Director, Office of Civil Rights, Room 326-W, Whitten Building, 14th and Independence Avenue, SW, Washington, DC 20250-9410 or call (202) 720-5964 (voice or TDD). USDA is an equal opportunity provider and employer.