

## Plant Enhancement Activity – PLT07 –Hardwood crop tree release



### Enhancement Description

Crop Tree Release (CTR) is a silvicultural technique used to enhance the health and productivity of individual trees, while improving other resources such as wildlife habitat, recreation, timber value, and aesthetics.

### Land Use Applicability

Forestland

### Benefits

Crop Tree Release is a practice that shortens the harvest rotation of desirable crop trees by selectively cutting or killing less desirable competing trees in younger, overstocked forests. Additional wildlife benefits include increased mast and forage production, and habitat diversification both at ground and canopy levels. Selection of crop trees looks at trees with good future growth potential. This includes desirable species, with good form (straightness) and grade (lack of defects). Crop tree crowns should be in the upper level of the forest canopy, and not suppressed by other tree crowns. Availability of sunlight is often the most limiting factor for tree growth. When crowns of adjacent trees touch each other, growth rate is reduced. Cutting or killing unwanted trees whose crowns are touching those crowns of crop trees, provides more space for crown expansion. Dead trees left standing provide wildlife habitat or when cut down become downed dead wood on the forest floor which is beneficial to wildlife and for nutrient recycling and improved soil quality.

### Criteria

1. The CTR enhancement is applied to:
  - a. Young, pre-commercial stands (trees that are too small for market), with average stand size diameters ranging from 4 to 8 inches (measured at 4.5 feet above the ground)
  - b. Mature stands of trees with an overstocked understory
2. Development of a CTR plan that:
  - a. Prioritizes the most productive forest sites for treatment first
  - b. Identifies the number of crop trees to be retained, between 25-35 crop trees per acre.
  - c. Identifies targeted species as determined by NRCS state office, e.g. white and red oak or other species that have a high market value and provide wildlife benefits.
  - d. Incorporates the landowner's objectives for the forest
3. Crop tree release is accomplished by:
  - a. Identifying and marking crop trees from those trees to be removed. Selection is based on the impact of crowns touching the crop tree's crown on three or four sides
  - b. Marked trees will be cut for harvest or killed using approved methods within in the state
  - c. Trees that are below the crown of the crop tree or in-between and are not affecting the crown will be left to provide protection from wind damage, epicormic branching and maintain diversity for wildlife habitat.



United States Department of Agriculture  
Natural Resources Conservation Service

2010 Ranking Period 2

**Documentation Requirements**

1. Copy of CTR
2. Map locating forested area (s) that CTR activities were performed
3. Representative digital images/photos of the area showing before and after treatment conditions

PLANT MANAGEMENT AND WILDLIFE ENHANCEMENT ACTIVITY

**PLT 07 – OR      Hardwood Crop Tree Release**

**Enhancement Description:**

Crop Tree Release (CTR) is a silvicultural technique used to enhance the health and productivity of individual trees as well as entire plantations. This activity is particularly important if the desired species is shade intolerant. Secondary benefits of this enhancement include improving other resources such as wildlife habitat, recreation, timber value and aesthetics.

**Notes:** Refer to Practices 595 Pest Management and 666 Forest Stand Improvement

**Task:** Identify target species for CRT.

**Oregon Supplemental Information:**

1. The CTR enhancement is applied to:
  - a. Young precommercial stands with average stand diameter of less than 8” DBH (DBH is an old forestry acronym, which means “diameter at breast height”. For our purposes this is diameter at 4.5 feet above the ground on the uphill side).
  - b. Mature two storied stand with an overstocked second (lower) story. Two storied stands are common when a seed tree or shelterwood regeneration harvest is used. The average DBH for that second story is less than 8” DBH.
  - c. An uneven aged stand, whose main canopy is overstocked and whose average DBH is less than 8”.
2. Development of a CTR Plan that:
  - a. Prioritizes the most productive forest sites for treatment first.
  - b. Identifies the number of crop trees to be retained based on Forestry Technical Note 10 (FTN10) or for those hardwoods not specifically listed in FTN10 use spacing guidelines for Moderately Shade Tolerant for Paper Birch and Moderately Shade Intolerant for the Big leaf maple (BLM) and Quaking aspen. BLM is often found in a mixed stand with conifers. The BLM might need a little wider spacing than its neighboring conifers. For Quaking aspen, if your target product is fiber or pulp, do not invest in CRT.
  - c. Identify and select targeted species as determined that have high market value and provide wildlife habitat. For the Westside of Oregon state the target species are Red alder, Black cottonwood and Big leaf Maple. For the Eastside, Black cottonwood, Quaking aspen and Paper birch.
  - d. Incorporates the landowner’s objectives for the forest.

3. Crop tree release is accomplished by:
  - a. Identifying crop trees from those trees and other competing vegetation to be removed. Crop trees will be the tallest, have the largest bole, straightest bole, fullest crown and longest crown, with the least evidence of damage, defect, insect or disease.
  - b. Competing trees and vegetation will be cut or killed using any combination of chemical, mechanical and/or manual methods.
  - c. Trees that are below the crown of the crop tree or whose height is no taller than the lower third of the crown for the crop trees and are not significantly competing with the crop trees, will be left to provide protection from wind damage, epicormic branching and maintain diversity for wildlife habitat.

**References:**

NRCS Washington, e-FOTG, Section 1: Forestry Technical Note 10: Forest Stand Density Guide

USDA Forest Service: "Silvics of North America, Volume 2 Hardwoods"

USDA Plants Database: <http://www.plants.usda.gov/>

Wang, Simard, Kimmins 1995; "Physiological Responses of Paper Birch to Thinning in British Columbia"; *For. Eco. & Mgt.* 73(1995) 177-184

Safford, 1983; "Silvicultural Guide for Paper Birch in the Northeast"; USDA/ Forest Service Research Paper NE 535

USDA/ Forest Service; Northern Research Station; Aspen Web-Based Forest Management Guide: <http://nrs.fs.fed.us/fmg/nfm/aspn/>

BC Ministry of Forests; Extension Note 33; "The Ecology and Silviculture of Big Leaf Maple"