NATURAL RESOURCES CONSERVATION SERVICE

CONSERVATION PRACTICE SPECIFICATION GUIDE SHEET

FOREST STAND IMPROVEMENT

(ACRE)

CODE 666

This forest stand improvement specification guide sheet encompasses the following purposes:

1. Increasing the quantity and quality of forest products by manipulating stand density and structure.
2. Initiate forest stand regeneration.
3. Reduce wildfire hazard.
4. Restore natural plant communities.
5. Achieve or maintain a desired native understory plant community for special forest products,
6. Alter water yield.
7. Improve wildlife habitat.
8. Increase carbon storage in selected trees
9. Improve forest health reducing the potential of damage from pests and moisture stress.

Specifications are divided into the following categories indicated in italics:

Silvicutural patch cut wildlife habitat and forest health for purposes 1,2,4,7 and 9.

Chemical thinning seedling/sapling is for the purposes *2,4,5,7 and 8.*

Thinning of seedling, sapling, polesize and small sawtimber stands used for purposes 1 – 7.

Crop/Mast tree release is for purposes 1, 2 & 7

Practice Design shall include the results of the assessment and recommendations for all necessary treatments.

DOCUMENTATION

All categories require the following design information (a MFS approved Woods WISE program "Project Plan" may be substituted in most cases).

1. Landowner and Design Preparer name and address
2. Property Location, including town and county, and NRCS Field Office
3. Practice name, code, justification, extent, estimated cost, and time schedule.
4. Description of specific work to be performed and its location and size, as well as written instructions for contractor and /or owner.
5. Description of layout and marking methods. Treatment areas and trees to be cut/removed will be designated with paint. If other marking methods are used, design will have specifically written guidelines.

6. Maps of property and practice locations, including a lat/long for boundary corners and practices.

7. Specifications for the protection of other natural resources including but not limited to water, soil, and wildlife and non-target plants.

8. The design shall also identify where and if recommended treatments also necessitate application for permits or variances from local, state or federal regulations.

9. The expected composition, stocking, growth and quality of the future or residual stand, and its susceptibility to further insect/disease will be described and regeneration needs will be addressed, if applicable.

10. If chemical are used, WIN-PST program will be used to evaluate potential risks to humans and/or fish, as appropriate, for each pesticide to be used. The minimum level of mitigation required for each resource concern is based on the final risk ratings in the "WIN-PST, refer to "WIN-PST Exemption for Brush Management, Herbaceous Weed Control and Integrated Pest Management Using Specific Pesticides" **http://efotg.sc.egov.usda.gov/references/public/ME/WIN-PST_Assessment_Code595.pdf.**

11. All deviation from the specification guide must have written justification and be mutually agreed upon by TSP Forester and NRCS Field Office.

SILVICULTURAL PATCH CUT

The purpose of this cutting is to protect, improve, or restore forest health through the detection and control of identified insects and disease conditions in established stands. The practice also is intended as a means of slowing or preventing the spread of identified outbreaks (Purpose 2, 7 & 9).
Cutting allows the removal of infected or declining trees to prevent further infection and improve growth and composition of the residual stand. Removal of infected material may be necessary as well.

Trees to be cut/removed will be those that exhibit signs or symptoms of disease, or reduced vigor.

Identified conditions: Forest Health practices should be targeted at reducing stand susceptibility (likelihood of the stand being attacked) or vulnerability (likelihood of mortality of individual trees) associated with one or more of the following situations:

a. Spruce-fir stands affected by one or more agents including balsam woolly adelgid, spruce bark beetle, dwarf mistletoe, and/or coastal spruce decline
b. Hemlock in softwood or mixedwood stands, susceptible/vulnerable to hemlock wooly adelgid
c. White pine stands affected by blister rust, drought, and/or other agents specific to white pine
d. Stands in which diseased American beech is a significant component. (>50% of basal area).
e. Other stands, at the recommendations of the TSP Forester, with a significant occurrence of insect-infested, cankered, or otherwise diseased stems that could restrict the vigor of the stand or pose a hazard to remaining trees.

Rates of cutting/removal of infected/declining/host species trees will fall into two categories:

a. Medium (21-40 square feet of pretreatment basal area removed)
b. Heavy (>40 square feet of pretreatment basal area removed)

Cutting/removal may occur through felling, complete double girdling, or similar methods. Where cutting/ removal will result in a residual stand of <30 square feet per acre patches will not exceed 5 acres.

Cutting/removal may occur through application of herbicides, at the discretion of the TSP Forester providing technical assistance. If herbicides are used, care must be taken to avoid unintended backflash. Backflash involves the movement of herbicides through root grafts in some species. (See number 10, above.) Follow all herbicide label directions and setbacks.

WILDLIFE COVER AND UPLAND WILDLIFE HABITAT For these habitats refer to NRCS conservation practice standard *Early Successional Habitat Management*, code 647 or *Upland Wildlife Habitat Management* 645, for specifications

THINNING FOR DEER WINTERING HABITAT For these habitats refer to NRCS conservation practice standard *Early Successional Habitat Management*, code 647 or *Upland Wildlife Habitat Management* 645, for specifications

STANDS THINNING-(CHEMICAL) SEEDLING & SAPLING (Purposes 1 -6)

This thinning is intended to control woody or herbaceous vegetation that competes directly with existing, desirable, naturally regenerated or planted seedlings in a forest stand by reducing vegetative stocking of undesirable species on a site**.**
Include sufficient data to show that adequate desirable regeneration is present, and that existing competing vegetation will prevent or substantially delay (>10 years) the successful development of desirable seedlings unless the recommended competition control measures are taken.

Design will identify the vegetation to be removed and provide information to assure effectiveness of the methods used. The vegetation to be removed will typically consist of tree seedlings/sprouts, woody shrubs, or small saplings (<4" dbh) within the understory that compete directly with more desirable seedling/saplings.

The residual seedlings are well established, 1 foot tall or taller. Residual seedlings after treatment will represent a substantial component (one third or more) of the future stand (e.g. at maturity) on all acres treated.

Competition control may be carried out in accordance with conservation practice standard Brush Management (code 314) or Herbaceous Weed Control (code 315).

LIGHT-MODERATE STANDS THINNING (SEEDLING, SAPLING, POLESIZE & SMALL SAWTIMBER)

This thinning is intended to increase the quantity and quality of forest products, and improve growth, vigor, and composition of seedling, sapling, polesize and small sawtimber stands. (Purposes 1 -6)

This thinning will address the following resource concerns: Plant Condition- Plants not adapted or suited and/or Plant Condition – Productivity, health and vigor.

Light-moderate thinning will take place in moderately overstocked stands; Basal area reduction will be less than 40% on average across the stand.

Selection of species to favor will be justified based on stand type, stand structure, and silvicultural guidelines within the forest management plan.

Residual Stand will be well distributed and fall within the following ranges of spacings;

Seedling	6’ X 6’	or	1,210 trees/ac.
Sapling	8’ X 8’	or	889 trees/ac.
	10’ X 10’	or	436 trees/ac.
Polesize	12’ X 12’	or	303 trees/ac.
	15’ X 15’	or	194 trees/ac.
Sawtimber	19’X 19’	or	121 trees/ac.
	25’X 25’	or	70 trees/ac.

Trees to be removed will be completely severed at ground level (or below the base of the lowest live branches).

HEAVY STANDS THINNING (SAPLING, POLESIZE & SMALL SAWTIMBER)

This thinning is intended to increase the quantity and quality of forest products, and improve growth, vigor, and composition of sapling, polesize and small sawtimber stands. (Purposes 1 -6)

This thinning will address the following resource concerns: Plant Condition- Plants not adapted or suited and/or Plant Condition – Productivity, health and vigor.

Heavy thinning will take place in stands in overstocked stands; Basal area reduction will be more than 40% on average across the stand.

Selection of species to favor will be justified based on stand type, stand structure, and silvicultural guidelines within the forest management plan.

Residual Stand will be well distributed and fall within the following ranges of spacings;

Seedling	6’ X 6’	or	1,210 trees/ac.
Sapling	8’ X 8’	or	889 trees/ac.
	10’ X 10’	or	436 trees/ac.
Polesize	12’ X 12’	or	303 trees/ac.
	15’ X 15’	or	194 trees/ac.
Sawtimber	19’X 19’	or	121 trees/ac.
	25’X 25’	or	70 trees/ac.

Trees to be removed will be completely severed at ground level (or below the base of the lowest live branches).

CROP/ MAST TREE RELEASE

Crop trees are trees that produce or have the potential to produce the desired landowner benefits (Purposes 1 – 7)

Crop trees will be a minimum of 3” DBH and at least 25’ tall. Crop trees will be released on 3-4 sides (apple trees will be released on all 4 sides) of the crown by killing or cutting competing trees with crowns within 5 feet of the crown of the crop trees through felling, complete double girdling, or similar treatment.

At least 20 crop trees per acre will be released. The maximum number of crop trees is as follows:

a. 80 trees per acre in hardwood stands
b. 120 trees per acre in mixedwood stands
c. 150 trees per acre in white pine or softwood stands.

In addition, overall stocking of the stand will be maintained so that a well-distributed, well-stocked stand remains.

All Crop trees will have the following characteristics:

a. In need of release. (not free growing on at three sides)
b. Crown ratio >30%, healthy, and are expected to grow into the main canopy. Species variety is highly desirable.
c. Expected longevity of 20+ years after treatment.
d. Species well adapted to the site.

Timber Objective

a. High-value commercial species.
b. High-quality tree with:
    a. Lower bowl log with sawlog or higher grade potential.
    b. No persistent sprouts on butt log.

Wildlife objective

a. Mast-producing species (prefer hard over soft).
b. Trees with major dead branches and open cavities are desirable.
c. Stands with a Wildlife Objective will include at least 4 mast trees per acre with all being> 6 in. dbh, as well as full-crowned and vigorous.
d. Species to be released as wildlife crop tree include smooth-barked (disease free) beech, oak, white or yellow birch, wild apple, wild crabapple, mountain ash, serviceberry/ shadbush, cherry, ash, chestnut, and butternut.

Aesthetic Objective

a. Select trees and species that are unique in appearance or character, produce attractive flowers and colorful foliage, and/or have attractive or unique bark.
b. Visible from travel lanes, vantage points, etc.
c. Aesthetic crops trees can't be more than 25% of total crop trees released.