



CONSERVATION ENHANCEMENT ACTIVITY

E666K

CONSERVATION STEWARDSHIP PROGRAM

Creating structural diversity with patch openings

CONSERVATION PRACTICE: 666 - Forest Stand Improvement

APPLICABLE LAND USE: Forest; Associated Ag Land; Farmstead

RESOURCE CONCERN: Animals, Plants

ENHANCEMENT LIFE SPAN: 10 years

Enhancement Description

Forest stand improvement that creates patch openings. Size, shape, location, and arrangement of patches will be based on natural features and emulate patches that would result from natural disturbance regimes of wind or fire, varying geographically by forest type and by tree species desired from natural regeneration. The treatment will create or maintain diversity in stand composition and structure, increase pest resistance, reduce wildfire risk, and enhance wildlife food availability. Openings may provide regeneration sites, restore natural plant communities, and achieve or maintain a desired understory plant community for wildlife habitat.

Criteria

- Develop or update a forest management plan in consultation with NRCS personnel and a professional forester to direct the management of the property.
- Apply treatment to one of the following forest stand conditions:
 - Existing stand is already at an “acceptable growing stock” level. For tree species with stocking charts, this is at the B line, the lowest level of a fully stocked stand. Must contain species for regeneration from the NRCS state list of suitable trees. Species on this list have the ability to regenerate from seed, sprouts, or other natural regeneration sources.
 - Dry Western forests that have been thinned in the last 5 years. Patch cutting seeks to restore variable and patchy structural conditions typical of benchmark ecological sites.



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- Closed canopy pine plantation monoculture with few native herbaceous or shrub plants in the understory. Select sites with ≥ 50 square feet of basal area per acre and pine species included on the NRCS state list of pine species that have the ability to regenerate from seed.
- Create openings of varying sizes. Vary shapes of openings to correspond with land features (slope, aspect, soil moisture), or to utilize sunlight effectively to encourage regeneration within the opening, as needed.
 - The size of patches to be treated for wildlife can vary from .025 to 10 acres, be distributed throughout the forest, and cannot total more than 30% of the acres meeting the “acceptable growing stock” level.
 - Size of patches to be treated for degraded plant condition can vary from .025 to 10 acres, be distributed throughout the forest, and cannot total more than 50 percent of the acres meeting the “acceptable growing stock” level.
- Preferentially locate patch openings in areas that lack crop trees or wildlife trees. In dry western forests, locate patches in areas more open in the past due to higher fire frequency and intensity (on hills and knolls, and west- and south-facing slopes). Locate openings where there is an aggregation of trees that are:
 - At high risk of mortality or failure (unless retained as a wildlife tree)
 - Of low crown vigor
 - Of poor stem form and quality
 - Less-desirable species.
- Trees removed during patch development having marketable value can be sold.
- Where slash and debris will be generated, use NRCS Conservation Practice Standard Woody Residue Treatment (Code 384), to appropriately treat slash and debris, as necessary, to assure that it will not present an unacceptable fire, safety, environmental, or pest hazard. Remaining woody material will be placed so that it does not interfere with the intended purpose or other management activities. Do not burn vegetative residues except where fire hazard or threats from diseases and insects are of concern or when other management objectives are best achieved through burning. When slash and other debris will be burned onsite use NRCS Conservation Practice Standard Prescribed Burning (Code 338).
- Slash and cull trees must be managed if the material interferes with the production of wildlife food. The material may be managed as follows:
 - Windrowing or wildlife piles
 - Chipping or cutting for firewood



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- In appropriate stands, prescribed burning may be used.
- Refer to criteria in NRCS Conservation Practice Standard Integrated Pest Management (Code 595) to assist with site-specific strategies for pest prevention, pest avoidance, pest monitoring, and pest suppression. Time tree felling to avoid buildup of insect or disease populations.
- Control measures may be used on undesirable competing vegetation, to favor the development of desirable vegetative communities on the site. Vegetation may be treated by chemical methods such as spraying or single stem treatments, or mechanical methods like a heavy-duty brush cutter or similar equipment. Refer to criteria in NRCS Conservation Practice Standard Integrated Pest Management (Code 595).
- For areas adjacent to patch openings, leave residual trees and shrubs that provide a diversity of wildlife food sources.
- Implement forest stand improvement activities in ways that avoid or minimize soil erosion, compaction, rutting, and damage to remaining vegetation, and that maintain hydrologic conditions. Protect site resources by selecting the method, felling direction and timing of tree felling, and heavy equipment operation. For temporary access use NRCS Conservation Practice Standard Forest Trails and Landings (Code 655), to protect soil and site resources from vehicle impacts.
- Use NRCS Conservation Practice Standard Access Road (Code 560), for more heavily used roads associated with forest stand improvement activities.
- The enhancement will comply with all applicable federal, state, and local laws and regulations, and with States' Forestry Best Management Practices for Water Quality.
- If management of the remaining forest area (between patch openings) provides a conservation benefit, management can be accomplished at the same time as patch opening creation. Use applicable criteria from NRCS Conservation Practice Standard Forest Stand Improvement (Code 666) when managing the general forest area.



Documentation and Implementation Requirements

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Participant will:

- Prior to implementation:
 - work with NRCS or your forester to develop or update a forest management plan which will include management practices to address the documented resource concerns.
 - select areas for patch openings that contain species for regeneration from the NRCS state list of suitable trees that have the ability to regenerate from seed, sprouts, or other natural means. Document that the trees are present and vigorous enough to regenerate.
 - determine the resource concern, size, shape, location, and distribution of openings throughout the forest. In dry western forests, locate patches in areas more open in the past due to higher fire frequency and intensity (on hills and knolls, and west- and south-facing slopes). The size of each opening ranges from 0.25-10 acres, and the total acreage in openings will be less than 30% of eligible forest acres for wildlife openings and less than 50% of eligible forest acres for degraded plant condition based on stocking. Locate openings in areas that lack crop trees or wildlife trees and where there is an aggregation of trees that are:
 - At high risk of mortality or failure
 - Of low crown vigor
 - Of poor stem form or quality
 - Less-desirable species

- During implementation:
 - manage slash and cull trees by windrowing, creating wildlife piles, chipping, cutting for firewood, and/or prescribed burning if appropriate.
 - protect the site from plant and animal pests, fire, and adverse impacts to the soil resource.
 - notify NRCS if there are any planned changes, to verify they meet the enhancement criteria.

- After implementation:
 - provide NRCS a map showing the location of patches and photos documenting that patch cuts were completed according to specifications.

NRCS will:

- Prior to implementation:
 - verify the enhancement activity is planned for acres that meet the criteria within the enhancement guide sheet.



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- provide technical assistance in:
 - preparing specifications for applying this enhancement for each site using approved specification sheets, job sheets, technical notes, and narrative statements in the conservation plan, or other acceptable documentation, and will discuss the details with the participant.
 - determining size, shape, location, and distribution of openings, including percentage of the stand that will be in openings, to meet the criteria within the enhancement guide sheet.
 - evaluating stocking and acceptable growing stock for both pre- and post-treatment stand conditions.
 - identifying desired species to be regenerated in the openings, as needed.
- provide and explain the following NRCS Conservation Practice Standards as they relate to implementing this enhancement (as applicable for the site):
 - Forest Stand Improvement (Code 666)
 - Woody Residue Treatment (Code 384)
 - Prescribed Burning (Code 338)
 - Integrated Pest Management (Code 595)
 - Forest Trails and Landings (Code 655)
 - Access Road (Code 560)
- During implementation:
 - evaluate any planned changes to verify they meet the enhancement criteria.
 - provide technical assistance if requested by the participant.
- After Implementation:
 - verify the planned patch openings were established to specifications developed for the site and the enhancement criteria.

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement to meet all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date

Design Approvals & Acknowledgements:

Design Approval	Date	Job Approval Authority
Designed by:		
Approved by:		

Client's Acknowledgement Statement:

The client acknowledges:

- I have received a copy of the specification and understand the contents and requirements.
- It is my responsibility to obtain all necessary permits and/or rights and to comply with all ordinances and laws pertaining to the application of this practice.
- I will not begin installation of this practice until I have received appropriate approval to do so. I understand NRCS also has Federal and state laws to comply with that may take some time to address (e.g. cultural resources).

Client's	Date
Signature	

Certification Documentation:

	Field Evaluation: Post-treatment inventory, measurements, notes, as-built, and supporting documentation (document completion in conservation plan), as required.
	Map(s): Including field numbers, fields treated, and units treated (may document on conservation plan map), as required.
	Photos or other supporting documentation (e.g., seed tags, soil tests, receipts, invoices, spray records, fertilizer records, etc.)
Brief Description of Work Accomplished (types of equipment used, date of application, extents and quantities installed, etc.)	

Certification Statement:

The employee certifies the implementation of this conservation practice:

- Meets the purpose, general criteria, and any required additional criteria as documented in the conservation practice standard and/or enhancement sheet.
- Meets the specifications contained herein and is complete.
- Conforms to my existing Job Approval Authority controlling factors and levels.

Name	Date	Job Approval Authority

Field Level Certification – For multiple applications of this design.				
Land Unit/ Contract Item Number	Date	Unit(s)	Amount Installed	Certifier