United States Department of Agriculture

CONSERVATION ENHANCEMENT ACTIVITY

E666N

CONSERVATION STEWARDSHIP PROGRAM

Creating structural diversity in dry Western forests

Conservation Practice 666: Forest Stand Improvement

APPLICABLE LAND USE: Forest, Associated Ag Land

RESOURCE CONCERN: Plant, Animal

ENHANCEMENT LIFE SPAN: 10 Years

Enhancement Description

Restore natural stand structure in dry Western forests by creating openings characteristic of reference ecological site conditions in stands where even thinning treatments have already been applied to reduce wildfire risk. Thinning treatments are effective in reducing fuels, but typically do not restore forest structural diversity to emulate benchmark or reference conditions. Applying this enhancement as a follow-up treatment will create a patchy structure that provides open areas where grasses and forbs can thrive and produce wildlife food and cover. The size, shape, and arrangement of openings will be based on moisture availability and site physiography, to emulate structural conditions that would result from natural disturbance regimes of wind and/or fire.

Criteria

States will apply general criteria from the NRCS National Conservation Practice Standard Forest Stand Improvement (Code 666) as listed below, and additional criteria as required by the NRCS State Office.

- Develop or update a forest management plan in consultation with NRCS personnel and a professional forester to direct the management of the property. The plan will identify a desired future condition (DFC) for restoration of forest structure based on the historical range of variation. It will include a map of the property showing zones of topography, slope, and aspect that indicate moisture availability, to guide placement of openings. It will identify the amount, size distribution, and allocation of openings among moisture zones.

Information on desired wildlife species that use grassy openings in a forest matrix, will be included.

- This enhancement may be applied only to forested acres that have received an even thinning treatment within the past five years.
- The enhancement will create variably-sized openings so that the horizontal structure of the restored stands will be similar to that of reference ecological sites for the forest type/soil/site combination, or will be based on similar information about historical conditions within the range of natural variability.
- The size of interstitial and perennial openings (i.e., variable openings between tree groups, vs. persistent meadow openings) to be created can vary from 0.1 to 5 acres, with mean interstitial gap distance of around 80 feet (~0.10/ac) and perennial gap distance of around 160 feet (~0.60/ac). They will be distributed throughout the forest, and openings will total 30% to 60% of the eligible forested acres. Gap distances should be dependent on microsite productivity gradients and highly variable around the mean.
- Openings will be created in a range of sizes, with more small openings than large openings, and will also vary in shape.
- Preferentially locate larger openings in dryer portions of the site (on hills and knolls, and west- and south-facing slopes), in areas that would have been more open in the past due to higher fire frequency and intensity. Locate openings where there is an aggregation of trees that are:
    - At high risk of mortality or failure;
    - Less-desirable species and individuals;
    - Encroaching upon perennial meadow as evidenced by the lack of historical woody features (e.g., lacking stumps, old trees, rotting downed logs).
- Use smaller openings in moister portions of the site, such as valleys and dips, and north- and east-facing slopes.
- Trees cut while implementing this enhancement may be sold.
- Where slash/woody residue will be generated, use criteria in NRCS Conservation Practice Standard Woody Residue Treatment (Code 384), to appropriately treat slash and debris, as necessary, to assure that it will not create unacceptable fire, safety, environmental, or pest hazard. Remaining woody debris 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 insect pest 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).

- Woody residue must be managed if it has potential to cause undesirable wildfire and/or prescribed fire behavior. The residue may be managed as follows:
    - Chipping or cutting for firewood;
    - Removal from the site;
    - Mastication;
    - 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.
- 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.

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Documentation and Implementation Requirements:

Participant will:

- ☐ Prior to implementation, obtain a current or updated Forest Management Plan (FMP) that includes activities required to implement this enhancement. The FMP will identify a desired future condition (DFC) for restoration of forest structure based on the historical range of variation (obtained from ecological site descriptions or similar information). The FMP will include a map of the property showing zones of topography, slope, and aspect that indicate moisture availability, to guide placement of openings. It will identify the amount, size distribution, and allocation of openings among moisture zones. Information on desired wildlife species that use grassy openings in a forest matrix will be included. (NRCS will provide technical assistance, as needed.) The participant will make the FMP available for NRCS review.

- ☐ Prior to implementation, review the NRCS Conservation Practice Standard Forest Stand Improvement (Code 666) conservation practice standard or appropriate Job Sheet and use this information to meet the criteria of this enhancement.

- ☐ Prior to implementation, arrange for a forestry specialist to evaluate the stand and perform site-specific marking of areas where gaps and patch openings will be created. The forestry specialist will:

    - o Determine the size, shape, location, and distribution of openings to be created throughout the forest, with the size of each opening being between 0.1-5 acres and the total acres in openings being 30% to 60% of eligible forest acres.

    - o Preferentially mark locations for larger openings:
        - In lower-moisture portions of the site (on hills and knolls, and west- and south-facing slopes);
        - Where there is an aggregation of trees that are:
            - At high risk of mortality or failure;
            - Less-desirable species;
            - Encroaching upon perennial meadow as evidenced by the lack of historical woody features (e.g., lacking stumps, old trees, rotting downed logs).

- ☐ Prior to implementation, be aware of the state's Forestry Best Management Practices for Water Quality (BMP's) so they can be followed to protect the site and maintain soil and water quality.

- ☐ Prior to implementation, with assistance from the forestry specialist and NRCS as needed, arrange for labor to accomplish tree cutting and slash/woody residue treatment according to the FMP and enhancement criteria.
- ☐ During implementation, manage slash/woody residue by windrowing, creating wildlife piles, chipping, cutting for firewood, and/or prescribed burning if appropriate. Wildlife piles are limited to a maximum of one pile per three acres, and no larger than 4x4x4 feet in size.
- ☐ During implementation, protect the site from plant and animal pests, fire, and adverse impacts to the soil resource.
- ☐ During implementation, follow the state's forestry BMP guidelines and any additional guidance from the NRCS State Office to protect trails, roads and landings from soil loss or damage. Re-vegetate these disturbed areas or close them off to traffic to allow natural vegetation to grow.
- ☐ During implementation, notify NRCS if there are any planned changes, to verify they meet the enhancement criteria.
- ☐ During implementation, keep a written log and take digital photos of openings created, and note their approximate locations on a map.
- ☐ After implementation, retain a map showing the location of openings, and photos documenting that cutting was completed according to specifications.
- ☐ After implementation, notify NRCS that the work has been completed, and make the following information available to NRCS for verification: map showing location of openings, the written notes, and digital photos.

NRCS will:

- ☐ Prior to implementation, verify the enhancement activity is planned for acres that meet the criteria within the enhancement guide sheet. Review documentation of prior stand treatments to verify that an even thinning was conducted on the acreage within the past five years.
- ☐ Prior to implementation, assist with interpretation of a current or updated FMP on acres targeted by this enhancement.

- ☐ Prior to implementation, as needed, assist participant in determining which wildlife species will benefit from gaps and patch openings.
- ☐ Prior to implementation, provide and explain the following NRCS Conservation Practice Standards as they relate to implementing this enhancement.
    - o Forest Stand Improvement (Code 666)
    - o Integrated Pest Management (Code 595)
    - o Forest Trails and Landings (Code 655)
    - o Access Road (Code 560)
    - o Woody Residue Treatment (Code 384)
    - o Prescribed Burning (Code 338)
- ☐ As needed, prior to implementation, NRCS will provide technical assistance by:
    - o 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 discussing the details with the participant.
    - o Determining the size, shape, location, and distribution of openings, to meet the criteria within the enhancement guide sheet.
    - o Evaluating stocking and acceptable growing stock for both pre- and post-treatment stand conditions.
    - o Identifying desired species and number of trees to be regenerated in the openings.
- ☐ Prior to implementation, assist the participant(s) in delineating, on a map, the area where the enhancement will be applied.
- ☐ Prior to implementation, discuss the requirement to follow the state's forestry BMPs.
- ☐ During implementation, provide technical assistance if requested by the participant.
- ☐ During implementation, as needed, evaluate any planned changes to verify they meet the enhancement criteria.
- ☐ After implementation, verify the correct placement, number, and size of openings were established, and certify that the enhancement was completed according to the NRCS Conservation Practice Standard Forest Stand Improvement (Code 666) specifications and the enhancement criteria.

NRCS Documentation Review

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

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

_____ _____

NRCS Technical Adequacy Signature Date

United States Department of Agriculture

South Dakota (SD) Supplement to Conservation Enhancement Activity

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E666N

Creating Structural Diversity In Dry Western Forests

Additional Criteria for SD:
In addition to the criteria specified in the national job sheet E666N, the following additional criteria apply in SD:

- All trees that grow in SD have the ability to regenerate from seed, sprouts, or other natural regeneration. However, eligible tree species per location can be found on maps located in Silvics of North America Volumes 1 & 2 (respective of each species). Silvics of North America Volumes 1 & 2 can be found at: https://www.srs.fs.usda.gov/pubs/misc/ag_654/table_of_contents.htm

- A Forest Stewardship plan will need to be developed. The SD Department of Agriculture will develop a plan with producers, and they can be contacted at:

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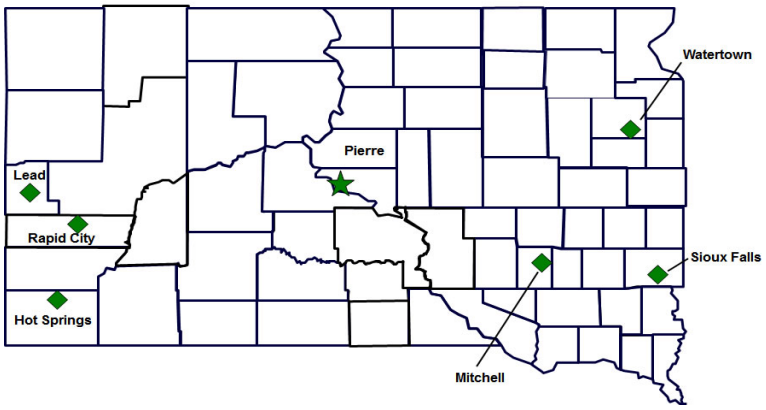
Office Locations



Hot Springs - Field Office
2202 University Ave.
Hot Springs, SD 57747-1802
605-745-5820

Mitchell - Field Office
1315 N. Main St., Suite #104
Mitchell, SD 57301-1302
605-995-8189

Rapid City - Field Office
3305 W. South St.
Rapid City, SD 57702-8160
605-394-2395

Watertown - Field Office
2001 9th Ave. SW, Suite 500
Watertown, SD 57201-3503
605-882-5367

Lead - Field Office
622 Hearst Avenue, Suite B
Lead, SD 57754-1058
605-584-2300

Pierre - State Office
523 E. Capitol Ave.
Pierre, SD 57501-3182
605-773-3623

Sioux Falls - Field Office
4305 South Louise Ave, Suite #107
Sioux Falls, SD 57106-3115
605-362-2830