



**CONSERVATION ENHANCEMENT ACTIVITY**

**E666106Z1**

**CONSERVATION STEWARDSHIP PROGRAM**

Implementing sustainable practices for pine straw raking

**Conservation Practice 666: Forest Stand Improvement**

**APPLICABLE LAND USE: Forest; Associated Ag Land**

**RESOURCE CONCERN ADDRESSED: Soil Quality Degradation**

**PRACTICE LIFE SPAN: 10 Years**

**Enhancement Description**

Adopts guidelines for sustaining soil quality and wildlife habitat on sites where pine straw raking is currently practiced. Raking and removal of pine needles (“pine straw”) provides valuable landscaping material but at a high cost to soil fertility, soil organic matter, wildlife habitat, and in some cases, soil compaction, soil erosion and water quality degradation. Straw removal also makes prescribed burning less feasible by removal of the fine fuels needed to carry frequent surface fires that maintain longleaf pine and its characteristic understory. This enhancement is most applicable to longleaf pine forestland because: (1) longleaf-dominated ecosystems with their characteristic suite of flora and fauna historically predominated in most places where pines are currently grown in the Southeast, and (2) longleaf is the favored species for pine straw operations.

**Criteria**

- States will apply general criteria from the NRCS National Conservation Practice Standard (CPS) 666 as listed below, and additional criteria as required by the NRCS State Office.
- Identify specific sites with the greatest potential for pine straw. Natural pine stands with unusually high quality native understory vegetation, sites that support rare plants and sites that support Threatened & Endangered species should not be raked for pine straw.
- The enhancement will be applied to sites where pine straw raking has occurred at least once during the past three years.



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- Adhere to the following guidelines for pine straw raking:
  - Do not rake straw on erodible soils with slopes greater than 8%.
  - Use hand tools rather than mechanized raking equipment. Use pitchforks to lift straw off of rare or high-value understory plants.
  - Divide the acreage to be raked into several units and rotate the raking regime so that only a portion of the area is raked each year.
  - Adopt a rotation that includes periodic prescribed burns. One recommended rotation begins with a “rest” year to allow fuel to accumulate, a burn year and then a year when raking can occur (rest-rake-burn, repeat).
  - Thin the pine overstory to provide light needed to support understory plants. Thin when tree crowns begin to touch or when basal area reaches about 120 square feet, whichever comes first. Reduce basal area to 60-70 square feet.
  - Collect only the undecomposed, recently fallen “red needles.” Leave undisturbed the partially decomposed older needles, which are of little economic value.
  - Harvest needles once, in the middle of the fall (October) needle drop. Although the amount of subsequent needle drop will be less, studies have shown that retaining the late-season needles can reduce nitrogen and phosphorous losses by up to 70% and soil erosion by up to 90%.
  - If herbicides are necessary to control invasive or undesirable plants use directed-spray or spot treatments, and choose formulations and spray windows that will not damage native grasses and forbs.
  - Monitor fertility levels by periodic soil testing and pine needle nutrient analysis and, if indicated, be prepared to add fertilizer at recommended rates. Appropriate fertilization will increase the amount of needles, but over-fertilization can damage or kill longleaf pine trees.



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- 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 equipment operation.
- For temporary access use NRCS CPS Code 655, Forest Trails and Landings, to protect soil and site resources from vehicle impacts.
- Use NRCS CPS Code 560, Access Road, for more heavily used roads associated with forest stand improvement activities.
- Where slash and debris will be generated, use NRCS CPS Code 384, Woody Residue Treatment, 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 CPS Code 338, Prescribed Burning.

### **Documentation Requirements**

- Plans and specifications for applying this practice shall be prepared for each site and recorded using approved specification sheets, implementation requirements, technical notes and narrative statements in the conservation plan, or other acceptable documentation.
- Additional documentation as required by NRCS State Office.