Site Preparation for Natural Reforestation SPFNR022704

PURPOSE: Site preparation for natural reforestation describes treating land to encourage germination of seed or growth of seedlings from desirable pines and hardwoods.

The method, intensity and timing of site preparation should be suitable for the specific site. The type and intensity of site preparation will vary according to site, species, heaviness of the expected seed crop, ground cover and soils. Select a method that will minimize soil erosion and follow Alabama's Best Management Practices for Forestry.

NATURAL PINE REFORESTATION: Site preparation for pine reduces hardwood and brush competition, and prepares an adequate seedbed to allow for germination of seed. An existing stand of desirable species must be available. Bare ground is essential.

CONSIDERATIONS: There are advantages and disadvantages to natural pine reforestation. On the plus side, it may be less expensive that planting seedlings and there may be a natural mix of seeds available. Disadvantages of this practice include no stocking control and no genetic control of the next crop. It takes at least 3 years to determine the success or failure of natural regeneration because seedling growth is not as rapid as planted seedlings. It may also be more expensive if the seed trees are not harvested.

EXISTING STAND REQUIREMENTS: Seed trees should be good quality dominant trees and between 12 - 16 inches in diameter, whenever possible. Loblolly, Virginia and shortleaf pine are the most dependable seeders, producing an adequate seed crop every 2-3 years. Longleaf pine produces an adequate crop of seeds in 3 - 7 year intervals; slash pine every 3 years. The minimum number of recommended seed trees/acre varies by species and tree diameter.

MINIMUM RECOMMENDED NUMBER OF SEED TREES FOR PINE SPECIES

D.B.H.	SHORTLEAF	LOBLOLLY	SLASH	LONGLEAF	VIRGINIA
9					6
10	20	12	12	55	5
12	14	9	9	38	4
14	12	6	6	28	4
16+	12	4	4	21	4

SITE PREPARATION TECHNIQUES: Site disturbance enhances natural regeneration of pine.

- Logging alone may expose sufficient mineral soil to enhance natural regeneration of some species.
- Prescribed fire before logging reduces buildup of forest litter allowing better natural regeneration. Two or more annual burns before a seed tree cut provides good seedbed conditions as well as some

hardwood control. If an after-harvest burn is done, it should be conducted no more than two months before seedfall.

- Limit use of heavy machinery on tracts with heavy hardwood competition, a low number of seed trees or hard to regenerate species. Instead, choose chopping, burning and heavy disking. However, this is not only expensive, but can also result in overstocking by exposing too much mineral soil to falling seeds.

CHECKING RESULTS: Hopefully, a good seed year will follow site preparation work for natural regeneration. If the results are spotty, checking after the next year's seedfall may show that the gaps have filled. Allow seed trees 3 years to respond to site preparation. If pine seedling stocking yields between 400 and 1500 seedlings/acre at the end of the first growing season, it is a success. More than 1500 seedlings/acre requires a precommercial thin at age 3-5 years.

NATURAL HARDWOOD REFORESTATION: Site preparation for hardwoods encourages development of a high quality stand by giving red and white oaks, yellow poplar, and/or ash an improved opportunity to compete with less desirable species. Natural hardwood regeneration comes from four main sources: stump sprouts, root sprouts, seed and established seedlings.

EXISTING STAND REQUIREMENTS: Survey the stand to determine if the desired species is a component of the area, what percentage of the stand it occupies and the potential for regeneration. The area must be prepared so that more economically valuable shade intolerant species can compete with shade tolerant species. The maximum allowable standing timber after the harvest is 20-25 square feet of basal area per acre. Someone familiar with hardwood regeneration methods should complete this evaluation.

SITE PREPARATION TECHNIQUES: Mechanical shearing is conducted during dormant months (November to April) to use food reserves of the stump for new growth in the spring. It is performed on specific sites of less than 20% slope using a bulldozer of D-6 Caterpillar size or larger equipped with a "V" or "KG" shear blade. Conventional dozer blades may not be used. Sever all stems 2 inches and larger in diameter at the ground line. Stumps should be cut no higher than 8 inches above ground line. Desirable species too large to be sheared by mechanical equipment may be left for seed trees and/or wildlife benefit if they are mast producers. Trees of undesirable species should be deadened and left for wildlife den trees or felled with a chainsaw. Small clumps of mast trees can also be left for wildlife.

Hand shearing can also be performed using chain saws, motorized brush whackers, machetes, axes, and brush hooks.

CHECKING RESULTS: Someone with experience in hardwood regeneration methods may evaluate the stand the following growing season to determine the success of the regeneration.