



Renovating Poor Quality Pine Stands

Well managed stands of pine produce many values for a forest landowner. Poor pine stands produce few values and may be a liability to the landowner. Poor stands exist because sites have been abused, unmanaged, poorly managed, or have been a victim of bad luck.

Major renovation treatments are required to bring these poor pine stands back to productivity, minimize resource loss, and facilitate future management. The primary management objective here is pine timber production. Below are discussed the five common problems associated with poor pine stands, four of which can be solved with ecological renovation.

R_x Total Stand Liquidation

The first option in renovating stands often appears to be a complete harvest (liquidate stand) and to start over. This may or may not be the best financial option. Only by proper inventory and informed projection of future values can a good decision be made.

If the stand is just starting out (one to seven years old) with few crop trees, or if the stand is nearing the end of a rotation (within five years of harvest) with few crop trees present, complete harvest might be a cost-effective alternative. For most stands in the middle of a rotation period, liquidation would not be economical if some crop trees with good growth rates still exist on the site.

These few crop trees per acre may still be carried to full rotation age with fewer costs and more returns than completely harvesting the site and starting over. This is an economic decision requiring good economic analysis rather than a silvicultural decision.

R_x Renovating Hardwood-Dominated Pine Stands

These stands require hardwood removal and pine regeneration. Financial, pine growth, and site considerations must be carefully examined when treating this type of stand.

Remove hardwoods with periodic prescribed fire and/or chemical treatments. Repeated prescribed burns will be necessary for hardwood control. Larger hardwood trees not killed by fire can be chemically injected or girdled.

Large areas that are at least one to five acres in size, devoid of crop trees, with vegetation control (like a herbicide treatment) are suitable for planting. Control herbaceous and woody competition around seedlings and eliminate any overtopping neighboring hardwoods. Delay further fire until seedlings are seven to ten years old. Release pines from surrounding competition with chemicals in two to five years if needed.

R_x Renovating Severely Highgraded Stands

Diameter-limit cutting, selective cutting, and aesthetic / development cuts are forms of highgrading. Highgrading is cutting the best trees and leaving the pest-infested, decayed, damaged, crooked, dying, declining and suppressed trees to reproduce. After several cycles of highgrading, stand productivity for timber will decline.

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This type of stand requires enrichment plantings, heavy weeding, cleaning, and thinning (TSI), and hardwood control. Eliminate all unwanted or unacceptable stems, and favor good pines already on the site. Several treatments, harvests and plantings may be needed for full recovery.

Plant in large areas completely harvested or opened by vegetation control to establish high-quality pines. Competition can be removed and pines released within two to five years, if needed. If large pines can act as seed trees (six to eight mature trees per acre with large crowns), prescribe burn in late summer before good seed crops.

R_x Renovating Old Harvested Sites With No Regeneration

One of the most prevalent and costly mistakes made with pine stands is harvesting with no regeneration plan or delaying regeneration. Every year that a site is not producing pine wood represents income lost and potential site productivity lost. Regeneration delays cause the next pine forest, when established, to suffer greater competition problems, be more costly to establish, and take longer to grow to harvest.

These types of stands require vegetation control by fire and/or chemicals to minimize hardwoods, site preparation on some areas and planting. Additional chemical, brush cutting and prescribed burning will be needed to ensure pine dominance.

R_x Renovating Stagnated Stands

Just as stands with no pine regeneration are a problem, so are young stands that have 1,200 or more stems per acre. These stands suffer from severe competition that slows growth and increase mortality. If left untreated, the entire stand could be lost to pest or competition problems, or grow slowly for decades.

Young stands can be precommercially thinned. This method is expensive, but is one of the few remedies for crowded seedlings. Poorly formed, poorly positioned or diseased stems should be cut (mowed) about six to 12 inches above the ground. Aim for 300-500 stems per acre in the first pass. Leave only the best stems with the largest living crowns.

Older stands with over 130 square feet of basal area require thinning. Residual tree damage from thinning will be a problem. Thin stands back to 70 to 80 square feet of basal area for the first thinning.

Conclusions

Good sites can have many bad management decisions, mistakes or unexpected acts of nature appear as poor tree stocking and growth. Renovating these stands will keep them productive.

Seek professional assistance from a forester to properly manage your forest resources. For more detailed information on this subject, see the University of Georgia Cooperative Extension Service Forest Resources Unit publication FOR96-004 entitled, "Renovating poor pine stands: Putting land back to work."

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by Dr. Kim D. Coder, JUNE 1996



The University of Georgia

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