



# *Seeing the Forest through the Trees*

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## An Economic Model for Multiple-Value Management of Longleaf Pine

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### Abstract

There is growing interest in multiple-value forest management, particularly among private landowners. In addition to timber, many of these landowners may place equal or greater value on wildlife habitat, recreational use, aesthetics, and long-term asset appreciation. To balance multiple objectives, a low intensity silvicultural system featuring selection harvest and natural regeneration may be most appropriate. However, little information exists about the economic aspects of these integrated management goals.

An interactive Excel spreadsheet model was developed with initial data based on a standard 10% timber inventory of a moderately stocked 941 acre tract at the Joseph W. Jones Ecological Research Center. Growth rates were estimated from site-specific studies and applied to the stand table to move trees through diameter classes over time. Alternating halves of the tract were harvested using single-tree selection every five years for 50 years. Three harvest intensity scenarios were modeled to estimate timber revenues and a hunting lease value was factored into the revenue stream. Expense assumptions were based on common costs for management practices in the region.

The following values are presented from lower to higher levels of harvest intensity, with figures in real values adjusted for inflation. Average present value ranged from \$1,428,903 to \$1,721,283, with 20 year internal rates of return from 3.58% to 3.86%. Accumulated cash flow ranged from \$2,309,050 to \$5,499,282, with ending values from \$4,907,850 to \$3,118,557. Initial stocking was 4,672 mbf, with ending stocking ranging from 6,008 mbf to 2,956 mbf.

This model is in the early stages of development and is intended as a heuristic rather than a predictive tool. The assumptions incorporated in the model represent our best current information but can benefit from further refinement and validation. This modeling approach has also pointed out information gaps and areas of needed research, such as growth and yield for multiage natural longleaf pine stands, regeneration dynamics, and ingrowth rates. Further refinement and development of models such as this can help landowners understand trade-offs and make informed decisions when balancing multiple land management objectives.