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Financial breakeven point for competition control in longleaf pine (*Pinus palustris* Mill.) reestablishment

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Abstract Reestablishment of longleaf pine (*Pinus palustris* Mill.) in the American South is a priority of conservation groups. Its original Pre-European natural range of 38 million ha has been reduced by 95% and it is one of the most endangered ecosystems in the US. The species undergoes a grass stage where no stem development takes place that can last 7 years or longer. Competition control can limit this grass stage and increase economic returns. The amount of competition control cost that equals the cost of the grass stage delay would be the most one would want to expend in reducing the grass stage delay. This breakeven amount can be determined using land expectation value methodology and a simple calculation technique is presented. A case study shows that each additional year of a grass stage delay decreases the bare land value of a longleaf pine stand by about 6% annually. A longleaf pine stand with no grass stage delay worth $2,500 per ha would be worth $1,768 per ha with a 5-year grass stage delay. One could spend up to $478 per ha to eliminate this 5-year grass stage delay and still break-even.

Keywords Longleaf pine · *Pinus palustris* Mill. · Grass stage · Valuation · Incremental analysis · Opportunity cost

Introduction

The longleaf pine (*Pinus palustris* Mill.) ecosystem is one of the richest, in terms of species diversity, outside of the tropics and one of the most endangered in the United States (Noss 1989). Prior to European settlement it ranged from eastern Texas to southeastern Virginia, covering roughly 38 million ha (Frost 1993). That area has been reduced to about 1 million ha (Jose et al. 2006), mainly due to logging activities, conversion to agricultural and urban use, landscape fragmentation, and interruption of the natural fire regimes that dominated this ecosystem (Noss et al. 1995).

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