

Timber Investment Returns for Plantations and Native in the Americas

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Forest plantations in the tropics and subtropics of Latin America have increased in area and are expected to provide an increasing share of industrial timber volume in the future. This paper estimates timber investment returns for the principal exotic and selected native plantation species in the Southern Cone of Latin America and in the Southern United States and discusses the implications for forest conservation, prospects for management of native species, and future timber supply. Financial returns for investments in exotic timber species were calculated for loblolly pine (*Pinus taeda*) in Argentina, Brazil, and Uruguay, radiata pine (*Pinus radiata*) in Chile, and in eucalypts (*E. globulus*, *E. grandis*, and *E. dunnii*) in the countries where they are common. Potential returns for native forest plantations of araucaria (*Araucaria angustifolia*) and prosopis (*Prosopis* sp.) in Argentina, nothofagus (*N. dombeyi* and *N. raulí*) in Chile, and erva-mate (*Ilex paraguayensis*) in Brazil were calculated. We also examined three levels of subtropical natural stand management. Returns also were calculated for planted and natural forests in the southern USA for comparison, including loblolly and longleaf pine (*P. palustris*) and natural hardwoods.

These financial calculations helped clarify the magnitude of comparative financial returns. Exotic eucalypts plantations in South America were most profitable with internal rates of returns (IRRs) of about 13% to 24%, followed by exotic loblolly pine, with IRRs of about 10% to 17%. Average loblolly pine plantation returns in the U.S. South were less profitable, with an IRR of about 9.5%, and natural forest management in the USA had IRRs of 4% to 8%. Subtropical native species plantations, including the best araucaria, nothofagus, and prosopis species, had reasonable financial returns, with IRRs ranging from 5% to 12%. Subtropical or tropical native forests had fewer commercial timber species, took longer to grow, and had much lower growth rates and returns. Their IRRs were less than 4%, or even negative for unmanaged stands. State subsidy payments for forest plantations or for timber stand improvements increased IRRs and net present values (NPVs) significantly, but are less available and less useful for applications in natural stands, which have less initial investment costs.

While we calculated average returns for typical sites and conditions, the variation among sites, factor costs, growth rates, and timber prices within species could be greater than the average returns between species. Our calculations provide more specificity to the probable financial returns of exotic plantations, and merits of managing native species for timber investments. While our calculations of tropical native species returns are mostly speculation, they do help explain pervasive problems in conservation of these forests, and suggest a goal for improved management. Native species grow slowly and usually have modest timber prices, so need other factors to make them economically attractive, such as minimal capital costs, special markets, premium prices, environmental benefits, or aesthetics.