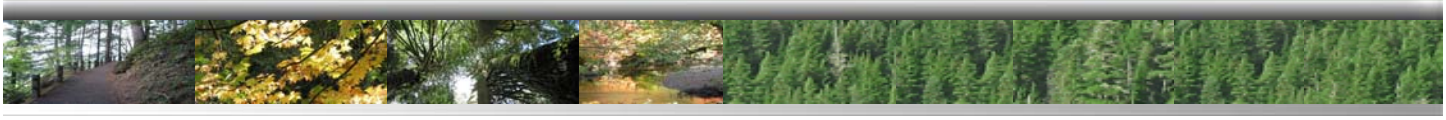
FORSight Resources, LLC

World-class expertise for natural resources decision-making...

FORSim LPGS



What is FORSim?

FORSim is a suite of regional growth and yield applications designed to put the functionality of powerful growth models at the fingertips of inventory foresters and biometricians. FORSight's latest release, the Longleaf Pine Growth Simulator (LPGS), integrates a user-friendly, Excel-based interface with a longleaf pine growth engine. The dynamic link library (DLL) provides for alternative thinning treatments via the longleaf pine growth functions, and calculates scores for assessing foraging habitat for the endangered red-cockaded woodpecker (RCW).

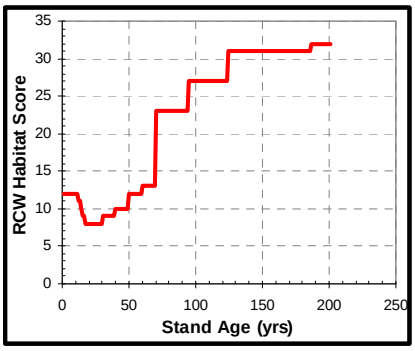
FORSim LPGS was developed using models for predicting and/or projecting stand- and tree-level attributes available from previously reported studies. Those models were developed by researchers using plot data from even-aged stands of naturally regenerated longleaf pine installed and remeasured by the USDA Forest Service Regional Longleaf Growth Study (RLGS). These models were combined in a unique way with FORSight's proprietary growth functions to create a robust platform for predicting the development of longleaf pine. Growth in young stands (1–19 years) can be either predicted or projected annually using stand-level models, while growth in older stands is based on projected tree list data. Tree list data are either input by the user or initially generated at age 20 using the 3-parameter Weibull probability density function.

Required inputs to the model include total stand age, site index (range 30-110 feet, base age 50 years), stand stocking (trees/acre), projection length (number of 1 year projection periods), product merchandising specifications, and choosing to use either stand-level prediction or projection models, Optional inputs to the model include stand density (basal area/acre), dominant height (feet), number of years to reach breast height, tree list data, and specifications for up to five thinning treatments.

FORSim LPGS simulates commercial row thinning, thinning from above, thinning from below, and a combination row and below-thinning using stand age, residual basal area/acre or trees/acre, and the minimum and maximum DBH removed. Up to five thinning treatments and thinning types can be specified. Stand- and tree-level removals and product volumes are reported in spreadsheet tables by DBH class. The user can specify the reporting frequency of grown tree lists (each projection period, or only following thinning treatments).

Multiple-product (saw-timber, chip-n-saw, and pulpwood) volumes (green tons/acre outside bark) are predicted using stem taper functions and user-specified values for minimum DBH, minimum top diameter, and average stump height. For larger trees, top volumes are removed after removing the primary saw-timber or chip-n-saw products. The pre-merchantable volume category includes all standing trees with DBH less than the minimum pulpwood specification, while debris includes the tops, branches, and foliage.

Spreadsheet tables are output for annual stand-level projections, grown and cut tree lists, and habitat scores. The habitat scores can be used for evaluating alternative management regimes with respect to achieving and maintaining desirable RCW foraging habitat.



Graphical outputs include dominant height, trees/acre, basal area/acre, total ft3/acre volume, Curtis relative density, relative spacing, quadratic mean DBH, percent maximum Reineke stand density index, current and mean annual increment (ft3/acre/year), product volume (tons/acre), and RCW habitat score plotted against stand age.

FORSim LPGS is a versatile tool that provides biometricians and inventory foresters with the functionality of the longleaf pine growth engine in an easy-to-use, excel-based interface. It provides a means for quickly analyzing and comparing stand-level treatments through graphical and tabular outputs. Users will value this addition to the FORSim product suite.

Custom Programming

FORSight also provides customized solutions for clients wishing to incorporate enhanced functionality into their current growth models or integrate growth and harvest planning functionality into their existing information systems.

Contact us today to learn how FORSim LPGS can help you make better silvicultural decisions regarding the management of longleaf pine and the provision of RCW foraging habitat.

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