



**The Loblolly Pine Growth and Yield
Research Cooperative: 1979 – 2006**
(Tour and Joint Meeting December 2006)



Harold Burkhart
Ralph Amateis



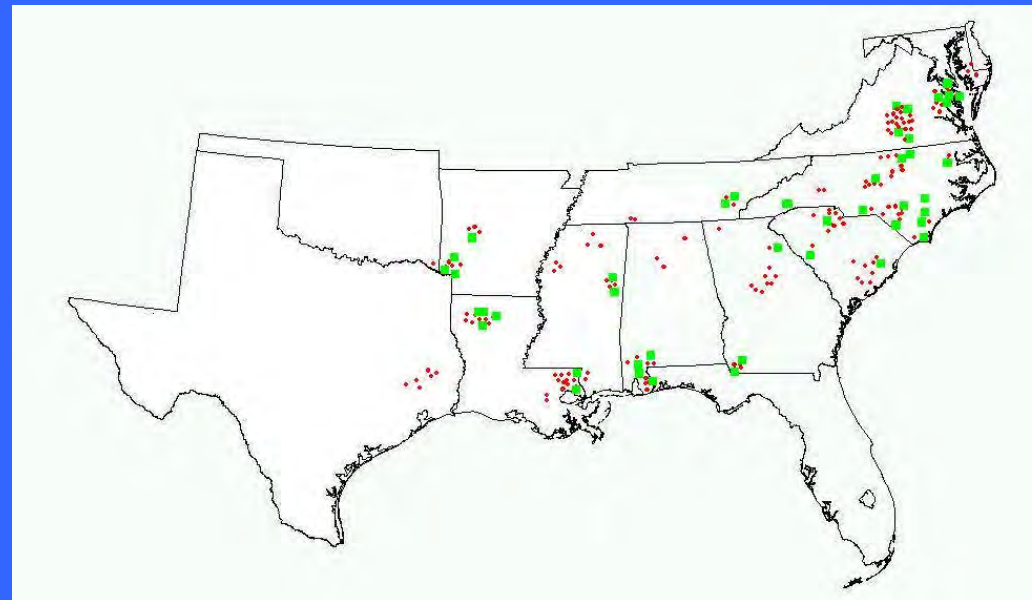
Objective of the Coop

- Develop tree growth and stand development models
 - Account for intensive cultural practices
 - Useful for a range of management requirements



Region-wide Thinning Study 1982 - 2003

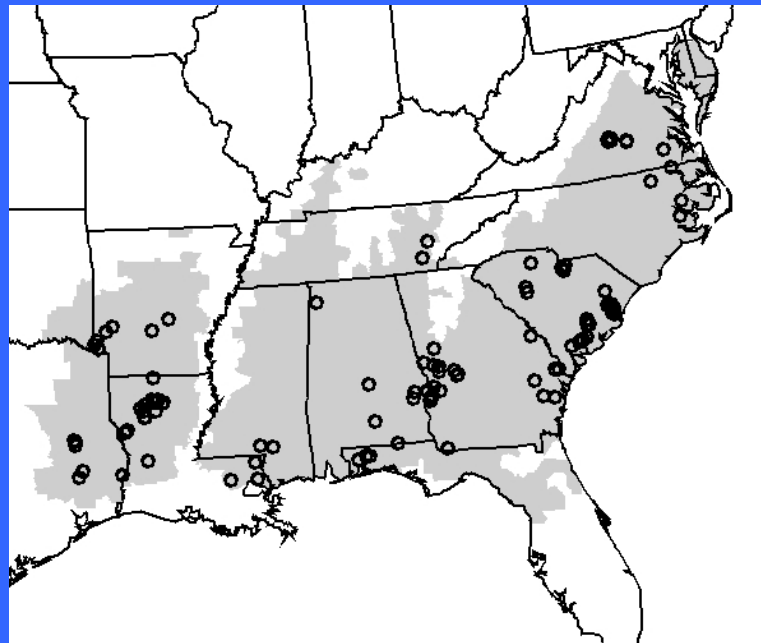
Purpose: provide data for developing growth and yield models for thinned and unthinned loblolly pine plantations on cutover site-prepared areas





Region-wide IMP Study 1999 - Present

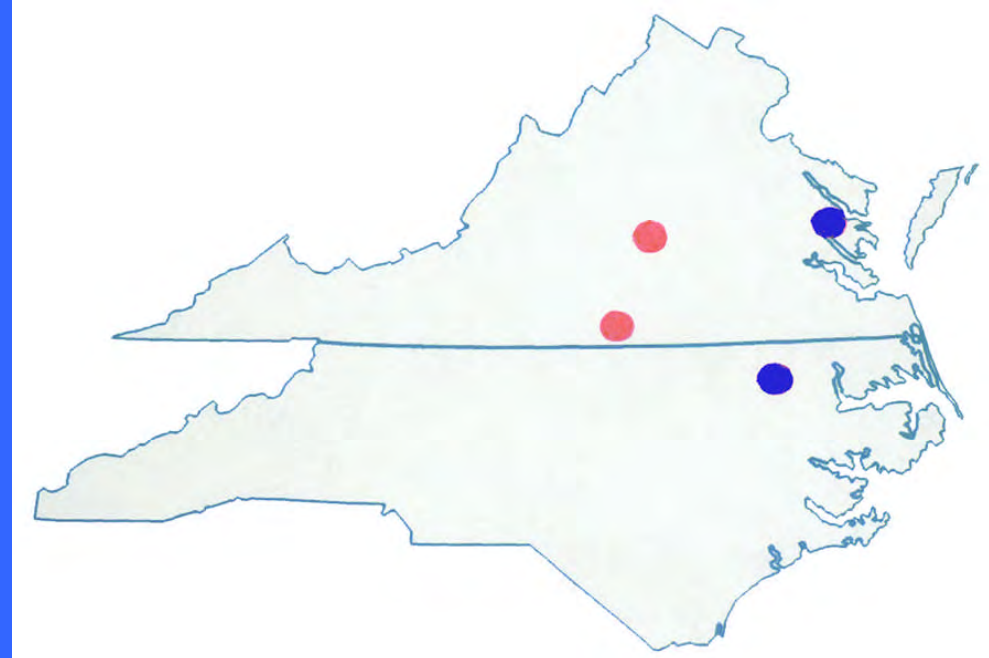
Purpose: provide data for developing growth and yield models for intensively managed loblolly pine plantations across the natural range of the species





Spacing Trials 1983 - Present

Purpose: determine the effects of planting density and spacing on tree growth and stand development; provide juvenile growth data for modeling purposes.









Small-scale Trial



Stand-level Models

- NATLOB (natural stands of loblolly pine)
- PCWTHIN (old-field thinned and unthinned loblolly pine plantations)
- TAUYIELD (site-prepared thinned and unthinned loblolly pine plantations)
- FASTLOB (thinning, fertilization, hardwood competition, early stand treatments)
- ECONHDWD (assess economics of competition control)
- YPOP (thinned stands of yellow poplar)

Individual Tree Models

- G-HAT (growth of Appalachian hardwoods after thinning)
- TRULOB (tree-list updating model for loblolly pine plantations)
- PTAEDA3 (tree growth, stand development and economic assessment model for loblolly pine plantations)

LobDSS

- A Decision Support System for intensively managed loblolly pine plantations
- Joint project of Forest Nutrition Cooperative and LPGYRC
- Customizable soil-site and early treatment response matrices
- Single stand or batch capability
- Tabu search and exhaustive search pseudo-optimization algorithms for midrotation thinning and fertilization treatments
- Economic analysis capabilities
- Windows application
- Detailed user's manual for DSS and FASTLOB2

ETP and STP Pruning Studies 2000 - Present

Purpose of ETP Study: Will early pruning affect the age of transition to mature wood?

Purpose of STP Study: To determine how pruning intensity affects loblolly pine plantation development.







Possible Applications to Alberta

- Knowledge exchange e.g. mixed-effects modeling techniques, defect trend estimation, decision support systems;
- Scaling of loblolly pine models and practices to lodgepole pine;
- Collaborative international project(s)?