

An Evaluation of Available Growth and Yield Models for Longleaf Pine

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Forestland Stewards



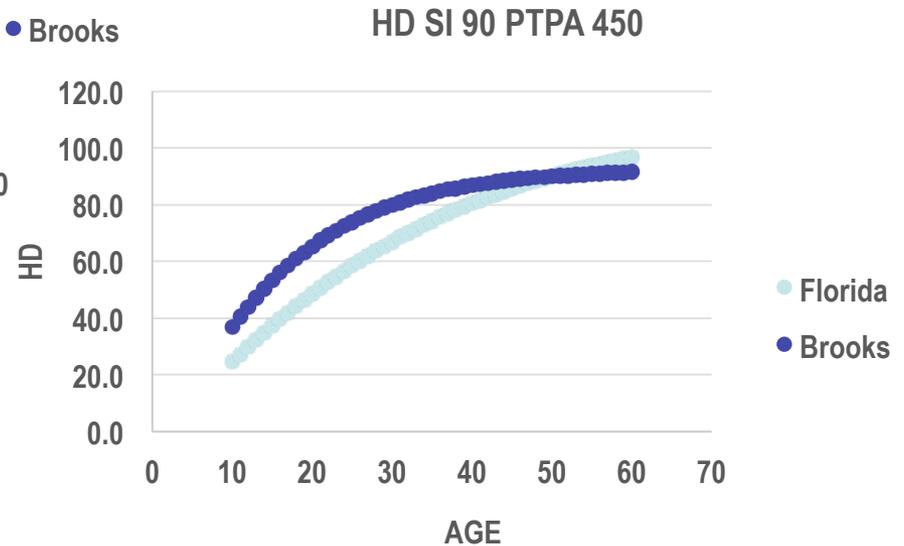
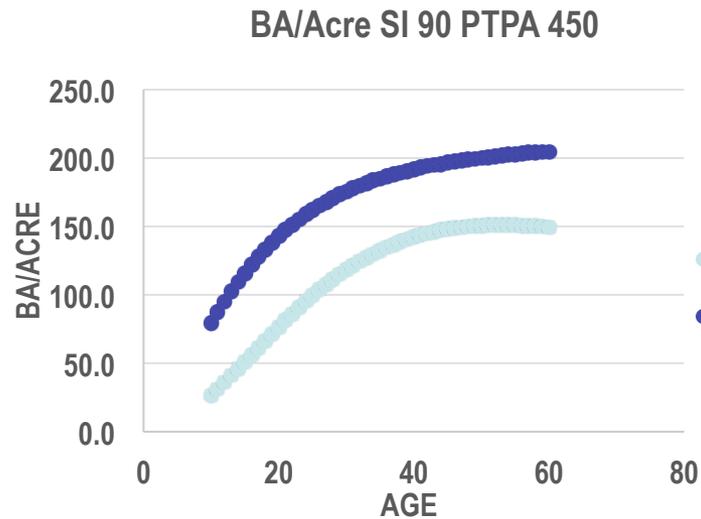
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Project Overview

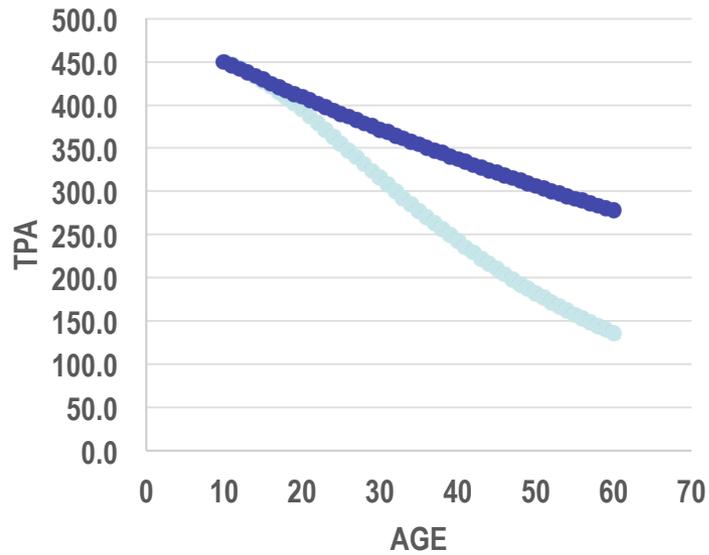
- Growth and Yield Models are Needed for Longleaf Pine
- Used to Estimate Timing of Wood Flows from Thinning and to Compare with Longleaf Alternatives
- Forest Industry and Universities have financed development of models for Loblolly and Slash Pine through Cooperatives
 - Different models for different physiographic regions
- Longleaf models are more limited
- Model by Gonzalez-Beneke (2014) developed on data primarily from LA has more data than most
 - How will it do at predicting yields of longleaf plantations in GA, SC, NC?
- Model by John Brooks from limited S. GA plantations
 - How do these two models compare?

BA and Height Development Comparison



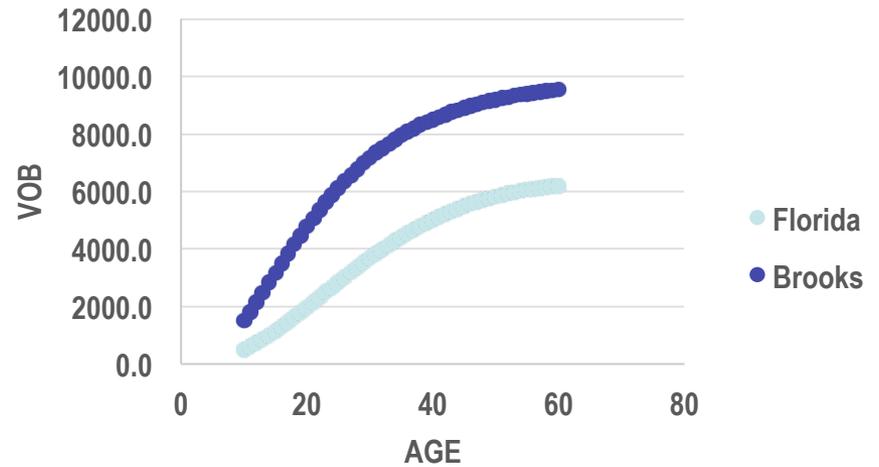
TPA and Volume Development Comparison

TPA SI 90 PTPA 450



- Florida
- Brooks

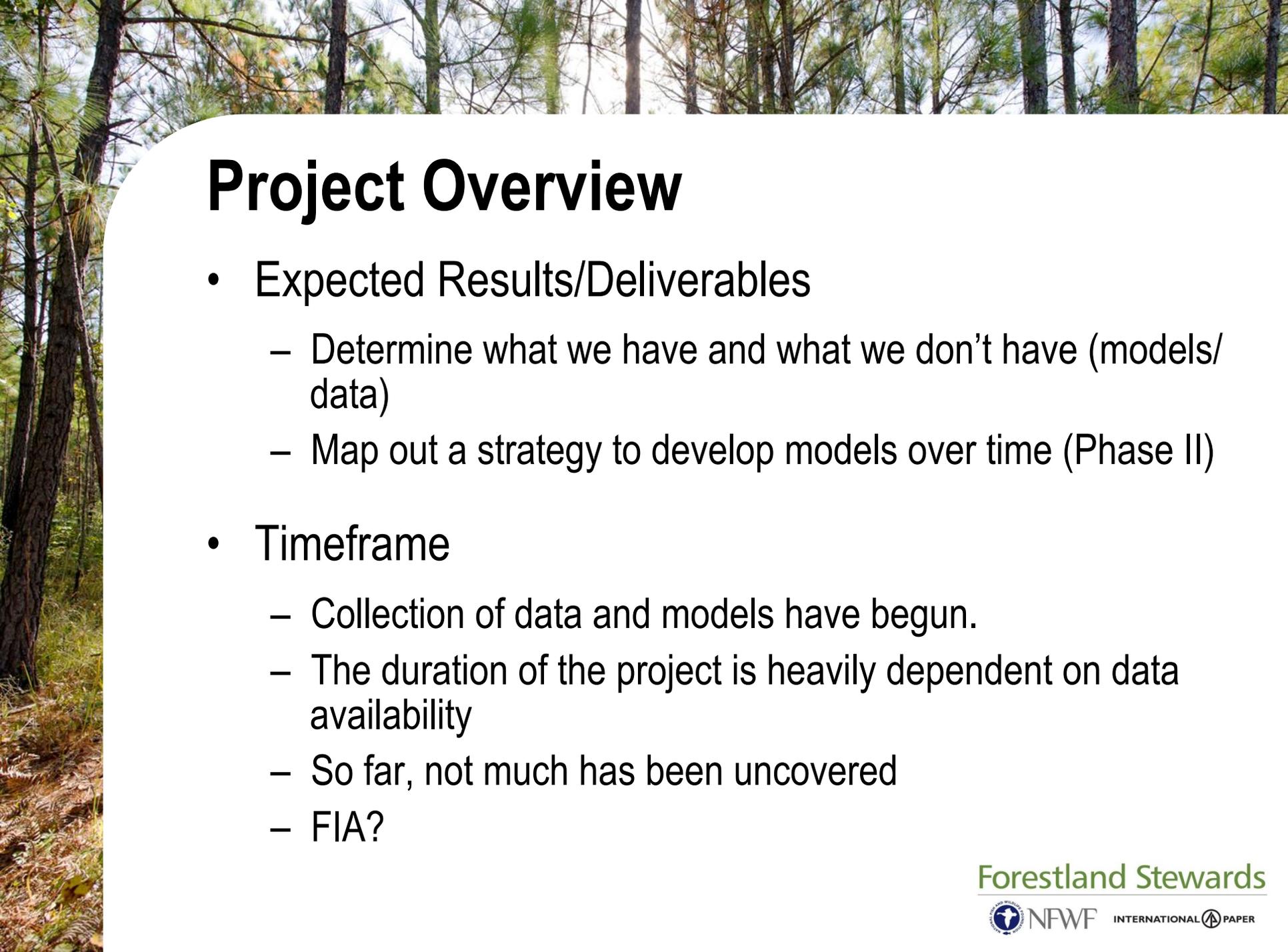
VOB SI 90 PTPA 450



- Florida
- Brooks

Project Overview

- Need other Models to Evaluate if Available
- Need all available re-measurement data or even inventory data for plantation longleaf pine stands
 - Used to Evaluate existing models
 - Used to Develop new models in Phase II of Project
- Why longleaf pine?
 - Interest in longleaf pine is gaining momentum.
 - Limited availability of quality data and models limits our ability to effectively manage longleaf pine.



Project Overview

- Expected Results/Deliverables
 - Determine what we have and what we don't have (models/data)
 - Map out a strategy to develop models over time (Phase II)
- Timeframe
 - Collection of data and models have begun.
 - The duration of the project is heavily dependent on data availability
 - So far, not much has been uncovered
 - FIA?

Implementation

- Strategy
- Status
- Major challenges and opportunities
- Partners involved

Strategy

- Development of reliable models requires quality (and a large quantity) of re-measurement data.
- Inventory data (not re-measured), while not preferable, still has great value.
- Data will likely not be available in some regions
- With data in hand, model evaluation and development can begin.

Status

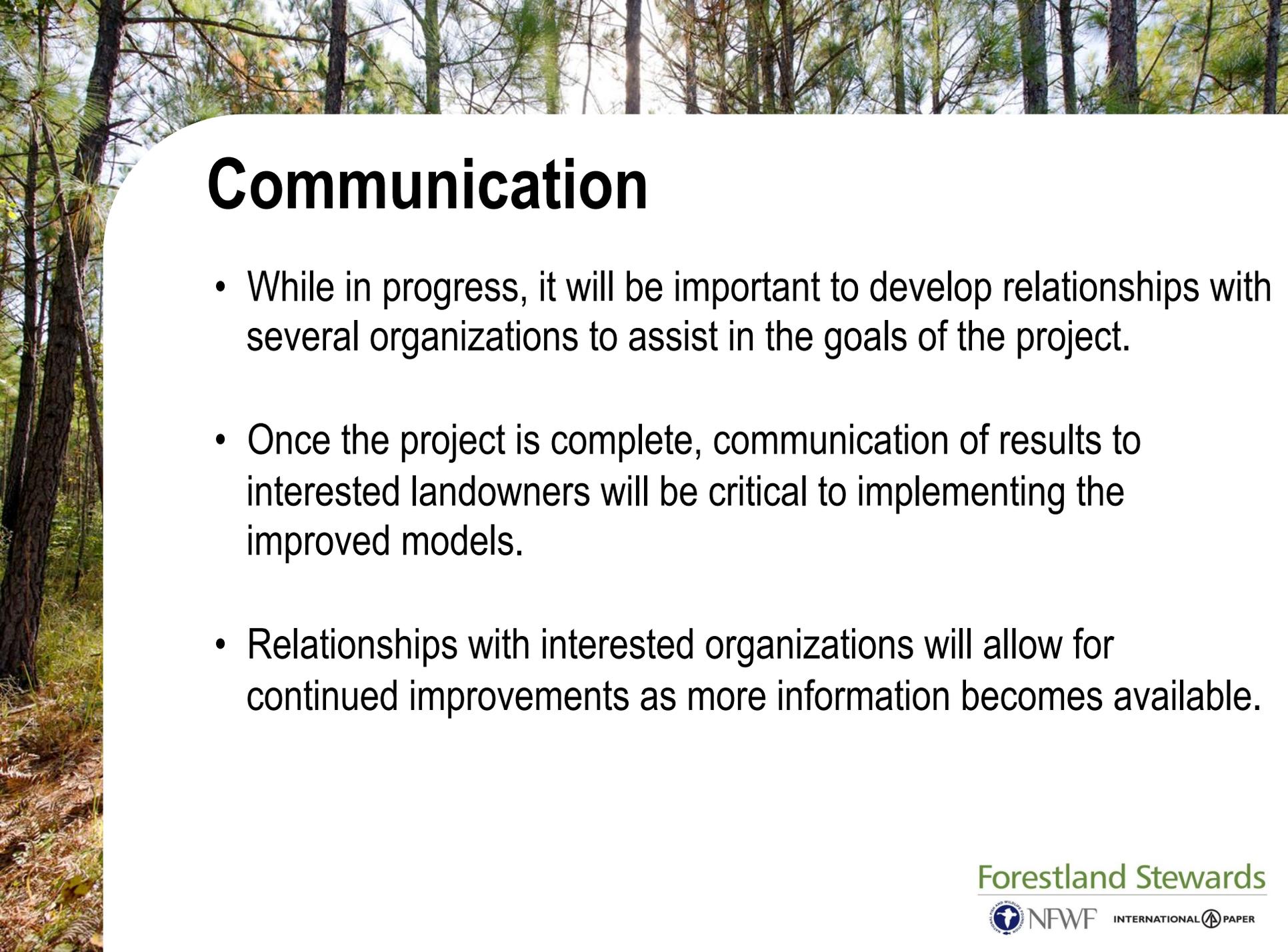
- Initial work on status of longleaf models has revealed both limited data and limited models.
 - Allen & Burkhart 7/2011 independent search
- The models previously discussed are what has been found to date
- Cannot use natural stand models to estimate yields of plantations
- More worrisome is lack of available data

Challenges and opportunities

- By far, the largest challenge in this project is obtaining quality data.
- If sufficient data is not available, it will have to be collected over the next several years.
- This project has great opportunity to improve our knowledge of modeling longleaf pine stands.
- Improved modeling ability will greatly improve our ability to manage longleaf.

Partners involved

- So far, we have contacted the following groups for assistance: (response has varied)
 - USDA Forest Service
 - USDA FIA
 - United States Department of Defense
 - North Carolina Longleaf Coalition
 - JW Jones Ecological Research Center
 - Tall Timbers Research Station
 - Longleaf Alliance
 - TR Miller
 - Others?



Communication

- While in progress, it will be important to develop relationships with several organizations to assist in the goals of the project.
- Once the project is complete, communication of results to interested landowners will be critical to implementing the improved models.
- Relationships with interested organizations will allow for continued improvements as more information becomes available.

Looking Forward

- Commitment and Maintenance
 - Quality models will allow for better management of longleaf pine.
 - With future additions of data, models will be updated to reflect more realistic conditions.
 - A large set of region-wide permanent plots will allow for continuing improvement of longleaf pine models and management.
 - Sampling consistency will be emphasized.

Summary

- Data availability and collection is the key to this project.
- Once quality data is available, current models can be effectively evaluated.
- If the current models are found to not be adequate, development of new models will be required.