

## The Project Funding and Collaborators



This distance education project is supported by USDA CSREES Higher Education Challenge Grant to the University of Florida (UF). The collaborating units are:

1. The School of Forest Resources and Conservation
2. The Department of Agricultural and Biological Engineering
3. The Digital Worlds Institute

## Why a Virtual Learning Forest?

➤ Transport expenses and the associated need to reduce carbon footprints are growing, the time available to students and instructors to spend in the field is decreasing, and the number of forest types available within reasonable driving distance is limited.

➤ It is no longer sufficient for the future stewards of forests to learn only the management, conservation, harvest, and marketing skills of their own locality, even if their future careers limit them to positions in their home state. Forests and forest products have local, regional, and international impacts.

➤ It is becoming essential to get the best return for every dollar spent on teaching in this time of economic pressure on education in the US

➤ Undergraduate students are now very familiar with many forms of digital communication and interaction and expect to use them as learning tools. There is a growing interest in the use of Web 2.0 applications such as blogs, podcasting, wikis, and virtual worlds as learning environments

## Project Goals

### ➤ Short term (24 months)

- ✓ Develop a beta version of the Virtual Learning Forest (VLF) representing a 2 acre stand of longleaf pine (*Pinus palustris*)
- ✓ Develop the first mensuration tools, including a loggers tape, diameter tape, clinometer, and data logger
- ✓ Evaluate the VLF with forestry students at the University of Florida (two classes) and Virginia Tech (three classes)
- ✓ Improve the user interface and tree rendering as much as possible

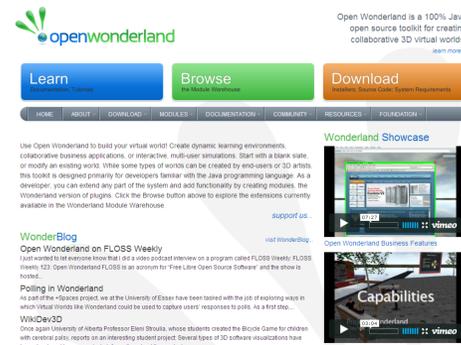
### ➤ Long term

- ✓ Strengthen and expand the skills students learn in their existing field exercises
- ✓ Offer a variety of virtual laboratory experiences to a large number of students across the US and internationally so that they can build experience in forest types they would not have the opportunity to visit
- ✓ Provide students opportunities to interact with their peers at other institutions via collaborative exercises in each other's corresponding virtual forests and ecosystems, thereby instilling in them, early in their training, the importance of developing relationships with distant colleagues in natural resource management
- ✓ Offer these opportunities on line, available to students "24/7", without the necessity for travel, thereby expanding learning opportunities for a large number of students at little cost
- ✓ Render trees so as to make them identifiable by genus and species
- ✓ Render a more complete understory community
- ✓ Attach growth models to the VLF

## Progress since September 2009

- Java Wonderland selected as the platform
- 200 generic pine trees populate a two-acre virtual stand
- Multiple users are able to log on, configure avatars, access prototype tools, and live chat
- Basic versions of a diameter tape, loggers tape, and clinometer have been built
- The next steps to be completed before student testing during fall 2010 semester:
  - ✓ Add a 1/10 acre plot tool so the student can layout plots and see plot borders
  - ✓ Add a data logger to allow students to record DBH and clinometer data
  - ✓ Refine the performance of all tools
  - ✓ Do load testing
- While this prototype is being readied for student evaluation, improvements in the user interface, tool performance, and tree rendering will continue

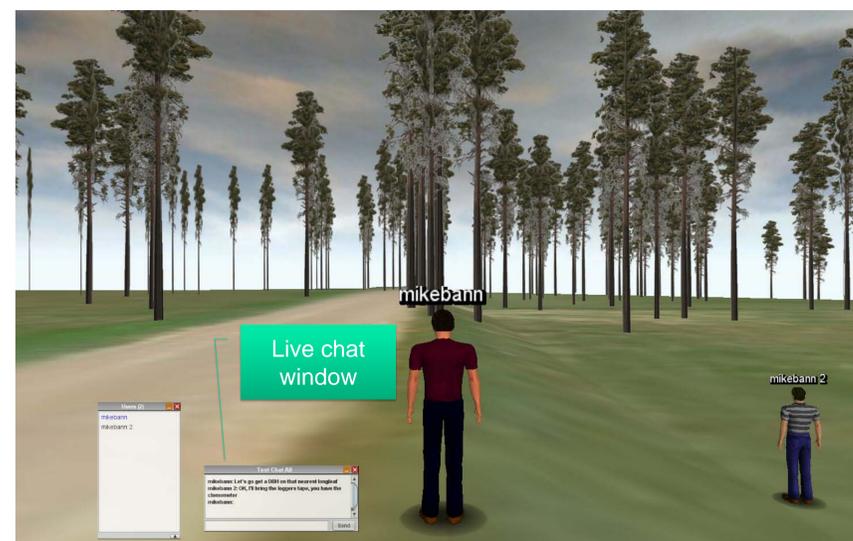
## The Platform: Java Wonderland



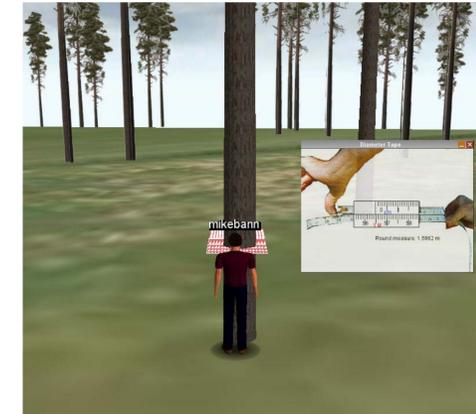
- 100% Java, platform independent
- Open Source
- Ability to easily integrate databases, simulations, any other components as needed
- Runs in any Web browser having the Java Plug-in.

<http://www.openwonderland.org/>

## The Longleaf Pine Ecosystem

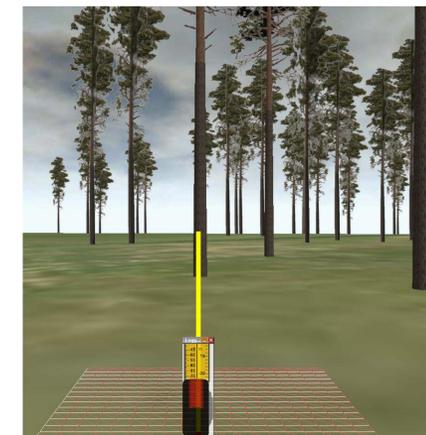


## The Diameter Tape



- Avatars approach the tree and open the diameter tape tool window
- A grid centered on the stem can be moved to the correct height

## The Loggers Tape



- Students click on the tree to attach the diameter tape tool
- The avatar then walks backwards until the desired distance is reached

## The Clinometer



- When the proper distance from the tree is reached, the clinometer tool is opened
- This tool duplicates the readings in an actual clinometer, when the site line crosses the top of the tree the reading is taken