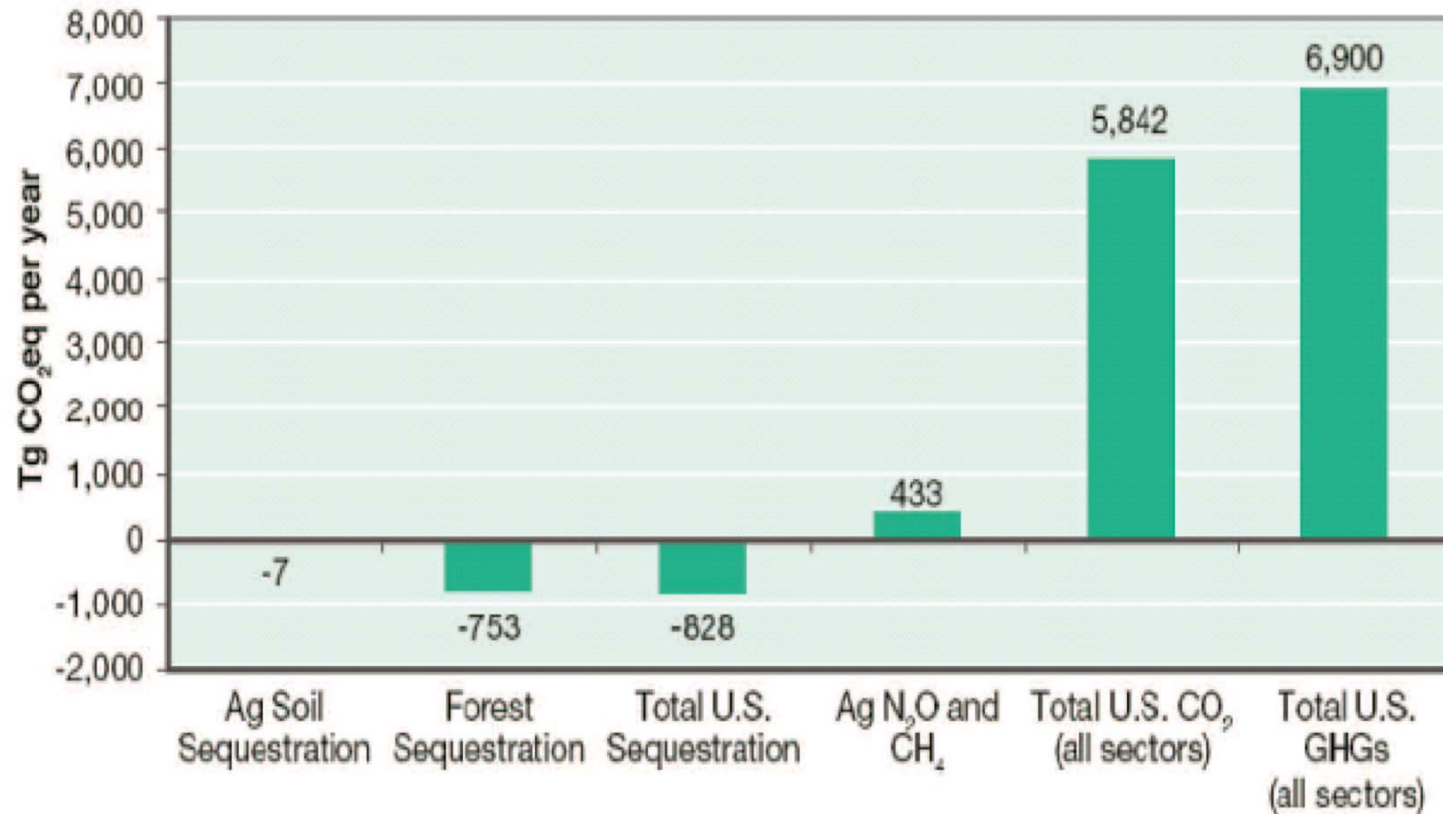


# Carbon Management in Natural Resources and Agriculture



Timothy A. Martin, Director  
Carbon Resources Science Center  
<http://carboncenter.ifas.ufl.edu>

# U.S. GHG Emissions and Agricultural / Forestry GHG Balance



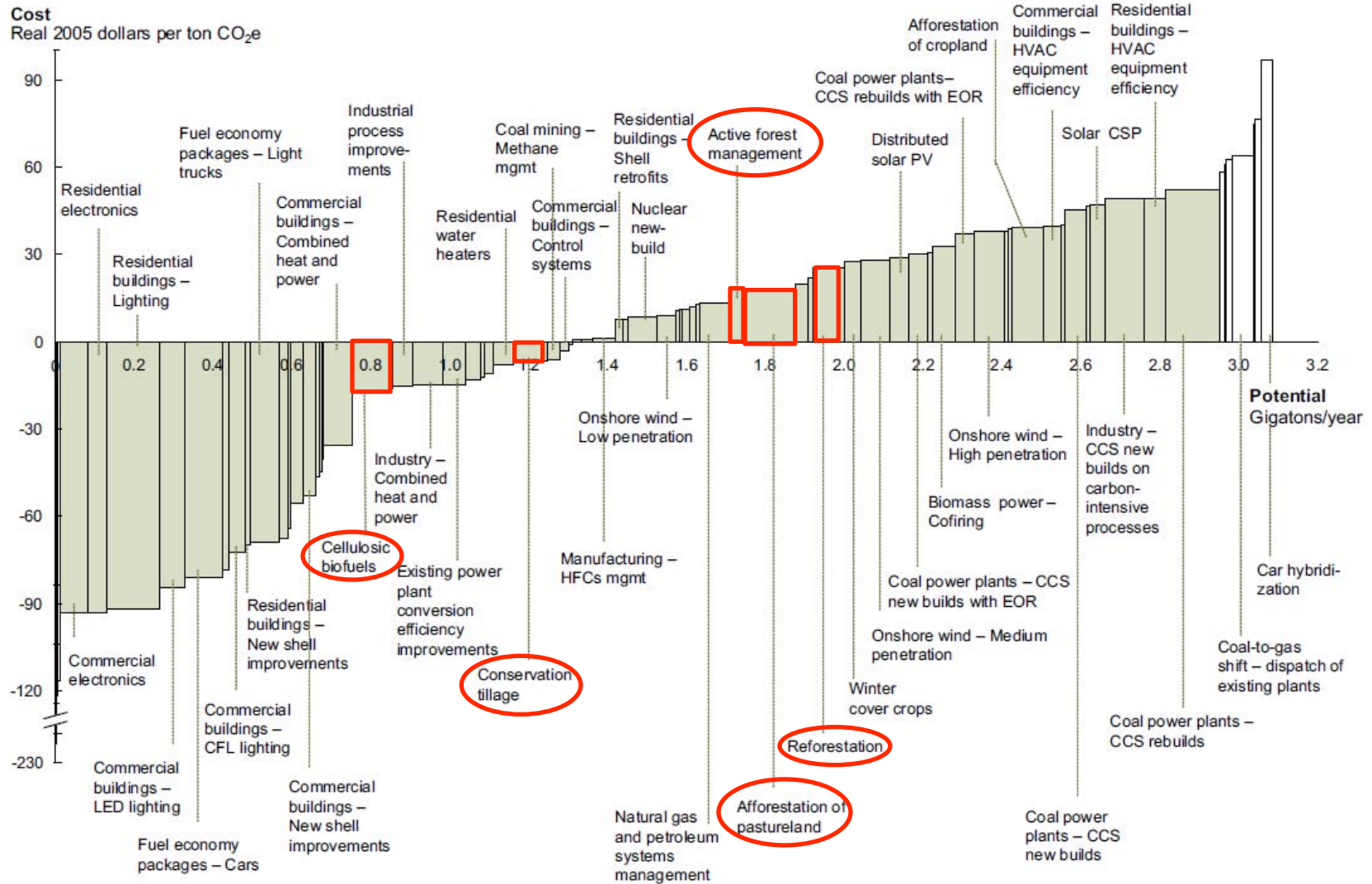
Forests offset 11-16% of U.S. GHG emissions  
Agriculture is a net GHG source

U.S. EPA 2005



Exhibit B

# U.S. MID-RANGE ABATEMENT CURVE – 2030

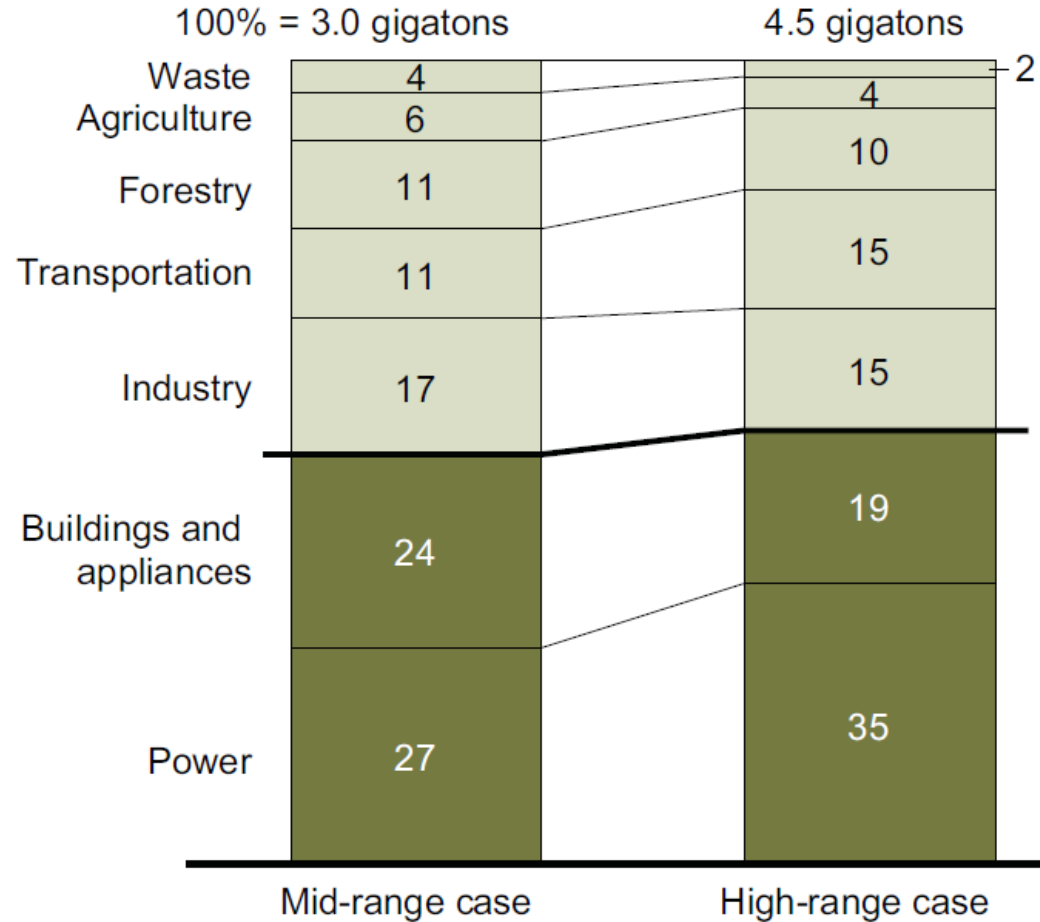


Source: McKinsey analysis

Creys et al. 2007

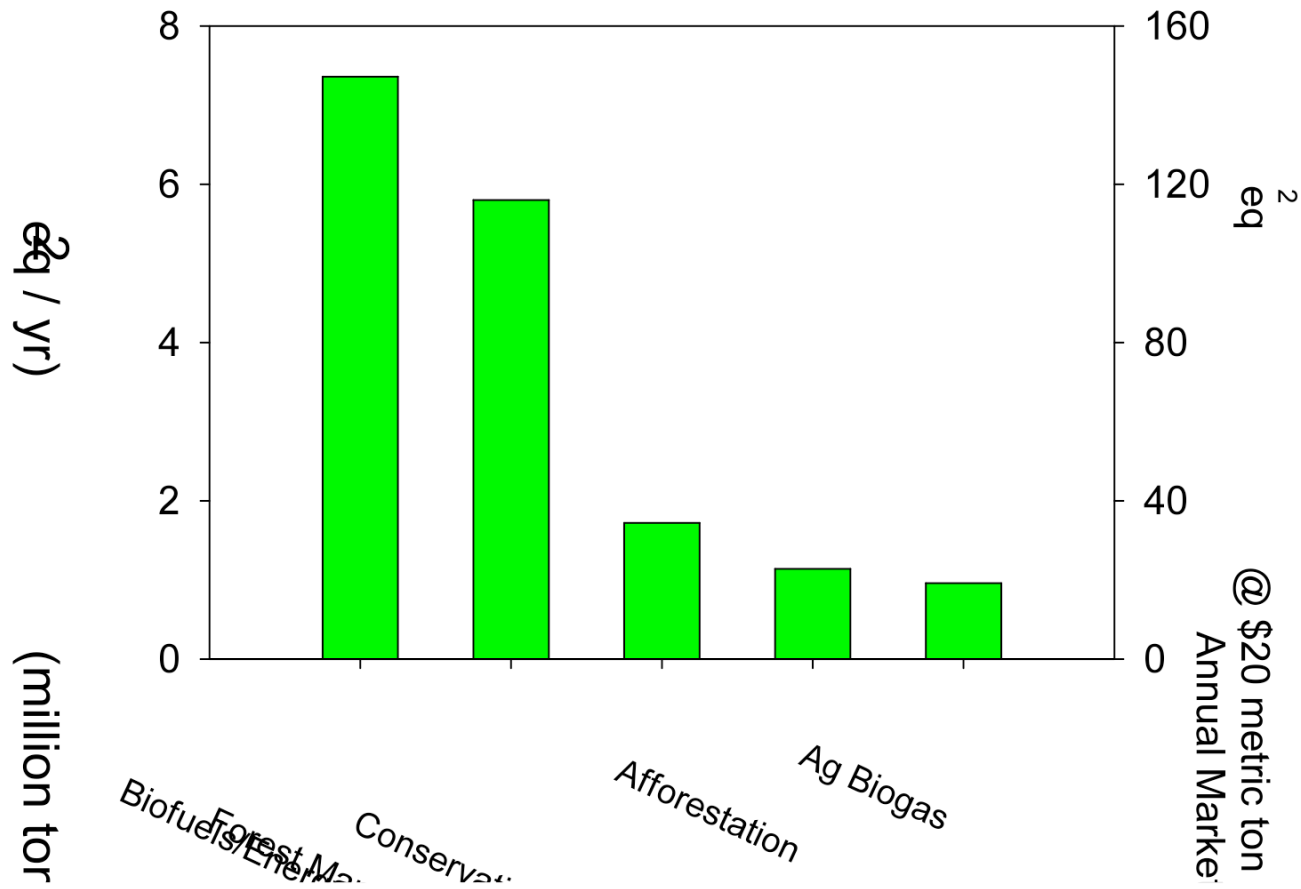
## ABATEMENT POTENTIAL BY SECTOR – 2030

Opportunities less than \$50/ton CO<sub>2</sub>e

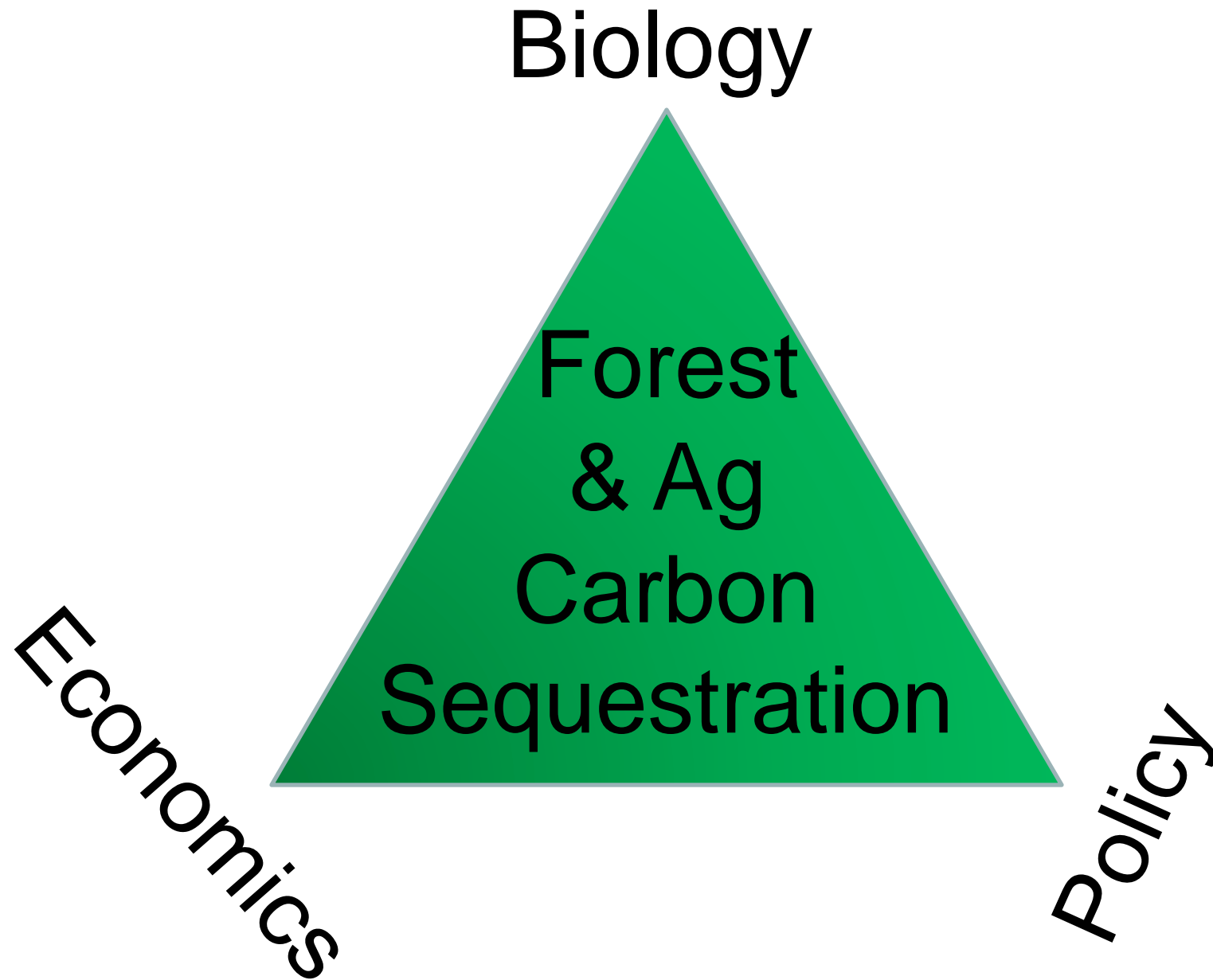


Source: McKinsey analysis

# Opportunities for Forestry and Agricultural Mitigation of Atmospheric CO<sub>2</sub> - Florida



Mulkey et al. 2008



# UF Carbon Science Expertise

- Natural resource and agricultural management
- Plant sciences
- Ecology
- Biogeochemistry
- Remote sensing
- Engineering
- Economics
- Policy
- Social sciences



# Carbon Resources Science Center Mission

- Bring UF carbon science experts together to work synergistically on common problems
- Leverage new sources of research funding
- Serve as an objective, well-regarded source of rigorous information on carbon resources science for stakeholders

# Focus Areas

- Develop optimum forest management regimes for sequestering carbon;
- Discover technologies for decreasing carbon emissions from agricultural production systems;
- Advance agricultural and forest management systems to produce carbon-neutral biofuels to substitute for fossil fuels;
- Create efficient methodologies for cost effective implementation of cap-and-trade systems;
- Conduct life-cycle analyses with full-cost accounting of alternative policies, incentives and management regimes; and
- Address critical shortage of US scientists through graduate education.

# Example Projects

## Forest Carbon Management

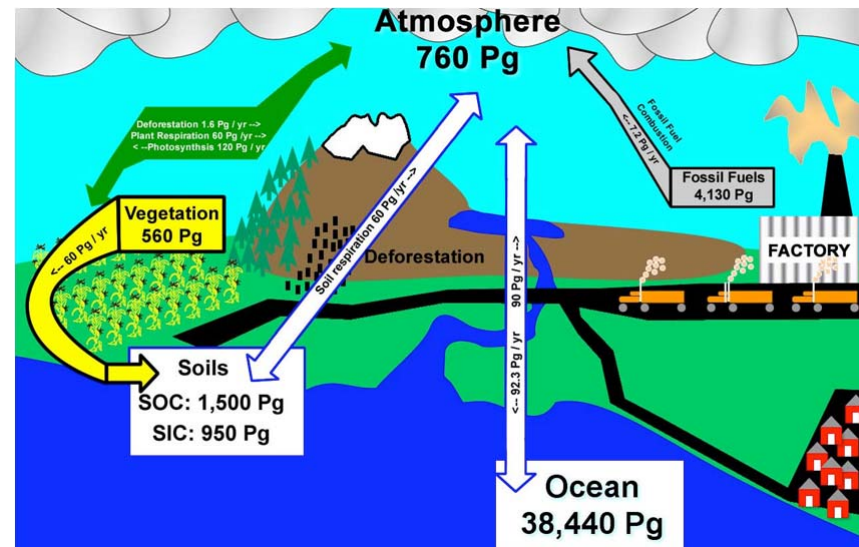
- Forestry is one of few industries that is a net C sink
- Improved management can increase rates of sequestration
- Model development is underway to support C management in slash, loblolly, and longleaf pine
- Include life cycle C emissions associated with management, transportation, and decay of forest products



# Example Projects

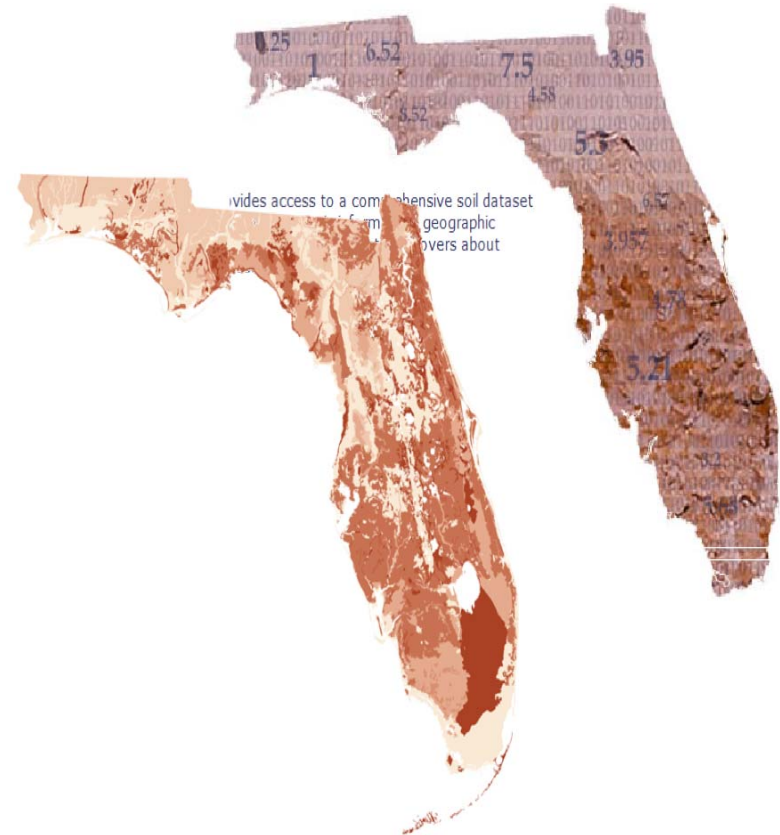
## TerraC Information System

- Terrestrial C pool is third largest after ocean and fossil fuels
- Research on terrestrial C pools and fluxes are diverse and scattered across multiple disciplines and spatial and temporal scales
- There is a need for integration and synthesis of existing terrestrial C pool and flux data



# Objectives

- Address obstacles to synthesis and integration of terrestrial C data through development of database infrastructure for the C science community
- Advance terrestrial C science through fusing of carbon & environmental data to assess the potential to sequester C in biomass and below-ground in terrestrial ecosystems



# Terrestrial Carbon (“TerraC”) Information System

- Will include components to
  - Upload
  - Store
  - Manage
  - Query
  - Analyse
  - Visualize
  - Download
  - C data from diverse terrestrial C science studies

The screenshot displays the TerraC web interface. At the top left is the TerraC logo (Terrestrial Carbon Information System). At the top right is the user profile for Brandon Hoover, University of Florida. The main content area is titled "Your Projects > Florida Soil Characterization Database" and includes navigation links for Project Details, Data Setup, Data Upload, and Data Query. Below this is a "Build a Query" section with tabs for "Build a Query", "Query Results", and "Background". The "Build a Query" tab is active, showing a "Select Columns for Your Query" list on the left and a "Where" clause builder on the right. The "Select Columns" list includes fields like SN, REPN, X, Y, ELEV, SAMPLEDATE, Z, CARBON, HorizIndex, BOOK\_NUMBER, META\_PAGE, TABLE\_PAGE, SOILNAME, CLASSIFICATION, Series, Suborder, GreatGroup, Subgroup, Family, LANDFORM, SLOPE, DRAINAGE, VEGETATION, and PARENT. The "Where" clause builder shows a series of "Where [field] is" dropdown menus, each followed by a text input field. The dropdown menus are currently set to "No Statement".

# http://carboncenter.ifas.ufl.edu

Carbon Resources Science Center - IFAS - University of Florida - Windows Internet Explorer

http://carboncenter.ifas.ufl.edu/

File Edit View Favorites Tools Help Convert Select

Carbon Resources Science Center - IFAS - University ...

University of Florida

## Carbon Resources Science Center

For Enhanced Forest & Agricultural Carbon Sequestration

Home IFAS Contact Us Search GO

- **About the Center**
  - Scope and Mission
  - Affiliated Scientists
  - Upcoming Events
- **Carbon Resources Research**
  - Featured Projects
  - Carbon Resources Research
  - Bibliography
- **Links**
  - Carbon Resources Research Funding
  - Other Carbon Science Links

**The mission of the Carbon Resources Science Center is to bring experts together to work synergistically on common problems, to leverage new sources of research funding, and to serve as an objective, well-regarded source of rigorous information on carbon resources science for stakeholders.**



**CRSC Seminar Series**

SFRC is sponsoring the first CRSC seminar series that will highlight the diversity of carbon sciences research at UF. [More...](#)

**Carbon Science News**

President-elect Barack Obama has selected two of the nation's most prominent scientific advocates for a vigorous response to climate change to serve in his administration's top ranks. [More...](#)

Done Internet 100%

# Acknowledgements

- Florida Energy Systems Consortium
- IFAS Dean for Research
- Florida Forestry Association
- Forest Biology Research Cooperative
- UF School Forest Resources and Conservation