

Forest Carbon Sequestration

Opportunities for Georgia's Forests in a Carbon-Constrained World

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Forest C Sequestration In Georgia

- GA timberland offsets ~12.6 million tonnes of CO₂ / yr (FIA)
 - Above ground biomass (excluding foliage) + coarse woody roots
 - Mitigation of about 8% state CO₂ emissions / yr (EPD)
- Nationally, U.S. forests are also a carbon sink
 - Offset 10% of national CO₂ emissions
- Globally, however, deforestation contributes 18% of anthropogenic CO₂ emissions

State Needs:

- Improve returns to forest landowners
- Maintain productive land base
- Encourage sustainable development
- Encourage private land stewardship

Keep Forests in Forests

Incentives that reflect true economic/ecological/social value...

...Is carbon part of the solution?

Circumstances for Success

- Federal GHG Policy and Protocol that recognizes terrestrial offsets as viable and important
- Adequate carbon “credit” price
 - Low transaction costs
 - Market infrastructure
- Incentives for “new” sinks
- Incentives to **maintain existing** sinks
- Technology Diffusion

Carbon Market Status

- International:
 - Limited potential
- California Climate Action Registry
- Regional Greenhouse Gas Initiative
- Chicago Climate Exchange

How is Georgia addressing these issues?

The screenshot shows the Georgia Forestry Commission's Carbon Sequestration Registry website. At the top left is the Georgia Forestry Commission logo, which features a shield with a tree, a cloud, and a flame. To the right of the logo is the text "Georgia Forestry Commission". Below this is a blue banner with the text "Protecting and Conserving Georgia's Forests". The main heading is "Georgia Carbon Sequestration Registry". A large, faint watermark of the Georgia Forestry Commission logo is centered on the page. On the right side, there is a vertical logo that says "REGISTRY HOME" with a smaller "GEORGIA FORESTRY COMMISSION" logo above it. The left sidebar contains a list of navigation links: Registry Home, Participant Forester, Login, Apply Online, Search Projects, Contact, News, Update Personal Info, Change Password, and My Projects. The main content area lists several key actions: Login to Your Account, Apply for Project Registration, Search our Projects Database, and Contact the Registry, each with a brief description of the service. At the bottom, there is a link for Registry News.

Georgia Forestry Commission

Protecting and Conserving Georgia's Forests

Georgia Carbon Sequestration Registry

Registry Home

Participant Forester

Login

Participants with existing projects and GFC-Approved Foresters can log in to their accounts to access their personal start pages and update their personal information.

Apply Online

Search Projects

Contact

News

Update Personal Info

Change Password

My Projects

Login to Your Account

Participants with existing projects and GFC-Approved Foresters can log in to their accounts to access their personal start pages and update their personal information.

Apply for Project Registration

Visitors wishing to register their first project and participants with existing projects can fill out the application for a new project online. The online form can be printed and mail in or can be sent to the Georgia Forestry Commission as an email.

Search our Projects Database

Visitors can browse our current projects list and search for and compare specific projects.

Contact the Registry

Visitors can contact the Georgia Forestry Commission and the Carbon Registry Administrators to provide feedback about the website, ask questions about specific projects, etc.

Registry News

View a list of Carbon Sequestration-related news stories.

REGISTRY HOME

Registry Function

- Official mechanism for the documentation of terrestrial carbon sequestration activities
- Online project database available for queries, contacts
- Marketing tool
- Additional tier of monitoring, verification, and transparency.
- “Facilitating transfer to market”

Program Objectives

- Provide low-cost, effective method of quantifying carbon storage
- Generate new economic incentives and opportunities
- Promote terrestrial offsets as an important component of emerging GHG markets
- Recognition for those who undertake practices that facilitate carbon sequestration.

Registry Scope

- Project-level reporting for the state of Georgia
 - Terrestrial offset projects
 - Entity-level reporting is not eligible
 - Initially, only forest-based
 - Others will be considered in future
- What it is not:
 - Market platform
 - Emissions Reporting Tool
 - Transaction administrator
 - Aggregator
 - Carbon “credit” broker/issuer

Defining a Project

- Forestry and agricultural practices that trap and store atmospheric CO₂
- Primary management objective
- Applied to particular parcel(s) of land
- Specified time period
 - 10 years

Project Eligibility Standards

- Land in Georgia
- Forest carbon “rights”
 - e.g. project G.R.E.E.N
- Native Tree Species
- Sustainable Management
 - Forest certification, stewardship plan, etc
- Restricted vs. Unrestricted Projects

Project Types:



- Afforestation
 - Tree planting on non-forest land
 - Est. 1990 or later
 - Dedicate land to forest uses
 - CRP is eligible



- Forest Management
 - Forest enrichment/restoration
 - Forest Conservation
 - Management that increases carbon storage beyond current practices

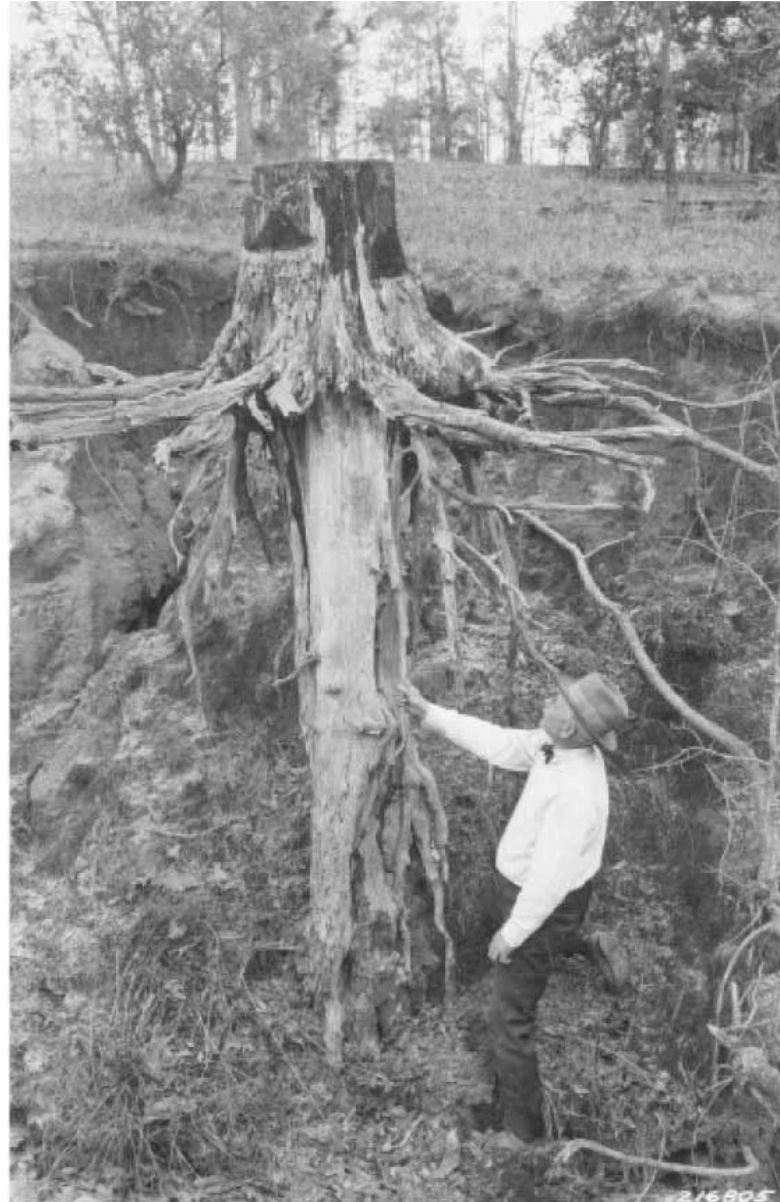
Estimating Carbon Stocks

- Protocols developed by UGA Warnell School of Forestry
- **Guiding Principle:** Provide low-cost, conservative estimates of carbon accumulation based upon sound research and accepted models.
- Pools Considered:
 - Above Ground Live Biomass
 - Below Ground Live Biomass
 - Forest Soils
 - Forest Products

Above Ground Live Biomass

- Carbon Storage Tables:
 - Developed for major types in Georgia
 - Stand examination established forest parameters
 - Inputted directly into Registry reporting tool
 - Estimates automatically generated for start year and ten years hence
- Direct Measurement:
 - Conducted by registered forester
 - < 10 years
 - Sample precision $\leq 10\%$

Below Ground Live Biomass



USFS Photo, April 1927

Below Ground Live Biomass

- Coarse woody roots
 - Research across a broad range of species on many sites indicates that ~20% of total tree biomass is belowground (roots)
 - Apply factor of .25 to estimated merchantable volume (carbon tons) to get an estimate below ground live biomass
 - Automatically estimated in Registry Database

Forest Soils

- Difficult to assess in a cost-effective manner
- Only afforestation projects may report forest soils
 - Tree plantings on old agricultural fields
 - Cropping at least ten consecutive years prior
- Default accumulation tables have been developed for major species groups

- It is assumed at present that the cost of soil C inventory greatly exceeds the income potential from C trading, if this situation changes so too will the GCSR protocols for soil C



Forest Products

- Projects may report estimate of forest product storage from removals WITHIN project boundaries.
- “Buffer” against decreases in carbon stocks
 - Removals don’t equal emissions
- Industrial roundwood approach
 - DOE disposition schedules

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ProjectID	Parcel ID	Total Acres	Latitude	Longitude	
14	17	50	35 59' 0"	83 42' 0"	Classify
14	18	55	35 58' 0"	83 44' 0"	Classify

REGISTRY CLASSIFICATION

Parcel Classification

ProjectID: 14
 Parcel ID: 18
 Starting Age:
 Starting Year:

Species:
 Stand Origin:
 Site Index:
 Initial Density:

Management Level:
 Genetic Improvement:
 Physiographic Region:
 Thinning Conditions:

Check here if Parcel was cropped consecutively for at least 10 years prior to tree planting.

Year	Age	PWC (t/acre)	ST (t/acre)	STEM (t/acre)	Soil (t/acre)	AGLB (MTCO2e/acre)	BGLB (MTCO2e/acre)	Total (MTCO2e/acre)
2006	5	0	0	0	0.10	0	0	0
2007	6	0.43	0	0.43	0.17	1	0	2
2008	7	2.06	0	2.06	0.24	7	2	9
2009	8	3.63	0	3.63	0.31	12	3	16
2010	9	5.49	0	5.49	0.38	18	5	24
2011	10	7.26	0	7.26	0.45	24	6	32
2012	11	8.93	0	8.93	0.58	30	7	39
2013	12	10.66	0	10.66	0.71	35	9	47
2014	13	12.43	0	12.43	0.84	41	10	54
2015	14	14.21	0	14.21	0.97	47	12	62

Forester Credentials

User ID:

Password:

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ProjectID	Parcel ID	Total Acres	Latitude	Longitude	
15	19	100	35 35' 35"	82 55' 55"	Classify

REGISTRY CLASSIFICATION

Parcel Classification

Parcel ID: **Inventory Date:** **Parcel Age on Inventory Date: (yrs)** **Start Year:**

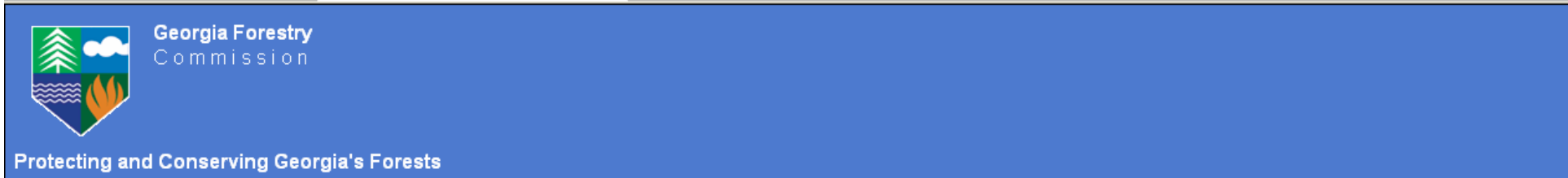
Major Species: **Trees Per Acre:** **Site Index:** **Basal Area:**

Growth Projections

ID	Year	Age	Soils (t/acre)	PW (t/acre)	ST (t/acre)
1	2006	25	0.0	7.66	0.0
2	2007	26	0.0	8.19	0.0
3	2008	27	0.0	8.7	0.0
4	2009	28	0.0	9.2	0.0
5	2010	29	0.0	9.67	0.0
6	2011	30	0.0	10.12	0.0
7	2012	31	0.0	10.55	0.0
8	2013	32	0.0	10.96	0.0
9	2014	33	0.0	11.34	0.0
10	2015	34	0.0	11.71	0.0
11	2016	35	0.0	12.07	0.0

Forester Credentials

User ID: **Password:**



Georgia Carbon Sequestration Registry

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Project Activity Reports

Test Project
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Year	Acres	AGLB (MTCO _{2e})	BGLB (MTCO _{2e})	Soil (MTCO _{2e})	Products (MTCO _{2e})	Total Stocks (MTCO _{2e})	Reductions (MTCO _{2e})	Emissions (MTCO _{2e})	Cumulative Activity (MTCO _{2e})
2006	105.0	3533	883	128	0	4545	0	0	0
2007	105.0	4072	1018	156	0	5246	701	0	701
2008	105.0	4829	1207	183	0	6220	974	0	1675
2009	105.0	5567	1392	211	0	7169	950	0	2625
2010	105.0	6347	1587	239	0	8173	1003	0	3628
2011	105.0	7098	1774	267	0	9139	966	0	4594
2012	105.0	7817	1954	305	0	10077	938	0	5532
2013	105.0	8529	2132	351	0	11012	935	0	6467
2014	105.0	9230	2307	396	0	11933	921	0	7388

Parcels

ID	Latitude	Longitude	Reg Year	
17	35 59' 0"	83 42' 0"	2007	Activity
18	35 58' 0"	83 44' 0"	2007	Activity



ACTIVITY REPORT REGISTRY

On-going Work

- Continue to formulate marketing strategies
- Refinement and expansion of project types
- Education and Technology Diffusion
- Linking with other SE states

Questions? Comments?

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Registry Website:

www.gacarbon.org

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