

Lucas Clay

Phone: 765.760.7441

Atlanta, GA, 30324

Email: lucasclay37@gmail.com

EDUCATION

Clemson University – Clemson, SC

Ph.D. Forest Resources, Department of Forestry and Environmental Conservation

Dissertation: Quantifying greenhouse gas exchange and Ecosystem Services in ecosystems managed for Nature-Based Solutions using eddy covariance, remote sensing, and models

Clemson University – Clemson, SC

M.S. Forest Resources, Department of Forestry and Environmental Conservation

Thesis: Sustainable Land Management in South Carolina: Landowner Perceptions, Challenges, and the Implementation of Forestry and Agriculture Best Management Practices

Ball State University – Muncie, IN

B.S. with Honors: Natural Resources and Environmental Management

Minors: Biology, Japanese

EXPERIENCE

Extension Professional, Research Faculty – Atlanta, GA

July 2025 – Present

Ray C. Anderson Center for Sustainable Business

Scheller College of Business, Georgia Institute of Technology

- I lead the programs for nature-based solutions in the Drawdown Georgia Business Compact
- I collaborate with landowners, the forest industry, and carbon credit buyers to develop new carbon protocols
- I am developing new research for carbon accounting, biodiversity markets, and climate adaptation

Extension Associate – Clemson, SC

August 2023 – July 2025

Clemson Experimental Forest

Clemson University Cooperative Extension

- Developed a feasibility study for an improved forest management (IFM) project for the Clemson Experimental Forest
- Provided technical and financial assistance for landowners to implement Climate-Smart forestry
- Assisted landowners in understanding the tenets of carbon projects and assessed project feasibility

Carbon and Climate Solutions Manager – Seneca, SC

January 2022 – February 2023

CarbonCents Inc.

- Advanced CarbonCents in developing forest carbon market projects and corporate greenhouse gas accounting
- Collaborated with carbon credit buyers to develop feasibility studies for potential carbon projects
- Co-developed one voluntary IFM project and led the verification of one compliance IFM project

Instructor of Record – Clemson, SC

January 2022 – May 2022

Department of Forestry and Environmental Conservation, Clemson University

- Taught Environment and Natural Resources II
- Scientific methods, data collection and analytics, emerging science, and climate change resilience

Research

Graduate Research Assistant – Clemson, SC

May 2018 – December 2024

Department of Forestry and Environmental Conservation, Clemson University

PhD Focus: Measuring carbon using remote sensing and in-situ instruments

Project: Analyzing Greenhouse Gas (GHG) flux in wetlands

- Quantified the impact of wetlands on greenhouse gas emissions for climate adaptation strategies
- Develop machine learning models for eddy covariance gap filling

Project: Spatial analysis of ecosystem services in the Edisto River basin

- Utilized geospatial data to model ecosystem services across the basin
- Compared how protected areas and fundamental market principles (additionality, permanence, and verification) can apply to carbon and ecosystem services accounting

Project: Quantifying albedo in longleaf pine for climate cooling benefits

- Utilized satellite data and models to quantify albedo in longleaf pine stands
- Assessed how changes in albedo radiative forcing can be used for biodiversity restoration and global cooling in longleaf pine ecosystems

Master's Focus: Ecological Economics and Ecosystem Services

Project 1: Promotion of a Sustainable Carbon Market for South Carolina Forest Landowners

- Utilized forest growth models and FIA data to make estimations about carbon sequestration.
- Hosted workshops to help landowners understand and become involved in the Carbon Market.

Project 2: An Analysis of the Implementation, Perceptions, and Challenges of Cover Crops

- Solicited information from SC landowners on their knowledge and perceptions of cover crops.
- Utilized a Willingness to Accept survey to understand implementation rates with federal cost share programs and increase usage.

Project 3: An Analysis of Forestry Best Management Practices in South Carolina

- Utilized a Willingness to Accept survey to understand how cost-share funds are being utilized and if that would help increase the implementation of BMPs.

Additional Activities:

- Teaching Assistant for Wildlife Management and Wildlife Damage, Fall 2019
- Clemson University Symphony Orchestra Member (Violin), 2018 - 2020

Environmental Chemistry Research Assistant – Muncie, IN

August 2015 – May 2018

Department of Natural Resources, Environmental Management, Ball State University

- Studied the effects of amendments on contaminated soil – greenhouse study
- Studied the effects of oil and gas produced wastewater on a constructed wetlands system – greenhouse study
- Studied the ability of certain plants to be effective in phytoremediation of contaminated water in a hydroponics system – greenhouse study

Industrial Waste Compliance Intern – Indianapolis, IN May 2016 – August 2016
Indiana Department of Environmental Management, Office of Land Quality

- Restructured the Legitimate Use program and database
- Provided the agency with county government regulatory data after conferring with county reps
- Participated in many industrial waste inspections in Indiana

Other Experience

Head Cross Country and Women's Track Coach – Muncie, IN August 2015 – May 2018
Burris High School/Laboratory School, Ball State University

- Work with 30+ athletes to increase their performance
- Communicate with parents and administration about team events and concerns
- Hosted Cross Country camp August 2017
- Hosted the Conference track meet each year

MEMBERSHIPS AND ACHIEVEMENTS

American Association for the Advancement of Science (AAAS) Member, August 2019 – Present
Ecological Society of America, Member, January 2019 – Present
Eagle Scout, Troop 77, April 2014

ACCRUED GRANTS AND FUNDING

Grants Awarded:

1. Sustainable Biomass Injection for Carbon Removal and Storage, funded by the US Department of Energy, 2024, \$8,600,000. (Co-Primary Investigator)
2. Evaluating Use Values of the Clemson Experimental Forest, funded by Clemson University, 2024, \$10,000. (Co-Primary Investigator)

Publication Funding: Two Clemson Libraries Open Access Publishing Fund, \$1,500 – Fall 2019, Fall 2024

Travel Funding: Three Graduate Travel Grants totaling \$2,250

ACES Conference; Washington, DC December 2018

Natural Capital Symposium; Stanford, CA March 2019

Southern Sustainable Agriculture Working Group Conference; Little Rock AR, January 2020

PUBLICATIONS

Clay, L., & O'Halloran, T. L. Seasonal variation in CO₂e from methane and carbon dioxide fluxes in adjacent tidal and impounded wetlands. *Science of the Total Environment*. (In progress)

Clay, L., & O'Halloran, T. L. Managing longleaf pine savannahs for albedo and climate cooling benefits. *Forest Ecology and Management*. (In progress)

Clay, L., Motallebi, M., & O'Halloran, T. L. (2024). Quantifying ecosystem services to maximize co-benefits under market-based conservation solutions in the Edisto River Basin, South Carolina. *Forests*, 15(10), 1796. <https://doi.org/10.3390/f15101796>

DeGarady, C., O'Halloran, T.L., Lord, L., **Clay, L.** (2024). Managing longleaf pines for our future: A longleaf pine climate-smart guide. *America's Longleaf Restoration Initiative*. <https://americaslongleaf.org/media/2vfv1fdy/managing-longleaf-pine-forests-for-our-future-climate-smart-guide.pdf>

Puhlick, J. J., Brantley, S. T., O'Halloran, T. L., **Clay, L.,** & Klepzig, K. D. (2022). Carbon markets might incentivize poorer ecological outcomes in longleaf pine ecosystems. *Forest Ecology and Management*, 520, 120421. <https://doi.org/10.1016/j.foreco.2022.120421>

Clay, L., Perkins, K., & Motallebi, M. (2022). Private Forestlands in South Carolina: Motivations for implementing conservation practices. *Small-scale Forestry*, 21(4), 581-600. <https://doi.org/10.1007/s11842-022-09512-0>

Ureta, J. C., **Clay, L.,** Motallebi, M., & Ureta, J. (2020). Quantifying the landscape's ecological benefits—an analysis of the effect of land cover change on ecosystem services. *Land*, 10(1), 21. <https://doi.org/10.3390/land10010021>

Clay, L., Perkins, K., Motallebi, M., Plastina, A., & Farmaha, B. S. (2020). The perceived benefits, challenges, and environmental effects of cover crop implementation in South Carolina. *Agriculture*, 10(9), 372. <https://doi.org/10.3390/agriculture10090372>

Ureta, J. C., **Clay, L.,** Motallebi, M., & Ureta, J. (2020). Understanding stakeholders' knowledge, awareness, and perception of conservation programs in South Carolina. *Journal of South Carolina Water Resources*, 7(1), 6. <https://doi.org/10.34068/JSCWR.07.04>

Clay, L., Motallebi, M., & Song, B. (2020). Carbon markets: An alternative income opportunity for South Carolina forest landowners. *Land Grant Press*. <https://lpress.clemson.edu/publication/carbon-markets-an-alternative-income-opportunity-for-south-carolina-forest-landowners/>

Clay, L., Motallebi, M., & Song, B. (2019). An analysis of common forest management practices for carbon sequestration in South Carolina. *Forests*, 10(11), 949. <https://doi.org/10.3390/f10110949>

Clay, L. H. (2020). Sustainable land management in South Carolina: A focus on landowner perceptions, challenges, and the implementation of forestry and agriculture best management practices. *Clemson University*. https://tigerprints.clemson.edu/all_theses/3383/

Clay, L., & Pichtel, J. (2019). Treatment of simulated oil and gas produced water via pilot-scale rhizofiltration and constructed wetlands. *International Journal of Environmental Research*, 13, 185-198.
<https://doi.org/10.1007/s41742-018-0165-0>

Clay, L. H., & Pichtel, J. (2017). Plants and soil amendments for remediation of soil affected by synthetic oil and gas production wastewater. *Environmental Biotechnology*, 13(2), 1-13.
[https://www.environmentalbiotechnology.pl/eb_dzialy/eb_online/2017/vol13_2/eb2017,13\(2\)_ms288.pdf](https://www.environmentalbiotechnology.pl/eb_dzialy/eb_online/2017/vol13_2/eb2017,13(2)_ms288.pdf)

PROFESSIONAL PRESENTATIONS

“Aggregating Demand and Supply in a Georgia Grown Carbon Exchange”
Georgia Resiliency Conference, October 2025

“Carbon Markets 101: Mechanisms for Investment in Nature-based Solutions”
Sustain SC Technical Webinar, March 2025

“Climate-Smart Forestry in the Southeast”
Southern Regional Extension Forestry Webinar Series, November 2024
Webinar

“Navigating Strategies for a Resilient Southern Forest Landscape”
South Carolina Forestry Commission Forester Training Workshop, September 2024
Columbia, SC

“Accounting for Carbon and Ecosystem Services: Bridging Science and Finance for Climate Resilience”
Weyerhaeuser Lunch and Learn Educational Webinar Series, May 2024
Webinar

“Carbon Markets 101 – A Solution for Forest Management and Climate Change Mitigation”
California Association of Resource Conservation Districts Training, April 2024
Webinar

“Mapping the Future: Harnessing GIS Technology for Carbon Markets and Environmental Sustainability”
Forestry GIS course, Clemson University, February 2024
Clemson, SC

“Exploring the potential of developing a spatial avoided forest conversion mechanism in the Edisto Basin, South Carolina”
Southern Agricultural Economics Association Meeting, February 2024
Atlanta, GA

Carbon Markets 101 – A solution for Forest Management and Climate Change Mitigation
Sierra Nevada Alliance (CA) Monthly Webinar Series, June 2023
Webinar

“Aligning Southern Forest Management with Emerging Carbon Market Opportunities”
Greenwood County Forestry Association Meeting, March 2023
Greenwood, SC

“Aligning Southern Forest Management with Carbon Market Opportunities”
Appalachian Society of American Foresters Annual Meeting, January 2023
Columbia, SC

“Quantifying Ecosystem Services by land cover change in the Edisto River Basin, South Carolina”
A Community on Ecosystem Services Annual Meeting, December 2022
Washington, DC

“Aligning Southern Forest Management with Emerging Carbon Market Opportunities”
Salkehatchie Forestry Association Meeting, October 2023
Edisto Research and Education Center, Blackville, SC

“Contrasting carbon dioxide and methane fluxes between proximal tidal saltmarsh and impounded brackish marsh wetlands in coastal South Carolina, USA”
Joint Aquatic Science Meeting, May 2022
Grand Rapids, MI

“Carbon Markets Forest Landowners: Principles and Management Options”
Southern Forest Landowner Carbon Workshop, May 2022
Baruch Institute, Georgetown, SC

“Managing Forests for Carbon Markets”
Green for our Green – Environmental Markets Workshop, Clemson Extension, February 2022
Columbia, SC

“Valuing our Natural Landscapes for Ecosystem Services” (Poster and Oral Presentation)
Behind the Gate, Baruch Institute for Coastal Ecology and Forest Science, July 2021
Georgetown, SC

“Carbon Credits and Ecosystem Services: Methods for Land Protection and Conservation in South Carolina” (Webinar)
Clemson University Cooperative Extension, April 2021
Lucas Clay, Marzieh Motallebi, Katie Perkins, Tom O’Halloran, John Quinn

“Cover Crops: An Analysis of their Prevalence, Implementation Challenges, and Environmental Benefits” (Poster Presentation)
February 2020
Hobcaw Symposium, Baruch Institute
Georgetown, SC

“Promotion of a Sustainable Carbon Market to South Carolina Forest Landowners” (Poster Presentation)

National Forest Stewardship Meeting, USFS, February 2020
Charleston, SC

“Cover Crops: An Analysis of their Prevalence, Implementation Challenges, and Environmental Benefits” (Poster Presentation)

Southern Sustainable Agriculture Working Group Conference, January 2020
Little Rock, AR

“Promotion of a Sustainable Carbon Market to South Carolina Forest Landowners”

U.S. Forest Service FIA Science and Stakeholder Meeting, November 2019
Knoxville, TN

“Promotion of a Sustainable Carbon Market to South Carolina Forest Landowners” (Poster Presentation)

Ecological Society of America (ESA) Annual Meeting, August 2019
Louisville, KY

“Cover Crops: An Analysis of their Prevalence, Implementation Challenges, and Environmental Benefits” (Poster Presentation)

Southern Cover Crops Conference, July 2019
Auburn University, Auburn, AL

Note: Presented by Katie Perkins, undergraduate research assistant

“South Carolina Forests Potential to Contribute to the California Carbon Market”

Clemson Carbon Market Workshop, May 2019
Clemson University Madren Center, SC

“Promotion of a Sustainable Carbon Market to South Carolina Forest Landowners” (Poster Presentation)

EPSCoR/IDeA State Conference, April 2019
Greenville, SC

“Carbon Sequestration in South Carolina Forests: How Land Use Change affects Carbon Storage”

Natural Capital Symposium, Stanford University, March 2019
Stanford University, CA

“South Carolina Forests Potential to Contribute to the California Carbon Market”

A Community on Ecosystem Services (ACES), December 2018
Washington D.C.

“Promotion of a Sustainable Carbon Market to South Carolina Forest Landowners”

Offsets Workshop, October 2018
Appalachian State University in Boone, NC

“Promotion of a Sustainable Carbon Market to South Carolina Forest Landowners” (Poster Presentation)

Behind the Gate, Baruch Institute for Coastal Ecology and Forest Science, Clemson University, July 2018
Georgetown, SC

“Remediation of Soil Contaminated by Hydraulic Fracturing” (Poster Presentation)

Indiana Academy of Science Annual Meeting, March 2017
Indianapolis, IN

“Effect of Hydraulic Fracturing Fluid on Plant Growth and Soil Properties” (Poster Presentation)

Indiana Academy of Science Annual Meeting, March 2016
Indianapolis, IN