

Trevor D. Walker, PhD

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Roles and Responsibilities

Assistant Professor and Co-Director of the Cooperative Tree Improvement Program (www.treeimprovement.org) at North Carolina State University.

“I lead one of the world’s longest standing and most advanced forest genetic improvement programs, directing its breeding and research initiatives. Each year, this program’s material produces ~800 million seedlings, planted across ~400,000 hectares. Since its founding in 1956, the program has trained more than 250 graduate students and generated over 400 peer-reviewed publications. **My role is to modernize the program by applying cutting-edge statistical and biological technologies to accelerate genetic gain and expedite technology transfer to farmers for deployment across the landscape**”

Education and Career Timeline

2023-Present	Assistant Professor – NC State University
2022	PhD – NC State University, Forest Genetics
2015-2022	Research Associate – Cooperative Tree Improvement Program
2012-2014	Analyst – Hancock Forest Management
2011	MSc – Forest Biometrics, Stephen F. Austin State University
2009	BSc – Forest Management, Stephen F. Austin State University

Selected Publications

- Guner, P., M. N. Shalizi, F. Isik, and T. D. Walker. 2026. Dwarfism in *Pinus taeda* originates from independent somatic mutations co-localized in a shared genomic region. *Heredity*. 135:23–33.
- Trachta, M., S. E. McKeand, and T. D. Walker. 2025. A comparison of non-improved provenances and improved checklots from a *Pinus taeda* breeding program. *Tree Genetics & Genomes*. 21(5):24.
- Shalizi, M. N., S. E. McKeand, and T. D. Walker. 2024. Age Affects Genetic Gain Estimates in *Pinus taeda* L. Progeny Tests. *Silvae Genetica*. 73(1):149–159.
- Walker, T. D., J. A. Maynor, F. Isik, A. J. Heine, R. W. Whetten, K. G. Payn, T. A. Quate, and S. E. McKeand. 2024. Stem Defect Rates and Ice Storm Damage for Families of *Pinus taeda* from Coastal and Piedmont Provenances Planted on a North Carolina Piedmont Site. *Forest Science*. 70(4):311-322.
- Trachta, M. A., J. J. Acosta, and T. D. Walker. 2024. Removing Friction and Bark Improves Drill Resistance Data for Selection on Wood Density in *Pinus taeda* Plantations. *Forest Products Journal*. 75(1):26–33.

- Lim-Hing, S., C. R. Montes, **T. D. Walker**, M. N. Shalizi, K. J. K. Gandhi, and C. Villari. 2024. Enhanced fusiform rust hazard maps for loblolly pine: Incorporating genotype and climate to predict disease. *Forest Ecology and Management*. 569:122158.
- Lin, Y.-M., M. N. Shalizi, **T. D. Walker**, E. Lauer, C. D. Carrasco, K. R. Gujjula, H. Suren, and F. Isik. 2023. Low-density AgriSeq targeted genotyping-by-sequencing markers are efficient for pedigree quality control in *Pinus taeda* L. breeding. *Tree Genetics & Genomes*. 19(4):34.
- Shalizi, M. N., **T. D. Walker**, A. J. Heine, K. G. Payn, F. Isik, B. P. Bullock, and S. E. McKeand. 2023. Performance Based on Measurements from Individual-Tree Progeny Tests Strongly Predicts Early Stand Yield in Loblolly Pine. *Forest Science*. 69(3):299–310.
- Walker, T. D.**, W. P. Cumbie, and F. Isik. 2022. Single-Step Genomic Analysis Increases the Accuracy of Within-Family Selection in a Clonally Replicated Population of *Pinus taeda* L. *Forest Science*. 68(1):37–52.
- Shalizi, M. N., K. G. Payn, **T. D. Walker**, F. Isik, A. J. Heine, and S. E. McKeand. 2022. Long-term evaluation of intra- and inter-provenance hybrids of loblolly pine in the Piedmont region of the southeastern United States. *Forest Ecology and Management*. 522:120469.
- Maynor, J. A., F. Isik, **T. D. Walker**, R. W. Whetten, A. J. Heine, K. G. Payn, and S. E. McKeand. 2021. Provenance and family variation in biomass potential of loblolly pine in the Piedmont of North Carolina. *Forest Science*. 67(3):312–320.
- Walker, T. D.**, B. P. Bullock, B. C. Smith, and S. E. McKeand. 2020. Modeling self-thinning patterns in loblolly pine with provenance and family effects. *Forest Science*. 66(6):712–725.
- Walker, T. D.**, F. Isik, and S. E. McKeand. 2019. Genetic Variation in Acoustic Time of Flight and Drill Resistance of Juvenile Wood in a Large Loblolly Pine Breeding Population. *Forest Science*. 65(4):469-482.
- Walker, T. D.**, and S. E. McKeand. 2018. Fusiform rust hazard mapping for loblolly pine in the southeastern United States using progeny test data. *Journal of Forestry*. 116(2):117-122.

Teaching

Courses at NC State University:

FOR 411/GN 411: *Forest Tree Genetics and Biology*

FOR 511: *Forest Genetics*

FOR 727: *Tree Improvement Research Techniques*

FOR 4953/693/893: *Independent research* - 2025: 6 students, 2024: 7 students, 2023: 3 students

Graduate Students, Degree, Period Advised, *Major Advisor

Molly Irvin, PhD, 2025-2028 (anticipated)

Jay Creech, MSc, 2025-2027 (anticipated)*

Sara Shoaf, MSc, 2025-2027 (anticipated)

Martha Salas, PhD, 2025-2026 (anticipated)

Makenzie Bowman, MSc, 2024-2026 (anticipated)*

Lainey Paulus, MSc, 2024-2026 (anticipated)

Pinar Guner, PhD, 2023-2026 (anticipated)*

Dongjae Son, PhD, 2024-2025

Mariano Trachta, MSc, 2023-2025*

Ivan Raigosa-Garcia, PhD, 2023-2025

Austin Quate, MSc, 2023-2024*

Workshops taught:

Dec. 2025	Seed Orchard Manager's Workshop	Elizabethtown, NC
June 2025	Quantitative Genetics Workshop	Pennsylvania State University
Dec. 2025	Computing Skills in Plant Breeding Workshop	NC State University
Dec. 2023	Genetic Data Analysis Workshop	NC State University
June 2023	Quantitative Genetics Workshop	University of Tennessee
Dec. 2022	Genetic Data Analysis Workshop	NC State University

Grants and Extramural Funding

<u>Period</u>	<u>Grantor</u>	<u>Award</u>	<u>Project</u>
2024-2028	The Longleaf Alliance, Inc	\$1,500,000	Longleaf Pine Genetic Resource Program
2019-2020	North Carolina Department of Agriculture & Consumer Services	\$127,993	Loblolly Pine Biomass Genetics/Cropping Study

Professional Service

Extension publications/interviews:

=> Cooperative annual reports available online at: www.treeimprovement.org/annual-reports

Moore, A. 2025. Reviving a Southern Icon: How Science is Securing the Future of Longleaf Pine. *College of Natural Resources News*. Available online at: <https://cnr.ncsu.edu/news/2025/10/longleaf-pine-restoration/>

Walker, T. D. 2025. Planting Loblolly Pine? Choose Seedling Genetics That Can Weather the Winter. *NCSU Extension*. Available online at: <https://content.ces.ncsu>.

Walker, T. D. 2025. Progress Towards a Second-Generation Longleaf Pine Genetic Resource. *The Longleaf Leader*. Available online at: <https://longleafalliance.org/wp-content/uploads/2025/08/Longleaf-Leader-Summer-2025-FINAL.pdf>

Turschak, G. and D. Reed. 2025. Efforts to Restore Longleaf Pine Forests Grow Across the South. *Technician*. Available online at: <https://technicianonline.com/152709/news/efforts-to-restore-longleaf-pine-forests-grow-across-the-south/>

Burnett, Erin. April 2025. WXII-12 News. Economic Benefit of Pollen Season for North Carolina. Available online at: <https://www.wxii12.com/article/winston-salem-farmer-gardenspollinator-friendly-tips/64512862>

Walker, T. D. 2024. Cooperative Tree Improvement Program Lights a Fire in Longleaf Genetics. *The Longleaf Leader*. Available online at: <https://longleafalliance.org/wp-content/uploads/2024/07/Longleaf-Leader-Summer-2024-FINAL.pdf>

Allen, Micky. December 2023. Forester's Forecast Episode 7: Dr. Trevor Walker. Available online at: <https://www.youtube.com/watch?v=3-zKLPLCpGI>

Site visits with forest industry/agency partners: 2025: 16 visits, 2024: 14 visits, 2023: 9 visits.

Professional society service: Southern Forest Tree Improvement Committee Member (2023- present)

Peer reviewer (manuscripts reviewed since 2023-2025): Tree Genetics and Genomes (4), Forest Ecology and Management (5), Forest Science (2), New Forests (2), The Forestry Chronicle (1), Forestry: An International Journal of Forest Research (1)

Presentations

Recent invited lectures:

<u>Date</u>	<u>Host</u>	<u>Attendees</u>	<u>Location</u>
10/10/2025	The American Chestnut Foundation	156	Virtual
10/7/2025	Mid-Atlantic Sustainable Biomass Consortium	36	Butner, North Carolina
9/16/2025	Virginia Department of Forestry	74	Sweetbriar, Virginia
7/16/2025	Plantation Management Research Cooperative	116	Athens, Georgia
6/10/2025	Tree Improvement Alberta	20	Grande Prairie, Alberta
5/7/2025	Clemson University Extension	160	Columbia, South Carolina
12/4/2024	Forest Modeling Research Cooperative	26	Mobile, Alabama
9/12/2024	Auburn University Nursery Management Short Course	26	Virtual
6/7/2024	Suzano	17	Virtual
5/29/2024	Texas A&M University Western Gulf Tree Imp. Prgm.	32	Nacogdoches, Texas
2/22/2024	Society of American Foresters - Southeastern Chapter	190	Athens, Georgia
1/29/2024	Southern Group of State Foresters	26	Asheville, North Carolina
12/12/2023	US Forest Service	43	Raleigh, North Carolina
10/5/2023	Camcore	37	Hofmann Forest, North Carolina
8/23/2023	Association of Consulting Foresters	72	Macon, Georgia
8/3/2023	Southern Forest Resource Assessment Consortium	43	Raleigh, North Carolina

Scientific conference presentations:

<u>Date</u>	<u>Conference</u>	<u>Attendees</u>	<u>Location</u>
6/25/2025	Forest Genetics Joint Conference	18	State College, Pennsylvania
6/5/2025	IUFRO - Resistance Mechanisms and Breeding in Forest Trees	64	Vernon, British Columbia
11/4/2024	Joint Southern and Northeastern Mensurationists	72	Stowe, Vermont
10/10/2024	The Longleaf Alliance 2024 Biennial Conference	32	Sandestin, Florida
8/7/2024	IUFRO - Tree Biotechnology	139	Annapolis, Maryland

7/12/2023 Canadian Forest Genetics Association
6/20/2023 Southern Forest Tree Improvement Conference

40 Vernon, British Columbia
35 Knoxville, Tennessee

Honors and Awards

Pride of the Wolfpack Award – 2021