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Research Interests

- Soil carbon and nitrogen dynamics in forests, pastures, and bioenergy crops
- Applications of stable isotopes in terrestrial biogeochemical cycles
- Compartment modeling of ecosystem biogeochemical cycles
- Environmental behavior of long-lived radioactive elements
- Recovery and sustainability of ecosystems after anthropogenic disturbance
- Relationships between environment, ecosystems, and human health

Education

- M.S.E.H., East Tennessee State University, Environmental Health
- M.S., University of Georgia, Zoology
- B.S., Washington and Lee University, Biology

Recent Publications (last 5 years)

- Garten Jr CT, Smith JL, Tyler DD, Amonette JE, Bailey VL, Brice DJ, Castro HF, Graham RL, Gunderson CA, Izaurralde RC, Jardine PM, Jastrow JD, Kerley MK, Matamala R, Mayes MA, Metting FB, Miller RM, Moran KK, Post III WM, Sands RD, Schadt CW, Phillips JR, Thomson AM, Vugteveen T, West TO, Wullschleger SD (2010) Intra-annual changes in biomass, carbon, and nitrogen dynamics at 4-year old switchgrass field trials in west Tennessee, USA. *Agriculture, Ecosystems and Environment* 136: 177-184.
- Garten Jr CT, Brice DJ (2009) Belowground fate of ¹⁵N injected into sweetgum trees (*Liquidambar styraciflua*) at the ORNL FACE Experiment. *Rapid Communications in Mass Spectrometry* 23: 3094-3100.
- Post WM, Amonette JE, Birdsey R, Garten Jr CT, Izaurralde RC, Jardine PM, Jastrow J, Lal R, Marland G, McCarl BA, Thomson AM, West TO, Wullschleger SD, Metting FB (2009) Terrestrial

biological carbon sequestration: science for enhancement and implementation. IN (BJ McPherson and ET Sundquist, eds.) Carbon Sequestration and Its Role in the Global Carbon Cycle, AGU Geophysical Monograph Series, Volume 183: 73-88.

- Garten Jr CT, Classen AT, Norby RJ (2009) Soil moisture surpasses elevated CO₂ and temperature as a control on soil carbon dynamics in a multi-factor climate change experiment. *Plant and Soil* 319: 85-94.
- Garten Jr CT (2009) A disconnect between O horizon and mineral soil carbon – implications for soil C sequestration. *Acta Oecologia* 35: 218-226.
- Garten Jr CT (2008) Changes in carbon following forest soil transplants along an altitudinal gradient. *Communications in Soil Science and Plant Analysis* 39: 2883-2893.
- Maloney KO, Garten Jr CT, Ashwood TL (2008) Changes in soil properties following 55 years of secondary forest succession at Fort Benning, Georgia, USA. *Restoration Ecology* 16: 503-510.
- Matamala R, Jastrow JD, Miller RW, Garten CT (2008) Temporal changes in C and N stocks of restored prairie: implications for C sequestration strategies. *Ecological Applications* 18: 1470-1488.
- Dale VH, Peacock AD, Garten Jr CT, Sobek E, Wolfe AK (2008) Selecting indicators of soil, microbial, and plant conditions to understand ecological changes in Georgia pine forests. *Ecological Indicators* 8: 818-827.
- Zhou JZ, Kang S, Schadt CW, Garten Jr CT (2008) Spatial scaling of functional gene diversity across various microbial taxa. *Proceedings National Academy of Sciences* 105: 7768-7773.
- Garten Jr CT, Classen AT, Norby RJ, Brice DJ, Weltzin JA (2008) Role of N₂-fixation in constructed old-field communities under different regimes of [CO₂], temperature, and water availability. *Ecosystems* 11: 125-137.
- Sanchez FG, Coleman M, Garten Jr CT, Luxmoore RJ, Stanturf JA, Trettin C, Wullschlegel SD (2007) Soil carbon, after 3 years, under short rotation woody crops grown under varying nutrient and water availability. *Biomass and Bioenergy* 31: 793-801.
- Garten Jr CT, Brice DJ, Todd Jr DE (2007) Short-term recovery of ammonium-15nitrogen applied to a temperate forest Inceptisol and Ultisol in east Tennessee, USA. *Communications in Soil Science and Plant Analysis* 38: 2693-2704.
- Garten Jr CT, Hanson PJ, Todd Jr DE, Lu BW, Brice DJ (2007) Natural 15N and 13C abundance as indicators of forest N status and soil C dynamics, pp. 61-82. IN (RH Michener and K Lajtha, eds.) *Stable Isotopes in Ecology and Environmental Science* (second edition). Blackwell Science, Oxford.

- Garten Jr CT, Kang SH, Brice DJ, Schadt CW, Zhou J (2007) Variability in soil properties at different spatial scales (1 m to 1 km) in a deciduous forest ecosystem. *Soil Biology and Biochemistry* 39: 2621-2627.
- Whicker FW, Garten Jr CT, Hamby DM, Higley KA, Hinton TG, Kaplan D, Rowan DJ, Schreckhise RG (2007) Cesium-137 in the Environment: Radioecology and Approaches to Assessment and Management. National Council on Radiation Protection and Measurements Report, Washington, D.C. 382 pp.
- Froberg M, Jardine PM, Hanson PJ, Swanston CW, Todd DE, Tarver JR, Garten Jr CT (2007) Low dissolved organic carbon input from fresh litter to deep mineral soils. *Soil Science Society America Journal* 71: 347-354.
- Garten Jr CT, Hanson PJ (2006) Measured forest soil C stocks and estimated turnover times along an elevation gradient. *Geoderma* 136: 342-352.
- Garten Jr CT (2006) Predicted effects of prescribed burning and harvesting on forest recovery and sustainability in southwest Georgia. *Journal of Environmental Management* 81: 323-332.
- Garten Jr CT (2006) Relationships among forest soil C isotopic composition, partitioning, and turnover times. *Canadian Journal of Forest Research* 36: 2157-2167.
- Dale V, Aldridge M, Arthur T, Baskaran L, Berry M, Chang M, Efroymsen R, Garten C, Stewart C, Washington-Allen R (2006) Bioregional planning in central Georgia, USA. *Futures* 38: 471-489.
- Hanson PJ, Swanston CW, Garten Jr CT, Todd DE, Trumbore SE (2005) Reconciling change in Oi-horizon carbon-14 with mass loss for an oak forest. *Soil Science Society of America Journal* 69: 1492-1502.
- Swanston CW, Torn MS, Hanson PJ, Southon JR, Garten CT, Hanlon EM, Ganio L (2005) Initial characterization of processes of soil carbon stabilization using forest stand-level radiocarbon enrichment. *Geoderma* 128: 52-62.