

Curriculum Vitae
Robert K. Booth

A. BIOGRAPHICAL INFORMATION

Robert Klaas Booth

Contact information

Work: Department of Earth & Environmental Science, Lehigh University, 1 West Packer Avenue, Bethlehem, PA 18015. Phone: 610-758-6580, Fax: 610-758-3677, Email: robert.booth@lehigh.edu, Web page: <http://www.lehigh.edu/~rkb205>

Home: 1620 Elm Street, Bethlehem, PA 18017. Phone: 610-814-6011

Educational history

- Ph.D. (Botany) University of Wyoming – May 2003
Dissertation: Holocene paleoclimate and paleoecology of the western Great Lakes region: relationships among peatland paleohydrology, Great Lakes water-levels, and vegetation history. 229 p.
- M.S. (Biology) Georgia Southern University – June 1998
Thesis: Palynology and environments of deposition of sediments from two barrier islands: St. Catherines Island and Skidaway Island, Georgia, USA. 213 p.
- B.S. (Biology) The Pennsylvania State University – December 1995

Academic positions

- *Associate Professor*, Earth and Environmental Science Department, Lehigh University (2011-present)
- *Assistant Professor*, Earth and Environmental Science Department, Lehigh University (2006-2011)
- *Honorary Fellow*, Center for Climatic Research, University of Wisconsin (2006-present)
- *Assistant Scientist*, Center for Climatic Research, University of Wisconsin (2005)
- *CPEP Post-Doctoral Fellow* (Climate, People, & the Environment Program, Center for Climatic Research, University of Wisconsin) (2003-2005)
- *Graduate Teaching assistant*, Fall 2001 and Spring 2000, Life Sciences, University of Wyoming
- *Graduate Research Assistant*, Fall 1998-Fall 1999, Fall 2000-Spring 2001, Spring 2002-2003, University of Wyoming
- *Graduate Teaching assistant*, Spring 1996, Intro Botany and Intro Biology, Georgia Southern University
- *Graduate Research Assistant*, Fall 1996-Spring 1998.

B. PUBLICATIONS AND CREATIVE ACTIVITIES

Chapters in books (#refereed, ¹invited)

Published

- Gallego-Sala, A.V., R.K. Booth, D.J. Charman, I.C. Prentice, and Z. Yu. 2016. **Peatlands and climate change.** Pages 129- 150 in A. Bonn, T. Allott, M. Evans, H. Joosten, and R. Stoneman (eds.), *Peatland restoration and ecosystem services: science, policy, and practice.* Cambridge University Press.
- Bishop, G.A., D.H. Thomas, M.C. Sanger, B.K. Meyer, R. K. Vance, R.K. Booth, F.J. Rich, D. B. Potter, and T. Keith-Lucas. 2011. **Chapter 10. Vibracores and vibracore transects: constraining the geologic and cultural history of St. Catherines Island.** Pages 183-207 in G.A. Bishop, H.B. Rollins, and D.H. Thomas (eds), *Geoarchaeology of St. Catherines Island, Georgia.* American Museum of Natural History Anthropological Papers, No. 94. ^{#1}
- Rich, F.J. & R. K. Booth. 2011. **Chapter 6. Quaternary Vegetation and Depositional History of St. Catherines Island.** Pages 129-141 in G.A. Bishop, H.B. Rollins, and D.H. Thomas (eds), *Geoarchaeology of St. Catherines Island, Georgia.* American Museum of Natural History Anthropological Papers, No. 94. ^{#1}
- Charman, D.J., R.K. Booth, M. Mäkilä, & A. Sirin. 2008. **Chapter 4: Peatlands and climate change.** In: Parish, F., Sirin, A., Charman, D., Joosten, H., Minayeva, T., Silviu, M. and Stringer, L. (Eds.), *Assessment of peatlands, biodiversity and climate change*, UNEP-GEF, Global Environment Centre, Kuala Lumpur and Wetlands International, Wageningen.¹ ([link](#))
- Jackson, S.T. & R.K. Booth. 2007. **Validation of pollen studies.** Pages 2413-2422 in *Encyclopedia of Quaternary Sciences* (S.A. Elias, editor-in-chief). Elsevier Scientific Publishing, Inc.^{#1} ([link](#))

Articles in refereed journals (# postdoctoral mentee, * graduate student advisee, ** undergraduate advisee, *** visiting students that received training in my lab)

Published

- Turner, E.T., G.T. Swindles, D.J. Charman, P.G. Langdon, P.J. Morris, R.K. Booth, L.E. Parry, & J.E. Nichols. 2016. **Solar cycles or random processes? Evaluating solar variability in Holocene climate records.** *Scientific Reports* 6: 23961.
- Booth, R.K., [#]A.W. Ireland, ^{**}K. LeBoeuf, & A. Hessel. 2016. **Late Holocene climate-induced forest transformation and peatland establishment in the central Appalachians.** *Quaternary Research* 85: 204-210.
- Payne, R., K. Babeshko, S. van Bellen, J. Blackford, R. Booth, D. Charman, M. Ellershaw, D. Gilbert, P. Hughes, V. Jassey, L. Lamentowicz, M. Lamentowicz, E. Malysheva, D. Mauquoy, Y. Mazei, E. Mitchell, G. Swindles, A. Tsyganov, E. Turner, & R. Telford. 2016. **Significance testing testate amoeba water table reconstructions.** *Quaternary Science Reviews* 138: 131-135.

- ***Holmquist, J., R.K. Booth, & G. Macdonald. 2016. **Boreal Peatland Water Table Depth and Carbon Accumulation During the Holocene Thermal Maximum Roman Warm Period and Medieval Climate Anomaly.** *Palaeogeography, Palaeoclimatology, Palaeoecology* 444, 15-27.
- ***Willis, K.S., D.W. Beilman, R.K. Booth, M.J. Amesbury, J. Holmquist, & G.M. MacDonald. 2015. **Peatland paleohydrology in southern West Siberian Lowlands: comparison of multiple testate amoebae transfer functions, sites, and *Sphagnum* $\delta^{13}C$ values.** *The Holocene* 25: 1102-1110.
- *Clifford, M.J. & R.K. Booth. 2015. **Late-Holocene drought and fire drove a widespread change in forest community composition in eastern North America.** *The Holocene* 25: 1102-1110.
- Jackson, S.T., R.K. Booth, K. Reeves, J.J. Andersen, T.A. Minckley, & R.A. Jones. 2014. **Inferring local to regional changes in forest composition from Holocene macrofossils and pollen of a small lake in central Upper Michigan.** *Quaternary Science Reviews* 98: 60-73.
- #Ireland, A.W., *M.J. Clifford, & R.K. Booth. 2014. **Widespread Dust Deposition on North American Peatlands Coincident with European Land-Clearance.** *Vegetation History and Archaeobotany*. DOI 10.1007/s00334-014-0466-y
- *Klein, E.S., Z. Yu, & R.K. Booth. 2013. **Recent Increase in Peatland Carbon Accumulation in a Thermokarst Lake Basin in Southwestern Alaska.** *Palaeogeography, Palaeoclimatology, Palaeoecology* 392: 186-195. ([link](#))
- *Clifford, M.J. & R.K. Booth. 2013. **Increased probability of fire during late Holocene droughts in northern New England.** *Climatic Change* 119: 693-704. ([link](#))
- *Klein, E.S., R.K. Booth, Z. Yu, B.G. Mark, & N.D. Stansell. 2013. **Hydrology-mediated Differential Response of Carbon Accumulation to Late Holocene Climate Change at Two Peatlands in Southcentral Alaska.** *Quaternary Science Reviews* 64: 61-75. ([link](#))
- *Ireland, A.W., R.K. Booth, S.C. Hotchkiss, & J.E. Schmitz. 2013. **A comparative study of within-basin and regional peatland development: implications for peatland carbon dynamics.** *Quaternary Science Reviews* 71: 85-95. ([link](#))
- Charman, D. J., Beilman, D. W., Blaauw, M., Booth, R. K., Brewer, S., Chambers, F. M., Christen, J. A., Gallego-Sala, A., Harrison, S. P., Hughes, P. D. M., Jackson, S. T., Korhola, A., Mauquoy, D., Mitchell, F. J. G., Prentice, I. C., van der Linden, M., De Vleeschouwer, F., Yu, Z. C., Alm, J., Bauer, I. E., Corish, Y. M. C., Garneau, M., Hohl, V., Huang, Y., Karofeld, E., Le Roux, G., Loisel, J., Moschen, R., Nichols, J. E., Nieminen, T. M., MacDonald, G. M., Phadtare, N. R., Rausch, N., Sillasoo, Ü., Swindles, G. T., Tuittila, E.-S., Ukonmaanaho, L., Väliranta, M., van Bellen, S., van Geel, B., Vitt, D. H., and Zhao, Y. 2013. **Climate-related changes in peatland carbon accumulation during the last millennium.** *Biogeosciences Discussion* 9, 14327-14364. ([link](#))
- Jones, M., R.K. Booth, Z. Yu, & P. Ferry. 2013. **A 2200-year record of permafrost dynamics and carbon cycling in a collapse-scar bog, interior Alaska.** *Ecosystems*. DOI: 10.1007/s10021-012-9592-5. ([link](#))

- Amesbury, M.J., G. Mallon, D.J. Charman, P.D.M. Hughes, R.K. Booth, T.J. Daley, & M. Garneau. 2012. **Statistical testing of a new testate amoeba based transfer function for water-table depth reconstruction on ombrotrophic peatlands in north-eastern Canada and Maine, United States.** *Journal of Quaternary Science*. DOI: 10.1002/jqs.2584 ([link](#))
- *Ireland, A.W., R.K. Booth, S.C. Hotchkiss, & J.E. Schmitz. 2012. **Drought as a trigger for rapid state shifts in kettle ecosystems: implications for ecosystem responses to climate change.** *Wetlands*. DOI: 10.1007/s13157-012-0324-6. ([link](#))
- Booth, R.K., S. Brewer, M. Blaauw, T.A. Minckley, & S.T. Jackson. 2012. **Decomposing the Mid-Holocene Tsuga Decline in Eastern North America.** *Ecology* 93:1841–1852. ([link](#))
- Liu, Y, S. Brewer, S.T. Jackson, T.A. Minckley, & R.K. Booth. 2012. **Temporal density of pollen sampling affects age determination of the mid-Holocene hemlock (*Tsuga*) decline.** *Quaternary Science Reviews* 45: 54-59. ([link](#))
- Goring, S.J., J.W. Williams, J.L. Blois, S.T. Jackson, C.J. Paciorek, R.K. Booth, J.R. Marlon, M. Blaauw, and J.A. Christen. 2012. **Deposition times in the northeastern United States during the Holocene: establishing valid priors for Bayesian age models.** *Quaternary Science Reviews* 48: 54-60. ([link](#))
- Ireland, A.W. & R.K. Booth. 2012. **Upland deforestation triggered an ecosystem state-shift in a kettle peatland.** *Journal of Ecology* 100: 586-596. ([link](#)) ([editor's choice paper](#))
- Booth, R.K., S.T. Jackson, *V.A. Sousa, *M.E. Sullivan, T.A. Minckley, & *M.J. Clifford. 2012. **Multidecadal drought and amplified moisture variability drove rapid forest community change in a humid region.** *Ecology* 93:219-226. ([link](#)) ([editor's choice summary appeared in Science Magazine](#))
- Minckley, T.A., R.K. Booth, & S.T. Jackson. 2012. **Response of arboreal pollen abundance to Late Holocene drought events in the Upper Midwest, USA.** *The Holocene* 22:531-539. ([link](#))
- Chambers, F.M., R.K. Booth, F. De Vleeschouwer, M. Lamentowicz, G. Le Roux, D. Mauquoy, J.E. Nichols, & B. van Geel. 2012. **Development and refinement of proxy-climate indicators from peats.** *Quaternary International* 268: 21-33 ([link](#)).
- Payne, R.J. Telford, J.J. Blackford, A. Blundell, R.K. Booth, D.J. Charman, Ł. Lamentowicz, M. Lamentowicz, E.A.D Mitchell, G. Potts, G.T. Swindles, B.G. Warner, & W. Woodland. 2012. **Testing peatland testate amoeba transfer functions: Appropriate methods for clustered training-sets.** *The Holocene* 22: 819-825. ([link](#))
- *Sullivan, M.E. & R.K. Booth. 2011. **The potential influence of short-term environmental variability on the composition of testate amoeba communities in *Sphagnum* peatlands.** *Microbial Ecology* 62:80-93. ([link](#))
- *Ireland, A.W. & R.K. Booth. 2011. **Hydroclimatic variability drives episodic expansion of a floating peat mat in a North American kettlehole basin.** *Ecology* 92: 11-18. <http://www.esajournals.org/doi/pdf/10.1890/10-0770.1>

- van Bellen, S., M. Garneau, & R.K. Booth. 2011. **Holocene carbon accumulation rates from three ombrotrophic peatlands in boreal Quebec, Canada: impact of climate-driven ecohydrological change.** *The Holocene* 21: 1217-1231. ([link](#))
- Heger, T.J., R.K. Booth, M.E. Sullivan, D.M. Wilkinson, B.G. Warner, T. Asada, Y. Mazei, R. Meisterfeld, & E.A.D. Mitchell. 2011. **Rediscovery of *Nebela ansata* (Amoebozoa: Arcellinida) in eastern North America: biogeographical implications.** *Journal of Biogeography* 38:1897-1906. ([link](#))
- Thompson, T.A., K. Lepper, A.L. Endres, J.W. Johnston, S.J. Baedke, E. Argyilan, R.K. Booth, & D.A. Wilcox. 2011. **Mid Holocene lake level and shoreline behavior during the Nipissing phase of the upper Great Lakes at Alpena, Michigan, USA.** *Journal of Great Lakes Research* 37:567-576. ([link](#))
- Booth, R.K. 2010. **Testing the climate sensitivity of peat-based paleoclimate reconstructions in mid-continental North America.** *Quaternary Science Reviews* 29: 720-731. doi: 10.1016/j.quascirev.2009.11.018 ([link](#))
- Booth, R.K., M. Lamentowicz, & D.J. Charman. 2010. **Preparation and analysis of testate amoebae in peatland paleoenvironmental studies.** *Mires and Peat* 7, article 02, 1-7. ([link](#))
- Booth, R.K. and *B. Meyers. 2010. **Environmental controls on pore number in *Hyalosphenia papilio*: implications for paleoenvironmental reconstruction.** *Acta Protozoologica* 49: 29-35. ([link](#))
- *Markel, E., R.K. Booth, & *Y. Qin. 2010. **Testate amoebae and $\delta^{13}\text{C}$ of *Sphagnum* as surface-moisture proxies in Alaskan peatlands.** *The Holocene* 20: 463-475. ([link](#))
- Talbot, J., P.J.H. Richard, N.T. Roulet, & R.K. Booth. 2010. **Assessing long-term hydrological and ecological responses to drainage in a raised bog using paleoecology and a hydrosequence.** *Journal of Vegetation Science* 21: 143-156. ([link](#))
- Nichols, J., R.K. Booth, S.T. Jackson, E.G. Pendall, & Y. Huang. 2010. **Differential hydrogen isotopic ratios of *Sphagnum* and vascular plant biomarkers in ombrotrophic peatlands as a quantitative proxy for precipitation—evaporation balance.** *Geochimica et Cosmochimica Acta*, doi: 10.1016/j.gca.2009.11.012 ([link](#))
- Tweiten, M.A., S.A. Hotchkiss, R.K. Booth, R.R. Calcote, & E.A. Lynch. 2009. **The response of a jack pine forest to late-Holocene climate variability in northwestern Wisconsin.** *The Holocene* 19: 1049-1061.
- Jackson, S.T., J. Betancourt, R.K. Booth, & S.T. Gray. 2009. **Ecology and the ratchet of events: climate variability, niche dimensions, and species distributions.** *Proceedings of the National Academy of Sciences USA*, 106 (supplement 2): 19685-19692. (doi: 10.1073/pnas.0901644106)
- *Qin, Y., R.K. Booth, Y. Gu, Y. Wang, and S. Xie. 2009. **Testate amoebae as indicators of 20th century environmental change in Lake Zhangdu, China.** *Fundamental and Applied Limnology* 175: 29-38.
- Booth, R.K., *M.E. Sullivan, & *V.A. Sousa. 2008. **Ecology of testate amoebae in a North Carolina pocosin and their potential use as environmental and paleoenvironmental indicators.** *Ecoscience* 15: 277-289.

- Booth, R.K. 2008. **Testate amoebae as proxies of mean annual water-table depth in Sphagnum-dominated peatlands of North America.** *Journal of Quaternary Science* 23: 43-57.
- Capps, D.K., T.A. Thompson, & R.K. Booth. 2007. **A post-Calumet shoreline along southern Lake Michigan.** *Journal of Paleolimnology* 37: 395-409.
- Nichols, J.E., R.K. Booth, S.T. Jackson, E.G. Pendall, and Y. Huang. 2006. **Paleohydrologic reconstruction based on n-alkane distributions in ombrotrophic peat.** *Organic Geochemistry* 37: 1505-1513.
- Booth, R.K., M. Notaro, S.T. Jackson, & J.E. Kutzbach. 2006. **Widespread drought episodes in the western Great Lakes region during the past 2000 years: geographic extent and potential mechanisms.** *Earth and Planetary Science Letters* 242: 415-427.
- Booth, R.K., J.E. Kutzbach, S.C. Hotchkiss, & R.A. Bryson. 2006. **A reanalysis of the relationship between strong westerlies and precipitation in the Great Plains and Midwest regions of North America.** *Climatic Change* 76: 427-441.
- Booth, R.K., S.C. Hotchkiss, & D.A. Wilcox. 2005. **Discoloration of polyvinyl chloride (PVC) tape as a proxy for water-table depth in peatlands: validation and assessment of seasonal variability.** *Functional Ecology* 19:1040-1047.
- Booth, R.K. & J.R. Zygmunt. 2005. **Biogeography and comparative ecology of testate amoebae inhabiting Sphagnum-dominated peatlands in the Great Lakes and Rocky Mountain regions of North America.** *Diversity and Distributions* 11: 577-590.
- Booth, R.K., S.T. Jackson, S.L. Forman, J.E. Kutzbach, E.A. Bettis, III, J. Kreig, and D.K. Wright. 2005. **A severe centennial-scale drought in continental North America 4200 years ago and apparent global linkages.** *The Holocene* 15: 321-328.
- Booth, R.K., S.T. Jackson, & C.E.D. Gray. 2004. **Paleoecology and high-resolution paleohydrology of a kettle peatland in Upper Michigan.** *Quaternary Research* 61: 1-13. (with cover photo)
- Johnston, J.W., S.J. Baedke, R.K. Booth, D.A. Wilcox, & T.A. Thompson. 2004. **Late Holocene lake-level variation in southeastern Lake Superior: Tahquamenon Bay, Michigan.** *Journal of Great Lakes Research* 30 (Supplement 1): 1-19.
- Booth, R.K. & S.T. Jackson. 2003. **A high-resolution record of late Holocene moisture variability from a Michigan raised bog.** *The Holocene* 13: 865-878.
- Booth, R.K., F.J. Rich, & S.T. Jackson. 2003. **Paleoecology of mid-Wisconsinan peat clasts from Skidaway Island, Georgia.** *Palaios* 18: 63-68.
- Booth, R.K. 2002. **Testate amoebae as paleoindicators of surface-moisture changes on Michigan peatlands: modern ecology and hydrological calibration.** *Journal of Paleolimnology* 28: 329-348.
- Jackson, S.T. & R.K. Booth. 2002. **The role of late Holocene climate variability in the expansion of yellow birch in the western Great Lakes region.** *Diversity and Distributions* 8: 275-284.

- Booth, R.K., S.T. Jackson, & T.A. Thompson. 2002. **Paleoecology of a northern Michigan lake and the relationship among climate, vegetation, and Great Lakes water-levels.** *Quaternary Research* 57: 120-130.
- Booth, R.K. 2001. **Ecology of testate amoebae in two Lake Superior coastal wetlands: implications for paleoecology and environmental monitoring.** *Wetlands* 21: 564-576.
- Booth, R.K. & F.J. Rich. 1999. **Identification and paleoecological implications of a Late Pleistocene pteridophyte-dominated assemblage preserved in brown peat from St. Catherines Island, Georgia.** *Castanea* 64: 120-129.
- Booth, R.K., F.J. Rich, G.A. Bishop, & N.A. Brannen. 1999. **Evolution of a freshwater barrier-island marsh in coastal Georgia, USA.** *Wetlands* 19: 570-577.
- Booth, R.K., F.J. Rich & G.A. Bishop. 1999. **Palynology and depositional history of Late Pleistocene and Holocene coastal sediments from St. Catherines Island, Georgia, USA.** *Palynology* 23: 67-86.

Reports and other publications (#refereed)

- Booth, R.K., S.T. Jackson, & M. Notaro. 2010. **Using peatland archives to test paleoclimate hypotheses.** *PAGES news* 18: 6-8.
- Wilcox, D.A., T.A. Thompson, R.K. Booth, & J.R. Nicholas. 2007. **Lake-level variability and water availability in the Great Lakes.** *U.S. Geological Survey Circular 1311*, 25 p. #
- Jackson, S.T., R.K. Booth, Y. Huang, E.G. Pendall, J.E. Nichols, T.A. Minckley, & M. Taylor. 2006. **Late Holocene hydrological variability in ombrotrophic peatlands of eastern North America.** *PAGES News* 14: 26-28.
- Booth, R.K., J.R. Zygmont, & S.T. Jackson. 2005. **Testate amoebae as paleoclimatic proxies in Rocky Mountain peatlands: a case study in the Greater Yellowstone Ecosystem.** *University of Wyoming – National Park Service Research Center 26th Annual Report 2002*. Pages 85-96.
- Booth, R.K., M.E. Lyford, & J.M. Beiswenger. 2002. **Paleoecology: documenting long-term environmental variability.** P. 173-190 in M.A. O'Donnell (ed.), *Tested Studies for Laboratory Teaching: Proceedings of the 23rd Workshop/Conference of the Association for Biology Laboratory Education (ABLE)*.
- Beiswenger, J.M., M.E. Lyford, & R.K. Booth. 2001. **Paleoecology and Paleontology.** P. 89-110 in J.M. Beiswenger & D.P. Gorski (eds.), *General Biology Laboratory Manual*, Pearson Custom Publishing, Boston, MA.
- Booth, R.K., M.E. Lyford, & J.M. Beiswenger. 2000. **Paleoecology: documenting long-term environmental variability.** P. 111-121 in J.M. Beiswenger (ed.), *Life Science: Outlines and Activities, 5th edition*. Pearson Custom Publishing, Boston, MA.
- Booth, R.K. & F.J. Rich. 1998. **Quaternary evolution of the Georgia coastal plain as indicated by palynology, stratigraphy, and age of selected coastal, inland, and marine deposits.** P. 78-89 in F.J. Rich and G.A. Bishop (eds.), *Geology and Natural History of the Okefenokee Swamp and Trial Ridge, Southeastern Georgia – Northern Florida*. *Georgia Geological Society Guidebooks* 18.

C. Honors and Awards

- ***Eleanor and Joseph F. Libsch Early Career Research Award 2013***, Lehigh University. Awarded to a faculty member of the university who is early in their research career and has demonstrated the potential for high-quality research and scholarship.
- ***Class of 1961 Professorship 2013-2015***, Lehigh University. Recognizes an associate professor for distinction in scholarly activities, teaching and service.
- ***Dialogue Across the Disciplines Honor 2011***, Lehigh University. One of twelve faculty members in the College of Arts and Sciences recognized for research achievements. 23 February.
- ***Frank Hook Assistant Professorship 2010-2012***, Lehigh University. Awarded to Lehigh's most outstanding junior scholar-teachers who foster personal interaction and mentoring relationships with students.
- ***Distinguished Alumnus Award 2009***, Biology Department, Georgia Southern University.
- ***University of Wyoming Outstanding Dissertation Award in Biological Sciences 2003*** – Outstanding dissertation in the biological sciences at the University of Wyoming.
- ***Wilhelm G. & Ragnhild Solheim Award 2002*** – For significant contribution as a teaching assistant in Biology/Botany courses.
- ***Deevey Award 2001*** – Best student paleoecological paper at the 2001 Ecological Society of America meeting, Madison, WI.
- ***Honorable mention, Deevey Award 2000*** – Honorable mention for a paleoecological paper at the 2000 Ecological Society of America meeting, Spokane, WA.
- ***AASP Best Student Paper Award 1999*** – 1999 American Association of Stratigraphic Palynologists meeting, Savannah, GA.
- ***Turner Conservation Fellowship 1998*** – St. Catherines Island Sea turtle conservation program.
- ***Sigma Xi Student Research Competition 1998***, 2nd place, Georgia Southern University Chapter.
- ***Irene Boole Botany Scholarship*** (received twice, 1996-97 & 1997-98) – Outstanding Botany student at Georgia Southern University.
- ***L.R. Wilson Award 1997*** – Best student paper at the 1997 American Association of Stratigraphic Palynologists meeting, Woods Hole, MA.

D. Research funding, training grants, and travel grants

Competitively Awarded Research Funding

- **National Science Foundation (Geoinformatics Program)**, 2016-2020. *Collaborative Research: Neotoma Paleoecology Database, Community-led Cyberinfrastructure for Global Change Research*. PI with eight other PIs from eight different institutions. Lead institution is the University of Wisconsin. Lehigh budget: \$77,095.

- **Lehigh University Office of International Affairs, Faculty Grants For International Connections**, 2016-2017. *Two-week collaboration building and research trip to Barranquilla and Manizales, Colombia*. January 2017. Requested budget: \$4135.
- **National Science Foundation (Ecosystem Science Program)**, 2011-2014. No-cost extension until August 2017. *“Collaborative Research: Drought as a trigger for rapid state shifts in kettlehole ecosystems.”* **Lead PI**. (Other PIs: S.C. Hotchkiss and D. Fratta, University of Wisconsin). Lehigh budget: \$252,397. Wisconsin budget: \$129,807.
- **Lehigh University Faculty Research Grant**, 2014, *“Light intensity and peatland testate amoebae: assessing a potential new tool in studies of peatland carbon accumulation.”* Total award: \$5338.
- **Pretenure Research Fellowship (Class of 1968 scholarship)**, 2010-2012. *“Testate amoebae as indicators of past sea level.”* **PI**. Budget: \$2000.
- **National Science Foundation (Ecosystem Science Program)**, 2010. *Dissertation Research: The sensitivity of kettlehole ecosystems to abrupt drought-induced transformation.* **PI** with my graduate student Alex Ireland (NSF dissertation improvement grant). Budget: \$14,735.
- **National Science Foundation (Geoinformatics Program)**, 2010-2014. *“Collaborative Research: Neotoma Paleocology Database, Pliocene-Quaternary.”* **Co-PI**. (Lead PIs: R.W. Graham and E.C. Grimm, other co-PIs: A.A. Ashworth, D. Charles, S.T. Jackson, D.A. Miller, A.J. Smith, R.S. Thompson, J.W. Williams. (Lehigh Budget: \$0; Total Project Budget: \$2,142,000).
- **National Science Foundation (Paleo Perspectives on Climate Change)**, 2009-2012. *“Continental Patterns of Moisture Anomalies Associated with Late Holocene Mid-Latitude Megadroughts.”* **PI**. Budget: \$259,921.
- **National Science Foundation (Emerging Topics in Biogeochemistry)**, 2009-2012. *“Collaborative Research: Peatlands as Carbon and Water Sinks under Warm Climates in the Susitna Basin, South-Central Alaska.”* National Science Foundation. **Co-PI**. (Lead PI: Zicheng Yu, other co-PIs: Joan Ramage, Bryan Mark). Lehigh Budget: \$442,019.
- **Lehigh University Faculty Research Grant**, 2008, *“What is a natural ecosystem? Assessing the anthropogenic origin of quaking mires.”* Total award: \$2499.
- **National Science Foundation (Earth System History Program)**, 2004-2007. No-cost extension until Spring 2009. *“Collaborative Research: Multiproxy archives of late Holocene climate variability from ombrotrophic peatlands in Eastern North America”* – **PI** with S.T. Jackson (University of Wyoming), E. Pendall (University of Wyoming), & Y. Huang (Brown University). Total award: 316,360, University of Wisconsin Budget: 128,546, transfer to Lehigh: 89,539.
- **United States Geological Survey (Global Change Research Program)**, 2004-2009. No-cost extension until Spring 2010. *“Spatiotemporal patterns of climate, hydrological, and wetland vegetation change in the western Great Lakes region”* **PI**. (University of Wisconsin Cooperative Agreement: \$130,373, New award made to Lehigh 2006-2009 with budget for last 3 years of project: \$77,230). My cooperative agreement was part of a larger collaborative research project entitled “Spatial and temporal effects of climate change on Great Lakes wetlands.” (Collaborators include: Douglas Wilcox (Lead PI) (USGS Great Lakes Science Center), Todd Thompson (Indiana Geological Survey), and Steve Baedke (James Madison University).

- **National Science Foundation (Ecology Program)**, 2004-2007. “*Climate extremes and episodic invasions: a late Holocene case study from the western Great Lakes region*” – **CoPI** with S.T. Jackson (University of Wyoming), E. Pendall (University of Wyoming), & Y. Huang (Brown University). (Total project budget: \$403,276, My subcontract: \$37,365).
- **Lehigh University Faculty Research Grant**, 2006, “*Peatland archives of drought variability in southeastern North America*” (Total award: \$2800, including \$300 EES cost share).

Competitively Awarded Training/Workshop Grants

- **National Science Foundation (Paleo Perspectives on Climate Change Program)**, 2009. **Co-PI**. (Lead PI: S.T. Jackson). “Peatland Archives of Holocene Climate Variability” a workshop held in Estonia in 2009. (Lehigh Budget: \$0, Total Budget: \$26,789)
- **Past Global Changes (PAGES)**, 2007. Workshop proposal entitled “Peatland Archives of Holocene Climate Variability” held in Estonia in 2009. **Co-PI**. Co-organizers included Stephen T. Jackson (University of Wyoming), Dan Charman (University of Plymouth, England), Bas van Geel (University of Amsterdam, Netherlands), and Edgar Karofeld (University of Tartu, Estonia) (local host). (\$5000)

F. Scholarly presentations (* presenter, ** graduate student / post-doc advisee presenter, + undergraduate presenter)

Invited/plenary/keynote lectures

- *Booth, R.K. 2016. **Forest responses to Holocene moisture variability: insights from the peatland paleoenvironmental archive.** Colby College Geology Department. 19 February.
- *Booth, R.K. 2015. **Multidecadal-to-centennial scale ecological dynamics during times of abrupt Holocene vegetation change.** *Geological Society of America* Annual Meeting, Baltimore, MD. Invited oral presentation to a session entitled *Paleoecological Patterns, Ecological Processes, Modeled Scenarios: Crossing Temporal Scales to Understand an Uncertain Future*. Paper No. 198-1.
- *Booth, R.K. 2015. **Wetland and forest responses to Holocene moisture variability: insights from the peatland paleoenvironmental archive.** Department of Earth and Environmental Science, Temple University. 17 April.
- *Booth, R.K. 2014. **Ecological consequences of drought and moisture variability: long-term perspectives from the peatland archive.** Department of Biological Sciences, University of Pittsburgh. 17 December.
- *Booth, R.K. 2014. **Speaking for the trees: paleoecological insights on the causes and dynamics of abrupt forest change.** Lehigh University, Sigma Xi Seminar Series, 24 January.
- *Booth, R.K. & S.T. Jackson. 2013. **Perspectives from the peatland archive on ecosystem development and vegetation dynamics: building on the Minnesota legacy.** Invited oral presentation at symposium entitled “*Understanding the Past to Shape the Future: A Symposium Honoring the Contribution of Minnesota Ecologists Margaret*

Davis, Eville Gorham, and Herb Wright.” Ecological Society of America Meeting, Minneapolis, MN.

- **** Ireland, A.W. & R.K. Booth. 2013. Potential Climate Change Impacts on the Future Values of Kettle Peatlands.** Invited oral presentation at symposium entitled “*Midwestern wetland values.*” Society of Wetland Scientists Meeting, Duluth, MN.
- *** Booth, R.K., A.W. Ireland, & M.J. Clifford. 2012. Forest and wetland responses to Holocene moisture variability in eastern North America.** Invited plenary lecture. *American Quaternary Association* meeting, Duluth, MN. June 21-24.
- **** Ireland, A.W., R.K. Booth, J.E. Schmitz, & S. C. Hotchkiss. 2012. Climatic variability as a trigger for rapid state shifts in kettle ecosystems: Implications for ecosystem responses to climate change.** Invited for presentation at an organized session entitled “Wetlands: Form, Function, and History.” *Annual Meeting of the Geological Society of America*, Charlotte NC.
- *** Booth, R.K. 2012. Forest and peatland responses to abrupt drought events of the late Holocene.** Pymatuning Ecological Laboratory, University of Pittsburgh. Invited seminar. 23 May.
- *** Booth, R.K. 2012. Ecological consequences of late Holocene drought in eastern North America.** *Lamont-Doherty Earth Observatory*, Columbia University. Invited seminar. 20 Jan.
- *** Booth, R.K. 2011. Forest and peatland responses to abrupt drought events of the late Holocene.** *West Virginia University*, Department of Geography and Geology Seminar Series. Invited seminar. 14 Oct.
- *** Booth, R.K. 2011. Networks of palaeohydrological data from peatlands and the spatial structure of North American drought.** Invited for presentation at the 2011 INQUA meeting, Bern, Switzerland. Invited lecture. (*Due to family emergency I could not present this talk. In my absence, my talk was presented by Dan Charman.*)
- *** Booth, R.K. 2010. Peatland archives of late Holocene drought and ecological dynamics in eastern North America.** *United States Geological Survey*, Reston, VA. 1 December. Invited seminar.
- *** Booth, R.K. 2010. Testate amoebae as tools for the study of ecological responses to past moisture variability.** *Rensselaer Polytechnic Institute*, Earth and Environmental Sciences Departmental Seminar Series, 27 October. Invited seminar.
- *** Booth, R.K., S.T. Jackson, & A.W. Ireland. 2010. Ecological consequences of abrupt drought events of the late Holocene.** Invited talk at symposium entitled “Ecological responses to abrupt climate changes of the past: looking back to see ahead.” 2010 *Ecological Society of America* meeting, Pittsburgh, PA.
- *** Booth, R.K. 2009. Testate amoebae as tools for the study of past climate and ecological dynamics: perspectives from peatland studies in North America.** International Symposium on Testate Amoebae (ISTA-5), Montbelliard, France. 14-17 September. ***Invited keynote lecture***.
- *** Booth, R.K. 2009. Peatland records and paleohydrology.** *Peatland archives of Holocene Climate Variability Workshop*, Estonia, 17-21 May. ***Invited plenary lecture***
- *** Rich, F.J. and R.K. Booth. 2009. Quaternary Vegetation and Depositional History of St. Catherines Island.** Fourth Annual Caldwell Conference, Sponsored by the *American*

Museum of Natural History, St. Catherines Island, Georgia, March 27-29. Invited co-lecture.

- *Booth, R.K. 2009. **Peatland archives of drought and ecological dynamics during the Medieval Climate Anomaly.** *Georgia Southern University* Biology Department Seminar Series, 9 March. Invited seminar.
- *Booth, R.K. 2008. **Ecological history and biodiversity conservation.** *Muhlenberg College*, Invited seminar for upper-level Conservation Biology course, 28 March.
- *Booth, R.K. 2008. **Holocene records of drought and ecological dynamics from bog archives.** *Brown University*, Department of Geological Sciences, Earth System History Seminar Series, 3 March. Invited seminar.
- *Booth, R.K. 2007. **Testate amoebae as proxies for past moisture variability: calibration and application.** Global Environmental and Climate Change Centre, *McGill University*, Quebec, Canada, 9 March.
- *Booth, R.K. 2007. **Protists, plants, and peat: Holocene records of drought and ecological dynamics from bog archives.** Earth & Environmental Science Department, *Lehigh University*, 14 September.
- *Booth, R.K., S.T. Jackson, M. Notaro, & J.E. Kutzbach. 2006. **Widespread drought episodes in mid-continental North America during the past 2000 years: spatial patterns and potential mechanisms.** Invited oral presentation, 2006 *American Quaternary Association* meeting, Bozeman, MT.
- *Booth, R.K. 2005. **Development and application of peatland records of late Holocene climate variability.** Botany Department Colloquia, *University of Wisconsin*, 14 April. Invited seminar.
- *Booth, R.K. 2005. **High-resolution paleoclimatic records from peatlands: calibration, validation, and application.** Quaternary Paleorecords Group Seminar Series, *University of Minnesota*, 23 March. Invited seminar.
- *Booth, R.K. 2004. **A severe centennial-scale drought in continental North America 4200 years ago.** Atmospheric, Oceanic, and Space Sciences Colloquium Series, *University of Wisconsin*, 23 February. Invited seminar.
- *Booth, R.K. 2003. **Climatic and ecological history of the western Great Lakes region: relationships among peatland hydrology, Great Lakes water levels, and terrestrial vegetation.** Trout Lake Limnology Research Station Summer Seminar Series, *University of Wisconsin*, 2 July. Invited seminar.
- *Booth, R.K. 2002. **Holocene moisture variability in the western Great Lakes region: spatiotemporal patterns and vegetation responses.** Seminar given to the Climate, People, & Environment Group (CPEP), Center for Climatic Research, *University of Wisconsin*, 23 October. Invited seminar.
- *Booth, R.K. 2001. **Late Holocene paleoclimate and paleoecology of the western Great Lakes region inferred from testate amoebae, pollen, and plant macrofossils.** *University of Michigan Biological Station seminar series*, 17 July. Invited seminar.

Invited workshop/short-course

- ^{*}Booth, R.K. 2007. “**Testate amoebae as paleohydrological proxies in peatlands: a workshop focused on testate amoeba identification, ecology, and their use in paleoenvironmental reconstruction.**” A three-day intensive short course. March 7-9, University of Quebec at Montreal and McGill University (Global Environmental and Climate Change Centre).

Contributed presentations/abstracts at meetings since 2005

- Herbert, R.P. & R.K. Booth. 2016. **The influence of light intensity on community composition and mixotrophy in testate amoeba communities.** *Lehigh Valley Ecology and Evolution Symposium*, Bethlehem, PA.
- Nolan, C., B. Shuman, R. Booth, & S. Jackson. 2015. **Multi-scale hydroclimate reconstruction using co-located lake and bog records from Maine and comparison with other records from the Northeast US.** *American Geophysical Union Annual Meeting*, San Francisco, CA. Oral Presentation. PP13D-06
- Ashworth, A., A. Barnosky, J. Betancourt, B. Bills, R. Booth, J. Bois, D. Charles, R. Graham, S. Goring, S. Hausmann, A. Smith, J. Williams, E. Grimm, & P. Buckland. 2015. **The Neotoma Paleoecology Database.** *American Geophysical Union Annual Meeting*, San Francisco, CA. Poster presentation. IN21E-06.
- Ashworth, A., A. Barnosky, J. Betancourt, B. Bills, R. Booth, J. Bois, D. Charles, R. Graham, S. Goring, S. Hausmann, A. Smith, J. Williams, E. Grimm, & P. Buckland. 2015. **The Neotoma Paleoecology Database.** *International Quaternary Union Meeting*, Nagoya, Japan. Poster presentation.
- Booth, R.K., S.C. Hotchkiss, & D. Fratta. 2015. **The influence of basin morphology and landscape position on the sensitivity of kettlehole ecosystems to peatland expansion.** *Ecological Society of America Annual Meeting*, Baltimore, MD. Poster presentation. PS 23-28.
- ⁺Herbert, R.P., T. Andrews, & R.K. Booth. 2015. **Light intensity influences testate amoeba communities on floating *Sphagnum* peatlands.** *Ecological Society of America Annual Meeting*, Baltimore, MD. Poster presentation. PS 8-85.
- ^{**} Andrews, T., M. Dietze, & R.K. Booth. 2015. **Climate or disturbance: Temperate forest structural change and carbon sink potential.** *Ecological Society of America Annual Meeting*, Baltimore, MD. Poster presentation. PS 18-172
- Porinchu, D.F., A. Campbell, N. Stansell, B. Mark, Z. Yu, R. Booth, E. Klein, & S. Reinemann. 2015. **A quantitative reconstruction of late Holocene climate and environmental change in south-central Alaska: evidence from lake sediment.** *American Association of Geographers meeting*, Chicago.
- Jensen, B.J.L., Mackay, H., O'Donnell, S.P.F, Plunkett, G., Hughes, P.D., Froese, D.G., Booth, R.K. 2014. **Exceptionally long distance transport of volcanic ash: Implications for stratigraphy, hazards and the sourcing of distal tephra deposits.** *American Geophysical Union Fall Meeting*, December 2014, San Francisco, CA.
- ^{**} Andrews, T., R.K. Booth, M. Dietze, & B. Felzer. 2014. **Assessing density-size relationships in Eastern US forests to develop an empirical model of forest density change.** 2014 meeting of the *Ecological Society of America*, Sacramento, CA.

- **Spicer, M.E. & R.K. Booth. 2014. **To plant or not to plant? Results from a century-long forest planting experiment.** 2014 meeting of the *Ecological Society of America*, Sacramento, CA.
- Jensen, B.J.L., G. Plunkett, & R.K. Booth. 2014. **Using tephra to correlate paleoclimate records from the mid-west to eastern seaboard of the United States.** Tephra 2014, “Maximizing the potential of tephra for multidisciplinary science.” Portland, OR.
- *Gallego-Sala, A., D. Charman, I.C. Prentice, P. Friedlingstein, S. Page, S. Brewer, A. Blundell, R.K. Booth, M.J. Clifford, M. Garneau, V. Hohl, A. Lamarre, M. Lamentowicz, G. Magnan, C. Massa, G. Swindles, S. Van Bellen, & D. Mauquoy. 2014. **Peatland growth rate and water table variations during the last millennium.** 2014 meeting of the European Geosciences Union, Vienna, Austria.
- Loisel, J., J. Nichols, D. Beilman, Z. Yu, K. Kaiser, R. Booth. 2014. **Solving the conundrum of carbon isotope signature in *Sphagnum* moss.** 2014 meeting of the *Geological Society of America*.
- *Holmquist, J.R., R.K. Booth, & G.M. MacDonald. 2013. **Impact of the Medieval Climate Anomaly, Little Ice Age, and Recent Warming on Hydrology and Carbon Accumulation the James Bay Lowland.** 2013 meeting of the *American Geophysical Union*.
- *Gallego-Sala, A., S. Brewer, D. Charman, R.K. Booth, M. Clifford, P. Friedlingstein, M. Garneau, G. Magnan, A. Lamarre, M. Lamentowicz, G. Swindles and S. Van Bellen. 2013. **Summer moisture balance from peatland water table reconstructions for the last 1100 years from North America and Europe.** 2013 meeting of the *American Geophysical Union*.
- **Clifford, M.J., K.A. LeBoeuf, & R.K. Booth. 2013. **Abrupt change of late-Holocene forests in northeastern USA driven by drought and fire.** 2013 meeting of the *Geological Society of America*.
- **Spicer, M.E. & R.K. Booth. 2013. **A century-long experiment in forest planting: Preliminary results from the Lehigh University Experimental Forest.** Poster presentation (PS 53-14). *Ecological Society of America* meeting, Minneapolis, MN.
- **Clifford, M.J., K.A. LeBoeuf, & R.K. Booth. 2013. **Drought and fire drove rapid changes in forest community composition in the northeastern United States.** Oral presentation (COS 45-2). *Ecological Society of America* meeting, Minneapolis, MN
- **Klein, E.S., R.K. Booth, & Z. Yu. 2012. **Peatland Carbon Accumulation in Southern Alaska During the Past 1000 Years: A Comparative Study of Hydrology and Carbon Accumulation in Four Peatlands.** Poster presentation. *American Geophysical Union* meeting, San Francisco, CA.
- *Loader, N. F.A Street-Perrott, P. Hughes, D. Charman, T. Daley, M. Amesbury, G. Mallon, R.K. Booth, M. Garneau, & D. Mauquoy. 2012. **How reliable are stable isotope records of climate from *Sphagnum* cellulose?** Poster presentation. *American Geophysical Union* meeting, San Francisco, CA.
- **Clifford, M.J. & R.K. Booth. 2012. **Late Holocene drought variability and wildfire occurrence in Maine.** 2012 *Ecological Society of America* meeting, Portland, Oregon.

- **Ireland, A.W. & R.K. Booth. 2012. **Upland deforestation triggers an ecosystem state-shift in a kettle peatland**. 2012 *Ecological Society of America* meeting, Portland, Oregon.
- *Yu, Z., J. Loisel, S. Hunt, E. Klein, R. Booth, D. Brosseau, J. Ramage, M. Jones, B. Mark, Q. Zhuang & B. Felzer. 2012. **Alaskan Peatland Carbon Dynamics During Past Warm Climate Intervals**. 2012 *International Peat Congress*, Stockholm, Sweden.
- **Ireland, A.W., R.K. Booth, Schmitz, J., & S.C. Hotchkiss. 2011. **Hydroclimatic variability drives pulses of peat formation and carbon storage in glacial kettleholes**. Oral presentation. *Geological Society of America meeting*, St. Paul, Minnesota.
- **Andrews, T.D., R.K. Booth, C. Bernhardt, & D. Willard. 2011. **Testate amoebae as paleohydrological proxies in the Florida Everglades**. Poster presentation. 2011 *American Geophysical Union* meeting, San Francisco, CA.
- **Clifford, M.J. & R.K. Booth. 2011. **A stacked record of late-Holocene moisture variability from three raised bogs in Maine**. Poster presentation. 2011 *American Geophysical Union* meeting, San Francisco, CA.
- **Klein, E. S., R.K. Booth, & Z. Yu. 2011. **Influence of Topographic and Climatic Variability on Peatland Carbon Accumulation Over the Last 1,200 Years in a Glaciated Valley in Southcentral Alaska**. Poster presentation. 2011 *American Geophysical Union* meeting, San Francisco, CA.
- *Pyne-O'Donnell, S., P. Hughes, G. Mallon, M. Amesbury, D. Charman, A. Street-Perrott, N. Loader, J. Woodman-Ralph, D. Mauquoy, T. Daley, & R. Booth. 2011. **North American ultra-distal tephrochronology**. Poster presentation. 2011 *American Geophysical Union* meeting, San Francisco, CA.
- **Ireland, A.W. & R.K. Booth. 2011. **Hydroclimatic variability and basin morphology control terrestrialization in glacial kettles**. Oral presentation. 2011 *Ecological Society of America* meeting, Austin, Texas. (*Ireland received the Deevey Award for best student paleoecological presentation*)
- *Pyne-O'Donnell, S., P. Hughes, M. Amesbury, R. Booth, D. Charman, T. Daley, N. Loader, G. Mallon, D. Mauquoy, A. Street-Perrott, J. Woodman-Ralph. 2011. **Towards a Holocene distal tephrochronology for north-eastern North America**. Poster presentation. 2011 International Quaternary Association meeting, Bern, Switzerland.
- **Clifford, M.J. & R.K. Booth. 2010. **Evidence for Medieval droughts in Maine and potential linkages to the coupled ocean-atmosphere system**. Poster presentation. Submitted for presentation at the 2010 *American Geophysical Union* meeting, San Francisco, CA.
- Brosseau, D., J. Ramage, Z. Yu, E. Klein, R. Booth, J. Loisel, & B. Mark. **Peatland Distribution and Characterization in the Susitna River Basin, Alaska**. Poster presentation. Submitted for presentation at the 2010 *American Geophysical Union* meeting, San Francisco, CA.
- **Klein E.S., R.K. Booth, & Z. Yu. 2010. **Rapid Carbon Accumulation Associated With Warm Medieval Climate in Peatlands of a Glaciated Valley in Southcentral Alaska**. Poster Presentation. Submitted for presentation at the 2010 *American Geophysical Union* meeting, San Francisco, CA.

- Clifford, M.J., R.K. Booth^{*}, & J.E. Nichols. 2010. **Multiproxy records of late Holocene moisture variability from two raised bogs in Maine.** Poster presentation, *American Quaternary Association*, Laramie, WY.
- ^{*}Liu, Y., S.T. Jackson, S. Brewer, T.A. Minckley, & R.K. Booth. 2010. **The effect of temporal density of pollen sampling on detection and age-estimation of rapid changes.** Poster presentation, *American Quaternary Association*, Laramie, WY.
- ^{*}Heger, T.J., R.K. Booth, M.E. Sullivan, D.M. Wilkinson, B.G. Warner, T. Asada, Y. Mazei, & E.A.D. Mitchell. 2010. **Biogeography of protists: insights from a highly distinctive testate amoeba, *Nebela ansata*.** Oral presentation, *International Society of Protozoologists Meeting*, Canterbury, UK.
- ^{**}Ireland, A.W. & R.K. Booth. 2010. **Hydroclimatic variability drives episodic expansion of floating peat mats in glacial kettles.** Oral presentation, submitted for presentation at the 2010 Ecological Society of America meeting.
- ^{**}Sullivan, M.E. & R.K. Booth. 2010. **The role of seasonal moisture variability in structuring testate amoebae assemblages in *Sphagnum* peatlands.** Poster presentation, submitted for presentation at the 2010 Ecological Society of America meeting.
- ^{*}Nichols, J.E., A.N. LeGrande, S. Lewis, R.K. Booth, G.A. Schmidt, D.M. Peteet, and Y. Huang. 2009. **Using an isotope enabled coupled atmosphere-ocean model to understand variations in isotope records from peatlands.** Oral presentation, 2009 fall meeting of the American Geophysical Union.
- ^{**}Qin, Y., R.K. Booth, Y. Gu, Y. Wang, and S. Xie. 2009. **Testate amoebae as indicators of 20th century environmental change in Lake Zhangdu, China.** Oral presentation, International Symposium on Testate Amoebae (ISTA-5), Montbelliard, France.
- ^{**}Markel, E.R., R.K. Booth, & J.M. Ramage. 2009. **A comparative study of testate amoebae and $\delta^{13}\text{C}$ of *Sphagnum* as surface-moisture proxies in Alaskan peatlands.** Poster presentation, 2009 *Ecological Society of America* meeting, Albuquerque, New Mexico.
- ^{**}Ireland, A.W. & R.K. Booth. 2009. **Multidecadal hydroclimatic fluctuations trigger the initiation and episodic expansion of a floating kettlehole peatland.** Poster presentation, 2009 *Society of Wetlands Scientists* meeting, Madison, WI.
- ^{**}Sullivan, M.E. & R.K. Booth. 2009. **Testate amoebae as indicators of the magnitude of seasonal moisture variability in *Sphagnum* peatlands.** Poster presentation, 2009 *Society of Wetlands Scientists* meeting, Madison, WI.
- ^{*}Thompson, T.A., K. Lepper, J.W. Johnston, S. J. Baedke, E. Argyilan, R.K. Booth, A.L. Endres, & D.A. Wilcox. 2009. **Pre-Nipissing lake-level rise at Alpena, Michigan.** Oral presentation, 2009 Northcentral Geological Society of America meeting.
- ^{*}Loisel, J., Z. Yu, M.C. Jones, & R.K. Booth. 2008. **Expanding Sloping bog Systems Under a Continental Climate in South-Central Alaska: Possible Causes and Carbon-Cycle Implications.** Poster presentation, *American Geophysical Union Meeting*, San Francisco.
- ^{*}Nichols, J.E., R.K. Booth, & Y. Huang. 2008. **Abrupt onset of widespread drought at the mid-Holocene transition observed from New England through the Upper**

- Midwest.** Poster presentation, 2008 *American Geophysical Union Meeting*, San Francisco.
- *van Bellen, S., M. Garneau, A. Quillet, C. Peng, S. Frolking, N.T. Roulet, A. A. Ali, & R.K. Booth. 2008. **Evaluation of the Holocene peat model with data from boreal and subarctic peatlands of the James Bay Lowlands, Quebec, Canada.** Poster presentation, 2008 *American Geophysical Union Meeting*, San Francisco. Abstract B13A-0424.
 - *Booth, R.K. & S.T. Jackson. 2008. **The Medieval Warm Period in the Great Lakes Region: Spatial Patterns of Drought and Terrestrial Ecosystem Response.** Invited oral presentation, *Geological Society of America meeting*, Houston, TX.
 - *Quillet, A., M. Garneau, S. van Bellen, J. Loisel, R.K. Booth, & C. Peng. 2008. **Water table fluctuations and the carbon accumulation in two fens and two bogs of the James Bay lowlands in Québec, Canada.** Poster presentation, EGU General Assembly. *Geophysical Research Abstracts*, Vol. 10, EGU2008-A-00837.
 - *Jackson, S.T., R.K. Booth, J.J. Andersen, Y. Huang, M. Lesser, T.C. Minckley, J.E. Nichols, E. Pendall, K. Reeves, M. Taylor, M. Urban, M.E. Sullivan, and V.A. Sousa. 2008. **Climate forcing of Holocene vegetational changes in the western Great Lakes region.** Poster presentation, *American Quaternary Association Meeting*, State College, PA.
 - *Booth, R.K., V.A. Sousa, S.T. Jackson, & M.E. Sullivan. 2008. **Spatial patterns and causes of the late Holocene beech decline in the Great Lakes region.** Poster presentation, *Ecological Society of America meeting*, Milwaukee, WI.
 - **Sullivan, M.E. & R.K. Booth. 2008. **The potential application of testate amoebae as proxies for seasonal-to-annual hydrological variability.** Poster presentation, *Ecological Society of America meeting*, Milwaukee, WI.
 - *Yu, Z., S. Cai, & R.K. Booth. 2008. **Effects of Holocene Climate and Hydrology on carbon accumulation in peatlands on the Kenai Peninsula, Alaska.** Oral presentation, *Society of Wetlands Scientists meeting*, Washington, DC.
 - *Cai, S., Z. Yu, R.K. Booth, S. Frolking, & G.M. MacDonald. 2008. **Peat Accumulation of a *Sphagnum* Poor Fen in Temperate East Pennsylvania during the Holocene.** Oral presentation, *American Association of Geographers meeting*, Boston, MA.
 - *Cai, S., Z. Yu, & R.K. Booth. 2008. **Holocene peat accumulation of a temperate poor fen in northeastern Pennsylvania, USA.** Oral presentation, *International Peat Congress*.
 - *Booth, R.K., S.T. Jackson, M. Taylor, Elise Pendall, & V.A. Sousa. 2007. **Late Holocene decline of beech populations in the central Great Lakes region: drought-induced vegetation change in a humid region.** Oral presentation, 2007 *American Geophysical Union Meeting*, San Francisco.
 - *Jackson, S.T. & R.K. Booth. 2007. **Evaluating paleoecological patterns using paleohydrological proxies: the promise and the peril.** Poster presentation, 2007 *American Geophysical Union Meeting*, San Francisco.
 - *Urban, M.A., R.K. Booth, S.T. Jackson, & T.A. Minckley. 2007. **Forest responses to late Holocene climate change in north-central Wisconsin: a high-resolution study**

from Hell's Kitchen Lake. Poster presentation, 2007 *American Geophysical Union Meeting*, San Francisco.

- *Nichols J.E., R.K. Booth, S.T. Jackson, E.G. Pendall, M. Walcott, R. Bradley, J. Pilcher, & Y. Huang. 2007. **Novel stable isotope methods for assessing changes in seasonality of precipitation from sediments of ombrotrophic peatlands.** Poster presentation, 2007 *American Geophysical Union Meeting*, San Francisco.
- *Booth, R.K., S.T. Jackson, T.A. Minckley, S.C. Hotchkiss, M.E. Sullivan, & V.A. Sousa. 2007. **Ecological responses to late Holocene moisture variability in the western Great Lakes region: insights from coupled records of climate and vegetation.** Poster presentation, XVII Congress of the *International Quaternary Association*, Cairns, Australia.
- *Booth, R.K. & S.T. Jackson. 2007. **Late Holocene drought variability in mid-continental and eastern North America during the Medieval Climate Anomaly.** Oral presentation, XVII Congress of the *International Quaternary Association*, Cairns, Australia.
- *Taylor, M., E. Pendall, S.T. Jackson, R.K. Booth, J.E. Nichols, & Y. Huang. 2006. **The use of *Sphagnum* cellulose $\delta^{18}O$ ratios in ombrotrophic peatlands as a proxy for paleoclimate.** Poster presentation, *American Geophysical Union Meeting*, San Francisco, CA. Part of a special session entitled "*Peatland archives of Past Climate Variability.*"
- *Booth, R.K. & S.T. Jackson. 2006. **Late Holocene drought variability in eastern North America: evidence from the peatland archive.** Oral presentation, *American Geophysical Union Meeting*, San Francisco, CA. Part of a special session entitled "*Peatland archives of Past Climate Variability.*"
- *Jackson, S.T., R.K. Booth, J. Andersen, S. Hotchkiss, Y. Huang, M. Lesser, T. Minckley, J. Nichols, E. Pendall, K. Reeves, & M. Taylor. 2006. **Assessing climate forcing of Holocene vegetational changes using peatland archives: case studies from the Great Lakes Region.** Poster presentation, *American Geophysical Union Meeting*, San Francisco, CA. Part of a special session entitled "*Peatland archives of Past Climate Variability.*"
- *Nichols, J.E., R.K. Booth, S.T. Jackson, E.G. Pendall, Y. Huang. 2006. **Holocene paleohydrological changes in northern Michigan: Interpretations of biomarker distributions and compound specific stable isotope analysis from peatlands.** Poster presentation, *American Geophysical Union Meeting*, San Francisco, CA. Part of a special session entitled "*Peatland archives of Past Climate Variability.*"
- *Minckley, T.A., S.T. Jackson, & R.K. Booth. 2006. **Vegetation Response to Transient Drought Events in the Upper Midwest.** Poster presentation, *American Geophysical Union Meeting*, San Francisco, CA. Part of a special session entitled "*Peatland archives of Past Climate Variability.*"
- *Booth, R.K., S.T. Jackson, & S.C. Hotchkiss. 2006. **Abrupt climate change and the mid-Holocene hemlock decline.** Contributed oral presentation, 2006 *Ecological Society of America* meeting, Memphis, TN.
- *Lesser, M.R., J.J. Anderson, R.K. Booth, J.A. McLachlan, T.A. Minckley, H. Poinar, K.M. Reeves, & S.T. Jackson. 2006. **Integrated studies of post-glacial expansion of yellow birch (*Betula alleghaniensis*) in eastern North America.** Contributed poster presentation, 2006 *Ecological Society of America*, Memphis, TN.

- *Minckley, T.A., S.T. Jackson, & R.K. Booth. 2006. **Response of regional pollen assemblages to Late Holocene drought events in the Upper Midwest.** Contributed poster presentation, 2006 *American Quaternary Association* meeting, Bozeman, MT.
- *Lesser, M.R., J.J. Andersen, R.K. Booth, J.A. McLachlan, T.A. Minckley, H. Poinar, K.M. Reeves, & S.T. Jackson. 2006. **Post-glacial expansion of yellow birch (*Betula alleghaniensis*) in eastern North America.** Contributed poster presentation, 2006 *American Quaternary Association* meeting, Bozeman, MT.

Organized or chaired sessions at conferences

- 2007, Co-organizer and co-convener, “**Hydrological variability during the Holocene,**” a special session at the 2007 *International Quaternary Association Meeting*. With D.A. Charman and S.T. Gray.
- 2006, Co-Organizer and co-convener, “**Peatland archives of past climate variability,**” a special session at the 2006 *American Geophysical Union* meeting. With S.T. Jackson, D.A. Charman, and B. van Geel.

G. Teaching and Research Advising

Courses taught (with summary student evaluation scores)

- ***Wetland Ecology and Management***, a field-based course taught at the University of Pittsburgh’s Pymatuning Laboratory of Ecology. 3 credits. Taught during summer session 2012-2015. As of 2014, this was a offered as a Lehigh University course (EES-395).
- ***Ecology*** (EES152), 4 credits w/lab
 - Fall 2016 student evaluations: overall instructor quality 4.82/5.00, overall course quality 4.82/5.00*
 - Fall 2015 student evaluations: overall instructor quality 4.67/5.00, overall course quality 4.76/5.00*
 - Fall 2014 student evaluations: overall instructor quality 4.53/5.00, overall course quality 4.63/5.00*
 - Fall 2013 student evaluations: overall instructor quality 4.33/5.00, overall course quality 4.33/5.00*
 - Fall 2012 student evaluations: overall instructor quality 4.57/5.00, overall course quality 4.54/5.00*
 - Fall 2011 student evaluations: overall instructor quality 4.63/5.00, overall course quality 4.63/5.00*
 - Fall 2010 student evaluations: overall instructor quality 4.64/5.00, overall course quality 4.64/5.00*
 - Fall 2009 student evaluations: overall instructor quality 4.63/5.00, overall course quality 4.69/5.00*
 - Fall 2008 student evaluations: overall instructor quality 4.71/5.00, overall course quality 4.79/5.00*
 - Fall 2007 student evaluations: overall instructor quality 5.00/5.00, overall course quality 5.00/5.00*
 - Fall 2006 student evaluations: overall instructor quality 4.58/5.00, overall course quality 4.58/5.00*
- ***Advanced Topics in Quaternary Paleoecology*** (EES493), 3 credits
 - Fall 2012 student evaluations: overall instructor quality 5.00/5.00, overall course quality 5.00/5.00*
- ***Reconstructing Environmental Change*** (EES459), 3 credits
 - Fall 2010 student evaluations: overall instructor quality 5.00/5.00, overall course quality 5.00/5.00*
 - Fall 2008 student evaluations: overall instructor quality 5.00/5.00, overall course quality 5.00/5.00*
- ***Conservation & Biodiversity*** (EES028), 3 credits
 - Spr 2016 student evaluations: overall instructor quality 4.57/5.00, overall course quality 4.59/5.00*

Fall 2014 student evaluations: overall instructor quality 4.76/5.00, overall course quality 4.74/5.00

Spr 2014 student evaluations: overall instructor quality 4.62/5.00, overall course quality 4.62/5.00

Spr 2013 student evaluations: overall instructor quality 4.90/5.00, overall course quality 4.79/5.00

Spr 2012 student evaluations: overall instructor quality 4.73/5.00, overall course quality 4.75/5.00

Spr 2011 student evaluations: overall instructor quality 4.61 /5.00, overall course quality 4.64 /5.00

Spr 2010 student evaluations: overall instructor quality 4.67/5.00, overall course quality 4.64/5.00

Spr 2008 student evaluations: overall instructor quality 5.00/5.00, overall course quality 5.00/5.00

Fall 2007 student evaluations: overall instructor quality 5.00/5.00, overall course quality 4.90/5.00

- **Wetland Ecology (EES386)**, 4 credit w/lab

Spr 2016 student evaluations: overall instructor quality 5.00/5.00, overall course quality 5.00/5.00

Spr 2013 student evaluations: overall instructor quality 4.47/5.00, overall course quality 4.58/5.00

Spr 2011 student evaluations: overall instructor quality 4.85/5.00, overall course quality 4.92/5.00

Spr 2007 student evaluations: overall instructor quality 4.57/5.00, overall course quality 4.57/5.00

Spr 2006 student evaluations: overall instructor quality 4.60/5.00, overall course quality 4.70/5.00

- **Senior Seminar (EES380)**, 4 credits w/discussion session

Spr 2010 student evaluations: overall instructor quality 4.90/5.00, overall course quality 4.60/5.00

- **Science of Environmental Issues (EES004)**, 1 credit (2 week rotation into this team taught course, evaluation based on teaching three sections, mean of three sections shown below)

Spr 2016 student evaluations: overall instructor quality 4.59/5.00

Spr 2014 student evaluations: overall instructor quality xxx/5.00

Spr 2013 student evaluations: overall instructor quality 4.61/5.00

Spr 2012 student evaluations: overall instructor quality xxx/5.00

Spr 2011 student evaluations: overall instructor quality 4.59/5.00

Spr 2010 student evaluations: overall instructor quality 4.57/5.00

- **Investigations in Earth & Environmental Science (EES491)**

Summer 2015 (3 credits, 1 student): Plant macrofossil identification and analyses.

Spring 2012 (3 credits, 1 student): Conservation paleoecology in the Adirondacks.

Spring 2011 (3 credits, 2 students): Paleoenvironmental data analysis and synthesis.

Fall 2010 (3 credits, 1 student): Testate amoeba taxonomy and ecology.

Spring 2010 (3 credits, 4 students): Testate amoeba identification and ecology.

Spring 2008 (2 credits, 2 students): Testate amoeba taxonomy and identification.

Fall 2007 (2 credits, 1 student): Paleocology and historical ecology of the Alleghany High Plateau in western PA.

Spring 2007 (2 credits, 2 students): Testate amoebae as environmental indicators in pocosins.

- **Supervised Research in Earth & Environment Science (EES393)**, variable credits almost every year (see below for details on student research)

- **Supervised internship in Earth & Environmental Science (EES293)**, Variable credits almost every year (see below for details on student research/projects)

- **Freshman internship in Earth & Environmental Science (EES093)**, 3 credits in Spring 2011, Spring 2012 (see below for details on student research/projects).

Advising and research direction

Undergraduate

Supervised senior honors theses

- **Ceara Hogan Tomaino**, “*Examining the mid Holocene Hemlock (*Tsuga canadensis*) Decline at Sydney Bog, ME: timing and multi-decadal dynamics.*” In progress, 2016-2017.
- **Ryan Herbert**, “*Influence of light intensity on testate amoeba communities and shell carbon isotope composition: a potential new tool in global climate change research*” 2014-2016. Recipient of the Donnel Foster Hewitt Award for Outstanding graduating senior in EES.
- **Erin Sowell**, “*Establishment and expansion of Atlantic White Cedar (*Chamaecyparis thyoides* (L.) B. S. P.) near its northern range limit: a paleoecological study at Saco Heath, ME.*” 2015-2016.
- **Robert Mason**, “*Effect of white-tailed deer herbivory on post-Hurricane Sandy forest gap dynamics in the Lehigh Experimental Forest.*” 2013-2015. Recipient of the Donnel Foster Hewitt Award for Outstanding graduating senior in EES.
- **Kevin Barrett**, “*A late Holocene record of moisture variability from a bog in southeastern Alaska.*” 2011-2012. Recipient of the Donnel Foster Hewitt Award for Outstanding graduating senior in EES.
- **John Powell**, “*Controls on Radial Growth of *Pinus strobus* (white pine) on a Floating Peatland.*” 2009-2010.

Graduate

Primary advisor:

- **Bob Mason** (MS advisor) (2015-)
- **Michael Clifford** (PhD advisor) (2010-2016)
- **Maura Sullivan** (PhD advisor) (2006-, with a 2-year leave-of-absence)
- **Travis Andrews** (PhD coadvisor w/Ben Felzer) (2012-2015) “*Why precipitation and forest structure are changing in the eastern US: insight from analysis of large empirical and climate model datasets.*”
- **Chandler Navara** (MS coadvisor w/Amber Rice) (2014-2015) “*The Effects of interspecific interactions on reproductive success of Carolina chickadees (*Parus carolinensis*).*”
- **Michelle Spicer** (MS advisor) (2012-2014) “*The legacy of planting: A century-long experiment in forest development at Lehigh University.*”
- **Katie Leboeuf** (MS advisor) (2012-2014) “*Holocene Vegetation, Hydrology, and Fire in the North-Central Adirondacks of New York.*”
- **Eric Klein** (PhD coadvisor w/Zicheng Yu) (2009-2013) “*Differential Response of Alaska Peatlands to Climate Changes of the Last Millennium.*”

- **Alex Ireland** (PhD advisor) (2007-2012) “*Assessing the sensitivity of kettle ecosystems to climatic and anthropogenic disturbances.*” Received the prestigious University-wide Stout dissertation award.
- **Travis Andrews** (MS advisor) (2010-2012) “*Testate amoebae as hydrological proxies in the Florida Everglades.*”
- **Erin Markel** (MS coadvisor w/Joan Ramage) (2007-2009). “*A comparative study of testate amoebae and $\delta^{13}C$ of Sphagnum as surface-moisture proxies in Alaskan peatlands.*”
- **Yangmin Qin** (visiting pre-doctoral scholar) (2007-2008)
- **Valerie Sousa** (MS advisor) (2006-2008). “*Drought, lake-effect snow, and the Late Holocene beech decline: a paleoecological study at Pinhook Peatland in northwestern Indiana.*”

Member of committees:

- **Zhengyu Xia** (PhD committee member) (2016-present)
- **Jonathan Stelling** (PhD committee member) (2015-present)
- **Kate Cleary** (MS committee member) (2013-2015)
- **Stephanie Hunt** (MS committee member) (2010-2012)
- **Erik Mason** (MS committee member) (2010-2012)
- **Chris Bochichio** (PhD committee member) (2010-)
- **Jill Burrows** (MS committee member) (2009-2010)
- **Julie Loisel** (PhD committee member) (2007-2012)
- **Julie Loisel** (PhD qualifying exam committee chair) (2008)
- **Cheng Zhao** (PhD committee member) (2008-2009)
- **Andrew Gonyo** (MS committee member) (2007-2009)
- **Chris Dempsey** (MS committee member) (2007-2009)
- **Shanshan Cai** (MS committee member) (2006-2008)
- **Shanshan Cai** (PhD qualifying exam committee member) (2006)
- **Andrea Luebbe** (MS committee member) (2006-2007)

External member of committees:

- **John Burkhart** (External member of PhD committee, West Virginia University) 2013-
- **Kevin Barrett** (External member of PhD committee, University of Wisconsin) 2014-
- **Jonathon Nichols** (External member of PhD committee, Brown University) (2009)

Post-Graduate advising

- **Dr. Alex Ireland** (Post-doctoral researcher, 2012)

H. Service

University Service

University and Interdisciplinary

- Member, Frank Hook Assistant Professorship Selection Committee, 2013.
- Advisor, *Global Citizenship (GC) Program Capstone Project*, 2008-09 year.
- Contributions to Lehigh Life Days, Candidate's Day, and Tower Society Meeting 2009-2011.
- Participating faculty member, *Environmental Initiative*

College

- Participant, *CAS Dean's Leadership Seminar 2016-17*.
- Member, *Committee on implementation of CAS strategic plan's undergraduate program*, Fall 2012

Departmental

- Chair, *EES Scientific Instrument Technician Search Committee*, 2016.
- Chair, *EES Facilities and Instrument Committee*, 2016-1017.
- Member of *EES Assistant Professor Faculty Search Committee*, 2015-2016.
- Co-organizer of the *EES Department Seminar Series*, 2015-2016.
- Member, *EES Facilities and Instrument Committee*, 2015-2016.
- Chair, *Undergraduate Instruction Committee*, 2009-2013.
- Member of *Foster-Hewitt Lecture Series Committee*, 2006-2007; 2008-2009
- Departmental *Seminar Coordinator*, 2006-2008.
- Member of *Earth System Scientist Faculty Search Committee*, 2007-2008.
- Member of ad hoc committee on possible *EI Ecosystem management program*, 2006-2007
- Member of *Undergraduate Instruction Committee*, 2006-2007.

Professional

Office and committee memberships

- Member of the informal steering committee of the *International Society for Testate Amoeba Research*, 2010-present.
- Maintain and contribute to "*From inside the shell*," the collaborative blog of the *International Society for Testate Amoeba Research*, 2013-present.

R.K. Booth, CV

- Chair and data steward, Peatlands group of the *Neotoma paleoecology database*, 2010-present.
- Member, E.S. Deevey Award Committee, Paleocological Section, *Ecological Society of America*, 2004-2006.
- Chair, *Paleocological Section of the Ecological Society of America*, 2004-2005.
- Vice Chair, *Paleocological Section of the Ecological Society of America*, 2003-2004

Workshop participation

- Paleocological observatory network (Paleon) workshop, Berkeley, 10-11 Dec 2016
- Paleocological observatory network (Paleon) workshop, Berkeley, 12-13 Dec 2015
- Neotoma Database Workshop, Berkeley, 12-13 Dec 2015. (I went back and forth between this workshop and the above one over the two days).
- Paleocological observatory network (Paleon) workshop, Boston, 7-9 Mar 2014.
- Paleocological observatory network (Paleon) workshop, Chicago, 2-4 Jan 2012.
- Paleocological observatory network (Paleon) workshop, Harvard Forest, Massachusetts. 11-12 May 2011.
- Neotoma Paleocology Database Workshop, Madison, WI. 23-26 September 2010
- Peatland Carbon Workshop, Totnes, UK. 26-29 October 2009
- Peatland archives of Holocene climate variability, Vihula, Estonia. 17-21 May 2009.
- Plant macrofossil working group. Late Neogene Ecosystem Database. University Park, PA. 2007.

Editorship

- 2012-present, **Associate editor** for *Quaternary Research*