

ALAN R. BERKOWITZ

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Education:

- Ph.D., Plant Ecology, Cornell University, Ithaca, New York, 1986
- BA, Environmental Studies, Antioch College, Yellow Springs, Ohio, 1976

Professional Positions:

- Head of Education, Cary Institute of Ecosystem Studies, Millbrook, NY, 1985-present
- Graduate Student Teaching and Research Assistant, Cornell University, Ithaca, NY, 1978-1985
- Resource Management Assistant, National Park Service, Grand Canyon, AZ, 1979
- Naturalist, High Rock Park Conservation Center, Staten Island, NY, 1977-1978
- Naturalist, National Park Service, Grand Canyon, AZ, 1976-1977
- Research Associate, Charles F. Kettering Research Institute, Yellow Springs, OH, 1976

Selected Professional Honors:

- Recipient, Eugene P. Odum Award for Excellence in Ecology Education. Ecological Society of America. 2003.
- Fellow, American Association for the Advancement of Science. 1995
- Vice President for Education and Human Resources, Ecological Society of America. 1995-2000.

Research Interests and Activities:

- Ecology teaching and learning
- Urban and suburban ecosystems
- Schoolyard ecology
- Long-term growth of students, teachers and schools through ecology education
- Understanding what shapes and constrains the teaching of ecology
- Influences and processes in ecology career development
- Agroecology

Education Interests:

- Defining and fostering ecosystem literacy and environmental citizenship
- K-12 teacher and higher education faculty development and support
- Curriculum development and dissemination
- Mentored research experiences in ecology for high school and college students
- Assessment of student thinking and learning in ecology
- Fostering and sustaining diversity in ecology
- Informal ecology education through displays and outdoor exhibits
- Fostering use of the local environment for ecology teaching and learning

Selected Current Professional Activities:

- Co-Principal Investigator, Undergraduate Field Experiences Research Network (U-FERN), an NSF-supported Research Coordination Network in Undergraduate Biology Education (RCN-UBE). Kari O-Connell (Oregon State University), PI. July 2017-present.
- Convener, ESA Symposium: Wicked Problems in Ecology Education. Ecological Society of America Annual Meeting. Portland, OR (with Kim Bjorgo-Thorne). August 9, 2017.
- Co-Chair, Diversity Committee, Long Term Ecological Research Network (LTER). 2016-present.
- Director, Undergraduate Research Program (URP), a program for 9-10 students each summer through the Urban Water Innovation Network (UWIN), supported by the NSF's Urban Sustainability Research Network, 2016-present
- Co-Principal Investigator, Comp Hydro, a project blending hydrology, computational thinking and data interpretation for high school students, supported by the NSF's STEM+C program. 2015-2020.
- Co-Director, Baltimore Ecosystem Study Young Environmental Scientist Program (BES-YES), a 6-week program in ecological research for 4-6 Baltimore City high school students, with Bess Caplan. 2015-present.
- Director, Hudson and Baltimore Data Jams, competitions for middle and high school students blending data analysis and artistic expression. 2013-present.
- Director, Changing Hudson Project, developing web-based tools for linking students' and scientists' investigations of change in the Hudson River ecosystem. 2006-present.
- Member, LTER Education Committee, 1998-present.
- Co-Principal Investigator, Project Management Committee Member and Education Team Leader, Baltimore Ecosystem Study, an NSF-supported Long Term Ecological Research (LTER) Project. 1997-present.
- Director, Institute of Ecosystem Studies' Research Experiences for Undergraduates (REU) Program, an NSF and Mellon Foundation-supported program for 8-10 students each summer. 1988-present.

Selected Past Professional Activities:

- Co-Principal Investigator, Pathways to Environmental Science Literacy. A Math Science Partnership project with LTER sites in Baltimore, Michigan, Colorado and California. 2008-present.
- Convener, Vice Presidents' Summit on Ecological Literacy. Ecological Society of America. 2007.
- Co-Principal Investigator, Biocomplexity and the Changing Planet. A high school curriculum development project. 2006-present.
- Member, K-12 Subcommittee, National Ecological Observatory Network (NEON) National Design Consortium. 2005.
- Lead Instructor, Introduction to Ecology, Continuing Education Program, Institute of Ecosystem Studies, January-March, 2002-5. Millbrook, NY (with other IES staff scientists).
- Member, Education Committee, American Institute for Biological Science (AIBS). 2001-2005.
- Co-director, Garden Mosaics project. 2001-4. (with Marianne Krasny and Gretchen Ferenz).
- Convener, Vice-President's Symposium: Defining Ecological Thinking as a Goal for Ecology Education. Ecological Society of America Annual Meeting. Snowbird, UT (with Carol Brewer). August 7, 2000.
- Convener, Cary Conference VIII: Understanding Urban Ecosystems: A New Frontier for Science and Education, with Charles H. Nilon and Karen S. Hollweg. April 27-29, 1999. Institute of Ecosystem Studies, Millbrook, NY.
- Leadership Institute presenter, Faculty Institutes for Reforming Science Teaching Through

- Field Stations (FIRST). With Diane Ebert-May, Dan Udovic, Deborah Morris and Jan Hodder, May 14-18, 1998, Oregon Institute of Marine Sciences, Charleston, OR.
- Member, National Writing Team for *Environmental Education Guidelines for Excellence: What School-Age Learners Should Know and Be Able To Do*, National Project for Excellence in Environmental Education, North American Association for Environmental Education (NAAEE). 1996-1999.
 - Co-Founder and Director, Strategies for Ecology Education, Development and Sustainability (SEEDS), a minority recruitment project of the Ecological Society of America and the UNCF/College Fund. 1996-2002.
 - Director, Schoolyard Ecology for Elementary School Teachers (SYEFEST) Project, NSF-supported teacher enhancement project, with Kathleen Hogan (Co-Director). 1994-2002.
 - Participant, Strategic Planning Workshop for Women and Minorities in Ecology (WAMIE), Ecological Society of America. 1993.
 - Member, Ecosystem Management Education Working Group, Ecosystem Management Communications Task Team, National Forest Service. 1993.
 - Chair, Ecological Society of America (ESA) Education and then Education and Human Resources Committee. 1992-2000.
 - Co-Organizer, Ecology in Education Southeast and Rocky Mountain Regional Workshops, Ecological Society of America. 1991-1992.
 - Co-Director, Eco-Inquiry: An Ecology Curriculum for Grades 5 and 6, NSF-supported curriculum development and dissemination project, with Kathleen Hogan (Director). 1991-1994.

Selected Publications in Ecology Education:

- Jordan, R. C., W.R. Brooks, J.R. DeLisi, S.A. Gray, and A.R. Berkowitz. 2015. Ecology nature of science: shared discussions and practices among ecologists and high school teachers. *Ecosphere* 6(11):223. <http://dx.doi.org/10.1890/ES13-00386.1>
- McBride, B.B., C.A. Brewer, A.R. Berkowitz and W.T. Borie. 2013. Environmental literacy, ecological literacy, ecoliteracy: What do we mean and how did we get here. *Ecosphere*. 4(5)
- Jordan, R. C., W.R. Brooks, S.A. Gray, J.R. DeLisi, and A.R. Berkowitz. 2013. Rising to the “broader impacts” challenge. *Frontiers in Ecology and the Environment*. 11(5):234-235.
- Harris, C., Berkowitz, A., Doherty, J., & Hartley, L. 2013. Exploring biodiversity's big ideas in your school yard. *Science Scope*, April/May, 2013, 20-27.
- Harris, C., A.R. Berkowitz, M. McLean and K. Notin. 2013. Beyond Eco-Footprints: Using the STEM Process. Getting K-12 students involved in all stages of the greening process in their schools. *Green Teacher*. 100:18-20.
- Poole, A.K., E.C. Hargrove, P. Day, W. Forbes, A.R. Berkowitz, P. Feinsinger and R. Rozzi. 2013. A call for ethical literacy in environmental education. Pages 349-371 In R. Rozzi, S.T.A. Pickett, C. Palmer, J.J. Armesto, and J.B. Callicott, editors. *Linking Ecology and Ethics for a Changing World. Values, Philosophy, and Action*. Springer, Dordrecht, Germany.
- Harris, C., Berkowitz, A., and A. Alvarado. 2012. Data Explorations in Ecology: Salt Pollution as a Case Study for Teaching Data Literacy. *American Biology Teacher* 74(7):479-484.
- Osmond, D., N. Nadkarni, C.T. Driscoll, E. Andrews, A.J. Gold, S. Broussard Allred, A. Berkowitz, T. Loecke, M. McGarry, K. Schwarz, M. Washington and P.M. Groffman. 2010. The Role of Interface Organizations in Science Communication and Understanding. *Frontiers of Ecology and the Environment*. 8(6):306-313.
- Jordan, R., F. Singer, J. Vaughan and A. Berkowitz. 2009. What should every citizen know about ecology? *Frontiers in Ecology and the Environment*. Available as an e-view at http://www.esajournals.org/archive/1540-9295/preprint/2009/pdf/10.1890_070113.pdf

- Brewer, C.A., A.R. Berkowitz, P.A. Conrad, J. Porter, and M. Waterman. 2008. Educating about infectious disease ecology. Pages 448-466 *in* Ostfeld, R.S, F. Keesing and V.T. Eviner, editors. *Infectious Disease Ecology: Effects of Ecosystems on Disease and of Disease on Ecosystems*. Princeton University Press. Princeton, NJ, USA.
- Jurgensen-Armstrong, M., A.R. Berkowitz, J. Taylor, and L. Dyer. 2007. Understanding why minority students pursue ecology careers. *Frontiers in Ecology and Environment* 5:415-420.
- Berkowitz, A.R., M.E. Ford and C.A. Brewer. 2005. A framework for integrating ecological literacy, civics literacy and environmental citizenship in environmental education. Pages 227-266 *In* Johnson, E.A. and M.J. Mappin, editors. Environmental Education and Advocacy: Perspectives of Ecology and Education. Cambridge University Press. Cambridge.
- Ewing, H., K. Hogan, F. Keesing, H. Bugmann, A.R. Berkowitz, L. Gross, J. Oris, and J. Wright. 2003. The Role of Modeling in Undergraduate Education (Chapter 22). Page :413-427 *In* Canham, C.D., Cole, J.J. and Laurenroth, W.K. Editors. The Role of Models in Ecosystem Science. Princeton University Press. Princeton, NJ.
- Berkowitz, A.R., C.H. Nilon and K.S. Hollweg. Editors. 2003. Understanding Urban Ecosystems: A New Frontier for Science and Education. Springer-Verlag, Inc., New York.
- Berkowitz, A.R., K.S. Hollweg and C.H. Nilon. 2003. Chapter 30 - Urban ecosystem education in the coming decade: what is possible and how might we get there? *In* Berkowitz, A.R., C.H. Nilon and K.S. Hollweg (Editors). Understanding Urban Ecosystems: A New Frontier for Science and Education. Springer-Verlag, Inc., New York.
- Breslav, M.A., A.R. Berkowitz, C.H. Nilon and K.S. Hollweg. 2000. Cities are ecosystems!: new trend to study urban areas. *Ecological Economics*. 32:337-339.
- Nilon, C.H., A.R. Berkowitz, and K.S. Hollweg. 1999. Understanding urban ecosystems: A new frontier for science and education. *Urban Ecosystems* 3(1):3-4.
- Moorcroft, T.A., K.H. Desmarais, K. Hogan and A.R. Berkowitz. 2000. Authentic assessment in the informal setting: how it can work for you. *Journal of Environmental Education*. 31:20-24.
- Hogan, K. and A.R. Berkowitz. 2000. Teachers as inquiry learners. *Journal of Science Teacher Education* 11(1): 1-25.
- Berkowitz, A.R., C. Brewer and D. Ebert-May. 1998. The biology department of the future. *Bulletin of the Ecological Society of America*. 79:161-163.
- Berkowitz, A.R., M. Archie and D. Simmons. 1997. Defining environmental literacy: a call for action. *Bulletin of the Ecological Society of America*. 78:170-172.
- Feinsinger, P., A. Grajal and A.R. Berkowitz. 1997. Some themes appropriate for schoolyard ecology and other hands-on ecology education. *Bulletin of the Ecological Society of America*. 78:144-146.
- Berkowitz, A.R. and P. Bohlen. 1996. Worm worlds. North American Association for Environmental Education. Washington, D.C.
- Schoenfeld, I. and A.R. Berkowitz. 1996. Institutional reward systems for sustaining ecologists' activities in K-12 education. *Bulletin of the Ecological Society of America* 77(3):168-169.
- Metzgar, L.H., K. Hollweg and A.R. Berkowitz. 1994. Ecologists in pre-college ecology education. *Bulletin of the Ecological Society of America* 75:113-116.
- Bentley, B., A.R. Berkowitz and 13 others. 1994. Mechanisms to Increase Recruitment and Retention of Women and Under-represented Groups in Ecology. Report from the Strategic Planning Workshop, Ecological Society of America, June 8-12, 1993. Ecological Society of America, Washington, DC. 52 pages.
- Berkowitz, A.R. 1992. New opportunities for ecology education in the United States. Pages 45-59 *In*: Hale, M. (Ed.) General Understanding and Role of Ecology in Education. Cambridge Univ. Press, London.

Selected Publications in Ecological Research:

- Schmidt, K.A., J.R. Goheen, R. Naumann, R.S. Ostfeld, E.M. Schaubert, and A.R. Berkowitz. 2001. Experimental removal of strong and weak predators: mice and chipmunks preying on songbird nests. *Ecology*. **82**:2927-2936.
- Berkowitz, A.R., C.D. Canham, and V.R. Kelly. 1995. Competition versus facilitation of tree seedling growth and survival in early successional communities. *Ecology* **76**:1156-1168.
- Berkowitz, A.R. and C.D. Canham. 1995. Ecological perspectives on tree invasion in rights-of-way: Net competitive effects of intact vegetation. Pages 54-58 In Doucet, D.J., Seguin, C. and Giguere, M. (Eds.). Proceedings of the Fifth International Symposium on Environmental Concerns in Rights-of-Way Management, Hydro-Quebec, Montreal, Quebec, Canada.
- Canham, C.D., A.R. Berkowitz, V.R. Kelly, G.M. Lovett, S.V. Ollinger and J. Schnurr. 1996. Effects of biomass allocation and resource-use efficiency on multiple resource limitation in tree seedlings. *Canadian Journal of Forest Research*. **26**:1521-1530.
- Berkowitz, A.R. 1988. Competition for resources in weed-crop mixtures. Pages 89-119 In: Altieri, M.A. and M.Z. Liebman, (Eds.) Weed Management in Agroecosystems: Ecological Approaches. CRC Press, Boca Raton, Florida.