



M / B

MATTHEW BROWNING

Assistant Professor / Health & Nature Researcher

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WEBSITES

RESEARCH GROUP

PEB.AHS.ILLINOIS.EDU

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RST.ILLINOIS.EDU

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WWW.LINKEDIN.COM/IN/
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RESEARCH GATE

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PROFILE

I study the effects of natural environments on human health and well-being. Recent innovations in health technologies provide rich sets of tools to address these goals. Improvements in wearable sensors, smartphone-based diagnoses, and immersive virtual environments provide opportunities to pose new research questions with increasing validity and decreasing cost. My primary foci are physiological responses to virtual environments and spatial relationships between greenspace and geo-located large datasets. My long term research goals are to define how different types and dosages of nature exposure translate to specific health outcomes (i.e., ADHD, anxiety, cancer, cardiovascular disease, depression, respiratory illness, and allergies) and socio-ecological issues (i.e., pro- environmental behavior). This information will then be used to inform urban greenspace policy and management.

EDUCATION

- | | |
|------|--|
| 2010 | OBERLIN COLLEGE
BA, Major in Biology, Minors in Geology, Art History
Oberlin, OH |
| 2012 | YALE UNIVERSITY
Master in Environmental Science
School of Forestry & Environmental Studies
New Haven, CT |
| 2015 | VIRGINIA TECH
Ph.D., Dept. of Forest Resources & Environ. Cons.
Blacksburg, VA |

APPOINTMENT

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| 2015 - NOW | UNIV. OF ILLINOIS URBANA-CHAMPAIGN
Assistant Prof., Dept. of Rec., Sport and Tourism
Affiliate, Dept. of Nat. Resources & Environ. Studies
Affiliate, Informatics Institute
Director, Virtual Reality & Nature Lab
Water Scholar, Inst. for Sustain., Energy, Environ.
Co-Founder, Parks & Environ. Beh. Research Group |
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PREVIOUS WORK EXPERIENCE

- 2004-05 **NATIONAL SCIENCE FOUNDATION**
Research Experiences for Undergraduates Student
Department of Geology, Gustavus Adolphus College, St. Peter, MN
- 2004-05 **OBERLIN COLLEGE**
Dept. of Geology Research Assistant
Oberlin, OH
- 2005 **KENT STATE UNIVERSITY**
Dept. of Geology Research Assistant
Kent, OH
- 2005 **U.S. FISH & WILDLIFE SERVICE**
Neal Smith National Wildlife Refuge Visitor Services Intern
Prairie City, IA
- 2006 **NATIONAL PARK SERVICE**
Arches National Park Environmental Education Internship
Moab, UT
- 2006 **GRANDFATHER MOUNTAIN STATE PARK**
NC Dept. of Environment and Natural Resources Backcountry Ranger
Linville, NC
- 2007-10 **BLUE RIDGE LAND CONSERVANCY**
Conservation Easement Land Monitor Volunteer
Boone, NC
- 2007-10 **MT. MITCHELL STATE PARK**
NC Dept. of Environment and Natural Resources Backcountry Ranger Park Ranger
Burnsville, NC
- 2007-10 **SOUTHERN APPALACHIAN HIGHLANDS CONSERVANCY**
Conservation Easement Land Monitor Volunteer
Asheville, NC
- 2008-09 **MUDDY SNEAKERS**
Outdoor Experiential Educator
Brevard, NC
- 2010-12 **YALE UNIVERSITY**
School of Forestry & Environmental Studies Research Assistant
Dept. of Biology Teaching Fellow
Dept. of Chemistry Teaching Fellow
New Haven, NC
- 2010-12 **SIERRA CLUB**
Inner City Outings Trip Leader
New Haven, NC
- 2012-15 **VIRGINIA TECH**
Dept. of Forest Resources & Environ. Conservation Research and Teaching Assistant
Virginia Tech, Blacksburg, VA

- 2012-16 **CHILDREN & NATURE NETWORK**
Program Evaluator and Natural Leader
Minneapolis, MN
- 2013-14 **COMMUNITY DESIGN ASSISTANT CENTER**
GIS Specialist and Student Design Intern
Blacksburg, VA
- 2013-16 **MONTREAT COLLEGE**
MYLES of Science Protected Areas Manager Liaison
Montreat, NC
- 2015-16 **BRANDWEIN INSTITUTE**
Program Evaluator and Consultant
Milford, PA

HONORS AND AWARDS

- 2008 **BIOONE JOURNALS**
Featured Article
The first scientific paper I published was nominated by editors of a leading sedimentary geology journal to be the featured article on the website of BioOne for the month of October 2008. BioOne is a publisher of more than 200 journals in the biological, ecological, and environmental sciences.
- 2011 **NATIONAL SCIENCE FOUNDATION**
Graduate Research Fellowship Program Honorable Mention
NSF's primary grant program for beginning graduate students is the GRFP award (\$156K). I received an Honorable Mention my first year of graduate school – in other words, my proposed research project entitled "Developing Protocols for Managing Unstructured Children's Play in Natural Areas" recognized by NSF as a meritorious application. Each year NSF receives approximately 13,000 applications, awards 2,000, and assigns 2,000 Honorable Mentions (30% success rate).
- 2012 **YALE SCHOOL OF FORESTRY & ENVIRONMENTAL STUDIES**
Best Presenter
I presented my thesis research at the 2012 Yale School of Forestry & Environmental Studies' Masters Student Research Colloquium. Faculty members and external judges considered my presentation the best out of 27 talks given (4% success rate).
- 2012 **NATIONAL PARK SERVICE**
Delaware Water Gap National Recreation Area Park Break Fellow
I was selected to receive a week of training in park management with high-ranking employees in the National Park Service, U.S. Geological Survey, and U.S. Forest Service. Only 8 students were selected out of 139 applications (6% success rate).
- 2012 **AMERICAN SWEDISH INSTITUTE**
Malmberg Fellow
The American Swedish Institute provides \$10K for American students to conduct research in Sweden. Their goals are similar to a Fulbright Scholarship. I was their 2012 recipient.

2014

VIRGINIA TECH

Citizen Science Engagement Award

The Virginia Tech Graduate School gives awards to students conducting research that involves a mutually beneficial partnership with a community. My PhD Dissertation on Nature Centers and Communities was in association with the National Audubon Society and 16 nature centers across the United States. It was selected out of approximately 4,500 other graduate students projects. Twelve awards were given annually (<1% success rate).

2017

UNIVERSITY OF ILLINOIS

Teacher's Ranked as Excellent by Their Students

The Center for Teaching Innovation and Learning (CITL) awards instructors who earn in the top 10% of ICES Items #1 and #2 each semester with this status. I received this award Spring 2017 for RST 199 (Management in Recreation, Sport and Tourism).

PUBLICATIONS

PUBLICATION IMPACT

13.59 ResearchGate Score

5.0 H-Index

3.0 I10-Index

8 Refereed Journal Articles

SYMBOL LEGEND

thesis or dissertation

* refereed

+ invited

^ special issue

@ co-authored with graduate student

Book Chapters

Mutel, M. (2005). Hubert Robert (1733-1808): Young girls dancing around an obelisk, 1798. In Borys, S., Ed., The Splendor of Ruins in French Landscape Painting, 1630-1800. Allen Memorial Art Museum Press, Oberlin, OH

Mutel, M. (2005). Simon Vouet (1590-1649): The muses Urania and Calliope, 1634. In Borys, S., Ed., The Splendor of Ruins in French Landscape Painting, 1630-1800. Allen Memorial Art Museum Press, Oberlin, OH

Books in Preparation

Jennings, V., Browning, M., & Rigolon, A. (Anticipated submission May 31, 2018). Urban Green Spaces - Public Health and Sustainability in the United States. Switzerland: Springerbriefs.

Refereed Journal Articles

* Waugh, D., Feldmann, R., Schroeder, A., & Mutel, M. (2006). Differential cuticle architecture and its preservation in fossil and extant *Callinectes* and *Scylla* claws. *Journal of Crustacean Biology*. 26(3) 271-282. <https://doi.org/10.1651/S-2692.1>. Impact factor 1.1.

* Mutel, M., Waugh, D., Feldmann, R., & Hubbard, K. (2008). Experimental taphonomy of *Callinectes sapidus* and cuticular controls on preservation. *Palaios*. 23(9) 615-623. <https://doi.org/10.2110/palo.2008.p08-024r>. Impact factor **2.0**.

* Nassar, N., Barr, R., Browning, M., Zhouwei, D., Friedlander, E., Harper, E., Henly, C., Kavlak, G., Kwatra, S., Jun, C., Warren, S., Yang, M., & Graedel, T. (2012). Criticality of the geological copper family. *Environmental Science & Technology*. 46(2) 1071-1078. DOI: 10.1021/es203535w. Impact factor **6.2**.

* Browning, M., Marion, J.L., & Gregoire, T.G. (2013). Sustainably connecting children with nature: An exploratory study of nature play area visitor impacts and their management. *Landscape & Urban Planning*. 199, 104-112. <https://doi.org/10.1016/j.landurbplan.2013.07.004>. Impact factor **4.6**.

* Browning, M., Stern, M., Ardoin, N., Heimlich, J., Petty, R., & Charles, C. (2017). Investigating the sets of values that community members hold toward local nature centers. *Environmental Education Research*. 23(9) 1291-1306. <https://doi.org/10.1080/13504622.2016.1177713>. Impact factor **1.7**.

*^@ Browning, M., & Lee, K. (2017). Within what distance does “greenness” best predict physical health? A systematic review of articles with GIS buffer analyses across the lifespan. *International Journal of Environmental Research and Public Health*. 14(7) 675. DOI:10.3390/ijerph14070675. Impact factor **2.0**.

* Browning, M., Stern, M., Ardoin, N., & Heimlich, J. (2018). Factors of community support for local nature centers. *Environmental Education Research*. 24(3) 326-342. <https://doi.org/10.1080/13504622.2016.1217397>. Impact factor **1.7**.

*^ Kuo, M., Browning, M., & Penner, M. (2018). Do lessons in nature boost subsequent classroom engagement? Refueling students in flight. *Frontiers in Psychology*. <https://doi.org/10.3389/fpsyg.2017.02253>. Impact factor **2.3**.

Non-Refereed Journal Articles

@ Browning, M., Thomsen, J. M., & Choi, W. (2017). Student and professional perspectives on protected area careers. *Park Science*. 33(1) 27-33. https://www.nps.gov/subjects/parkscience/upload/33-1_ParkScience33-1-Winter2016-2017_27-31-33_Browning_et_al_3851_WCAG2-0-2.pdf.

Browning, M. (2017). How professional organizations were critical to my career. *Park Science*. 33(1) 32. https://www.nps.gov/subjects/parkscience/upload/ParkScience33-1-Winter2016-2017_32_Browning_3852_WCAG2-0.pdf.

Articles in Review

@ Browning, M., Kuo, M., Sachdeva, S., Lee, K., & Westphal, L. (Submitted October 17, 2017). Research note: Greenness and school-wide test scores are not always positively associated - A replication of “Linking student performance in Massachusetts elementary schools with the ‘greenness’ of school surroundings using remote sensing.” Submitted to *Landscape & Urban Planning*. Impact factor **4.6**.

@ Kuo, M., Browning, M., Sachdeva, S., Lee, K., & Westphal, L. (Submitted October 14, 2017). Do brains grow on trees? Examining the link between greenness, academic achievement, and disadvantage in Chicago Public Schools. Submitted to *Frontiers in Psychology*. Impact factor **2.3**.

@ Becker, D., Van Riper, C., Browning, M., Stewart, W., Suski, C., & Browning, L. (Submitted December 2, 2017). Human-nature relationships and normative beliefs influence behaviors that reduce the spread of aquatic invasive species. Submitted to *Environmental Management*. Impact factor **1.9**.

Rigolon, A., Browning, M., & Jennings, V. (Submitted January 22, 2018). Inequalities in the quality of urban park systems: An environmental justice investigation of cities in the United States. Target journal is *Landscape & Urban Planning*. Editor in chief is interested in the article and welcomes our submission. Impact factor **4.6**.

Articles in Preparation

@ Becker, D., Browning, M., Kuo, M., & Van den Eeden, S. (Anticipated submission February 28, 2018). Green land cover and country-level health care spending: The health economic potential of trees. Target journal is *Environmental Health Perspectives*. Impact factor **8.4**.

@ Saeidi-Rizi, F. & Browning, M. (Anticipated submission March 31, 2018). Virtual nature and human health: A systematic review of landscape simulation strategies. Target journal is *Environment & Behavior*. Editor in chief is interested in the article and welcomes our submission. Impact factor **3.4**.

Browning, M. (Anticipated submission April 30, 2018). Can artificial nature be good for our health? Comparing short, single-doses of nature exposure in virtual reality and outdoors. Target journal is *Journal of Environmental Psychology*. Three Associate Editors are interested in the article and welcome my submission. Impact factor **3.5**.

@ Browning, M., Lee, K., & Becker, D. (Anticipated submission May 31, 2018). How trees help elders: Canopy coverage and anxiety and depression rates in residential care facilities. Target journal is *Health & Place*. Impact factor **2.4**.

Browning, M., Khan, N. A., & Schwingel, A. (Anticipated submission May 31, 2018). Gardening is related to health benefits beyond diet, weight, and physical exercise: Evidence from the gut microbiome. *Health & Place*. Impact factor **2.4**.

Browning, M. (Anticipated submission June 31, 2018). Healing with low-cost technology: Can viewing natural landscapes in virtual reality headsets buffer against future stressful situations? Target journal is *Environmental Science & Technology*. Impact factor **6.2**.

Management Reports

Mutel, M. (2010). *Research hints forest improving*. The Stewart 24(1) 11. Raleigh, NC: North Carolina Division of Parks and Recreation.

@ Browning, L., Browning, M., Decker, M., & Smith, S. (2011). *Camp property management plan*. Prepared for Connecticut Forest & Parks Association, Rockfall, CT.

@ Gilboy, E., Browning, L., Browning, M., Dunn, M., & Walker, H. (2014). *Waynesboro Ridgeview Park, greenway, and trailhead conceptual design*. Prepared for City of Waynesboro, VA.

@ Gilboy, E., Browning, L., Jessup, J., Wu, S., & Browning, M. (2014). *Greendale outdoor classroom & educational trail*. Prepared for Greendale Elementary School, Abingdon, VA.

Gilboy, E., Browning, L., Browning, M., Walker, H., & Crump, L. (2014). *Scenic River evaluation projects: Cranesnest and Tye rivers*. Richmond, VA: Virginia Department of Conservation & Recreation.

Gilboy, E., Browning, L., Browning, M., & Crump, L. (2014). *Clinch Scenic River report: Tazewell county*. Richmond, VA: Virginia Department of Conservation & Recreation.

Browning, M. (2014). *Legacy Camp evaluation: Results from 2014*. Prepared for Children & Nature Network, Minneapolis, MN.

@ Browning, M., Choi, W., & Charles, C. (2015). *Factors of success, personal motivations, and group goals for the 2015 Inspiring a New Generation Summit*. Prepared for Brandwein Institute, Milford, PA.

@ Browning, M., Choi, W., & Charles, C. (2016). *Goal achievement and contribution of factors for success: Interim report on post-survey results from the 2015 North American Inspiring a New Generation Summit*. Prepared for Brandwein Institute, Milford, PA.

@ Browning, M., Choi, W., & Charles, C. (2016). *Six month changes in evaluative beliefs about the 2015 ING Summit*. Prepared for Brandwein Institute, Milford, PA.

Browning, M. (2012). *Advancing sustainable land management to connect children with nature*. Prepared for American Swedish Institute, Minneapolis, MN.

@ Browning, M., Choi, W., Stern, M., Petty, B., Ardoin, N., & Heimlich, J. (2016). *Nature centers and communities summary report*. Prepared for Corkscrew Swamp Sanctuary and Plair Audubon Center, Naples, FL.

@ Browning, M., Choi, W., Stern, M., Petty, B., Ardoin, N., & Heimlich, J. (2016). *Nature centers and communities summary report*. Prepared for Audubon Center at Debs Park, Los Angeles, CA.

@ Browning, M., Choi, W., Stern, M., Petty, B., Ardoin, N., & Heimlich, J. (2016). *Nature centers and communities summary report*. Prepared for Elachee Nature Science Center, Gainesville, PA.

@ Browning, M., Choi, W., Stern, M., Petty, B., Ardoin, N., & Heimlich, J. (2016). *Nature centers and communities summary report*. Prepared for Environmental Learning Center, Vero Beach, FL.

@ Browning, M., Choi, W., Stern, M., Petty, B., Ardoin, N., & Heimlich, J. (2016). *Nature centers and communities summary report*. Prepared for Grange Insurance Audubon Center and Scioto Audubon Metro Park, Columbus, OH.

@ Browning, M., Choi, W., Stern, M., Petty, B., Ardoin, N., & Heimlich, J. (2016). *Nature centers and communities summary report*. Prepared for Audubon Greenwich Kimberlin Nature Education Center and Sanctuary, Greenwich, CT.

@ Browning, M., Choi, W., Stern, M., Petty, B., Ardoin, N., & Heimlich, J. (2016). *Nature centers and communities summary report*. Prepared for Hitchcock Nature Center, Honey Creek, IA.

@ Browning, M., Choi, W., Stern, M., Petty, B., Ardoin, N., & Heimlich, J. (2016). *Nature centers and communities summary report*. Prepared for Mitchell Lake Audubon Center, San Antonio, TX.

@ Browning, M., Choi, W., Stern, M., Petty, B., Ardoin, N., & Heimlich, J. (2016). *Nature centers and communities summary report*. Prepared for Plains Conservation Center, Aurora, CO.

@ Browning, M., Choi, W., Stern, M., Petty, B., Ardoin, N., & Heimlich, J. (2016). *Nature centers and communities summary report*. Prepared for Richardson Bay Audubon Center and Sanctuary, Tiburon, CA.

@ Browning, M., Choi, W., Stern, M., Petty, B., Ardoin, N., & Heimlich, J. (2016). *Nature centers and communities summary report*. Prepared for Seven Ponds Nature Center, Dryden, MI.

@ Browning, M., Choi, W., Stern, M., Petty, B., Ardoin, N., & Heimlich, J. (2016). *Nature centers and communities summary report*. Prepared for Seward Park Audubon Center, Seattle, WA.

@ Browning, M., Choi, W., Stern, M., Petty, B., Ardoin, N., & Heimlich, J. (2016). *Nature centers and communities summary report*. Prepared for Silver Lake Nature Center, Bristol, PA.

@ Browning, M., Choi, W., Stern, M., Petty, B., Ardoin, N., & Heimlich, J. (2016). *Nature centers and communities summary report*. Prepared for Urban Ecology Center, Milwaukee, WI.

@ Browning, M., Choi, W., Stern, M., Petty, B., Ardoin, N., & Heimlich, J. (2016). *Nature centers and communities summary report*. Prepared for Wilderness Center, Wilmot, OH.

Refereed Conference Abstracts

Mutel, M. (2005). Experimental taphonomy of the blue crab, *Callinectes sapidus*: *Experimental and cuticular controls on preservation*. *Geological Society of America Abstract Programs*. 36(5) 65. https://gsa.confex.com/gsa/2004AM/finalprogram/abstract_75525.htm

@* Lusk, L., Mutel, M., Walker, E., & Levy, F. (2009). Forest change in high elevation forests of Mt. Mitchell, North Carolina. *Proceedings from the Conference on the Ecology and Management of High- Elevation Forests in Central and Southern Appalachian Mountains*. Slatyfork, WV. http://www.nrs.fs.fed.us/pubs/gtr/gtr_nrs-p-64.pdf

Browning, M. (2012). The need for sustainable management of nature play areas: A survey of environmental impacts caused by children's play. In Fredman, P., Stenseke, M., Liljendahl, H., Mossing, A., and Laven, D., Ed. *The 6th International Conference on Monitoring and Management of Visitors in Rec. & Protected Areas - Proceedings*. Stockholm, Sweden. <http://mmv.boku.ac.at/downloads/mmv6-proceedings.pdf>

Browning, M. (2012). Environmental impacts along informal trails and recreation sites at well- established Swedish nature play areas. In Fredman, P., Stenseke, M., Liljendahl, H., Mossing, A., and Laven, D., Ed. *The 6th International Conference on Monitoring and Management of Visitors in Rec. & Protected Areas - Proceedings*. Stockholm, Sweden. <http://mmv.boku.ac.at/downloads/mmv6-proceedings.pdf>

Educational Guides

@ Arthur, T., Browning, M., Cook, L., Martin, R., Saleh, T., & Martinez, J. (2010). *Natural Leaders Network toolkit*. Minneapolis, MN: Children & Nature Network. <http://www.childrenandnature.org/learn/training/toolkits/>

Browning, M., Aldunate, R., Brooks, I., & Cragin, M. (2017). Advanced cyberinfrastructure for health care data. *National Science Foundation Request for Information (RFI)*. Future Needs for Advanced Cyberinfrastructure to Support Science and Engineering Research. https://www.nsf.gov/cise/oac/ci2030/rfi_responses.jsp

Theses and Dissertations

Browning, M. (2012). *Sustainably connecting children with nature*. Master's Thesis, The Yale School of Forestry & Environmental Studies, New Haven, CT.

Browning, M. (2015) *Nature centers in local communities: Perceived values, support factors and visitation constraints*. Dissertation. Virginia Tech, Blacksburg, VA.

PRESENTATIONS

PRESENTATION IMPACT

24 Invited Talks

47 Conference Presentations

External Invited Lecture

05/2008	BLUE RIDGE DISCOVERY CENTER <i>Cooking and foraging Southern Appalachian wild edibles</i> Matthew Mutel Plenary Talk and Demonstration, Little Switzerland, NC
05/2008	GRANDFATHER MOUNTAIN PARK <i>Cooking and foraging Southern Appalachian wild edibles</i> Matthew Mutel Plenary Talk and Demonstration, Linville, NC
11/2009	BLUEGREEN ALLIANCE FOUNDATION <i>Sowing the seeds for a greener future: Preparing youth for the green economy</i> Jackie Ostfeld (Sierra Club), Christine Fanning (Outdoor Foundation), Julie Rodriguez (Department of Interior), Matthew Mutel, Sally Prouty (The Corps Network)

- 12/2009 **U.S. FISH & WILDLIFE SERVICE**
Panel on youth in natural resources
Andrew Hodges, Chris Jackson, Matthew Mutel, Tara Arthur
Nat. Cons. Training Center Youth in Natural Resources Meeting, Shepherdstown, WV
- 05/2010 **NORTH CAROLINA CHILDREN & NATURE COALITION**
Natural Leaders Network
Juan Martinez (Children & Nature Network), Matthew Mutel
Annual Conference Keynote, Asheboro, NC
- 02/2012 **CLEMSON UNIVERSITY**
Managing natural lands for connecting children with nature
Matthew Browning
Conference on the Value of Concurrent Session, Clemson, SC
- 02/2012 **U.S. FOREST SERVICE**
Expanding nature opportunities for children: Encouraging and managing children's play in public forests
Matthew Browning
Conservation Education Staff Guest Lecture, Washington, D.C.
- 06/2012 **NORTH CAROLINA MUSEUM OF NATURAL SCIENCES**
The need for nature play areas in protected natural areas and how to manage them
Matthew Mutel
Webinar to Congressional Representatives, Raleigh, NC
- 10/2012 **APPALACHIAN TRAIL CONSERVANCY**
MYLES of Science
Matthew Browning, Lara Browning (MYLES of Science), Tara Arthur (MYLES of Science)
Regional Partner Meeting, Asheville, NC
- 11/2012 **APPALACHIAN TRAIL CONSERVANCY**
MYLES of Science
Matthew Browning, Lara Browning (MYLES of Science), Tara Arthur (MYLES of Science)
Regional Partner Meeting, Waterbury Center, VT
- 02/2013 **CLEMSON UNIVERSITY**
Environmental impacts on and sustainable management of nature play areas
Matthew Browning
The Conference on the Value of Play Concurrent Session, Clemson, SC
- 06/2013 **AMERICAN SWEDISH INSTITUTE**
Connecting children with nature: Why you should care and what you can do
Matthew Browning
Midsommer Fest Plenary Talk, Minneapolis, MN
- 03/2014 **VIRGINIA MASTER NATURALISTS**
Giving guided interpretative hikes
Matthew Browning
Workshop, Blacksburg, VA
- 04/2014 **APPALACHIAN TRAIL CONSERVANCY**
Connecting children with nature: Why you should care and what you can do
Matthew Browning, Lara Browning (MYLES of Science), Tara Arthur (MYLES of Science)
Regional Partner Meeting, Pembroke, VA

- 8/21/2015 **ASSOCIATION OF NATURE CENTER ADMINISTRATORS**
The value of nature centers to local communities
 Matthew Browning, Bob Petty (National Audubon Society), Marc Stern (Virginia Tech),
 Nicole Ardoin (Stanford University), Joe Heimlich (The Ohio State University)
 Plenary Talk at Annual Conference, Gainesville, GA
- 11/16/2015 **INSTITUTE FOR MUSEUM AND LIBRARY SERVICES**
Measuring and articulating the value of museums and libraries
 Matthew Browning, Mary Ellen Davis (Association of College of Research Libraries),
 Laura Huerta Migus (Association of Children's Museums), Maureen Sullivan (Maureen
 Sullivan Associates)
 Concurrent Panel Discussion at Focus Conference, New Orleans, LA
- 12/15/2015 **NATIONAL AUDUBON SOCIETY**
The value of nature centers to local communities
 Matthew Browning, Bob Petty (National Audubon Society), Marc Stern (Virginia Tech),
 Nicole Ardoin (Stanford University), Joe Heimlich (The Ohio State University)
 Webinar Presentation to Board of Directors, New York, NY
- 5/27/2016 **NATIONAL GREAT RIVERS RESEARCH & EDUCATIONAL CENTER**
Social Science Primer
 Carena Van Riper (NRES) and Matthew Browning
 Training Presentation for Summer Interns, Alton, IL
- 10/7/2016 **EAST TENNESSEE STATE UNIVERSITY**
How might contact with nature promote human health?
 Matthew Browning
 Department of Environmental Health's Seminar, Johnson City, TN
- 4/12/2017 **YALE UNIVERSITY**
Urban forestry's reduction of health care expenditures
 Matthew Browning, Stephen Van Den Eeden and Kathryn Boyle (Kaiser Permanente)
 Yale Center for Business and the Environment Webinar, New Haven, CT
- 11/14/2017 **ARBOR DAY FOUNDATION**
Urban forestry's reduction of health care expenditures
 Matthew Browning
 Partners in Community Forestry Conference Closing Plenary, Tulsa, OK

Internal Invited Lectures

- 05/2009 **ENVIRONMENTAL EDUCATORS OF NORTH CAROLINA**
Identifying Western North Carolina flora and fauna
 Matthew Browning
 Guided Hiked for Section Gathering, Hot Springs, NC
- 1/27/2017 **CENTER ON HEALTH, AGING AND DISABILITY**
Health data access for research
 Matthew Browning, Gillian Cooke (Interdisciplinary Health Sciences Initiative)
 UIUC CHAD Faculty Development Seminar, Champaign, IL
- 7/1/2017 **LANDSCAPES, HEALTH, AND HEALTH SYMPOSIUM**
Within what distance does greenness best predict physical health
 Matthew Browning
 UIUC Department of Landscape Architecture Symposium Plenary, Urbana, IL

COLLEGE OF APPLIED HEALTH SCIENCES*Health applications of natural landscapes in virtual reality*

Matthew Browning

Board of Visitors Research Presentation, Champaign, IL

Conference Presentations

Browning, M. (2011). *Assessing best management practices of natural play areas*. Presentation at Association for the Study of Play Conference, Atlanta, GA.

Browning, M., Marion, J., Gregoire, T., & Asperdt, A. (2011). *Developing protocols for managing unstructured children's play in natural areas*. Poster presentation at International Play Association Conference, Cardiff, Wales.

Browning, M. (2011). *Assessing management and practices of natural play areas*. Presentation at North American Association for Environmental Education Research Symposium, Raleigh, NC.

Browning, M., & Lamers, V. (2012). *Securing the future of land conservation: Connecting children with nature on lands under easement*. Presentation at Connecticut Land Conservation Conference, Middletown, CT.

Browning, M. (2012). *Expanding nature opportunities for children: Encouraging and managing nature play in public forests*. Presentation at North Eastern Society of American Foresters, Amherst, MA.

Browning, M. (2012). *'Best' guidelines for connecting children with nature: An assessment of environmental impacts at nature play areas and suggestions for sustainable management*. Presentation at Yale School of Forestry & Environmental Studies Graduate Student Research Colloquium, New Haven, CT.

Browning, M. (2012). *Leadership IQ*. Presentation at Children & Nature Network's Legacy Camp, Shepherdstown, WV.

Browning, M. (2012). *Environmental impacts at nature play areas and suggestions for sustainable management*. Presentation at North American Association for Environmental Education annual conference, Oakland, CA.

Van Riper, C., Knudten, C., Browning, M., Rose, N., Reed, S., & Dennis, K. (2013). *Supporting experiential learning in national parks: The 2012 Delaware Water Gap National Recreation Area Park Break program*. Sharing circle at George Wright Society Conference on Parks, Protected Areas & Cultural Sites, Denver, CO.

Browning, M. (2014). *Perceived and actual valuation of nature centers; And does it matter?* Presentation at Virginia Tech Grad Student Symposium, Blacksburg, VA.

Browning, M. (2014). *An introduction to social psychology and behavior theory*. Presentation at Children & Nature Network's Legacy Camp, Shepherdstown, WV.

Browning, M. (2014). *How and why different populations visit/support nature centers differently*. Poster presentation at North American Association for Environmental Education Research Symposium, Ottawa, Canada.

Browning, M. (2015). *The value of nature centers in communities*. Presentation at Virginia Tech Graduate Student Symposium, Blacksburg, VA.

Browning, M., Thomsen, J., Johnson, B., Ballard, H., Wojcik, D., Morris, J., Machlis, G., English, K., Ramey-Renk, J., & Brownlee, M. (2015). *Where am I going and how do I get there? Honest conversations about conservation careers*. Roundtable discussion at George Wright Society Conference on Parks, Protected Areas, and Cultural Sites, Oakland, CA.

Villalba, F., & Browning, M. (2015). *Transformative and inclusive: Rethinking youth engagement in nature and conservation*. Panel moderator at George Wright Society Conference on Parks, Protected Areas, and Cultural Sites, Oakland, CA.

Roberts, N., & Browning, M. (2015). *Outside your door: Urban youth media producers create new connections to the land*. Panel moderator at George Wright Society Conference on Parks, Protected Areas, and Cultural Sites, Oakland, CA.

Browning, M. (2015). *MYLES of Science: Engaging high school students along the AT through peer-led citizen science research and low-impact backpacking*. Presentation at Appalachian Trail Conservancy Biennial Conference, Winchester, VA.

Browning, M., Petty, B., Stern, M., Ardoin, N., & Heimlich, J. (2015). *Discussion on the value of nature centers to communities*. Presentation at Association of Nature Center Administrators Summit, Gainesville, GA.

Dahlstrom, T., Reuter, J., Troy, N., Mokrycki, K., & Browning, M. (2015). *Recreation and tourism career panel*. Panel moderator at Sapora Symposium, Champaign, IL.

Browning, M., Petty, B., Stern, M., Ardoin, N., & Heimlich, J. (2015). *The value of nature centers to communities*. Presentation at North American Environmental Education Association Research Symposium, San Diego, CA.

Browning, M., Petty, B., Stern, M., Ardoin, N., & Heimlich, J. (2015). *The ways in which communities value nature centers*. Presentation at North American Environmental Education Association annual conference, San Diego, CA.

Browning, M. (2016). *The value of nature centers in local communities*. Presentation at Environmental Education Association of Illinois conference, Canton, IL.

@ Van Riper, C.J., Browning, M., Stewart, W., Suski, C., & Browning, L. (2016). *Minimizing the spread of aquatic nuisance species in Illinois: A study of factors that shape angler behavior*. Paper presentation to Great Lakes Fishery Commission, Ann Arbor, MI.

@ Browning, M., & Mimnaugh, K. (2016). *Simulating nature, enhancing health: Exploring therapeutic applications of natural environments in virtual reality, and opportunities for the Design Center*. Poster presentation at Chittenden Symposium, Champaign, IL.

@ Browning, M., Browning, L., Chalip, L., van Riper, C., Stewart, W., & Mimnaugh, K. (2016). *Simulating nature, enhancing health: Virtual reality proposal for the Design Center*. Poster presentation at University of Illinois Design Center Lightning Symposium, Champaign, IL.

@ Mimnaugh, K., & Browning, M. (2016). *The technology of healing: Exploring simulated natural environments in virtual reality for therapeutic applications*. Poster presentation at International Symposium on Society and Resource Management, Houghton, MI.

@ Merrett, G., Browning, M., van Riper, C., & Kayser, R. (2016). *Factors that demotivate recreationalists from engaging in pro-environmental behaviors*. Presentation and poster at National Great Rivers Research & Education Center Internship Symposium, East Alton, IL.

@ Kayser, R., van Riper, C., Browning, M., Merrett, G., Browning, L., Stewart, W., & Suski, C. (2016). *Norms and human nature relationships determine boater behaviors that affect the spread of aquatic invasive species*. Presentation and poster at National Great Rivers Research & Education Center Symposium, East Alton, IL.

Browning, M. (2015). *Health and nature*. Presentation at Parks and Environmental Behavior Research Group seminar, Champaign, IL.

Zint, M., Ardoin, N., Baek, J., Browning, M., Chase, D., Ernst, J., Heimlich, J., Li, C., Marcinkowski, T., McCann, E., Monroe, M., Simmons, B., & Stevenson, K. (2016). *Evaluation clinic*. Workshop at North American Association for Environmental Education Conference, Madison, WI.

Browning, M. (2016). *Technology of healing: Exploring simulated natural environments for therapeutic applications*. Poster presentation at North American Association for Environmental Education Conference, Madison, WI.

Browning, M. (2016). *Job opportunities in parks and protected areas*. Moderated panel for Parks and Environmental Behavior Research Group seminar, Champaign, IL.

@ Browning, M., & Mimnaugh, K. (2017). *Preliminary results from simulating nature, enhancing health project: An exploration of the therapeutic applications of natural environments in virtual reality*. Poster presented at Chittenden Symposium on Assistive Technologies in Health, Champaign, IL.

@ Merrett, G., Van Riper, C., & Browning, M. (2017). *Constraints that demotivate recreationists from engaging in pro-environmental behaviors*. Poster presentation at George Wright Society conference, Virginia Beach, VA.

Browning, M., Thomsen, J., & Palmer, J. (2017). *Pursing parks and protected area careers in a changing political climate*. Sharing circle presentation at George Wright Society conference, Virginia Beach, VA.

@ Mimnaugh, K., & Browning, M. (2017). *Do we need 'actual' park visitation for Park Rx? Studying nature-based virtual reality for stress-reduction*. Poster presentation at George Wright Society conference, Virginia Beach, VA.

Lawson, S., Benfield, J., Taff, B., Newman, P., Browning, M., Powell, B., & Belenz, A. (2017). *Second Century thinking: Research to support interpretation, education, and engagement*. Panel presentation at George Wright Society conference, Virginia Beach, VA.

@ Taff, D., Van Riper, C., Browning, M., Mimnaugh, K., Thomsen, J., Newman, P., Hipp, A., Brownlee, M., Koontz, L., and Richardson, L. (2017). *Healthy parks healthy people:*

State of the evidence and paths to improve the science. Panel presentation at George Wright Society conference, Virginia Beach, VA.

@ Cabrera, S. E., Schwingel, A., Browning, M., & Naiman, K. (2017). *Cultivating healthier lifestyles: Gardening amongst Latinos.* Presentation at University of Illinois Undergraduate Research Symposium, Champaign, IL.

@ Kuo, M., Browning, M., Sachdeva, S., & Lee, K. (2017). *Methodological considerations in measuring the impact of greenspace on school outcomes.* Panel presentation at Environmental Design Research Association conference, Madison, WI.

@ Browning, M., & Mimnaugh, K. (2017). *Can virtual reality be used to mimic the health benefits of nature and systematically test environmental psychology theory?* Poster presented at Environmental Design Research Association conference, Madison, WI.

Browning, M., Kuo, M., & Penner, M. (2017). *Does teaching children outdoors in greenspace improve their classroom engagement after they return indoors? A study of 3rd graders' time-on-task behavior following indoor and outdoor environmental science lessons in a public environmental magnet school.* Presentation at Environmental Design Research Association conference, Madison, WI.

Kuo, M., Wolf, K., Browning, M., & Van den Eeden, S. (2017). *Do health care savings grow on trees? A new line of investigation for environment design research.* Panel presentation at Environmental Design Research Association conference, Madison, WI.

GRANTS AND CONTRACTS

GRANT IMPACT

10 Grants as PI

13 External Funds Secured (Average is 2 per year)

Total Funding Secured: \$894,794

External Grants and Contracts

2011	OUTDOOR FOUNDATION Appalachian Trail Millennial Youth Led Expeditions Youth Engagement Grant Matthew Browning, Tara Arthur (Children & Nature Network) Washington, DC \$2,500
2011	AMERICAN SWEDISH INSTITUTE Advancing sustainable land management to connect children with nature Matthew Browning Malmberg Fellowship Award, Minneapolis, MN \$10,000
2011	THE NORTH FACE Natural Leaders Network Legacy Camp Juan Martinez (Children & Nature Network), Matthew Browning (10% of effort) Alameda, CA \$25,000

- 2012 **THE NORTH FACE**
Natural Leaders Network Legacy Camp
Juan Martinez (Children & Nature Network), Matthew Browning (10% of effort)
Alameda, CA
\$75,000
- 2012 **CLEMSON UNIVERSITY**
Measuring possible concerns about bringing children to nature
Matthew Browning
US Play Coalition Seed Grant, Clemson, SC
\$3,000
- 2012-13 **U.S. FISH & WILDLIFE SERVICE**
Appalachian Trail Millennial Youth Led Expeditions Planning Grant
Matthew Browning, Tara Arthur (Children & Nature Network)
Shepherdstown, WV
\$8,000
- 2012-13 **NATIONAL PARK SERVICE**
Appalachian Trail Millennial Youth Led Expeditions Planning Grant
Matthew Browning, Tara Arthur (Children & Nature Network)
Washington, DC
\$8,000
- 2015-17 **USDA FOREST SERVICE NORTHERN RESEARCH STATION**
Hierarchical linear modeling of green and school performance
Ming Kuo (NRES), Matthew Browning (40% of effort), Lynne Westphal (Forest Service)
Cooperative Agreement with UIUC, Evanston, IL
\$19,757
- 2016 **NATIONAL GREAT RIVERS RESEARCH AND EDUCATION CENTER**
Investigating the human dimensions of aquatic invasive species Part A
Carena Van Riper (NRES), Matthew Browning (50%)
Internship Program, Alton, IL
\$6,500
- 2016 **NATIONAL GREAT RIVERS RESEARCH AND EDUCATION CENTER**
Investigating the human dimensions of aquatic invasive species Part B
Matthew Browning, Carena Van Riper (NRES)
Internship Program, Alton, IL
\$6,500
- 2016 **MIDWEST BIG DATA HUB**
Connecting MBDH to health insurance company big data
Matthew Browning
Computing Community Consortium Seed Funding, Champaign, IL
\$7,000
- 2016-19 **USDA FOREST SERVICE**
Urban forestry's return on investment
Matthew Browning, Ming Kuo (NRES), Jonathan Greenberg (University of Nevada Reno),
Stephen Van Den Eeden (Kaiser Permanente)
Natl. Community and Forestry Advisory Council Cost-Share Grant, Washington, D.C.
\$647,552

NOTE. This amount is comprised of \$278,383 awarded from the Forest Service, \$169,353 matched from nine partnering organizations and \$199,816 of in-kind support from UIUC in the form of research percentage of salary, start-up RA support, etc.

Internal Grants and Contracts

- 2011 **YALE UNIVERSITY**
Children & Nature Network Summer Research Assistantship
Matthew Browning
Berkley Conservation Scholarship, Seed Grant Program, Champaign, IL
\$6,000
- 2016-17 **CENTER FOR HEALTH, AGING, AND DISABILITY**
Tech of healing: Simulated natural environments in virtual reality
Matthew Browning, Stephen LaValle (CS)
Seed Grant Program, Champaign, IL
\$20,000
- 2017-19 **FAMILY RESILIENCY CENTER**
Elucidating the role of the human and environmental microbiota
Naiman Khan (KCH), Matthew Browning (20%), Andiara Schwingel (KCH), Hannah
Holscher (Food Science and Human Nutrition, UIUC)
Seed Grant Program, Champaign, IL
\$49,985

Grants in Review

- 2018-20 **NATL. CNT. FOR COMPLEMENTARY AND INTEGRATIVE HEALTH R34**
Nature immersion in smartphone virtual reality as treatment for depression and anxiety
Matthew Browning, Wendy Heller (PSYC), Tim Bruce (UIC College of Medicine Peoria)
\$714,360
- 2018-23 **NATIONAL INSTITUTES OF HEALTH RO1**
Urban greenness and cardiovascular health
Aruni Bhatnagar (Univ of Louisville), Kristina Zierold (Univ of Louisville), Joy Hart (Univ of
Louisville), Shesh Rai (Univ of Louisville), Andrew DeFlippis (Univ of Louisville), Jay
Turner (Washington Univ), Robert McDonald (The Nature Conservancy), Daniel Fleischer
(Hyphae Design Lab), Brent Buckman (Hyphae Design Lab), Rachel Keith (Univ of
Louisville), Matthew Browning (5% of effort), Michelle Kondo (USDA), Nora Davis
(USDA)
\$2,499,995

TEACHING AND MENTORSHIP

Instructor on Record Courses in Person

RST 370: Research Methods & Analysis, UIUC (Spring 2018)
RST 199: Management in RST, UIUC (Spring 2017)
RST 370: Research Methods, UIUC (Spring 2016)
RST 429: Contemporary Issues in Leisure Services, UIUC (Fall 2015)
FOR 3524: Environmental Interpretation, Virginia Tech (Spring 2014)

Instructor on Record Online Courses

RST 503: Advanced Research Methods, UIUC (Online, Spring 2018)
RST 242: Nature and American Culture, UIUC (Online, Fall 2017)
RST 242: Nature and American Culture, UIUC (Online, Summer 2017)
RST 501: Concepts and Applications in RST, UIUC (Online, Fall 2016)
RST 503: Advanced Research Methods, UIUC (Online, Summer 2016)

Courses as Teaching Assistant

FOR 3574: Environmental Education Service Learning, Virginia Tech (Fall 2013)
FOR 3524: Environmental Interpretation, Virginia Tech (Spring 2013)
FOR 3574: Environmental Education Service Learning, Virginia Tech (Fall 2012)
EEB 123L: Principles of Evolution, Ecology, and Behavior Lab, Yale (Spring 2012)
CHEM 116L: General Chemistry Lab, Yale (Fall 2011)
EEB 123L: Principles of Evolution, Ecology, and Behavior Lab, Yale (Spring 2011)

Guest Lectures in University Courses

RST 410: Administration of Leisure Services, UIUC (Fall 2017)
RST 502: Critical Issues in Recreation and Park Management, UIUC (Fall 2016)
RST 101: Orientation to Leisure Studies, UIUC (Spring 2016)
RST 120: Foundations of Community Recreation, UIUC (Spring 2016)
RST 340: Facility Management, UIUC (Spring 2016)
RST 217: Public Recreation, UIUC (Fall 2015)
FOR 3574: Environmental Education Service Learning, Virginia Tech (Fall 2013)
FOR 3524: Environmental Interpretation, Virginia Tech (Spring 2013)
FOR 3574: Environmental Education Service Learning, Virginia Tech (Fall 2012)
EEB 123: Principles of Evolution, Ecology, and Behavior, Yale (Spring 2012)
EEB 123: Principles of Evolution, Ecology, and Behavior, Yale (Spring 2011)

Graduate Student Committees

Doug Becker (NRES) advisor (2016-present)
Robin Lizzo (RST) committee member (2017-present)
Fatemeh Saeidi-Rizi (LA) committee member (2017-present)
Kangjae Lee (INFO) committee member (2017-present)
Katherine Mimnaugh (NRES) advisor (2015-present)

Undergraduate Student Supervised

Grace Merrett (RST) internship supervisor (2016)
Reanna Kayser (NRES) internship supervisor (2016)
Courtney Andrew (RST) James Scholar supervisor (2017)
Mitchell Fransen (RST) independent study supervisor (2017 - present)

Courses Developed

2017

RST 242 NATURE AND AMERICAN VALUES

The goal of this course is to help undergraduate students understand, appreciate, and critique personal and U.S. cultural values associated with the natural environments. A secondary goal is to help students understand contemporary perspectives regarding land-use decisions and American natural resource policies. The course was significantly revised to integrate student engagement activities, such as debates and small group activities, within the weekly discussion sessions. New and additional learning materials

(readings, videos) in order to further enhance the fulfillment of general education requirements and update their relevance to students. Based upon student feedback, weekly out of class assignments were revamped to adapt to the strengths of the online format. Since updating, the course has grown to the university maximum enrollment of 750 students.

Teaching Certificates Held

2009 - NOW **ENVIRONMENTAL EDUCATION**
N.C. Dept. of Natural Resources, Raleigh, NC

2009 - NOW **MIDDLE GRADES SCIENCES EDUCATION**
Western Carolina University, Cullowhee, NC

SERVICE

Offices Held in Professional Societies

2013-15 **GEORGE WRIGHT SOCIETY BOARD OF DIRECTORS**
This is the leading professional organization that connects environmental researchers with natural resource and protected area managers in North America. I was elected to be the Graduate Student Liaison to the Board of Directors. In this position, I represented and communicated perspectives from other graduate students and student chapters across the United States, assisted with planning the 2015 conference, and assisted in developing programming and educational materials for the Society.

Journal Reviewer

Annals of Leisure Research (1 in 2017)
Behavioral Sciences (1 in 2017)
Conservation Biology (1 in 2017)
Environmental Education Research (1 in 2016, 1 in 2017)
Int. J. of Environ. Research & Public Health (1 in 2015)
Journal of Environmental Planning and Management (1 in 2016)
Journal of Park and Recreation Administration (1 in 2017)
Leisure Sciences (1 in 2016)
Population Health (1 in 2017)
Society and Natural Resources (1 in 2016)

University Committees

RST Graduate Studies Committee (2015-present)
RST Environ. Policy Assist. Professor Search Committee (2016-17)
RST Head's Advisory Board (2016-present)
RST Doctoral Student Teaching Working Group Committee (2017-present)
AHS Center for Wounded Veterans Director Search Committee (2016)