



DANIELLE RACKE

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Educational expertise

Train-the-trainer workshops | Staff and volunteer training | Environmental education | Nature-based and interdisciplinary curriculum design | Audiences: K-12 educators, non-formal educators, youth, adult, family | Mentorship | Single-grade and mixed-age groups | Small, medium, and large (26-75 people) groups | Formats: Workshop, lecture, outdoor, classroom, nonformal, formal

Ecological expertise

Ecology | Biology | Evolutionary biology | Population ecology | Experimental design | Citizen Science | Research experience in seven habitat types, specializing in woodland and forest habitats in the eastern United States | Research experience with woody and herbaceous plants, arthropods, reptiles, birds, small mammals | Written, oral, and poster presentation skills

Leadership

Professional Leadership & Management

Owner/Facilitator/Consultant, Explore Nature By Nurture LLC, Lynchburg, VA
2023 – present

Project Co-Chair, Ecological Research as Education Network, a National Network
July 2021 – present

Board Member, 500-Year Forest Foundation, Charlottesville, VA
September 2019 – present

Basic Training Class Coordinator & Instructor and Concurrent Board Member, Central Virginia Master Naturalist, Lynchburg, VA
November 2021 – November 2022

Certification Committee Chair and Concurrent Board Member, Virginia Association of Environmental Education, Richmond, VA
August 2018 – July 2020

Research Coordinator & Education Programs Manager, Claytor Nature Center of University of Lynchburg, Lynchburg, VA 24501
July 2021 – February 2023

Education Programs Manager & Instructor, Claytor Nature Center of University of Lynchburg, Lynchburg, VA 24501
September 2015 – July 2021

Lead Research Technician, University of Wisconsin, New Ellenton, SC
August 2010 – August 2011

Lab Manager, University of North Carolina, Chapel Hill, NC
May 2007 – August 2008

Student Leadership

University of Virginia, Graduate School of Arts and Sciences Council
2012-2014

- Chair (elected) of the Finance Committee
- Member (volunteer) of the Initiatives Committee
- Representative (volunteer) for the Biology Department

Western Kentucky University
2008-2010

- Co-founder of WKU Eco Club, an ESA SEEDS chapter (Ecological Society of America: Strategy for Ecology Education, Diversity, and Sustainability)
- President (elected), Biology Graduate Student Society, Biology Department
- Student Representative (elected), Ogden College of Arts and Sciences, University Graduate Council
- Member (volunteer), Graduate Student Research Funding Committee, University Graduate Council

Knox College
2002-2006

- Secretary (elected) of Mortar Board (national honor society)
- Co-captain (elected) of Women's Ultimate Frisbee team (student-run team)
- Section Leader (appointed) of Knox Jazz Band low brass section

Instruction

Facilitator for Partners

Virginia Save Our Streams Trainer, since 2023

Virginia Master Naturalist Educator's Bureau, since 2022

North American Association of Environmental Education Guidelines Trainers Bureau, since 2019

Teaching, Evaluation, and Assessment

Basic Training Class Coordinator & Instructor, Central Virginia Master Naturalist, Lynchburg, VA
2021 – present

Courses taught: Volunteer Basic Training Class, revised

Assessment Writer, Macmillan Science and Education Publishers
2017 - current

Projects: Pierce, B.A. Genetics: A Conceptual Approach, 7th Ed.
Evert, R.F. and S. E. Eichhorn, Raven Biology of Plants, 8th Ed.
Phelan, J. What Is Life? A Guide to Biology with Physiology, 5th Ed.
Shuster, M, J. Vigna, M. Tontono, Scientific American Biology for a Changing World with Physiology, 4th Ed.
Reylea, R.E., Ecology: The Economy of Nature; 9th Ed.
Ricklefs, R.E., Ecology: The Economy of Nature; 8th Ed.
Zimmer, C. and D. Emlen, Evolution: Making Sense of Life; 3rd Ed.

Biology Instructor, Central Virginia Community College, Lynchburg, VA
Jan – May 2023

Courses taught: General Biology Lecture & Lab, online

Environmental Science Instructor, University of Lynchburg (Lynchburg College), Lynchburg, VA
June 2018

Courses taught: ENVS 398: Environmental Science and Outdoor Education

Teacher, *Summer Enrichment Program*, University of Virginia, Charlottesville, VA
June – July 2015

Courses taught: Do What You Love! The Many Faces of Biology
Biology: No Escape!

Teaching Assistant, *Summer Enrichment Program*, University of Virginia, Charlottesville, VA
February 2015

Courses taught: Psychology of Perception

Biology Instructor, Central Virginia Community College, Lynchburg, VA
Jan – May 2015

Courses taught: General Biology Lecture & Lab

Anatomy & Physiology Lab Instructor, Piedmont Virginia Community College, Charlottesville, VA
Jan – May 2015

Courses taught: Anatomy and Physiology II Lab

Graduate Teaching Assistant, University of Virginia, Charlottesville, VA
2012 – 2014

Courses taught: Introduction to Biology: Cell Biology and Genetics Lab (F 2013, F 2014)

Biology of Infectious Disease (Sp 2014)

Introduction to Biology: Organismal and Evolutionary Biology (Sp 2013)

Introduction to Biology: Cell Biology and Genetics (F 2012)

Graduate Teaching Associate, Western Kentucky University, Bowling Green, KY
2008 – 2010

Courses taught: Biological Concepts, Evolution, Diversity, Ecology Lab (Su 2009, F 2009, Sp 2010)

Educational Cooperative/Internship with Mammoth Cave (service-learning) (F 2009)

Selected Topics in Biology: Biology in the Movies (F 2009)

General Biology Lab (F 2008, Sp 2009)

Peer Teaching Assistant, Knox College, Galesburg, IL
2002 – 2006

Courses taught: Animal Behavior Lab (Sp 2005)

Evolution, Ecology & Biodiversity (F 2005)

Mentored Interns

University of Lynchburg (formerly Lynchburg College), Lynchburg, VA

Amy Edge, Graduate, education

Jan 2018 – May 2018

- Education project: Development of a habitat and animal-focused backpack program for preschool and kindergarten students

Matthew Aadland, Graduate, biology

Jan 2017 – May 2017

- Research project: A study of soil seed bank composition and diversity in a clear-cut forest

Ashlee' Stinnett, Undergraduate, education (from *Randolph College)

Jan 2017 – May 2017

- Education project: Development of an adaptation-focused program for 2nd-3rd grade students and resources for a water-quality program for 1st-3rd grade students

Brittany O'Connell, Undergraduate, education (Bonner Leader program)

Jan 2016 – May 2016

- Education project: Development of a geology-focused program and resources for 5th grade students

University of Virginia, Charlottesville, VA

Kelsie Hunnicutt, Undergraduate, Distinguished Majors Program Jan 2014 – May 2015

- Research project: Relationships among inbreeding rates, floral morphology, and early life fitness in the wetland plant, *Mimulus ringens*
- Awards/Honors: Small Research and Travel Grant (\$1500), Ingrassia Research Grant (\$1500)

Shegufta Razzaque, Undergraduate Sept 2013 – May 2014

- Research paper: Correlations among floral traits in *Mimulus* plants

Western Kentucky University, Bowling Green, KY

Victoria Gilkison, High School Dual Enrollment Sept 2009 – May 2010

- Research poster: Ecology: Ensuring economic sustainability of American ginseng through ecological principles

Sara Wigginton, Undergraduate Sept 2009 – May 2010

- Research poster: Ecology of American ginseng at Mammoth Cave National Park
- Awards/Honors: 1st place presenter in Biology Research section of WKU Research Conference

Research

Projects

Tick community composition and its relationship with urbanization across scales. Ecological Research in Education Network. 2021 – current.

Abundance and composition of flying insect communities. University of Wisconsin research collaboration. 2021 – current.

Restoration of dispersal-limited herbs in mesic hardwood forests. Western Kentucky University. 2009 – current.

Population ecology of the Allegheny monkeyflower. University of Virginia, Charlottesville, VA. 2012-2014.

Inventory of herbaceous species at Savannah River Site. Duncan and Duncan Wetland and Endangered Species Training, New Ellenton, SC. 2011.

Population ecology and field characteristics of American ginseng. Western Kentucky University and Mammoth Cave National Park. 2009.

Effects of male birdsong on immediate early genes and reproductive pathways. University of North Carolina, Chapel Hill, NC, 2007 – 2008.

Effects of forest canopy gaps on plant growth and composition. Duke University, Durham, NC. 2006 – 2007.

Song repertoire and singing diversity in the red-eyed vireo. Knox College, Galesburg, IL. 2005 – 2006.

Foraging behaviors of a common lizard in Tanzania. University of Dar es Salaam, Tanzania. 2004.

Publications, posters, and oral presentations

[§]Undergraduate co-author; [†]High school co-author

Dunn, PO, et al. (2023). Extensive regional variation in the phenology of insects and their response to temperature across North America. *Ecology*, 104 (5). DOI: 10.1002/ecy.4036

Racke, D. (2019, Oct). Environmental Education: behavior changes inside and out. *Phi Theta Kappa Regional Honors Institute*. Liberty University, Lynchburg, VA. (Invited talk)

AJ Meier, **DM Racke**, EJ Mikulcik. (2019, Aug). *Dispersal limitation of Phacelia purshii*. Ecological Society of America annual conference, Louisville, KY. (Poster presentation)

Racke, DM and AJ Meier. (2018, Aug). Overcoming inertia: Restoring vernal herbs to disturbed forests. *Ecological Society of America annual conference*. New Orleans, LA. (Oral presentation)

Racke, D. (2014). *Floral Traits and Autonomous Seed Set Across Populations of a Mixed-Mating Species*. Charlottesville, VA: University of Virginia, Biology - Graduate School of Arts and Sciences, MA (Master of Arts), 2014.

Racke, DM and AJ Meier. (2013, Aug). *Experimental evidence for dispersal limitation of multiple vernal herbaceous species in mesic hardwood forests*. Ecological Society of America annual conference, Minneapolis, MN. (Poster presentation)

Racke, DM and AJ Meier. (2011, Aug). Environmental factors differentially affect four mesic forest herbs. *Ecological Society of America annual conference*. Austin, TX. (Oral presentation)

Racke, DM and AJ Meier. Aug 2010. Investigating establishment and dispersal limitations of vernal herbs in secondary forests: a transplant study. *Ecological Society of America annual conference*. Philadelphia, PA. (Oral presentation)

Racke, DM. (2010). *Reestablishing diversity in our hardwood forests: a transplant study of five spring-flowering herbs*. Bowling Green, KY: Western Kentucky University, Masters Theses & Specialist Projects, MS (Master of Science), 2010.

Wigginton[§], SK, VA Gilkison[†], **DM Racke**, L Johnson, AJ Meier. (2010, Feb). *Ecology of American ginseng at Mammoth Cave National Park*. WKU Student Research Conference sponsored by Sigma Xi, Bowling Green, KY. (Poster presentation)

Gilkison[†], VA, SK Wigginton[§], **DM Racke**, L Johnson, AJ Meier. (2010, Jan). *Ecology: Ensuring economic sustainability of American ginseng through ecological principles*. Posters-at-the-Capitol, Frankfort, KY. (Poster presentation)

Salvante, KG, **DM Racke**, CR Campbell, KW Sockman. (2010). Plasticity in singing effort and its relationship with monoamine metabolism in the songbird telencephalon. *Developmental Neurobiology*, 70 (1), 41-57.

Racke, DM, SK Wigginton[§], VA Gilkison[†], AJ Meier, L Johnson. (2009, Nov). Demographics of American ginseng (*Panax quinquefolius*) at Mammoth Cave National Park. *Kentucky Academy of Science annual conference*. Highland Heights, KY. (Oral presentation)

Sockman, KW, KG Salvante, **DM Racke**, CR Campbell, BA Whitman. (2009). Song competition changes the brain and behaviour of a male songbird. *Journal of Experimental Biology* 212, 2411-2418.*
*Sockman, KW, KG Salvante, **DM Racke**, CR Campbell, BA Whitman. (2010). **Corrigendum for** Sockman et al., *J Exp Biol* 212 (15) 2411-2418. *Journal of Experimental Biology* 213, 358.

Salvante, KG, **DM Racke**, CR Campbell, BA Whitman, and KW Sockman. (2008, Nov). The effects of intrinsic and extrinsic factors on vocal signaling effort and the mediating role of central monoamines in songbirds. *Society for Neuroscience conference*. Washington, D.C. (Oral presentation)

Racke, DM and DJ Mountjoy. (2006, Aug). Song repertoire and singing diversity in the red-eyed vireo, *Vireo olivaceus*. *Animal Behavior Society*. Snowbird, UT. Oral presentation

Racke, DM. (2006). *Song repertoire and singing diversity in the Red-eyed vireo, Vireo olivaceus*. Galesburg, IL: Knox College, Honors Thesis, BA (Bachelor of Arts), 2006.

Racke, DM. (2005, Aug). Song repertoire size and its correlation with territory size and breeding success in the Red-Eyed Vireo. *Knox College Summer Science Seminar*. Galesburg, IL. (Oral presentation)

Racke, DM. (2004, Dec). *Response of Agama agama to common pollution materials when prey available*. Student Research Conference, Dar es Salaam, Tanzania. Poster presentation

Professional Associations

Association of Nature Center Administrators	2022 – current
Izaak Walton League of America	2022 – current
Central Virginia Master Naturalist, Board member	2021 – current

500 Year Forest Foundation, Board member	2019 – current
North American Association for Environmental Education, member	2018 – current
Ecological Society of America	2009 – current

Education

Degrees

M.A. Ecology and Evolution; University of Virginia, Charlottesville, VA	Dec 2014
M.S. Plant Ecology; Western Kentucky University, Bowling Green, KY	Aug 2010
B.A. Music (Performance); Knox College, Galesburg, IL	Jun 2006
B.A. Biology (Animal Behavior) with honors; Knox College, Galesburg, IL	Jun 2006

Certifications

- Forest Schools Level I Certification, Archimedes Earth, in process.
- American Heart Association First Aid and CPR certification, University of Lynchburg CPR Training Center, exp Nov 2024.
- Virginia Master Naturalist, Central Virginia chapter, basic training course, Fall 2015.
- Basic Wetland Delineation, Duncan and Duncan Wetland and Endangered Species Training (40 hours), Oct 2011.
- Red Card, Firefighter Type II. Initial training (40 hours) and arduous pack test, Mammoth Cave National Park, Jan 2009. Renewal, Savannah River Forest, exp 2013.
- Basic Skills for College Teaching Program, Western Kentucky University Faculty Center for Excellence (3 learning modules and 3 program seminars), Jul 2009.

Additional Training

Courses

- M.B.A. coursework, University of Lynchburg, Lynchburg, VA, 2018-2022.
- Lynchburg Co-Starters, Lynchburg Economic Development, Fall 2019
- University of Lynchburg: Grant Writing and Fundraising, Spring 2019

Workshops

- Strategic Planning for Herbaria: Society of Herbarium Curators and iDigBio, May 2022
- Guidelines for Excellence: Train the Trainer Workshop. North American Association for Environmental Education. Claytor Nature Center, Aug 2019.
- Building the Foundation. Center for Diversity and Environment. Claytor Nature Center, Jul 2019.
- Designing Effective and Innovative Courses: Course Design Tutorial. On the Cutting Edge, (on-line tools modified from face-to-face four day workshop, Dec 2014
- Communicating Science Workshop. American Association for the Advancement of Science. University of Virginia, Mar 2014.
- NSF Workshop on Science Journalism. Science Journalism: From ‘Little Story on the Prairie’ to Worldwide News. National Science Foundation. Ecological Society of America Annual Conference, Aug 2013.