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## EDUCATION

Ph.D., Ecology and Evolutionary Biology (EEB) (Minor in Statistics), Iowa State University (1996) Dissertation: "The ecology of *Dicranopteris linearis* on windward Mauna Loa, Hawaii, U.S.A." Fellowships: PACE Award, AAUW; EEB Assistantship. Advisors: D. R. Farrar and T. W. Jurik.

M.S., Botany (Minor in Soil Science), University of Florida, Gainesville, FL (UF) (1983)  
Thesis: "Nutrient leaching during large storms in tropical successional ecosystems."  
UF Graduate Fellowship. Advisor: J. J. Ewel.

B.S., Natural Resources (with high honors), Cornell University, Ithaca, NY (1976)  
Senior thesis: "A Flora of the Arnot Teaching & Research Forest." Advisor: E. Hardy.

## RESEARCH INTERESTS

My general research interest is in terrestrial ecosystem ecology, with an emphasis on the biogeochemistry of tropical and managed ecosystems. More specifically, my research addresses relationships between plant species traits, soil, and ecosystem processes, focusing on carbon and nutrient cycling. I integrate field, laboratory and process-based modeling studies in various ecosystems, from row-crop agriculture in the Midwestern U.S., to rainforests and plantations in Costa Rica, to ancient agroforestry systems in Southwest India. I love to translate the research results into user-friendly, hands-on, interactive educational modeling tools. My studies are designed to provide insight into the mechanisms by which ecosystem management, and its improvements, have consequences from local to global scales.

## PROFESSIONAL APPOINTMENTS

2014 to present	Adjunct Associate Professor, Iowa State University, Ames, IA
2003-2014	Affiliate Assistant Professor, Iowa State University, Ames, IA
2012	Expert, National Science Foundation (NSF), Biology Directorate, Division of Environmental Biology (DEB), Ecosystem Science cluster (ES), Arlington, VA
2006-2009	Program Director, NSF-DEB Ecology and ES clusters, Arlington, VA
2005	Fulbright scholar, Kerala Agricultural University, Kerala, India
2001-2003	USDA-ARS Postdoctoral Fellow, USDA-ARS National Laboratory for Agriculture and the Environment (NLAE), Ames, IA
1999-2001	Postdoctoral Research Fellow, Iowa State University and USDA-ARS-NLAE
1997-1999	Lecturer, Introductory Biology, Iowa State University, Ames, IA
1996-1997	Postdoctoral Researcher, Jawaharlal Nehru University, New Delhi, India
1992-1996	Research and Teaching Assistant, Iowa State University, Ames, IA
1991-1992	Research Assistant, Stanford University, Stanford, CA
1988-1990	Research Assistant, Ecosystems Center, Woods Hole, MA
1986-1987	Research Assistant, Duke University, Durham, NC
1984	Research Associate, Duke University, Durham NC
1980-1983	Research and Teaching Assistant, University of Florida, Gainesville, FL
1978-1980	Associate Scientist, Ecological Analysts, Concord, CA
1976-1977	Research Assistant, NASA's Remote Sensing Program at Cornell, Ithaca, NY

## **PROFESSIONAL EXPERIENCE (last 20 years)**

### **Adjunct Associate Professor, 2014 – present**

Department of Natural Resource Ecology and Management, Iowa State University.

Supervisor: Dr. Steven Dinsmore

Duties: Appointment is 30% teaching, 32% research, 33% service to the Office of the Vice President for Research (VPR), and 5% other institutional service. I teach Agroforestry, Ecology, and Grant Writing. My research concerns ecosystem ecology in Midwestern agricultural systems and tropical rainforests. As the faculty advisor in the newly developed Grants Hub within the VPR, this service focuses on providing editing services for faculty and advising the Grants Hub on matters related to grant writing.

### **Affiliate Assistant Professor, 2003-2014**

Department of Natural Resource Ecology and Management, Iowa State University

Supervisors: Dr. Sue Blodgett (previously Dr. Mike Kelly, Dr. Joe Colletti, Dr. David Engle, Dr. Richard Hall, and Dr. Steven Jungst.

Duties: In this unsalaried, 100% soft-money position, the goal was to establish and maintain an extramurally funded research program. Activities included: determination of appropriate funding sources, preparation and submission of grant proposals, and subsequent administration, management, and oversight of the research, reporting, publication, and communication of results. My funding success rate was >50% in a field where the rate was generally <10%. Funding of awards was in excess of \$4.9 million. As a result, research funds supported >10 Principal Investigators, three graduate students, 24 undergraduate students, three K-12 teachers, and one high school student, over half of which were from under-represented groups. Over 30 publications have resulted among these projects. My personal Web of Science ISI citation index was 470.

### **Program Director, 2006-2009**

National Science Foundation, Division of Environmental Biology

Supervisor: Dr. Penny Firth

Duties: This position involved: (1) management of the merit-review system of submitted research proposals, including panel reviews, post-award evaluations, financial accounting, and increasing the role of under-represented groups; (2) development of short- and long-range programmatic planning, policy implementation, and maintenance of organizational performance; (3) advising on and developing special program initiatives, including work on multi-disciplinary task forces within NSF and across other Federal agencies; and (4) communication of the outcome of funded research to superiors and to the general public. This also involved management of the \$6 million budget for research funded through DEB. I participated in a working group that developed a proposal for 'An International Forum on Complexity Science, which was approved by the U.S. Office of Science and Technology Policy. Ultimately, the Complexity Science Forum was created, conducted through the Organization for Economic Cooperation and Development.

### **Fulbright Scholar, 2005**

Kerala Agricultural University, Kerala, India.

Sponsoring colleague: Dr. B. Mohan Kumar

Duties: I conducted field and laboratory research in ancient agroforestry systems in southwest India. I also provided leadership and expertise in training Indian colleagues in simulation modeling activities that will provide insights into the development of more sustainable management practices for agricultural systems. Data were integrated from my previous research in Kerala, and studies conducted during the Fulbright, into the CENTURY model, and sustainable systems were identified through the modeling activities.

**USDA-ARS Postdoctoral Research Fellow, 2001-2003**

USDA-ARS National Laboratory for Agriculture and the Environment (NLAE).

Supervisor: Dr. David Laird

Duties: In this 100% research position, the objectives were to quantify the effects of long-term N fertilization and crop rotation on the carbon balance and soil fertility under four levels of N fertilization and four crop rotations. Responsibilities concerned all phases of this research, including: design and planning of experiments; development of field protocols and sampling; laboratory analyses; data analysis, and manuscript preparation and submission. As a result, management practices more effective than N fertilizer use were identified, i.e., selection of crops with high belowground productivity.

**Postdoctoral Researcher, 1999-2001**

Department of Botany, Iowa State University and USDA-ARS-NLAE.

Supervisor: Dr. Cynthia Cambardella

Duties: In this 100% soft-money position, I initiated and maintained an externally funded research program. This experience paved the way for my future research in both Iowa and Costa Rica.

**Lecturer, 1997-1999**

Department of Botany, Iowa State University

Supervisor: Dr. David Oliver

Duties: I taught Introductory Biology. The teaching goals were to foster students' abilities to reason logically and critically, and to develop higher-quality problem solving and decision-making capabilities.

**Postdoctoral Researcher, 1996-1997**

Environmental Science Department, Jawaharlal Nehru University, New Delhi, India and Kerala Forest Research Institute, Kerala, India.

Supervisor: Dr. P. S. Ramakrishnan

Duties: This self-initiated research in ancient agroecosystems of southwest (Kerala) India addressed the long-term relationships between plant-species richness and soil fertility in a region with one of the highest population densities on earth. This experience provided the research background, cultural ties, and networking needed to lay the groundwork for the Fulbright Scholarship described above.

## TEACHING

### Courses Taught

*Iowa State University* (last 2 years in bold)

**Ecology** (BIOL 312, A ECL 312, 4 credits, Undergraduate)

**Fall 2016:** I co-taught the lecture section of this course for 296 students.

**Fall 2017-Present:** I developed a separate Team-Based Learning section for the lecture part of this course and continue to teach it.

**Grant-writing for Graduate Students**

**Spring 2016:** (EEB 698 seminar). I developed this new course, 1 credit, 20 students.

**Spring 2017-Present:** (GR ST/ENGL 569) I have updated this 1-credit course that is now cross-listed in the English Dept.

**Agroforestry Systems; Local and Global Perspectives** (NREM/SUSTAG 471 for

Undergraduates, 571 for Graduate students, 3 credits). I re-developed this course into a new format so that it can be taught in spring term rather than fall. Taught in Spring 2015, 2016, 2018, 2020.

**Field Ecology** (NREM 496B Section 3 & NREM 311x, 4 credits). Co-developed and co-taught this course at the French Conservation Education Camp in Montana in 2017-present.

Special Topics: Forestry (NREM 590B, 3 credits, 1 student). Mentored independent study.  
Introductory Biology (BIOL 109, 3 credits, 250 undergraduate students). Lecturer. (1998-99)  
Dendrology (For 356, 4 credits) Teaching Assistant. (1997)  
Introductory Ecology (BIOL 312, 4 credits) Teaching Assistant. (1994)  
Field Botany (Bot. 202, 3 credits) Teaching Assistant.(1996)  
Biology of Plants (Bot. 102, 3 credits) Teaching Assistant. (1995-96)  
Introductory Botany (Bot. 207, 3 credits), Teaching Assistant. (1995)

*Courses taught at other Institutions (all for undergraduate students)*

Short Course: Tropical Field Biology in Costa Rica. I developed, organized and taught this field course for 12 undergraduate students from under-represented groups. Dr. Anjali Kumar co-instructed. Credit was variable, as determined by student's home institutions. Sponsored through Duke University. (May-June 2012)  
Plant Physiology (Bot 5055, 3 credits). Teaching Assistant. University of Florida (1983)  
Introductory Ecology (PCB 3034, 3 credits). Teaching Assistant. University of Florida (1982)  
Plant Systematics (Biol. 371, 3 credits). Teaching Assistant. Cornell University (1975)

**Professional Development in Teaching**

Participated in the following workshops, seminars, and Learning Communities

ISU's Inclusive Classroom Pre-Workshop (CALs) (Sept. 2020)  
American Museum of Natural History – Network of Conservation Educators and Practitioners: Virtual Teaching and Learning Studio (July 1, 8, 15, & 22, 2020)  
ISU CELT's Online TBL Workshop (June 23-25, 2020)  
Faculty Mentoring Network organized by the Ecological Society of America (ESA): Data Access - Inclusive Pedagogy (Jan – Apr 2020)  
ISU CELT: Award-Winning Faculty Series: "Teaching Playful Communication: Inspiration from a visual studio classroom" by April Katz. (April 2019)  
"Workshop: Ensuring Student Buy-in for Pre-Learning in Flipped or Team-based Learning Classes" (September 2018)  
Workshops for Science Communication Fellowship through NSF's Portal to the Public Program at Reiman Gardens. (Spring Semester 2018)  
"Resources for Ecology Education – Fair and Share" (REEFS). Workshop at the Ecological Society of America Annual Meeting. (August, 2017)  
"Supporting International Students and Scholars and Addressing Xenophobia and Nativism." (September 2016)  
CELT Scholarship of Teaching and Learning SoTL Scholar. Accepted into Program, May 2016. Completed the training in 2017.  
"The Research-Based Flipped Classroom: Team-Based Learning," 5-week session offered through Center for Excellence in Learning and Teaching (CELT) at ISU. (Spring 2015 and Spring 2016)  
"Project Learn Workshop" (January 5-6, 2016)  
CELT Learning Communities participant for: 1) Team-Based Learning (TBL) Scholars; 2) TBL Learning Community; 3) Thinkspace Learning Community. (2014 to present)  
"Communicating Science: Tools and Solutions. A workshop of the NSF-RCN "Tropical Forests in a Changing World." Workshop at La Selva Biological Station (April 2011)  
"Active Learning and Teaching in Introductory Science Courses: What is it? How do we assess student learning?" Workshop at the ESA Annual Meeting. (August, 1998)

## STUDENT MENTORING

### Undergraduate Mentoring

NSF - Research Experience for Undergraduates (REU) mentees:

Leah Beck (ISU, 2013); Julio Renteria (ISU, 2013); Tyler Wright (Bennett College, an LSAMPS college, 2013); Brian Folt, Ohio University (2010); Brenda Campbell (Peninsula College, 2008); James Donahey (ISU, 2005); Joshua DeMarree (ISU, 2005); Johan Montero (Universidad Nacional Autonoma, Costa Rica 2005); Cassandra Koerner (University of Montana, 2005); Rachel Marek (Grinnell College, 2004); Nathan O'Leary (ISU, 2004); Melissa Arce-C. (Universidad de Costa Rica, 2004)

Iowa State University First Year Honors Program: David Erdahl (2013); Kaitlyn Murphy (2017); Neel Solanki (2018-2020)

Iowa State University McNair Program: A'lece Moore (2017-2019)

Iowa State University Program for Women in Science and Engineering: Rachel Marek (2004)

Iowa State University advisee: Cody Acevedo (2018-present)

### Graduate Students Mentored

Iowa State University (POS Committee member)

Robert Valek, Ph.D. Committee member, 2019-present

Bridgette Kirk, M.S. Co-advising with Brian Wilsey. (2016-2018). 8/18 graduation

Katherine Taylor, M.S. Co-advised with Michael Thompson and John Kovar. Student terminated program without graduating. (2012-2014)

Oscar Valverde-Barrantes, M.S. "Belowground processes in tropical plantations: Species effects on ecosystem processes." (2003-2006)

### Other institutions

Thomas A. Fox, M.S. I served as an External thesis reader. Thesis title: '*Land-use dynamics of Kerala's agroforestry systems.*' Department of Geography, McGill University, Montreal, Canada (2015)

Samantha Weintraub, Ph.D., University of Colorado. Mentored with Dr. Alan Townsend (2009-2010)

K. Chinnathambi. Ph.D. I served as an External Reader. Dissertation title: '*Studies on ecosystem processes with reference to plant functional types at the foot hills of Nagamalai in Madurai District of Tamil Nadu.*' Manonmaniam Sundaranar University, Abishekapatti, Tirunelveli, Tamil Nadu, India (1997)

### K-12 Teachers mentored on NSF Research Experience for Teachers (RET) supplements to my awards

Martin Buehler, Hastings High School, Hastings, MI (2014)

Susan Marshek, Edwards Elementary School, Ames, IA (2010)

Alejandro Melendez, Heath Middle School, Greeley, CO (2009 and 2014)

### High school student mentored on NSF Research Assistantship for High School Students (RAHSS) supplement to an award, Eden Marek, Ames High School (2010)

### ISU Student Clubs

Fulbright Student and Scholars Organization, Faculty Advisor (2013 to present)

Orchosis Ballet, Business manager (2001-2006 and 2015 to present)

## RESEARCH

### External funding by project

2019. NSF Research in Coordinated Networks-Undergraduate Biology Education. Project total, \$72,186, all to ISU. "*RCN-UBE Incubator: Development of **ALIVE**, a platform for facilitating Authentic Learning In Virtual tropical Environments.*" Role: PI (Aug 2019-July 2020).
2016. NIFA Multi-state Project No: NC1195. "*Enhancing nitrogen utilization in corn based cropping systems to increase yield, improve profitability and minimize environmental impacts.*" Role: Participant (October 2016-present)
- 2011-2015. NSF-BIO-DEB-Ecosystems Program. Project total, \$1,028,043; ISU, \$309,980. "*Collaborative Research: Belowground drivers of aboveground nutrient cycling and productivity in growing forests.*" Role: Project Lead PI (80% effort, co-wrote the proposal, overall project management in an international site, and all other aspects of the research and mentoring)
2014. Iowa Energy Center. \$99,835. "*LAMPS (Long-term assessment of Miscanthus productivity and sustainability.*" Role: Collaborator (2% effort, advising role only); PI: E. Heaton.
2014. Leopold Center for Sustainable Agriculture. \$199,379 requested. "*Long-term Assessment of Miscanthus Productivity and Sustainability (LAMPS) Proposal XP2015-12.*" Role: Collaborator (2% effort, advising role only); PI: E. Heaton.
2014. NSF-BIO-DEB-Ecosystems Program. \$30,000. Research Experience for Teachers Supplement to "*Collaborative Research: Belowground drivers of aboveground nutrient cycling and productivity in growing forests.*" Role: PI (100% effort)
2013. NSF-BIO-DEB-Ecosystems. \$15,013. Research Experience for Undergraduates Supplement to "*Collaborative Research: Belowground drivers of aboveground nutrient cycling and productivity in growing forests.*" Role: PI (100% effort)
- 2012-2013. NSF - Office of International Science and Engineering. \$5,005. "*International Planning Visit: Complex interactions of ecological and socioeconomic factors that drive sustainability of ancient South Indian agroecosystems.*" Role: PI (100% effort)
- 2007-2011. NSF-BIO-IOE. Project total, \$881,537; ISU, \$285,779 (includes REU and RET supplements). "*Collaborative research: Effects of species on forest carbon balances in lowland Costa Rica.*" Role: Project's Lead PI (60% effort, co-wrote the proposal, responsible for overall project management in international site, active in all other aspects. Co-PIs: James Raich (ISU), Bill Parton and Mike Ryan (Colorado State University)
- 2005-2010. NSF - Biocomplexity Program, Coupled Biogeochemical Cycles. Project total, \$1,638,730; ISU, \$87,969. "*Complex interactions among water, nutrients and carbon stocks and fluxes across a natural fertility gradient in tropical rain forest.*" Role: co-PI (30% effort, co-wrote the proposal and conducted the modeling); Project Lead PI: Steve Oberbauer (Florida International University)
- 2003-2007. NSF-BIO-DEB-Ecosystems. Project total: \$804,000; ISU: \$524,000; including three REU supplement awards. "*Collaborative research: Tree species effects on ecosystem processes in lowland Costa Rica.*" Role: co-PI (50% effort in all aspects). Project Lead PI: Jim Raich.
2001. International Agriculture Program, ISU Postdoctoral Grant. \$1,000. "Effects of innovative farming practices on soil carbon in the Mayan Zone of Mexico." Role: PI (100% effort)
- 1999-2001. USDA National Research Initiative. Competitive Grants Program, Postdoctoral Award. \$90,000. "*Nitrogen fertilizer effects on soil organic matter dynamics in a corn-belt agroecosystem.*" Role: PI (100% effort)

- 1998-2000. NSF-DEB-Ecosystems - Program Opportunities for Women in Research and Education (POWRE). \$75,000 "*Soil organic matter fractions and dynamics in experimental tropical ecosystems.*" Role: PI (100% effort)
- 1995-1996. Sigma Xi Grants-in-Aid of Research. \$1,500. "*The functional role of Dicranopteris linearis in Hawaiian rainforests.*" Role: Co-PI (95% effort); PI: Tom Jurik
- 1993-1995. NSF-DEB-Ecosystems - Doctoral Dissertation Improvement Grant. \$10,000. "*The ecology of Dicranopteris linearis on windward Mauna Loa.*" Role: Co-PI (95% effort); PI: Tom Jurik

Total extramural funding (excluding Collaborator-role projects): (\$4,976,970; \$1,420,230 to ISU)

#### **Internal funding (Iowa State University)**

2019. Professional Development Award from the Senior Vice President and Provost. \$500.
- 2018-2019. Miller Faculty Fellowship, ISU's Center for Excellence in Learning and Teaching. \$14,158. "Sketchnoting as a Pedagogical Tool In Ecology." Role: co-PI (40% effort). Co-PIs: Verena Paepcke-Hjeltness and Ann Gansemer-Topf
- 2017-2018. Fellowship in CELT's Scholarship of Teaching and Learning (SoTL). \$1850.
- 2015-2016. College of Agriculture and Life Sciences: Technology Advancement Committee. \$17,837. "*Development of new learning tools for teaching about carbon and nitrogen cycling in Iowa agroecosystems.*" Role: PI (95% effort). Co-PIs: L. Schulte-Moore, T. Isenhart, R. Schultz, M. Helmers.

Total internal funding: \$34,335

#### **Grants in review**

2021. NSF Research in Coordinated Networks-Undergraduate Biology Education. "*RCN-UBE: OCELOTS: A Platform for Facilitating Online Content for Experiential Learning of Tropical Systems*" \$499,997. Role: PI.

#### **Grants not funded (last three years)**

2020. NSF Research in Coordinated Networks-Undergraduate Biology Education. "*RCN-UBE: OCELOTS: A Platform for Facilitating Online Content for Experiential Learning of Tropical Systems*" \$499,895. Role: PI.
2018. NSF-GEO Geochemistry and Low Temperature Geology Program. "Collaborative Research: Tropical trees as geochemical engineers: a new framework linking secondary minerals, nutrient supply, and tree species." [\$226,280 to ISU] Role: Co-PI (40% effort) with Steven Hall (ISU) and Aaron Thompson (U. Ga).
2017. NSF-GEO Geochemistry and Low Temperature Geology Program. "*Liberation of occluded mineral nutrients by tropical trees: Linking geochemical master variables to plant species.*" [\$216,667 to ISU] Role: Co-PI (40% effort) with Steven Hall (ISU) and Aaron Thompson (U. Ga).
2017. Iowa Soybean Association. "*The soybean N credit: A mechanistic study to clarify the role of soil organic N and improve its management*" [\$72,013] Role: PI (60% effort) with Steven Hall (ISU).

Total not funded: \$1,014,855 in last 3 years (not including pre-proposals)



**Peer-reviewed articles** (36 published)

- Gansemer-Topf, A.M., Paepcke-Hjeltness, V., **Russell**, A.E., & Schiltz, J. (*In press*). "Drawing" your own conclusions: Sketchnoting as a pedagogical tool for teaching ecology. *Innovative Higher Education*.
- Russell**, A. E. 2020. A Tough Choice in Watershed Management. QUBES Educational Resources. doi:10.25334/K3ST-QW48
- Russell**, A.E. and Dailey, J.K., 2020. Gaming Ag Nitrogen Cycling. *Teaching Issues and Experiments in Ecology*, Vol. 16, Experiment #2.  
<https://tiee.esa.org/vol/v16/experiments/russell/abstract.html>
- Russell**, A.E. and Parton, W.J., 2020. Modeling the effects of global change on ecosystem processes in a tropical rainforest. *Forests* 11: 213. doi.org/10.3390/f11020213
- Russell**, A.E. and Kumar, B.M., 2019. Modeling experiments for evaluating the effects of trees, increasing temperature, and soil texture on carbon stocks in agroforestry systems in Kerala, India. *Forests*, 10(9), p.803. DOI:10.3390/f10090803. Effort: 95% design, 95% analyses, 95% writing
- Hall, S.J., **Russell**, A.E. and A'lece, R.M., 2019. Do corn-soybean rotations enhance decomposition of soil organic matter? *Plant and Soil* 444:427-442.  
DOI.org/10.1007/s11104-019-04292-7. Effort: 40% design, 40% analyses, 40% writing
- Russell**, A.E., S.N. Kivlin, & C.V. Hawkes. 2018. Tropical tree species effects on soil pH and biotic factors and the consequences for macroaggregate dynamics. *Forests* 9: 184; DOI:10.3390/f9040184. Effort: 90% design, 90% analyses, 95% writing
- Russell**, A. E., S. J. Hall & J. W. Raich. 2017. Tropical tree species traits drive cation dynamics via effects on soil pH: A proposed conceptual framework. *Ecological Monographs*. DOI: 10.1002/ecm.1274. Effort: 90% design, 100% analyses, 95% writing
- Russell**, A. E. 2014. Unexpected effects of chitin, cellulose, and lignin addition on soil dynamics in a wet tropical forest. *Ecosystems* DOI 10.1007/s10021-014-9769-1. Effort: 100% design, 100% analyses, 100% writing
- Weintraub, S. R., A. E. **Russell**, and A. R. Townsend. 2014. Native tree species regulate nitrous oxide fluxes in tropical plantations. *Ecological Applications* 24(4), 750-758.  
DOI.org/10.1890/13-1783.1. Effort: 50% design, 30% analyses, 40% writing
- Jagadamma, S., M. A. Mayes, Y. L. Zinn, G. Gísladóttir, and A. E. **Russell**. 2013. Sorption of organic carbon compounds to the fine fraction of surface and subsurface soils. *Geoderma* 213: 79–86. DOI.org/10.1016/j.geoderma.2013.07.030 Effort: 10% design, 5% analyses, 5% writing
- Russell**, A. E. and J. W. Raich. 2012. Rapidly growing tropical trees mobilize remarkable amounts of nitrogen, in ways that differ surprisingly among species. *Proceedings of the National Academy of Science*. [www.pnas.org/cgi/doi/10.1073/pnas.1204157109](http://www.pnas.org/cgi/doi/10.1073/pnas.1204157109)  
Effort: 60% design, 90% analyses, 90% writing
- Russell**, A. 2012. Rainforest carbon cycling and biodiversity: A simulation model learning tool. EcoEd Digital Library, <http://esa.org/ecoed/index.php?P=FullRecord&ID=429>.  
Effort: 100% design, 100% analyses, 100% writing
- Saatchi, S., M. Marlier, R. L. Chazdon, D. B. Clark, and A. E. **Russell**. 2011. Impact of spatial variability of tropical forest structure on radar estimation of aboveground. *Remote Sensing of Environment*, Special Issue: VEG3D. doi:10.1016/j.rse.2010.07.015  
Effort: 5% design, 0% analyses, 10% writing
- Russell**, A. E., J. W. Raich, R. Bedoya, O. Valverde-Barrantes, and E. González. 2010. Impacts of individual tree species on carbon dynamics in a moist tropical forest environment. *Ecological Applications* 20(4): 1087-1100. DOI:10.1890/09-0635.1  
Effort: 50% design, 50% analyses, 90% writing

- Raich, J. W. and A. E. **Russell**. 2010. Surprisingly rapid nitrogen cycling in tropical forest plantations on volcanically derived soils. *Nature Precedings*: doi:10.1038/npre.2010.5346.1: Posted 30 Nov 2010.  
Effort: 50% design, 50% analyses, 40% writing
- Russell**, A. E., J. W. Raich, R. Bedoya, O. Valverde-Barrantes, and E. González. 2010. Carbon dynamics in the tropics. *Bulletin of the Ecological Society of America*: Vol. 91, No. 2, pp. 224-225. doi: 10.1890/0012-9623-91.2.224.  
Effort: 50% design, 50% analyses, 90% writing
- Russell**, A. E., J. W. Raich, R. Bedoya, O. Valverde-Barrantes, and E. González. 2010. La reforestación como medida de mitigación ante el cambio climático. *Ambientico* 205: 12-14. ISSN 1490-214x.  
Effort: 50% design, 50% analyses, 100% writing
- Raich, J. W., A. E. **Russell** and O. Valverde-Barrantes. 2009. Fine root decay rates vary widely among lowland tropical tree species. *Oecologia* 161: 325-330. DOI: 10.1007/s00442-009-1379-9.  
Effort: 20% design, 20% analyses, 20% writing
- Russell**, A. E., C. A. Cambardella, D. A. Laird, D. B. Jaynes, and D. W. Meek. 2009. Nitrogen fertilizer effects on soil carbon balances in Midwestern U.S. agricultural systems. *Ecological Applications* 19(5):1102-1113. DOI:10.1890/07-1919.1  
Effort: 90% design, 90% analyses, 90% writing
- Russell**, A. E., J. W. Raich, O. J. Valverde-Barrantes, and R. F. Fisher. 2007. Tree species effects on soil properties in experimental plantations in tropical moist forest. *Soil Science Soc. Amer.* 71:1389-1397. DOI:10.2136/sssaj2006.0069
- Raich, J. W., A. E. **Russell** and R. Bedoya-Arrieta. 2007. Lignin and enhanced litter turnover in tree plantations of lowland Costa Rica. *Forest Ecology and Management* 239:128-135. DOI:10.1016/j.foreco.2006.11.016. Effort: 50% design, 50% analyses, 20% writing
- Valverde-Barrantes, O., J. W. Raich and A. E. **Russell**. 2007. Fine-root mass, growth and nutrient content for six tropical tree species. *Plant and Soil* 290:357-370. DOI 10.1007/s11104-006-9168-2. Effort: 50% design, 10% analyses, 10% writing
- Raich, J. W., A. E. **Russell**, K. Kitayama, W. J. Parton, and P. M. Vitousek. 2006. Temperature influences carbon accumulation in moist tropical forest. *Ecology* 87(1): 76-87. DOI:10.1890/05-0023. Effort: 50% design, 20% analyses, 20% writing
- Russell**, A. E., D. A. Laird, and A. P. Mallarino. 2006. Impact of nitrogen fertilization and cropping system on soil quality in midwestern Mollisols. *Soil Science Society of America Journal* 70: 249-255. DOI:10.2136/sssaj2005.0058. Effort: 90% design, 90% analyses, 90% writing
- Russell**, A. E., D. A. Laird, T. B. Parkin, and A. P. Mallarino. 2005. Impact of nitrogen fertilization and cropping system on carbon sequestration in midwestern Mollisols. *Soil Science Society of America Journal* 69:413-422. DOI:10.2136/sssaj2005.0413  
Effort: 90% design, 90% analyses, 90% writing
- Russell**, A. E., C. A. Cambardella, J. J. Ewel, and T. B. Parkin. 2004. Species, rotation, and life-form diversity effects on soil carbon in experimental tropical ecosystems. *Ecological Applications* 14:47-60. DOI:10.1890/02-5299. Effort: 90% design, 90% analyses, 90% writing
- Cambardella, C. A., T. L. Richard, and A. E. **Russell**. 2003. Compost mineralization in soil as a function of composting process conditions. *European Journal of Soil Biology* 39:117-127. DOI:10.1016/S1164-5563(03)00027-X. Effort: 30% design, 30% analyses, 10% writing
- Russell**, A. E. 2002. Relationships between functional crop diversity and soil attributes in southwestern Indian agroecosystems. *Agriculture, Ecosystems and Environment* 92: 235-249. DOI:10.1016/S0167-8809(01)00295-X Effort: 100% design, 100% analyses, 100% writing

- Raich, J. W., W. J. Parton, P. M. Vitousek, A.E. **Russell** and R.L. Sanford Jr. 2000. Environmental regulation of ecosystem development during primary succession in Hawaii. *Biogeochemistry* 51: 161-191. DOI.org/10.1023/A:1006495408992. Effort: 30% design, 30% analyses, 30% writing
- Russell**, A. E., T. A. Ranker, C. Gemmill and D. Farrar. 1999. Patterns of clonal diversity in *Dicranopteris linearis* on Mauna Loa, Hawai'i. *Biotropica* 31(3): 449-459. doi.org/10.1111/j.1744-7429.1999.tb00387.x Effort: 90% design, 30% analyses, 90% writing
- Russell**, A. E., J. W. Raich, and P. M. Vitousek. 1998. The ecology of the climbing fern *Dicranopteris linearis* on windward Mauna Loa, Hawai'i, USA. *Journal of Ecology* 86(5): 765-779. DOI.org/10.1046/j.1365-2745.1998.8650765.x Effort: 90% design, 90% analyses, 90% writing
- Russell**, A. E. and P. M. Vitousek. 1997. Decomposition and potential nitrogen fixation in *Dicranopteris linearis* litter on Mauna Loa, Hawai'i, USA. *Journal of Tropical Ecology* 13: 579-594. DOI.org/10.1017/S0266467400010737 Effort: 80% design, 100% analyses, 90% writing
- Raich, J. W., A. E. **Russell**, and P. M. Vitousek. 1997. Primary productivity and ecosystem development along an elevational gradient on Mauna Loa, Hawaii. *Ecology* 78: 707-721. DOI:10.1890/0012-9658%281997%29078%5B0707%3APPAEDA%5D2.0.CO%3B2 Effort: 30% design, 30% analyses, 30% writing
- Raich, J. W., A. E. **Russell**, T. E. Crews, H. Farrington, and P. M. Vitousek. 1996. Both nitrogen and phosphorus limit plant production on young Hawaiian lava flows. *Biogeochemistry* 32:1-14. DOI.org/10.1007/BF00001529 Effort: 30% design, 30% analyses, 30% writing
- Patterson, D. T., A. E. **Russell**, D. A. Mortensen, R. D. Coffin, and E. P. Flint. 1986. Effects of temperature and photoperiod on Texas panicum (*Panicum texanum*) and wild proso millet (*Panicum miliaceum*). *Weed Science* 34(6): 876-882. Effort: 10% design, 80% analyses, 20% writing
- Russell**, A. E. and J. J. Ewel. 1985. Leaching from a tropical Andept during big storms: A comparison of three methods. *Soil Science* 139(2): 181-189. Effort: 90% design, 100% analyses, 95% writing
- Markham, B., W. Philipson, and A. **Russell**. 1977. Air photo assessment of changes in aquatic vegetation. *Proceedings American Society of Photogrammetry*, 43rd Ann Mtg., Wash., DC pp.504-516. Effort: 10% design, 10% analyses, 10% writing

### Report review

- Russell**, A. E. and B. M. Kumar. 2017. Report on Reports: Forestry for a low-carbon future: Integrating forests and wood products in climate change strategies. *Environment* March/April issue. Effort: 80% design, 70% writing

### Manuscripts in review (1)

- Russell**, A.E., Marek, R.F., and Olk, D.C. Tree species of wet tropical forests differ in their detrital biochemistry and effects on soil carbon dynamics. Submitted to *Frontiers in Forests and Global Change*.

### Manuscripts in preparation (5)

- Bedoya-Arrieta, R. and A.E. **Russell**. Lightning strikes, plant traits, and consequences for forest restoration. To be submitted to *Forest Ecology & Management*
- Glass, B., A. **Russell**, S. Russo, H. Rogers, O. Vargas, and R. Bedoya. Tree species differ in their filtering effect on seed rain in a tropical rainforest. To be submitted to *Ecology*.

Poffenbarger, H., C. Cambardella, M. Liebman, A. Mallarino, D. Olk, **A. Russell**, J. Six, & M. Castellano. Cropping system effects on soil carbon and nitrogen storage in surface and subsoils.

**Russell, A.**, S. Kivlin, C. Hawkes, J. Kovar, J. Berkey, & J. Raich. Drivers of phosphorus uptake and cycling in a wet tropical forest.

**Russell, A.**, S. Kivlin, C. Hawkes, & T. Parkin. Free-living N fixation in a wet tropical forest: Relationships between microbial community composition and function.

### Research presentations (>60)

Papers presented at professional meetings and symposia

Russell, A.E. 2020. Modeling the effects of management and climate change on soil C dynamics in North Central Iowa NC1195 Annual Conference, Kansas City, MO.

Russell, A.E. and B.M Kumar. 2019. Modeling the effects of climate change and management on carbon sequestration in agroforestry systems in Kerala, India. 4<sup>th</sup> World Congress on Agroforestry, Montpellier, France.

Russell, A.E. 2019. Corn-soybean rotations enhance soil organic matter decomposition: The roles of litter quality and priming. NC1195 Annual Conference, Kansas City, MO.

Kirk, B., A. Russell, H. Rogers, S. Russo, B. Wilsey, P. Dixon, R. Bedoya-Arrieta, and O. Vargas. 2018. Tree species differ in their filtering effect on seed dispersal in a tropical rainforest. Annual Meeting of the Ecological Society of America, New Orleans, LA.

Russell, A.E. 2018. N cycle in ag systems model for outreach. NC1195 Annual Conference, Kansas City, MO.

Russell, A.E. and S.J. Hall. 2017. Tropical tree species traits drive soil cation dynamics via effects on pH: A proposed conceptual framework. Annual Meeting of the Ecological Society of America, Portland, OR.

Russell, A.E. 2017. Long-term effects of N fertilization on soil properties in corn-belt agroecosystems. NC1195 Annual Conference, Kansas City, MO.

Poffenbarger, H., C. Cambardella, M. Liebman, A. Mallarino, D. Olk, A. Russell, J. Six, & M. Castellano. 2016. Cropping system effects on soil organic C storage in surface and subsoils. Annual Meetings of the American Society of Agronomy. Phoenix, AZ.

Russell, A.E. 2015. Tree species effects on cation cycling: Trends and mechanisms. Hawaii Ecosystems Meeting at University of Hawaii-Hilo, Hilo HI.

Russell, A.E. 2015. Fine-root traits of tropical tree species regulate the fate of fixed nitrogen, with consequences for forest dynamics. Association for Tropical Biology & Conservation, Honolulu, HI

Russell, A.E. 2014. Drivers of tree species effects on phosphorus and cation cycling in plantations at La Selva Biological Station, Costa Rica. American Geophysical Union Annual Meeting, San Francisco, CA.

Russell, A.E. 2013. Belowground drivers of aboveground cation and phosphorus cycling in fast-growing tropical trees. Annual Meetings of the Ecological Society of America, Minneapolis, MN.

Russell, A.E. and D.C. Olk. 2012. Testing the effects of chemistry of organic matter inputs on soil carbon dynamics in an un-confounded experiment. Annual Meetings of the Ecological Society of America, Portland, OR.

Russell, A.E., S.F. Oberbauer, and W.J. Parton. 2011. Modeling the complex effects of climatic variation on tropical rainforest carbon cycling. Annual Meetings of the Ecological Society of America, Austin, TX.

Russell, A.E. 2011. ExtendSim rainforest simulation model: An interactive learning tool for middle-school children. Annual Meetings of the Ecological Society of America, Austin, TX.

- Raich, J.W. and A.E. Russell. 2010. Surprisingly rapid nitrogen cycling in tropical forest plantations on volcanically derived soils. Annual Meetings of the Ecological Society of America, Pittsburgh, PA.
- Russell, A. E. 2009. Plant species and soil carbon: At the root of the matter. Annual Meetings of the Ecological Society of America, Albuquerque, NM.
- Russell, A. E. 2007. Biodiversity and sustainability of ancient agroecosystems of southwest India. Annual Meetings of the Ecological Society of America, San Jose, CA.
- Russell, A. E., W. J. Parton, J. W. Raich, and D. Ojima. 2006. Modeling complex effects of species on ecosystem processes in experimental plantations. Annual Meetings of the Ecological Society of America, Memphis, TN.
- Russell, A. and D. Laird. 2005. Symposium: Third USDA Symposium on Greenhouse Gases and Carbon Sequestration in Agriculture and Forestry. "Impact of nitrogen fertilization and crop rotations on soil organic carbon sequestration and soil quality." Baltimore, MD.
- Russell, A., D. Oik, R. Marek, R. Fisher, and J. Raich. 2005. Symposium: Long-term Forest Soils Experiments. "Tree species differ in their effects on soil carbon dynamics in lowland Costa Rica." Annual Meetings of the American Society of Agronomy, Salt Lake City, UT.
- Russell, A. E. and D. C. Oik, and R. F. Marek. 2005. Tree species of moist tropical forests differ in their detrital biochemistry and effects on soil carbon dynamics. Annual Meetings of the Ecological Society of America, Montreal, Canada.
- Russell, A. E. 2005. Symposium: Conservation of Biodiversity in Similipal Biosphere Preserve. "Modeling sustainable agroecosystems: Implications for conservation of biodiversity". Fulbright-United States Educational Foundation in India and North Orissa University, Baripada, Orissa, INDIA
- Russell, A. E. and R. F. Fisher. 2004. Tree species differ in their long-term effects on soil properties in lowland Costa Rica. Annual Meetings of the Ecological Society of America, Portland, OR.
- Russell, A, E, D. A. Laird, and A. P. Mallarino. 2003. Long-term effects of nitrogen fertilization and crop rotation on soil properties in corn-belt agroecosystems. Annual Meetings of the Ecological Society of America, Savannah, GA.
- Russell, A. E., C. A. Cambardella, D. A. Laird, D. B. Jaynes, T. S. Colvin, and D. W. Meek. 2002. Nitrogen fertilizer effects on soil organic carbon dynamics in corn-soybean agroecosystems. Annual Meetings of the Ecological Society of America, Tucson, AZ.
- Russell, A, E. and C. A. Cambardella. 2001. Species and management effects on soil carbon dynamics in experimental tropical ecosystems. Annual Meetings of the Ecological Society of America, Madison, WI.
- Russell, A. 1999. Symposium: Indigenous Knowledge Symposium. "Relationships between crop diversity and soil characteristics in southwest Indian agroecosystems." Annual Meetings of the American Society of Agronomy, Salt Lake City, UT.
- Russell, A. E. 1998. Relationships between functional crop diversity and soil attributes in southwestern Indian agroecosystems. Annual Meetings of the Ecological Society of America, Baltimore, MD.
- Russell, A. E., B. M. Kumar, and P. I. Devi. 1997. Symposium: The Ecology of Moist Forests in South India: A Regional Symposium. "Impacts of changes in agricultural land use of forest ecosystems in the Western Ghats of Kerala." Sponsored by the U.S. Educational Foundation in India. Venue: Madurai Kamuraj University, India
- Russell, A. E. 1996. What are the consequences of removing a dominant understory species from a wet tropical forest? Annual Meetings of the Ecological Society of America, Providence, RI.
- Russell, A. E. 1995. One formula for success: Key attributes of a common plant species. Annual Meetings of the Association for Tropical Biology, San Diego, CA.

- Russell, A. E., J. W. Raich, and P. M. Vitousek. 1994. Nitrogen and phosphorus dynamics in *Dicranopteris linearis* on windward Mauna Loa, Hawaii. Annual Meetings of the Ecological Society of America, Knoxville, TN.
- Raich, J. W., P. M. Vitousek, A.E. Russell, H. Farrington, and T. Crews. 1994. Nitrogen and phosphorus stimulate plant growth in primary successional sites of Hawaii. Annual Meetings of the Ecological Society of America, Knoxville, TN.
- Russell, A. E., J. W. Raich, and P. M. Vitousek. 1992. Biomass and net primary productivity of *Dicranopteris linearis* on windward Mauna Loa. Annual Meetings of the Ecological Society of America, Honolulu, HI.
- Raich, J. W., A.E. Russell, P. M. Vitousek. 1992. Aboveground NPP along elevation and substrate-age gradients on Hawaii. Annual Meetings of the Ecological Society of America (ESA), Honolulu, HI.
- Ryan, M. G., E. B. Rastetter, A. E. Russell, and G. R. Shaver. 1990. Comparing the response of temperate deciduous, temperate evergreen, and temperate boreal forest ecosystems to potential changes in global climate. Ann. Mtg., ESA, Snowbird, UT.
- Russell, A. E. and J. J. Ewel. 1982. Nutrient leaching during large storms in tropical successional ecosystems. Annual Meetings of the Ecological Society of America, Pennsylvania State University, PA

#### Invited Seminars (Titles, last 20 years)

- 2020 Farook College, Kozhikode, Kerala, INDIA. "Biodiversity and Ecosystem Functioning." Virtual seminar presented via *Google Meets*.
- 2020 ATBC 2020 Webinar Series in Tropical Ecology and Conservation: Webinar III: Teaching Tropical Biology and Conservation.
- 2020 University of Memphis, Ecology/Environmental issues course. "Deforestation, and global carbon programs".
- 2020 American Association of University Women, Ames Branch. "Nothing is constant but change: Ecology in the 21<sup>st</sup> century"
- 2019 Reiman Gardens, Nature at Noon, Ames, IA. "Rainforest carbon cycling"
- 2013 University of Hawaii, Honolulu, HI. "Soil ecology and global change: Addressing the complexity"
- 2013 University of Nebraska, Lincoln, NE. "Species effects on ecosystem processes"
- 2012 ISU, Dept. of NREM. "Species effects on ecosystems: It matters what you plant"
- 2011 Fulbright Foundation Iowa Chapter, Urbandale, IA. "What makes agriculture sustainable: From Iowa to India and back."
- 2010 SUNY-Syracuse, Environmental Science and Forestry College, Syracuse, NY. "Effects of Species on Ecosystems: Addressing the complexity under global change."
- 2009 U.N. Environmental Programme World Conservation Monitoring Ctr., Cambridge, UK. "Tree species effects on ecosystem processes in tropical reforested pastures."
- 2009 Grinnell College, Grinnell, IA. "Planning for a career in Biology?"
- 2009 Iowa State University, NREM, Ames, IA. "Funding opportunities at NSF."
- 2008 National Science Foundation, Arlington, VA. "Effects of Species on Ecosystems: Addressing the complexity."
- 2008 University of Arkansas, Fayetteville, AR.
- 2008 University of Maryland-Baltimore County, Baltimore, MD.
- 2007 Temple University, Philadelphia, PA.
- 2006 National Science Foundation, Arlington, VA
- 2005 Kerala Agricultural University, Thrissur, Kerala, INDIA.
- 2005 The Ecosystem Center, Marine Biological Laboratory, Woods Hole, MA
- 2005 Colorado State University, Ft. Collins, CO

2005 Tulane University, New Orleans, LA.  
2005 Iowa State University, Dept. of EEOB, Ames, IA.  
2004 University of Virginia, Charlottesville, VA  
2004 Organization for Tropical Studies, La Selva Biological Station, Costa Rica  
2003 Organization for Tropical Studies, La Selva Biological Station, Costa Rica  
2002 Iowa State University, Dept. of Forestry, Ames, IA.  
2001 Iowa State University, Dept. of Agronomy, Ames, IA  
2000 Colorado State University, Ft. Collins, CO

### **Review panels (3) and ad hoc proposal review**

#### Grant review in panels

DOE, Panelist for Next Generation Ecosystem Experiment-Tropics Phase II, July 2019  
DOE, Panelist for Terrestrial Ecosystem Science, January 2012, March 2013  
NSF-DEB – Ecosystems Panelist, Spring 2006

#### Grant review ad hoc

NSF-DEB – Ecosystems Panel, 2002-2004, 2010 to present  
Eloise Gerry Graduate Women in Science Fellowship, 2004

### **Professional development in research**

“Protecting Human Research Participants.” NIH Web-based training course. (June 2016)  
“Responsible Conduct of Research.” GRST 565 for Faculty. (Fall semester 2015)

## **SERVICE**

### **Office of the Vice President for Research, Grants Hub Faculty advisor (Aug 2014 to present)**

- Organizational activities: I played an advisory role in the initial organization of Grants Hub, defining the mission and orientation and training of our staff
- Proposal editing services: I have edited 115 grant proposals prior to their submission by ISU faculty PIs to Federal agencies. The agencies have included: American Federation for Aging Research; Defense Advanced Research Projects Agency (DARPA); Department of Defense (DOD); Department of Energy (DOE); The Gates Foundation; Iowa Water Center; National Aeronautics and Space Administration (NASA); National Institute of Standards and Technology (NIST); National Institute of Health (NIH); National Science Foundation (NSF); U.S. Department of Agriculture (USDA); and Water Resources Research Institute.
- Faculty training: I developed and reviewed informational materials, and conducted, participated in, or contributed to the planning of six panels and training workshops on grant writing for faculty.
- Development of information materials for faculty: I contributed to developing summary materials on grant writing tips for faculty.
- Team effort: I contributed to our team effort that resulted in submission of grant proposals for which awards have totaled \$81.6 million thus far.

### **Other service to Iowa State University**

- Ecology & Evolutionary Biology Interdepartmental major ‘Supercom’ Board member (2019-present)
- Graduate College/CELT presentations:
  - Preparing Future Faculty (PFF) class presentation: “Writing Grants for Federal Agencies” (2018-2020)
  - PFF class – Panel presentation: “Coming Back to American Academe: Returning from

- government, industry, and international institutions" (November 2016)
- "Expert Panel on Grant Writing" (November 2016)
- Department of Natural Resource Ecology and Management (NREM)
  - NREM Mini-camp (September 2015, August 2016-2019)
  - Guest lecturer in FOR 201 (2019)
  - ENGL 314 editor for student proposals (April 2016)
  - Errington Lecture committee member (2015 to present)
  - NREM 110 Faculty visits (2012, 2016-2018)

### Service to my profession

- Editorial Review
  - Subject Editor: *Biotropica*, >100 manuscripts (Fall 2004 to present)
  - Ad hoc reviewer: Agriculture, Ecosystems & Environment; *Biotropica*; Ecology; Ecosystems; Forest Ecology and Management; *Journal of Ecology*; *Journal of Tropical Ecology*; *Plant and Soil*; *Plant Ecology*; *Soil Biology & Biochemistry*; *Soil Science Society America Journal*.
- Working Group
  - Technical Working Group on Agricultural Greenhouse Gases (T-AGG), Nicholas School for the Environment, Duke University (2010)
- Fulbright Association - Iowa Chapter: President (2014) and Board Member (2011-present)

### Professional affiliations

American Association for Advancement Science; American Association of University Women, Ames Chapter Secretary; American Geophysical Union; American Institute of Biological Science; Association for Tropical Biology & Conservation; Ecological Society of America; Fulbright Association; International Society of Tropical Foresters.

### Outreach

- Presentation in Spanish for ISU's Latino Family Visit Day for ~250 people (March 2019)
- Developed and presented a hands-on activity based on my tropical rainforest studies. The activity was designed for the general public and presented for two 'Meet A Scientist' events at Reiman Gardens on the ISU campus for ~300 people. (October 2018)
- Developed a web-based model and interactive educational tool about nitrogen cycling in Iowa agricultural land ([www.nrem.iastate.edu/nmodel/](http://www.nrem.iastate.edu/nmodel/)). The model is targeted for undergraduates, the tool for the general public and grades 5-12. (2016 to present)
- Developed an app, a game-like educational tool about carbon cycling in a tropical rainforest. Available as 'The Rainforest Game' (1069919043) from Apple. Also suitable for Androids. The target group is the general public and grades 5-12. (2015)
- Developed a website for NSF-funded project: <http://www.nrem.iastate.edu/ECOS/>. (Initiated in 2003)
- Produced an interactive simulation model of carbon cycling in a tropical rainforest. Available at: <http://www.nrem.iastate.edu/ECOS/rfsims.html>. The target group is the general public, and grades 5-12. (2008)
- Practical Farmers of Iowa, demonstrated our new Nitrogen cycling in Iowa Agricultural Systems' model for outreach. (Sept 2016)
- Edwards Elementary School 'Science Night' organizer, Ames, IA (1993-1998)



## AWARDS

### AAU-recognized award

Fulbright Indo-American Environmental Leadership Program Fellowship. "*Modeling the effects of management on soil carbon in Kerala agroecosystems.*" (2005)

### Merit awards

Charles A. and Anne M. Lindbergh Foundation, Certificate of Merit, "*Development of soil fertility technology that balances agricultural needs with forest conservation in the Mayan Zone of Mexico.*" (2000)

American Association of University Women, Career Development Grant (1993-1994)

Iowa State University, Research Assistantship (1993-1994)

Iowa State University EEB Research Assistantship and PACE Award (1992-1993)

University of Florida, Graduate Fellowship (1980-1981)

## SPECIAL SKILLS

### Technical

- Simulation modeling: Process-based, general systems modeling  
Includes knowledge of: CENTURY (specializing in the Forest version), H.T. Odum's energy language, Extend and AnyLogic
- Statistical programs: SAS and S plus
- Field and laboratory methods related to terrestrial carbon and nitrogen cycling

### Languages

- Spanish: Current native fluency: Speaking, reading, and writing.
- French: Former native fluency: Speaking, reading, and writing.
- Malayalam (South India): Intermediate fluency: Speaking, reading, and writing
- Other: Beginning skills in Malay, Mandarin (Chinese), and Tzeltal (Mayan)

### First Aid Training

- National Safety Council First Aid, CPR and AED Certification, Mar 2020.
- NOLS Wilderness Medicine Certification, April 2019.