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EDUCATION:

PhD, University of California, Berkeley, Environmental Science, Policy & Management (*expected Dec 2003*)

Dissertation: Environmental risk of Lyme disease and impacts of land use management in northern California

Comprehensive Exams:

Epidemiology and Environmental Health

Environmental Planning

Landscape and Conservation Ecology

Ecological Land Use Changes in California

BA, Brown University, Environmental Studies, with Honors (*1992*)

BA, Brown University, Ecology / Evolutionary Biology (*1992*)

Thesis: The wetland delineation controversy: A case study of Rhode Island red maple swamps

PROFESSIONAL AWARDS AND GRANTS:

Regents Fellowship, *Environmental Science, Policy and Management, UC Berkeley (2002)*

Graduate Assembly Travel Award, *UC Berkeley (2002)*

President's Award, Best Medical Entomology Poster, *Entomological Society of America (2001)*

Balamuth-Horen Award, Best Student Presentation, *Northern California Parasitologist Meeting (2001)*

Block Grant Fellowship, *Division of Insect Biology, University of California at Berkeley (1998)*

White Mountain Research Station Grant *UC San Diego (1997)*

Awarded for pilot research on tick-borne relapsing fever in the eastern Sierra.

Florence M. Lankershim Fellowship, *UC Berkeley (1995)*

Susan Colvert Rosenberg Award for Excellence in Environmental Studies, *Brown University (1992)*

Woods Hole Marine Science Consortium Grant (*1990-1992*)

Awarded for independent research on the nutrient flux through the sediment-water interface.

Undergraduate Teaching and Research Grant *Brown University (1991)*

Granted for curriculum development and assistant teaching of environmental economics.

Westinghouse Honors for Independent Research, *School for Field Studies (1987)*

Researched the habitat and abundance of dinoflagellates implicated in the disease ciguatera.

MEMBERSHIPS AND AFFILIATIONS:

Society for Vector Ecology, National and California chapters

Northern California Parasitologists (Treasurer 2001-2003; President 2003-2005)

Entomological Society of America (medical and veterinary entomology)

American Association for the Advancement of Sciences

American Association of University Women

Working Group on Ecosystem Change and Human/Wildlife Health, UC Berkeley

Working Group on Interdisciplinary Approaches to Environmental Sciences, UC Berkeley

North East Environmental Studies Programs

Society for Risk Analysis

Women in Science and Engineering

RESEARCH STATEMENT:

My research interests lie at the intersection of several fields: ecological and human health, regional planning, landscape ecology, and resource management. My dissertation examined the effects of land use on the risk of exposure to the Lyme disease pathogen in various habitats. In related topics, I am interested in understanding the underlying patterns of disease outbreaks across classes of organisms, and in exploring historic patterns of land and water use of Native Californians that may have reduced exposure to existing environmentally-transmitted pathogens. Additionally, I am interested in pursuing projects exploring human and ecological impacts of current management strategies, including environmental correlates of chronic diseases, human health-related issues of urban sprawl and development, and regional ecological health impacts at national parks.

RESEARCH EXPERIENCE (ANALYTICAL, FIELD AND LABORATORY):**Environmental health assessment and land use analysis**, PhD Dissertation, *UC Berkeley (1999-2003)*

Conducted two-year assessment of nymphal and adult western black-legged tick abundance and infection prevalence with the pathogen known to cause Lyme disease in four dominant habitats in Mendocino County, California. Developed an index of risk of human exposure by habitat and by season.

Conducted survey of 250 residents at a converted ranch community with known high cases of Lyme disease. The survey was used to gather information about Lyme disease and other tick-borne disease prevalence, behavioral patterns of residents within different habitats on their property, and land management strategies that may impact the risk of exposure to the Lyme pathogen. Conducted spatial analysis to identify environmental correlates of case and control residences.

Evaluated four dominant habitats, ranked by risk of exposure to the Lyme disease pathogen, in Mendocino County, California using satellite imagery to identify how effectively these habitats can be distinguished. Assessed whether or not spectral signatures of the high-risk habitats can be extrapolated as an indicator of risk to other regions within northern California.

Disease ecology, Graduate Student Researcher, *UC Berkeley (1997-1999)*

Assisted in the development of 5-year grant from the National Institutes of Health and 3-year grant from the Centers for Disease Control and Prevention, which provide partial funding for my dissertation research. Assisted with laboratory and field work on the ecology of Lyme disease evaluating the transmission cycle of the *Borrelia* pathogen, examining the competency and ecology of vector and reservoir hosts, and evaluating vector control efforts.

Water management and hydrogeology, Graduate Student Researcher, *UC Berkeley (1995-1997)*

Conducted aquatic habitat assessments and evaluated water quality impacts from grazing for East Bay Municipal Water District and East Bay Regional Parks District; monitored sub-surface gully growth for California Department of Parks and Recreation; documented historic and current salmonid habitats and populations in the heavily managed Sacramento-San Joaquin watershed, evaluated river restoration projects and examined gravel mining and reclamation projects for Cal-Fed Bay Delta management efforts; and developed lecture series on water management and water-borne diseases for UC Berkeley Alumni Travels in Egypt and China.

Visiting Scientist, NASA Ames Research Center, Center for Health Applications of Aerospace-Related Technologies (CHAART), *(1997-1999)*

Trained in interpretation and use of remotely sensed data for analysis of vector-borne diseases, and assisted in focusing technology transfer efforts to improve public health in developing countries.

Environmental Science Consultant, *Environmental Law Foundation, Oakland, CA (2002)*

Hired as a consultant to review procedures and assist in the design of a study to evaluate contaminants in drinking water dispensed from vending machines in low-income regions.

Environmental Science Analyst, Conducted human and ecological risk assessments, *Abt Associates, Inc., Cambridge, MA (1992-1995)*

Evaluated risks to low income and subsistence fishers consuming chemically contaminated fish for the EPA Office of Water. Our work resulted in a series of guidance documents for local health and natural resource agencies around the country.

Managed project to develop an index to combine resource efficiency, emissions reduction and reductions in health risks for Merck Pharmaceuticals, Digital Equipment Corp., and Huber Diversified for ISO 9000 certification and to unify environmental goals across sites and divisions.

Assessed costs of achieving zero-discharge using pollution prevention in the pesticide formulating, packaging and repackaging industry. We proposed incentive structures to reward companies in voluntarily compliance for EPA Office of Prevention, Pesticides and Toxics.

Conducted a meta-analysis of case studies and laboratory models to develop dermal exposure threshold limits for chromium compounds for EPA's Heavy Metals Effluents Guidelines.

Assisted in developing toxicity and exposure assessments that addressed chronic and carcinogenic risk of heavy metals and organophosphates to vertebrate wildlife for EPA Office of Research and Development.

Evaluated the nutrient and pathogen impacts from various poultry mortality and waste disposal methods used by the poultry industry for EPA Office of Water. Per capita costs were calculated for different sized farms to assess the economic effects of alternate disposal methods.

Coastal Ecologist / Manager, Consultant, *Rhode Island Coastal Fisheries Laboratory (1992)*

Compared numerous indicators of ecosystem health and recommended methods to streamline collection of indicator data. Monitored seed scallop survival rates and transplant efforts of contaminated quahogs. Monitored estuarine sediment dispersal near dredged channels and shellfish projects. Developed informational books and pamphlets on fisheries resources based on historical records and monitoring.

Wetlands delineation in Rhode Island, Undergraduate Honors Thesis, *Brown University (1992)*

Designed and conducted a 3-season field study to evaluate existing and proposed wetland delineations for red maple swamps. The proposed delineation affected the critical habitat differently per site. From these findings, I developed an ecologically-derived wetland delineation, which was submitted to EPA as evidence in the federal wetland delineation hearings.

Nutrient cycling, Woods Hole Marine Science Consortium, *Marine Biological Lab, MA (1990-1992)*

Developed a pilot project examining the nutrient loading of Waquoit Bay National Estuarine Research Reserve, MA. Distinct patterns of freshwater flow through the sediment-water interface were detected and explicit signatures of nutrients identified. The health of the estuary varied dramatically and disturbed areas were highly correlated with high groundwater nutrient loading. These data helped to distinguish specific anthropogenic sources within the watershed.

Water / energy conservation initiative, Coordinator, *Brown University (1990)*

Coordinated a 18-student class-project evaluating economics, heat and energy consumption and student preferences of existing and low-flow showerheads in residential dorms of Brown University. Based on our findings, Brown replaced all dormitory showerheads with the preferred model, resulting in a cost savings of more than \$45,000 per year in water and energy savings.

Solid waste management, *Rhode Island Department of Environmental Management & Brown University (1990)*

Evaluated residential waste practices and recommended user fees to encourage source reduction / recycling and to reduce toxics (used motor oil, tires and batteries) in Rhode Island.

Disease ecology and fisheries management, Westinghouse Honors Recipient, *School for Field Studies (1988)*

Designed a study to evaluate the habitat preferences of single-celled dinoflagellates known to contain neurotoxins responsible for the human disease, ciguatera. When ingested, the neurotoxin initiates a trophic cascade, biomagnifying through the food chain into the commercial fisheries. Identifying dinoflagellate-rich habitats helped to target regions for management efforts.

TEACHING STATEMENT:

Two primary tenets form the foundation for all my teaching: interdisciplinary training and inquiry-based learning. Environmental issues are inherently interdisciplinary in nature. Training students to become professionals who can construct solutions and weigh risks and interests requires an understanding of the principal components of each relevant discipline. Environmental health issues require an understanding of the fundamentals of ecology, public policy and risk management, and planning issues require a fundamental understanding of ecology, biogeochemical cycling and human behavior. Further, I feel that students learn theory best through participation. They also learn better by working on actual projects instead of derived problem-sets; I try to incorporate some research- or project-based experience in every class I teach. Please see *Teaching Portfolio* for further discussion.

TEACHING AWARDS:

Teaching Effectiveness Award, *UC Berkeley (1999)*

Awarded to a small number of outstanding graduate student instructors who identified a concern in their classes, then implemented and assessed an effective response. I submitted the results of a program to improve public presentations of year-long environmental thesis projects.

Outstanding Graduate Student Instructor Award, *UC Berkeley (1999)*

Awarded to graduate student instructors nominated by faculty and based on faculty recommendation and student course evaluations.

TEACHING EXPERIENCE:

Environmental science thesis course, Instructor, *UC Berkeley (1998-2001)*

Advised students in problem definition, study design, research methods, presentation and writing for year-long thesis based on primary field, lab and archival research. Conducted weekly advising seminars and developed workshop on effective communication in the sciences.

Graduate seminar development, *UC Berkeley (1996-1998)*. Please see *Teaching Portfolio* for descriptions.

Disease Ecology and Environmental Management
Landscape Ecology: Watershed Ecology and Geomorphology
Water in the Far West: Ecology and Management

Introductory environmental issues, Teaching Assistant, *Brown University (1990)*

Designed and coordinated eighteen students in a project to examine potential for using low-flow showerheads in dormitories. Our results caused the University to install low-flow showerheads in all student dormitories on campus, at a cost savings of more than \$45,000 annually.

Advanced environmental practicum, Teaching Assistant, *Brown University (1992)*

Organized and assisted in the development and analysis of dust / soil lead contamination in low-income residences. Coordinated study evaluating cost of building energy-efficient low-income homes. Provided instruction in use of GIS mapping to overlay types of risk to low-income communities.

Environmental economics, Teaching Assistant, *Brown University (1991)*

Developed curricula to integrate scientific data into a statistical policy analysis course. Focused on effective critiques of the p-value and its use in decision theory.

Analysis/ resolution of environmental problems, Teaching Assistant, *UC Berkeley (1996)*

Led two sections and supervised fourteen group projects of local environmental concern. Coordinated outside speaker series of various “environmental problem solvers.”

Writing Fellow, peer writing tutor, *Rose Writing Fellows Program, Brown University (1988-1992)*

Tutored peers in writing with a special emphasis on effective communication in the sciences. Conducted 3-day seminar on Writing Across the Disciplines for Philips Andover Academy, MA

Guest Lecturer, (1991-present)

Brown University
University of California Davis
University of California Berkeley

Sonoma State University
Contra Costa Community College
Diablo Valley Community College

ACADEMIC SERVICE AND PEDAGOGICAL RESEARCH:

Mellon Foundation Curriculum Development, *UC Berkeley (2002-2004)*

UC Berkeley was awarded a Mellon Foundation grant to develop a *Summer Institute for Teaching of Undergraduate Research Competencies*. I assisted in a collaborative effort to develop the structure and curriculum of the Summer Institute to train faculty how to incorporate undergraduate research into their courses. Thirteen faculty were each awarded \$5000 to attend an intensive 3-wk session, during which time we assisted them in transforming existing or newly developed courses to incorporate strong research component for their undergraduate students. Courses ranged from large introductory gateway courses to intensive upper division seminars. <http://www.lib.berkeley.edu/MellonInstitute/>

UC Berkeley Re-Accreditation Review, graduate student representative, *Western Association of Schools and Colleges (2001-2003)*

Facing its 10-year re-accreditation review, Berkeley needed to strengthen the quality of undergraduate education while maintaining its reputation as a large research institute. I was competitively selected for my strong record of undergraduate teaching and innovation and for extensive involvement in pedagogical improvements within my disciplines. We evaluated the educational effectiveness of undergraduate education at the university and focused our efforts on the preparation of students for a capstone experience throughout their education, and also assessed two key areas of difficulty unique to research universities—large enrollment introductory courses and challenges to the culture of teaching. We developed institutional agendas to provide research opportunities to all undergraduates using the re-accreditation process as a vehicle for change. <http://education.berkeley.edu/accreditation/>

Graduate Division Teaching and Resource Center for Graduate Student Instructors, *UC Berkeley, campus-wide consultant (2002-2003)*

Developed graduate student working group on integrating undergraduate research into courses. Conducted research into effective strategies to teach instructors how to incorporate student research into their courses more effectively, developed manual for graduate students to assist in this effort, and conducted presentations for graduate students on assessing their efforts and integrating these materials

into a teaching portfolio. The materials generated from the working group and select participants subsequently have inspired a proposal for a book contract, which we are currently pursuing with Jossey-Bass Publishers, San Francisco.

Brown Alumni Schools Committee, interviewer, *Brown University (2000-present)*

Conduct local interviews of high school applicants to Brown University through alumni association.

Rose Writing Fellows Program, *Brown University (1988-1992)*

Writing Fellows were competitively selected and participated in a pedagogical seminar on how to teach writing effectively. Each Fellow was assigned a specific course and peer-tutored students' writing assignments. My primary focus was on improving writing in the sciences.

Center for Environmental Studies Executive Committee, student representative, *Brown (1990-1992)*

Participated in overview of programmatic issues relating to curriculum, degree obligations and departmental activities. Helped to design curricula for a new Sc.B. degree in Environmental Science.

PEER-REVIEWED RESEARCH ARTICLES (IN PREPARATION):

Waggett, CE, RS Lane and L Eisen. In preparation (expected submission: Dec 2002). *Ecological risk factors for Lyme disease in northern California*. *Journal of Vector Ecology*.

Waggett, CE, S Selvin and RS Lane. In preparation (expected submission: Jan 2002). *Spatial modeling of Lyme disease at a community at high risk in northern California*. *American Journal of Epidemiology*.

PROFESSIONAL REPORTS AND OTHER RESEARCH ARTICLES:

Waggett, CE, T Duane, J Stevens and M Schoonover. 1997. *Fear of litigation and the environment: The impact of litigation on environmental research*. Submitted to the California Attorney General's Office.

Waggett, CE. June, 1997. *Protecting the public from the public water supply: The threat of cryptosporidium in California drinking water*. Prepared for the California Department of Health.

Waggett, CE, and MR Fainter. 1996. *Patterns of gully growth along Pomponio Creek, San Mateo County, CA*. May. Prepared for California State Department of Parks and Recreation.

Homrighausen, M, CE Waggett and C Thomas. 1996. *A monitoring procedure for an intermittent stream: Channel form, riparian vegetation and water quality*. Prepared for East Bay Municipal Utilities District.

Waggett, CE. 1996. *Baseline water quality and development of a volunteer water-quality monitoring program: Chemical, biological and physical measures on Goat Creek (Pinole, CA) in an exclusion zone*. Prepared for East Bay Municipal Utilities District.

Cunningham, KB and CE Waggett. 1995. *Guidance for assessing chemical contamination data for use in fish advisories: Vol. III Risk management*. US Environmental Protection Agency, Office of Water.

Cunningham, KB, CE Waggett and J Wormser. 1994. *Guidance for assessing chemical contamination data for use in fish advisories: Vol. II Development of risk based intake limits*. United States Environmental Protection Agency, Office of Water.

Waggett, CE and RP Wells. 1993. *Materials management categories for toxic, hazardous and regulated materials in Digital Equipment Corporation products*. Abt Associates, Inc.

Wells, RP and CE Waggett. 1993, 1994. *The Huber environmental performance index (HEPI) and implementation guide*. Abt Associates, Inc.

O'Connell, PA, RP Wells and CE Waggett. 1993. *An environmental quality program for Merck & Company's West Point, New Jersey site: Vol I: Results of a pilot program. Vol II: Technical appendix.* Abt Associates, Inc.

Waggett, CE. 1992. *Recommendations for regional wetland delineations and ecological valuations: A case study of Rhode Island red maple swamps.* Brown University Honors Thesis. Submitted to Federal Interagency Task Force on Wetland Delineation; Rhode Island Dept of Environmental Management.

Waggett, CE and A Ganz. 1992. *Recreational and commercial fisheries resources of Winnapaug Pond, Westerly, Rhode Island.* Prepared for the Rhode Island Department of Environmental Management, Division of Fish and Wildlife, Coastal Fisheries Laboratory.

Waggett, CE. 1992. *Barrier beach formation and implications of political definitions for protection from near shore development.* Brown University, Department of Geology and Center for Environmental Studies. Submitted to the Rhode Island Coastal Commission.

Waggett, CE. 1991. *Advective nitrate and phosphate transport across the sediment-water interface at sites of variable loadings and sediment types, Waquoit Bay, Falmouth, MA.* Marine Biological Laboratory, Woods Hole, Massachusetts.

Waggett, CE, E Boatright, E Brown, G Chammas, J Cook, S George, GA Gerace, C Hartnett, G Heath, A Hosford, S Hurwitz, S Jones, S Pollard, T Rynearson, G Taft, K van Ness and S Weinstein. 1991. *Water reduction and the implementation of low-flow showerheads at Brown University.* Submitted to Plant Operations, Brown University, Brown Is Green Physical Plant and Energy Conservation Manager.

Waggett, CE. 1990. *Is There a Writing Crisis in the Sciences?* Brown University, Rose Writing Fellows Program. Prepared for Brown University Office of the President Writing Task Force.

Ward, H, J Albert, R Berridge, J Clough, LT Low, P Simmons, J Shepard, CE Waggett. 1990. *Maximizing source reduction and recycling of solid waste in Rhode Island.* Center for Environmental Studies, Prepared for Rhode Island Department of Environmental Management.

Waggett, CE, B Griscom and G Schwartz. 1990. *Used tire management in Rhode Island.* Submitted to the Rhode Island Department of Environmental Management.

Waggett, CE. 1987. *Population density and species diversity of dinoflagellates implicated in the tropical disease ciguatera on substrates in the Lameshur Bays, St. John, the USVI.* The School for Field Studies. Submitted to Westinghouse Young Scientist Search, 1987.

PROFESSIONAL PRESENTATIONS:

Society for Vector Ecology Annual Meeting. 2002. Waggett, CE, RS Lane and L Eisen. *Ecological risk factors for Lyme disease.* Albuquerque, NM.

Entomological Society of America Annual Meeting. 2001. Poster presentation. Waggett, CE, L Eisen, RS Lane. 2001. *Estimating ecological risk of Lyme disease.* San Diego, CA.

California Mosquito and Vector Control Boards, Continuing Education Workshop. 2001. Waggett, CE. *Lyme disease in northern California.* San Ramon, CA.

Northern California Parasitology Annual Conference. 2001. Waggett, CE, L Talleklint, RS Lane. *Critical habitats in the ecology of Lyme disease in Mendocino County, CA.* Monterey, CA.

Society for Vector Ecology, Annual Meeting. 2000. Poster presentation. Waggett, CE, RS Lane, L Talleklint. *Nymphal tick density and infection prevalence.* Berkeley, CA.

NASA Mission to Planet Earth. 1998. Waggett, CE, SW Dister and RS Lane. *Risk assessment of Lyme disease in northern California using remotely sensed imagery*. Menlo Park, CA.

Environmental Planning Colloquium, UC Berkeley. 1996. Waggett, CE. "*Environmental estrogens:*" *planning and public health*. Berkeley, CA.

Society for Ecological Restoration, Annual Conference. 1996. Waggett, CE. *Strategies for the restoration of subsurface gully erosion*. Yosemite, CA.

Brown Bag Lecture Series, Center for Environmental Studies. Brown University. 1994. Waggett, CE. *Consumption of chemically-contaminated fish*. Providence, RI.

National Conference of Peer Writing Programs. 1991. Waggett, CE. *Communicating science*. New Jersey.

Philips Andover Academy. 1990. Haring-Smith, T, and CE Waggett. *Writing Across the Disciplines*. Weekend seminar for faculty. Andover, MA.

National Conference of Peer Writing Programs. 1990. Waggett, CE. *Effective communication in the sciences*. February. New Jersey.