



Sharon Martinson  
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## **Education**

Dartmouth College September 2001- May 2007

Ph.D. Ecology and Evolutionary Biology

I received a five-year, fully funded graduate fellowship in the Dartmouth College Ecology and Evolutionary Biology program. The focus of my research was on the population dynamics and ecology of southern pine beetles, and how plant-herbivore interactions influence landscape patterns. This research has increased my commitment to bridging the interface between science, policy, and application. Degree conferred June, 2007

Keene State College August 1996-November 2000

B.S. Dual Major in Biology and Environmental Studies

I worked as a research assistant in a biology lab while I was studying at Keene State, gaining insight into how research programs function. During my final year, I worked on an independent research project that was funded by a grant I co-authored. Those experiences encouraged my pursuit of a graduate degree. Cumulative 3.9 GPA.

## **Professional Experience**

### **RESEARCH**

Research Associate, University of California-Santa Cruz October 2007 – present

I collaborate with Michael Loik's research team to study the ecophysiological responses of several dominant plant species in the Sierra Nevada mountains to experimentally increased and decreased snow. These data will be used to parameterize additional information in a new DVGM, Biomap, at Oregon State University. I will be responsible for updating the model to incorporate plant population demography, specifically, regeneration.

Post-Doctoral Fellow, Dartmouth College June 2007-September 2007

I have a grant through the USDA to continue my studies of endemic populations of southern pine beetles. I am collaborating with a researcher who studies endemic populations of mountain pine beetles in British Columbia. We are working on a project that synthesizes our understanding of what causes endemic beetle populations to escape to become outbreak populations.

Doctoral Research, Dartmouth College June 2001-October 2007

My Ph.D. research focused on plant/herbivore interactions--in particular how plant defenses affect patterns of herbivore abundance. My work also included testing how other insects in the community could be important in creating herbivore population fluctuations through pheromone 'eavesdropping.' I based my research questions on theoretical frameworks, and used both field observations and experiments, as well as modeling as a means for testing my predictions. My work involved collaborating with many different agencies and institutions.

Research Assistant, Agroecology internship Summer 1999

I was granted an internship at ECHO, Educational Concerns for Hunger Organization. I worked on their research farm which replicates various difficult farming conditions that are observed in areas of the world with hunger, testing production of "lost crop" varieties and appropriate technology. The research objective is to find ways that impoverished people in developing areas can feed themselves by working with--and improving--the local environment. This experience has had a lasting impact on me, and at some point in my career I plan to work on a global environmental justice project relating food/hunger, policy, in the face of environmental climate change.

**Professional Experience, cont.**

Independent Research, Keene State College March 1999-May 2000  
I was funded to research stream drifting behaviors of spiders in New England. We undertook a year-long sampling of three streams and their banks to determine when spiders enter the water. This research was reviewed at two national and international research conventions and the abstract is published in the *Journal of Arachnology*. A paper using data collected from this study is in preparation. I was also funded to do a smaller study tracking the photosynthetic changes of spring ephemeral plants in NH in response to canopy closure in the spring.

Research Assistant, Keene State College August 1996-August 1997  
I performed and analyzed data on feeding interactions of *Argerodes* and *Acherania* spiders. Food klepto-parasitism in spiders is common, but the circumstances under which it occurs, and how important it is to both the host and parasite spider is poorly understood. This is ongoing research at Keene State College.

**TEACHING**

Assistant Adjunct Professor, Colby-Sawyer College September 2006-December 2006  
I taught an introductory course in ecology to majors and non-majors at a small, private institution. I was challenged with a diverse group of students from a variety of backgrounds and ability levels, including students with both physical and learning disabilities. This experience gave me the opportunity to increase my pedagogical skills, and to improve my ability to educate.

Teaching Assistant, Dartmouth College September 2001-September 2006  
The Dartmouth Biology Ph.D. program places a strong emphasis on teaching through both lectures and labs. Each year I taught two courses which involved both lab oversight and lecturing on course material. I also have prepared and given multiple guest lectures, and led graduate-level seminars. Twice, I was invited to teach on the Dartmouth Foreign Studies Program in Costa Rica and Jamaica, where I advised and mentored 15 students for 10 weeks while they worked on independent research projects. See below for a list of courses taught and guest lectures.

Mentoring--Senior Honors thesis, Dartmouth College Summer 2003  
Brenda Whited, 2003-2004. Susceptibility of longleaf and loblolly pine to infestations of *Dendroctonus frontalis*  
Dünya Önen, 2006-2007. The effect of increased carbon on plant defenses.

--Undergraduate Research Experience, Dartmouth College 2003-2006  
Tom Dempsey, Paul Marino, Liz Wilson, Milica Milunovic, Luke Evans, Khai Tran, Harvey Carreras

Environmental Educator, Vermont Institute of Natural Science 2002-2003  
I did volunteer teaching in local elementary school classrooms through the Vermont Institute of Natural Resources, Environmental Learning for the Future program. Lessons were focused on local natural history and basic ecology, and were presented to 6-10 year old students.

Adjunct Professor, Keene State College August 2000-May 2001  
For one year I co-advised a group of upper level physics students who were doing an independent study on hybrid-electric vehicles. My job was to supervise the work and advise the overall project, guiding student efforts in the development of the idea, writing a grant to fund the project, and presenting the final project at a meeting.

ASPIRE Tutor, Keene State College January 1999-May 1999  
I tutored college students through a peer-networking program, ASPIRE, that pairs students that are struggling academically with student peers who have succeeded.

**Professional Experience, cont.**

Biology courses taught, Dartmouth College, Hanover NH

Introductory Ecology and Evolutionary Biology  
Animal Behavior  
Diversity of Life  
Tropical Field Ecology in Costa Rica and Jamaica

Guest Lectures, Dartmouth College, Hanover NH

Diversity and Function of Vernal Pools in New England  
Dynamics of Pest Populations  
Plant-Herbivore Interactions  
Introductory Statistics  
Tropical Stream ecology; Patterns associated with land use  
Coral reef geology: Historical debates, ecological crisis  
Algal defenses and herbivory in marine environments

Guest Lectures, Oregon State University, Corvallis, OR

Biofuels; the ecology and ethics of growing energy  
Carbon Trading in the US & EU; logistics of a global perspective  
Modeling plant vegetation dynamics with LPJ-GUESS

**Research Publications, Presentations & Posters**

PUBLICATIONS

- 2007 Martinson, S.J. R.W. Hofstetter, and M.P. Ayres. Why does longleaf pine have low susceptibility to southern pine beetle? *Can. J. For. Res.* **37**(10): 1966–1977 (2007)
- 2007 Friedenber, N.A, B.M. Whited, D.H. Slone, S.J. Martinson, and M.P. Ayres. Differential impacts of the southern pine beetle, *Dendroctonus frontalis*, on *Pinus palustris* and *Pinus taeda*. *Can. J. For. Res.* **37**(8): 1427–1437 (2007)
- 2007 Martinson, S.J., D.A. Cook, and K.R. Cangialosi. Seasonal distribution and abundance of spiders along and in forested streams in New England. abstract published, manuscript pending. *Journal of Arachnology*
- 2008 in prep. Martinson, S.J. Evaluating the role of iteroparity and predation in populations of *Dendroctonus frontalis* (Coleoptera: Curculionidae: Scolytinae). For submission to *Environmental Entomology*.
- 2008 in prep. Martinson, S.J. T. Ylioja, B. Sullivan, R. Billings, and M.P. Ayres. The evidence and ecology of multiple equilibria in population dynamics of the southern pine beetle. For submission to *Ecology*.
- 2008 in prep. R.W. Hofstetter, S.J. Martinson, M.L. Gaylord, and M. Wagner. Differences in attraction of primary and secondary bark beetles and their predators to terpene levels and pheromone combinations in Arizona. For submission to the *Ecological Entomology*.

**Research Publications, Presentations & Posters, Cont.**

**NATIONAL & INTERNATIONAL MEETINGS**

- September 2007 Oral Presentation, International Union of Forest Research Organization in Vienna, Austria. "Do populations of southern pine beetles have multiple equilibria?"
- August 2007 Poster, Ecological Society of America annual meeting in San Jose, CA. "A multiple equilibria model for *Dendroctonus frontalis* with predation and competition"
- February 2007 Poster, Gordon Research Conference (Plant-Herbivore Interactions) in Ventura, CA. "Do resin defenses of pines influence host use by southern pine beetles?"
- May 2006 Poster, North American Forest Insect Work Conference in Asheville, NC. "The role of interspecific competition in endemic populations of southern pine beetle"
- August 2005 Poster, Ecological Society of America annual meeting in Montreal QC. "Spatial complexities influence the population dynamics and spatial distributions of southern pine beetle populations"
- October 2003 Oral Presentation, Entomological Society of America annual meeting in Cincinnati, OH. "Comparison of resin defenses in *Pinus taeda* and *Pinus palustris*"
- August 2003 Poster, Ecological Society of America annual meeting in Savannah, GA. "Causes and consequences of dynamic feedback in population dynamics of *Dendroctonus frontalis* (Coleoptera: Scolytidae)"
- November 2002 Posters, Entomological Society of America annual meeting in Ft. Lauderdale, FL. "Host defenses influence dynamics of local populations of *Dendroctonus frontalis*" and "The relationship between local demographics and landscape epidemiology in the southern pine beetle"
- 1999 Published Abstract. American Arachnological Society annual meeting "Spiders in the Drift," [www.americanarachnology.org/MeetingAbstracts/AAS\\_99\\_abstracts.html#7](http://www.americanarachnology.org/MeetingAbstracts/AAS_99_abstracts.html#7)

**LOCAL & REGIONAL MEETINGS**

- June 2007 Posters, Southern Forest Insect Work Conference on Jekyll Island, GA. "A multiple equilibria model for *Dendroctonus frontalis* with predation and competition" and "Evaluating the role of iteroparity and predation in populations of *Dendroctonus frontalis*"
- October 2004 Poster, Longleaf Alliance annual meeting in Hattiesburg, MS. "Patterns of southern pine beetle infestations and longleaf pine"
- April 2004 Poster, Western Forest Insect Work Conference in San Diego, CA. "Dynamics of endemic populations of *Dendroctonus frontalis*"
- July 2003 Oral Presentation, Southern Forest Insect Work Conference in New Orleans, LA. "Comparison of resin defenses in *Pinus taeda* and *Pinus palustris*"
- May 2002 Poster, Dartmouth College Graduate Student Research Competition in Hanover, NH. "Host defenses influence dynamics of local populations of *Dendroctonus frontalis*"
- March 2002 Oral Presentation, Northeastern Forest Pest Council Meeting in Montreal, QC, "Stage-specific density dependence in *Dendroctonus frontalis*"

**Grants and Awards**

- Lotka Award, Best theoretical ecology paper, ESA meeting, 2007
- USDA, Southern Research Station Grant (\$35,600), 2006
- Dartmouth College Alumni Research Grant (\$2,000), 2003
- Dartmouth College Teaching Assistantship (\$196,000), 2001-2006
- Dartmouth College Presidential Graduate Award (\$1,500), 2001
- Keene State College Academic Talent Scholarship (\$56,000), 1996-2000
- Keene State College Undergraduate Research Grant (\$750), 1999-2000
- Edmund A. Gianferrari Biology Award for excellence, 2000
- The Keene State College Scholar-Athlete of the Year (1998-1999) & (1999-2000)

**Technical and Professional Skills**

Excel, SAS, JMP for data management

MS Office Suite Tools, Internet

GPS--complete understanding and capabilities for positioning, field work

ArcView, ArcGIS, basic skills and uses

Elementary Latin and Spanish

Basic Cartography; map drawing, transposing, overlay, and field surveying

Quantitative Chemical Analysis; MS-GC, some EPA testing guidelines

Soil, Water, Air and Vegetation sampling techniques

Forestry field techniques for stand management, assessment, and inventory

**Professional Service**

Referee: *Canadian Journal of Forest Research, Ecological Modelling, Environmental Entomology, Journal of Chemical Ecology, Oecologia, Oikos, Tree Genetics and Genomes*

**Professional affiliations**

Association for Women in Science, 2006-present

Ecological Society of America, 2003-present

Entomological Society of America, 2001-present

Tri-Beta Biology honor society, 2000-present