

# JANE E. CARLSON

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## EDUCATION

**Ph.D.**, Biological Sciences, Louisiana State University, Baton Rouge, LA. 2002-2007  
**B.S.**, Natural Resources, Cornell University, Ithaca, NY. 1998-2002

## RESEARCH INTERESTS

Ecological interactions that fuel plant evolutionary processes, i.e., selection on traits and among-population diversification. How pollinators, herbivores, and environmental conditions contribute to the evolution and maintenance of plant physiological and morphological traits in wild populations.

## RESEARCH EXPERIENCE

- Postdoctoral research**, University of Connecticut, Storrs, CT. 2011-present  
*Topics:* Parallel evolutionary radiations in *Protea* and *Pelargonium* in South Africa, with a focus on divergence in leaf physiology and morphology; Selection on floral pigmentation in *Protea* and links between pollinators, nectar, seed predators, and pleiotropic effects.  
*Advisors:* Dr. Carl Schlichting and Dr. Kent Holsinger.
- Postdoctoral research**, University of Connecticut, Storrs, CT. 2007-2011  
*Topic:* Adaptive differentiation and plasticity in *Protea* sect. *Exsertae* in South Africa and their implications for trait diversification. *Advisor:* Dr. Kent Holsinger.
- Doctoral research**, Louisiana State University, Baton Rouge, LA. 2002- 2007  
*Topic:* Floral traits, pollinator behavior, and plant reproduction: tests of natural and sexual selection in the hummingbird-pollinated herb *Chrysothemis friedrichsthaliana* on the Osa Peninsula, Costa Rica. *Advisor:* Dr. Kyle Harms.
- Undergraduate research thesis**, Cornell University, Ithaca, NY. 2002  
*Topic:* Seed dispersal by *Gopherus polyphemus* at Archbold Biological Station, Florida.  
*Advisors:* Dr Eric Menges and Dr. Peter Marks.
- Undergraduate research assistant**, Cornell University, Ithaca, NY. 1999-2002  
*Topics:* Pollination ecology of *Clarkia xantiana*; microbial activity in anoxic wetland soils. *Supervisors:* Drs. Monica Geber and David Moeller; Dr. Kurt Smemo.

## **PUBLICATIONS AND PRESENTATIONS**

- Carlson, J. E., K. E. Holsinger and R. Prunier. 2011. Plant responses to climate in the Cape Floristic Region of South Africa: Evidence for adaptive differentiation and plasticity in the Proteaceae. *Evolution* 65:108-124. (cover photo).
- Carlson, J. E. and K. E. Holsinger. 2010. Natural selection on inflorescence color polymorphisms in wild *Protea* populations: the role of pollinators, seed predators and inter-trait correlations. *American Journal of Botany* 97: 934-944. (cover photo).
- Carlson, J. E. 2008. Hummingbird responses to gender-biased nectar production: Are nectar biases maintained by natural or sexual selection? *Proceedings of the Royal Society of London. Series B, Biological Sciences* 275: 1717-1726.
- Carlson, J. E., and K. E. Harms. 2007. The benefits of bathing buds: water calyces protect flowers from a microlepidopteran herbivore. *Biology Letters*: 3: 405-407.
- Carlson, J. E. 2007. Male-biased nectar production in a protandrous herb matches predictions of sexual selection theory in plants. *American Journal of Botany* 94(4): 674-682.
- Carlson, J. E., and K. E. Harms. 2006. The evolution of gender-biased nectar production in hermaphroditic plants. *The Botanical Review* 72(2): 179-205.
- Carlson, J. E., E. S. Menges, and P. L. Marks. 2003. Seed dispersal by *Gopherus polyphemus* at Archbold Biological Station, Florida. *Florida Scientist* 66(3): 80-87.
- Ashton, K. G. and J. E. Carlson. 2003. *Apalone ferox* (Florida softshell turtle). *Movement. Herpetological Review* 34:138.

## **Manuscripts in review or in preparation**

- Prunier, R., K.E. Holsinger and J.E. Carlson. In review. The effect of historical legacy on adaptation: do closely related species respond to the environment in the same way? *Journal of Evolutionary Biology*.
- Carlson, J.E. and K.E. Holsinger. In prep. Direct and indirect selection on floral pigmentation by pollinators and seed predators in a color polymorphic South African shrub.
- Carlson, J.E. and K.E. Holsinger. In prep. Developmental plasticity in *Protea* leaf traits as an evolutionary response in the Cape Floristic Region.

## **Presentations**

- Carlson, J.E., K.E. Holsinger, R. Prunier. 2010. Natural selection on inflorescence color polymorphisms in wild *Protea* populations: the role of pollinators, seed predators and inter-trait correlations. Society for the Study of Evolution Annual Meeting, Portland, Oregon. [oral paper].
- Carlson, J.E., K.E. Holsinger, R. Prunier. 2009. Plant responses to climate in the Cape Floristic Region of South Africa: Evidence for adaptive differentiation and plasticity in the Proteaceae. Botanical Society of America Annual Meeting, Snowbird, Utah. [oral paper].

Carlson, J.E. 2006. Pollinator preferences match gender-specific pollination needs: evidence for sexual selection in a hermaphroditic herb. Ecological Society of America 91<sup>st</sup> Annual Meeting, Nashville, Tennessee. [oral paper].

### **ACADEMIC EXPERIENCE AND SERVICE**

#### **Undergraduate teaching at Louisiana State University**

Introductory Biology Laboratory for Majors.	Jan.-May 2007
Principles of Ecology Laboratory. Trained students on data collection in the field, as well as basic data analysis and statistical techniques.	June-Aug. 2006

#### **Guest lectures and invited seminars**

Guest lecture in undergraduate honors seminar titled Topics in Modern Biology at University of Connecticut.	2010
Departmental seminar in the Department of Biology, Amherst College, MA. Invited by Dr. Ethan J. Temeles.	2007

#### **Membership in professional associations**

The American Botanical Society	2005-present
The Ecological Society of America	2005-2007
The Society for the Study of Evolution	2010-present

#### **Reviewer**

American Journal of Botany	Oecologia
Plant Evolution and Systematics	BMC Ecology
Journal of Tropical Ecology	Biological Journal of the Linnaean Society

#### **Mentoring and leadership training**

Mentored three undergraduate research assistants, one in South Africa.	2008 -2011
Participated in Women Evolving Biological Sciences Symposium, WA. Organizers: Drs. Claire Horner-Devine, Samantha Forde, Joyce Yen.	2010

#### **Outreach and community service**

Launched a citizen-science survey on za.ispot.org.uk, inviting nature enthusiasts to participate in a <i>Protea</i> flowerhead color survey.	2011
Illustrator and photographer for talks, pamphlets and publications.	2005-2011
Instructor at a 2-day outdoor session on data collection and scientific research for rangers in-training in Vrolijkheid Reserve, South Africa.	2009
Nature writer/Volunteer for trail guide and interpretive signs at Southern Vermont Natural History Museum, Marlboro, VT. Contact: Jason Saltman.	2007
Science fair judge, Louisiana State High School Science Fair for the	2003-2006

Baton Rouge area, held annually at LSU. Contact: Donald Kraft.

Elementary school outreach, annual presentations to 2<sup>nd</sup> and 4<sup>th</sup> graders on the flora and fauna of Costa Rica and South Africa and what it means to be a field biologist. Copenhagen Central School, NY. 2004-2007,2011

### **HONORS AND AWARDS**

C. W. Edgerton Honor Award for significant research achievements in the field of plant biology. Department of Biological Sciences, Louisiana State University, Baton Rouge, LA. \$500 2007

Garden Club of America Award in Tropical Botany. "The adaptive significance of variable nectar rewards in the Neotropical herb *Chrysothemis friedrichsthaliana*" Garden Club of America and World Wildlife Fund, Washington, DC. \$5500 2005

The Explorers Club Exploration Fund. "Plant-pollinator interactions in the Neotropics: Do plants benefit from natural variation in nectar rewards?" The Explorers Club, New York, NY. \$1200 2004

Sigma-Xi Grant-In-Aid of Research program. "The adaptive significance of female-biased nectar rewards in a Neotropical herb" Sigma Xi, Scientific Research Society, Research Triangle Park, NC. \$450 2004

Organization for Tropical Studies post-course award. "The water calyx of *Chrysothemis friedrichsthaliana*" Organization for Tropical Studies San Pedro, Costa Rica. \$480 2003

Bernard Lowy Fund for the Study of Tropical Botany. Tuition and airfare to Organization for Tropical Studies field course in Costa Rica. Louisiana State University, LA. \$2500 2003

Sigma-Xi Grant-In-Aid of Research program. "Seed predator avoidance by *Solenophora calycosa*, a Neotropical shrub". Sigma Xi, Scientific Research Society, Research Triangle Park, NC. \$500 2003

Louisiana State University, Board of Regents Fellowship for 4 years, Baton Rouge, LA. 2002

College of Agriculture and Life Sciences Academic Excellence Award for Highest GPA in Natural Resources Major, Graduated Magna Cum Laude, Cornell University, Ithaca, NY. 2002

### **SKILLS**

Scientific illustration (see <http://hydrodictyon.eeb.uconn.edu/people/carlson/index1.htm>)

Adobe Photoshop and Adobe Illustrator

Multivariate statistics in SAS or R

Spatial analyses in ArcGIS

Proficient in Spanish (especially spoken)

### **REFERENCES**

Kyle E. Harms, Associate Professor, Louisiana State University. (225) 578-7566

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Kent E. Holsinger, Professor, University of Connecticut. (860) 486-4059  
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Gregory Anderson, Emeritus Professor, University of Connecticut. (860) 486-4555  
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