

## CURRICULUM VITAE

### Rachel A. Levin

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#### Education

Ph.D., Ecology and Evolutionary Biology, University of Arizona, 2001

Dissertation: Relationships among fragrance, phylogeny and pollination in southwestern Nyctaginaceae

Advisor: Dr. Lucinda A. McDade

M.S., Ecology and Evolutionary Biology, University of Arizona, 1997

B.A., Biology, Carleton College, 1994

#### Professional Experience

2011-present, Visiting Assistant Professor in Biology, Department of Biology, Amherst College, Amherst, MA

2009-2011, Adjunct Assistant Professor in Biology, Department of Biology, Amherst College, Amherst, MA

2008-2009, Visiting Assistant Professor in Biology, Department of Biology, Amherst College, Amherst, MA

2007-2008, Adjunct Assistant Professor in Biology, Department of Biology, Amherst College, Amherst, MA

2007-2008, Lecturer and Research Associate in Biology, Department of Biological Sciences, Smith College, Northampton, MA

2004-2007, Research Associate in Biology, *Phylogenetic relationships and character evolution in Lycieae (Solanaceae)*, National Science Foundation Grant, J. S. Miller and R. A. Levin, principal investigators; Amherst College, Amherst, MA

2003-2004, Postdoctoral Research Associate, Relationships among the spiny solanums, *Solanum* subgenus *Leptostemonum* (Solanaceae), National Science Foundation Grant, L. Bohs, principal investigator; Department of Biology, University of Utah, Salt Lake City, UT

2001-2003, Postdoctoral Fellow, Evolutionary relationships and character evolution in the plant family Onagraceae, National Museum of Natural History, Department of Systematic Biology, Smithsonian Institution, Washington DC, April 2001-June 2002; November 2002-August 2003

2002-2002, Postdoctoral Fellow, Convergence of fragrance composition in rodent-pollinated plants, School of Botany and Zoology, University of Natal, Pietermaritzburg, South Africa

1998-2001, Research Assistant: *Pattern and process in the evolution of hawkmoth-pollination: Evidence from floral attractants and rewards*, National Science Foundation Grant, L. A. McDade and R. A. Raguso, principal investigators; Department of Ecology & Evolutionary Biology, University of Arizona

#### Research Grants

2009-2014, *Fine scale phylogenetic relationships in Lycieae (Solanaceae): a multilocus approach for understanding biogeography, polyploidy, and reproductive evolution*, National Science Foundation Grant, \$400,000; J. S. Miller and R. A. Levin, principal investigators; Amherst College, Amherst, MA.

2004-2009, *Phylogenetic relationships and character evolution in tribe Lycieae (Solanaceae)*, National Science Foundation Grant, \$313,852 plus three supplements (\$6,333; \$6,972; \$11,500); J. S. Miller and R. A. Levin, principal investigators; Amherst College, Amherst, MA.

### **Research Interests**

*Plant systematics, evolution, and biogeography*, systematics of groups such as Solanaceae, character evolution, and biogeographical patterns within and among species

*Plant reproductive ecology*, specifically relationships between floral and vegetative fragrance and pollination, and the selection pressures by pollinators on floral traits

### **Teaching Experience**

2009. Instructor, *Conservation Biology*; Amherst College

2009. Instructor, *Food, Fiber, and Pharmaceuticals*; Amherst College

2008. Instructor, *Plant-Animal Interactions*; Smith College

2007-2008. Instructor, *Biodiversity, Ecology, and Conservation*; Smith College

2007. Instructor, *Marine Ecology*; Smith College

1998. Guest lecturer, *Systematic Botany*, Department of Ecology and Evolutionary Biology, University of Arizona, Tucson, AZ

1996, 1998. Graduate teaching assistant, *Systematic Botany*, Department of Ecology and Evolutionary Biology, University of Arizona, Tucson, AZ; Dr. L. A. McDade

1996. Graduate teaching assistant, *Plant Diversity and Evolution*, Department of Ecology and Evolutionary Biology, University of Arizona, Tucson, AZ; Dr. M. Fishbein

1996. Teaching assistant at La Selva Biological Station, Costa Rica, *Tropical Rainforest Ecology*, Department of Biology, Carleton College, Northfield, MN; Dr. M. J. McKone

1995, 1997. Graduate teaching assistant, *Introductory Biology*, Department of Ecology and Evolutionary Biology, University of Arizona, Tucson, AZ; Drs. J. Bronstein and R. Robichaux

1994-1995. Graduate teaching assistant, *Ecology*, Department of Ecology and Evolutionary Biology, University of Arizona, Tucson, AZ; Drs. M. Rosenzweig and D. L. Venable

### **Undergraduate Mentoring**

#### ***Research Assistants***

Nicole Myers '05 (University of Utah, coauthor on Levin et al., 2006)

Abigail Moore '04 (University of Utah, currently a Ph.D. student in plant systematics at UC, Berkeley)

Dyson Moss '07 (University of Utah)

Katelyn Gamson '05 (Amherst College)

Jackie Eastman '07 (Amherst College)

Peter Murphy '08 (Amherst College)

Jamie Kostyun '09 (Amherst College)

Shari Jainuddin '10 (Smith College)

Ambika Kamath '11 (Amherst College, coauthor on Miller et al., 2009)

#### ***Senior Honors Research***

Anna Savage '04 (Amherst College)

Jessica Blanton '06E (Amherst College; coauthor on Levin et al., 2009a)

Joshua Shak '06 (Amherst College; coauthor on Levin et al., 2007)

Ellen Leffler '06 (Amherst College)

Andrew Whelan '08 (Amherst College; coauthor on Levin et al., 2009b)

Sara Barmettler '08 (Amherst College)

Julian Damashek '09 (Amherst College)

Thomas Beck '10 (Amherst College)  
Ambika Kamath '11 (Amherst College)

**Summer Program Students**

Simona Rosu '05 (University of Utah, summer 2004)  
Allison Schroeder '06 (Amherst College, summer 2003)  
Alan Kwan '08 (Amherst College, summer 2005)  
Sara Barmettler '08 (Amherst College, summer 2006)  
Mukta Dhond '09 (Amherst College, summer 2006)  
Jamie Kostyun '09 (Amherst College, summer 2007)  
Wen Zhang '10 (Amherst College, summer 2007)  
Carolyn Whiting, Smith College '10 (Amherst College, summer 2008)  
Ambika Kamath '11 (Amherst College, summer 2008)  
Cara Giaimo '11 (Amherst College, summer 2009)

**Graduate Mentoring**

Natalie Feliciano, M.S. (University of Massachusetts, Amherst)  
Sydne Record, Ph.D. candidate (University of Massachusetts, Amherst)

**Publications (\*indicates student co-author)**

- Levin, R. A., G. Bernardello, C. Whiting\*, and J. S. Miller. 2011. A new generic circumscription in tribe Lycieae (Solanaceae). *Taxon* 60: 681-690.
- Miller, J. S., A. Kamath\*, J. Damashek\*, and R. A. Levin. 2011. Out of America to Africa or Asia: Inference of dispersal histories using nuclear and plastid DNA and the S-RNase self-incompatibility locus. *Molecular Biology and Evolution* 28: 793-801.
- Stiefkens, L., M. L. Las Peñas, G. Bernardello, R. A. Levin, and J. S. Miller. 2010. Karyotypes and fluorescent chromosome banding patterns in southern African *Lycium* (Solanaceae). *Caryologia* 63: 50-61.
- Levin, R. A., A. Whelan\*, and J. S. Miller. 2009. The utility of nuclear conserved ortholog set II (COSII) genomic regions for species-level phylogenetic inference in *Lycium* (Solanaceae). *Molecular Phylogenetics and Evolution* 53: 881-890.
- Miller, J. S., A. Kamath\*, and R. A. Levin. 2009. Do multiple tortoises equal a hare? The utility of nine noncoding plastid regions for species-level phylogenetics in tribe Lycieae (Solanaceae). *Systematic Botany* 34: 796-804.
- Levin, R. A., J. Blanton\*, and J. S. Miller. 2009. Phylogenetic utility of nuclear nitrate reductase: A multi-locus comparison of nuclear and chloroplast sequence data for inference of relationships among American Lycieae (Solanaceae). *Molecular Phylogenetics and Evolution* 50: 608-617.
- Miller, J. S., R. A. Levin, and N. Feliciano\*. 2008. A Tale of Two Continents: Baker's Rule and the Maintenance of Self-Incompatibility in *Lycium* (Solanaceae). *Evolution* 62: 1052-1065.
- Levin, R. A., J. R. Shak\*, G. Bernardello, A. M. Venter, and J. S. Miller. 2007. Evolutionary Relationships in Tribe Lycieae (Solanaceae). Proceedings of the VI International Solanaceae Conference. *Acta Horticulturae* 745: 225-239.
- Raguso, R., A. Kelber, M. Pfaff, R. A. Levin, and L. A. McDade. 2007. Floral Biology of North American *Oenothera* sect. *Lavauxia* (Onagraceae): Advertisements, Rewards and Extreme Variation in Floral Depth. *Annals of the Missouri Botanical Garden* 94: 236-257.
- Levin, R. A., N. R. Myers\*, and L. Bohs. 2006. Phylogenetic relationships among the "spiny solanums" (*Solanum* subgenus *Leptostemonum*, Solanaceae). *American Journal of Botany* 93(1): 157-169.
- Levin, R. A., and J. S. Miller. 2005. Relationships within tribe Lycieae (Solanaceae): Paraphyly of *Lycium* and multiple origins of gender dimorphism. *American Journal of Botany* 92(12): 2044-2053.
- Levin, R. A., K. Watson, and L. Bohs. 2005. A four-gene study of evolutionary relationships in *Solanum* section *Acanthophora*. *American Journal of Botany* 92(4): 603-612.

- Levin, R. A., W. L. Wagner, P. C. Hoch, W. J. Hahn, A. Rodriguez, D. A. Baum, L. Katinas, E. A. Zimmer, and K. J. Sytsma. 2004. Paraphyly in tribe Onagreae: Insights into phylogenetic relationships of Onagraceae based on nuclear and chloroplast sequence data. *Systematic Botany* 29(1): 147-164.
- Levin, R. A., L. A. McDade, and R. A. Raguso. 2003. The systematic utility of floral and vegetative fragrance in two genera of Nyctaginaceae. *Systematic Biology* 52(3): 334-351.
- Levin, R. A., W. L. Wagner, P. C. Hoch, M. Nepokroeff, J. C. Pires, E. A. Zimmer, and K. J. Sytsma. 2003. Family-level relationships of Onagraceae based on chloroplast *rbcL* and *ndhF* data. *American Journal of Botany* 90(1): 107-115.
- Raguso, R. A., R. A. Levin, S. E. Foose\*, M. W. Holmberg, and L. A. McDade. 2003. Fragrance chemistry, nocturnal rhythms and pollination "syndromes" in *Nicotiana* section *Alatae* and other Tobaccos (Solanaceae). *Phytochemistry* 63: 265-284.
- Levin, R. A. 2002. Taxonomic status of *Acleisanthes*, *Selinocarpus*, and *Ammocodon* (Nyctaginaceae). *Novon* 12: 58-63.
- Levin, R. A., R. A. Raguso, and L. A. McDade. 2001. Fragrance chemistry and pollinator affinities in Nyctaginaceae. *Phytochemistry* 58(3): 429-440.
- Levin, R. A. 2000. Phylogenetic relationships within Nyctaginaceae tribe Nyctagineae: Evidence from nuclear and chloroplast genomes. *Systematic Botany* 25(4): 738-750.
- Fishbein, M., and R. Levin. 1997. *Metastelma mexicanum* (Asclepiadaceae): A new combination and re-evaluation of the status of *Basistelma* Bartlett. *Madroño* 44: 268-276.
- Paciorek, C. J., B. R. Moyer, R. A. Levin, and S. L. Halpern. 1995. Pollen consumption by the hummingbird flower mite *Proctolaelaps kirmsei* and possible fitness effects on *Hamelia patens*. *Biotropica* 27: 258-262.

### Invited Seminars

2010. National Tropical Botanical Garden, Kauai, HI
2010. Department of Biology, Westminster College, UT
2010. Department of Biology, Black Hills State University, SD
2009. Biology Department, Organismic & Evolutionary Biology, University of Massachusetts-Amherst, MA
2009. Department of Botany, Oklahoma State University, Stillwater, OK
2009. Department of Biological Sciences, Smith College, Northampton, MA
2008. Wuhan Institute of Botany, Chinese Academy of Sciences, Wuhan, China
2008. Department of Biology, Amherst College, Amherst, MA
2008. Department of Biological Sciences, Smith College, Northampton, MA
2007. Utah Museum of Natural History, Salt Lake City, UT
2007. Department of Geography, University of Utah, Salt Lake City, UT
2007. University of Arizona Herbarium, Tucson, AZ
2006. Geo Potts Herbarium, University of the Free State, Bloemfontein, South Africa
2006. Department of Biology, Rhode Island College, Providence, RI
2003. Department of Biological Sciences, Mt. Holyoke College, South Hadley, MA
2003. Department of Biological Science, Florida State University, Tallahassee, FL
2003. Department of Biological Sciences, Butler University, Indianapolis, IN
2002. Biodiversity Research Group, Academy of Natural Sciences, Philadelphia, PA
2002. School of Botany and Zoology, University of Natal, Pietermaritzburg, South Africa
2002. Natal Evolutionary Biology Society, University of Natal, Pietermaritzburg, South Africa
2001. Department of Biology, Colgate University, Hamilton, NY
2001. Department of Biology, University of Maryland, College Park, MD
1999. Gordon Conference on the Biology and Chemistry of Floral Scent, Oxford, UK

### Contributed Papers

2009. Botany 2009, Snowbird, UT
2008. Botany 2008, Vancouver, BC, Canada
2007. Botany 2007, Chicago, IL

2006. Botany 2006, Chico, CA  
2006. VI International Solanaceae Conference, Madison, WI  
2003. Botany 2003, Mobile, AL  
2002. Botany 2002, Madison, WI  
2001. Botany 2001, Albuquerque, NM  
2000. Botany 2000, Portland, OR  
2000. Society for the Study of Evolution, Bloomington, IN

**Professional Service**

2010, American Society of Plant Taxonomists, Grant Proposal Reviewer  
2009, American Society of Plant Taxonomists, Graduate Awards Judge for Botany 2009  
2005-2006, American Society of Plant Taxonomists, Nominations Committee  
Reviewer, Center for Plant Conservation, US Forest Service, Species assessments of rare or threatened plants  
Reviewer, *Rare Plants of Texas*, Texas A&M University Press  
Reviewer, *Life: The Science of Biology*, Sinauer Associates, Inc.  
Reviewer, *The American Journal of Botany*; *The Southwestern Naturalist*; *Journal of Plant Research*; *Sida*,  
*Contributions to Botany*; *Novon*; *Molecular Phylogenetics and Evolution*; *Ecology*; *Taxon*; *Journal of the Botanical  
Research Institute of Texas*; *Systematic Biology*  
Contributing author, *Flora of North America*, Vol. 14