

## JENNIFER LOUISE MODLISZEWSKI

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### RESEARCH INTERESTS

I am currently most interested in genome evolution, and how it affects the ability of organisms to evolve, and possibly adapt to their environment. My dissertation research employs genetic and genomic approaches to determine how polyploidy has affected the parallel phenotypic evolution of independently derived allotetraploid *Mimulus* into a highly selfing, and possibly adaptive, floral phenotype.

### EDUCATION

**Ph.D. candidate** in Biology, Duke University, expected graduation date: Spring 2012

**M.S.** in Botany, December 2005, North Carolina State University

Thesis: The formation and maintenance of a hybrid zone of *Aesculus* L. (Sapindaceae) in the southeastern United States. (Thesis Co-Advisors: Dr. Jenny Qiu-Yun Xiang, Dr. Michael Purugganan)

**B.S.** in Botany, May 2002, North Carolina State University

**B.S.** in Horticultural Science, May 2002, North Carolina State University

*Graduated summa cum laude (4.0 GPA)*

### PROFESSIONAL POSITIONS

**August 2006–present**, (Duke University): Doctoral Student, Department of Biology. Advisor: Dr. John Willis. Dissertation title: Polyploidy in the herbaceous wildflower *Mimulus*: genomic evolution and phenotypic variation in natural and synthetic allotetraploids.

**January-May 2006**, (NCSU): Research Assistant, Department of Genetics. Supervisor: Dr. Michael Purugganan. Assisted in the analysis of sequence data for the *Oryza* evolutionary genomics research project.

**Fall 2002-December 2005**, (NCSU): Graduate Research and Teaching Assistant, Department of Botany. M.S. research under the supervision of J.Q.-Y. Xiang and M.D. Purugganan. Research project: Analysis of gene flow in a hybrid zone of *Aesculus* using the geographical distribution and a combined phylogeographic and population genetic approach to analyze chloroplast haplotypes, exploring hypotheses regarding the formation and maintenance of the hybrid zone.

**May-August 2001**, (USDA, United States National Arboretum): Intern. Supervisor: Dr. Margaret Pooler. Research project: Genetic diversity of *Gaylussacia brachycera* (box huckleberry).

**April 2000-May 2001**, (NCSU): Undergraduate Research Assistant, Department of Genetics. Supervisor: Dr. Michael Purugganan. Collected and assisted in the analysis of phenotypic data regarding inflorescence architecture in *Arabidopsis thaliana*.

### GRANTS & AWARDS

2011 Duke University Department of Biology Grant-in-Aid of Research (Duke, \$1000)

2011 Katherine Goodman Stern Fellowship (Duke, AY 2011-2012)

2010 Duke University Conference Travel Fellowship (Duke, \$500)

2009 NSF Doctoral Dissertation Improvement Grant (Duke, \$14,960)

2009 Duke University Conference Travel Fellowship (Duke, \$500)

2008 Duke University Sigma Xi Mini-Grant (Duke, \$500)

2008 Oregon Native Plant Society Leighton Ho Memorial Field Research Grant (Duke, \$750)

2007 Duke University Department of Biology Grant-in-Aid of Research (Duke, \$1000)

2006 Biology Graduate Student Fellowship (Duke)

2002 Outstanding Botany Student Award, Department of Botany (now Plant Biology) at NCSU

2002 Jerry G. Collier Graduate Fellowship (NCSU)

1998 Park Scholarship Recipient (four-year academic scholarship with living stipend, NCSU)

Phi Beta Kappa National Honor Society

Phi Kappa Phi National Honor Society

Gamma Beta Phi National Honor Society

## ACADEMIC SERVICE

Reviewer: *Evolution, Proceedings for the Royal Society of London B: Biological Sciences*  
Duke University Biology Department Computing Committee (AY 2009-10, AY 2010-2011)  
Park Scholar Regional Selection Committee Volunteer (2007, 2008)

## SOCIETY MEMBERSHIPS

Botanical Society of America (BSA)  
California Botanical Society  
Society for the Study of Evolution (SSE)  
WISE – Women in Science and Engineering at Duke University

## PUBLICATIONS

### In preparation/revision

Benedict, B.G., **J.L. Modliszewski\***, A.L. Sweigart, N.H. Martin, F.R. Ganders, and J.H. Willis. *Mimulus sookensis* (Phrymaceae), a new allotetraploid species derived from *Mimulus guttatus* and *Mimulus nasutus*. *In revision at Madroño*. \*Corresponding author

**Modliszewski, J.L.**, and J.H. Willis. Allotetraploid *Mimulus* are highly interfertile despite multiple, independent origins. In preparation for *Molecular Ecology*.

Wu, C.A., **J.L. Modliszewski**, M. Nakamura, and J.H. Willis. Range-wide population differentiation and species cohesion in the high-elevation endemic monkeyflower *Mimulus tilingii*. In preparation for *Molecular Ecology*.

### Published

Cooley, A.M., **J.L. Modliszewski**, M.L. Rommel, and J.H. Willis. 2011. Gene Duplication in *Mimulus* Underlies Parallel Floral Evolution via Independent trans-Regulatory Changes. *Current Biology*. In press, doi:10.1016/j.cub.2011.03.028

Lowry, D.B., **J.L. Modliszewski**, K.M. Wright, C.A. Wu, and J.H. Willis. 2008. The strength and genetic basis of reproductive isolating barriers in flowering plants. *Philosophical Transactions of The Royal Society B*. 363: 3009-3021.

**Modliszewski, J.L.**, D. Thomas, C. Fan, D. Crawford, C.W. dePamphilis and J.Q.-Y. Xiang. 2006. Ancestral chloroplast polymorphism and historical secondary contact in a hybrid zone of *Aesculus* (Sapindaceae). *American Journal of Botany*. 93: 377-388.

Ungerer, M.C., S.S. Halldorsdottir, **J.L. Modliszewski**, T.F.C. McKay, and M.D. Purugganan. 2002. Quantitative trait loci for inflorescence development in *Arabidopsis thaliana*. *Genetics*. 160:1133-1151.

## PRESENTED TALKS

**Modliszewski, J.L.** and J.H. Willis. 2011. The role of polyploidization and evolution in shaping genomic and phenotypic variation in the allotetraploid *Mimulus sookensis*. Southeastern Population Ecology & Evolutionary Genetics Meeting (SEPEEG), Reidsville, NC, 22 October 2011.

**Modliszewski, J.L.** and J.H. Willis. 2011. Evolution post-polyploidization: what can be learned from the whole genome sequence of a natural allotetraploid *Mimulus*. Society for the Study of Evolution Conference, Norman, OK. 20 June 2011.

**Modliszewski, J.L.** 2011. Evolution post-polyploidization: what can be learned from the whole genome of a single, naturally-occurring allotetraploid *Mimulus*. Population Biology Seminar Series, Duke University, Durham, NC. 27 January 2011.

**Modliszewski, J.L.** and J.H. Willis. 2010. Do newly formed *Mimulus* hybrid polyploids display novel genetic variation? Society for the Study of Evolution Conference, Portland, OR. 29 June 2010.

**Modliszewski, J.L.,** and J.H. Willis. 2009. Duplicate gene evolution in allotetraploid *Mimulus*. Society for the Study of Evolution Conference, Moscow, ID. 14 June 2009.

**Modliszewski, J.L.** 2008. The dynamics of genomic and phenotypic variation in natural and synthetic allotetraploid *Mimulus*. Vision Research Group, University of North Carolina at Chapel Hill, NC. 29 Oct 2008.

**Modliszewski, J.L.** 2008. Polyploid evolution in *Mimulus*: insights from the field, the lab, and the greenhouse. Population Biology Seminar Series, Duke University, Durham, NC, 25 Sep 2008.

**Modliszewski, J.L.** and J.H. Willis. 2008. Formation and evolution of a polyploid derivative of *Mimulus guttatus* and *M. nasutus*: inferences from chloroplast DNA. Society for the Study of Evolution Conference, Minneapolis, MN.

**Modliszewski, J.L.,** and J.Q.-Y. Xiang. 2004. cpDNA Analysis of an *Aesculus* L. (Sapindales) Hybrid Zone: Implications for Evolutionary Processes. Session Moderator. Society for the Study of Evolution Conference, Fort Collins, CO.

**Modliszewski, J.L.,** and J.Q.-Y. Xiang. 2003. Chloroplast DNA Variation and Gene Flow in a Broad Hybrid Zone of *Aesculus* L. in the Southeastern United States. Southeastern Ecology, Evolution and Population Genetics Conference (SEEPAGE), Camp Sequoia, VA.

#### **TEACHING EXPERIENCE**

**2011,** (Duke): Laboratory Teaching Assistant: Genetics and Evolution

**2010,** (Duke): Teaching Assistant: Genetics, Genomics and Society

**2009,** (Duke): Discussion Section Leader: Ecology and Evolution

**2008,** (Duke): Laboratory Instructor: Organismal Evolution

**2007,** (Duke): Laboratory Instructor: Principles of Biology

**2003-2005,** (NCSU): Laboratory Instructor: Core Technologies in Molecular and Cellular Biology

**2003,** (NCSU): Laboratory Instructor: Introduction to Ecology

**2002,** (NCSU): Laboratory Instructor: Introductory Plant Biology

**REFERENCES** available upon request