CURRICULUM VITAE

Mark Edward Welch
Mississippi State University
Assistant Professor of Biological Sciences

Mississippi State University
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Education

B.S. University of Tennessee 1993 Biology

M.S. University of Tennessee 1997 Ecology
Dr. Christine R. B. Boake, Advisor
Welch, M.E. 1997. The population genetic structure of *Cyclura carinata carinata* (Sauria: Iguanidae). Masters Thesis. University of Tennessee, Knoxville, TN.

Ph.D. Indiana University 2002 Ecology and Evolutionary Biology
Dr. Loren H. Rieseberg, Advisor
Welch, M.E. 2002. Origin and adaptive divergence of the homoploid hybrid species *Helianthus paradoxus*. Dissertation. Indiana University, Bloomington, IN.

Research and Teaching Experience

Assistant Professor August 2007 – present, Mississippi State University
Lecturer August 2006 – December 2006, Vanderbilt University.
Postdoctoral Research Associate, November 2004 – July 2007, Vanderbilt University,
NSF Biological Informatics Research Fellow, November 2002-October 2004, Vanderbilt University
Research Associate, July 2001-October 2002, Indiana University, Department of Biology.
NIH Genetics, Cellular and Molecular Sciences Trainee, July 1998-July 2001, Indiana University
Associate Instructor, August 1997-May 1998, Indiana University
Teaching Assistant, August 1996-May 1997, University of Tennessee, Division of Biology.
Field Technician, May 1995-August 1995. Conducted survey of extant populations of iguanas in the Turks and Caicos Islands. Work entailed a census and the capture of animals for measurement and tissue collection

Grants Awarded

NSF Postdoctoral Research Fellowship in Biological Informatics (Award #DBI-0204062). 11/1/2002-11/1/2004. **$100,000**.

Mississipi State University, Office of Research and Economic Development Research Initiation Program (RIP). Establishing *Cyclura carinata* as a model system for studying the long-term effects of small population size. 1/1/2009-12/31/2009. **$10,000**

Intetnational Iguana Foundation (Co-PI). Population monitoring, post-hurricane impact assessments, and reproductive ecology of the Turks and Caicos iguana. 1/12009-12/31/2009. **$8,100**

Peer Reviewed Publications

Pearl, S.A., **M.E. Welch**, and D.E. McCauley. 2009. Mitochodrial heteroplasmy and paternal leakage in natural populations of *Silene vulgaris*, a gynodioecious plant. ***Molecular Biology and Evolution*** 26: 537-545

Bryan, J.J., G.P. Gerber, **M.E. Welch**, and C.L. Stephen. 2007. Re-evaluating the taxonomic status of the Booby Cay Iguana, *Cyclura carinata bartschi*. ***Copeia*** 2007: 734-739

McCauley, D.E., A.K. Sundby, M.F. Bailey, and **M.E. Welch**. 2007. Inheritance of chloroplast DNA is not strictly maternal in *Silene vulgaris* (Caryophylaceae): evidence form experimental crosses and natural populations. ***American Journal of Botany*** 94: 1333-1337

Welch, M.E., M.Z. Darnell, and D.E. McCauley, 2006. Variable populations within variable populations: quantifying mitochondrial heteroplasmy in natural populations of *Silene vulgaris*. ***Genetics*** 174: 829-837

Featured as Editor's Choice in November 17, 2006 issue of *Science*

Peer Reviewed Publications Continued

Welch, M.E., G.P. Gerber, and S.K. Davis. 2004. The genetic structure of the Turks and Caicos rock iguana, *Cyclura carinata carinata*, and its implications for species conservation. In A. Alberts, R. Carter, W. Hayes and E. Martins, [Eds.] *Iguanas: Biology and Conservation*. University of California Press.

Lexer, C., **M.E. Welch**, O. Raymond, and L.H. Rieseberg. 2003. The origin of ecological divergence in *Helianthus paradoxus* (Asteraceae): selection on transgressive characters in a novel hybrid habitat. ***Evolution*** 57: 1989-2000

Lexer, C., **M.E. Welch**, J.L. Durphy, and L.H. Rieseberg. 2003. Natural selection for salt tolerance QTL in wild sunflower hybrids: implications for the origin of *Helianthus paradoxus*, a diploid hybrid species. ***Molecular Ecology*** 12:1225-1235

Welch, M.E., and L.H. Rieseberg. 2002. Patterns of genetic variation suggest a single, ancient origin for the diploid hybrid species *Helianthus paradoxus*. ***Evolution*** 56: 2126-2137

Welch, M.E. and L.H. Rieseberg. 2002. Habitat divergence between a homoploid hybrid sunflower species, *Helianthus paradoxus* (Asteraceae), and its progenitors. ***American Journal of Botany*** 89:472-478.

Rieseberg, L.H. and **M.E. Welch**. 2002. Gene transfer through introgressive hybridization: history, evolutionary significance, and phylogenetic consequences. In M. Syvanen and C.I. Kado, [Eds.] *Horizontal Gene Transfer*, Second edition. Academic Press.

Allen, E.S., J.M. Burke, **M.E. Welch**, and L.H. Rieseberg. 1999. How reliable is science information on the web? ***Nature*** 402: 722

Invited Talks Since 2007

Welch, M.E. 2007. The Role of Ecology in Generating and Maintaining Biological Diversity in Plants. Washington State University, Pullman, WA

Welch, M.E. 2007. Quantitative Variation & the Evolution of Plant Genomes. Western Washington University, Bellingham, WA

Welch, M.E. 2007. Speciation, Local Adaptation, Mitochondrial Inheritance, and the Population Genetics of Plants. Middle Tennessee State University, Murfreesboro, TN

Welch, M.E. 2007. Ecology, Conflict and the Evolution of Plant Genomes. Mississippi State University, Mississippi State, MS

Welch, M.E. 2007. Adapting F_{ST} for the modern tools of empirical population genetics. Center for Computational Sciences, Mississippi State University.

Welch, M.E. 2008. Ecology's role in the Generation, and Maintenance of Biodiversity, University of Louisiana-Monroe, Monroe, LA.

Welch, M.E. 2008. Ecology's role in the Generation, and Maintenance of Biodiversity, Mississippi University for Women, Columbus, MS

Welch, M.E. 2008. Potential benefits to population genetics using maximum likelihood and Bayesian estimation. Mathematical Applications in Ecology and Evolution Workshop. Center for Computational Sciences, Mississippi State University, Mississippi State, MS.

Welch, M.E., and S. Pramod. 2009. Microsatellites under selection; evidence from the sunflower transcriptome, University of Tennessee, Knoxville, TN

Welch, M.E. 2009. Conservation genetics of a Caribbean Iguana, *Cyclura carinata*, Southeastern Louisiana University, Hammond, LA

Society Affiliations

The American Association for the Advancement of Science (AAAS)
The Society for the Study of Evolution
The Ecological Society of America
IUCN/SSC Iguana Specialist Group (ISG)
Jamaican Iguana Recovery Group (JIRG)