

## YI-HSIN ERICA TSAI

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Dept. of Ecology and Evolutionary Biology, University of Colorado Boulder

### Education

- 2009 Ph.D. Duke University Department of Biology  
Advisor: Paul S. Manos Concentration: Evolutionary ecology  
Dissertation: Host constraints on the post-glacial migration history of the parasitic plant, *Epifagus virginiana*
- 2002 B.A. University of Colorado at Boulder  
Majors: Environmental, Population, and Organismic Biology, and Biochemistry  
Summa Cum Laude, 3.998 GPA, Outstanding Graduate for the College of Arts & Sciences  
Advisor: Jeffrey B. Mitton  
Honors Thesis: A recent natural history of quaking aspen, *Populus tremuloides*: A phylogeography using organellar DNA.

### Postdoctoral Experience

- 2013- University of Colorado Boulder  
Advisor: Erin Tripp  
Project: Bioinformatics and assembly of chloroplast genomes.
- 2010-2013 Louisiana State University (2010-2011) & University of Notre Dame (2012-2013)  
Advisors: Bryan Carstens (LSU), Kyle Harms (LSU), & Jason McLachlan (Notre Dame)  
Project: Understanding forest responses to climate change through fossils, genetics, and models.  
Funded through an NSF Postdoctoral Fellowship in Biology.  
The postdoc was paused for 1 year for maternity leave (May 2011-April 2012).

### Fellowships

- 2010-2013 Postdoctoral Fellowship in Biology (Bioinformatics), National Science Foundation
- 2008 One-Semester Fellowship, Department of Biology, Duke University
- 2002-2007 Graduate Research Fellowship, National Science Foundation
- 2002-2006 James B. Duke Fellowship, Duke University

### Grants Funded

- 2006-2010 \$12,000 Doctoral Dissertation Improvement Grant, National Science Foundation
- Sum 2009 \$400 Women in Science Travel Award, Botanical Society of America
- Sum 2007 \$4,500 Google Summer of Code: Phyloinformatics Summer of Code, Google Inc., National Evolutionary Synthesis Center (NESCent)
- Sum 2007 \$500 Conference Travel Grant to Botany 2007, Deep Time Project
- 2006-2007 \$4,000 Eloise Gerry Fellowship, Sigma Delta Epsilon/Graduate Women in Science
- 2006-2007 \$1,000 Amy Lutz Rechel Award, Association for Women in Science
- 2006-2007 \$700 Graduate Student Research Grant, American Society of Plant Taxonomists
- 2006-2007 \$400 Grant in Aid, Sigma Xi
- 2006-2007 \$1,000 Grant in Aid, Department of Biology, Duke University
- 2006-2007 \$2,200 Graduate School International Research Travel Award, Duke University

2005-2006	\$1,000	Graduate School International Research Travel Award, Duke University
2004-2005	\$1,000	Grant in Aid, Department of Biology, Duke University
2003-2004	\$2,900	Grant for Training in Plant/Fungal Systematics, Duke University, Mellon Foundation (3 separate awards)

### Publications

- Darling, JA, **YE Tsai**, AMH Blakeslee, and J Roman. 2014. Are genes faster than crabs? Intraspecific admixture facilitates expansion of mitochondrial genomes beyond an established population range limit. *Proc. R. Soc. B*. In review.
- Gavin, DG, MC Fitzpatrick, PF Gugger, ... **YE Tsai** (24/25 alphabetical), and JW Williams. 2014. Climate refugia: Joint inference from fossil records, species distribution models, and phylogeography. *New Phytologist*. In revision.
- Burge, DO, R Hopkins, **YE Tsai**, and PS Manos. 2013. [Limited hybridization across an edaphic disjunction between the gabbro-endemic shrub \*Ceanothus roderickii\* \(Rhamnaceae\) and the soil-generalist \*C. cuneatus\*](#). *Am. J. Bot.* 100(9):1883-1895.
- Tsai, YE**, and BC Carstens. 2013. Assessing model fit in phylogeographical investigations: An example from the North American sandbar willow *Salix melanopsis*. *J. Biogeog.* 40(1):131-141.
- Tsai, YE**. 2011. [PhyloGeoViz: a web-based program that visualizes genetic data on maps](#). *Mol. Ecol. Res.* 11(3):557-561.
- Tsai, YE**, and PS Manos. 2010. [Host density drives the postglacial migration of the tree parasite, \*Epifagus virginiana\*](#). *Proc. Natl. Acad. Sci. USA* .107:17035-17040.
- Tsai, YE**, and PS Manos. 2010. Host constraints on the post-glacial migration history of the parasitic plant, *Epifagus virginiana*. Ph.D. Dissertation. Duke University, Durham, NC.
- Tsai, YE**, and JB Mitton. 2002. A recent natural history of quaking aspen, *Populus tremuloides*: A phylogeography using organellar DNA. Honors Thesis. University of Colorado at Boulder.

### Invited Seminars

- Tsai, YE**. Understanding species range shifts through genetics, fossils, and models. Humanists of Colorado; Denver, CO; 10 April 2013.
- Tsai, YE**, and PS Manos. Using fossils and genetics to identify host constraints on a parasite's migration history. Dept. of Biology, Southeastern Louisiana State University, Departmental seminar series; Hammond, LA; 18 February 2011.
- Tsai, YE**, and PS Manos. Synthesis of fossils and genetics reveals host controls on the post-glacial migration of a parasitic plant. Dept. of Integrative Biology, Univ. of California at Berkeley, Departmental seminar series; Berkeley, CA; 21 October 2010.
- Tsai, YE**, and PS Manos. Host constraints on the post-glacial migration history of the parasitic plant, *Epifagus virginiana*. Dept. of Biological Sciences, Louisiana State University, Systematics, Ecology, and Evolution seminar series; Baton Rouge, LA; 13 September 2010.
- Tsai, YE**. Dissertation seminar: Host constraints on the post-glacial migration history of the parasitic plant, *Epifagus virginiana*. Dept. of Biology, Duke University, Systematics seminar series; Durham, NC; 19 November 2009.
- Tsai, YE**, and PS Manos. Global change, parasites, and community assembly: How a parasite expanded its range in the shadow of its host. Oosting Memorial Symposium; Durham, NC; 17 April 2009.

### Conference Presentations

- Tsai, YE**, ST O'Neil, and JS McLachlan. Using ancient DNA and Hapler to reconstruct past forest composition. PAGES workshop on climate refugia, University of Oregon; Eugene, OR; 1 August 2012.
- Tsai, YE**, and PS Manos. Synthesizing fossils and genetics in phylogeography: Applications of spatial linear models to understanding multi-species distributions. Ecological Society of America Conference; Pittsburgh, PA; 3 August 2010.
- Tsai, YE**, and PS Manos. Fossil pollen, cpDNA, hosts, and parasites: Synthesizing datasets and testing phylogeographic hypotheses. Botany and Mycology Conference; Snowbird, UT; 27 July 2009.

- Tsai, YE**, and PS Manos. Host constraints on the post-glacial migration of the parasitic plant, *Epifagus virginiana*. [Poster]. Sigma Delta Epsilon/Graduate Women in Science National Business Meeting; Raleigh, NC; 20 June 2009.
- Tsai, YE**, and PS Manos. Host constraints on the post-glacial migration of the parasitic plant, *Epifagus virginiana*. Evolution Conference; Minneapolis, MN; 23 June 2008.
- Tsai, YE**, and D Kidd. PhyloGeoViz: Want to put pie charts on a map? Then PhyloGeoViz is the application for you. NESCent Phyloinformatics End-of-Summer-of-Code Meeting; Durham, NC; 16 August 2007.
- Tsai, YE**, and PS Manos. The hitchhiker's guide to the forest: A parasitic plant's account of the range expansion of its host. Botany Conference; Chicago, IL; 10 July 2007.
- Tsai, YE**, and PS Manos. Do hosts and their obligate parasites co-migrate? Inferences from the post-glacial phylogeographies of beech (*Fagus grandifolia*) and beechdrop (*Epifagus virginiana*). Botany Conference; Chico, CA; 2 August 2006.

### Teaching Experience

2007, 2008	Teaching Assistant	Genetics and Molecular Biology, Dept. of Biology, Duke Univ.
2005, 2009	Teaching Assistant	Organismal Diversity, Dept. of Biology, Duke Univ.
2001-2002	Teaching Assistant	Data Structures, Dept. of Computer Science, Univ. of Colorado
2001	Co-Instructor	General chemistry coseminar, Minority Arts and Sciences Program, Univ. of Colorado

### Synergistic Activities

- Summer 2007      Developer of PhyloGeoViz, a phylogeographic visualization tool. National Evolutionary Synthesis Center (NESCent), sponsored by the Google Summer of Code Program. <http://phylogeoviz.org>
- 2005-2009      Planning Committee Chair ('07-'09 ), Webmaster ('05-'09 ), PC Member ('05-'09) Women in Science and Engineering, Duke University
- Sum 2007, 2008      Assistant Coordinator, Howard Hughes Precollege Program, a lab research experience for high school juniors and seniors from underrepresented groups.
- Sum '04, '05, '06      Mentor, NSF-Research Experience for Undergraduates Program, Duke University
- I'm a reviewer for: Journal of Biogeography, PloS One, Heredity, Journal of Plant Research, Molecular Ecology, Molecular Ecology Resources, Transactions in GIS, iEvoBio, and American Journal of Botany.

### Professional Memberships

Society for the Study of Evolution	Sigma Xi
Botanical Society of America	Graduate Women in Science/Sigma Delta Epsilon
Ecological Society of America	Association of Women in Science
American Society of Plant Taxonomists	