

STEPHEN P. DIFAZIO
Department of Biology
West Virginia University
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RESEARCH INTERESTS

Plant genomics; molecular ecology; forest biotechnology; gene flow and establishment in plant populations; plant reproductive biology; landscape ecology; biotechnology risk assessment

PROFESSIONAL EXPERIENCE

Assistant Professor, Department of Biology, West Virginia University.

August 2005 to present.

Research Scientist, Environmental Sciences Division, Oak Ridge National Lab

January 2002 to October 2005

Associate Research Professor, Plant Sciences Department, University of Tennessee

June 2004 to October 2005

Graduate Research Assistant, Dept. of Forest Science, Oregon State University

October 1995 to December 2001

Led a project to assess genetic impacts of hybrid poplar plantations on wild populations.

Developed molecular markers and performed paternity analyses for poplar populations.

Designed and implemented spatial simulation model for transgene flow.

Faculty Research Assistant, Department of Forest Science, Oregon State University

March 1995 to October 1995

Sequencing of genes controlling flower development in Douglas-fir and black cottonwood.

Bulked segregant for molecular markers associated with stem forking in Douglas-fir.

General Biology Teaching Assistant, Oregon State University, Corvallis

January 1994 to March 1994

Taught laboratory classes for 80 students

Graduate Research Assistant, Pacific Northwest Research Station, U.S. Forest Service/Oregon State University, Corvallis

July 1992 to March 1995

Studied factors influencing the reproductive biology of Pacific yew populations

Forestry Extension Worker, Peace Corps, Totonicapan, Guatemala

July 1989 to March 1992

Promoted forestry, agroforestry and soil conservation in Mayan villages

Research Technician, Repligen Corporation, Cambridge, Massachusetts

January 1989 to June 1989

Tested anti-microbial polymer surfaces with yeast

Research Technician, Children's Hospital Medical Center, Boston, Massachusetts

June 1987 to January 1989

Performed genetic analysis of neurological mutations in mice

Research Assistant, Harvard School of Public Health, Boston, Massachusetts

March 1986 to May 1987

Tested artificial blood emulsions in rats

EDUCATION

Ph.D. 2002 Oregon State University (Corvallis), Forest Genetics, GPA, 4.0
M.S. 1995 Oregon State University (Corvallis), Ecology, GPA, 3.84
B.S. 1989 Northeastern University (Boston, Massachusetts), Biology, GPA, 3.95

HONORS

Outstanding PhD Student, 1999; Fowells Fellowship, 1998; EPA STAR Fellowship, 1997-1999; Moldke Fellowship, 1996; Ell Presidential Scholarship, 1984-1989; Phi Kappa Phi, 1988-1989; Alumni Award for Most Professional Promise, 1989; Junior Ring Award, 1988

FOREIGN LANGUAGE : Fluent in Spanish

PUBLICATIONS

Peer Reviewed

- Whitham, T.G., **S.P. DiFazio**, J.A. Schweitzer, S.M. Shuster, G.J. Allan, J.K. Bailey, and S.A. Woolbright. 2008. Extending Genomics to Natural Communities and Ecosystems. *Science*. 320: 492-495.
- Ma, H., and **S.P. DiFazio**. 2008. [An efficient method for purification of PCR products for sequencing](#). *Biotechniques* 44: 921-923.
- Yin, T., **S.P. DiFazio**, L.E. Gunter, X. Zhang, M.M. Sewell, S.A. Woolbright, G.J. Allan, C.T. Kelleher, C.J. Douglas, M. Wang, and G.A. Tuskan. 2008. Genome structure and emerging evidence of an incipient sex chromosome in *Populus*. *Genome Res.* 18: 422-430.
- Martin, F., Aerts, A., Ahren, D., Brun, A., Danchin, E.G.J., Duchaussoy, F., Gibon, J., Kohler, A., Lindquist, E., Pereda, V., Salamov, A., Shapiro, H.J., Wuyts, J., Blaudez, D., Buee, M., Brokstein, P., Canback, B., Cohen, D., Courty, P.E., Coutinho, P.M., Delaruelle, C., Detter, J.C., Deveau, A., **DiFazio, S.**, + 44 additional authors. 2008. The genome of *Laccaria bicolor* provides insights into mycorrhizal symbiosis. *Nature* 452: 88-92.
- Woolbright, S., **S.P. DiFazio**, T.M. Yin, G.D. Martinsen, X. Zhang, G.J. Allan, T.G. Whitham, and P. Keim. 2007. A dense linkage map of a hybrid (*Populus fremontii* x *P. angustifolia*) BC1 family contributes to long-term ecological research and comparison mapping in a model forest tree. *Heredity* 100:59-70.
- Kalluri, U.C., **S.P. DiFazio**, A.M. Brunner, and G.A. Tuskan. 2007. Genome-wide analysis of *Aux/IAA* and *ARF* gene families in *Populus trichocarpa*. *BMC Plant Biology*, 7:59. DOI:10.1186/1471-2229-7-59.
- Filichkin, S.A., **S.P. DiFazio**, A.M. Brunner, J.M. Davis, Z.K. Yang, U.C. Kalluri, R.S. Arias, E. Etherington, G.A. Tuskan, and S.H. Strauss. 2007. Efficiency of gene silencing in Arabidopsis: Direct inverted repeats versus transitive RNAi vectors. *Plant Biotech Journal* 5: 615-626
- Kelleher, C., R. Chiu, H. Shin, I.E. Bosdet, M. Krzywinski, C. Fjell, J. Wilkin, T.M. Yin, **S.P. DiFazio**, + 32 additional authors. 2007. A physical map of the highly heterozygous *Populus* genome: integration with the genome sequence and genetic map and analysis of haplotype variation. *Plant Journal* 50:1063-1078.
- Brunner, A.M., J. Li, **S.P. DiFazio**, O. Shevchenko, B.E. Montgomery, R. Mohamed, H. Wei, C. Ma, A.A. Elias, K. Van Wormer, and S.H. Strauss. 2007. Genetic containment of forest plantations. *Tree Genetics and Genomes* 3: 75-100.
- Tuskan, G.A., **S.P. DiFazio**, + 108 coauthors. 2006. [The Genome of Black Cottonwood, *Populus trichocarpa* \(Torr. & Gray\)](#). *Science* 313: 1596-1604.

- Whitham, T.G., J.K. Bailey, J.A. Schweitzer, S.M. Shuster, R.K. Bangert, C.J. LeRoy, E. Lonsdorf, G.J. Allan, **S.P. DiFazio**, B.M. Potts, D.G. Fischer, C.A. Gehring, R.L. Lindroth, J. arks, S.C. Hart, G.M. Wimp, and S.C. Wooley. 2006. [Community and ecosystem genetics: a framework for integrating from genes to ecosystems](#). *Nature Reviews Genetics* 7: 510-523.
- Groover, A.T., S.D. Mansfield, **S.P. DiFazio**, G. Dupper, J.R. Fontana, R. Millar, and Y. Wang. 2006. [The *Populus* homeobox gene *ARBORKNOX1* reveals overlapping mechanisms regulating the shoot apical meristem and the vascular cambium](#). *Plant Molecular Biology* 61:917-932.
- Wullschleger, S.D., T.M. Yin, **S.P. DiFazio**, T.J. Tschaplinski, L.E. Gunter, M.F. Davis, and G.A. Tuskan. 2005. [Genotypic variation in growth and biomass distribution for two advanced-generation \(\$F_2\$ \) pedigrees of hybrid poplar \(*Populus* spp.\)](#). *Canadian Journal of Forest Research* 35: 1779-1789.
- Yin, T.-M., **S.P. DiFazio**, L.E. Gunter, S.S. Jawdy, W. Boerjan, and G.A. Tuskan. 2004. [Genetic and Physical Mapping of *Melampsora* Rust Resistance Genes in *Populus* and Characterization of Linkage Disequilibrium and Flanking Genomic Sequence](#). *New Phytologist* 165(1):95-105. (Shared first authorship)
- Yin, T.M., **S.P. DiFazio**, L.E. Gunter, D. Riemenschneider, and G.A. Tuskan. 2004. [Large-scale Heterospecific Segregation Distortion in *Populus* Revealed by a Dense Genetic Map](#). *Theoretical and Applied Genetics*. 109(3):451-463.
- Tuskan, G.A., L.E. Gunter, Z.K. Yang, T.M. Yin, M.M. Sewell, and **S.P. DiFazio**. 2004. [Characterization of Microsatellites Revealed by Genomic Sequencing of *Populus trichocarpa*](#). *Canadian Journal of Forest Research*. 34(1):85-93.
- Burczyk, J., **S.P. DiFazio**, and W.T. Adams. 2004. [Gene flow in forest trees: How far do genes really travel?](#) *Forest Genetics* 11(3-4): 179-192.
- DiFazio, S.P.**, G. Slavov, J. Burczyk, S. Leonardi, and S.H. Strauss. 2004. [Gene Flow From Tree Plantations and Implications for Transgenic Risk Assessment](#). In C. Walter and M. Carson (eds.), *Plantation Forest Biotechnology for the 21st Century*. Research Signpost, Kerala, India. pp. 405-422.
- Slavov, G., **S.P. DiFazio**, and S.H. Strauss. 2004. [Gene flow in forest trees: Gene migration patterns and landscape modelling of transgene dispersion in hybrid poplar](#). In H.C.M. den Nijs, D. Bartsch, and J. Sweet (eds.), *Introgression from Genetically Modified Plants into Wild Relatives*. CABI Publishing, Wallingford, Oxfordshire.
- Wullschleger, S.D., and **S.P. DiFazio**. 2003. [Emerging use of gene expression microarrays in plant physiology](#). *Comparative and Functional Genomics* 4: 216-224.
- Wullschleger, S.D., G.A. Tuskan, and **S.P. DiFazio**. 2002. Genomics and the Tree Physiologist. *Tree Physiology* 22: 1273-1276.
- Meilan, R., K.-H. Han, C. Ma, **S.P. DiFazio**, J.A. Eaton, E. Hoiem, B.J. Stanton, R.P. Crockett, M.L. Taylor, R.R. James, J.S. Skinner, L. Jouanin, G. Pilate, and S.H. Strauss. 2002. [Growth and glyphosate tolerance of transgenic poplars I. Two-year field performance](#). *Canadian Journal of Forest Research* 32: 967-976.
- Meilan, R., D.J. Auerbach, C. Ma, **S.P. DiFazio**, and S.H. Strauss. 2002. [Stability of herbicide resistance and GUS expression in transgenic hybrid poplars \(*Populus* spp.\) during several years of field trials and vegetative propagation](#). *HortScience* 37(2): 277-280.
- Strauss, S.H., **S.P. DiFazio**, and R. Meilan. 2001. [Genetically modified poplars in context](#). *Forestry Chronicle*, 77(2):1-9.
- Brunner, A.M., W.H. Rottmann, L.A. Sheppard, K. Krutovskii, **S.P. DiFazio**, S. Leonardi and S.H. Strauss. 2000. [Structure and expression of duplicate AGAMOUS orthologs in poplar](#). *Plant Molecular Biology* 44 (5):619-634.
- James, R., **S.P. DiFazio**, A. Brunner and S.H. Strauss. 1998. [Environmental effects of genetic engineering of woody biomass crops](#). *Biomass & Bioenergy* 14(4): 403-414.
- DiFazio, S.P.**, M.V. Wilson, and N.C. Vance. 1998. [Factors limiting seed production of *Taxus brevifolia* \(Taxaceae\) in western Oregon](#). *American Journal of Botany* 85(7): 910-918.

DiFazio, S.P., N.C. Vance, and M.V. Wilson. 1997. Strobilus Production and growth of Pacific yew under a range of overstory conditions in western Oregon. *Canadian Journal of Forest Research* 27: 986-993.

DiFazio, S.P., N.C. Vance and M.V. Wilson. 1996. Variation in sex expression of Pacific yew in western Oregon. *Canadian Journal of Botany* 74: 1943-1946.

Other Publications

Brunner, A.M., **S.P. DiFazio**, and A.T. Groover. 2007. Forest genomics grows up and branches out. *New Phytologist* 174: 710-713.

DiFazio, S.P. 2005. [A pioneer perspective on adaptation](#). Functional Genomics of Environmental Adaptation in *Populus* - The 12th New Phytologist Symposium, Gatlinburg Tennessee, USA, October 2004. *New Phytologist*. 165: 661-664.

DiFazio, S.P., L. E. Gunter, G. Wickham, J. Zhou, C. C. Brandt, J. C. Schryver, and R. J. Norby. 2004. [Genomic Characterization of Belowground Ecosystem Responses to Climate Change](#). *Laboratory Directed Research And Development Program Fy 2004 Annual Report*. Oak Ridge National Laboratory, Oak Ridge, TN.

DiFazio, S.P., S. Jawdy, L. Gunter, B. Wilson, and A. Brunner. 2004. [Ecosystem Genomics—An Emerging Opportunity for Environmental Research](#). *Laboratory Directed Research And Development Program Fy 2003 Annual Report*. Oak Ridge National Laboratory, Oak Ridge, TN. pp. 342-351.

Martin, F., G.A. Tuskan, **S.P. DiFazio**, P. Lammers, G. Newcombe, and G.K. Podila. 2004. [Symbiotic sequencing for the *Populus* mesocosm](#). *New Phytologist* 161: 330-335.

Lammers, P., G.A. Tuskan, **S.P. DiFazio**, G.K. Podila, and F. Martin. 2004. [Mycorrhizal symbionts of *Populus* to be sequenced by the United States Department of Energy's Joint Genome Institute](#). *Mycorrhiza* 14: 63-64.

Tuskan, G.A., **S.P. DiFazio**, and T. Teichmann. 2004. [Poplar genomics is getting popular: The impact of the poplar genome project on tree research](#). *Plant Biology*. 6: 2-4.

Strauss, S.H., and **S.P. DiFazio**. 2004. [Hybrids Abounding \(Book Review\)](#). *Nature Biotechnology* 22: 29-30.

DiFazio, S.P. 2002. Biotechnology in tree improvement: Controversy versus capability. *Southeast Biology* 49(3): 288-289.

Slavov, G.T., **S.P. DiFazio**, and S.H. Strauss. 2002. Gene flow in forest trees: From empirical estimates to transgenic risk assessment. In [Ecological and Agronomic Consequences of Gene Flow from Transgenic Crops to Wild Relatives](#). Ohio State University, Columbus, pp. 106-119.

DiFazio, S.P. 2002. [Potential Impacts of Hybrid Poplar Cultivation on Black Cottonwood Populations: Gene Flow and Simulation Modeling](#). PhD Dissertation. Oregon State University, Corvallis. 244 pp.

Strauss, S.H., R. Meilan, **S.P. DiFazio**, A.M. Brunner, J.S. Skinner, R. Mohamed and J. Carson. 2000. Tree Genetic Engineering Research Cooperative Annual Report: 1999-2000. Forest Research Laboratory, Oregon State University.

Butler, B.J., **S.P. DiFazio**, M. Duane, M. Stoddard, and T. Neal. 2000. Sustainability and biodiversity of tropical ecosystems symposium. Meeting Report. *Environmental Conservation* 27(1), 82-83. 2000.

Meilan, R., C. Ma, S. Cheng, J.A. Eaton, L.K. Miller, R.P. Crockett, **S.P. DiFazio**, and S.H. Strauss. 2000. [High levels of Roundup® and leaf-beetle resistance in genetically engineered hybrid cottonwoods](#). In: K.A. Blatner, J.D. Johnson, and D.M. Baumgartner, eds., *Hybrid Poplars in the Pacific Northwest: Culture, Commerce and Capability*. Washington State University Cooperative Extension Bulletin MISC0272, Pullman, WA. pp. 29-38.

DiFazio, S.P., S. Leonardi, S. Cheng, and S.H. Strauss. 1999. Assessing potential risks of transgene escape from fiber plantations. In P.W. Lutman (ed.) *Gene flow and agriculture*:

relevance for transgenic crops. Symposium Proceedings No. 72. British Crop Protection Council, Farnham, UK. pp. 171-176.

Strauss, S.H., R. Meilan, **S.P. DiFazio**, A. Brunner, S. Leonardi, J. Skinner, K. Krutovskii, and R. Mohamed. 1999. Tree Genetic Engineering Research Cooperative (TGERC) Annual Report: 1998-1999. Forest Research Laboratory, Oregon State University, Corvallis.

Strauss, S.H., R. Meilan, **S.P. DiFazio**, R. Mohamed, A. Brunner, S. Leonardi, J. Skinner, and K. Krutovskii. 1998. Tree Genetic Engineering Research Cooperative (TGERC) Annual Report: 1997-1998. Forest Research Laboratory, Oregon State University, Corvallis.

DiFazio, S.P. 1995. The Reproductive Ecology of Pacific Yew (*Taxus brevifolia* Nutt.) Under a Range of Overstory Conditions in Western Oregon. M.S. Thesis, Oregon State University, Corvallis, OR. 178 pp.

GRANTS FUNDED

DOE Experimental Program to Stimulate Competitive Research Laboratory Partnership Program. 7/08-7/11, \$445,000. Land Reclamation for Bioenergy: Genomics of Adaptation of *Populus* to Marginal Sites S.P. DiFazio, D. Ellis, G.T. Slavov, J.R. Cumming, and T.J. Tschaplinski.

DOE Office of Science/Plant Feedstocks for Bioenergy. 7/07-7/09. \$171,543 (\$1,000,000 total). "A Functional Genomics Approach to Altering Crown Architecture in *Populus*: Maximizing Carbon Capture in Trees Grown in Dense Plantings. G.A. Tuskan, S.D. Wullschleger, U. Kalluri, G.T. Slavov, S.P. DiFazio, and G. Howe.

West Virginia University Awards for Research Team Scholarship. 7/06-7/07, \$39,756. "Mechanisms of Cadmium Tolerance in Poplar Trees" S.P. DiFazio, C. Barth, and B. Van Aken.

West Virginia University Program to Stimulate Competitive Research. 7/06-7/07, \$50,000. "Developing Plants for Phytoremediation of Heavy Metals", B. Van Aken, S.P. DiFazio, and C. Barth.

West Virginia University Faculty Senate, 7/06-7/07, \$13,000, "Elucidating Patterns of Adaptive Molecular Variation in Aspen Trees", S. P. DiFazio

DOE/Terrestrial Carbon Sequestration, 10/06-9/09, \$219,725 (\$4,084,481 total) "Genome-Enabled Discovery of Carbon Sequestration Genes in Poplar (renewal)" G.A. Tuskan, J. Davis, S.P. DiFazio, and 14 co-PI's.

DOE/Program for Ecosystem Research. 2/05-2/08. \$5,042,000. HERMES: Hierarchical Experimental Responses from Macromolecular to Ecosystem Scales. S.P. DiFazio, S.D. Wullshleger, T.J. Tschaplinski, C.W. Schadt, A. Rogers, and C.R. Kuske.

NSF/FIBR. 10/04-10/09. \$5,000,000. Community Genetics, Heritability & Evolution: Consequences of Extended Phenotypes. T.G. Whitham, R. Lindroth, S.P. DiFazio, B. Potts, S. Shuster, C. Gehring, G. Allan, J. Marks, S. Hart, and P. Keim.

NSF Plant Genome. 10/04-10/06. \$1,385,384. VCA: Populus Genome Curation. G.A. Tuskan, S.P. DiFazio, Z.M. Cheng, E. Retzel, and D. Rokhsar.

DOE/Basic Energy Science. 10/04-10/06. \$602,000. Chromosome-Scale Assembly of the Poplar Genome. S.P. DiFazio, N. Islam-Faridi, L.E. Gunter, and G.A. Tuskan.

DOE/Terrestrial Carbon Sequestration. 3/04-2/07. \$1,201,324. New genetic tools for modifying tree properties to enhance carbon sequestration: Microarray expression analysis of poplar regulatory gene families. A. Brunner, S. Givan, S. Strauss, B. Goldfarb, and S. DiFazio.

Oak Ridge National Laboratory Directed Research and Development Program, 5/02-10/03, \$140,000, "Ecosystem Genomics: An Emerging Opportunity for Environmental Research. S.P. DiFazio.

Oak Ridge National Laboratory Directed Research and Development Program, 9/02-10/04, \$670,000, "Genomic Characterization of Belowground Ecosystem Responses to Climate Change. S.P. DiFazio, M.W. Fields, S. M. Tiquia, C.C. Brandt, R.J. Norby, J. Zhou, J. C. Schryver, and J.F. Weltzin.

DOE/Terrestrial Carbon Sequestration, 10/02-9/05, \$5,142,024 "Genome-Enabled Discovery of Carbon Sequestration Genes in Poplar" G.A. Tuskan, J. Davis, S. Strauss, S.P. DiFazio, and 14 co-PI's.

USDA Initiative for Future Agriculture and Food Systems, 9/00-9/04, \$539,000, "Flowering control in Transgenic Trees: Stability and RNAi Gene Suppression." S. H. Strauss, A. Brunner, S.P. DiFazio, J. Skinner, and R. Meilan.

National Science Foundation, 9/99-8/04, \$350,000, "Industry/University Cooperative Research Center: Tree Genetic Engineering Research Cooperative." S. H. Strauss, R. Meilan, A. Brunner, J. Skinner, and S.P. DiFazio.

USDA Biotechnology Risk Assessment , 10/97-9/00, \$166,000, "Gene flow and simulation modeling of transgene spread in poplar." S. H. Strauss, S. P. DiFazio, S. Leonardi, S.Garman, W. T. Adams, and D. Hibbs. (Lead author and project leader)

EPA STAR Graduate Fellowship, 10/97-9/00, \$90,000, "Potential impacts of transgenic poplar cultivation." S.H. Strauss and S.P. DiFazio. (Lead author and project leader)

SYMPOSIA ORGANIZED

[Functional Genomics of Environmental Adaptation in *Populus*](#). with M. Campbell, F. Martin, R. Norby, H. Slater, and J. Tuskan. October 10-13, 2004. Gatlinburg, Tennessee
[Sustainability and Biodiversity of Tropical Ecosystems](#), with B.J. Butler , M. Duane, M. Stoddard, and T. Neal. **May 27** 2000. Corvallis, Oregon.

INVITED PRESENTATIONS

Populus as a Model System for Genome-Enabled Ecology. Texas A&M University, College Station, Texas. April 29, 2008.

The Influence on Genome Architecture on Introgression in *Populus* Hybrid Zones. University of Florida, Gainesville, Florida. April 9, 2008.

Insights into the Evolutionary Significance of Whole Genome Duplications Provided by *Populus* Expression Arrays. Roche-NimbleGen Workshop, Plant and Animal Genome Conference, San Diego, California, January 15, 2008.

Physical Movement of Seed, Pollen, and Vegetative Propagules. Genetically Engineered Forest Trees: Identifying Priorities For Ecological Risk Assessment. Raleigh, NC. May 3, 2007

Populus Hybrid Zones as Natural Functional Genomics Laboratories. Schatz Colloquium on Tree Genomics, Penn State Mont Alto, April 30, 2007.

Populus Hybrid Zones as Natural Functional Genomics Laboratories. Michigan Technological University, March 30, 2007

Populus Genomics. International Workshop on Conifer Genomics. Banbury Center, Cold Spring Harbor Lab, March 19, 2007

Populus Hybrid Zones as Natural Functional Genomics Laboratories. Virginia Polytechnic University, March 11, 2007

Population Genomics of Species Boundaries in *Populus* Hybrid Zones, University of Pittsburgh, January 31, 2007

Discovering Adaptive Polymorphisms in *Populus*. JGI/DOE Workshop, Genomic Technologies for Improving Bioenergy Feedstocks. Joint Genome Institute, Walnut Creek, CA. January 18-19, 2007.

Ecological Ramifications of the *Populus* Genome. Purdue University, February 7, 2005.

The *Populus* Genome Sequence: An Invaluable Resource for Industrial Biotechnology. The World Congress on Industrial Biotechnology and Bioprocessing (Session Chair). Orlando, FL. April 22, 2005.

From Ecosystem Genomics to Genome Ecology: Opportunities at the Interface of Complex Systems. [Landscapes, Genomics, and Transgenic Conifer Forests Environmental Leadership Forum](#). Duke University, Durham, NC. November 17-19, 2004.

Map-Based Assembly and Structural Characterization of the *Populus* Genome. IUFRO Forest Genetics and Tree Breeding in the Age of Genomics. Charleston, SC, November 1-5, 2004

A Structural Overview of the *Populus* Genome. [Functional Genomics of Environmental Adaptation in *Populus*](#). Gatlinburg, TN, October 10-13, 2004.

The International Populus Genome Sequencing Project: Unveiling the Secrets of a Pioneer Tree. [II Meeting of the Spanish Forest Functional Genomics Network](#). Pontevedra, Spain, September 29-30, 2004.

The International Populus Genome Sequencing Project: Unveiling the Secrets of a Pioneer Tree (Keynote Address). 2004 Poplar Council of Canada Annual Meeting. University of British Columbia, Vancouver, BC. August 8-11, 2004.

Outcrossing Risks for Transgenic Hybrid Poplars. IUFRO Forest Biotechnology 1999. University of Oxford, Oxford, UK. July 14, 1999.

PRESENTATIONS

A SNP Microarray for *Populus trichocarpa*. Plant and Animal Genome Conference XV, San Diego, CA. January 16, 2007.

Populus Hybrid Zones as Natural Functional Genomics Laboratories. Plant and Animal Genome Conference XV, San Diego, CA. January 16, 2007.

Tools and Strategies for Identifying Genes for Complex Traits in *Populus* (Keynote). IUFRO Tree Biotechnology 2005. Pretoria, South Africa. (Prepared by S. DiFazio, presented by G. Tuskan).

Structural Characterization of the *Populus* Genome. [Plant and Animal Genome Conference XIII](#). San Diego, CA. January 15-19, 2005.

The Poplar Genome. University of Tennessee Symposium on the Functional Genomics of Woody Plants. October 17, 2003.

Poplar Genomics: Opportunities for Accelerated Domestication and Insights on Adaptation. ORNL Genome Science and Technology Series. July 31, 2003.

[Ecological Implications of the Biotechnology Revolution in Forestry](#). University of Tennessee, February 17, 2003.

Gene Flow from Hybrid Poplar Plantations and Implications for Transgenic Risk Assessment. International Poplar Symposium III, Uppsala, Sweden. August 28, 2002.

Biotechnology in Tree Improvement: Controversy versus Capability. Meeting of the Association of Southeast Biologists, Boone, North Carolina, April 11, 2002.

A Landscape Modeling Approach to Assessing Gene Flow from Transgenic Poplar Plantations. Tree Biotechnology in the New Millennium. Skamania, Washington, July 24, 2001.

Potential Impacts of Hybrid Poplar Plantations on Black Cottonwood Populations. Meeting of the International Poplar Council. Vancouver, Washington. September 26, 2000.

Use of Biotechnology in Improvement of Woody Biomass Crops. Society of American Foresters National Convention. Portland, Oregon. September 14, 1999.

Potential Impacts of Hybrid Poplar Plantations on Black Cottonwood Populations. Western Forest Genetics Association 1999 Annual Meeting. Flagstaff, Arizona. July 27, 1999.

POSTER PRESENTATIONS

HERMES. Hierarchical Experimental Responses at Macromolecular to Ecosystem Scales. Genome Science and Technology Program Retreat. University of Tennessee. February 25, 2005.

Ecosystem Genomics: An Emerging Opportunity for Environmental Research. Complex Biology Review, ORNL, August 1, 2003.

Potential Risks of Transgenic Poplar Cultivation. EPA STAR Fellows Conference, Washington, DC . July 9-12, 2000.

Genetic engineering of hybrid poplar: High levels of Roundup and leaf-beetle resistance in genetically engineered hybrid cottonwoods. Society of American Foresters National Convention. Portland, Oregon. September 11-13, 1999.

Potential Impacts of Transgenic Poplar Cultivation. EPA STAR Fellows Conference, Washington, DC . June 12-14, 1998.

CLASSES TAUGHT

BIOL 794H. Professional Presentation Seminar. Fall 2007.

BIOL 464/GEN 535. [Population Genetics](#). Fall 2007.

BIOL 493/793 [Molecular Ecology](#), Fall 2006.

FS699 [Applications of the Polymerase Chain Reaction in Natural Resource Research](#). Fall 1999.

FS507. [Sustainability and Biodiversity of Tropical Ecosystems](#). Spring 1999.

FS505. Molecular Biology and Forestry Research: Applications and Principles. Winter 1999.

POSTDOCS ADVISED

Danielle Ellis, PhD Purdue University, September 2006-present

Gancho Slavov, PhD Oregon State University, April 2006-present

Hao Ma, PhD University of Hawaii (ongoing), April 2006-present

GRADUATE COMMITTEES

Sara Jawdy, M.S. July 2006. Department of Plant Sciences, University of Tennessee.
Emily Mooney, PhD. May 2007. Department of Biology, West Virginia University.
Matt Kaproth, M.S. January 2008. Department of Biology, West Virginia University.
Adam Hnatkovich. PhD. (chair). Ongoing. Department of Biology, West Virginia University.
Brahma Reddy Induri. PhD. (chair). Ongoing. Department of Biology, West Virginia University.
Adebola Bamikole Adebayo, PhD, Ongoing, College of Forestry, West Virginia University
Shalaka Desai, PhD., Ongoing, Department of Biology, West Virginia University.
Heidi Pagán. M.S. Ongoing. Department of Biology, West Virginia University.
Christine Picard, PhD. Ongoing. Department of Biology, West Virginia University.
Heather Robertson, M.S. Ongoing. Department of Biology, West Virginia University.
Baneshwar Singh, PhD. Ongoing. Department of Biology, West Virginia University.
Jeremy D. Smith. M.S. Ongoing. Department of Biology, West Virginia University.
Sara Souther, PhD., Ongoing, Department of Biology, West Virginia University.
Michelle Thompson, M.S., Ongoing, Department of Biology, West Virginia University.
Stephanie Young, PhD., Ongoing, Department of Biology, West Virginia University.
Mathew Zinkgraf, PhD., Ongoing. Northern Arizona University Dept. of Biology.
Helen Bothwell, PhD., Ongoing, Northern Arizona University Dept. of Biology.

APPRENTICES

Molly Jean Simis. Ongoing. Genetic diversity of disjunct *Cornus canadensis* populations.
Jonathan Caleb King. Ongoing. Population structure in trembling aspen.
Damian Christey. Ongoing. Computational foraging in plant genomes.
Dwight Alex Lastinger. Spring 2007. Structural analysis of *Populus* mitochondrion
Ryan Cunningham. June 2004 – August 2005. Bioinformatics for the *Populus* Genome.

PROFESSIONAL ACTIVITIES

Host for Professor Barbara Wilson, Jackson State University, in the Historically Black Colleges and Universities Program, Summer 2003.

Proposal Review Panel, DOE Program for Ecosystem Research, May 2005.

Editorial Review Board, *Tree Physiology*, 2004, 2007.

Reviewed manuscripts for *American Journal of Botany* (2), *Canadian Journal of Forest Research*, *Comparative and Functional Genomics*, *Conservation Genetics*, *Ecology Letters*, *Global Change Biology*, *Journal of the Torrey Plant Society*, *Molecular Breeding*, *Molecular Ecology*, *New Phytologist* (4), *Plant Physiology*, *Plant Science* (2), *Theoretical and Applied Genetics*, *Tree Physiology* (8), *Tree Genetics and Genomes* (5), and *Trees, Structure and Function*.