

curriculum vitae

TIMOTHY A. RINEHART

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University Education

- 2001 Ph.D. (Botany) University of Idaho, Moscow, Idaho
Title: Transposable Elements and Genome (dis)Organization in Higher Eukaryotes.
- 1994 B.S. (Biology) Case Western Reserve University, Cleveland, Ohio

Employment

- 2003 – present Research Plant Molecular Geneticist and Lead Scientist for Research Project
“Small Fruit and Ornamental Genetic Research for the Mid-South”
USDA, ARS, Southern Horticultural Laboratory, Poplarville, MS 39470
- 2000 – 2003 Project Manager and DNA Analyst
Sequetech Corporation, Mountain View, CA 94043
- 1995 – 2000 Teaching Assistant and Research Assistant
University of Idaho, Moscow, ID 83844
- 1994 – 1995 Custom Sequencing Laboratory Technician
United States Biochemical, Cleveland, OH 44128
- 1994 – 1995 Staff Research Assistant, Type I
Case Western Reserve University, Dept. of Biol. Sci., Cleveland, OH 44106

Current Service

- Woody Landscape Plant Crop Germplasm Committee (WLPCGC) 2003-present.
- University of Tennessee, adjunct faculty, Dept. of Entomology and Plant Path. 2006 - present.
- Mississippi State University, adjunct faculty, Dept. of Plant and Soil Sci. 2007- present.
- Institutional Biosafety Committee Member, Southern Horticultural Laboratory. 2003- present.
- Environmental Management System Committee Member, Southern Horticultural Laboratory. 2006 - present.
Recycling Committee, 2008 - present.
- Safety Committee Member, Southern Horticultural Laboratory. 2003- present.
Cyber Security Officer, 2006 - present.
- Webmaster and Local IT specialist, Southern Horticultural Laboratory, 2004 - present.
- Graduate Student Committee Member at the University of Tennessee for Renea DeVries (M.S., May 2006), Philip Wadl (Ph.D., May 2008), and Denita Johnson (Ph.D. candidate).
- Mentor for middle and high school science students through PlantingScience.org, 2008 - present.

- Reviewer for the *Journal of American Society of Horticultural Science*, *HortScience*, *Journal of Horticulture and Biotechnology*, *Molecular Phylogenetics and Evolution*, *Scientia Horticulturae*, *The International Journal of Conservation*, *Plant Disease*, *DNA Research*, *Journal of Herbs, Spices & Medicinal Plants*, *Hereditas*, and *Canadian Journal of Botany*. 24 articles in last 4 years.

Scientific Community

- American Society for Horticultural Science (ASHS) and Southern region, 2003 - present.
Ornamental Plant Breeding Working Group, Chair 2009-2010.
- International Society of Horticultural Science (ISHS), 2003 - present.
- Mississippi Nursery and Landscape Association (MNLA), 2003 - present.
- Louisiana Nursery and Landscape Association (LNLA), 2009 - present.
- The American Hydrangea Society (AHS) 2003 - present.
- American association for the advancement of Science (AAAS), 1999 - present.
- Botanical Society of America, 2006 - present.

Teaching

- 2000 Graduate Teaching Assistant, Biology 352, Experimental Genetics, University of Idaho
- 1999 Graduate Teaching Assistant, Botany 425/525, Developmental Plant Anatomy, University of Idaho
- 1998 Graduate Teaching Assistant, Biology 203, General Botany, University of Idaho
- 1995 Graduate Teaching Assistant, Biology 100, Introduction to Biology for non-majors, University of Idaho

Research Presentations

- 2010 Invited speaker at the University of Southern Mississippi, Hattiesburg, MS.
“Making good use of modern genetic tools to improve specialty crops such as woody ornamental plants”
- 2009 Invited speaker at the University of Georgia, Coastal Plain Experiment Station, Tifton, GA.
"Genetic tools to enhance hydrangea breeding".
- 2008 Southern Nursery Association (SNA) Research Conference, Atlanta, GA.
“Relationships between *Hydrangea indochinensis*, *H. macrophylla*, *H. scandens*, and *Dichroa febrifuga* based on SSR markers.”
- 2008 American Society for Horticultural Science (ASHS) National Meeting, Orlando, FL.
“Increasing phenotypic diversity in *Hydrangea macrophylla* using targeted and random mutation.”
- 2008 American Society for Horticultural Science (ASHS) National Meeting, Orlando, FL.
“Genetic Diversity estimates for *Dichroa* species.”
- 2008 First International Symposium on Woody Ornamental Plants for the Temperate Zone, Pruhonice, CZ. “Estimating Genetic Diversity among *Lagerstroemia* species and hybrids using SSR markers”.

- 2006 Southern Nursery Association (SNA) Research Conference, Atlanta, GA.
“Using DNA fingerprinting to identify mislabeled plants in the trade: an example from hydrangea.”
- 2006 Invited speaker, American Society for Horticultural Science (ASHS) National Meeting, New Orleans, LA. “Examples of Genome Evolution in Polyploids where Bigger is Better.”
- 2006 American Society for Horticultural Science (ASHS) National Meeting, New Orleans, LA.
“Using SSR Markers to Verify Crapeyrtle Hybrids”
- 2005 Southern Nursery Association (SNA) Research Conference, Atlanta, GA.
“Genetic and Phenotypic Diversity of Binucleate Rhizoctonia Species Causing Web Blight on Azaleas”
- 2005 Southern Nursery Association (SNA) Research Conference, Atlanta, GA.
“Inter- and Intraspecific Hybrid Verification in Hydrangea using Newly Developed SSR Markers”
- 2005 American Society for Horticultural Science (ASHS) National Meeting, Las Vegas, NV.
“SSR Markers for Accelerated Hydrangea Breeding and Hybrid Verification”
- 2004 Invited speaker, Fall 2004 Seminar Series, University of Tennessee, Department of Entomology and Plant Pathology, Knoxville, TN
“DNA-based Tools for Rhizoctonia Detection and Identification”
- 2001 Invited speaker, Colloquium Series, University of Idaho, Dept. of Biol. Sci., Moscow, ID.
“Transposable Elements and Genome (dis)Organization in Higher Eukaryotes.”
- 1999 Meetings of the Society for the Study of Evolution, American Society of Naturalists and Society of Systematic Biologists, University of Wisconsin, Madison, WI.
“Similar, Coordinated LINE and SINE activity in South American rodents.”
- 1999 Fall Seminar Series, University of Idaho, Dept. of Biological Sciences, Moscow, ID.
“Looking for SINEs of Activity: Profiling Retrotransposition in South American Rodents.”
- 1997 39th Annual Maize Genetics Conference, Sheraton Sand Key Resort, Clearwater Beach, FL.
“Comparative analysis of non-random DNA double-strand break repair following *Ac/Ds* excision in maize and *Arabidopsis*.”

Outreach and Industry Presentations

- 2009 36th Annual Horticultural Field Day, Mississippi State University, Coastal Research and Extension Center, South Mississippi Branch Experiment Station, Mississippi Agricultural and Forestry Experiment Station, Poplarville, MS
“New Genetic Research on Native Ornamental Trees”
- 2008 35th Annual Horticultural Field Day, Mississippi State University, Coastal Research and

Extension Center, South Mississippi Branch Experiment Station, Mississippi Agricultural and Forestry Experiment Station, Poplarville, MS
“*Hydrangea macrophylla* sun tolerance in the Deep South.”

- 2007 Invited speaker at the Southern Plant Conference, Mobile, AL.
"Molecular Tools for Plant Patent Protection, True-to-Name Verification and Parentage Analysis"
- 2006 Master Gardeners, Biloxi, MS
“USDA-ARS research on *Hydrangea*.”
- 2004 32nd Annual Horticultural Field Day, Mississippi State University, Coastal Research and Extension Center, South Mississippi Branch Experiment Station, Mississippi Agricultural and Forestry Experiment Station, Poplarville, MS
“USDA Crapeyrtle Breeding Program in Poplarville, MS.”
- 2004 32nd Annual Horticultural Field Day, Mississippi State University, Coastal Research and Extension Center, South Mississippi Branch Experiment Station, Mississippi Agricultural and Forestry Experiment Station, Poplarville, MS
“Genetic diversity and molecular detection of *Rhizoctonia* species in a nursery environment.”
- 2003 31st Annual Horticultural Field Day, Mississippi State University, Coastal Research and Extension Center, South Mississippi Branch Experiment Station, Mississippi Agricultural and Forestry Experiment Station, Poplarville, MS
“What can molecular genetics do for ornamental plant research?”
- 2003 31st Annual Horticultural Field Day, Mississippi State University, Coastal Research and Extension Center, South Mississippi Branch Experiment Station, Mississippi Agricultural and Forestry Experiment Station, Poplarville, MS
“Genetic diversity in *Hydrangea*.”

Awards

- 2009 USDA-ARS Early Career Scientist of the Year Award, Mid South Area, \$3000 + \$15,000 supplies.
- 2007 USDA Postdoctoral Research Associate Program Award, \$100,000 for a two year postdoc.
- 2007 USDA Spot Award for IT support with the E-mail transition to Outlook. \$500.
- 2006 USDA Employee Recognition and Remembrance Award in recognition of volunteer efforts after Hurricane Katrina.
- 2005 USDA Extra Effort Award for disaster recovery efforts after hurricane Katrina. \$2000.
- 2004 USDA Extra Effort Award for Website Centralization. \$153.

Grants and Cooperative Agreements

2009. Oregon Department of Agriculture, \$21,500
Co-PI with Ryan Contreras at Oregon State University.
“Development of tetraploid *Hydrangea macrophylla* cultivars.”

2009-2014. Unfunded Cooperative Agreement with Texas AgriLife, Dallas, TX
ADODR (Authorized Departmental Officer's Designated Representative, or PD) with Xinwang Wang,

Raul Cabrera, Jim Reinert, and Cecil Pounders.
“Crapemyrtle improvement using molecular genetics”.

Trade Publications

Li, Y., Windham, M., Trigiano, R., Reed, S., Spiers, J. and Rinehart, T. Effects of shading on cercospora leaf spot in bigleaf hydrangea. Southern Nursery Digest. 1:31. 2009.

Rinehart, T. Using technology to breed hydrangeas. Louisiana Nursery and Landscape Association (LNLA) Newsletter. 2:26. 2005. (cover photo).

Rinehart, T. USDA ornamental research in Poplarville, Mississippi. Louisiana Nursery and Landscape Association (LNLA) Newsletter. 4:7. 2004.

Book Chapters

Rinehart, T., Wang, X. and Trigiano, R. Chapter 10: Molecular tools for studying plant genetic diversity in Trigiano, R., Windham, M. and Windham, A. (eds.) Plant Cell Culture, Development and Biotechnology, Taylor and Francis, Boca Raton). 2009. (in press)

Rinehart, T. and Reed, S. Chapter 37: Breeding horticultural plants, pp 391-400. In Beyl, C. and Trigiano, R. (eds.) Plant Propagation Concepts and Laboratory Exercises, Taylor and Francis, Boca Raton. 2008.

Rinehart, T., Wang, X. and Trigiano, R. Chapter 26. Molecular tools for studying plant pathogens, pp 269-278. In Trigiano, R., Windham, M. and Windham, A. (eds.) Plant Pathology Concepts and Laboratory Exercises, Second Edition, Taylor and Francis, Boca Raton. 2007.

Journal Publications

Rinehart, T., Scheffler, B., and Reed, S. Ploidy variation and genetic diversity in *Dichroa*. HortScience. (accepted 03 JUN 2009, in press).

Greer, S. and Rinehart, T. Dormancy and germination in vitro response of *Hydrangea macrophylla* and *H. paniculata* seed to light, stratification, and gibberilic acid. J. Environ. Hort. (accepted 6 JUL 2009, in press for March 2010).

Wadl, P., Skinner, J., Dunlap, J., Rinehart, T., Reed, S., Pantalone, V., and Trigiano, R. Honeybee-mediated controlled pollinations in *Cornus florida* and *C. kousa* intra- and interspecific crosses. HortScience 44(6):1527-1533. 2009.

Kardos, J., Robacker, C., Dirr, M., and Rinehart, T. Production and verification of *Hydrangea macrophylla* × *H. angustipetala* hybrids. HortScience. 44(6):1534–1537. 2009.

Wang, X., Good, L., Johnson, D., Wadl, P., Panthee, D., Scheffler, B., Rinehart, T., Stewart, N., Yuan, J. and Trigiano, R. Microsatellites from *Conyza canadensis* (horseweed). Mol. Ecol. Resources. 9(5):1375-1379. 2009.

Baird, R., Wadl, P., Wang, X., Johnson, D., Rinehart, T., Abbas, H., Shier, T., and Trigiano, R.

- Microsatellites from the charcoal rot fungus (*Macrophomina phaseolina*). Mol. Ecol. Resources. 9:946-948. 2009.
- Wang, W., Wadl, P., Rinehart, T., Scheffler, B., Windham, M., Spiers, J., Johnson, D., and Trigiano, R. A linkage map for flowering dogwood (*Cornus florida*) based on microsatellite markers. Euphytica. 165:165-175. 2009.
- Greer, S. and Rinehart, T. In vitro responses of *Hydrangea macrophylla* and *Hydrangea paniculata* seed to ethyl methane sulfonate (EMS) and stratification. HortScience. 44:764-769. 2009.
- Wang, X., Rinehart, T., Wadl, P., Spiers, J., Johnson, D., and Trigiano, R. A new electrophoresis technique to separate microsatellite alleles. Afr. J. Biotechnol. 8:2432-2436. 2009.
- Reed, S., Jones, K., and Rinehart, T. Production and characterization of intergeneric hybrids between *Dichroa febrifuga* and *Hydrangea macrophylla*. J. Amer. Soc. Hort. Sci. 133:84-91. 2008.
- Wang, X., Trigiano, R., Windham, M., Scheffler, B., Rinehart, T., and Spiers, J. Development and characterization of simple sequence repeats for flowering dogwood (*Cornus florida* L). Tree Genet. Genomes. 4:461-468. 2008.
- DeVries, R., Trigiano R., Windham, M., Windham, A., Sorochan, J., Rinehart, T., and Vargas, J. Genetic analysis of fungicide-resistant *Sclerotinia homoeocarpa* isolates from Tennessee and northern Mississippi. Plant Dis. 92:83-90. 2008.
- Reed, S. and Rinehart, T. Simple sequence repeat marker analysis of genetic relationships within *Hydrangea paniculata*. HortScience. 44:27-31. 2008.
- Li, Y., Windham, M., Trigiano, R., Reed, S., Spiers, J., and Rinehart, T. Bright-field and fluorescence microscopic study of development of *Erysiphe polygoni* in susceptible and resistant bigleaf hydrangea. Plant Dis. 93:130-134. 2008.
- Wadl, P., Wang, X., Trigiano, A., Skinner, J., Windham, M., Trigiano, R., Rinehart, T., Reed, S. and V. Pantalone, V. Molecular identification key for cultivars and lines of *Cornus florida* and *C. kousa* based on microsatellite loci. J. Amer. Soc. Hort. Sci. 133:783-793. 2008.
- Smith, N., Trigiano, R., Windham, M., Lamour, K., Finley, L., Wang, X., and Rinehart, T. AFLP Markers identify *Cornus florida* cultivars and lines. J. Amer. Soc. Hort. Sci. 132: 90-96. 2007.
- Reed, S., and Rinehart, T. Simple sequence repeat marker analysis of genetic relationships within *Hydrangea macrophylla*. J. Amer. Soc. Hort. Sci. 132:341-351. 2007.
- Pounders, C., Rinehart, T., Sakhanokho, H. Evaluation of inter-specific hybrids between *Lagerstroemia indica* and *L. speciosa*. HortScience. 42:1169-1174. 2007.
- Jones, K., Reed, S., Rinehart, T. Analysis of ploidy level and its effect on guard cell length, pollen diameter and fertility in *Hydrangea macrophylla*. HortScience. 42:483-488. 2007.

- Wang, X., Trigiano, R., Windham, M., DeVries, R., Scheffler, B., Rinehart, T., and Spiers, J. A simple PCR procedure for discovering microsatellites from small insert libraries. *Mol. Ecol. Notes.* 7:558–561. 2007.
- Wadl, P., Wang, X., Scheffler, B., Rinehart, T., and Trigiano, R., Microsatellites from kousa dogwood (*Cornus kousa*). *Molec. Ecol. Resources.* doi: 10.1111/j.1471-8286.2007.02062. 2007.
- Pounders, C., Rinehart, T., Edwards, N. and Knight, P. An analysis of combining ability for height, leaf out, bloom date and flower color for crapemyrtle. *HortScience.* 42:1317-1322. 2007.
- Rinehart, T., and Boyd, D. Rapid, high-throughput detection of azalea lace bug, *Stephanitis pyrioides* (Scott) (Hemiptera: Tingidae) predation by lacewing larvae, *Chrysoperla rufilabris* (Burmeister) (Neuroptera: Chrysopidae), using fluorescent PCR primers. *J. Econ. Ent.* 99:2142-2145. 2006.
- Rinehart, T., Copes, C., Toda, T. and Cubeta, M. Genetic characterization of binucleate *Rhizoctonia* species causing web blight on azalea in Mississippi and Alabama. *Plant Dis.* 91:616-623. 2006.
- Rinehart, T., Scheffler, B., and Reed, S. Genetic diversity estimates for the genus *Hydrangea* and development of a molecular key based on SSR. *J. Amer. Soc. Hort. Sci.* 131:787-797. 2006.
- Grahn, R., Rinehart, T., Cantrell, M. and Wichman, H. Extinction of LINE-1 activity coincident with a major mammalian radiation in rodents. *Cytogenet. Genome Res.*, 110:407-415. 2005.
- Rinehart, T., Grahn, R., and Wichman, H. SINE extinction preceded LINE extinction in Sigmodontine rodents: Implications for retrotranspositional dynamics and mechanisms. *Cytogenet. Genome Res.* 110:416-425. 2005.
- Sampson, B., Rinehart, T., Oscar, L., Stringer, S., and Spiers, J. Biology of endoparasitoids (*Hymenoptera*) attacking cranberry and blueberry tipworms (*Dasineura oxycoccana* Johnson) and *Prodidiplosis vaccinii* (Diptera: Cecidomyiidae) on cultivated blueberries. *Ann. Ent. Soc. Am.* 99:113-120. 2005.
- Rinehart, T. AFLP analysis using GeneMapper software and an Excel macro that aligns and converts output to binary. *Biotechniques*, 37:186-188. 2004.
- Rinehart, T., Dean, C. and Weil, C. Comparative Analysis of non-random DNA repair following Ac transposon excision in maize and Arabidopsis. *The Plant Journal*, 12:1419-1427. 1997.
- Peer-reviewed Proceedings.**
- Li, Y., Windham, M., Trigiano, R., Windham, A., Reed, S., Spiers, J., and Rinehart, T. Resistance to rust in hydrangeas. *Proc. Southern Nursery Assoc. Res. Conf.* 55: (in press).
- Rinehart, T., Scheffler, B., Pooler, M., and Trigiano, R. DNA Fingerprinting eastern redbud cultivars (*Cercis canadensis*) using SSR Markers. *Proc. Southern Nursery Assoc. Res. Conf.* 55: (in press).

- Wang, X., Cabrera, R., Pounders, C., Rinehart, T., and McCormick, J. Inter- and intra-specific hybrid breeding in crapemyrtle (*Lagerstroemia indica*). Proc. Southern Nursery Assoc. Res. Conf. 55: (in press).
- Rinehart, T. Doubling chromosomes in *Hydrangea macrophylla* cultivars using anti-mitotic agents. Proc. Southern Nursery Assoc. Res. Conf. 54:365-368. 2009.
- Copes, W., Cubeta, M., Toda, T. and Rinehart, T. Seasonal presence of Rhizoctonia species in container-grown azalea. Proc. Southern Nursery Assoc. Res. Conf. 54:66-68. 2009.
- Li, Y., Windham, M., Trigiano, R., Reed, S., Spiers, J. and Rinehart, T. Effects of shading on cercospora leaf spot in bigleaf hydrangea. Proc. Southern Nursery Assoc. Res. Conf. 53:379-380. 2008.
- Rinehart, T. and Reed, S. Relationships between *Hydrangea indochinensis*, *H. macrophylla*, *H. scandens*, and *Dichroa febrifuga* based on SSR markers. Proc. Southern Nursery Assoc. Res. Conf. 53:195-197. 2008.
- Rinehart, T., Owings, A., Reed, S. and Bi, G. Hydrangea sun tolerance for the deep south. Proc. Southern Nursery Assoc. Res. Conf. 53:198-200. 2008.
- Rinehart, T. and Pounders, C.. Estimating diversity among *Lagerstroemia* species and hybrids using SSR markers. (Accepted for publication in Acta. Hort. 30 MAY 2008)
- Rinehart, T. and Reed, S. Using SSR Markers to estimate diversity among hydrangea germplasm and improve breeding of new cultivars. (Accepted for publication by Acta. Hort. 30 MAY 2008).
- Wadl, P., Skinner, J., Wang, X., Rinehart, T., Reed, S., Pantalone, V., Windham, M. and Trigiano, R. Breeding intra and interspecific *Cornus* species. Proc. Southern Nursery Assoc. Res. Conf. 52:372-375. 2007.
- Windham, M., Mmbaga, M., Reed, S., Rinehart, T., Windham, A. and Li Y. Evaluation of *Hydrangea macrophylla* cultivars for resistance to powdery mildew. Proc. Southern Nursery Assoc. Res. Conf. 52:317-321. 2007.
- Hadziabdic, D., Wang, X., Trigiano, R., Fitzpatrick, B., Ownley, B., Windham, M., Rinehart, T. and Xiang, Q. Genetic diversity of flowering dogwood (*Cornus florida*) in Tennessee. Proc. Southern Nursery Assoc. Res. Conf. 52:332-338. 2007.
- Li, Y., Windham, M., Trigiano, R., Windham, A., Reed, S., Mmbaga, M., Spiers, J. and Rinehart, T. Resistance to powdery mildew in hydrangeas. Proc. Southern Nursery Assoc. Res. Conf. 52:303-305. 2007.
- Wang, X., Trigiano, R., Windham, M., DeVries, R., Rinehart, T., Spiers, J. and Scheffler, B. Analysis of genetic diversity in selected *Cornus* species using SSR markers. Proc. Southern Nursery Assoc. Res. Conf. 51:616-617. 2006.

- Rinehart, T., Trigiano, R., McLaurin, W. and Knight P. The utility of DNA fingerprinting for plant patent protection: an example from *Lagerstroemia*. Proc. Southern Nursery Assoc. Res. Conf. 51:607-609. 2006.
- Rinehart, T. and Reed, S. Using DNA fingerprinting to identify mislabeled plants in the trade: an example from *Hydrangea*. Proc. Southern Nursery Assoc. Res. Conf. 51:580-583. 2006.
- Reed, S., Jones, K., and Rinehart, T. Wide crosses in the Hydrangeaceae: *Dichroa febrifuga* × *Hydrangea macrophylla*. Proc. Southern Nursery Assoc. Res. Conf. 51:577-579. 2006.
- Reed, S. and Rinehart, T. *Hydrangea macrophylla* and *serrata* - Should we lump 'em or split 'em? Proc. Southern Nursery Assoc. Res. Conf. 51:573-576. 2006.
- DeVries, R., Trigiano, R., Windham, M., Windham, A., Rinehart, T. and Sorochan, J. Analysis of genetic diversity between fungicide resistant *Sclerotinia homoeocarpa* isolates using AFLP and vegetative compatibility. Proc. Southern Nursery Assoc. Res. Conf. 51:209-211. 2006.
- Kardos, J., Robacker, C., Dirr, M. and Rinehart, T. Production and verification of hybrids from *Hydrangea macrophylla* × *H. angustipetala* and *H. macrophylla* × *Dichroa febrifuga*. Proc. Southern Nursery Assoc. Res. Conf. 51:570-572. 2006.
- Rinehart, T., Scheffler, B. and Reed, S. Estimating genetic diversity within the *Hydrangea* genus using molecular markers. Proc. Southern Nursery Assoc. Res. Conf. 50:656-659. 2005.
- Rinehart, T., Copes, W., and Cubeta, M. Genetic and physical characterization of binucleate *Rhizoctonia* species causing web blight on azaleas. Proc. Southern Nursery Assoc. Res. Conf. 50:260-264. 2005.
- Fain, G., Altland, J. and Rinehart, T. Genetic and physical characteristics of *Cardamine* species. Proc. Southern Nursery Assoc. Res. Conf. 50:454-456. 2005.