

**CURRICULUM VITAE
JENNIFER ANNE RUDGERS**

**Department of Ecology and Evolutionary Biology
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EMPLOYMENT

James H. Godwin Assistant Professor

Rice University, Houston, Texas. August 2005 - present

Research Associate

Indiana University, Bloomington, Indiana. August 2002 - 2005

Postdoctoral advisor: Keith Clay

National Science Foundation Postdoctoral Research Fellowship in Microbial Biology

EDUCATION

Ph.D. Population Biology University of California, Davis, CA. August 2002

Dissertation advisors: Sharon Strauss and Don Strong

Dissertation committee: Maureen Stanton and Jay Rosenheim

B.S. Environmental Science Denison University, Granville, OH. May 1996

Salutatorian, *Summa Cum Laude*, Honors Thesis

RESEARCH GRANTS AND FELLOWSHIPS - EXTERNAL

National Science Foundation BIO/DEB *REU* supplement 2008 (\$14,000)

National Science Foundation BIO/DEB 2006-2011 - *Do symbioses determine plant species abundances? How endophytic fungi may control rarity, dominance, and invasiveness of grasses* (\$449,946)

National Science Foundation Postdoctoral Fellowship in Microbial Biology 2003-5 (\$100,000)

National Geographic Society *Yellow crazy ant invasion of the Samoan Archipelago: Do novel mutualisms amplify the ecological impacts?* (\$20,000)

Environmental Protection Agency Science to Achieve Results Fellowship 1998-2001 (\$66,000)

National Science Foundation Graduate Research Trainee 1997 (\$4,000)

National Science Foundation REU at Kansas State University and Konza Prairie 1995 (\$2,000)

RESEARCH GRANTS AND FELLOWSHIPS - INTERNAL

Shell Center for Sustainability: Genetic and environmental impacts on lignin accumulation 2008-2010. (\$40,000) (w/ Braam, Masiello, Hockaday)

Rice University Energy and Environmental Systems Institute Award 2007 *Mechanisms of soil carbon sequestration: optimizing soil carbon interactions with minerals and fungi* (\$10,000) (w/ Masiello)

Rice University Brown Teaching Grant: *Enhancing lecture quality and comprehension with technology* 2007 (\$4,977) (w/ Whitney)

Rice University Brown Teaching Grant 2006 *Learning beyond the classroom walls: applying a student-teacher collaborative approach to biology* (\$4,957)

Rice University Institute of Biosciences and Bioengineering Hamill Innovation Award 2006 *Isolating AM fungi as keystone regulators of carbon sequestration in dune ecosystems* (\$20,000) (w/ Masiello, Emery)

University of California-Davis Dissertation Year Fellowship 2001-2 (\$17,000)

University of California-Davis Competitive Intramural Research and Travel Awards (totaling \$21,000)

TEACHING EXPERIENCE

Instructor	Rice University	Insect Biology
Instructor	Rice University	Environmental Sustainability: The design and practice of community agriculture
Instructor	Rice University	Undergraduate Honors Research in EEB
Instructor	Rice University	EEB Graduate Core Course
Instructor	Rice University	Topics in Ecology
Instructor	Rice University	Topics in Biodiversity
Instructor	Indiana University	Field and Laboratory Ecology, Fall 2002 and 2004
Instructor	University of California-Davis	Women and Biology Seminar, Spring 2002

PUBLICATIONS *Undergraduate advisee

Afkhami, M. A. and J. A. Rudgers (accepted) Endophyte-mediated resistance to herbivores depends on herbivore identity in the wild grass, *Festuca subverticillata* **Environmental Entomology**

Emery, S.M. and J. A. Rudgers (accepted) Ecological assessment of dune restorations in the Great Lakes region **Restoration Ecology**

Emery, S.M., D. Thompson, and J.A. Rudgers. (accepted) Variation in endophyte symbiosis, herbivory and drought tolerance of *Ammophila breviligulata* populations in the Great Lakes Region. **American Midland Naturalist**

- Savage, A. M., J. A. Rudgers, and K. D. Whitney (in press) Local abundance of extrafloral nectaries is associated with elevated abundance and potential impacts of an invasive ant. **Diversity and Distributions**
- Rudgers, J. A., M. E. Afkhami, M. A. Rua, A. J. Davitt, S. Hammer, and V. M. Huguet (in press) A fungus among us: Broad patterns of endophyte distribution in the grasses **Ecology**
- Rudgers, J. A. and S. Orr* (2009) Non-native grass alters growth of native tree species via leaf and soil microbes **Journal of Ecology** 97:247-255
- Rudgers, J. A. and A. L. Swafford* (2009) Benefits of a fungal endophyte in *Elymus virginicus* decline under drought stress. **Basic and Applied Ecology** 10: 43-51
- Afkhami, M. E. and J. A. Rudgers (2008) Symbiosis lost: Imperfect vertical transmission of fungal endophytes in grasses. **American Naturalist** 172: 405-416
- Rudgers, J. A., and K. Clay (2008) An invasive plant-fungal mutualism reduces arthropod diversity **Ecology Letters** 11: 831-840
- Johnson, S. D.*, K. C. Horn*, A. M. Savage, S. Windhager, M. T. Simmons, and J. A. Rudgers (2008) Timing of prescribed burns affects abundance and composition of arthropods in the Texas Hill Country. **Southwestern Naturalist** 53: 137-145
- *Kannadan, S. and J. A. Rudgers (2008) Endophyte symbiosis benefits a rare grass under low water availability. **Functional Ecology** 22: 706-713
- *Mack, K. and J. A. Rudgers (2008) Balancing multiple mutualists: asymmetric interactions among plants, arbuscular mycorrhizal fungi, and fungal endophytes. **Oikos** 117: 310-320
- Rudgers, J. A., and K. Clay (2007) Endophyte symbiosis with tall fescue: How strong are the impacts on communities and ecosystems? **Fungal Biology Reviews** 21: 107-124.
- Rudgers, J. A., J. Holah, S. P. Orr*, and K. Clay (2007) Forest succession suppressed by an introduced plant-fungal symbiosis **Ecology** 88: 18-25
- Flory, S. L., J. A. Rudgers, and K. Clay (2007) Experimental light treatments affect invasion success and the impact of *Microstegium vimineum* on the resident community **Natural Areas Journal** 27: 124-132
- Rudgers, J. A. and K. D. Whitney (2006) Interactions between insect herbivores and a plant architectural dimorphism **Journal of Ecology** 94: 1249-1260
- Tintjer, T. and Rudgers, J. A. (2006) Grass-herbivore interactions altered by strains of a native endophyte **New Phytologist** 170: 513-521
- *Finkes, L. K., Cady, A. B., Mulroy, J. C., Clay, K., and Rudgers, J. A. (2006) Plant-fungus mutualism affects spider composition in successional fields **Ecology Letters** 9:347-356
- *Orr, S. P., J. A. Rudgers, and K. Clay (2005) Invasive plants can inhibit native tree seedlings: testing potential allelopathic mechanisms. **Plant Ecology** 181: 153-165
- Clay, K., J. Holah, and J. A. Rudgers (2005) Herbivores cause a rapid increase in hereditary symbiosis and alter plant community composition **Proceedings of the National Academy of Sciences** 102: 12465-12470

- *Lemons, A., K. Clay, and J. A. Rudgers (2005) Connecting plant microbial interactions above- and belowground: an endophytic fungus affects decomposition. **Oecologia** 145: 595-604
- Rudgers, J. A., W. B. Mattingly, and J. M. Koslow (2005) Mutualistic fungus promotes plant invasion into diverse communities. **Oecologia** 144: 463-471
- Rudgers, J. A. and S. Y. Strauss (2004) A selection mosaic in the facultative mutualism between ants and wild cotton. **Proceedings of the Royal Society of London: Biological Sciences** 271: 2481-2488
- Rudgers, J. A. (2004) Enemies of herbivores can shape plant traits: selection in a facultative ant-plant mutualism. **Ecology** 85: 192-205
- Rudgers, J. A. and M. C. Gardener (2004) Extrafloral nectar as a resource mediating multi-species interactions in communities. **Ecology** 86: 1495-1502
- Rudgers, J. A., J. M. Koslow, K. Clay (2004) Endophytic fungi alter relationships between diversity and ecosystem properties. **Ecology Letters** 7: 42-51
- Rudgers, J. A., S. Y. Strauss, and J. F. Wendel (2004) Trade-offs among anti-herbivore resistance traits: insights from Gossypieae (Malvaceae). **American Journal of Botany** 91:871-880
- Rudgers, J. A., and J. D. Hoeksema (2003) Inter-annual variation in above- and belowground herbivory on a native, annual legume. **Plant Ecology** 169: 105-120
- Rudgers, J. A., J. G. Hodgen*, and J. W. White* (2003) Behavioral mechanisms underlie plant defense in an ant-plant mutualism. **Oecologia** 135: 51-59
- Rudgers, J. A. and J. L. Maron (2003) Facilitation between coastal dune shrubs: a non-nitrogen-fixing shrub facilitates establishment of a nitrogen fixer. **Oikos** 102: 75-84
- Strauss, S. Y., J. A. Rudgers, J. A. Lau and R. E. Irwin (2002) Direct and ecological costs of resistance to herbivory. **Trends in Ecology and Evolution** 17: 278-285
- Agrawal, A. A., J. A. Rudgers, L. W. Botsford, D. Cutler, J. B. Gorin, C. J. Lundquist, B. W. Spitzer, A. L. Swann (2000) Benefits and constraints on plant defense against herbivores: Spines influence the legitimate and illegitimate flower visitors of yellow star thistle, *Centaurea solstitialis* L. (Asteraceae). **Southwestern Naturalist** 45: 1-5

PUBLICATIONS - IN REVIEW *Undergraduate advisee

- Crutsinger, G. M. S. Y. Strauss, and J. A. Rudgers Genetic variation within a dominant shrub species determines plant invasion resistance in a coastal dune ecosystem **Ecology**
- Johnson*, S. D. A. M. Savage, K. D. Whitney, and J. A. Rudgers. Extrafloral nectar availability alters the recruitment, dominance, and behavior of the invasive ant, *Anoplolepis gracilipes*. **Austral Ecology**
- Rudgers, J. A. and K. Clay. Managing plant symbioses: Fungal endophyte genotype alters plant community composition. **Ecological Applications**
- Rudgers, J. A., A. M. Savage, M. A. Rúa Geographic variation in a facultative mutualism: consequences for local arthropod composition and diversity **Oecologia**

BOOK CHAPTERS

- Rudgers, J. A. and K. Clay (2007) Community and Ecosystem Consequences of Endophyte Symbiosis with Tall Fescue. In: Proceedings of the 6th International Symposium on Fungal Endophytes of Grasses (A.J. Popay and E.R. Thom, eds.). Grassland Research and Practice Series No. 13, New Zealand Grassland Association, Dunedin, New Zealand.
- Clay, K., Reinhart, K., Rudgers, J., Tintjer, T., Koslow, J. and S. L. Flory. (2008) Red queen communities. In: V. Eviner, F. Keesing and R. Ostfeld, (eds.) Ecology of Infectious Diseases: Interactions between diseases and ecosystems. Princeton University Press, Princeton. pp. 145-178.
- Rudgers, J. A and K. Clay (2005) Fungal endophytes in terrestrial communities and ecosystems. In: J. Dighton, J. F. White, Jr., and P. Oudemans (eds.) The Fungal Community : Its Organization and Role in the Ecosystem. Third Edition. CRC Press, Boca Raton, pp. 423-442

POST-DOCTORAL ASSOCIATES

- Sarah Emery - National Parks Ecological Research Fellow, *Do microbial mutualists alter invasibility of sand dune communities?*, \$120,000
currently - Assistant Professor, University of Louisville
- Valérie Huguet

PROFESSIONAL SOCIETIES

- Botanical Society of America
Ecological Society of America
Entomological Society of America

AWARDS

- Distinguished Faculty Associate Award (Lovett College, Rice University)
Allen G. Marr Prize for Best Dissertation, University of California at Davis
Botanical Society of America, Young Botanist Award
Phi Beta Kappa, Denison University
Sigma Xi, Denison University
Distinguished Leadership Award Denison University

INVITED TALKS

- Baylor College of Medicine, 2009
Dartmouth College, Department of Biology, 2004
Cornell University, Ecology and Evolutionary Biology, 2004
Haskell Indian Nations University, Department of Biology, 2005
Illinois Natural History Survey, 2004
Indiana University, Plant-Interactions Group, 2002
Iowa State University, Dept. Ecology, Evolution and Organismal Biology, 2007
Rice University, Ecology and Evolutionary Biology, 2004
Sam Houston State University, Department of Biology, 2007
Susquehanna University, Department of Biology, 2003
Syracuse University, Department of Biology, 2006
Texas A&M, Department of Plant Pathology and Microbiology, 2006
Texas A&M, Department of Ecosystem Science and Management, 2006

Texas A&M, Department of Entomology, 2008
Trinity University, Department of Biology, 2005
University of Akron, Department of Biology, 2004
University of Georgia, Institute of Ecology, 2004
University of Houston, Department of Biology, 2008
University of Massachusetts-Amherst, Department of Entomology, 2004
University of Miami, 2008
University of Missouri-Columbia, Department of Biological Sciences, 2004
University of Pittsburgh, Department of Biology, 2003
University of Tennessee, Ecology and Evolutionary Biology, 2005
University of Toronto, Department of Botany, 2003
Wright State University, Department of Biology, 2004

INVITED SYMPOSIA

Harvard University, Evolution of Plant Mutualism Symposium, (7-9 May 2009) (upcoming)

The International Symbiosis Society, 6th Annual Congress (9-15 August 2009) Madison, WI (upcoming)

Rudgers, J. A. (2007) Small mutualists with big impacts: community and ecosystem-level consequences of pair-wise mutualisms between fungal endophytes and grasses. Symposium 18 – Yin and Yang: The combined influences of positive and negative interactions in ecological communities. Ecological Society of America (5-10 August 2007) San Jose, CA

PRESENTATIONS

Keller, M. L., C. A. Masiello, B. Dugan, J. A. Rudgers, S. C. Capareda, W. C. Hockaday, H. Sun (2008) Phytotoxicity and plant productivity analysis of tar-enriched biochars. American Geophysical Union.

Afkhami, M. E. and J. A. Rudgers (2007) Imperfect vertical transmission of fungal endophytes in native grass species. Ecological Society of America (5-10 August 2007) San Jose, CA

Emery, S.M. J. A. Rudgers and D. Thompson. (2007) Do fungal mutualists alter dominance and invasibility of dune plant communities? Ecological Society of America (5-10 August 2007) San Jose, CA

Rua, M.A., A. Savage, J. A. Rudgers. (2007) An ant-plant mutualism alters local arthropod community composition. Ecological Society of America (5-10 August 2007) San Jose, CA

Rudgers, J. A. and K. Clay (2006) Fungal endophyte genotype affects plant and insect community structure. Ecological Society of America (6-11 August 2006) Memphis, TN.

PROFESSIONAL SERVICE

Associate Editor - Oikos

Manuscripts reviewed total = 105.

Acta Oecologia, American Journal of Botany, American Midland Naturalist, American Naturalist, Annals of Botany, Australian Journal of Botany, Behavioral Ecology, Biochemical Systematics and Ecology, Biological Conservation, Biological Invasions, Ecology, Ecology Letters, Ecoscience, Entomologia Experimentalis et Applicata, Evolution, Functional Ecology, Global Change Biology, Grass and Forage Science, Journal of Applied Entomology, Journal of Chemical Ecology, Journal of Ecology, Journal of Ethology, Journal of Tropical Ecology, Microbial Ecology, Naturwissenschaften, New Phytologist, Oecologia, Oikos, Plant and Soil, Plant Ecology, Proceedings of the Royal Society of London Series B, Restoration Ecology, Symbiosis, Trends in Ecology & Evolution

Nature Conservancy

Invasive Plant Species Assessment Working Group, Indiana. September 2004.

Panelist

National Science Foundation Doctoral Dissertation Improvement Grant Panelist, Ecological Biology Cluster (2006)

National Science Foundation Population and Evolutionary Processes Grant Panelist, Division of Environmental Biology (2008)

External Grant Reviewer

DOE National Institute for Climatic Change Research (NICCR)
(2006 – one review, 2007 – one review)

National Science Foundation, Ecological Biology Cluster External Reviewer
(2006 – two reviews, 2007 – one review)

National Science Foundation, Plant Genome Research External Reviewer
(2007 – one review)

National Science Foundation, Microbial Interactions and Processes External Reviewer
(2007 – two reviews)

National Science Foundation, CREST External Reviewer
(2007 – one review)

External Grant Reviewer

National Science Foundation HBCU-RISE External Reviewer
(2007 – one review)

University of Massachusetts HATCH Grant (2006 – one review)

Book Reviewer

Oxford University Press

COMMUNITY OUTREACH AND SERVICE

Lovett College Associate at Rice University

Hermann Park Conservancy, Houston, Texas

Urban Harvest, Houston, Texas

Science Day for the Academy of Classical Education

Rice University Community Garden

International Baccalaureate High School Biology Teachers Workshop (annual workshop leader)

Advanced Placement High School Biology Teachers Workshop (annual workshop leader)

GRADUATE STUDENT ADVISEES

Amy Savage (PhD – co-advised with Dr. Kenneth Whitney 2005 -)

Kerri Crawford (PhD - 2006 -)

Michelle Afkhami (MS - completed August 2007: Symbiosis Lost: Imperfect vertical transmission of fungal endophytes in grasses) *currently* - PhD student, University of California-Davis

Andrew J. Davitt (PhD - 2007 -)

Scott Chamberlain (PhD – 2008 -)

GRADUATE STUDENT COMMITTEES

Jeff Ahern (Rice – Ken Whitney)

Debbie Brock (Rice – Joan Strassmann, Dave Queller)

Juli Carrillo (Rice – Evan Siemann)

Scott Chamberlain (Rice – Nat Holland)

Brittany Davis (UH – Diane Wiernasz)
Morgan Gallagher (Rice – Carrie Masiello)
Hongyu Guo (UH – Steve Pennings)
Alana-Rose Lynes (UH – Steve Pennings)
Emily Marquardt (UH – Steve Pennings)
Summer Nijjer (Rice – Evan Siemann)
Amaris Swann (Rice – Ken Whitney)
Jianwen Zou (Rice – Evan Siemann)

AWARDS RECEIVED BY MY STUDENTS

Barry M. Goldwater Scholarship

Carina Baskett (2008, \$15,000)

National Science Foundation Graduate Research Fellowship

Kerri Crawford (2006 – honorable mention)

Kerri Crawford (2007-2010)

Michelle Afkhami (2007-2010)

A.J. Davitt (2008 – honorable mention)

Garden Club of America Fellowship in Ecological Restoration

Kerri Crawford (2007, \$8,000)

Garden Club of America Mary T. Carothers Summer Environmental Studies Scholarship

Carina Baskett (2007, \$2000)

Houston Rodeo Scholarship

Michelle Afkhami (2006-2007)

Howard Hughes Medical Institute Capstone Undergraduate Research Award (Indiana University)

Alisha Lemons (2004)

Sam Orr (2003)

Redwood Creek Preservation Award

Kerri Crawford (2007, \$3000)

Rice University: Associate Mellon Mays Fellow

Carina Baskett (2008, \$3000/summer and \$2000/school year for two years)

Rice University: Presidential Fellowship

Kerri Crawford (2006-2011)

Rice University Undergraduate Research Symposium

John Land (second place, poster presentation)

Sonia Kannadan (first place, poster presentation)

Sigma-Xi Grants-in-Aid of Research

Amy Savage (2007, \$400)