

Jean H. Burns, *Curriculum vitae*

Address:

Jean H. Burns, PhD
Assistant Professor
Case Western Reserve University
Department of Biology
2080 Adelbert Rd
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1-216-368-4288 (office)

Current position: Assistant Professor, Case Western Reserve University

Research program: I use phylogenetic comparative studies, field experiments, and demographic models to answer questions about factors influencing community assembly and biological invasions.

Professional webpage: <https://filer.case.edu/jbm122/BurnsWebsite/index.html>

Education and degrees:

- 2006 Florida State University. Ph.D. in Ecology and Evolution, (See married name: Jean Burns Moriuchi) Dec 2006. (Graduate Advisor: Thomas E. Miller)
- 1999 (Albertson) College of Idaho. Bachelor's of Biological Science and Mathematics (BS). *Summa Cum Laude*. 1999. (Undergraduate Advisors: Don Mansfield, Lynda Danielson)

Fellowships:

- 2008 Center for Population Biology Postdoctoral Research Fellow, University of California, Davis, **\$82,000**.
- 2007 Tyson Research Center Postdoctoral Fellow, Washington University in St. Louis. **\$72,000**.
- 2003 Florida State University Fellowships, **\$48,000**.

Selected professional experience:

- 1999-2006 (intermittently) **Teaching Assistant**. Laboratories: Biology for Non-majors, Experimental Biology: Plant Hormones and Foraging Ecology, Field Botany, Plant Biology Laboratory; Lectures: Plant Biology, Ecology, Evolution, Conservation Biology.
- 2004 **Curator** at the Godfrey Herbarium at Florida State University. Implement integrated pest management strategy, including periodic sample freezing. Manage loan requests. Assist visiting scholars and researchers.

Grants, honors, and awards:

- 2012 National Science Foundation Grant "EAGER: The role of demographic stochasticity in community assembly." **\$149,860** (DEB 1250170)
- Nominated for *To Tenure and Beyond: Building an Intentional Career in STEM*. An NSF IDEAL sponsored regional workshop.
 - Nominated for the **Plant Population Ecology Postdoctoral Excellence Award**, sponsored by *Journal of Ecology* for the publication: Burns et al. 2010 *Journal of Ecology*, 98: 334–344.
 - Small Business Administration grant. Proposal for Funding from the Western Reserve Resource Conservation and Development Council CLEAN Undergraduate Stewardship Liaison Corps Project. **\$7,000**.
 - Nominated for the **J. Bruce Jackson, MD, Award for Excellence in Undergraduate Mentoring**. Case Western Reserve University.
- 2011 **National Science Foundation Grant** to Tiffany M. Knight (PI). Jean H. Burns (*senior personnel*). "Evaluating the mechanisms that result in a relationship between phylogenetic distance and population dynamics in biological invasions." ~**\$596,674** (DEB 1145274)
- **National Science Foundation Grant** to Sharon Y. Strauss (PI). Jean H. Burns (*subcontractor*). "To what degree does phylogenetic relatedness predict ecological similarity?" ~**\$549,918** (DEB 1120387)
- 2010 Nominated to and attended the "Career Development for Research & Creative Activity: A Workshop Series

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- for Exceptional Faculty”
- 2008 Center for Population Biology Postdoctoral Research Fellow, University of California, Davis, Research Award, **\$12,000**.
- American Association of University Women, Postdoctoral Research Grant, **\$32,500**.
- 2007 Plant population syndrome workshop, Australian Research Council and Landcare Research. **\$6,000**.
- 2006 Tyson Research Center Research award, **\$5,000**.
- Graduate Student Publication Award in the Department of Biological Science, Florida State University (FSU). **\$300**.
 - Graduate Research and Creativity Award, FSU (inaugural). Laptop: ~**\$800**.
- 2003-04 Margaret Menzel Award in the Department of Biological Science, **\$1,000**.
- 2003 Dissertation Research Grant, FSU, **\$500**.
- U.S. National Science Foundation, competitive student travel grant for “Conference on Invasive Plants in Natural and Managed Systems.” **\$500**.
 - Florida Exotic Pest Plant Council Research Grant Award, **\$2,500**.
- 2002 Robert K. Godfrey Endowment Award for the Study of Botany, FSU, **\$1,000**.

Publications (21, 13 first author):

- 2012 **Burns, Jean H.** and Sharon Y. Strauss. *in press*. Effects of competition on phylogenetic signal and phenotypic plasticity in plant functional traits. *Ecology*.
- 2011 **Burns, Jean H.** and Sharon Y. Strauss. 2011. More closely related species are more ecologically similar in an experimental test. *Proceedings of the National Academy of Sciences*. 108(13): 5302-5307.
- Burns, Jean H.** 2011. Research perspective: a promising way forward in determining weediness and invasiveness of newly- introduced species. *Topics in Canadian Weed Science*. Volume 9. ed by. Hugh J. Beckie and Linda M. Hall.
- Burns, Jean H.**, Robert B. Faden, and Scott J. Steppan. 2011. Phylogenetic studies in the Commelinaceae subfamily Commelinoideae inferred from Nuclear Ribosomal and Chloroplast DNA Sequences. *Systematic Botany*. 36(2): 268-276.
- Burns, Jean H.**, Tia-Lynn Ashman, Janette A. Steets, Alexandra Harmon-Threatt*, and Tiffany M. Knight. 2011. A phylogenetically controlled analysis of the roles of reproductive traits in plant invasions. *Oecologia*. 166(4): 1009-1017.
- 2010 Buckley, Yvonne M., Satu Ramula, Simon P. Blomberg, **Jean H. Burns**, Elizabeth E. Crone, Johan Ehrlén, Tiffany M. Knight, Jean-Baptiste Pichancourt, Helen Quested, and Glenda M. Wardle. 2010. Causes and consequences of variation in plant population growth rate: a synthesis of matrix population models in a phylogenetic context. *Ecology Letters*. 13: 1182–1197.
- Burns, Jean H.**, Simon P. Blomberg, Elizabeth E. Crone, Johan Ehrlén, Tiffany M. Knight, Jean-Baptiste Pichancourt, Satu Ramula, Glenda M. Wardle and Yvonne M. Buckley. 2010. Empirical tests of life-history evolution theory using phylogenetic analysis of plant demography. *Journal of Ecology*. 98: 1-11.
- 2009 Harmon-Threatt*, Alexandra N., **Jean H. Burns**, Lyudmila A. Shemyakina*, and Tiffany M. Knight. 2009. Breeding system and pollination ecology of introduced plants compared to their native relatives. *American Journal of Botany*. 96: 1544–1550.
- Miller, Thomas E., **Jean H. Burns**, and Casey P. terHorst. 2009. The ghost of competition present. *The American Naturalist*. 173: 347–353.

* Undergraduate researcher

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- 2008 Ramula, Satu, Tiffany M. Knight, **Jean H. Burns**, and Yvonne M. Buckley. 2008. General guidelines for invasive plant management based on comparative demography of invasive and native plant populations. *Journal of Applied Ecology*. 45: 1124–1133
- Burns, Jean H.**, Pablo Munguia, Benjamin E. Nomann, Sarah J. Braun, Casey P. terHorst and Thomas E. Miller. 2008. Vegetative morphology and trait correlations in 54 species of Commelinaceae. *Botanical Journal of the Linnean Society*. 158: 257–268.
- Burns, Jean H.** 2008. Demographic performance predicts invasiveness of species in the Commelinaceae under high nutrient conditions. *Ecological Applications*. 18: 335–346.
- 2007 Miller, T. E., **Jean H. Burns**, Pablo Munguia, Eric L. Walters, Jamie M. Kneitel, Paul Richards, Nicholas Mouquet, and Hannah Buckley. 2007. Evaluating support for the resource-ratio hypothesis: a reply to Wilson et al. *The American Naturalist*. 169: 707–708.
- Burns, Jean H.**, Stacey L. Halpern, and Alice A. Winn. 2007. Do low quality environments limit the advantages of opportunism in invasive species? *Biological Invasions*. 9: 213–225.
- 2006 **Burns, Jean H.** 2006. Relatedness and environment affect traits associated with invasive and noninvasive introduced Commelinaceae. *Ecological Applications*. 16: 1367–1376.
- Burns, Jean H.** and Alice A. Winn. 2006. Are invasive species more plastic? A comparison of plastic responses to competition by invasive and noninvasive congeners in the Commelinaceae. *Biological Invasions*. 8:797–807.
- 2005 Miller, Thomas E., **Jean H. Burns**, Pablo Munguia, Eric L. Walters, Jamie M. Kneitel, Paul Richards, Nicholas Mouquet, and Hannah Buckley. 2005. A Critical Review of Twenty Years' Use of the Resource-ratio Theory. *The American Naturalist*. 165: 439–448.
- 2004 Buckley, Hannah, **Jean H. Burns**, Jamie M. Kneitel, Eric L. Walters, Pablo Munguia, and Thomas E. Miller. 2004. Small-scale patterns in community structure of *Sarracenia pururea* inquilines. *Community Ecology*. 5: 181–188.
- Burns, Jean H.** and Thomas E. Miller. 2004. Invasion of Chinese Tallow (*Sapium sebiferum*) in the Lake Jackson area, northern Florida. *American Midland Naturalist*. 152: 410–417.
- Burns, Jean H.** 2004. A comparison of invasive and non-invasive dayflowers (Commelinaceae) across experimental nutrient and water gradients. *Diversity and Distributions*. 10: 387–397.
- 2002 Miller, Thomas E., Jamie M. Kneitel, and **Jean H. Burns**. 2002. Effect of community structure on invasion success and rate. *Ecology*. 83: 898–905.

Courses taught:

- 2011 **Instructor**. *Principles in Ecology*, Case Western Reserve University, combined upper division undergraduate and graduate student lecture course.
- **Instructor**. *Principles in Ecology Laboratory*, Case Western Reserve University, combined upper division undergraduate and graduate student laboratory course. Included service learning module in collaboration with the NSF-funded GLISTEN (Great Lakes Innovative Stewardship through Education Network) project.
- 2010 **Co-Instructor**. Bodega Applied Phylogenetics Workshop. *Community Phylogenetics*. http://bodegaphylo.wikispot.org/Community_Phylogenetics (2009, 2010)
- 2009 **Instructor**. University of California, Davis. *Modeling Invasion Speed using Demography and Dispersal*.
- 2007-08 **Co-Instructor**. Washington University in St. Louis. *Practical Skills in Environmental Biology Research* course. Course included field trips.
- **Co-Instructor**. Washington University in St. Louis. *Biological Conservation* lecture course.

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- **Co-Instructor.** Washington University in St. Louis. *Experimental Ecology Laboratory*.

Postdoctoral fellows mentored:

2011- Dr. Angela J. Brandt, Ph.D., Case Western Reserve University.

Graduate students:

2011- John J. Mack, Ph.D. track, Case Western Reserve University.

Graduate committees:

2011- Katherine Krynak, Ph.D. candidate, Case Western Reserve University.

2012- Jennifer Murphy, Master's in Biology degree program, John Carroll University.

Undergraduate mentoring:

2012 Two independent undergraduate projects.

Student: Gaston del Pino. *Project:* How do above- vs. below-ground resource acquisition and allocation strategies in plants influence species coexistence in the presence of environmental heterogeneity? Funding: Summer Program in Undergraduate Research (SPUR), Howard Hughes Medical Institute (HHMI) grant, CWRU Biology Department, \$3500.

Student: Xiaoni Zhou. *Project:* What is the role of light and soil heterogeneity in determining the outcome of plant competition?

2011 Four undergraduate independent projects.

Student: Conor Leahy. *Project:* The role of soil feedbacks in biological invasions. Funding: SPUR, HHMI grant, CWRU Biology Department, \$3500.

Student: Matthew Sievers. *Project:* Does phenotypic plasticity contribute to invasiveness of *Ranunculus ficaria* across shade and water stress environments? **First prize for poster presentation in the Natural Sciences, CWRU Source Symposium, 2011.**

Student: Ben Sulka. *Project:* Does the regeneration niche influence invasion success?

Student: Nicole Zimmerman. *Project:* The role of soil feedbacks and competition distance in governing invasibility.

2008 Three undergraduate summer research projects at Tyson Research Center. *Funding:* HHMI, \$3750/each.

Student: Edward Erker (class of 2009). *Project:* Does spatial scale influence the relationship between phylogenetic novelty and invasiveness?

Student: Katherine Seidler (class of 2009). *Project:* The role of demography and dispersal in determining the relative invasion success of two congeneric dandelion (*Taraxacum*) species.

Student: Shulun Zang (class of 2009). *Project:* Does phylogenetic novelty result in costs to pollination success in introduced plant species?

2007 Two undergraduate summer research projects at Tyson Research Center. *Funding:* HHMI, \$3750.

Student: Anna Truszczynski (class of 2008). *Project:* Mechanisms driving the greater invasiveness of phylogenetically novel species: competitive ability and herbivory release.

This project became an undergraduate honor's thesis. Anna Graduated in 2008 and is now a graduate student in population biology at the University of California, Davis.

Student: Lyudamila Shemyakina (class of 2009). *Project:* The role of pollinators in determining the success of exotic plants.

The project resulted in a publication in the *American Journal of Botany* (Harmon-Threatt et al. 2009).

2004 Young Scholar's Program at Florida State University, to introduce high school students to biological research.

Student: Alon Brodie. *Project:* Effects of environment on invasive and noninvasive dayflowers.

Student: Eliza Gonsalves. *Project:* Can invasiveness be determined by resistance to herbivory?

Student: Sunny Park. *Project:* Invasive species are more tolerant of herbivory than noninvasive congeners.

This set of projects resulted in a publication in *Biological Invasions* (Burns et al. 2006).

2003 Young Scholar's Program at FSU. Joseph Rogan went on to volunteer for the YSP program in subsequent years.

Student: Joseph Rogan. *Project:* Why do only some introduced species become invasive?

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This project resulted in a publication in *Biological Invasions* (Burns and Winn 2006).

Selected conference presentations:

- 2011 Ecological Society of America Annual Meeting. "Differences in dispersal are more important than differences in demography to the greater invasion speed of invasive plant species than their noninvasive relatives." Jean H. Burns, Eleanor A. Pardini, Michele R. Schutzenhofer, Yan Yi A. Chung, Katie J. Seidler, Brad Ochocki, and Tiffany M. Knight

Invited presentations:

- 2012 **Invited by the graduate students.** Pennsylvania State University. "Mechanisms of community assembly: insights from phylogeny." Jean H. Burns.
- Pittsburg State University. "The mechanisms governing biological invasions in plant communities: does phylogeny matter?" Jean H. Burns
 - John Carroll University. "The mechanisms governing biological invasions in plant communities: does phylogeny matter?" Jean H. Burns
 - Cleveland State University. "The mechanisms governing biological invasions in plant communities: does phylogeny matter?" Jean H. Burns
- 2011 Denison University. "Understanding the role of phylogeny in community assembly." Jean H. Burns
- John Carroll. "Understanding the role of phylogeny in community assembly." Jean H. Burns
 - Ecophilia, Case Western Reserve University. "Understanding the role of phylogeny in community assembly." Jean H. Burns
- 2010 **Plenary speaker.** Canadian Weed Science Society. "Research perspective: A promising way forward in determining weediness and invasiveness" Jean H. Burns
- National Center for Ecological Analysis and Synthesis (NCEAS), Ecophylogenetics workshop. "Plasticity alters the strength of phylogenetic signal on plant traits." Jean H. Burns and Sharon Y. Strauss.
 - Ohio State University, Wooster Campus. "Phylogeny and predicting invasive species" Jean H. Burns
 - Getting Ready for Tomorrow: Integrating Foresight and Emerging Trends into Timely Science Advice for Plant Risk Assessment organized by the Canadian Food Inspection Agency. "Can demographic models be used to predict invasions?" Jean H. Burns
 - Indiana University/Purdue University Fort Wayne. "Predicting biological invasions and community assembly: phylogeny, environment, and demography." Jean H. Burns
 - Case Western Reserve University. "Predicting biological invasions and community assembly: phylogeny, environment, and demography." Jean H. Burns
- 2009 Rhodes College. "Predicting biological invasions and community assembly: phylogeny, environment, and demography." Jean H. Burns
- Bay Area Systematists. Panel discussion on community phylogenetics.
 - Ecological Society of America. Organized oral session: Projection Matrix Models: Investigating General Patterns in Plant Demography. "Empirical tests of life-history evolution theory using phylogenetic analysis of plant demography" Jean H. Burns and Tiffany M. Knight
 - International Congress of Ecology. Symposium: Comparative demography of plants. "Empirical tests of life-history evolution theory using phylogenetic analysis of plant demography" Jean H. Burns and Tiffany M. Knight
 - University of Alberta, Canada. Workshop: "Developing methods to predict invasiveness of novel crops. Predicting and preventing invasions using demographic methods: strengths and pitfalls." Jean H. Burns.
 - California State University, Chico. "The role of phylogeny in community assembly and biological invasions." Jean H. Burns.
 - Bodega Bay Marine Laboratory. "The role of phylogeny in community assembly and biological invasions." Jean H. Burns.
- 2008 Southern Illinois University, Edwardsville. "Phylogeny, environment, and scale: can we predict and prevent invasions?" Jean H. Burns.
- University of California, Davis. "The influence of phylogeny, environment, and scale on the relationship between traits and invasiveness." Jean H. Burns.
- 2007 St. Louis University. "The influence of phylogeny, environment, and species traits on invasiveness in the Commelinaceae." Jean H. Burns.

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- Washington University in St. Louis Evolution, Ecology and Population Biology Seminar. “Factors affecting invasion in the Commelinaceae.” Jean H. Burns.
 - Washington University in St. Louis, Plant Biology Retreat. “What makes some plants invasive? The role of phylogenetic novelty in invasions.” Jean H. Burns, Anna Truszczyński, Tiffany M. Knight.
 - Natural Areas Meeting. Reducing Seed Output and Seed Viability of Cultivars: “How Much Is Enough to Create a Plant That Will Not Be Invasive?” Tiffany Knight, Jean H. Burns, Kay Havens, Pati Vitt, Ed Guerrant.
- 2006 Tyson Research Center, Washington University in St. Louis. “Factors affecting invasion in the Commelinaceae.” Jean H. Burns.
- 2005 Tropical spiderwort symposium, University of Georgia. “The effect of environment on invasibility in the Commelinaceae.” Jean H. Burns, Alice A. Winn, Stacey L. Halpern, and Thomas E. Miller

Selected leadership and service:

- 2012 National Science Foundation (NSF) Pre-proposal panelist. Division of Environmental Biology (DEB).
- 2011-present Leader of annual field trip for the Ohio Native Plant Society.
- 2011-present Academic advisor, 16 undergraduate students (2011-present)
Activities: Meet with each advisee at least once per semester to advise on issues related to graduation and degree requirements, course schedules, summer experiences, research experiences, graduate/professional school, and other issues as they arise.
- 2010-present Member, Committee on Graduate Affairs, Case Western Reserve University (2010-present)
Activities: Mentor graduate students on degree criteria, revise graduate student degree criteria, make decisions about degree petitions, supervise exit exams and defenses to ensure uniform and fair standards across the graduate program.
- 2011 Organizer, Organized Oral Session on "Spatial Spread of Invasive Species and Infectious Diseases: Theoretical & Empirical Advances" for the annual meeting of the Ecological Society of America (ESA). Co-organized with Dr. Michael Neubert.
- 2009 Member of the committee to select the Center for Population Biology Postdoctoral Fellow, University of California, Davis
- Judge for Buell/Braun awards at Ecological Society of America (ESA) meetings
 - “How to get a postdoctoral position” discussion for Alliance for Graduate Education and the Professoriate, UC, Davis
- 2008 Instructor for Masters in Biology training program for high school science teachers, “Life Sciences for a Global Community,” Tyson Research Center, Washington University in St. Louis.
- Volunteer for the Young Scientist’s Program to bring science activities to local St. Louis high schools.
- 2007 Volunteer for the American Women in Science (AWIS) St. Louis chapter Women in Science day to expose high school girls to opportunities in the sciences at Washington University in St. Louis.
- Instructor for Masters in Biology training program for high school science teachers, “Life Sciences for a Global Community,” Tyson Research Center, Washington University in St. Louis.
 - Volunteer for Middle School Outreach “2007 ExxonMobil Bernard Harris Summer Science Camp” at Washington University in St. Louis.
 - Design and organize a workshop on “Mentoring for Field Biologists,” Tyson Research Center and Washington University in St. Louis. Focus on setting goals, establishing communication, responsibilities of good mentors, and mentoring resources.
- 2005 Graduate student representative to the Chair Search Advisory Committee for the Chair of the Department of Biological Science, Florida State University.
- 2002 President, Ecology and Evolution Research and Discussion Group (EERDG) at Florida State University.

Peer reviewer for:

*Granting agencies: National Science Foundation (NSF), DEB and CNIC
National Sciences and Engineering Research Council of Canada (NSERC)
Central Asia Research Travel (CART) competition, U.S. Civilian Research & Development Foundation (CRDF)*

Journals: Acta Oecologia; American Naturalist; American Journal of Botany; American Midland Naturalist; Annals of Botany; Biological Invasions; Botanical Journal of the Linnean Society; Diversity and Distributions;

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Ecological Applications; Ecology; Ecology Letters; Ecography; Evolutionary Ecology; Journal of Biogeography; Journal of Ecology; The Journal of the Torrey Botanical Society; New Phytologist; Oecologia; Oiko; Plant Ecology; Population Ecology; Proceedings of the Royal Society of London, Series B; Sida, Contributions to Botany; Weed Research; Weed Science

Book reviews: Roberts and Company Publishers.

Professional Societies:

American Society of Plant Taxonomists (ASPT)
American Association of University Women (AAUW)
Ecological Society of America (ESA)
Ohio Native Plant Society (NPS)

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Professional References:

Thomas E. Miller	Florida State University Department of Biological Science Ecology and Evolution Program Tallahassee, FL 32306-1100 miller@bio.fsu.edu 850-644-9823
Tiffany M. Knight	Washington University in St. Louis Department of Biology St. Louis, MO 63130 tknight@wustl.edu 314-935-8282
Scott J. Stepan	Florida State University Department of Biological Science Ecology and Evolution Program Tallahassee, FL 32306-1100 stepan@bio.fsu.edu 850-644-6536
Sharon Y. Strauss	Section of Evolution and Ecology 2320 Storer Hall One Shields Avenue Davis, CA 95616 systraus@ucdavis.edu 530-752-8415
Alice A. Winn	Florida State University Department of Biological Science Ecology and Evolution Program Tallahassee, FL 32306-1100 winn@bio.fsu.edu 850-644-9822
