

**Katherine Ruth Goodrich, Ph.D.**

Associate Professor of Biology

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**EDUCATIONAL BACKGROUND:**

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- 2008**            **Ph.D. Plant Biology**, University of South Carolina, Columbia, SC  
**1998**            **Bachelor of Arts**, Franklin Pierce University, Rindge, NH

**PROFESSIONAL EXPERIENCE:**

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- 2009—Present**            **Assistant Professor**, Widener University (PA)  
**2008—2009**            **Post-Doctoral Research Associate**, Muhlenberg College (PA)  
**2008**                        **Adjunct Professor**, Cedar Crest College (PA)  
**2002—2007**            **Teaching Assistant & Research Assistant**, University of South Carolina

**WIDENER COURSE OFFERINGS:**

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- *Biological Concepts I: Principles of Ecology and Evolution Lab (BIOL 165)*
- *Biological Concepts II: Plant and Animal Structure and Function (BIOL 162)*
- *General Botany (BIOL 308)*
- *Plant Physiology (BIOL 311)*
- *Plant-Animal Interactions (BIOL 312)*
- *Principles of Biological Systems (BIOL 101)*
- *Science, Sex and Ideology (ASC 400; co-taught with Dr. Annalisa Castaldo)*
- *Biological Perspectives on Human Identity (GWS 588)*

**PUBLICATIONS:**

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\*Student authors

†Published since coming to Widener

- 2015**<sup>†</sup> VanBramer S.E & K.R. Goodrich. **Determination of plant volatiles using Solid Phase Microextraction GC-MS.** *Journal of Chemical Education*. DOI: 10.1021/ed5006807
- 2012**<sup>†</sup> Goodrich, KR. **Floral scent in Annonaceae.** *Botanical Journal of the Linnean Society*. 169: 262—279.
- 2009** Goodrich, KR & RA Raguso. **The odor component of floral display in *Asimina* and *Deeringothamnus* (Annonaceae).** *New Phytologist*. 183(2): 457-469
- 2007** Goodrich, KR. **Does your pawpaw smell flowery or fermented?** *Palmetto*. 24(4): 12—15.
- 2006** Goodrich, KR, ML Zjhra, CA Ley & RA Raguso. **When flowers smell fermented: the chemistry and ontogeny of yeasty floral scent in pawpaw (*Asimina triloba*: Annonaceae).** *International Journal of Plant Sciences*. 167(1): 33—46.

**PUBLICATIONS in preparation:**

**(\*student co-author)**

- 2014 Krumm, JL, A Jones\*, K Hy\*, KR Goodrich. **Impact of host plant species on larval success of *Epimecis hortaria***. Manuscript in preparation.
- 2014 Goodrich, KR & RA Raguso. **Floral phenotypes in naturally occurring hybrid populations of *Asimina triloba* X *Asimina parviflora***. Manuscript in preparation for *International Journal of Plant Sciences*.
- 2014 Goodrich, KR, CM Ingersoll, N Howitz\*, RA Niesenbaum. **Reduced herbivory of spicebush in association with black walnut**. Manuscript in preparation for *Castanea*.

**RESEARCH SEMINARS & PROFESSIONAL TALKS:**

**(\* student presenter)**

- 2014 Doran A.\*, D.J. Coughlin & K.R. Goodrich. **Cross-sectional tissue composition in distal twigs of pawpaw, tulip tree, and hickory**. Widener Student Projects Day, April, 2014.
- 2013 Goodrich, K.R. **Plant chemical communications and biomechanics**. Guest lecture for Widener SCI 188 *Introduction to Scientific Research*. September 26, 2013.
- 2013 Goodrich KR, LA Ortiz, DJ Coughlin. **Twisty twigs: Biomechanics of storm resistance in distal branches of pawpaw (*Asimina triloba*)**. BOTANY 2013. New Orleans, LA. 27-31 July 2013.
- 2013 Mercer E, B Griffin\*, J Steele, KR Goodrich, C Bush. **The phylogeny of *Asimina* and *Deeringothamnus***. BOTANY 2013. New Orleans, LA. 27-31 July 2013.
- 2013 Fisher\*, KE & KR Goodrich. **Multiple Food Choice Preference Tests Throughout the Lifespan of *Epimecis hortaria***. Widener Student Projects Day. April 19<sup>th</sup>, 2013.
- 2012 Goodrich, KR. **Floral scents, color and architecture: a look at the floral phenotypes of Pawpaws (*Asimina*: Annonaceae)**. Guest lecture at Temple University- Ambler Campus. September 25, 2012
- 2012 Mercer\*, E, B Griffin, J Steele, K Goodrich & C Bush. **The phylogeny of *Asimina* and *Deeringothamnus* (Annonaceae) using ISSR and morphological data**. BOTANY 2012. Columbus, OH. July 2012.
- 2012 Moir\*, C, KE Fisher, MJ Colgan, LA Ortiz, KR Goodrich, JL Krumm. **You are what you eat: Larval success of *Epimecis hortaria* due to host plant diet**. Lehigh Valley Ecology & Evolution Symposium. April 14, 2012.
- 2011 Jones\*, A, K Hy\*, J Krumm & KR Goodrich. **Impact of host plant species on larval success of *Epimecis hortaria***. Widener University Honors Week. March 2011.
- 2010 Goodrich, KR. **Floral scents, color, and architecture: A look at the floral phenotypes of Pawpaws**. Philadelphia Botanical Club. Philadelphia, PA. December 2010. (Invited speaker)
- 2010 Goodrich, KR & RA Raguso. **Patterns of floral phenotype in *Asimina* and *Deeringothamnus* (Annonaceae)**. Widener Science Division Seminar Series. December 2010.
- 2010 Goodrich, KR & RA Raguso. **Patterns of floral phenotype in *Asimina* and *Deeringothamnus* (Annonaceae)**. BOTANY 2010. Providence, RI. August 2010.
- 2009 Goodrich, KR. **Floral scents of the Annonaceae**. Annonaceae Workshop of the European Union Systematics Association Conference. Leiden, the Netherlands. August 2009. (Invited speaker)

- 2008** Goodrich, KR & RA Raguso. **The scent component of floral display in *Asimina* (Annonaceae).** Lehigh Valley Ecology & Evolution Symposium. April 2008
- 2008** Goodrich, KR & RA Raguso. **How do you build a flower? Floral morphology & scent chemistry of Pawpaws (*Asimina* & *Deeringothamnus*: Annonaceae).** Invited seminar speaker at Cedar Crest College. February 2008
- 2007** Goodrich, KR & RA Raguso. **The odor component of floral display in *Asimina* (Annonaceae).** Botany & Plant Biology 2007. Chicago, IL. July 7-11, 2007.
- 2007** Goodrich, KR, ML Zjhra & RA Raguso. **Floral biology and molecular phylogenetics of *Asimina* and *Deeringothamnus* (Annonaceae).** Association of Southeastern Biologists conference. Columbia, SC. April 2007. (won student presenter award)
- 2006** Goodrich, KR, ML Zjhra & RA Raguso. **Floral display of the genera *Asimina* and *Deeringothamnus* (Annonaceae).** Florida Native Plant Society Annual Conference. Daytona Beach Shores, FL. May, 2006. (Invited speaker)
- 2005** Goodrich, KR, ML Zjhra, RA Raguso. **Floral biology and molecular phylogenetics of the North American genera *Asimina* and *Deeringothamnus* (Annonaceae).** Annonaceae Workshop of the International Botanical Congress. Vienna, Austria. July, 2005. (Invited speaker)

**POSTER PRESENTATIONS:**

**(\* student author/presenter)**

- 2014** Mele E\*, G Scotto\*, KR Goodrich. **Summer pollination networks at Taylor Arboretum.** Widener Summer Research Symposium. September 2014.
- 2013** Goodrich KR, RA Raguso. **Hybrid floral phenotypes in *Asimina*.** BOTANY 2013. New Orleans, LA. 27-31 July 2013.
- 2013** Ortiz\* LA, DJ Coughlin, KR Goodrich. **Twisty twigs: Twig biomechanics of Pawpaw (*Asimina triloba*: Annonaceae).** Widener Student Projects Day. April 2013.
- 2013** Ortiz\* LA, DJ Coughlin, KR Goodrich. **Twisty twigs: Twig biomechanics of Pawpaw (*Asimina triloba*: Annonaceae).** Society of Integrative and Comparative Biology. San Francisco, CA. January 2013.
- 2012** Fisher\* KE, KR Goodrich. **Host plant preference of the tulip tree beauty moth (*Epimecis hortaria*).** Widener Arts & Sciences Summer Research Symposium. September, 2012.
- 2012** Colgan\* MJ, KE Fisher\*, CA Moir\*, LA Ortiz\*, KR Goodrich, JL Krumm. **Hungry, hungry caterpillars: Food preference in the tulip tree beauty moth.** Lehigh Valley Ecology & Evolution Symposium. April 14, 2012.
- 2011** Fisher\* K, L Ortiz\*, C Moir\*, M Colgan\*, K Hy\*, J Krumm, K Goodrich. **Impact of host plant species on larval success of *Epimecis hortaria*.** Widener Arts & Sciences Summer Research Symposium. September 2011.
- 2011** Moir\* C, M Colgan\*, L Ortiz\*, K Fisher\*, J Krumm, K Goodrich. **Impact of host plant species on food preference of *Epimecis hortaria*.** Widener Arts & Sciences Summer Research Symposium. September 2011.
- 2011** Moir\* C, K Fisher\*, M Colgan\*, L Ortiz\*, KR Goodrich, J Krumm. **Host plant choice and larval success of *Epimecis hortaria*.** Ecological Society of America annual conference. Austin, TX. August 2011.

- 2011** Jones\* A, KE Fisher\*, CA Moir\*, KL Hy\*, KR Goodrich & J Krumm. **Impact of host plant species on larval success of *Epimecis hortaria***. Mid-Atlantic Ecological Society of America regional conference. Montclair, NJ. April, 2011. **\*\* 1<sup>st</sup> prize for undergraduate poster presentation.\*\***
- 2011** Hy\* K, A Jones\*, C Moir\*, K Fisher\*, J Krumm & K Goodrich. **Impact of host plant species on larval success of *Epimecis hortaria***. Society of Integrative and Comparative Biology. Salt Lake City, UT. January 2011
- 2010** Hy\* K, K Fisher\*, C Moir\*, A Jones\*, J Krumm, KR Goodrich. **Impact of host plant species on larval success in *Epimecis hortaria***. Widener Arts & Sciences Summer Research Symposium. August 2010.
- 2010** Jones\* A, C Moir\*, K Hy\*, K Fisher\*, J Krumm, KR Goodrich. **Do floral spiders limit pollination rate in Pawpaw?** Widener Arts & Sciences Summer Research Symposium. August 2010.
- 2010** Tiedeken\* EJ, KR Goodrich, C Ingersoll, RA Niesenbaum. **Volatile specificity as an inducible defense: An investigation of volatile chemistry as a form of “top down regulation” of herbivory in *Lindera benzoin***. Ecological Society of America annual conference. Pittsburgh, PA. August 2010.
- 2009** Johnson\* T, KR Goodrich. **Spicebush (*Lindera benzoin*) mycorrhizal associations in varied environments**. Lehigh Valley Ecology and Evolution Symposium. Cedar Crest College. Allentown, PA.
- 2009** Caras\* CA, CE Weigle\*, N Howitz\*, KR Goodrich, RA Niesenbaum, CM Ingersoll. **Effect of soil juglone concentration on herbivory of *Lindera benzoin* growing near black walnut**. Chemical Society of America. Washington, D.C.
- 2008** Tiedeken\* EJ, RA Niesenbaum & KR Goodrich. **Volatile specificity and induction in *Lindera benzoin*: chemical attractants for parasitoids?** Fall Science Poster Session. Muhlenberg College, Allentown, PA. October 24, 2008.
- 2007** Goodrich, KR & RA Raguso. **The odor component of floral display in *Asimina* (Annonaceae)**. Gordon Conference on floral and vegetative volatiles. Les Diablerets, Switzerland. October 7-12, 2007. (presented by K. Goodrich)

#### **FELLOWSHIPS AND GRANTS:**

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- 2013** **Widener Provost Grant 2014-2015** “Floral Design and Pollination Ecology” Grant supported summer research student stipend & associated field supplies.
- 2013** **Widener Faculty Development Grant 2014-2015** “Evolution and inheritance of floral traits in species and hybrid lines of pawpaw (*Asimina*)” Grant supported travel to SC and GA.
- 2012** **Widener Faculty Development Grant 2013-2014** “Expression of floral traits in hybrid lines of pawpaw” Grant supported travel and equipment for field work in Berryville, VA in Spring, 2014.
- 2011** **Widener Provost Grant 2012-2013** “Floral Phenotype Evolution in *Asimina* and *Deeringothamnus*” Grant supported my travel to Valdosta State University for collaborative work with Catherine Bush in her lab.
- 2011** **Widener Faculty Development Grant 2012-2013** “Impact of Initial Host Plant Diet on Feeding Preferences of *Epimecis hortaria*” Grant towards summer research student stipend & associated field supplies.

- 2010 Widener Faculty Development Grant 2011-2012** “Impact of host plant choice on larval success of *Epimecis hortaria*” Collaborative grant w/ Janice Krumm, towards summer research student stipends & associated field supplies.
- 2010 Widener Provost Grant 2010-2011** “Phylogenetic Analysis of the Genus *Asimina* (Annonaceae)” Grant towards molecular phylogenetic work at Widener University.
- 2009 Widener Faculty Development Grant 2010-2011** “Reproductive Biology for Species of Annonaceae (Soursop Family)” Grant towards botanical research in Peru, Spring 2011.
- 2007 Taber Travel Fellowship** from Univ. of South Carolina, towards Gordon Conference registration and travel to Les Diablerets, Switzerland.

#### **AWARDS & HONORS:**

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- 2015 Phi Kappa Phi Honor Society membership** – inducted as a member of Phi Kappa Phi. March 2015
- 2010 βββ Biological Honor Society membership** – inducted as a member to the βββ Biological Honor Society. April 2010
- 2007 A.C. Moore Herbarium Plant Science Presentation Award** for talk given at the Association of Southeastern Biologists conference, Columbia, SC, April 2007.
- 2005 William H. Nolte Graduate Teaching Assistant Award** given by Dept of Biological Sciences, Univ. of South Carolina to a student with a record of superior and effective performance as a full time teaching assistant and in good academic standing. Awarded Spring 2005.

#### **TEACHING EXPERIENCE:**

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- Science, Sex and Ideology** (ASC 400): Senior Values Seminar, co-taught with Dr. Annalisa Castaldo. Examines the connection between objective science and subjective cultural/personal biases, particularly in the context of human biology and sex. **Fall 2013**
- Plant Physiology** (BIOL 311): Upper division organismal elective course for majors. Topics include plant physiology and anatomy as it relates to physiological functions, from a cellular level, whole-plant level, and an ecological level. **Spring 2011, 2013**
- Plant-Animal Interactions** (BIOL 312; formerly BIOL 388): Upper division interorganismal elective course for majors. Topics focus primarily on angiosperms and insects, examining plant-pollinator relationships and plant-herbivore relationships. **Fall 2010, 2012, 2014**
- General Botany** (BIOL 308): Upper division botany course for majors. Topics include plant evolution, some plant anatomy and physiology, and plant taxonomy. Lab includes observations of plant form and function, plant tissues, and plant identification. **Spring 2010, 2012, 2014**
- Biological Concepts II** (BIOL 162; plant half): Lecture course for first-year majors. Topics (for plant half of the semester) include plant evolution, plant form and function, and plant ecology. **Spring 2010, 2011, 2012, 2013, 2014**
- Biological Concepts I Laboratory** (BIOL 165): Laboratory course for majors, focusing on student-designed field projects emphasizing ecology and evolution in local ecosystems. **Fall 2009, 2010, 2011, 2012, 2013, 2014**

***Principles of Biology I*** (BIOL 101): Lecture and laboratory course designed for non-majors, covering a broad spectrum of biological subjects. **Fall** 2009, 2010, 2011, 2012, 2013

***Ecology of Plant-Insect Interactions*** (BIO 480; Muhlenberg College): Seminar course for upper level students, addressing topics of pollination ecology from both the plant and insect perspective (team taught with Dr. Jordanna Sprayberry) **Spring** 2009

***Principles of Biology II Lab:*** (BIO 122L; Cedar Crest College) Course designed for majors covering a broad array of biological topics. **Spring** 2008.

***Human Agenda Lab:*** (BIO 112L; Cedar Crest College) Course designed for non-majors, focusing on biological topics surrounding human anatomy and physiology. **Spring** 2008.

***General Physiology Lab:*** (BIOL 460L; University of South Carolina) Course designed for majors. Topics include functional mechanisms of vertebrate organ systems. **Fall** 2006, **Spring** 2004, 2005, 2006, 2007.

***Human Anatomy and Physiology Lab:*** (BIOL 244L; University of South Carolina) Course designed for nursing majors, covering topics of human anatomy and physiology. **Fall** 2003, 2004, 2005, **Spring** 2004, 2005.

***Biological Principles II Lab:*** (BIOL 102L; University of South Carolina) Majors Biology laboratory for freshmen, covering a broad array of biological topics. **Fall** 2002, 2003, **Spring** 2003.

#### **PROFESSIONAL MEMBERSHIPS:**

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- Botanical Society of America (BSA)
- American Society of Plant Taxonomists (ASPT)
- Philadelphia Botanical Club
- Ecological Society of America (ESA)
- Society for Integrative and Comparative Biology (SICB)