

JULIE BECKSTEAD

Professor, Gonzaga University

Shortened CV for online review; for full CV please contact me

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EDUCATION

- 2001 Ph.D. Department of Plant Biology, University of Illinois at Urbana-Champaign.
Advisor: Dr. Carol Augspurger.
- 1994 M.S. Department of Botany and Range Science, Brigham Young University, Provo, UT.
Advisors: Drs. Bruce Smith and Susan Meyer.
- 1991 B.S. Departments of Biology and Secondary Education, Brigham Young University,
Provo, UT. Cum Laude Honors.

PROFESSIONAL EXPERIENCE

- 2012-present Professor, Gonzaga University, Spokane, WA.
- 2007-2012 Associate Professor, Gonzaga University, Spokane, WA
- 2002-2007 Assistant Professor, Gonzaga University, Spokane, WA.
- 2000-2002 Postdoctoral Fellow, Univ. of California, Santa Cruz, Advisor: Dr. Ingrid Parker.
- 1994-1999 Teaching Assistant, Dept. of Plant Biology, University of Illinois (UIUC).
- 1997-1998 Course Coordinator, Dept. of Plant Biology, University of Illinois (UIUC).
- 1992-1994 Research Assistant, USDA Shrub Sciences Lab, Provo, UT.
- 1992-1993 Teaching Assistant, Dept. of Botany and Range Science, Brigham Young University.
- 1992 Teaching Consultant, Curricula Development, Nebo School District, UT.
- 1991-1992 Teacher, Springville Middle School, Springville, UT.
- 1991 Teaching Assistant, Dept. of Biology, Brigham Young University.

RESEARCH: Invasion Biology, Plant Pathogen Interactions, Restoration Ecology, Bald Eagles

STUDENTS INTERESTED IN RESEARCH, please see:

[Beckstead Research Interest - Current Projects Website Link](#)

[You-Tube video Faculty-Student Research Opportunities](#)

[You Tube video We are Zags! Feature](#)

[Beckstead Research Collaborations on Cheatgrass Biological Control Website Link](#)

[Beckstead Research Featured on Northwest Public Radio](#)

STUDENTS INTERESTED IN LANDSCAPING WITH NATIVE PLANTS, please see:

[Northeast Chapter of the Washington Native Plant Society](#)

STUDENTS INTERESTED IN TEACHING LIFE SCIENCE K-12, please see myself or Dr. Pauw for more information about this career choice.

RESEARCH INTERESTS

My research focuses on plant invasion biology from a community ecology perspective, including testing the Natural Enemies Hypothesis of invasion biology, spillover effects of a seed pathogen, and tools to facilitate restoration ecology. I have worked in the tropics, Midwestern forests, coastal beach communities and semi-arid shrub-steppe and grassland communities. My current goal is to explore whether naturally-occurring fungal enemies are a potential tool to control the invasive cheatgrass (*Bromus tectorum*). I am investigating whether a naturally occurring seed pathogen, *Pyrenophora semeniperda*, can control cheatgrass. In addition, I am exploring other fungal pathogens responsible for natural stand failure (die-offs) on cheatgrass infested lands. Invasive species are an important threat to biodiversity, our economy, and at time even our health. I aim to help society and biologists to better understand some of our foremost invasive species. For more information on my prior biological control research see <http://www.cheatgrassbiocontrol.org/>.

RESEARCH IN THE NEWS

Cheatgrass-pathogen research has been featured in the local Spokesman Review newspaper; Titled “Weeding out a pest: ‘Death’ fungus offers hope” by James Hagengruber August 22, 2007. The article was picked up by the Associated Press and appeared in newspapers in California, Oregon, Washington, Idaho, Montana, and Utah along with online news organizations (i.e., MSNBC.com). In 2009, research was focused on National Public Radio Northwest radio “Fungus May Help Eradicate Invasive Cheatgrass in NW”. In 2014, research was featured in a land management journal called SageSTEP News (Fall 2014 Issues 25; Title: “Decoding cheatgrass die-off in Great Basin Lands”).

AWARDS AND HONORS (*sampling*)

- Inspiring Women in STEM Award from *INSIGHT into Diversity* of higher education (prestigious national recognition as one of 100 women selected in the United States; June 3, 2015)
- Exemplary Faculty Award from Gonzaga University (April 21, 2015)
- Promotion to Professor from Gonzaga University Fall 2012 (Petition Sept. 2011).
- Robert Emerson Memorial Award, 2000, School of Life Science, UIUC (presented to the outstanding graduating doctoral candidate).
- Ecology Best Talk Award, 2000, Graduate Students in Ecology and Evolutionary Biology Symposium, UIUC.
- Dissertation Completion Fellowship, 1999, Graduate College, UIUC.
- Outstanding Teacher in Plant Biology, 1997, School of Life Science, UIUC.
- Scholarship, Tropical Ecology, 1995, Organization for Tropical Studies (OTS), UIUC.

RESEARCH PATENT

United States Patent. No. US 9,622,487 B2. Inventors: Susan E. Meyer, Suzette Clement, and Julie Beckstead. Entitled: Annual Brome control using a native fungal seed pathogen. Provisional application filed August 3, 2011. Filed July 27, 2012. Issued April 18, 2017.

GRANTS AWARDED (*sampling*; ♦ peer-reviewed)

- 2014 ♦Great Basin Landscape Conservation Cooperative (USDI and USDA). Title: Cheatgrass Stand Failure in the Great Basin: Fungal Pathogens, Litter Dynamics, and Fungistasis (with Dr. Susan Meyer, USDA Shrub Science Laboratory and Dr. Phil Allen, Brigham Young University). Total Award currently being determined: requested \$98,150, receiving \$73,208; Gonzaga Award: requested \$46,130, receiving \$18,047. Received October 2014. End date September 2017.
- 2011 ♦Joint Fire Science Program (USDI and USDA). Title: Enhancing the Effectiveness of Annual Grass Weed Biocontrol with the Black Fingers of Death Pathogen (*Pyrenophora semeniperda*). (with Dr. Susan Meyer, USDA Shrub Science Laboratory and Dr. Phil Allen, Brigham Young University). Total Award: \$424,018; Gonzaga Award: \$136,675. Received November 2011. End date May 2015.
- 2011 ♦Bureau of Land Management (USDI). Understanding the Causes and Consequences of Cheatgrass Dieoffs in the Great Basin. (with Dr. Meyer USDA Shrub Science Laboratory; Drs. Leger, Weisberg and Forister from University of Nevada-Reno; Drs. Aanderud and Geary from Brigham Young University). Total Award: \$360,300 for first 2 yrs; Gonzaga Award: \$36,412. Received Sept. 2011. End date Dec. 2013.
- 2007 ♦CSREES National Research Initiative (USDA). Title: Evolutionary and Community Ecology of the Seed Bank Pathogen *Pyrenophora semeniperda* on Cheatgrass Dominated Rangelands. (with Dr. Meyer, USDA Shrub Science Laboratory; Drs. Allen, Coleman, and Stevens, Brigham Young University; and Dr. Boose, Gonzaga University). Total Award: \$388,699; Gonzaga Award: \$100,154. Received December 2007.
- 2007 ♦Joint Fire Sciences Program (USDI and USDA). Title: Annual brome biocontrol after wildfire using a native fungal seed pathogen. (with Dr. Susan Meyer, USDA Shrub Science Laboratory and Dr. Phil Allen, Brigham Young University). Total Award: \$353,089; Gonzaga Award: \$116,256. Received September 2007.

PEER-REVIEWED BOOK CHAPTER

Meyer, SE, **J. Beckstead**, and J Franke. 2016. Community Ecology of Fungal Pathogens on *Bromus tectorum*. Pages 193-223. In M. Germino, J. Chambers, and C. Brown, editors. Exotic brome grasses in arid and semi-arid ecosystems of the western US: causes, consequences, and management implications. Springer International Publishing, Switzerland.

PEER-REVIEWED PUBLICATIONS (*sampling*; *denotes undergraduate Gonzaga student)

- Beckstead, J**, SE Meyer, *TS Ishizuka, *KM McEvoy, and CE Coleman. 2016. Lack of Host Specialization on Winter Annual Grasses in the Seed Bank Pathogen *Pyrenophora semeniperda*. PLoS ONE 11(3): e0151058. DOI 10.1371/journal.pone.0151058.
- Meyer, SE, M Masi, S Clement, *T Davis, and **J Beckstead**. 2015. Mycelial Growth Rate and Toxin Production in the Seed Pathogen *Pyrenophora semeniperda*: Resource Trade-offs and Temporally Varying Selection. Plant Pathology 64:1450-1460.
- *Barth, CW, SE Meyer, **J. Beckstead**, and PS Allen. 2015. Modeling temperature and water potential effects on conidial germination and mycelial growth for a fungal seed pathogen using hydrothermal time. Fungal Biology 119:720-730.
- Beckstead, J**, Meyer SE, Reinhart K, *Bergen K, *Holden S, Boekweg H. 2014. Factors affecting host range in a generalist seed pathogen of semi-arid shrublands. Plant Ecology 215:427-440. DOI 10.1007/s11258-014-0313-3.
- Robinson, RS and **J Beckstead**. 2014. Trends in numbers of winter bald eagles at Lake Coeur d'Alene in Idaho. Northwest Science 88(1):1-10.

- Meyer, SE, KT Merrill, PS Allen, **J Beckstead**, and *AS Norte. 2014. Indirect Effects of an Invasive Annual Grass on Perennial Grass Seed Fates. *Oecologia* 174:1401-1413. DOI 10.1007/s00442-013-2868-4.
- Beckstead, J**, *LE Miller, and *BM Connolly. 2012. Direct and indirect effects of plant litter on a seed-pathogen interaction in *Bromus tectorum* seed banks. *Seed Science Research* 22:135-144.
- Beckstead, J**, *AN Lagasse, and SR Robinson. 2011. Exploring the population dynamics of wintering bald eagles through long-term data. *Teaching Issues and Experiments in Ecology* Vol.7: Data sets [online]. http://tiee.esa.org/vol/v7/issues/data_sets/beckstead/abstract.html.
- Beckstead, J**, SE Meyer, *LE Street, and PS Allen. 2011. Effect of fire on a seed bank pathogen and on seeds of its host *Bromus tectorum*. *Rangeland Ecology & Management* 64:148-157.
- *Dooley, SR and **J Beckstead**. 2010. Characterizing the interaction between a fungal seed pathogen and a deleterious rhizobacteria for cheatgrass control. *Biological Control* 53: 197-203.
- Beckstead, J**, SE Meyer, *BM Connolly, *MB Huck, and *LE Street. 2010. Cheatgrass facilitates spillover of a seed bank pathogen onto native grass species. *Journal of Ecology* 98:168-177.
- Beckstead, J**, SE Meyer, *CJ Molder, and *C Smith. 2007. A race for survival: can *Bromus tectorum* seeds escape *Pyrenophora semeniperda*-caused mortality by germinating quickly? *Annals of Botany* 99(5): 1-8.

INVITED SYMPOSIUM (*sampling*)

- Beckstead, J**. 2014. Cheatgrass Suppressive Fungi: Overview And Lessons Learned From Field Inoculations. *Channeled Scablands Cooperative Weed Management Area meetings*. Cheney, WA. Symposium title: Fighting Weeds: From Traditional Tools to New Technology for Weed Control and Rangeland Restoration.
- Beckstead, J**. 2012. A naturally occurring seed pathogen eliminates the cheatgrass carryover seed bank in the field. *Society for Range Management 65th Annual Meeting*. Spokane, WA. Symposium title: Alternative Methods in Weed Control - Use of Biocontrols.
- Beckstead, J**. 2011. Field inoculation trials demonstrate that a seed pathogen can eliminate the cheatgrass carryover seed bank. *Columbia Basin Landscapes Workshop: Linking science and management to improve restoration success in the shrub steppe*. Kennewick, WA. Symposium title: Biocontrols.
- Beckstead, J**. 2010. A seed pathogen: potential tool in restoring cheatgrass-dominated habitats. *The Wildlife Society Oregon Chapter*, Bend, Oregon. Symposium title: Arid Grasslands and Sagebrush.
- Beckstead, J**. 2009. Novel Approaches for Restoring cheatgrass-dominated rangelands. *Pacific NorthWest Rangeland Society*, John Day, Oregon. Symposium Panel Title: Rumbblings from the deep: fossils, fires, fish and grazing, too.
- Beckstead, J**, IM Parker and HV Ngo. 2003. Invasiveness of *Ammophila arenaria*: release from soil-borne pathogens? *Ecological Society of America Annual Meeting*, Savannah, GA. Symposium title: The role of plant-microbe feedbacks in plants invasions.

INVITED SEMINARS (*sampling*)

- Washington State University, Plant Pathology Department (2009)
- Washington Native Plant Society Columbia Basin Chapter (2008)
- Eastern Washington University, Department of Biology (2007)
- Washington State University, School of Biological Sciences (2006)
- Central Washington University, Department of Biological Sciences (2004)
- Washington Native Plant Society Central Chapter (2004)
- Washington Native Plant Society Northeast Chapter (2003, 2007)

UNDERGRADUATE RESEARCH ASSISTANTS SUPERVISED

Carson Schneider, Austin Gabriel, Brittany Ledall, Kimmy Grome, Anna Norte, Kelsey McEvoy, Kaitlin van Volkom, Toby Ishizuka, Will Glenny, Connor Barth, Katherine (Katie) Horelick, Ingrid Velez, Sallie Cataldo, Chris Watson, Kristina Bair (co-supervised), Trevor Davis, Lindsay Poston, Lauren Miller, Kellene (Kelly) Bergen, June Jung, Laura Street, DeeDee (Sandra) Dooley, Robert Wheeler (co-supervised), Barbara Williams (co-supervised), Mike Huck, Brian Connolly, Caitlin Lee (co-supervised), Cherrilyn Molder, Caitlyn Smith, Bill Jack, Tammy Chapman, Maureen O'Hara, and Marrassa Smith (Gonzaga University).

Owen Baughman (University of Idaho)

Erin Avery, Haivan Ngo, and Mandy Morrison (University of California-Santa Cruz).

Allen Chen, Grace Lee, Amy Peterson, and Randy Wright (University of Illinois-Urbana Champaign).

JanaLynn Franke, Katie Merrill, Leila Ellsworth, Alisa Ramakrishnan, and Jennifer Schmidt (Brigham Young University).

RESEARCH TECHNICIANS SUPERVISED

Abbey Shuster, Kimmy Grome, Anna Muhich

PRESENTATIONS (Too many to list; contact me for complete video if interested)