CURRICULUM VITAE

DAVID A. MOELLER

Department of Plant and Microbial Biology, University of Minnesota
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Academic Rank
Associate Professor, Plant and Microbial Biology Department
Graduate Faculty Appointment in Plant and Microbial BIology & Ecology, Evolution, and Behavior

Education

Degree	Institution	Date Degree Granted
B.A.	Washington University, *Summa cum laude* Biology, with honors	1997
Ph.D	Cornell University Ecology and Evolutionary Biology	2003

Positions/Employment
University of Minnesota, Twin Cities (2009-2016)

6/2015 – present	Associate Professor, Department of Plant and Microbial Biology
9/2015 – 8/2018	Director of Undergraduate Studies, Department of Plant and Microbial Biology
11/2009 – 5/2015	Assistant Professor, Department of Plant Biology

University of Georgia (2008-2009)

01/2008 - 10/2009	Assistant Professor, Department of Genetics, University of Georgia

University of Minnesota, Twin Cities (2004-2007)

1/2004 – 12/2007	Postdoctoral Associate, University of Minnesota

HONORS AND AWARDS FOR RESEARCH/CREATIVE WORK, TEACHING, PUBLIC ENGAGEMENT, AND SERVICE
Robert H. Whittaker Award, Cornell University Outstanding graduate research in EEB
Outstanding Graduate Teaching Award, College of Agriculture and Life Sciences, Cornell University
Outstanding Graduate Teaching Award, Dept. of Ecology and Evolutionary Biology, Cornell University
Phi Beta Kappa, elected, Washington University
Sigma Xi Honor Society, elected, Washington University
Summa cum laude, Honors in Biology, Washington University
Young Botanist Award, Botanical Society of America
Howard Hughes Undergraduate Research Fellowship, Washington University

RESEARCH, SCHOLARSHIP, AND CREATIVE WORK

Grants and Contracts

PI or Co-PI on awards received at UMN: $3,727,098

External Sources

Received at the University of Minnesota

Graduate Student Research Grants

Under my mentorship, my graduate students have received >$73,000 in research grants.

Faculty Research Grants (9) (note: grant supplements listed separately below)

9. Principal Investigator
Legislative-Citizen Commission on Minnesota Resources
Improved detection and future management of leafy spurge and common tansy using remote sensing, mechanistic species distribution models, and landscape genomics
July 2019 - June 2022
$422,769 (all direct)

8. Principal Investigator (Yaniv Brandvain, Co-PI)
National Science Foundation
The Role of Mating System Divergence in Plant Speciation
August 2018 – July 2022
$993,239 (direct: $646,952; indirect: $346,287)

7. Principal Investigator (Monica Geber, Co-PI; Vincent Eckhart, Co-PI)
National Science Foundation
Evolutionary Demography – The Contribution of Adaptation and Environment to Population Dynamics, Range Size, and Niche Width
2018 –2023
$449,701

6. Co-Principal Investigator (Lauren Sullivan, PI; Allison Shaw, Co-PI)
Legislative-Citizen Commission on Minnesota Resources
Measuring Prairie Fragment Connectivity: Pollen and Seed Dispersal
July 2016 – June 2020
$556,000 (all direct costs)

5. Principal Investigator (John Benning, Co-PI)
National Science Foundation
Dissertation Improvement Grant: Biotic Interactions and the Geographic Range Limit of *Clarkia xantiana* Across a Complex Environmental Gradient
May 2017 – April 2019
$19,921 (direct: $13,000; indirect: $6,921)

4. Principal Investigator (Peter Tiffin, Co-PI)
Legislative-Citizen Commission on Minnesota Resources
Climate Change and Range Expansion of Invasive Plants

January 2016 – June 2019
$209,263 (all direct costs)

3. Co-Principal Investigator (Monica Geber, PI; Vincent Eckhart, Co-PI)
National Science Foundation
LTREB: Evolutionary Demography – The Contribution of Adaptation and Environment to Population Dynamics, Range Size, and Niche Width
March 2013 – February 2018
$448,390
Portion to Moeller: $160,335 ($105,582 direct, 54,753 indirect)
REU Supplements: $14,375

2. Principal Investigator (sole PI)
National Science Foundation
The Role of Natural Selection in Plant Speciation: A Test of the Reinforcement Hypothesis in *Clarkia*
September 2010 – August 2014
$495,431 (328,100 direct, 167,331 indirect); 100% of award to Moeller
REU and ROA Supplements: $59,866

1. Principal Investigator
Capitol Region Watershed District
Sarita Wetland Native Plant Restoration: Re-Establishing Native Plant Communities in A Degraded Wetland on the University of Minnesota Campus
January 2011 – December 2013
$8,800 (all direct)

Supplements to National Science Foundation Awards (7)

7. Principal Investigator
National Science Foundation
REU Supplement: LTREB: Evolutionary Demography – The Contribution of Adaptation and Environment to Population Dynamics, Range Size, and Niche Width
March 2016 – December 2016
$7075 (all direct costs)

6. Principal Investigator
National Science Foundation
REU Supplement: LTREB: Evolutionary Demography – The Contribution of Adaptation and Environment to Population Dynamics, Range Size, and Niche Width
March 2015 – December 2015
$7300 (all direct costs)

5. Principal Investigator
National Science Foundation
ROA Supplement: Sexual Conflict and Mating System Evolution in *Clarkia*
March 2014 – August 2014
$32,016 (all direct)

4. Principal Investigator
National Science Foundation
REU Supplement: The Role of Natural Selection in Plant Speciation: A Test of the Reinforcement Hypothesis in *Clarkia*
March 2014 – August 2014
$6900

3. Principal Investigator
National Science Foundation
REU Supplement: The Role of Natural Selection in Plant Speciation: A Test of the Reinforcement Hypothesis in *Clarkia*
March 2013 – December 2013
$6250 (all direct)

2. Principal Investigator
National Science Foundation
REU Supplement: The Role of Natural Selection in Plant Speciation: A Test of the Reinforcement Hypothesis in *Clarkia*
March 2012 – December 2012
$7350 (all direct)

1. Principal Investigator
National Science Foundation
REU Supplement: The Role of Natural Selection in Plant Speciation: A Test of the Reinforcement Hypothesis in *Clarkia*
March 2011 – December 2011
$7350 (all direct)

Received Prior to Joining the University of Minnesota
Co-Principal Investigator (Monica Geber, PI; Vincent Eckhart, Co-PI; Peter Tiffin, Co-PI)
National Science Foundation
Collaborative Research: Ecological and Evolutionary-Genetic Limits to Range Expansion
September 2005 – August 2010 (with no-cost extension)
$780,122 (total award)

Co-Principal Investigator (Monica Geber, PI)
National Science Foundation
DDIG: Ecological Causes of the Evolution of Self-Pollination
March 2001 – December 2003
$13,000 (all direct)

University Sources

***Received at the University of Minnesota* (3)**
4. Principal Investigator: Institute on the Environment Mini Grant (with John Benning and Amanda Gorton)
Backyard Science: Urban conservation led by citizen scientists
January 2019 – July 2020
$2720 (all direct)

3. Principal Investigator (sole PI): John Hall Memorial Research Award
Evolution of Species' Distributions in Response to Historical and Contemporary Climate
January 2012 - 2014
$17,325 (all direct)

2 Principal Investigator (sole PI): UMN Grant-In-Aid
Evolution of Species' Distributions in Response to Historical and Contemporary Climate
January 2012 - 2014
$30,062 (all direct)

Received at the University of Georgia
1. Principal Investigator (sole PI): University of Georgia Grant-In-Aid
Ecological Genetics of Adaptation to Climate Change Across A Latitudinal Gradient
January 2009 - December 2009
$10,129 (all direct)

PUBLICATIONS

(authors from my lab are in bold; graduate student authors*, undergraduate authors†)

In Review

1. Hämälä, T., A.J. Gorton, **D.A. Moeller**, & P. Tiffin. Pleiotropy facilitates local adaptation to distant optima in common ragweed (*Ambrosia artemisiifolia*). *PLoS Genetics*, in review.

2. Lake, T.A.*, **R.D. Briscoe Runquist**, & **D.A. Moeller**. Predicting range expansion of invasive species: pitfalls and best practices for obtaining biologically realistic projections. *Diversity and Distributions*. in review.

3. **Sullivan, L.L.**, K. Sperry, M. Michalska-Smith, **D.A. Moeller**, & A.K. Shaw. Ignoring dispersal variation in network models can both over- and under-predict estimates of landscape connectivity. *Conservation Biology*, in review.

4. Ruane, L., S. Magnum, K.W. Horner, & **D.A. Moeller**. The opportunity for outcrossing varies across the geographic range of the primarily selfing, *Clarkia xantiana* ssp. *parviflora*. *American Journal of Botany*, in review.

5. **Mueller, T.***, E. Karlsen-Ayala, **D.A. Moeller**, & J. Bellemare. Of mutualism and migration: Will interactions with novel ericoid mycorrhizal communities help or hinder northward *Rhododendron* range shifts?

Refereed Journal Articles

39. **Briscoe Runquist R.D., A.J. Gorton***, J.B. Yoder, N.J. Deacon, J.J. Grossman, S. Kothari, M.P. Lyons, S.N. Sheth, P. Tiffin, & **D.A. Moeller**. 2020. Context dependence of local adaptation to abiotic and biotic environments: a quantitative and qualitative synthesis. *American Naturalist*, doi: 10.1086/707322.

38. **Benning, J.W.***, & **D.A. Moeller**. 2019. Maladaptation beyond a geographic range limit driven by antagonistic and mutualistic biotic interactions across an abiotic gradient. *Evolution* 73: 2044-2059.

37. **Gorton, A.J.***, P. Tiffin, & **D.A. Moeller**. 2019. Does adaptation to historical climate shape plant responses to future rainfall patterns? A rainfall manipulation experiment with common ragweed. *Oecologia* 190:941-953.

36. **Benning, J.W.***, M.A. Geber, V.M. Eckhart, & **D.A. Moeller**. 2019. Biotic interactions limit the geographic range of an annual plant: herbivory and phenology mediate fitness beyond a range margin. *American Naturalist* 193:786-797.

35. **Briscoe Runquist, R.D., T. Lake**, P. Tiffin, & **D.A. Moeller**. 2019. Species distribution models predict late but not early stages of the invasion process for Palmer amaranth, a native invader and agricultural pest. *Scientific Reports* 9:2426.

34. Hargreaves, A.L., E. Suárez, K. Mehltreter, I. Myers-Smith, S.E. Vanderplank, H.L. Slinn, Y. Vargas, S. Haeussler, S. David, J. Muñoz, R.C. Almazán-Núñez, D. Loughnan, **J.W. Benning*, D.A. Moeller**, J.F. Brodie, & P.A. Morales. 2019. Seed predation increases from the Arctic to the Equator and from high to low elevations. *Science Advances* 5:eaau4403.

33. **Bolin, L.G.**†, **J.W. Benning***, **& D.A. Moeller**. 2018. Mycorrhizal interactions do not influence plant-herbivore interactions in populations of *Clarkia xantiana* ssp*. xantiana* spanning from center to margin of the geographic range. *Ecology & Evolution*, 8:10743–10753.

32. **Gorton, A.J.***, **D.A. Moeller**, & P. Tiffin. 2018. Little plant, big city: a test of adaptation to urban environments in common ragweed (*Ambrosia artemisiifolia*). *Proceedings of the Royal Society of London B*, 285:20180968.

31. Pironen, S., J. Villellas, W. Thuiller, V.M. Eckhart, M.A. Geber, **D.A. Moeller**, & M.B. García. 2018. The "Hutchinsonian niche" as an assemblage of demographic niches: implications for species geographic ranges. *Ecography*, 41:1103-1113.

30. **Moeller, D.A.**, **R.D. Briscoe Runquist, A.M. Moe,** M.A. Geber, C. Goodwillie, P.-O. Cheptou, C.G. Eckert, E. Elle, M.O. Johnston, S. Kalisz, R.H. Ree, R.D. Sargent, M. Vallejo-Marin, & A.A. Winn. 2017. Global biogeography of mating system variation in seed plants. *Ecology Letters*, 20:375-384

29. **Briscoe Runquist, R.D.,** M.A. Geber, **M. Pickett-Leonard**†**, & D.A. Moeller**. 2017. Mating system evolution under strong pollen limitation: Evidence of disruptive selection through male and female fitness in *Clarkia xantiana*. *American Naturalist*, 189:549-563.

28. **Pettengill, J.B., R.D. Briscoe Runquist, & D.A. Moeller**. 2016. Mating system divergence affects the distribution of sequence diversity within and among populations of recently diverged subspecies of *Clarkia xantiana* (Onagraceae). *American Journal of Botany* 103:99-109.

27. **Briscoe Runquist, R.D., E. Chu†, J.L. Iverson†, J.C. Kopp†, & D.A. Moeller**. 2014. Rapid evolution of reproductive isolation between incipient outcrossing and selfing *Clarkia* species. *Evolution* 68:2885-2900.

26. Gould, B., **D.A. Moeller**, V.M. Eckhart, P. Tiffin, & M.A. Geber. 2014. Local adaptation and range boundary formation in response to complex environmental gradients across the geographic range of *Clarkia xantiana* ssp. *xantiana*. *Journal of Ecology* 102:95-107.

25. **Briscoe Runquist, R.D. & D.A. Moeller**. 2014. Floral and mating system divergence in secondary sympatry: testing an alternative hypothesis to reinforcement in *Clarkia*. *Annals of Botany* 100:1916-1921.

24. **Briscoe Runquist, R.D. & D.A. Moeller**. 2013. Resource reallocation does not influence estimates of pollen limitation or reproductive assurance in *Clarkia xantiana* ssp. *parviflora* (Onagraceae). *American Journal of Botany* 100:1916-1921.

23. **Pettengill, J.B., & D.A. Moeller**. 2012. Phylogeography of speciation: allopatric divergence and secondary contact between outcrossing and selfing *Clarkia*. *Molecular Ecology* 21:4578-4592.

22. **Pettengill, J.B., & D.A. Moeller**. 2012. Tempo and mode of mating system evolution between incipient *Clarkia* species. *Evolution* 66:1210-1225.

21. **Moeller, D.A.**, M.A. Geber, V.M. Eckhart, & P. Tiffin. 2012. Reduced pollinator service and elevated pollen limitation at the geographic range limit of an annual plant. *Ecology* 93:1036-1048.

20. Winn, A.A., E. Elle, S. Kalisz, P.-O. Cheptou, C.G. Eckert, C. Goodwillie, M.O. Johnston, **D.A. Moeller**, R.H. Ree, R.D. Sargent, & M. Vallejo-Marin. 2011. Analysis of inbreeding depression in mixed mating plants provides evidence for selective interference and stable mixed mating. *Evolution* 65:3339-3359.

19. **Moeller, D.A.**, M.A. Geber, & P. Tiffin. 2011. Population genetics and the evolution of geographic range limits in an annual plant. *American Naturalist* 178:S44-S61.

18. Eckhart, V.M., M.A. Geber, W.F. Morris, E.S. Fabio, P. Tiffin, & **D.A. Moeller**. 2011. The geography of demography: Long-term demographic studies and species distribution models reveal a species border limited by adaptation. *American Naturalist* 178:S26-S43.

17. Eckhart, V.M., I. Singh, A.M. Louthan, A.J. Keledjian, A. Chu, **D.A. Moeller**, & M.A. Geber. 2010. Plant-soil water relations and the species border of *Clarkia xantiana* ssp. *a* (Onagraceae). *International Journal of Plant Sciences* 171: 749-760.

16. Goodwillie, C., R. Sargent, C.G Eckert, E. Elle, M.A. Geber, M.O. Johnston, S. Kalisz, **D.A. Moeller**, R.H. Ree, M. Vallejo-Marin, & A. Winn. 2010. Correlated evolution of mating system and floral display traits in flowering plants and its implications for the distribution of mating system variation. *New Phytologist* 185: 311-321.

15. Eckert, C.G., S. Kalisz, M.A. Geber, R. Sargent, E. Elle, P.-O. Cheptou, C. Goodwillie, M.O. Johnston, J.K. Kelly, **D.A. Moeller**, E. Porcher, R.H. Ree, M. Vallejo-Marin, & A. Winn. 2010. Plant mating systems in a changing world. *Trends in Ecology & Evolution* 25: 35-43.

14. Johnston, M.O., E. Porcher, P.-O. Cheptou, C.G. Eckert, E. Elle, M.A. Geber, S. Kalisz, J.K. Kelly, **D.A. Moeller**, M. Vallejo-Marin, & A. Winn. 2009. Correlations among fertility components can maintain mixed mating in plants. *American Naturalist* 173: 1-11.

13. **Moeller, D.A.** & P. Tiffin. 2008. Geographic variation in adaptation at the molecular level: A case study of plant immunity genes. *Evolution* 62: 3069-3081.

12. **Moeller, D.A.**, M.I. Tenaillon, & P. Tiffin. 2007. Population structure and its effects on patterns of nucleotide polymorphism in teosinte (*Zea mays* ssp. *parviglumis*). *Genetics* 176: 1799-1809.

11. Tiffin, P. & **D.A. Moeller**. 2006. Molecular evolution of plant immune system genes. *Trends in Genetics* 22: 662-670.

10. **Moeller, D.A.** 2006. Geographic structure of pollinator communities, reproductive assurance, and the evolution of self-pollination. *Ecology* 87: 1510-1522.

9. Wheelwright, N.T., E. Dukeshire, J. Fontaine, S. Gutow, **D.A. Moeller**, J.G. Schuetz, T.M. Smith, S. Rodgers, & A.G. Zink. 2006. Pollinator limitation, autogamy, and minimal inbreeding depression in insect-pollinated plants on a boreal island. *American Midland Naturalist* 155:19-38.

8. **Moeller, D.A.** & P. Tiffin. 2005. Genetic diversity and the evolutionary history of plant immunity genes in two species of *Zea*. *Molecular Biology and Evolution* 22: 2480-2490.

7. **Moeller, D.A.** & M.A. Geber. 2005. Ecological context of the evolution of self-pollination in Clarkia xantiana: population size, plant communities, and reproductive assurance. *Evolution* 59: 786-799. (Contributions of Moeller: Design – 90%; Research – 90%; Manuscript – 90%)

6. **Moeller, D.A.** 2005. Pollinator community structure and sources of spatial variation in plant-pollinator interactions in *Clarkia xantiana* ssp. *xantiana*. *Oecologia* 142: 28-37.

5. **Moeller, D.A.** 2004. Facilitative interactions among plants via shared pollinators. *Ecology* 85: 3289-3301.

4. **Moeller, D.A.** & B.A. Schaal. 1999. Genetic relationships among Native American maize accessions of the Great Plains assessed by RAPDs. *Theoretical and Applied Genetics* 99: 1061-1067.

3. Schaal, B.A., L.J.C.B. Carvalho, T. Prinzie, K. Olsen, M. Hernandez, G. Cabral, & **D.A. Moeller**. 1997. Phylogenetic relationships and genetic diversity in *Manihot* species. *African Journal of Root and Tuber Crops* 2: 147-149.

Book Chapters

2. Bellemare, J. & **D.A. Moeller**. 2014. Climate change and the herbaceous layer of temperate deciduous forests. in. F.S. Gilliam, ed., The Herbaceous Layer in Forests of Eastern North America (2nd ed.), pp. 460-480. Oxford University Press.

1. Geber, M.A. & **D.A. Moeller**. 2006. Pollinator responses to plant communities and implications for reproductive character evolution; in L.D. Harder and S.C.H. Barrett, eds. Ecology and Evolution of Flowers, pp. 102-119. Oxford University Press.

Non-Refereed Newspaper Article

1. Moeller, D.A. 2008. Extraordinary bee diversity in the Southern Sierras. Kern River Courier (Regional newspaper in Southern California where my field sites are located)

Presentations, Posters, and Exhibits

Invited Presentations at Professional Meetings, Conferences, etc.

Dates	Author(s), Title, and Location
2019	Reinforcement and assortative mating between incipient outcrossing and selfing Clarkia species Symposium Talk: European Society for Evolutionary Biology Congress Turku, Finland
2019	Speciation and the evolution of geographic range limits in narrowly endemic plant species: implications for conservation National Tropical Botanical Garden, Botanical Research Center Kalaheo, HI
2018	The contribution of adaptation and environment to population dynamics, geographic range size, and niche width in *Clarkia xantiana* Symposium Talk: Joint Congress on Evolutionary Biology Montpelier, France
2018	Speciation and mating system evolution in *Clarkia* Christopher Newport University, Department of Biology Newport News, VA
2018	Climate change and range expansion of invasive plants U.S. Forest Service Regional Climate Change Workshop University of Minnesota Minneapolis, MN
2018	Climate change and range expansion of invasive plants State of Minnesota, Noxious Weed Advisory Committee St. Paul, MN
2017	Speciation and mating system evolution in *Clarkia* University of Illinois; Program in Ecology, Evolution, and Conservation Biology Champaign-Urbana, IL
2016	Speciation and mating system evolution in *Clarkia* University of Wisconsin, Madison; Department of Botany

Madison, WI

2015 Speciation, mating system evolution, and pollen specialist bee pollinators of *Clarkia*
Pollen Research Coordination Network Annual Meeting
American Society of Plant Biology, Annual Meeting
Minneapolis, MN

2013 Evolution of geographic range limits and the process of species divergence in *Clarkia*
Iowa State University, Department of Ecology and Evolutionary Biology
Ames, IA

2010 Distinguishing among hypotheses on geographic range limits using molecular population genetics
Invited Symposium Speaker
Society for the Study of Evolution/American Society of Naturalists
Portland, OR

2010 Ecological and evolutionary dynamics at geographic range limits
University of Minnesota, Dept. of Ecology, Evolution, and Behavior
St. Paul, MN

2009 Geographic variation in adaptation at the molecular level: pathogenesis-related proteins and plant-fungal interactions in teosinte
Invited Symposium Speaker
Botanical Society of America, Annual Meeting
Snowbird, UT

2009 Geography and genetics of adaptation in natural plant populations
University of Minnesota, Dept. of Plant Biology
St. Paul, MN

2008 The evolution of species interactions and mating systems in a community and geographic context
University of Georgia, Plant Center, Annual Meeting
Stone Mountain, GA

2008 Species interactions and floral evolution in a community and geographic context
Michigan State University, Kellogg Biological Station
Hickory Corners, MI

2007 Evolution and biogeography of mating system variation in plants: a comparative approach
Invited Symposium Speaker
European Society of Evolutionary Biology Congress
Uppsala, Sweden

2007 Adaptive evolution in plant populations: from ecological process to evolutionary pattern
University of California, Santa Cruz, Dept. of Ecology and Evolutionary Biology
Santa Cruz, CA

2007 Adaptive evolution in plant populations: from ecological process to evolutionary pattern
Colorado State University, Dept. of Biology
Fort Collins, CO

2007 Adaptive evolution in plant populations: from ecological process to evolutionary pattern
University of Georgia, Dept. of Genetics
Athens, GA

2007	Adaptive evolution in plant populations: from ecological process to evolutionary pattern University of Missouri, St. Louis, Dept. of Biology St. Louis, MO
2007	Adaptive evolution in plant populations: from ecological process to evolutionary pattern Santa Clara University, Biology
2006	Adaptive evolution in plant populations: from ecological process to evolutionary pattern Colgate University, Biology
2005	Species interactions and floral evolution in a community and geographic context Grinnell College, Biology
2004	Adaptive evolution in plant populations: from ecological process to evolutionary pattern University of Minnesota, Plant Biology
2003	Adaptive evolution in plant populations: from ecological process to evolutionary pattern Cornell University, Ecology and Evolutionary Biology

Contributed Papers Presented at Professional Meetings, Conferences, etc.

Dates	**Author(s), Title, and Location**
2014	Moeller, D.A., R.D. Briscoe Runquist, and A. Moe Global biogeography of mating system variation in seed plants Society for the Study of Evolution, Raleigh, NC
2008	Moeller, D.A. and P. Tiffin Geographic variation in adaptation at the molecular level: a case study of plant immunity genes. Society for the Study of Evolution, Minneapolis, MN.
2005	Moeller, D.A. and P. Tiffin Genetic diversity and the evolutionary history of plant immunity genes in two species of *Zea* Society for the Study of Evolution, Fairbanks, AK.
2003	Moeller, D.A. Facilitative interactions among plants via shared pollinators. Ecological Society of America, Savannah, GA.
2002	Moeller, D.A. Geographic variation in bee pollinator communities and the evolution of self-pollinat in *Clarkia xantiana* Society for the Study of Evolution, Champaign, IL.
2001	Moeller, D.A. Ecological causes of selection for self-pollination in *Clarkia xantiana*: experimental manipulation of biotic interactions. Society for the Study of Evolution, Knoxville, TN.
1999	Moeller, D.A. Why do so many *Clarkia* coexist? The influence of population size and sympatric *Clarkia* species on pollinator availability and reproductive success in *Clarkia xantiana*

Ecological Society of America, Snowbird, UT.

Contributed Papers Presented at Professional Meetings, Conferences, etc.

Co-Authored Presentations For Which I Did Not Give the Talk (the speaker's name is underlined)

2018 R.D. Briscoe Runquist, and D.A. Moeller
Mating system evolution under strong pollen limitation: evidence of disruptive select through male and female fitness in *Clarkia xantiana*
Invited Symposium Talk
Ecological Society of America, New Orleans, LA

2018 J.W. Benning and D.A. Moeller
Species interactions and the evolution of geographic range limits in *Clarkia xantiana*
Invited Symposium Talk
Ecological Society of America, New Orleans, LA

2018 A.J. Gorton, D.A. Moeller, and P. Tiffin
Predicting adaptation to future environmental conditions in common ragweed: experimental manipulations of precipitation with rainout shelters
Ecological Society of America, New Orleans, LA

2017 J.W. Benning and D.A. Moeller
Microbes, lagomorphs, and the geographic range limit of a California endemic wildflower
Society for the Study of Evolution, Portland, OR

2017 A.J. Gorton, D.A. Moeller, and P. Tiffin
Tiny plant, big city: testing for adaptation to urban environments in common ragweed
Society for the Study of Evolution, Portland, OR

2015 R.D. Briscoe Runquist and D.A. Moeller
Reinforcement between incipient outcrossing and selfing *Clarkia* species
Ecological Society of America, Baltimore, MD

2014 Briscoe Runquist, R.D, and D.A. Moeller
Rapid evolution of reproductive isolation between outcrossing and selfing subspecies of Clarkia xantiana
Society for the Study of Evolution, Raleigh, NC

2014 Erlandson, S. and D.A. Moeller
Constraints on range limits in southeastern United States endemic Phacelia fimbriata: Insights from species distribution modeling
Ecological Society of America, Sacramento, CA

2013 Briscoe Runquist, R.D. and D.A. Moeller
Floral and mating system divergence in secondary sympatry: A geographic and phylogeograpaphic analysis of Clarkia xantiana ssp. parviflora
Ecological Society of America, Minneapolis, MN

2011 Pettengill, J.B. and D.A. Moeller
Tempo and mode of mating system evolution between incipient Clarkia species
Society for the Study of Evolution, Norman, OK.

2007 Geber, M.A., V.M. Eckhart, D.A. Moeller, P. Tiffin, E.C. Looney, I. Singh, and A. Louthan
Population dynamics and environmental variation across the geographic range of a California annual plant
Ecological Society of America, San Jose, CA.

TEACHING AND CURRICULUM DEVELOPMENT

University of Minnesota
Courses, Seminars, and Instructional Units Taught

Primary Courses

Fall 2019	PMB3007W, Plant, Algal, and Fungal Diversity and Adaptation (4 credits, 100% responsibility) – 80 students, 320 Student Credit Hours
Fall 2017	BIOL 3007W, Plant, Algal, and Fungal Diversity and Adaptation (4 credits, 75% responsibility) – 82 students
Fall 2016	BIOL 3007W, Plant, Algal, and Fungal Diversity and Adaptation (4 credits, 75% responsibility) – 66 students
Fall 2015	BIOL 3007W, Plant, Algal, and Fungal Diversity and Adaptation (4 credits, 75% responsibility) – 70 students
Fall 2014	BIOL 3007W, Plant, Algal, and Fungal Diversity and Adaptation (4 credits, 75% responsibility) – 65 students
Fall 2013	BIOL 3007W, Plant, Algal, and Fungal Diversity and Adaptation (4 credits, 75% responsibility) – 79 students
Fall 2012	BIOL 3007W, Plant, Algal, and Fungal Diversity and Adaptation (4 credits, 75% responsibility) – 85 students
Fall 2011	BIOL 3007W, Plant, Algal, and Fungal Diversity and Adaptation (4 credits, 50% responsibility) – 75 students
Fall 2011	PBS 8081, Integrative Plant Biology – Connecting Molecules to Ecosystems (3 credits, 33% responsibility) – 7 students
Fall 2010	PBIO 4321, Minnesota Flora (3 credits, 50% responsibility) – 42 students

Undergraduate Research Courses

Fall 2019	PMB4994, Directed Research (1 credit, 100% responsibility)
Spring 2019	PMB4994, Directed Research (3 credits, 100% responsibility)
Fall 2018	PMB4994, Directed Research (1 credit, 100% responsibility)
Fall 2014	PBIO4994, Directed Research (2 credits, 100% responsibility)
Fall 2013	PBIO 4994, Directed Research (2 credits, 100% responsibility)
Spring 2013	PBIO 4794W, Writing-Intensive Directed Research (4 credits, 100% responsibility)
Spring 2013	PBIO 4994, Directed Research (3 credits, 100% responsibility)
Fall 2012	PBIO 4994, Directed Research (3 credits, 100% responsibility)
Spring 2009	EEB 4994, Directed Research (3 credits, 100% responsibility)

University of Georgia

Primary Courses

Fall 2009	GENE 3000, Evolutionary Biology (4 credits, 50% responsibility)
Fall 2008	GENE 3000, Evolutionary Biology (4 credits, 50% responsibility)
Fall 2008	GENE 4950, Senior Seminar in Genetics (1 credit, 100% responsibility)
Fall 2008	FRES 1010, Freshman Seminar in Biology (1 credit, 100% responsibility)

ADVISING AND MENTORING

Undergraduate authors on published papers indicated by †

Undergraduate Research Projects (27 students total; 5 first authors or co-authors on papers)

1. Labiba Mahmud (current)
2. Katherine Hallada (current)
3. Alexai Faulkner (current)
4. Isaac Olson (current)
5. Eric Bakken (current)
6. Will Stone (current)
7. Adam Kostanecki
8. Sarah Tran
9. Joo Yoon Kim
10. Zachary Radford
11. Thomas Lake†
12. Lana Bolin†
13. Soham Shah
14. Rebecca Hanson
15. Michael Pickett-Leonard†
16. Eric Chu†
17. Victoria Ukatu
18. Katie Tuininga
19. Kelia Axler
20. Bailey Kimbel
21. Jason Kopp†
22. Marta Lyons
23. Erica Beckman
24. Justin Iverson†
25. Alexandre Wang
26. Chelsea Jones
27. Rebecca Carter

Undergraduate Honors Theses Directed

1. Soham Shah
2. Eric Chu†
3. Michael Pickett-Leonard†

Graduate Student Activities

Doctoral Students Advised (current)

1. Brooke Kern (2019 - present)
2. Thomas Lake (2018 - present)
3. Taryn Mueller (2018 - present)

Doctoral Students Advised (completed)

1. John Benning (2019)
2. Amanda Gorton (2019) (co-advised with P. Tiffin)

Masters Students Advised (completed)

1. Stephanie Erlandson (2018)

Doctoral Committees Served On (28 total; 7 in 2019)

1. Lucy Schroeder
2. Rachel Pain
3. Kelsey Peterson
4. Alexander Harkness
5. Mara Demers
6. Thomas Radomski
7. Naomi Rushing
8. Josh Havill - past member
9. Rebekah Mohn - past member
10. German Gutierrez - past member
11. Anthony Schmitt - past member
12. Nicholas Goldsmith – completed
13. Christina Smith – completed
14. Beth Fallon – completed
15. Marta Lyons – completed
16. Erin Treiber – completed
17. Amber Eula-Nashoba – completed
18. Derek Nedveck -- completed
19. Ana Gonzales - completed
20. Michael Nelson - completed
21. Mohamed Yakub - completed
22. Zhou Fang - completed
23. Brendan Epstein - completed
24. John Stanton-Geddes - completed
25. Cecile Deen - completed
26. Louisa Staton - completed
27. Tina Bell - completed
28. Scott Small - completed

Rotation Students Mentored (5)

1. Rebekah Mohn (2017)
2. Joshua Havill (2017)
3. German Gutierrez (2016)
4. Anthony Schmitt (2015)
5. Christina Smith (2013)

Post-doctoral Fellows Supervised (6)

1. Shelley Sianta (co-advised with Brandvain, 1/2020-present)
2. John Benning (9/2019 – present)
3. Ryan Briscoe Runquist (3/2012—present)
4. Lauren Sullivan (7/2016 – 1/2019); Current position: Assistant Professor, U. of Missouri, Columbia, Division of Biological Sciences
5. Annika Moe (9/2012—8/2015); Current position: Education Program Specialist, CCAPS, U. of Minnesota
6. James Pettengill (8/2010—8/2011); Current position: Statistician/Bioinformatics, Whole Genome Sequencing Program, Center for Food Safety and Applied Nutrition, Food and Drug Administration

Research Technicians Supervised (5)

1. Zachary Radford (9/2016 – present)
2. Katharine Wilson (1/2016 – 5/2016)
3. Erica Beckman (5/2010 – 12/2010)
4. Justin Iverson (5/2010 – 3/2013)
5. Raven Bier (4/2009-2010) (U. of Georgia)

SERVICE AND PUBLIC OUTREACH

Service To The Discipline/Profession/Interdisciplinary Area(s)

Editorships

Associate Editor for *Evolution* (2014-2016)
Invited to serve as Reviewing Editor for *Journal of Evolutionary Biology* (2016, declined)
Invited to serve as Associate Editor for *American Journal of Botany* (2014, declined)
Invited to serve as Associate Editor for *Oecologia* (2014, declined)

Panels

NSF DEB Population and Community Ecology Panel - September 2019
NSF DEB Evolutionary Processes Panel – Full Proposals – November 2015

Journal and Grant Reviewer Experience

In total, I have served as an external reviewer on 190 occasions for 40 journals and 8 granting agencies

Comprehensive List of Journals For Which I Have Reviewed (40 total)

1. *American Journal of Botany*
2. *American Midland Naturalist*
3. *American Naturalist*
4. *Annals of Botany*
5. *Biological Invasions*
6. *Botany*
7. *Ecological Monographs*
8. *Ecology*
9. *Ecology Letters*
10. *Evolution*
11. *Evolution Letters*
12. *Evolutionary Biology*
13. *Evolutionary Ecology*
14. *Functional Ecology*
15. *Global Change Biology*
16. *Global Ecology and Biogeography*
17. *Heredity*
18. *International Journal of Plant Sciences*
19. *Journal of Biogeography*
20. *Journal of Ecology*
21. *Journal of Evolutionary Biology*
22. *Molecular Ecology*
23. *Molecular Genetics & Genomics*
24. *Molecular Phylogenetics & Evolution*
25. *Nature Climate Change*
26. *Nature Communications*
27. *Nature Plants*
28. *New Phytologist*
29. *Oecologia*
30. *Oikos*
31. *Plant Biology*
32. *Plant Species Biology*
33. *PLoS Biology*
34. *PLoS Genetics*
35. *PLoS One*
36. *Proceedings of the Royal Society of London B*
37. *Rhodora*
38. *Scientific Reports*
39. *Trends in Plant Science*
40. *Wetlands*

Comprehensive List of Granting Agencies For Which I Have Reviewed (8 total)

1. National Science Foundation (NSF)
2. Natural Sciences and Engineering Council of Canada (NSERC)
3. Swiss National Science Foundation
4. National Commission for Scientific & Technological Research, Chile
5. Austrian Science Fund
6. Israeli Science Foundation
7. Ohio State University SEEDS Competitive Grants Program
8. French National Institute for Agricultural Research (INRA)

Service to the University/College/Department

University of Minnesota

University-Wide Service

2011	Sustainability Committee: Education/Outreach Subcommittee
2010 – 2013	Sarita Wetland Restoration Planning Committee

Collegiate Service and Intercollegiate Service

2019	CBS College Consultative Committee
2018	CBS Student Services Committee Evaluating Study Abroad Programs in Copenhagen, Denmark and Dublin, Ireland. I took a one-week trip to these programs to evaluate them.
2016 – 2018	CBS Conservatory Advisory Committee
2015 – 2018	CBS Educational Policy Committee
2015 – 2018	CBS Director of Undergraduate Studies Committee
2016 – 2018	CBS Individualized Degree Programs Evaluation Committee Meeting
2017	CBS Undergraduate Book Club Meeting Facilitator
2015 – 2016	Presentations to MN State Senators, Representatives, and Governor's Staff in Advocacy of the proposed CBS Conservatory facility and Renovation of BIOSCI 3rd and 4th Floors for Teaching and Research (ca. 10 presentations)
2014 – 2015	Search Committee Member: Pollinator Ecology (Entomology, CFANS)
2014 – 2015	Search Committee Chair: Director of the CBS Conservatory
2013 – 2015	Mentored two transfer students in research through the HHMI UMN transfer student research program
2013 – 2014	College of Biological Sciences, Conservatory Review Committee
2012 – 2013	College of Biological Sciences, Cluster Hiring Committee – Fungal Evolution
2012	HHMI Research-Based Science Education Steering Committee
2010	College of Biological Sciences, Transfer Student Lab Tours

Department Service

2017 – present	Tenure mentor for Dr. Ya Yang
2018	PMB Retreat – presentation and co-lead discussion of majors/minors
2015 – 2018	Director of Undergraduate Studies: Plant and Microbial Biology Major
2015 – 2018	PMB Curriculum Committee, Chair
2013 – 2015	Social Committee
2011	Strategic Planning for New Hires Committee
2010 – 2012	Awards Committee

Graduate Program Service

2019	EEB Preliminary Proposal Review Panel
2016 – 2018	PMB Admissions Committee
2016 – 2018	PMB 8081 Presentation to Graduate Students
2010 – 2018	EEB Graduate Student Lab Tours
2011 – 2013	Plant Biological Sciences Graduate Program: Steering Committee
2010	EEB Reviewer: Howard Hughes Medical Institute International Graduate Fellowship

Public and Other Service

Market Science

2014 – 2019 My laboratory has been extensively involved in Market Science, a program where graduate students and postdocs staff a booth at the Midtown Farmer's Market each week. A different topic and set of activities is planned for each week as well – e.g. pollinators, urban water quality, market botany, fungi. This work has occurred in collaboration with the Tiffin lab and other graduate students in PBS and EEB. In 2015 and 2016, this outreach program reached 7300 visitors over the course of 36 community events.

K-6 Teacher Training in the Plant Biological Sciences

2016 My lab co-lead two sections of material (on two days) focused on plant reproduction and involving active learning activities

2015 My lab co-lead two sections of material (on two days) focused on plant reproduction and involving active learning activities

2013 I developed a presentation and short lab module for K-6 teachers attending a UMN workshop on integrating plant biology and active learning into the classroom.

Sarita Wetland Native Plant Restoration

2016 I consulted on continued plant restoration at the Sarita Conservation Area as part of an LCCMR-funded environmental education project developed by Jonee Brigham and Beth Mercer-Taylor.

2010 – 2013 I lead an effort at the University to engage the public in native plant restoration at the Sarita Wetland and to provide education about water quality and stormwater management. I was also successful at acquiring funding for this project

Communicating Science to the Public

2008 I wrote an article for a local newspaper in the area where I conduct field research in rural California. This article communicated local natural history about plants and their pollinators.