Stuart Wagenius

Conservation Scientist
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Education:

Ph. D., University of Minnesota, 2000 - Ecology, Evolution, and Behavior.
B.A. *cum laude*, Carleton College, Northfield, Minnesota, 1991 - Physics.

Positions Held:

2012 – present	Senior Conservation Scientist, Chicago Botanic Garden
2006 – present	Adjunct Assistant Professor of Biological Sciences, Northwestern University
2001 – 2012	Conservation Scientist, Chicago Botanic Garden
2000 – 2001	Post-doctoral Research Associate, University of Minnesota
1991 – 1993	Teacher of Sciences, Edna Karr High School, New Orleans Public Schools and Raceland Junior High, Lafourche Public Schools, Louisiana

Publications: available online at <http://echinaceaproject.org/resources/ >

Herman, B., S. Packard, C. Pollack, G. Houseal, S. Sinn, J. Fant, A. D. Lewis, S. Wagenius, D. Gustafson, K. Hufford, B. Allison, K. Shaw, S. Haines, and C. Daniels. 2014. Decisions . . . Decisions . . . How to Source Plant Material for Native Plant Restoration Projects. Ecological Restoration 32:236-238.

Ison, J. L., and S. Wagenius. 2014. Both flowering time and spatial isolation affect reproduction in *Echinacea angustifolia*. Journal of Ecology 102: 920-929.

Ison, J. L., S. Wagenius, D. Reitz., M. V. Ashley. 2014. Mating between *Echinacea angustifolia* (Asteraceae) individuals increases with their flowering synchrony and spatial proximity. American Journal of Botany 101: 180-189.

Ison, J. L., S. Wagenius, D. Reitz., M. V. Ashley. 2013. Development and evaluation of microsatellite markers for a native prairie perennial, *Echinacea angustifolia* (Asteraceae). Applications in Plant Sciences 1: 1300049.

Wagenius, S., A. Dykstra, C. E. Ridley, R. G. Shaw. 2012. Seedling recruitment in the long-lived perennial, *Echinacea angustifolia*: a ten year experiment. Restoration Ecology 20: 352-359.

Ridley C. E., H. H. Hangelbroek, S. Wagenius, J. Stanton-Geddes, R. G. Shaw. 2011. The effect of plant inbreeding and stoichiometry on interactions with herbivores in nature: *Echinacea angustifolia* and its specialist aphid. PLoS ONE 6(9): e24762.

Wagenius, S., and S. P. Lyon. 2010. Reproduction of *Echinacea angustifolia* in fragmented prairie is pollen-limited but not pollinator-limited. Ecology 91:733-742.

Wagenius, S., H. H. Hangelbroek, C. E. Ridley, and R. G. Shaw. 2010. Biparental inbreeding and interremnant mating in a perennial prairie plant: fitness consequences for progeny in their first eight years. Evolution 64:761-771.

Publications, continued:

[X] Shaw, R. G., C. J. Geyer, S. Wagenius, H. Hangelbroek, and J. R. Etterson. 2008. Unifying life-history analyses for inference of fitness and population growth. American Naturalist 172: E35 - E47.

[X] Recipient of Presidential Award by American Society of Naturalist, details under *Academic Honors*.

Wagenius, S., E. Lonsdorf, and C. Neuhauser. 2007. Patch aging and the *S*-Allee effect: breeding system effects on the demographic response of plants to habitat fragmentation. American Naturalist 169:383-397.

Geyer, C. J., S. Wagenius, and R. G. Shaw. 2007. Aster models for life history analysis. Biometrika 94: 415-426.

Wagenius, S. 2006. Scale-dependence of reproductive failure in fragmented *Echinacea* populations. Ecology 87: 931-941.

Wagenius, S. 2004. Style persistence, pollen limitation, and seed set in the common prairie plant *Echinacea angustifolia* (Asteraceae). International Journal of Plant Sciences 165: 595–603.

Neuhauser, C., D. A. Andow, G. E. Heimpel, G. May, R. G. Shaw, S. Wagenius. 2003. Community genetics: expanding the synthesis of ecology and genetics. Ecology 84: 545-558.

Publication in press or review:

Kittelson. P. M., S. Wagenius, R. Nielsen, S. Qazi, M. Howe, G. Kiefer, and R. G. Shaw. Leaf functional traits, herbivory and genetic diversity in *Echinacea*: Implications for fragmented populations. Ecology. *In review*.

Shaw, R. G., S. Wagenius, C. J. Geyer. The roles of plant phenotype and genotype of *Echinacea angustifolia* in its susceptibility to a specialist aphid and the demographic consequences. Journal of Ecology. *In review*.

Muller, K. and S. Wagenius. *Echinacea angustifolia* and its specialist ant-tended aphid: a multi-year study of manipulated and naturally-occurring aphid infestation. Ecological Entomology. *In revision*.

Gallagher, M. K. and S. Wagenius. Seed source impacts germination and early establishment of dominant grasses in prairie restorations. Journal of Applied Ecology. *In review*.

Wang, M., S. Wagenius. Dormancy breaking and germination techniques for the cool season prairie grass, *Dichanthelium leibergii* (Vasey) Freckmann. Native Plants Journal. *In revision*.

Publications, not peer-reviewed:

Shaw, R. G., C. J. Geyer, S. Wagenius, H. H. Hangelbroek, and J. R. Etterson. 2008. Yet More Supporting Data Analysis for "Unifying Life History Analysis for Inference of Fitness and Population Growth." Technical Report No. 666. School of Statistics, University of Minnesota. 2 January 2008. http://www.stat.umn.edu/geyer/aster/tr666.pdf

Shaw, R. G., C. J. Geyer, S. Wagenius, H. H. Hangelbroek, and J. R. Etterson. 2007. More Supporting Data Analysis for "Unifying Life History Analysis for Inference of Fitness and Population Growth." Technical Report No. 661. School of Statistics, University of Minnesota. 26 December 2007. http://www.stat.umn.edu/geyer/aster/tr661.pdf

Shaw, R. G., C. J. Geyer, S. Wagenius, H. H. Hangelbroek, and J. R. Etterson. 2007. Supporting Data Analysis for "Unifying Life History Analysis for Inference of Fitness and Population Growth." Technical Report No. 658. School of Statistics, University of Minnesota. 7 July 2007. http://www.stat.umn.edu/geyer/aster/tr658.pdf

Publications, not peer-reviewed, continued:

Geyer, C. J., S. Wagenius, and R. G. Shaw. 2005. Aster Models for Life History Analysis. Technical Report No. 644. School of Statistics, University of Minnesota. 5 September 2005. http://www.stat.umn.edu/geyer/aster/tr644.pdf

Wagenius, S., and G. Kiefer. 2001. Prairie Seed Manual. 58 pp. St. Paul, Minnesota. West-Central Area Report for Minnesota DNR & US Fish and Wildlife Service.

Academic Honors and Fellowships:

2009	A paper Stuart co-authored was awarded the Presidential Award by the American Society of Naturalists. This award is for the best paper published in The American Naturalist during 2008. The award was announced at the annual Evolution meeting in June 2009.
1998 – 1999	Doctoral Dissertation Fellow. Graduate School, University of Minnesota.
1998	Mary Lynn Cowan award for Teaching Excellence.
1994 – 1995	Graduate School Fellowship. University of Minnesota.
1994	Summer Research Fellowship. Department of Ecology, Evolution & Behavior, University of Minnesota.
1993	Honorable Mention NSF pre-doctoral fellowship competition.
1991	Earned B.A. in physics *cum laude*.

Current Grant-Awarded Funding:

"Reproductive isolation, asynchrony, and incompatibility in fragmented prairie populations of *Echinacea angustifolia*." National Science Foundation. 2014 - 2017. $200,000. PI: Stuart Wagenius.

"The interplay of genetic and numerical dynamics in severely fragmented prairie populations of *Echinacea angustifolia*." National Science Foundation. 2011 - 2016. $450,000. PIs: Stuart Wagenius (Chicago Botanic Garden), Ruth Shaw (University of Minnesota).

"Summer field research experience for an undergraduate student." 2014. NSF-REU supplement. $6,250. PI: Stuart Wagenius.

"Summer field research experience for a high school student." 2014. NSF-RAHSS supplement. $5,200. PI: Stuart Wagenius.

Previous Grant-Awarded Funding:

"Acquisition of a seed x-ray machine." National Science Foundation. 2011 – 2014. $136,597. Co-PI Stuart Wagenius (Chicago Botanic Garden).

"Feedbacks between insect herbivory, morpho-physiological traits, and genetic diversity." 2013 - 2014. NSF (Supplement to enable faculty at predominantly undergraduate institutions to pursue research as visiting scientist). $36,132. co-PI: Stuart Wagenius. Visiting faculty: Pamela Kittelson (Gustavus Adolphus College, MN).

"Summer field research experience for an undergraduate student." 2013. NSF-REU supplement. $6, 250. PI: Stuart Wagenius.

"Summer field research experience for a high-school biology teacher." 2012. NSF-RET supplement. $21,761. PI: Stuart Wagenius.

"Summer field research experience for an undergraduate student." 2012. NSF-REU supplement. $7,425. PI: Stuart Wagenius.

Previous Grant-Awarded Funding, continued:

"The interplay of genetic and numerical dynamics in severely fragmented prairie populations of *Echinacea angustifolia*." National Science Foundation. 2006 - 2011. $450,000. PIs: Stuart Wagenius (Chicago Botanic Garden), Ruth Shaw (University of Minnesota).

"Summer field research experience for an undergraduate student." 2011. NSF-REU supplement. $7,000. PI: Stuart Wagenius.

"Summer field research experience for a high-school biology teacher." 2011. NSF-RET supplement. $21,459. PI: Stuart Wagenius.

"Summer field research experience for an undergraduate student." 2010. NSF-REU supplement. $7,000. PI: Stuart Wagenius.

"Summer field research experience for a high-school biology teacher." 2010. NSF-RET supplement. $8,986. PI: Stuart Wagenius.

"Summer field research experience for an undergraduate student." 2009. NSF-REU supplement. $7,000. PI: Stuart Wagenius.

"Summer field research experience for a high-school biology teacher." 2009. NSF-RET supplement. $11,262. PI: Stuart Wagenius.

"Pollinating insect movement within and between fragmented prairie remnants in an agricultural landscape." 2007 - 2008. National Geographic Society's Committee for Research and Exploration $19,758. PI: Stuart Wagenius.

"Plant interactions with insect antagonists and mutualists in a fragmented landscape." 2007 - 2008. NSF (Supplement to enable faculty at undergraduate institutions to pursue research as visiting scientist). $23,615 PI: Stuart Wagenius. Visiting faculty: Andrew McCall (Denison University, OH).

"Does one seed collection represent a population's genetic diversity?" Royal Botanic Garden, Kew—Millennium Seed Bank Project. 2005 – 2008. $45,000. PI: Kay Havens (Chicago Botanic Garden & University of Illinois, Chicago).

"Summer field research experience for an undergraduate student." 2008. NSF-REU supplement. $6,000. PI: Stuart Wagenius.

"Summer field research experience for an undergraduate student." 2007. NSF-REU supplement. $6,000. PI: Stuart Wagenius.

"Acquisition of a Seed Biology Lab." National Science Foundation. 2006 – 2007. $285,000. Co-PI Stuart Wagenius (Chicago Botanic Garden).

"BIOCOMPLEXITY: Evolution and Ecology of Perturbed Interactions: Modeling Disequilibria in Time and Space." National Science Foundation. 2000 – 2006. $3,000,000, plus REU supplements (University of Minnesota). Stuart Wagenius helped write the proposal, was funded as a post-doctoral research associate, then supervised 12 summer REU students.

"Guidelines for Native Forb & Legume Establishment in West Central Minnesota" Minnesota Department of Natural Resources & US Fish and Wildlife Service. 2001. $3,000.

2000 Summer Research Fellowship. Department of EEB, University of Minnesota.

1995 – 2000 Six grants for Summer Research Center for Community Genetics, University of Minnesota.

1995 – 1999 Five Graduate Research Grants from the Dayton-Wilkie Natural History Fund of the Bell Museum of Natural History.

Oral Presentations in Conferences:

Center for Plant Conservation Annual Meeting 2014, Chaska, MN. "Mating Potential in the purple coneflower *Echinacea angustifolia*." Minnesota Landscape Arboretum. 8 May.

Chicago Area Ant Lab Meeting 2013, Chicago, IL. "Ants in fragmented Minnesota prairie habitat." (with G. Hallaman[+], S. Zufan, K. Muller*, and J. Gall[+]. 2 November.

Natural Areas Conference 2013, Chicago, IL. "Prescribed prairie burns influence reproduction of the purple coneflower *Echinacea angustifolia*." (with G. Kiefer, J. Nicol, J. Ison, A. Zahler[+], and K. Kapsar[+])

Phenology 2012, Milwaukee, WI. "Variation in flowering phenology among fragmented prairie populations of *Echinacea angustifolia*" (with J. Ison and A. Zahler[+])

Ecology 2008, Milwaukee, WI. "Prescribed prairie burns and pollination in the purple coneflower *Echinacea angustifolia*"

Evolution 2008, Minneapolis, MN. "Joint analysis of survival and reproduction over 12 years in *Echinacea angustifolia* plants originating from 21 remnant prairies" (with R. Shaw and C. Geyer)

Ecology 2006, Memphis, TN. "Joint analysis of survival and reproduction over 10 years in perennial *Echinacea* plants from seven populations" (with C. Geyer and R. Shaw)

Ecology 2005, Montréal, Canada. "Pollen limitation by pollinator and mate scarcity in fragmented *Echinacea* populations: individual- and population-based spatial perspectives" (with S. Pimm)

Evolution 2005, Fairbanks, AK. "Pollen limitation by mate scarcity in fragmented *Echinacea* populations: A genetic component of the Allee effect"

Conservation Biology 2003, Duluth, MN. "The effect of self-incompatibility on population dynamics in fragmented habitat: Empirical and simulation studies"

Ecology 2002, Tucson, AZ. "Recruitment and fire: how prescribed burns affect seedling recruitment in the native prairie plant *Echinacea angustifolia*." (with R. Shaw)

Evolution 2001, Knoxville, TN. "Inbreeding depression and reduced seed set in fragmented populations of *Echinacea angustifolia*."

Ecology 2001, Madison, WI. "Reproduction and fire: how prescribed burns enhance pollination of the native prairie plant *Echinacea angustifolia*."

Evolution 2000, Bloomington, IN. "Spatial genetic structure in a fragmented metapopulation of *Echinacea angustifolia*." (with J. Nason)

Evolution 1999, Madison, WI. "Performance of a prairie mating system in fragmented habitat: self-incompatibility and limited pollen dispersal in *Echinacea angustifolia*."

Invited Symposium Presentation and Seminars:

"WANTED: more and better sex between prairie plants living in fragmented prairie." Invited speaker at Lake Forest College, Lake Forest, IL. 30 October 2013.

"Dynamic responses to habitat fragmentation in a prairie plant." Invited speaker at the Organized Oral Session, Legacies From Long-Term Ecological Studies: Using The (Recent) Past To Inform Future Research, at the Ecology 2013 meeting, Minneapolis, MN. 6 August, 2013.

"A Minnesota perspective on seed sources for prairie restorations." Invited speaker at the Plant Material Sources for Ecological Restoration Conference, U. S. Army Corps of Engineers, Chicago, IL. 25 July, 2012.

Invited Symposium Presentation and Seminars, continued:

"The *Echinacea* Project: biological research in fragmented prairie habitat." Invited speaker at the Conservation Research Symposium sponsored by the Environmental Policy and Culture Program at Northwestern University. 4 March 2011.

"Ecological and genetic constraints on reproduction in a common prairie plant." Invited speaker at the Kellogg Biological Station, Michigan State University. 25 February, 2011.

"Sex when spaced out: effects of isolation on mating among purple coneflowers in a fragmented prairie landscape." Invited speaker at Grinnell College, IA. 5 September 2008.

"Sex when spaced out: effects of isolation on mating and evolution in purple coneflowers in a fragmented landscape." Invited speaker at The Nature Conservancy, Minneapolis, MN. 26 June 2008.

"Genetics and demography interact in the management and restoration of a widespread purple coneflower." Invited symposium presentation at the Botanical Society of America annual meeting in Chicago, IL. 11 July 2007.

"Ecology & evolution of the purple coneflower, *Echinacea angustifolia*, in fragmented prairie." Invited seminar speaker at North Dakota State University, Fargo, ND. 25 January 2007.

"Evolutionary and Ecological Effects of Habitat Fragmentation on Plant Populations." Janet Meakin Poor Symposium on *Urban Ecology: Celebrating Ten Years of Chicago Wilderness*. Chicago Botanic Garden, 20 October 2006.

Department of Plant Biology & Conservation, Northwestern University, IL. 5 October 2006.

Illinois Natural History Survey, Champaign, IL. 7 December 2004.

Northeastern Illinois University, Chicago, IL. 6 April 2004.

Carleton College, Northfield, Minnesota. 9 February 2001.

University of Virginia, Charlottesville, Virginia. 12 December 2000.

Minnesota Native Plant Society, Bloomington, Minnesota. 2 November 2000.

Other Contributed Conference Presentations:

Blasini[+], D. , S. Wagenius. 2014 "Introduction of *Echinacea pallida* in the prairies of western Minnesota and its possible effects on native *Echinacea angustifolia*." Botanical Society of America Annual Meeting in Boise, Idaho. 28 July.

Blasini[+], D., S. Wagenius. 2013 "Assessment of the effects of the introduction of non-native *Echinacea* species in the pollination of native *Echinacea angustifolia* in western Minnesota." Society for Advancement of Chicanos and Native Americans in Science Annual Meeting in San Antonio, Texas. 5 October.

Muller*, K., S. Wagenius. 2013 "Exploring top-down and bottom-up interactions between *Echinacea angustifolia* and its specialist ant-tended aphid." Ecological Society of America annual meeting in Minneapolis, MN. 6 August.

Ison*, J., M. Ashley, S. Wagenius. 2010 "The interaction of flowering phenology and plant density on pollination patterns in a self-incompatible prairie perennial." Ecological Society of America annual meeting in Pittsburgh, Pennsylvania. 6 August.

Halverson[+], A., S. Wagenius[#]. 2010 "Pollen interference in *Echinacea angustifolia* from 3 co-flowering species in the Asteraceae." Ecological Society of America annual meeting in Pittsburgh, Pennsylvania. 2 August.

Other Contributed Conference Presentations, continued:

Gallagher*, K., M. Jenkins+, A. Gallinat+, G. Diersen, and G. Kiefer, S. Wagenius. 2010 "Interspecific co-flowering prairie plants compete for pollinators." Ecological Society of America annual meeting in Pittsburgh, Pennsylvania. 2 August.

Reitz+, D., J. Ison*, S. Wagenius. 2010 "The effects of prescribed burnings on the flowering and reproductive success of a prairie perennial." Midwest Ecology and Evolution Conference in Ames, Iowa. 27 March.

Dykstra*, A., R. Shaw, S. Wagenius. 2010 "Maternal effects predominate over local adaptation in seedling recruitment of *Echinacea angustifolia.*" Midwest Ecology and Evolution Conference in Ames Iowa. 27 March.

Rath+, D., S. Wagenius. 2009 "Aphid presence and density in large and small prairie remnants." Sigma Xi All-Science Poster Session at Carleton College, MN. 23 October.

Shaw, R. C. Ridley, S. Wagenius. 2009 "Consequences of within-family and between-remnant mating in a fragmented population of *Echinacea angustifolia*" Annual joint meeting of American Society of Naturalists, Society for the Study of Evolution, and Society of Systematic Biologists, University of Idaho. 17 June.

Dumoulin*, C., S. Wagenius. 2009 "Modeling the role of plant breeding system in the emergence of extinction risk." Complex Systems Advanced Academic Workshop's annual spring conference, University of Michigan. 16 May.

Venner+, C., A. McCall, S. Wagenius. 2009 "Plant sex on the prairie: Factors that impact pollination in *Echinacea angustifolia* (Asteraceae)." Annual Midwest Ecology and Evolution Conference in Lincoln, Nebraska. 28 March.

Dumoulin*, C., S. Wagenius. 2009 "Modeling the effects of plant breeding system on the evolution and persistence of small populations." Annual Midwest Ecology and Evolution Conference in Lincoln Nebraska. 28 March.

Shaw, R., S. Wagenius, C. Geyer. 2008 "The severity of inbreeding depression over seven years in the self-incompatible, long-lived plant, *Echinacea angustifolia*." Society for the Study of Evolution/American Society of Naturalists/Society of Systematic Biologists in Minneapolis, Minnesota. 23 June.

Ison*, J., S. Wagenius. 2008 "Phenological isolation in three consecutive flowering seasons of a common prairie perennial (*Echinacea angustifolia*)." Ecological Society of America annual meeting in Milwaukee, Wisconsin. 3-8 August.

Ison*, J., S. Wagenius. 2008 "Spatial and temporal dimensions of the pollination environment of *Echinacea angustifolia*" Ecology and Evolution of Plant-Pollinator Interactions meeting in Milwaukee, Wisconsin. 2-3 August.

Ison*, J., S. Wagenius. 2007 "The reproductive cost of phenological and spatial isolation in *Echinacea angustifolia*, a common prairie perennial." Ecological Society of America annual meeting in San Jose, California. 7 August.

Southgate*, A., S. Wagenius. 2007 "How population size influences the effect of inbreeding and outbreeding on early plant traits in the prairie native *Echinacea angustifolia*." Botanical Society of America annual meeting in Chicago, IL. 7-11 July.

Ison*, J., S. Wagenius. 2007 "The reproductive cost of phenological and spatial isolation in *Echinacea angustifolia*, a common prairie perennial." Botanical Society of America annual meeting in Chicago, IL. 7-11 July.

Other Contributed Conference Presentations, continued, again:

Southgate*, A., S. Wagenius. 2007 "The effects of population size, inbreeding, and outbreeding on early plant traits of the prairie native *Echinacea angustifolia* (Asteraceae)" Midwest Ecology and Evolution Conference at Kent State, Ohio. 11 March.

Ison*, J., S. Wagenius. 2007 "Reproductive failure and reduced progeny fitness: two genetic consequences of fragmentation in the widespread prairie plant *Echinacea angustifolia*" International Summit on Evolutionary Change in Human-altered Environments at University of California, Los Angeles. 8 February.

Ison*, J., S. Wagenius. 2007 "Flowering phenology and the evolution of fragmented prairie plant populations" International Summit on Evolutionary Change in Human-altered Environments at University of California, Los Angeles. 8 February

Ison*, J., S. Wagenius. 2006 "Reproductive success based on flowering phenology in the narrow-leaved purple coneflower (*Echinacea angustifolia*), a common self-incompatible prairie perennial" 26th Annual Midwest Ecology & Evolution Conference at St. Louis University, St. Louis, Missouri. 17-19 March.

Shaw, R., S. Wagenius, C. Geyer. 2005 "Joint analysis of series of life history traits and its application to multiyear records of *Echinacea angustifolia*" Society for the Study of Evolution/American Society of Naturalists/Society of Systematic Biologists in Fairbanks, Alaska. 10-14 June.

Hangelbroek, H., S. Wagenius, R. Shaw. 2005 "Persistent effects of inbreeding in *Echinacea angustifolia*: Life history and herbivory" Society for the Study of Evolution/American Society of Naturalists/Society of Systematic Biologists in Fairbanks, Alaska. 10 - 14 June.

Pimm[+] S., S. Wagenius. 2005 "Effects of habitat fragmentation on *Echinacea angustifolia* pollinator visitation and seed set" 25th Annual Midwest Ecology & Evolution Conference at Southern Illinois University, Carbondale. 11-13 March.

Hangelbroek, H., S. Wagenius, R. Shaw. 2004 "Inbreeding effects on field-grown *Echinacea angustifolia*, including interactions with insects" Society for the Study of Evolution/American Society of Naturalists/Society of Systematic Biologists, at Colorado State University, Fort Collins, Colorado. 26-30 June.

Ison[+], J., S. Wagenius. 2004 "How pollen age, style age, and self-incompatibility influence pollination in fragmented populations of *Echinacea angustifolia*." 31st Annual National Natural Areas Conference in Chicago, IL. October.

Ison[+], J., S. Wagenius. 2004 "How pollen age, style age, and self-incompatibility influence pollination in fragmented populations of *Echinacea angustifolia*" Midwest Ecology & Evolution Conference at University of Notre Dame, Indiana. 6 March.

Poelchau[+], M., S. Wagenius. 2003 "Breeding system of *Echinacea angustifolia*, the narrow-leaved purple coneflower" 23rd Annual Midwest Ecology & Evolution Conference at University of Akron, Ohio. 29 March.

Lonsdorf, E., C. Neuhauser, S. Wagenius. 2003 "Inbreeding decreases as population size decreases in a self-incompatible prairie plant: empirical results and theoretical predictions." Conservation Biology Meeting in Duluth, MN. 12 July.

Kopf[+], P., S. Wagenius. 2002 "The effects of inbreeding on fluctuating asymmetry in *Echinacea angustifolia*." 22nd Annual Midwest Ecology & Evolution Conference at Bowling Green State University, Bowling Green, OH. 23 March.

[+] undergraduate student or intern, * graduate student, [#] presenter (if not first author)

Teaching Experience:

2007 - 2014	Instructor for Quantitative Methods in Ecology and Conservation. Northwestern University.
2009, '12, '13, '14	Instructor for Conservation Genetics. Northwestern University.
2005 - 2009	Instructor for Plant Conservation Genetics. Center for Plant Conservation's Plant Conservation Training Workshop. Berkeley, California (2009), Phoenix, Arizona (2009), Honolulu, Hawai'i (2008), Denver, Colorado (2005 & 2006).
2007, 2008	Instructor for Plant Conservation Genetics. Northwestern University.
2003 - 2005	Instructor for Plant Conservation Genetics. School of Chicago Botanic Garden.
2002	Instructor for Introduction to Technical Plant Identification. School of the Chicago Botanic Garden.
2000	Instructor for Field Ecology. Lake Itasca Biological Station, U of Minnesota.
2000	Seminar Leader. Interdisciplinary graduate seminar in Agricultural Biotechnology. Department of Agronomy, University of Minnesota.
1999	Lab curriculum designer for new evolution class. Department of Ecology, Evolution, and Behavior, University of Minnesota.
1998 - 2000	Participant and presenter for ScienceWorks. NSF funded workshops that introduce Minneapolis Public School teachers to educational project kits.
1994 - 1999	Teaching Assistant, Department of EEB, University of Minnesota. Courses taught: Evolution, Ecology, Population Genetics, and Field Ecology.
1991 - 1993	Teacher of sciences. Edna Karr Magnet High School, Orleans Parish Public Schools, and Raceland Junior High School, Lafourche Parish Public Schools, Louisiana.

Mentoring Experience—Current Graduate Students.

Graduate student committee member: Rebecca Tonietto (PhD) Plant Biology & Conservation, Northwestern University and David Lowenstein (PhD) Biological Sciences, University of Illinois—Chicago.

Mentoring Experience—Former Graduate Students.

Karen Taira, M.S. 2013. Northwestern University. Thesis title: "Does style persistence measure pollen limitation in perennial *Helianthus* species?"

Katherine Muller, M.S. 2013. Northwestern University. Thesis title: "Observational and experimental approaches to understanding the relationship between a long-lived perennial and its specialist aphid in fragmented habitat."

Josh Drizin, M.S. 2013. Northwestern University. Thesis title: "Hygroscopic awns of two prairie grasses, *Andropogon gerardii* and *Sorghastrum nutans*."

Kate Gallagher, M.S. 2011. Northwestern University. Thesis title: "Plant performance in prairie restorations: does seed source matter?"

Christine Dumoulin, M.S. 2011. Northwestern University. Thesis title: "Breeding systems and population viability in fragmented habitats."

Jennifer Ison, Ph.D. 2010. University of Illinois—Chicago. Dissertation title: "Pollination of *Echinacea angustifolia*: effects of flowering phenology and spatial isolation."

Andrea Southgate, M.S. 2008. Northwestern University. Thesis title: "How population size influences the effect of inbreeding and outbreeding on early plant traits in the prairie native *Echinacea angustifolia* (Asteraceae)."

Mentoring Experience—Former Graduate Students, continued.

Graduate student committee member: Tracy Misiewicz (MS 2009), Diane Huebner (MS 2009), Amy Price (MS 2011), Melissa Tienes (MS 2011), and Colby Witherup (MS 2012) Plant Biology & Conservation at Northwestern University.

Mentoring Experience—Research Interns.

High School*:* Will Reed, 2014. Jefferson High School (Alexandria, MN). Jill Meyer, 2011 - 2012. St. Martin de Porres High School. Nicole Baylon, 2010 - 2011. St. Martin de Porres High School. Octavio Brindis, 2009 - 2010. St. Martin de Porres High School (Waukegan, IL).

Undergraduate: Ian Lin, fall 2014, Lake Forest College, IL. Alex Yeaney, spring 2014, Lake Forest College, IL. Grace Sassana and Aaron Suiter, December 2013, Carleton College. Jill Pastick^, spring semester 2013. Lake Forest College, IL. Gia Hallaman^$ winter – spring 2013, Northwestern University, IL. Marie Schaedel December 2012, Carleton College. Sebastian di Clemente, spring semester 2012. Lake Forest College, IL. Annemarie McDonald winter – spring 2012, Northwestern University, IL. Maria Wang^, fall 2011 – fall 2012, Northwestern University, IL. Deena Blanchard, Emilee Gaulke, Victoria Jones, and Amber Zahler^, spring semester 2011. Lake Forest College, IL. Jamie Sauer and Joe Campagna, fall semester 2009. Lake Forest College, IL. Sarah Monroe, fall semester 2008. Lake Forest College. Anna Birnberg, January term 2008. Colby College, Maine.

^ indicates student wrote senior thesis based on research internship ($ indicates distinction)

Post-undergraduate: Jared Beck 2014- present. Lydia English 2013- 2014. Julie Nicol, 2007 – 2008. Currently graduate student at Department of Ecology and Conservation Biology, Boston University. Stephanie Pimm, 2004 – 2005. (PhD. 2014 University of Wisconsin, Madison). Jennifer Ison, 2003 – 2004 (Ph.D. 2010 University of Illinois--Chicago). Currently visiting professor at Wittenberg U, OH. Monica Poelchau, 2002 – 2003 (Ph.D. 2009 University of Georgia). Currently post-doctoral researcher at Georgetown University . Phil Kopf, 2001 – 2002 (Ph.D. 2008 University of New Mexico). Currently post-doctoral researcher at Medical College of Wisconsin, Milwaukee, WI.

Mentoring Experience—Research Interns, continued:

K12 science teachers: 3 teachers 2009 – 2013. Sara Zufan, Multicultural Academy of Scholarship, Chicago Public Schools, Callin Switzer, John F. Kennedy Middle School, Gallup New Mexico, and Greg Diersen, Great Plains Lutheran High School, Watertown, South Dakota were summer NSF-RET (Research Experience for Teachers) participants.

Summer undergraduate field researchers. 60 students 1996 – 2014. 44 of these were NSF- REU (Research Experience for Undergraduates) or ROA (Research Opportunity Award) participants.

Good Press:

20 February 2014: A half-hour long public television show featuring the Echinacea Project and an interview with Stuart aired in western MN and the Dakotas. The episode of "Prairie Yard and Garden" is called "Prairie Flora: History and Future" and is now online: http://goo.gl/qU4bcN

3 February 2014: NSF highlighted research of the Echinacea Project as an online "Discovery" article titled "The truth about *Echinacea*: Plant commonly used for colds and flu suffers from disappearing habitat": http://goo.gl/TboHNP

Select Professional Service & Current Affiliations:

Founder and leader of The Echinacea Project, Douglas County, Minnesota. A field research program dedicated to investigating ecology and evolution in fragmented prairie habitat and to training field biologists.

http://echinaceaProject.org/
http://www.facebook.com/echinaceaProject
http://twitter.com/#!/TeamEchinacea

Contributor to the development of a new statistical method for analysis of life history data. The R software package is freely available and includes two datasets from the *Echinacea* project. I am also co-author on 4 technical reports. <http://www.stat.umn.edu/geyer/aster/>

Developed and taught a lesson and supervised an experiment about plant reproductive biology to 127 seventh-grade science students at Northwood Junior High School, 3 – 10 May 2013.

Appointed to the City of Highland Park's Natural Resources Commission effective 1 January 2014.

Member of ad hoc scientific advisory committee developing a decision tree on "Optimal Monitoring for Rare Plants." I participated in the initial workshop convened by the U.S. Forest Service and Center for Plant Conservation, St. Louis, Missouri and contributed to the final report October 2009 – June 2010.

Contributor to management and research of Western prairie fringed orchid, *Platanthera praeclara*, a federally threatened species 2000 – present.

Guest lecturer in Conservation Genetics class, Northeastern Illinois University, November 2009 and 2011.

Member of ad hoc scientific advisory committee on "Ecotypes and genetic issues in revegetating federal lands." convened by Bureau of Land Management and Center for Plant Conservation, St. Louis, Missouri, 6 – 8 September 2006.

Wrote interactive web content on topics in evolutionary biology for an introductory biology textbook (Freeman 2002).

Reviewed chapters in the textbook Introduction to Population Genetics (Halliburton 2004).

Reviewed chapters on evolution and ecology for textbook Biological Science (Freeman 2002).

Peer reviewer for: *Evolution, Annals of Botany, Ecological Applications, Ecology, Ecosphere, American Naturalist, International Journal of Plant Science, Journal of Ecology, Plant Biology, Journal for Nature Conservation, Biological Invasions, American Midland Naturalist, Journal of the Torrey Botanical Society, Journal of Economic Entomology, Oecologia, Oikos, PLoS One, Restoration Ecology, Natural Areas Journal, Canadian Journal of Botany, Botany, Molecular Ecology, Trends in Plant Science, Ecological Restoration, New Phytologist,* and *Biological Conservation.*

NSF reviewer: Member of Population and Community Ecology Panel, October 2010 and November 2012. LTREB panel, May 2012. *Ad hoc* reviewer for Population and Evolutionary Processes (2006 - 2011) and Ecology (2007 -2009).

Member of American Society of Naturalists, Ecological Society of America, and Minnesota Ornithologists' Union.

Professional Associates

Ph. D. advisor:	Don Alstad (University of Minnesota) deceased
Post-doctoral advisor:	Ruth Shaw (University of Minnesota)