Rachel E. Mallinger

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I. APPOINTMENTS

Assistant Professor, Department of Entomology and Nematology, University of Florida 2017 -

Post-doctoral research associate, USDA-ARS, Fargo ND 2015-2017

Graduate research assistant. University of Wisconsin–Madison 2007-2015

II. EDUCATION

PhD, Entomology. University of Wisconsin–Madison 2015

Joint M.S., Entomology and Agroecology. University of Wisconsin–Madison 2009

B.A., Biology. Kalamazoo College 2005

III. PUBLICATIONS

R.E. Mallinger, J.G. Franco, D.A. Prischmann-Voldseth, and J.R. Prasifka. Annual cover crops for managed and wild bees: Optimal plant mixtures depend on pollinator enhancement goals. *Agriculture, Ecosystems, and Environment* 273: 107 -116.

R.E. Mallinger, J. Bradshaw, A.J. Varenhorst, and J.R. Prasifka. 2018. Native solitary bees provide economically significant pollination services to confection sunflowers (*Helianthus annuus* L.) (Asterales: Asteraceae) grown across the Northern Great Plains. *Journal of Economic Entomology* https://doi.org/10.1093/jee/toy322

Shajahan, S., S. Srinivasagan, D. Suresh Babu, I. Cannayen, J. Franco, **R.E. Mallinger**, J.R. Prasifka, and D. Archer. 2018. Sunflower floral dimension measurements using digital image processing. *Computers and Electronics in Agriculture* 151: 403-415

J.R. Prasifka, **R.E. Mallinger**, Z.M. Portlas, B.S. Hulke, K.K. Fugate, T. Paradis, M.E. Hampton, C.J. Carter. 2018. Using nectar-related traits to enhance crop-pollinator interactions. *Frontiers in Plant Science* https://doi.org/10.3389/fpls.2018.00812

Royaute, R., E.S. Wilson, B.R. Helm, **R.E. Mallinger**, J. Prasifka, K.J. Greenlee, and J.H. Bowsher. 2018. Phenotypic integration in an extended phenotype: among-individual variation in nest-building traits of the alfalfa leafcutting bee. *Journal of Evolutionary Biology*. https://doi.org/10.1111/jeb.13259

R.E. Mallinger, H.R. Gaines-Day, and C. Gratton. 2017. Do managed bees have negative effects on wild bees? A systematic review of the literature. *PLoS ONE* 12(12): e0189268. https://doi.org/10.1371/journal.pone.0189268

J.R. Prasifka, **R.E. Mallinger**, B.S. Hulke, S.R. Larson, and D. Van Tassel. 2017. Plant-herbivore and plant-pollinator interactions of the developing perennial oilseed crop, Silphium integrifolium Michx. *Environmental Entomology* 46 (6): 1339 - 1345. https://doi.org/10.1093/ee/nvx134.

R.E. Mallinger and J. Prasifka. 2017. Benefits of insect pollination to confection sunflowers differ across plant genotypes. *Crop Science* 57 (6): 3264 – 3272. DOI: 10.2135/cropsci2017.03.0148

EM Lichtenberg, CM Kennedy, C Kremen, P Batáry, F Berendse, R Bommarco, NA Bosque-Pérez, LG Carvalheiro, WE Snyder, NM Williams, R Winfree, S Åström, F Benjamin, C Brittain, R Chaplin-Kramer, Y Clough, H Connelly, B Danforth, T Diekötter, SD Eigenbrode, J Ekroos, E Elle, BM Freitas, Y Fukuda, HR Gaines-Day, C Gratton, A Holzschuh, R Isaacs, M Isaia, S Jha, D Jonason, VP Jones, B Klatt, AM Klein, J Krauss, DK Letourneau, S Macfadyen, **RE Mallinger**, EA Martin, E Martinez, J Memmott, L Morandin, L Neame, M Otieno, MG Park, L Pfiffner, M Pocock, C Ponce, SG Potts, K Poveda, M Ramos, JA Rosenheim, M Rundlöf, H Sardiñas, ME Saunders, NL Schon, AR Sciligo, CS Sidhu, I Steffan-Dewenter, T Tscharntke, M Veselý, WW Weisser, JK Wilson, and DW Crowder. 2017. A global synthesis of the effects of diversified farming systems on arthropod diversity at field and landscape scales. *Global Change Biology*. DOI: 10.1111/gcb.13714

R.E. Mallinger and J. Prasifka**.** 2017. Bee visitation rates to cultivated sunflowers increase with the amount and accessibility of nectar sugars. *Journal of Applied Entomology* 141 (7): 561 – 573. DOI: 10.1111/jen.12375.

R.E. Mallinger, J. Gibbs and C. Gratton. 2016. Diverse landscapes have a higher abundance and species richness of spring wild bees by providing complementary floral resources over bee foraging periods. *Landscape Ecology* 31(7): 1523-1535. DOI: 10.1007/s10980-015-0332-z

R.E. Mallinger, P. Werts, and C. Gratton. 2015. Pesticide use within a pollinator-dependent crop has negative effects on the abundance and species richness of sweat bees, Lasioglossum spp., and on bumble bee colony growth. *Journal of Insect Conservation* 19: 999-1010. DOI: 10.1007/s10841-015-9816-z

R.E. Mallinger and C. Gratton. 2015. Species richness of wild bees, but not the use of managed honey bees, increases fruit set of a pollinator-dependent crop. *Journal of Applied Ecology* 52 (2): 323-330. DOI: 10.1111/1365-2664.12377

R.E. Mallinger. 2014. Dune vegetation and insect communities vary with barrier beach geomorphic setting on Sapelo Island, United States. *Journal of Coastal Research* 30 (6): 1210-1217. DOI: 10.2112/JCOASTRES-D-12-00113.1

R.E. Mallinger, D.B. Hogg and C. Gratton. 2011. Methyl salicylate attracts natural enemies and reduces populations of soybean aphids (Hemiptera: Aphididae) in soybean agroecosystems. *Journal of Economic Entomology* 104(1): 115–124. DOI: 10.1603/EC10253

L.L Stelinski, L.J. Gut, **R.E. Mallinger**, D. Epstein, T.P. Reed, and J.R. Miller. 2005. Small plot trials documenting effective mating disruption of Oriental Fruit Moth by using high densities of wax-drop pheromone dispensers. *Journal of Economic Entomology*. 98/4: 1267-1274. DOI: 10.1603/0022-0493-98.4.1267

IV. GRANTS and FELLOWSHIPS

Funded awards

University of Florida Institute for Food and Agricultural Science Early Career Scientist Seed Funding. *Understanding and overcoming barriers to pollination success in blueberries*. Funded for $49,500 (PI).

Jacksonville Zoo and Gardens Conservation Fund. *Plants for Pollinators: Evaluating the attractiveness and resource value of ornamental plants for native wild bees*. 2018. Funded for $9,679 (PI).

National Sunflower Association. *Benefits of insect pollination to confection sunflowers: Year 2 Renewal*. 2017. Funded for $17,900. (Co-PI).

National Sunflower Association. *Benefits of insect pollination to confection sunflowers*. 2016. Funded for $16,500 (Co-PI).

Wisconsin Distinguished Graduate Fellowship, University of Wisconsin Madison. 2014. Awarded $25,000 plus one year tuition coverage

Department of Agriculture, Trade and Consumer Protection Specialty Crop Block Grant. 2012. Funded for $55,527. *Cultivating alternative apple pollinators: Continuing to enhance the sustainability of apple production through conservation and use of wild bees* (Co-PI).

Department of Agriculture, Trade and Consumer Protection Specialty Crop Block Grant. 2011. Funded for $42,000. *Cultivating alternative apple pollinators: Enhancing the sustainability of apple production through conservation and use of wild bees* (Co-PI).

Sustainable Agriculture, Research and Education (SARE) Graduate Student Grant. 2011. Funded for $9,850. *Can wild bees meet pollination needs in apples? Determining the efficacy of native bees and their contribution to pollination* (PI).

Kinney Merit Travel Award, University of Wisconsin–Madison. 2013. Awarded $600

Biological Scholars Award, University of Wisconsin–Madison. 2011. Awarded $1,500

V. TEACHING

*Ecology and Conservation of Pollinators***.** University of Florida. Instructor. 2019

Teacher's College. University of Florida. Participant. 2018.

General Ecology. University of Wisconsin-Madison. Teaching Assistant. 2013.

Biology Core Curriculum: Ecology, Evolution and Genetics. University of Wisconsin-Madison. Teaching assistant. 2009

VI. MENTORING

Graduate students

Sarah Anderson. Chair PhD student committee. University of Florida. 2018 – present.
James Weaver. Chair MSc committee. University of Florida. 2018 – present.
Worrel Diederick. Co-chair PhD committee. University of Florida. 2018 – present.
Hannah Talton. Member MSc committee. University of Florida. 2018 – present.
Matthew Quenaudon. Member MSc committee. University of Florida. 2018 – present.
Youl Kwon. Member PhD committee. University of Florida. 2018 – present.
Cherice Smithers. Member MSc committee. University of Florida. 2018 – present.
Heather Kalaman. Member MSc committee. University of Florida. 2018 – present.

Undergraduate students

Ann Deaderick. Undergraduate research intern. Fall 2018. University of Florida.
Kaleela Thompson. Undergraduate research intern. Summer-Fall 2018. University of Florida
Micki Palmersheim. NSF Research Experience for Undergraduates participant. North Dakota State University. Summer 2017

Elisabeth Wilson. NSF Research Experience for Undergraduates participant. North Dakota State University. Summer 2016
Eleanor McCabe. Undergraduate independent research project. University of Wisconsin-Madison. 2013
Melissa Hileman. Undergraduate independent research project. University of Wisconsin-Madison. 2012.
Riley Waytes. Undergraduate senior thesis. University of Wisconsin-Madison. 2011.

VII. PRESENTATIONS

Invited

From Fields to Flowers: Factors Affecting Pollination Services Across Spatial Scales. New College. Sarasota, FL. October 26, 2018.

Conserving Wild Bees and Pollination Services in Rural and Urban Landscapes. New Mexico State University seminar series. Albuquerque, NM. March 28, 2018.

Cultivating Native Pollinators: How Landscapes, Habitat Management, and Floral Traits Affect Wild Bees. The University of Florida Whitney Laboratory for Marine Bioscience. St. Augustine, FL. January 12, 2018.

Conserving wild bees in urban and rural landscapes. Great Plains American Society of Landscape Architects Conference. Fargo, ND. August 29, 2015.

Integrating broad-scale landscape perspectives with bees, floral resources, and fruit crop yields. Annual Meeting of the Entomological Society of America. Portland, OR. November 19, 2014.

Impacts of local and broad scale landscape structure on the diversity of pollinators in Wisconsin agroecosystems. Annual Meeting of the Entomological Society of America. Knoxville, TN. November 14, 2012.

Submitted talks and posters

Annual cover crops for managed and wild bees: optimal plant mixtures depend on pollinator enhancement goals. Annual Meeting of the Entomological Society of America. Vancouver, Canada. November 11, 2018.

How do pollination services to sunflowers vary across plant genotypes, environments, and pollinator taxa? Annual Meeting of the Entomological Society of America. Denver, CO. November 4, 2017.

Benefits of Insect Pollination to Confection Sunflowers: Comparisons Across Three States, Three Years, and Multiple Hybrids. National Sunflower Association Meeting, Fargo, ND. January 11, 2017.

Floral trait variation affects bee foraging behaviors in cultivated sunflowers. International Congress of Entomology Meeting. Orlando, FL. September 29, 2016.

Bee-sunflower interactions: Evaluating plant traits that attract bees and crop pollinator-dependency. National Sunflower Association Meeting, Fargo, ND. January 12, 2016.

Pollination services provided by wild and managed pollinators to apple crops of the Midwest. Annual Meeting of the Entomological Society of America, Austin TX. November 11, 2015.

Habitat diversity and floral density at different spatial scales influence wild bee pollinators of orchards. Annual Meeting of the Ecological Society of America, Minneapolis, MN. August 6, 2013.

Impacts of landscape structure and pesticides on wild bees of southern Wisconsin. Annual Meeting of the Ecological Society of America. Portland, OR. Poster presentation. August 6–9, 2012.

Methyl salicylate reduces populations of the soybean aphid through the attraction of natural enemies. Annual Meeting of the Entomological Society of America. Indianapolis, IN. December 14, 2009.

Can methyl salicylate enhance biological control of the soybean aphid in soybean fields? Annual Meeting of the North Central Branch of the Entomological Society of America, St. Louis, MO. March 16, 2009.

The efficacy of methyl salicylate, an herbivore-induced plant volatile, in attracting natural enemies of the soybean aphid. Annual Meeting of the Entomological Society of America. Reno, NV. Poster presentation. November 17–19, 2008.

Aphid pests and their natural enemies in organic and conventional soybean and alfalfa fields. Annual Meeting of the North Central Branch of the Entomological Society of America. Columbus, OH, 2008.

Co-authored presentations

M. Palmersheim, B. Helm, R.E. Mallinger, R. Royaute, J. Bowsher, and J. Rhinehart. *Sublethal effects of neonicotinoids on Megachile rotundata.* Society for Integrative and Comparative Biology Annual Meeting. Poster presentation. San Francisco, CA. Jan. 3 – 7.

E. Wilson, B. Helm, R. Royaute, R.E. Mallinger, J.P Rhinehart, J.H. Bowsher, and K.J. Greenlee. *Nest building 101: Nest architecture reflects behavior and ecology of Megachile rotundata.* Society for Integrative and Comparative Biology Annual Meeting. Poster presentation New Orleans, LA. Jan 4-8.

Extension Presentations

Wild bees in our garden: biology, identification, and conservation. Master Gardener Training. Palm Beach County, FL. December 6, 2018.

Best Practices for Blueberry Pollination. Florida Blueberry Growers Association Meeting. Ocala, FL. October 30, 2018.

Native wild bees: biology and conservation. SW Regional Master Gardener Conference. Port Charlotte, FL. October 25, 2018.

Understanding native bees of Florida: biology and behavior. Bee College. Gainesville, FL. October 13 & 16, 2018.

Plants for Native Wild Bees of Florida. Bee College. Gainesville, FL. October 13 & 16, 2018.

Identifying Florida's Native Wild Bees. Bee College. Gainesville, FL. October 13, 2018.

Native wild bees: biology and conservation. NE Regional Master Gardener Conference. Jacksonville, FL. October 12, 2018.

Wild bees of Florida: biology, identification, and conservation. Beautyberry Chapter Meeting. Eustis, FL. September 16, 2018.

Alternative pollinators: Enhancing yields through integrated crop pollination. Organic Food and Farming Summit. Gainesville, FL, July 28, 2018.

Wild bees in our garden: biology, identification, and conservation. Master Gardener Training. Polk County, FL. July 17, 2018.

The 4 P's: Pollinators, Pests, Pesticides, and Protection. Southeastern Pest Management Conference. Gainesville, FL. May 8.

Wild bees in our gardens: biology, identification, and conservation. Master Gardener Training. Brevard County, FL. May 9, 2018.

How can we conserve pollinators using a multi-pronged approach? Panhandle Bee College. Blountstown, FL. March 23, 2018.

Wild bees of Florida: biology, behavior, and identification. Panhandle Bee College. Blountstown, FL. March 23, 2018.

Wild Bees in our Gardens: Biology, Identification, and Conservation. Charlotte County's "Landscape Gardening Series". Port Charlotte, FL. January 26, 2018.

Native Bees of North America: Who are they, what do they do, and how can we conserve them? Evenings at Whitney Public Lecture Series. The University of Florida Whitney Laboratory for Marine Bioscience. St. Augustine, FL. January 11

Wild bees of Wisconsin: Biology, importance, and conservation. Kemp Natural Resources Station Seminar Series, Woodruff, WI. July 28, 2014.

The role of wild bees in fruit pollination. Peninsula Agriculture Research Station Fruit School, Sturgeon Bay, WI. April 8, 2014.

Wisconsin's wild bees: Who are they, what do they do, and why should we conserve them? Wednesday Nite @ the Lab, University of Wisconsin-Madison. March 26, 2014.

The role of wild and managed bees in apple pollination. Wisconsin Fresh Fruit and Vegetable Growers Annual Meeting, Wisconsin Dells, WI. January 20, 2014.

Can wild bees meet the pollination requirements of apples in Wisconsin? Wisconsin Fresh Fruit and Vegetable Growers Annual Meeting, Wisconsin Dells, WI. January 22, 2013.

Wild pollinators of apples: Impacts of landscape and management on native bee populations. Wisconsin Fresh Fruit and Vegetable Growers Annual Meeting, Wisconsin Dells, WI. January 17, 2012.

VIII. PROFESSIONAL SERVICE

Journal Review
Ecological Applications
Agriculture, Ecosystems and Environment
Plos One
Journal of Applied Ecology
Environmental Entomology
Journal of Insect Science
Journal of Insect Conservation
Apidologie
Diversity
Journal of Economic Entomology
Ecological Entomology

Guest Editor
Frontiers Ecology and Evolution

IX. UNIVERSITY SERVICE

Social Committee. University of Florida Department of Entomology and Nematology. 2018 – present.

Graduate Committee. University of Florida Department of Entomology and Nematology. 2018 – present

Agroecology Program Committee. University of Florida. 2018 - present

X. MEDIA COVERAGE

Study looks at link between pollinators, sunflower yields (March 6, 2018). Retrieved 19 March 2018 from https://www.thefencepost.com/news/study-looks-at-link-between-pollinators-sunflower-yields/

Guest on NPR's Science Friday. *Looking Beyond Honeybees* segment (February 2, 1018). Retrieved 11 February 2018. https://www.sciencefriday.com/segments/looking-beyond-honeybees/

Wild Bees Play Integral Role in Southern Wisconsin Agriculture (2017, March 29). Retrieved 26 July 2017 from https://www.wiscontext.org/wild-bees-play-integral-role-southern-wisconsin-agriculture

Native Pollinators Step Up (2014, August 21). Retrieved 20 February 2015 from http://fyi.uwex.edu/news/2014/08/21/native-pollinators-step-up/

Hundreds of Native Bee Species Can Also Pollinate Crops (2014, July 27). Retrieved 20 February 2015 from http://wxpr.org/post/hundreds-native-bee-species-can-also-pollinate-crops

What's the buzz? Online bee guide features Wisconsin pollinators (2013, November 15). Retrieved 23 January 2015 from http://phys.org/news/2013-11-online-bee-features-wisconsin-pollinators.html

Online guide provides the A-Bee-C's of bee identification (2013, November 21). Retrieved 23 January 2015 from http://www.thegrower.com/news/Online-guide-provides-the-A-Bee-Cs-of-bee-identification-232879041.html

XI. CREATIVE CONTRIBUTIONS

Designed "WI Wild Bee Guide", an online interactive guide to spring wild bees in Wisconsin. http://energy.wisc.edu/bee-guide/

XII. PROFESSIONAL MEMBERSHIPS

Entomological Society of America, 2007- present
Ecological Society of America, 2012-present
Florida Entomological Society, 2017 – present
Florida Native Plant Society, 2019 - present